

Proposal for Amendments to UN Regulation No. 110

Submitted by the expert from OICA

The text reproduced below was prepared by the expert from OICA for adding provisions for excess flow valves (EFV) which can shut off fuel flow at the time of operation, to specific components. The modifications to the current text of the regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

Paragraph 4.21., amend to read:

- “4.21. “Excess flow valve” (excess flow limiting device) means a device that automatically shuts off, or limits, the gas or liquid flow when the flow exceeds a set design value.
- 4.21.1 “Pressure-equalization type excess flow valve” means an excess flow valve which automatically resets when the excess flow condition is no longer present.**
- 4.21.2 “Shut-off type excess flow valve” means an excess flow valve that stops flow when in the closed position, which has to be reset by manual operation.”**

Paragraph 18.3.1.4., amend to read:

- “18.3.1.4. Automatic cylinder valve **or automatic valve;**”

Paragraph 18.5.1.1., amend to read:

- “18.5.1.1. An automatic cylinder valve shall be installed directly on each CNG container **and to each CNG accumulator.**
The automatic cylinder valve can be substituted by an automatic valve attached close to the CNG container, if the excess flow valve attached to the container is a shut-off type excess flow valve.”

Paragraph 18.5.3.1., amend to read:

- “18.5.3.1. The excess flow limiting device shall be fitted in the CNG fuel container(s) and on each CNG accumulator ~~on the automatic cylinder valve.~~

Annex 1A, Paragraph 1.2.4.5.8.3., amend to read:

- “1.2.4.5.8.3. Automatic cylinder valve / **Automatic valve**”

Annex 4A, Paragraph 5.4., amend to read:

- “5.4. The **pressure-equalization type** excess flow valve shall be designed with a bypass to allow for equalization pressures.
The shut-off type excess flow valve shall have a function to reset actuation.”

Annex 4A, Paragraph 5.6., amend to read:

- “5.6. When the **pressure-equalization type** excess flow valve is at cut-off position, the by-pass flow through the valve shall not exceed 0.05 normal m³/minute at a differential pressure of 10,000 kPa.
When the shut-off type excess flow valve is at cut-off position, the amount of leakage from the valve shall not exceed 2.5x10⁻⁷ normal m³/minute during operation.”

II. Justification

1. In the UN Regulation No.110, only the excess flow valve (EFV) for the pressure-equalization type is permitted. At the time of operation, the pressure-equalization type EFV does not completely shut off the fuel gas. In the UN Regulation No.110, the pressure-equalization type EFV plays a role of limiting the gas flow rate at the time of actuation. In the event of an accident such as fuel outflow, the automatic valve attached to the cylinder valve shuts completely off the fuel.
2. In this document, OICA proposes, as an alternative to the current pressure-equalization type EFV, an additional type of EFV which can shut off the fuel. This makes it possible for the EFV to play the role of fuel shutoff, instead of the cylinder valve attached to the container, therefore, the same effect can be obtained without providing the automatic valve integrally with the container.
3. The actuation of such shut-off type EFV can be cancelled by operating the manual valve.
