DNV·GL

Certificate No:
TAF00000ZT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fire-extinguishing system for protection of galley deep-fat cooking equipment

with type designation(s)
Ansul R-102

Issued to
Tyco Fire Products, LP
Marinette, WI, USA

is found to comply with
DNV GL offshore standards
DNV GL rules for classification – Ships
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations

Application :

Approved for use as a fire extinguishing system for galley deep-fat cooking equipment.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2018-07-26**
This Certificate is valid until **2023-07-25**.
DNV GL local station: **New York**

Approval Engineer: **Marcin Tobiasz**

for **DNV GL**

Mårten Schei-Nilsson
Head of Section

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.

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Product description

"Ansul R-102"
consists of liquid agent storage tank, pressure cartridges, one nozzle, stainless steel piping and a release system.

The galley protection system shall be designed according to SOLAS II-2/10.6.4.1-5. This certificate addresses only item 10.6.4.1. Compliance with the shut down function has to be verified in each case.

Only the nozzles are type approved by this certificate. Other systems components are subject to case by case approval.

Application/Limitation

Approved for use as a fire extinguishing system for galley deep-fat cooking equipment.

The system is composed of the following main components:

Part	Description, material
Gas catridge LT-30-R	Expellant gas: Nitrogen
Regulated release assembly	Mechanical type
Extinguishing agent	ANSULEX Low PH liquid fire suppresant (Wet chemical solution), Capacity 11.4 L (3 gal)
Fusible link for automatic actuation	Type: SL, Temperature rating 182°C
Nozzle	Type: 3N
Piping system	Stainless steel min. SUS 304, 10 mm (3/8")
Remote manual pull station	Molded red composite

The spray head is to be installed according to the following specifications:

System specifications	
Max. length of piping	12.2 m (max 9 elbows and 1 tee)
Max. area protected	0.46 x 0.71 m (w x l)
Nozzle height	0.63 – 0.79 m
Nozzle location	Just inside front edge, aimed at centre
Discharge rate	Minimum 0.11kg / s
Minimum nozzle discharge pressure	6.5 bar

System components, such as pipes and pipe connections as well as welding of pipes are to be certified or inspected in accordance with DNV GL Rules or equivalent standards acceptable to the Flag State.

For all applications:

A. The pumps or pump unit and the pressure tank are to be delivered with DNV GL product certificate. Other system components are to be certified or inspected in accordance with DNV GL Rules.
B. Pipes, couplings and other components are regarded as "Class II" piping.
C. The pump unit and section valves shall be installed in a room having ambient temperature between +4 °C and +45 °C.
D. Only stainless steel piping, or equivalent corrosion resistant pipes, is to be applied (to avoid clogging of sprinklers). Primary water supply shall be fresh water of potable quality.

<u>The following items are to be submitted for approval for each project:</u>

- System arrangement plans including location of nozzle, section, release stations and control circuitry/arrangement.
- Capacity of pressure vessel system.
- Specification of pipes, pressurised cylinder, generator and associated components.
- Shut down of function defined by SOLAS 2000 II-2/10.6.4.2-5.
- Manual containing operating and maintenance instructions.

Installation testing:
Pressure testing of pipe system to at least 1.5 times maximum working pressure. Testing according to maker's manual.

Periodical testing:
Periodical control and inspection to be in accordance with makers manual.

Each product is to be supplied with its manual for installation, use and maintenance.

Type Approval documentation
Certification in accordance with Class Programme DNVGL-CP-0338, October 2017.

Test report no. PEO10007 dated 8 December 2014 from Danish Institute of Fire and Security Technology, DBI, Hvidovre, Denmark.

Nozzle drawing no. 439830 dated 5 June 2013 from manufacturer.

Tests carried out
Tested according to ISO 15371:2009.

Marking of product
Main components in the system are to be marked with name of manufacturer and type designation.

Transport Canada Approval
Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product listed in this certificate is in accordance with Transport Canada's requirements.

Periodical assessment
DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described described in DNVGL-CP-0338 Section 4.