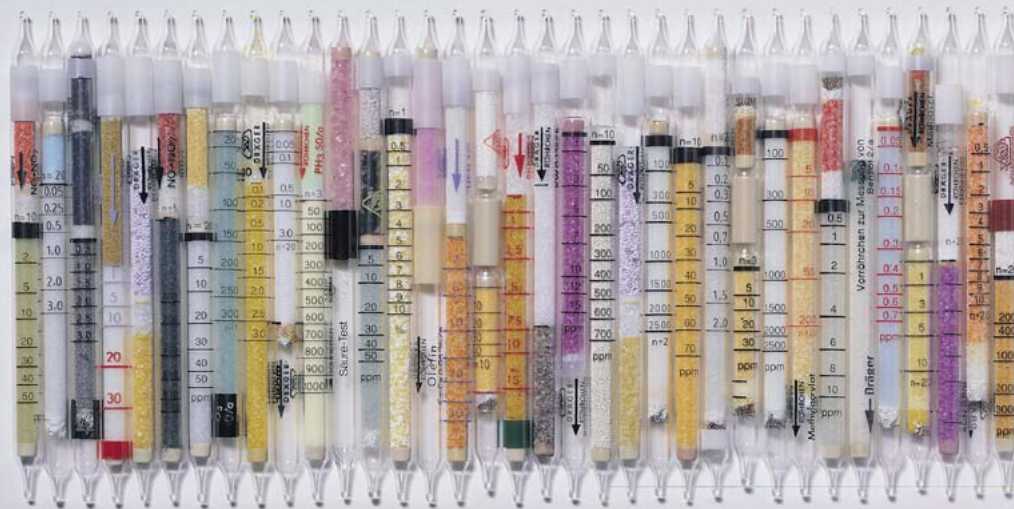
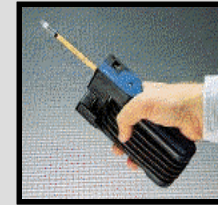
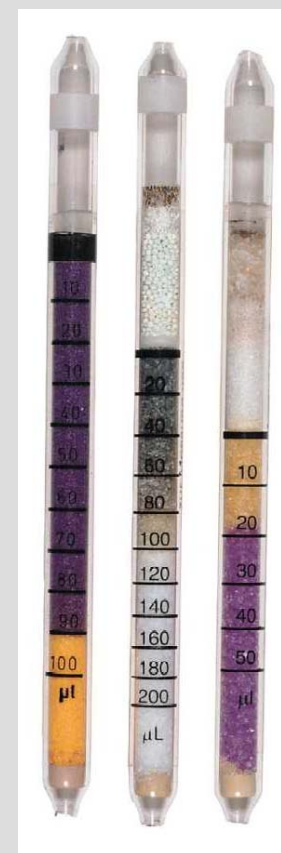


Draeger Detector Tubes from ShopCross.com

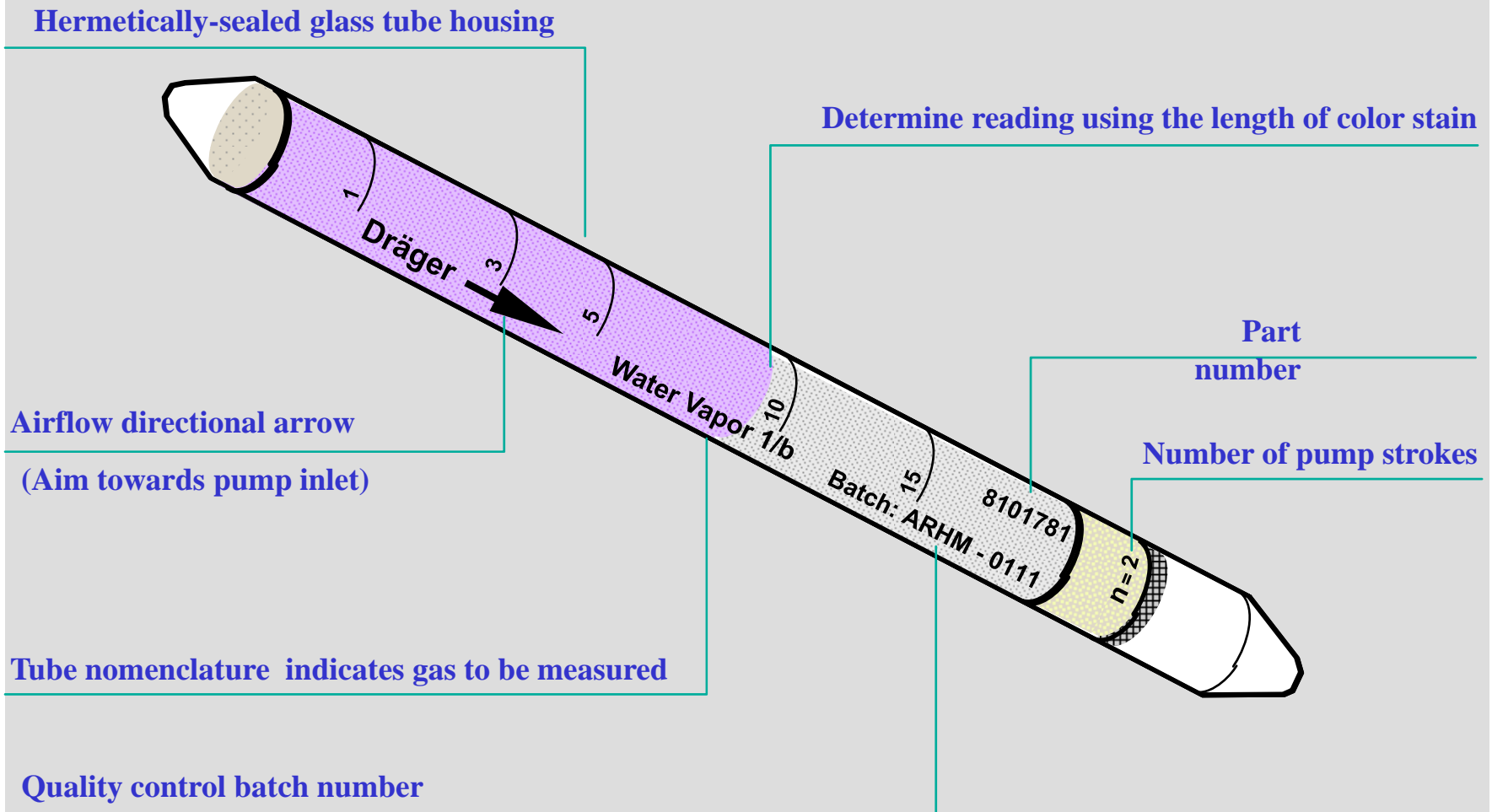


What is a Draeger-Tube?

- Glass Vial
 - 5.0 x 0.25 inch
 - 120 x 7 mm
- Filled with a chemical reagent(s)
- Air is pulled through with a hand operated or automatic pump
- The reagents change color if the targeted chemical is present



Dräger-Tubes



Applications for Detector Tubes

- **Health and Safety**
- **Process Control / Technical Gases**
- **Leak Detection**
- **Emergency Response**

Draeger-Tube Nomenclature

Carbon Monoxide 10/b (10 - 3,000 ppm)

- ◆ Gas / Vapor to be detected
- ◆ Indicates lowest standard measuring range
- ◆ Indicates latest engineering revision
- ◆ Specifies measuring range
 - ◆ ppm, Volume %, mg/m³, mg/l, lbs/mmcf, or qualitative

Draeger-Tube Nomenclature

- ◆ Carbon Monoxide 10/b Short-term
- ◆ Carbon Monoxide 10/a-L Long-term
- ◆ Carbon Monoxide 50/a-D Diffusion
- ◆ Carbon Monoxide 5/a-P Aerotest
- ◆ Draeger also offers sorbent tubes (charcoal, silica gel) for more detailed testing



Diffusion Tubes

Reading Draeger-Tubes

- Adequate lighting - but no direct sunlight
- Hold the tube against a light background
- Scale tubes:
 - a) full length of discoloration
(sum of all colors)
 - b) diffuse indication
(end point of the slightest discoloration)
- Compare with an unused tube
- Diagonal leading edge:
average between the shortest and
longest discoloration

Operation in Cold Weather

The majority of detector tubes have an operational temperature range of 32 to 104 °F (0 to 40 °C). The actual temperature of many worksites can vary considerably according to the season of the year. It is not uncommon to experience temperature swings of 80 °F from summer to winter. During the cold months of the year, temperatures may routinely be below freezing (<32 °F).

- Draeger has two options to use detector tubes in cold weather. The cold temperature options are recommended for temperatures as low as –4 °F (-20 °C). At lower temperatures the reagents may freeze resulting in no indication on the tube.

Option 1:

- Keep the tube contents warm during the course of the measurement using body heat. The outdoors gloves or mittens with the split palm work well for this task. Lay the tube across the palm of your hand and keep your fingers wrapped around the tube during the measurement.

Option 2:

- Use the Draeger Tube Warmer with the reusable Hot Packs to keep the tube contents warm during the measurement. The Tube Warmer originally designed for use with the simultest sets can also be used with individual tubes. A photo of the Tube Warmer is shown in the Pump & Tube Accessory Guide. The part number for the Tube Warmer, including two hot packs is 8316130.

Options 1 and 2 work well down to –4 °F (-20 °C).

Draeger Tube Safe Storage

- To guarantee the accuracy of the tube indication throughout the shelf life, Draeger-Tubes should be stored in the original package at room temperature (approximately 20 °C). A note on the package indicates a maximum storage temperature of 25 °C (i.e. 77 °F). Avoid excessively low (less than 35 °F) or higher (greater than 77 °F) temperatures during storage and do not subject the tubes to light for prolonged periods.

Draeger Tube Disposal

- Do not dispose of used or expired Draeger-Tubes in domestic waste. Draeger-Tubes must be disposed of properly, since the reagent system of the tube contains chemicals, even though the chemicals are present in extremely small amounts.
- The storage or disposal of chemicals must be conducted according to local, state and federal regulations. Draeger Safety can provide the tube user a letter with general comments on disposal requirements as well as an attachment listing the pre-use contents of each of 15 defined groups of tubes (based on chemical reactants).
- The U.S. Environmental Protection Agency maintains a toll-free telephone service called the RCRA Hotline, which provides guidance on regulatory issues. The number for the RCRA Hotline is 800-424-9346.

Draeger-Tube Advantages

Draeger-Tubes (7 mm)

- ◆ **Less Cross-Sensitivity**
- ◆ **Shorter Testing Time...**
e.g. NH₃ 5-70 ppm, 1 minute
- ◆ **More Distinct Length of Stain...**
e.g. CO 2-60 ppm, 25 mm @ TLV
- ◆ **Longer Shelf-Life (2 Years)**
- ◆ **No Cold Storage Requirement...**
0 to 77 °F
- ◆ **Advanced Tube Designs**
- ◆ **Quality Control Batch Testing**
- ◆ **ISO 9001 Certification**
- ◆ **Detecting >500 substances**

5 mm Tubes

- ◆ **Higher Cross-Sensitivity**
- ◆ **Longer Testing Time**
e.g. NH₃ 10-50 ppm, 3.5 minutes
- ◆ **Shorter Length of Stain**
e.g. CO 5-50 ppm, 11 mm @ TLV
- ◆ **Ambiguous Shelf-Life**
- ◆ **Cool Storage Requirement**
0 to 50 °F
- ◆ **Requires Pyrolyzer**
- ◆ **Batch Testing**
- ◆ **ISO 9001 Certification**

Draeger accuro® Pump

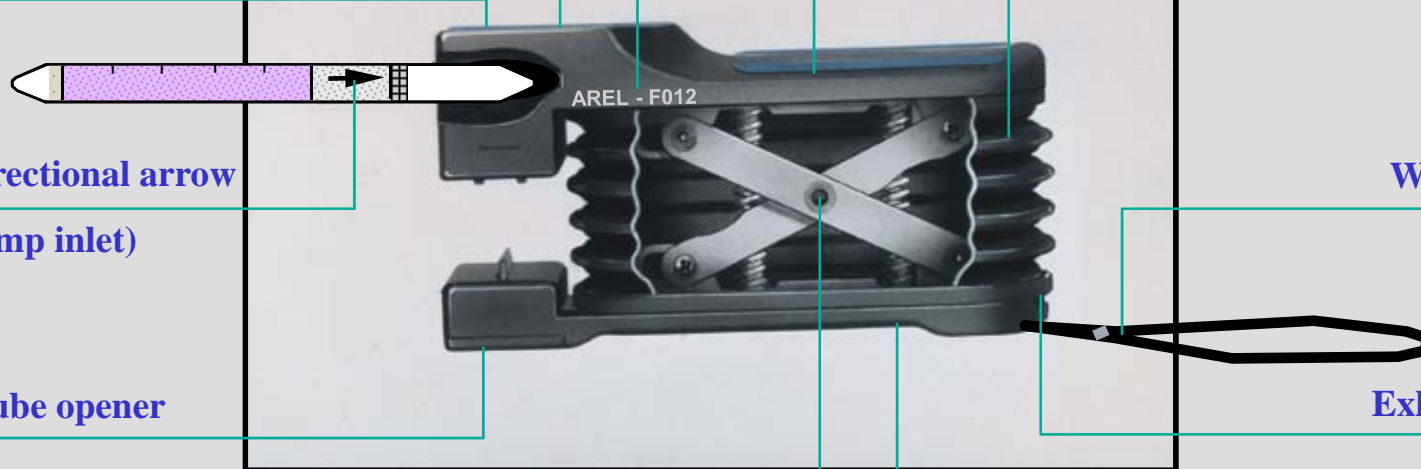
Quality control batch number

Durable EPDM rubber housing

End of stroke indicator

Bellows-style pump

Pump stroke counter



Airflow directional arrow
(Facing pump inlet)

Wrist strap

Ceramic tube opener

Exhaust port

Scissors & spring mechanisms provides uniform pump stroke

Allen screw for pump maintenance



Draeger Pump Advantages

Draeger Pump

- ◆ **Distinct end-of-stroke indicator**
- ◆ **Automatic stroke counter**
- ◆ **No O-rings to lubricate...
leakage not a problem**
- ◆ **No frictional wear & tear parts**
- ◆ **Simple leak test**
- ◆ **Faster opening time per stroke...
typically < 20 seconds**
- ◆ **Optional one-hand operation**

Piston Pump

- ◆ **Indicator at end of handle**
- ◆ **Manual stroke counter**
- ◆ **O-rings requiring lubrication
small particles can cause
leaks**
- ◆ **Must maintain lubrication**
- ◆ **Improper procedure can
damage check valve**
- ◆ **More time per stroke
1 to 3 minutes**
- ◆ **Two hand operation**

accuro® Pump Kits

- ◆ **accuro® Pump**
- ◆ **Hard-Side Pump Kit**
 - ◆ Molded plastic carrying case, accuro® pump, tube opener, spare parts kit, and tools.
- ◆ **Soft-Side Pump Kit**
 - ◆ Nylon carry case, accuro® pump, tube opener, spare parts kit, rubber caps and tools.



Dräger-Tube Kits

- ▶ Pump Kits
- ▶ HazMat Simultest Kit
- ▶ CDS Kit
- ▶ HazMat Kit
- ▶ Aerotest Kits



Need help? Just call us @ 888-987-5955



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Dräger-Tubes®