

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Fire-extinguishing system for protection of galley extract ducts

with type designation(s)
ANSUL R-102

Issued to

Tyco Fire Protection Products
Marinette WI, United States

is found to comply with

DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL rules for classification – Ships
DNV GL offshore standards

Application :

Approved for use as a fixed fire extinguishing system for exhaust ducts with perimeter of duct not exceeding 2.54 m from galley ranges.

Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2022-05-21**.

Issued at **Høvik** on **2017-05-22**

DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Helge Bjørnara**

Marte Eknæs Edvardsen
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.

Product description

"ANSUL R-102"

is a wet chemical fire suppression system for protection of galley exhaust duct. The system consists of liquid agent storage tank, pressure cartridges, nozzle(s), piping and a release system.

The galley exhaust duct fire extinguishing system shall be designed according to ISO 15371, Ch.4 with components satisfying ISO 15371, Ch.3. This certificate addresses only the discharge nozzle, i.e. ISO 15371, Ch.3.3.

Application/Limitation

Approved for use as a fixed fire extinguishing system for exhaust ducts with perimeter of duct not exceeding 2.54 m from galley ranges.

The system shall cover the duct between the lower damper and the closing appliance on open deck (SOLAS Ch. II-2, Reg. 9.7.5).

One nozzle shall be fitted the inlet of each branch. A nozzle covers only the area downstream of it to the next closing appliances/damper.

Perimeter of the duct [m]	Length of duct [m]	Nozzle type	Flow number	Volume of agent [ml]	Mass flow [g/s] ²⁾
2.54 m	Unlimited ¹⁾	2W	2	1820	76,8

- 1) Tested duct was 23.4 m. If the 22.9 m length is used, the extinguishing system unit system should be capable of being installed without limitations to the maximum duct length (ISO 15371:2015, 5.3.4.4).
- 2) Density of agent is 1.31 g/ml.

If automatic release of the extinguishing media is provided, the closing appliances in above defined duct should be closed before the system is activated.

The system may also incorporate protection of other areas (galley hoods, deep fat fryers etc.).

Tank and cartridge requirements:

Total flow numbers	Quantity and size of tank(s)	Release cartridge options	
		N ₂	CO ₂
1 – 5	1.5 Gallon	LT-20-R	101-10
6 – 11	3.0 Gallon	LT-30-R	101-20
11 – 16	1.5 + 3.0 Gallon	Double	101-30
16 – 22	2 x 3.0 Gallon	Double	101-30

Any combination of the above foam tanks to provide larger protection arrangement is accepted. Release cartridge options for such larger units, see R-102 Restaurant Fire Suppression Manual.

Maximum pipe length and rise should not exceed the limitation in section 4 of R-102 Restaurant Fire Suppression Manual.

Containers for the storage of fire-extinguishing medium, piping and associated pressure components shall be designed to pressure codes of practice to the satisfaction of the Administration

Nozzles shall be provided with caps or other suitable devices to prevent the entrance of grease vapours, moisture, or other foreign materials into the piping.

The following items are to be submitted for approval for each project:

- System arrangement plans including location of nozzles, sections valves, release stations and pressure equipment.
- Specification of pipes, cylinders, valves and associated components.
- Capacity analysis.
- ANSUL Part No. 418087-12, R-102 Restaurant Fire Suppression Manual, Rev.11 from manufacturer

Job Id:
Certificate No: **TAF00000J4**

Installation testing:

- Pressure testing of pipe system to at least 1,5 times maximum working pressure.
- Function testing of the system.
- Other tests according to makers manual.

Periodical testing:

- Periodical control and inspection to be in accordance with maker's manual.

Each system is to be supplied with a manual for installation, operation and maintenance according to ISO 15371:2015, Chapter 6.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

Test report No. PEO10023A dated 2017-02-15 from DBI, Hvidovre, Denmark.

Dwg. No. 439829, Rev.3, "R-102 2W NOZZLE" from manufacturer.

ANSUL Part No. 418087-12, R-102 Restaurant Fire Suppression Manual, Rev.11 from manufacturer.

Tests carried out

Tested according to ISO 15371:2015 clause 5.3 and 5.4 (excluding 5.4.4).

Marking of product

Nozzles shall be permanently marked for identification.

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 in Class Programme DNVGL-CP-0338, Section 4.