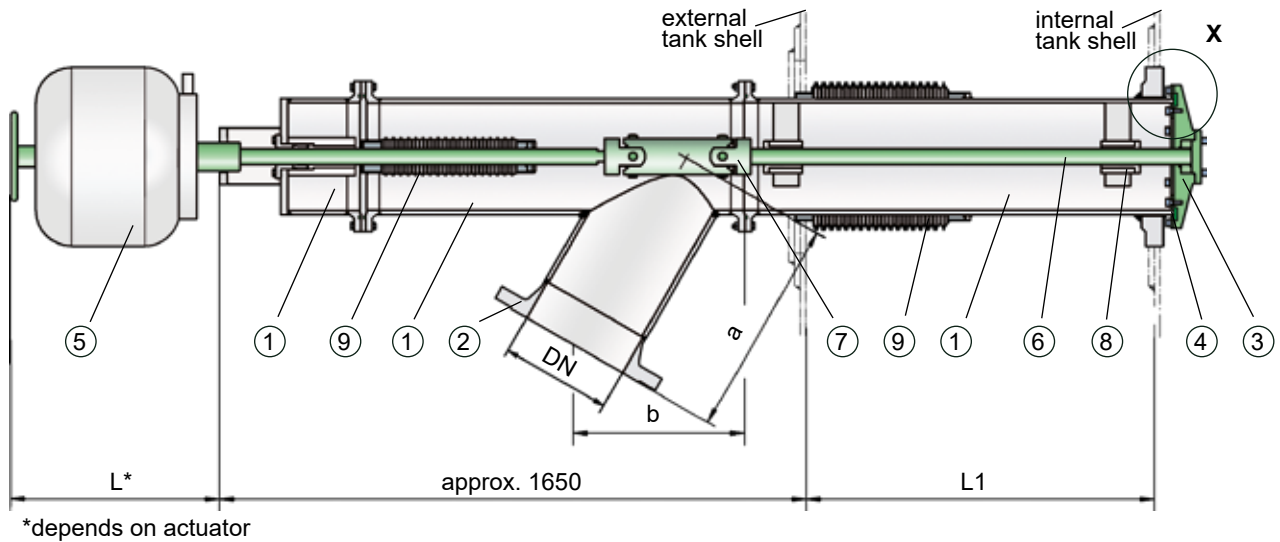




## In-tank Valve

### Internal Safety Valve

## PROTEGO® SI/DP



### Function and Description

PROTEGO® SI/DP in-tank valves are used as additional shut-off valves for double-walled containers, e.g., for storing liquefied gases, cryogenic gases, or other low temperature products or chemicals.

The external connection piece of the housing is usually fitted with a gate valve that is provided by the customer and aids the normal operating procedure. During normal operation, the valves are kept in the open position. It is only closed in case of emergency or for necessary repairs to the gate valve.

The key feature of these valves is the shut-off element inside the container.

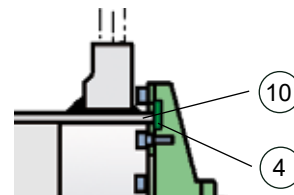
The internal safety valve consists of three housing parts (1) with lateral connecting nozzle (2) for installation of pipeline; a valve cone (3) with sealing (4); and a pneumatic actuator (5). The lapped valve seat (10) and the seal guarantee the desired tightness. Bushings (8) guide the split valve spindle (6), which is equipped with double universal joint (7). Two compensators (9) are provided to accommodate the change in length due to temperature variations.

The in-tank valve is operated/opened by a pneumatic actuator. The required closing force is provided by sufficiently dimensioned compression springs installed in the actuator. The controls must be designed in a way so that in the event of a malfunction, i.e., if the control substance (compressed air for the actuator and/or electrical power for the 3-way solenoid valve) fail, the internal safety valve automatically seals tightly.

By attaching an additional element, the in-tank valve can also be opened or closed manually. This attachment must be removed for the valve to operate automatically.

The PROTEGO® SI/DP is available in various nominal sizes. Optionally, the internal safety valve can be equipped with an internal nozzle to connect to a suction and filling pipe or a swing pipe system.

Detail X





Download Flyer  
In-tank Valves

## Designs and Specifications

**Table 1: Dimensions** Dimensions in mm / inches

DN	a	b
150 / 6"	300 / 11.81	350 / 13.78
200 / 8"	400 / 15.75	400 / 15.75
250 / 10"	500 / 19.68	450 / 17.72
300 / 12"	600 / 23.62	500 / 19.68

**Table 2: Materialselection**

Design	A
Housing	Stainless Steel
Valve disc	Stainless Steel
Valve spindle	Stainless Steel
Spindle sealing	PTFE
Bushing	PTFE
O-rings	PTFE

**Table 3: Flange connection type DN**

EN 1092-1, Form B1	Other types upon request.
ASME B16.5 CL 150 R.F.	

## Selection and Design

Together with our engineers, the valve is designed for each specific application. The relevant plant specifications are considered when defining the required nominal sizes and connection types. The operating temperature and operating conditions may require special materials. The mounting flange material must be compatible with the tank material. If there are any special requirements, please contact us as special designs may also be necessary.

## Necessary Data for Specification

Stored substance

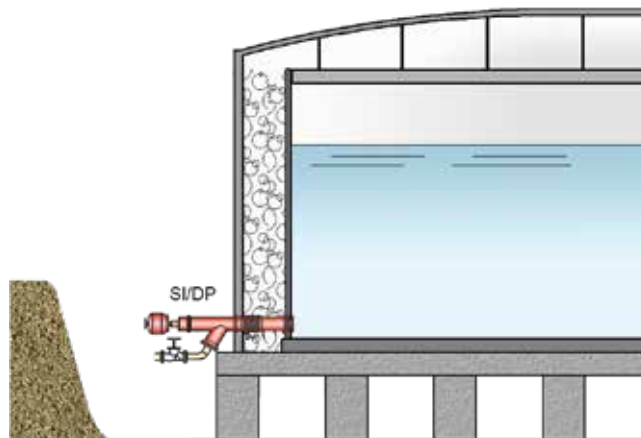
Tank height/Tank diameter (m or ft)

Jacket space L1

Tank material

Connection diameter of drain pipe, DN (mm or inch)

## Application Example



In-tank valve PROTEGO® SI/DP for a double-walled tank system as per API 625.



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