

Technical Information

MIS-MATCH OF CYLINDER VALVES

T007

Guidance on cylinder/valve mismatches by *THREAD SIZE*

In 2015 there were fatalities and serious injuries to dive centre staff while filling cylinders. These fatalities and injuries were put down to a mismatch between the threads of the cylinder and those of the valve fitted.

Type 1 - Valve compatibility

Cylinders must be fitted with a valve that has the same thread as the cylinder neck threads. An M25 cylinder must be fitted with an M25 valve and a G $\frac{3}{4}$ must be fitted with a G $\frac{3}{4}$ valve.

It all seems so sensible and yet there are mistakes being made in the industry.

Type 2 - Cylinder rating

In a similar fashion a cylinder rated at 232 bar must be fitted with a valve that is also rated at 232 bar. This ensures complete compatibility. Likewise a 300 bar rated cylinder must be fitted with a 300 bar rated valve.

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Type 3 – EN 144-1 and DIN 477-6 mismatch

There are some cylinders being used for diving in the UK that have another type of incompatibility. This involves cylinder valves imported from Germany that have a 25 x 2 mm stem thread. These valves have been manufactured to German standards (DIN 477-6) and not to EN 144-1, which applies in the UK.

This German manufactured DIN 477-6 valve has a flange that is 'stepped'. Valves manufactured to EN 144-1 have a 'flat' flange, for both 'square' and 'tapered' 'O' ring grooves.

By incorrectly fitting the DIN 477-6 valve **WITH AN 'O' RING**, a slight gap is created at the junction of cylinder and valve flange. This can cause leakage and a risk to dive centre staff filling cylinders, not to mention the owner. It can also be the cause of water ingress and possible corrosion at the top of the grooves.



If a test centre comes across such a combination during a test, the 'O' ring must be removed and replaced **WITH THE BESPOKE WASHER** that these valves are designed to have. The top of the cylinder neck should be checked carefully for any consequent damage. If no resulting damage is found then the cylinder can be hydraulically tested.

Providing the cylinder passes the hydraulic test and the bespoke washer is replaced, the DIN 477-6 valve can be refitted to the cylinder and tested for leaks in the normal manner.

WATCH OUT FOR CYLINDER/VALVE MISMATCHES