

# PROTEGO® Application Examples

## Flame arresters and valves



**PROTECTING LIFE & PRESERVING VALUE**

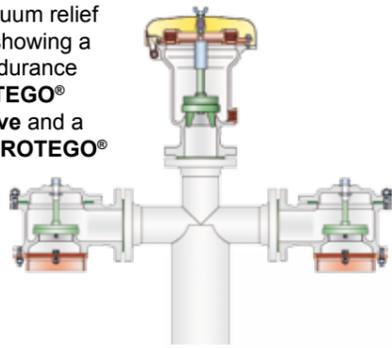


**Braunschweiger  
Flammenfilter**

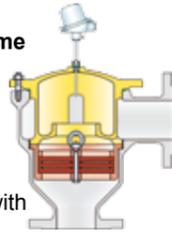


*for safety and environment*

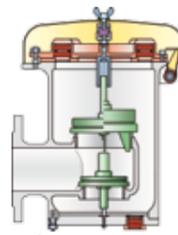
**1** Pressure and vacuum relief valve combination showing a deflagration and endurance burning proof **PROTEGO® pressure relief valve** and a deflagration proof **PROTEGO® vacuum relief valve** (end-of-line) for flame transmission proof venting of storage tanks.



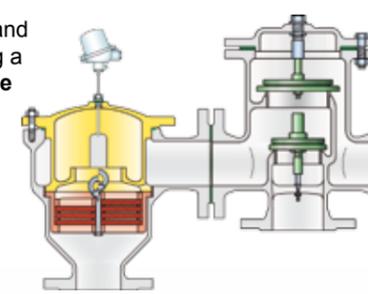
**2** **PROTEGO® detonation flame arrester** (in-line) in right angle design for installation in pipelines to protect plants with potentially explosive atmospheres to which pipe systems are connected.



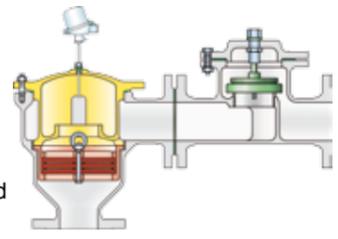
**3** Combined **PROTEGO® pressure and vacuum relief valve** (end-of-line) which is deflagration and endurance burning proof for safe venting of storage tanks.



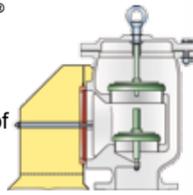
**4** Detonation proof pressure and vacuum relief system showing a **PROTEGO® detonation flame arrester** and a combined **PROTEGO® pressure and vacuum relief valve** (in-line) for closed tank venting and connection to off-gas or tank blanketing systems.



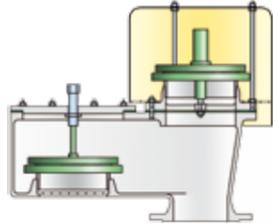
**5** Detonation proof pipe away valve system showing a **PROTEGO® detonation flame arrester** (in-line) and a **PROTEGO® pressure relief valve** (in-line) with non-return valve for closed tank venting systems.



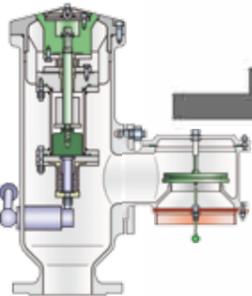
**16** Deflagration proof **PROTEGO® pressure and vacuum relief valve** for flame transmission proof venting of tanks.



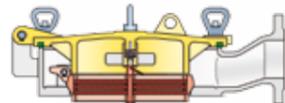
**15** Combined **PROTEGO® pressure and vacuum relief valve** for venting of tanks.



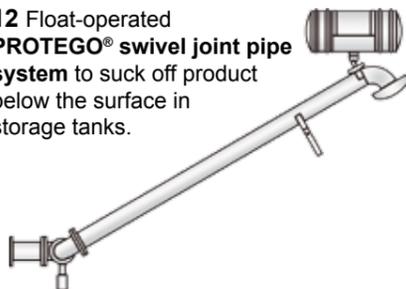
**14** Pressure and vacuum relief valve system showing a deflagration and endurance burning proof **PROTEGO® high velocity pressure relief valve** and a deflagration proof **PROTEGO® vacuum relief valve** (end-of-line) for venting of storage tanks on tanker ships.



**13** Extremely easy to maintain **PROTEGO® detonation flame arrester** for the protection of storage tanks on tanker ships.



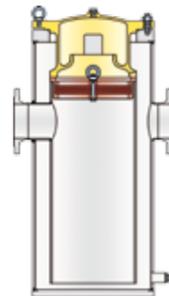
**12** Float-operated **PROTEGO® swivel joint pipe system** to suck off product below the surface in storage tanks.



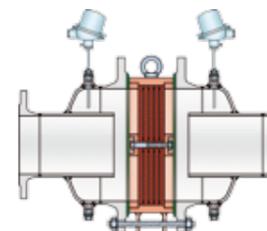
**11** **PROTEGO® liquid detonation flame arrester** for filling lines (internal installation) of storage tanks whose lines are not continuously filled with product and potentially contain an explosive mixture.



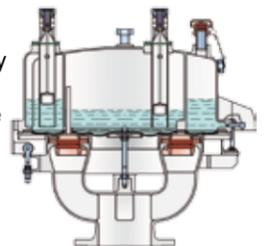
**10** **PROTEGO® liquid detonation flame arrester** (in-line) for filling and drain lines (external installation) of storage tanks whose lines are not continuously filled with product and sometimes contain a combustible mixture.



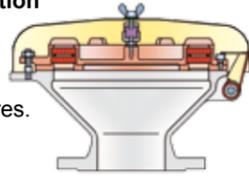
**9** Bidirectional **PROTEGO® detonation flame arrester** (in-line) with minimal pressure drop for protection of systems which have to be protected from both sides against possible deflagrations or detonations.



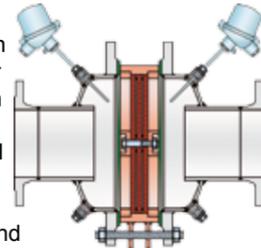
**8** **PROTEGO® pressure and vacuum diaphragm valve** (end-of-line) for safety against deflagration and endurance burning in frostproof design for pressure or vacuum venting of storage tanks and plants with potentially explosive atmospheres.



**6** **PROTEGO® end-of-line deflagration and endurance burning proof flame arrester** for protection of tanks, gasometers and other plants with potentially explosive atmospheres.

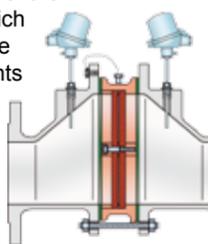


**7** **PROTEGO® deflagration flame arrester** (in-line) with a concentric housing design which prevents transmission of deflagrations in pipes and can be installed in front of incinerators or other potential ignition sources. It can be supplied with optional integrated measuring of pressure drop, temperature sensor and steam jet nozzles.



**alternative:**

**7** **PROTEGO® deflagration flame arrester** (in-line) with an eccentric housing design which is very maintenance friendly as it prevents collection of condensate in the housing. It can be installed for protection of plants where, due to the existing installation conditions, only deflagrations can occur.



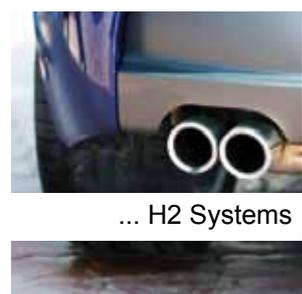
**Explosion and environmental protection during processing, storage and transport of inflammable liquids and gases, in particular covering...**



... Chemical / Pharmaceutical-Industry



... Oil and Refining Industry



... H2 Systems



... Transport Systems



... Waste Water, Biogas and Landfill Systems



... Cryogenic Storage Tanks.

**YOUR SAFETY  
IS OUR BUSINESS**

PROTEGO® devices are tested and approved by various international authorities and testing agencies. They are continuously adapted to the state-of-the-art.

Our Research and Development Department is equipped with a certified state-of-the-art test rig which allows special tests for specific conditions of use.

Our specialist engineers will be happy to help you. Detailed documents can be provided on request.



Our Quality Assurance System and the Environmental Protection Management System is certified in accordance with ISO 9001:2015 and ISO 14001:2015.



Our production Quality Assurance System is certified for protective systems in accordance with the European Directive 2014/34/EU.

A wide range of certifications of PROTEGO® devices are available.

**Contact**  
[www.protego.com](http://www.protego.com)

**PROTEGO® Head Office**

Industriestrasse 11  
38110 Braunschweig  
Germany

phone: ++49 (0) 5307 / 809-0  
fax: ++49 (0) 5307 / 78 24  
email: [office@protego.com](mailto:office@protego.com)