



Dive industry worker critically injured when filling SCUBA cylinder

An experienced service technician in the dive industry recently suffered life threatening facial injuries while filling a SCUBA (dive) cylinder. The purpose of this Safety Alert is to raise awareness of the risk of injury when working with high pressure gases and equipment.

In this case, a M25 x2 metric threaded valve was incorrectly fitted into an imperial threaded 3/4" cylinder. The dive cylinder had been filled and as the fittings were about to be removed, the valve ejected at a very high speed from the cylinder still attached to the A clamp/yoke and fill whip. The thread of the valve had stripped and the valve and A clamp flew up and struck the worker in the face, causing critical injuries. The blast also caused extensive damage to the filling station, the associated pipework and the ceiling.

Enquiries have since revealed that across Western Australia this year, several imperial threaded dive cylinders have been identified as having the incorrect metric threaded valves fitted to them. It appears that some of these valves have been brought in by overseas travellers or bought online from overseas suppliers or community websites, where the buyer is not aware of the thread difference.

Contributing factors

- Metric threaded valves and imperial threaded valves are very similar in appearance.
- The incorrect metric valve was fitted to a standard imperial dive cylinder.
- The mismatch was not identified by the experienced service technician.
- The service technician was leaning over the valve and the cylinder when removing the connections.
- There was no means to restrain the dive cylinder, the cylinder valve and the fill whip during the filling process.

Action required

1. All staff must do vigilant checks of the type of valve thread and the type of cylinder thread prior to cylinder filling and prior to changing the valve.
2. Safe systems of work are in place for the filling of dive cylinders.
3. All relevant staff have received training on valve-cylinder mismatches and the consequences.
4. Businesses should consider not stocking different threaded valves.

5. If businesses do stock different types of valves, they must ensure the valves are clearly labelled and stored in different locations.
6. Staff changing valves and filling cylinders must not be distracted. Where practicable, fill stations and service areas are located in designated areas and have restricted access to minimise the potential for distraction.
7. Access to fill stations is restricted/isolated to minimise the risk of injury to bystanders.
8. Where practicable, dive cylinders, valves and fill whips are restrained (ie in a safety cage or containment unit) during the gas filling process.

Further information

Further information and guidance regarding recreational diving is available from:

- [Recreational Diving, Recreational Technical Diving and Snorkeling Code of Practice 2011](#) – The Workplace Health and Safety Queensland Code of Practice provides occupational safety and health guidance in relation to recreational diving, recreational technical diving and snorkeling.
- [Divesafe](#) - This WorkSafe Victoria publication provides occupational safety and health guidance in relation to recreational scuba diving and snorkeling.
- Australian Standards, available from [SAI Global](#):
 - Australian Standard AS/NZS 2299.3 Occupational diving operations
 - Australian Standard AS4005 Training and certification for recreational divers
 - Australian Standard AS2705 - Portable cylinders for self-contained breathing apparatus
 - Australian Standard AS3848.2 Filling of portable gas cylinders Part 2

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