



## TECHNICAL INFORMATION SHEET 10

### NEW CYLINDER VALVE OUTLET CONNECTIONS. EFFECT ON CYLINDER EQUIPMENT

In May 2002 British Standard BS 341 (2), *Transportable gas container valves*, specifying UK cylinder valve connections was revised by issuing a Part 3, *Valve outlet connections*. This 2002 edition superseded the outlet information in BS 341 Part 1 (1): 1991, *Transportable gas container valves. Specification for industrial valves for working pressures up to and including 300 bar*, which was thus made obsolescent.

The main changes were as follows:

1. The connections detailed in BS 341-1: 1991 (1) continued unchanged in BS 341-3: 2002 (2), except that the maximum working pressure \* allowed for these connections was reduced from 300 bar to 250 bar.
2. Four new connections were introduced for use with four gas groups at maximum working pressures\* of 250 to 300 bar. The four gas groups were:
  - Oxidising gases and gas mixtures (including oxygen)      BS 341 connection number 32
  - Inert gases and their mixtures      BS 341 connection number 30
  - Flammable gases and their mixtures      BS 341 connection number 38
  - Air and synthetic air      BS 341 connection number 31

The new connections are identical to the 'New European Valve Outlet Connection' system (referred to as NEVOC) developed by the European Industrial Gas Association (EIGA) and detailed in BS ISO 5145 (3), *Gas cylinders. Cylinder valve outlets for gases and gas mixtures. Selection and dimensioning*.

UK gases companies are placing 300 bar cylinders with the new valve outlet connections in selected market areas. When used, such cylinders will require customer equipment with the appropriate NEVOC connection.

Gas companies will continue to use the old valve connection where a cylinder's working pressure \* does not exceed 250 bar. Some cylinders are fitted with valves with 'built-in' pressure reducers, which ensure that the user does not experience the full cylinder pressure. These cylinders may continue to be fitted with such pressure reducing valves featuring the old connections, despite being filled to working pressures above 250 bar, because the outlet pressure to customer equipment is less than 250 bar. Where, historically, there are pre-existing special applications requiring an outlet above 250 bar pressure, then these are only to continue to be

supplied by the gas supplier to the user after a full and comprehensive risk assessment has been conducted by the gas supplier.

Pressure regulators exist in the UK, marked for 300 bar service with the old connection. These regulators will not fit the new 300 bar cylinder valve outlets. This also applies to gas manifold cylinder connections. Manifolds may be marked for 300 bar service but may have cylinder connections that do not fit the new 300 bar cylinder valve outlets. It is important that purchasers of equipment specify the correct connection, compatible with their gas supplier's cylinder valve outlet connection.

It is also absolutely essential that gas users always check the pressure rating of any regulator before connecting it to a gas cylinder, ensuring that the cylinder's working pressure, as stated on the label, is not above the safe working pressure of the regulator.

### **Important safety notes:**

**It is NEVER acceptable to use adaptors or to modify regulators to fit to cylinders with non-matching valve outlet connections. Such practices are potentially dangerous.**

Where the connection has a soft seal / O ring fitted, if there is any evidence of leakage the seal should be replaced. The design is such that any extra tightening torque applied will have no effect on the sealing abilities but could damage the equipment.

Where NEVOC connectors are fitted with a residual pressure valve for cylinder filling and maintenance purposes, then refer to EIGA 908 (4), *300 bar residual pressure valve filling connectors*.

\* Working pressure is defined as the settled pressure of a compressed gas at a reference temperature of 15 °C in a full gas cylinder. At higher temperatures the cylinder pressure may exceed the working pressure.

### **References:**

- 1) BS 341 Part 1: 1991, *Transportable gas container valves. Specification for industrial valves for working pressures up to and including 300 bar.*
- 2) BS 341 Part 3: 2002, *Transportable gas container valves. Valve outlet connections.*
- 3) BS ISO 5145, *Gas cylinders. Cylinder valve outlets for gases and gas mixtures. Selection and dimensioning.*
- 4) EIGA 908, *300 bar residual pressure valve filling connectors.*

### **For more information:**

British Standards Institute (BSI)

[www.bsigroup.co.uk](http://www.bsigroup.co.uk)

British Compressed Gases Association (BCGA)

[www.bcgaco.uk](http://www.bcgaco.uk)

European Industrial Gases Association (EIGA)

[www.eiga.eu](http://www.eiga.eu)