DNV·GL

Certificate No:
TAF0000055

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Foam Proportioner

with type designation(s)
PP, TP, PPW, TPW

Issued to
Tyco Fire Protection Prducts
Great Yarmouth Norfolk, United Kingdom

is found to comply with
DNV GL offshore standards
DNV GL rules for classification – Ships

Application :

Approved for use as foam proportioner in fire fighting.

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

This Certificate is valid until **2020-12-27**.

Issued at **Høvik** on **2015-12-28**

for **DNV GL**

DNV GL local station: **Great Yarmouth**

Approval Engineer: **Ragnar Tonjer**

Petter Langnes
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

"PP", "PPW", "TP" and "TPW"

Foam proportioner units made of bronze and stainless steel, consisting of valve housing, pressure balance valve, integrated regulating nozzle (1% to 6%). The proportioners are flange fixed to water main and connection tube to water main.

Maximum working pressure: 16 bar/235 psi.

Application/Limitation

Pump Proportioners (PP)	
Type	**Flow range (l/min)**
PP50	125 - 800
PP80	300 - 2000
PP-100	770 - 6100
PP-100/50	770 - 4900
PP-150	1500 - 18000
PP-150/50	1500 - 9800
PP-200/80	2875 - 21100
PP-200	2875 - 36500
PP-200/80	2875 - 21100
PP-250	5100 - 37850
PP-250/80	5100 - 33100

Pump Proportioners Widerange (PPW)	
Type	**Flow range (l/min)**
PPW-100	100 - 5000
PPW-100/50	75 - 2500
PPW-150	150 - 12000
PPW-150/50	100 - 5600
PPW-200	175 - 18000
PPW-200/80	125 - 10600
PPW-250/80	150 - 16100

PP and PPW are approved with overpressure[1)] between 1 and 5 bar.

[1)] Overpressure: recommended overpressure on foam side compared to water main side. Other pressures may be used if a new measurement from the full-scale test confirms mixture within + 30% / - 0%.

Tank Proportioners (TP)	
Type	**Flow range (l/min)**
TP50	125 - 800
TP80	300 - 2000
TP-100	770 - 6000
TP-100/50	770 - 4900
TP-150	1500 - 12000
TP-150/50	1500 - 9800
TP-200	2875 - 22750
TP-200/80	2875 - 21100
TP-250	5000 - 34100
TP-250/80	5100 - 33100

Tank Proportioners Widerange (TPW)	
Type	**Flow range (l/min)**
TPW-100	100 - 5000
TPW-100/50	75 - 2500
TPW-150	150 - 12000
TPW-150/50	100 - 5600
TPW-200	175 - 18000
TPW-200/80	125 - 10600
TPW-250/80	150 - 16100

TP and TPW are used in combination with SKUM bladder tank (MTB)

The proportioners are approved with a foam mixture range from 1% to 6%.
Location and operation of foam propotioner is subject to case by case approval. Final acceptance of the foam system, including foam proportioner, is to be made based on full-scale test of the entire foam system.
Each product supplied is to be accompanied works certificate for the propotioner including materials used in the body, indicating mechanical and chemical properties and heat treatment.
The valve housing of each valve shall be subjected to a hydrostatic pressure test at minimum 1.5 times the design pressure. No leakage is permitted.

Each product supplied with it manual for installation, use and maintenance.

Site test
Function testing of each foam proportioner shall be performed for each installation. The mixing ratio shall be as specified in each application and within a range of -0% to +30% of this (if the specified mixing ratio is 2.0%, test results between 2.0 and 2.6% will be accepted).

For foam proportioners using foam concentrates of Newtonian type with kinematic viscosity equal to or less than 100cSt @ 0°C and density equal to or less than 1.1 kg/dm^3 this test can be performed with water instead of foam concentrate. In all other cases, foam and water shall be applied.
The flow used in the test shall be representative for application and within the approved flow range.

Type Approval documentation

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

Function tests dated 17, 18 and 19 May 1994 and 20, 23 April 2007 and 4, 5 June 2007 and 26 September 2007. Flow tests dated 6-7 April 2009. All tests witnessed and signed by a DNV Surveyor.
Drawings:

Type	Assembly drawing	Type	Assembly drawing
PP50	32330 rev 04	PP-100/50	20928 rev 07
PP80	32277rev 07	PP-150/50	20944 rev 06
PP-100	2-00478 rev 00	PP-200/80	20949 rev 06
PP-150	2-00481 rev 00	PP-250/80	20955 rev 03
PP-200	2-00499 rev 00	TP-100/50	20943 rev 04
PP-250	2-00500 rev 00	TP-150/50	20942 rev 04
TP50	32282 rev 01	TP-200/80	20953 rev 05
TP80	32280 rev 00	TP-250/80	20956 rev 04
TP-100	2-00533 rev 00	PPW-100/50	20936 rev 08
TP-150	2-00534 rev 00	PPW-150/50	21197 rev 05
TP-200	2-00514 rev 00	PPW-200/80	20952 rev 03
TP-250	2-00515 rev 00	PPW-250/80	20957rev 03
PPW-100	2-00509 rev 04	TPW-100/50	20948 rev 03
PPW-150	2-00510 rev 03	TPW-150/50	21198 rev 04
PPW-200	2-00760 rev 00	TPW-200/80	20954 rev 06

TPW-100 TPW-150 TPW-200	2-00511 rev 04 1-00456 rev 06 2-00516 rev 04	TPW-250/80	20958 rev 05

Data sheets No:
No. 1010/44 SKM0023 DSA1 (PPW), No. 1010/45 SKM0024 DSA1 (TPW), No. 1010/42 SKM0021 DSA1 (PP), No. 1010/40 SKM0019 DSA1 (PP and PPW), No. 1010/43 SKM0022 DSA1 (TP), No. 1010/41 SKM0020 DSA1 (TP and TPW) and No. 1010/30 (PPW).
All data sheets from Svenska Skum AB.

Tests carried out
Tested in accordance with DNV GL Type Approval Programme 474.66.

Marking of product
The product is to be marked with name of manufacturer, type designation and fire-technical rating.

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 DNVGL-CP-0338 Section 4.