



Certificate no.:
TAE00004ZZ

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Bulkhead/Deck Penetration

with type designation(s)

**STG-30 cable penetration with or without SMART Flange DN25,
STG-30 cable penetration with or without SMART Flange DN50,
STG-45 cable penetration with or without SMART Flange DN65**

issued to

**SMART AUTOMATION AS
Bremnes, Norway**

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

**Deck and bulkhead penetration for single cable, limited to gas pressure 30 millibar and water pressure 16 bar.
The penetration system is generally not to be used for penetrating boundaries of tanks.
Can be installed in tank boundaries based on approval in each case.
For tanks filled with water, exception from case by case approval will be given if criteria at page 2 are fulfilled.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

Issued at **Høvik** on **2024-12-04**

This Certificate is valid until **2029-12-03**.

DNV local unit: **Bergen**

for **DNV**

Approval Engineer: **Ivar Bull**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Cable penetrations approved for water tightness in steel division of bulkhead/deck approved for

- gas pressure 30 millibar
- water pressure 16 Bar.

The penetration can be welded directly to the superstructure or installed via a bulkhead flange.

STG-30 cable penetration with or without SMART Flange DN25, designed for cable diameter min 7mm to max 8,5mm

STG-30 cable penetration with or without SMART Flange DN50, designed for cable diameter min 7mm to max 8,5mm

STG 45 cable penetration with or without SMART Flange DN65, designed for cable diameter min 7mm to max 8,5mm

The metallic parts of the penetration are made of stainless steel AISI 316L.

The cable penetration is welded to the deck/bulkhead or if delivered with flange, the flange is bolted to the deck/bulkhead, with the STG body welded to the flange. A rubber seal/bushing with a split is installed between two metallic washers inside the STG body and a threaded nut is tightened to compress the rubber seal around the cable

Application/Limitation

Manufacturers installation instructions shall be followed.

1. Standard installation

Cable penetrations approved for water-and gas tightness in steel bulkheads or decks:

- 16 bar water tightness (2/3 of test pressure 24 Bar 1 hour)
- 30 millibar gas tightness

2. Penetration of tank boundaries

DNV Class programme -CP-0165. 2021-09, item 5.2 states:

Penetration systems are generally not to be used for penetrating boundaries of tanks. When a penetration system is requested for penetrating tanks, an approval may be given on a case-by-case basis. The penetration system is only to be used at the top of tanks, both vertically and horizontally, and as high up as practical. The penetration system shall be compatible with the liquid medium in the tank. The approval is subject to approval for each individual newbuilding or conversion. Please contact the Society in advance of testing.

Cable penetrations tested for water tightness in tanks:

- 9,6 bar water tightness (40% of test pressure 24 Bar 1 hour)

Exception from case-by-case approval:

Case by case approval is not required if tanks are filled with water, penetration is located above upper 1/5 of the tank and no additional pressure is applied on the tank.

Each product is to be installed with its manual for installation and use.

Type Approval documentation

Tests carried out

Water and gas tightness test according to Class Programme DNV-CP-0165.

Marking of product

The product or packing is to be marked with SMART - Type designation - material

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.



END OF CERTIFICATE

Job ID: **262.1-042008-1**
Certificate no.: **TAE00004ZZ**