



# SAFETY BULLETIN 04/16

## ASIA INDUSTRIAL GASES ASSOCIATION

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## POTENTIAL HAZARDS OF QUICK RELEASE CYLINDER VALVES USED WITH FIREFIGHTING GASES

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Several accidents with quick release valves installed on firefighting system gas cylinders have been reported. In one case, a worker died and in other cases workers suffered bone fractures (shinbone, hand).

In all cases, the cause of the accidents was the unexpected opening of the valve fitted to the gas cylinder during handling, filling or venting of the cylinder. The consequences were that the cylinders went out of control after the valve suddenly opened. This type of valve is used on cylinders typically containing carbon dioxide, nitrogen or gas mixtures in firefighting systems. They are designed to quickly release a large volume of gas. The cylinder valves referenced in this Safety Bulletin have many and various designs and are different from standard high pressure valves<sup>1</sup>.

In addition, this type of valve is often fitted to larger than standard cylinders (e.g. 80 L water capacity) so the hazard created by such a valve unexpectedly opening is increased because of the package size. These packages can be difficult to manually manoeuvre and secure, resulting in additional risk of cylinders falling over and valves opening or shearing.

The handling of gas cylinders (during filling, storage and transport) equipped with this type of valve is only safe if the quick release valves have a locking device for the opening lever or a gas-tight outlet seal cap (blanking nut) to prevent accidental release. If not, there is no protection against the unintended opening of the valve. See Figures 1 and 2 for an example of this type of valve and a typical locking device. Cylinders equipped with a quick release valve without a locking device on the opening lever or a gas-tight outlet seal cap (blanking nut) at the outlet shall not be handled or accepted for filling.

During discharge or filling, the gas cylinders shall always be secured by a holding or clamping device, and the gas cylinders shall only be released from this device if a blanking nut is installed at the valve outlet and/or the opening lever is locked and secured. Note that these cylinders are commonly larger and heavier than the usual industrial gas cylinders, and special precautions may be required when connecting them to filling equipment and during handling.

<sup>1</sup> For typical design information on such valves, refer to ISO 17871:2015, *Gas cylinders – Quick-release cylinder valves -- Specification type and testing* [1].



Figure 1—Cylinder valve with valve closed and locking device engaged



Figure 2—Cylinder valve with locking device disengaged and valve open

## References

Unless otherwise specified, the latest edition shall apply.

[1] ISO 17871, *Gas cylinders – Quick-release cylinder valves – Specification type and testing*. International Organization for Standardization, [www.iso.org](http://www.iso.org)

As part of a programme of harmonisation of industry standards, this Safety Bulletin has been prepared with input from regional gases associations and a similar publication will be issued by these associations.

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