

Correct installation methods for diving umbilicals and hoses

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A Member has reported an incident in which a complaint was received about an odour or smell in a divers' breathing hose or gas hose.

What happened?

It was discovered that the umbilical hose fittings had been installed in a way that was not recommended by the manufacturer. The purpose of this safety flash incident is to explain a safety issue that exists with some methods used to install fittings and the use of re-useable fittings on diving umbilicals and hoses.

Our member noted the following:

- Use of the illustrated methods for fitting hoses in the field can compromise diver safety.
- The illustrated methods are not recommended or approved by manufacturers, nor is the use of re-useable fittings.
- The use of re-useable fittings can lead to pressure loss and/or water ingress, which can occur when the outer jacket of the hoses is compromised. This can lead to catastrophic failure at the fitting if the metal bands were to compromise the pressure control braid in the hoses – see above middle photograph. Water ingress into the hose layers can contribute to the build-up of bacteria leading to hose odours.

The following recommendations were made:

- Use only standard fittings involving a swaging or crimping technique.
- Do not remove bend restrictors from the hoses as this can allow movement at or around the fitting that could lead to early damage of the fitting spigot and accelerate the damage to the hose jackets and linings.
- Do not use reusable fittings as they can fail or come off at pressure if not exactly sized and correctly installed.

Proper care of hoses applies, of course, not only to diving umbilicals but also to hoses used for hydraulics, and hoses used for Oxy-Arc systems.

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