LPCB Red Book

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Part: 5

Watermist systems

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Introduction

BRE Global Ltd, based in the UK near London, is an independent third party organisation offering certification of fire, security and sustainability products and services to an international market. LPCB is the certification brand used for fire and security products and services. The LPCB mark is accepted worldwide. We have representative offices in China, India and Dubai. We are owned by the BRE Trust, a not-for-profit organisation. LPCB listings can be accessed, free of charge, at www.redbooklive.com. BRE Global additionally carries out: - Fire Investigation - Fire Risk Assessment - Fire Safety Engineering - Research - Training

Part 5

Watermist systems

WATERMIST SYSTEMS

INTRODUCTION

Watermist systems are employed to provide fire protection in a range of applications against defined fire hazards. They are designed to control, suppress or extinguish fires depending upon the specified fire hazard requirements. Watermist systems are sensitive to design and application variations it is therefore important that they are only employed with their defined scope of application and utilise only specified components.

A typical system comprises of nozzles which are connected via distribution pipework to a pressurised water supply. The system can either be self-contained or connected via a pumpset to a permanent water supply.

The LPCB approval of watermist systems requires both individual components and complete system fire performance to be assessed. The scope for the field of application of an LPCB watermist system approval is defined within the relevant LPS standard:

· LPS 1283 - *Requirements and test methods for the approval of watermist systems for use in commercial low hazard occupancies*.

· LPS 1285 - *Requirements and test methods for the approval of watermist systems for use in domestic and residential occupancies*.

For further guidance on the implementation of watermist systems for Domestic and Residential applications see BRE guidance digest DG534 (www.brebookshop.com).

This section lists both individual approvals for components and for complete watermist systems.

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This section lists equipment approved in accordance with the relevant requirements in LPS 1655 *Requirements and test methods for LPCB approval and listing of local application watermist systems for use as Personal Protection Systems (PPS) in residential and domestic occupancies within buildings*.

PPS are local application watermist systems designed to protect a specific area within an enclosed volumetric space (i.e. a room) from fire. Because PPS are designed for local area application i.e. to suppress a fire within a specific discharge area, care must be taken to ensure that the risk profile is appropriate. A risk assessment needs to indicate that the principal fire hazard is within the discharge area, of one or more PPS. If the fire hazard is not localised then a suppression system that covers the whole of the dwelling or risk area should be specified.

For the purposes of approval, the PPS comprises a set of components, a system manual including a scope of application and the specific detection arrangements that were used in the fire tests.

It is essential that maintenance is carried out in accordance with the manufacturers instructions. Accordingly any system that is not maintained in accordance with the manufacturers instructions will be outside the scope of this approval and listing standard.

Surefire Services Ltd.

Unit 4, Barnes Wallis Court, Wellington Road, High Wycombe, Buckinghamshire, HP12 3PS, United Kingdom
Tel: 0345 601 4110
E-mail: jcherriman@surefire.co.uk • Website: www.surefire.co.uk

Certificate No: 752a to LPS 1655: Issue 1.0

UltraGuard 2TM

Product Name	Description	LPCB Ref. No.
UltraGuard 2TM	Personal Protection Watermist System consisting of 110 litre water tank, Prevent 14 sidewall nozzle and 12volt Marco pump. Actuation by means of twin Apollo Orbis ORB-OH-13001APO multi sensor detectors controlled by a HAES panel and power supply.	752a/01

WATERMIST COMPONENTS

The equipment listed in this section has been assessed against the relevant LPCB schedule of requirements for watermist components. The schedules are based on existing LPS, BS and EN standard test methodologies from watermist, sprinkler and gaseous system component standards, as appropriate.

As part of the LPCB approval requirements the production facilities must carry ISO 9001 with a suitable scope. The Factory Production Control (FPC) processes are audited by LPCB to ensure the ongoing conformity of the production process.

In order to function correctly the approved components must be specified, installed and maintained in accordance with the manufacturer's technical instructions.

Watermist component approval does not mean LPCB watermist system approval. LPCB watermist system approval requirements are set out in Watermist Systems section.

This section lists products approved in accordance with:

- LPCB Schedule of requirements;
- BS8663-1.

Entry details:

Nozzle type:

U - indicates that the nozzle should be installed in an upright orientation.
P - indicates that the nozzle should be installed in a pendent orientation.
CC - indicates that the nozzle is concealed and should be installed in accordance with the manufacturers approval. Where CC is not indicated the nozzle is of exposed type, with the thermally sensitive element below the plane of the ceiling.
W - indicates that the nozzle should be installed on a sidewall.

Temperature ratings for automatic nozzles, in degrees centigrade.

K-factor is the discharge coefficient in litres per minute per $bar^{1/2}$.

Design pressure range, or operating pressure range, defines the pressure limits for a nozzle inlet with water flowing, minimum to maximum, in bar.

Standby pressure range, defines the pressure limits for system pipework prior to system operation, i.e. the limits to which an installed nozzle can be exposed due to the effects of the pressure maintenance device and the head of water.

In-service nozzles

A three-yearly inspection and test routine for nozzles that are installed in an operational watermist system is recommended (see BS8489-1:2016). Requirements for inspection and testing of in-service nozzles are given in BS8663-1:2019 clause 8.4.

Ceasefire Industries Private Limited

E6, Selaqui Industrial Area, Dehradun, Uttarakhand, 248011, India
Tel: +911204223473
E-mail: amit@ceasefire.in

Certificate No: 1329j to A technical approval to a schedule of requirements

Ceasefire Mist Systems Open Low Pressure Water Mist System Nozzles

Product Name	Fitting	Type	Temperature rating	k-factor (LPM/bar½)	Design pressure see (Datasheet date)	Standby pressure	LPCB Ref. No.
NGWP 1(SM-RM2158)	See Cert Note (1)	P	n/a	13.5	09.03.2017	n/a	1329j/01
NGWP 14(SM-RM0862)	See Cert Note (1)	P	n/a	14.7	09.03.2017	n/a	1329j/02
NGWP 46(SM-RM2159)	See Cert Note (1)	P	n/a	13.6	09.03.2017	n/a	1329j/03
NGWP 49(SM-RM2160)	See Cert Note (1)	P	n/a	29.9	09.03.2017	n/a	1329j/04
NGWP 62(SM-RM2161)	See Cert Note (1)	P	n/a	30.4	09.03.2017	n/a	1329j/05
NGWP 63(SM-RM2162)	See Cert Note (1)	P	n/a	39.5	09.03.2017	n/a	1329j/06
NCSFH 5(SM-RM1243)	See Cert Note (2)	P	n/a	4.90	08.03.2017	n/a	1329j/07
NCSFH 8(SM-RM2145)	See Cert Note (2)	P	n/a	3.08	08.03.2017	n/a	1329j/08
NCSFH 10(SM-RM2146)	See Cert Note (2)	P	n/a	2.49	08.03.2017	n/a	1329j/09
NCSFH 11(SM-RM2147)	See Cert Note (2)	P	n/a	1.88	08.03.2017	n/a	1329j/10
NCSFH 16(SM-RM0856)	See Cert Note (2)	P	n/a	3.09	08.03.2017	n/a	1329j/11
NCSFH 19(SM-RM0857)	See Cert Note (2)	P	n/a	4.20	08.03.2017	n/a	1329j/12
NCSFH 24(SM-RM2148)	See Cert Note	P	n/a	6.82	08.03.2017	n/a	1329j/13

	(2)						
NCSFH 29(SM-RM2149)	See Cert Note (2)	P	n/a	3.41	08.03.2017	n/a	1329j/14
NCFSFH 3(SM-RM2153)	See Cert Note (2)	P	n/a	1.60	08.03.2017	n/a	1329j/15
NCFSFH 4(SM-RM2154)	See Cert Note (2)	P	n/a	2.10	08.03.2017	n/a	1329j/16
NCFSFH 13(SM-RM2155)	See Cert Note (2)	P	n/a	2.50	08.03.2017	n/a	1329j/17
NCFSFH 14(SM-RM2156)	See Cert Note (2)	P	n/a	3.47	08.03.2017	n/a	1329j/18
NCFSFH 34(SM-RM2157)	See Cert Note (2)	P	n/a	1.60	08.03.2017	n/a	1329j/19
NCSSFH 01.S (SM-RM2150)	See Cert Note (2)	W	n/a	4.40	08.03.2017	n/a	1329j/20
NCSSFH 02.S (SM-RM2151)	See Cert Note (2)	W	n/a	2.45	17.02.2015	n/a	1329j/21
NCSSFH 03.S (SM-RM2152)	See Cert Note (2)	U	n/a	21.0	17.12.2015	n/a	1329j/22

Dualmist International Limited

Merlin Way, Quarry Hill Industrial Estate, Ilkeston, Derbyshire, DE7 4RA, United Kingdom
Tel: 0115 9323773
E-mail: sales@dualmist.com • Website: www.dualmist.co.uk

Certificate No: 1527a to an LPCB Schedule of requirements

DualMist Automatic Low Pressure Water Mist Nozzles

Product Name	Nominal orifice (mm)	Type	Temperature rating (°C)	K-factor (LPM/bar½)	Design pressure (bar)	Standby pressure (bar)	LPCB Ref. No.
DM4R	15	P	68	22	5 to 12	4 to 9	1527a/01
DM4C	15	P	57	27	6 to 12	4 to 9	1527a/02

Prevent Systems AS

Fåberggaten 126, Lillehammer, 2615 , Norway
Tel: +47 61 26 09 09
E-mail: em@prevent-systems.no

Certificate No: 1360a to an LPCB Schedule of requirements

Prevent Systems Automatic Low Pressure Water Mist System Nozzles

Product Name	Nominal orifice (mm)	Type	Temperature rating, °C	K-factor, LPM/bar½	Design pressure (bar)	Standby pressure (bar)	LPCB Ref. No.
Prev3exp	15	P	57, 68, 93	14	5.2 to 16	4 to 12	1360a/01
Prev5exp	15	P	57, 68, 93	30	2.4 to 16	2 to 12	1360a/02
Prev2exp	15	P	57, 68, 93	13.4	8.4 to 16	4 to 12	1360a/03
Prev2up	15	U	57, 68, 93	13.4	8.4 to 16	4 to 12	1360a/04

Telesto Sp. z o.o.

Ul. Fabryczna 5, 26-130 Suchedniow, Poland
Tel: +48 22 489 6571
E-mail: telesto@telesto.pl • Website: www.telesto.pl

Certificate No: 1129b to an LPCB Schedule of requirements

Telesto Mist Systems Open Low Pressure Water Mist System Nozzles

Product Name	Fitting	Type	Temperature rating	k-factor (LPM/bar½)	Design pressure see (Datasheet date)	Standby pressure	LPCB Ref. No.
NGWP 1	See Cert Note (1)	P	n/a	13.5	09.03.2017	n/a	1129b/01
NGWP 14	See Cert Note (1)	P	n/a	14.7	09.03.2017	n/a	1129b/02
NGWP 46	See Cert Note (1)	P	n/a	13.6	09.03.2017	n/a	1129b/03
NGWP 49	See Cert Note (1)	P	n/a	29.9	09.03.2017	n/a	1129b/04
NGWP 62	See Cert Note (1)	P	n/a	30.4	09.03.2017	n/a	1129b/05
NGWP 63	See Cert Note (1)	P	n/a	39.5	09.03.2017	n/a	1129b/06
NCSFH 5	See Cert Note (2)	P	n/a	4.90	08.03.2017	n/a	1129b/07

NCSFH 8	See Cert Note (2)	P	n/a	3.08	08.03.2017	n/a	1129b/08
NCSFH 10	See Cert Note (2)	P	n/a	2.49	08.03.2017	n/a	1129b/09
NCSFH 11	See Cert Note (2)	P	n/a	1.88	08.03.2017	n/a	1129b/10
NCSFH 16	See Cert Note (2)	P	n/a	3.09	08.03.2017	n/a	1129b/11
NCSFH 19	See Cert Note (2)	P	n/a	4.20	08.03.2017	n/a	1129b/12
NCSFH 24	See Cert Note (2)	P	n/a	6.82	08.03.2017	n/a	1129b/13
NCSFH 29	See Cert Note (2)	P	n/a	3.41	08.03.2017	n/a	1129b/14
NCFSFH 3	See Cert Note (2)	P	n/a	1.60	08.03.2017	n/a	1129b/15
NCFSFH 4	See Cert Note (2)	P	n/a	2.10	08.03.2017	n/a	1129b/16
NCFSFH 13	See Cert Note (2)	P	n/a	2.50	08.03.2017	n/a	1129b/17
NCFSFH 14	See Cert Note (2)	P	n/a	3.47	08.03.2017	n/a	1129b/18
NCFSFH 34	See Cert Note (2)	P	n/a	1.60	08.03.2017	n/a	1129b/19
NCSSFH 01.S	See Cert Note (2)	W	n/a	4.40	08.03.2017	n/a	1129b/20
NCSSFH 02.S	See Cert Note (2)	W	n/a	2.45	17.02.2015	n/a	1129b/21
NCSSFH 03.S	See Cert Note (2)	U	n/a	21.0	17.12.2015	n/a	1129b/22
NGWP 75	See Cert Note (2)	P	n/a	13.2	22.03.2018	n/a	1129b/23

WATERMIST SYSTEMS

The watermist fire protection systems listed in this section are approved to requirements of:

- LPS 1283 - *Requirements and test methods for the approval of watermist systems for use in commercial low hazard occupancies*, or
- LPS 1285 - *Requirements and test methods for the approval of watermist systems for use in residential and domestic hazard occupancies.*

In order for the systems to be listed in this section they also require the primary components, as identified in the LPS standard, to be LPCB approved components, see the Watermist Components section.

Please note that use of LPCB approved components does not imply an LPCB approved system. Only systems listed in this section and used within the scope of the approval are approved by LPCB.

Entry details:

- Hazard evaluation notes
- Limits of application
- Ventilation conditions
- Obstructions
- Manufacturer's Declaration of Conformity (MDOC) for manufacturer supplied nozzles and fire test results:
  - System design parameters (e.g. nozzle, pipe, supply, media)
  - Fire test data.