

What is Special About a Speciality Gases Regulator?

It Delivers What it Says on The Cylinder



Purity and mixture composition is maintained

Different construction features are required to maintain the purity or composition of the gas.

- The internal surface finish is less rough
- The method of construction i.e. bar stock body
- Internal connections are precision-manufactured
- The majority of High Purity regulators have an outlet diaphragm-seal valve fitted as standard
- Removal of atmosphere from system – corrosive gases are made significantly more corrosive by exposure to atmospheric moisture, so purge systems are required to remove atmosphere before introducing the process gas. Other gases will react with the oxygen in the atmosphere.
- Exceptional leak integrity. Leaks are >10,000 x lower than standard industrial regulators

These features minimise contamination with residual impurities upon connecting a regulator and also ensure that mixture composition doesn't change while in use.

Gas reactivity

Many speciality gases are reactive, and so require special material consideration for the equipment:

Metals:

- Corrosive gases will generally react with brass, therefore altering a gas mixture composition and potentially damaging the regulator, so other materials such as stainless steel are used

Elastomers:

- Common sealing materials e.g. Viton are degraded by some gases e.g. NH_3

The diaphragm:

- Some components and impurities will adsorb and desorb from a neoprene diaphragm, so speciality equipment diaphragms are typically stainless steel

Customer application requirements

Outlet pressure ranges:

Generally a wider selection of outlet pressure ranges and gauges allow for the specific requirements of speciality gases applications

Outlet connections:

A wide range of outlet fittings to allow direct connection to customer process

Special Products supply regulators fitted with heaters to prevent icing and increase flow rate when using non-flammable gases.

Pre-set and adjustable flow regulators are available for a wide range of applications from emissions monitoring to medical processes.

Operator safety

Some speciality gases are toxic. The equipment needs to be of high leak integrity and incorporate features such as purges to enable removal of the gas from the system before the operator changes the cylinder.

Speciality gases have specific cylinder package requirements

The equipment needs to be designed to fit correctly with the cylinder package. Speciality gases have side outlet cylinder valves but industrial cylinders are top outlet.

They use a wide variety of cylinder connections, depending on gas type. A full range of BS, CGA and DIN connections can be supplied.

They have a variety of cylinder pressures, so bespoke inlet gauge options are available to match the cylinder pressure.

BCGA recommendations

Equipment should be supplied for a specific gas use and labelled with that gas name.

According to Guidance Note 7 published by the British Compressed Gas Association, gas regulators should be changed every 5 years and inspected annually. In addition Special Products offer a regulator repair service for all current models.

As a reputable supplier, we will always supply fit for purpose equipment. Our technical experts are on hand to offer advice and guidance.

Why you should buy from BOC Special Products

- Best quality/performance in the market
- ISO accreditation
- Traceable products
- Each regulator is assembled to your individual specifications, giving unrivalled flexibility to meet your exact requirements
- Short lead times of 3-4 days
- Technical advice to get the right regulator for your application
- Each product is individually gas tested with Helium to meet the inboard leak rate specification
- Clean room assembly, where required

BOC technical support "Ask the expert"

Please feel free to send your technical questions to us and our experts will provide you with the answers.

e-mail your questions to: specialproducts@boc.com with "Ask the Equipment Expert" and your name/organisation in the subject field.

This document is a brief guide to highlight what we consider to be the key points in the use of speciality gases regulators, based on feedback and questions from customers, and is not designed to replace any of the necessary literature, reference material or training required to safely use primary safety devices. Independent risk assessments should be carried out for all operations and procedures.

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