



ACTIVE FIRE PROTECTION-EQUIPMENT LISTING SCHEME

Commonwealth Scientific and Industrial Research Organisation, Australia
Ph.: 61 3 9252 6000 Fax: 61 3 9252 6011
Web site: <http://www.ActivFire.gov.au> E-mail: info@ActivFire.gov.au

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PRODUCT LISTING DATA SHEET (Active Fire Protection Equipment)

Product designation

Ansul®[®], Micro-K™[™], Pre-engineered, Mechanically-Ignited, Pyrotechnic Aerosol Type, Automatic Fire Suppression System

(Refer to the Technical Specification section of this document for further specific detail)

Supplier

Ansul Incorporated

One Stanton Street, MARINETTE, WI, USA, 54143-2542

Manufacturer

Ansul Incorporated

One Stanton Street, MARINETTE, WI, USA, 54143-2542

Supplier's description

The Ansul®[®], Micro-K™[™], Pre-engineered, Mechanically-Ignited, Pyrotechnic Aerosol Type, Automatic Fire Suppression System is an automatic and/or manual fire suppression system for the protection of Class 'B' and Class 'C' fires. The system is not intended to be used in hazardous locations. It has been deemed by the British MCA to be suitable for protection of engine compartments and other normally-unoccupied enclosures of small marine vessels, including pleasure craft and fishing vessels. The system consists of one or more Micro-K™[™] pyrotechnic aerosol generators, mounting brackets, a releasing device, fusible link or thermal detectors, a manual pull station, and various accessories.

The Micro-K™[™] generator contains a charge of potassium-based aerosol-forming solid composition that rapidly decomposes exothermically to form *aerosol agent*, following *initiation* by a "mechanical match" type igniter. The principal active components of the *aerosol agent* are potassium carbonate, nitrogen, and carbon dioxide. The potassium carbonate is in *vapour* form immediately following decomposition of the aerosol-forming composition, but is "*condensed*" to microscopic solid particles due to *mechanical* cooling of the aerosol mixture as it flows rapidly through the serpentine annular passage between the three "nesting" heavy-gauge steel "shells" that comprise the housing of the generator. The aerosol agent is cooled within the serpentine passages to an extent that heat damage to items in the path of the aerosol discharge from the generator is most unlikely. The aerosol-forming composition is initiated by activation of an embedded small igniter assembly containing a pull-wire operated "mechanical match". The small-diameter stainless steel single-strand pull-wire is operated by a mechanical, mechanical-pneumatic, or electro-pneumatic type releasing device. The releasing device is activated by rupturing of a eutectic-alloy type fusible link mechanical fire-detector, by activation of an electric thermal detector (via an Ansul®[®] AUTOMAN electric release assembly), or by operation of a manual pull station. The pneumatic source is a piercing-disc type refillable nitrogen cartridge located within the enclosure of the AUTOMAN releasing device.

The 'P' type Micro-K™[™] 1.1 kg aerosol generators are for use in applications where it is deemed necessary to *not* locate the aerosol generators within the protected enclosure.



This product listing data sheet should be read in conjunction with the general requirements of the terms and conditions of listing under the ActivFire Scheme.

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Executive Officer

Conformance criteria and evaluation

The Ansul®, Micro-K™, Pre-engineered, Mechanically-Ignited, Pyrotechnic Aerosol Type, Automatic Fire Suppression System complies with the requirements of Australian/New Zealand Standard AS/NZS 4487:1997 'Pyrogen fire extinguishing systems' and SSL Appraisal Specification FAS-116 'Pyrotechnically-generated Fine Aerosol Powder Type Fire-extinguishing Units'.

The Ansul® Micro-K™ Pre-engineered Mechanically-ignited Pyrotechnic Aerosol Type Fire Suppression System has been fully tested by Underwriters' Laboratories of Canada (ULC) is Listed in the ULC Directory of Fire Protection Equipment, and is subject to ULC's regular Follow-Up Service Audits.

Except for the aerosol generators, the system components are also Listed in the UL Directory of Fire Protection Equipment as being suitable for fire-suppression system release and fire detection application, and are subject to UL's regular Follow-Up Service Audits.

Listing is subject to ActivFire Scheme terms and conditions as applicable to the designated registrant and supplier.

Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this Product Listing Data Sheet, are derived from qualifications within the report of the testing agency and/or other related technical documentation. It is recommended that all details with respect to design, assembly and installation restrictions should be checked against the designated supplier's/manufacturer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

The ActivFire listing, afp - 1464, is applicable only to those Ansul® Micro-K™ Pre-engineered Mechanically-ignited Pyrotechnic Aerosol Type Fire Suppression Systems that have been designed, installed, operated, and maintained, in accordance with the system's ULC-Listed Ansul® Installation, Operation, Recharge, Inspection, and Maintenance Manual, 1 November, 1999 Version (Ansul® Part No.427605).

The ActivFire listing, afp - 1464, of the Ansul® Micro-K™ Pre-engineered Mechanically-ignited Pyrotechnic Aerosol Type Fire Suppression System is subject to the following limitations:

- (a) the system shall not be installed in areas that are continuously, or that frequently become, hazardous due to presence of flammable mixtures of air and combustible gases, vapours, and dusts.
- (b) it shall be installed in an enclosure only if such enclosure is rarely and only briefly occupied, or is not capable of being occupied.
- (c) it shall not be installed in an enclosure that has significant un-closeable openings.
- (d) it shall not be installed where the enclosure temperature will be less than -40°C or more than 54°C.
- (e) the internal height of the protected enclosure shall not exceed 3.66 m, or be less than 460 mm.
- (f) the clearance between the top of generator and a the soffit of a combustible ceiling shall be not less than 305 mm.
- (g) the aggregate nett amount of aerosol-forming composition contained in the Micro-K™ generators within the protected enclosure shall be not less than 100 grams per cubic metre of nett enclosure volume, as calculated by excluding the volume of any impermeable objects and equipment in the enclosure.
- (h) enclosure length shall not exceed 4.1 m, for a 0.6 kg Micro-K™ generator, and 6.1 m for a 1.1 kg generator.
- (i) the system shall have not more than 10 generators if actuated from an ANSUL® AUTOMAN mechanical release, or not more than 2 generators if manual only actuation is used.
- (j) the mechanical detection system shall have not more than 45 m of cable, not more than 15 fusible-link detectors, and not more than 20 corner pulleys.

Technical specification

The following details are a representative extract of the technical specification for the Ansul®, Micro-K™, Pre-engineered, Mechanically-Ignited, Pyrotechnic Aerosol Type, Automatic Fire Suppression System and may be subject to change. Complete and current details should be determined from the designated supplier's/manufacturer's technical manual/data sheets.

1. Aerosol Generator Characteristics

Generator Characteristic	Nominal Size of Generator		
	'P' Type Generator 1.1 kg	"Standard" Generators	
		0.6 kg	1.1 kg
Ansul® Part Number	426810	417948	418202
Nominal mass of aerosol-forming composition (grams)	1,100	600	1,100
Actual mass of aerosol-forming composition (grams)	1130	570	1130
Coverage per generator (cubic metres)	11.3	5.7	11.3
Overall diameter of generator shell (mm)	260	158	183
Overall length of generator shell (mm)	330	210	310

2. Maximum Coverage of Generators

Enclosure Dimension	Nominal Size of Generator	
	0.6 kg	1.1 kg
Ansul® Part Number	417948	418202 & 426810
Coverage per generator (cubic metres)	5.7	11.3
Maximum length (metres)	4.05	6.1
Maximum height (metres)	3.66	3.66
Minimum height of enclosure (metres)	0.457	0.457
Minimum distance from top of generator to ceiling, or combustible material or obstruction (metres)	0.305	0.305

3. Equipment Covered by this Listing

The following ANSUL® Micro-K™ Mechanically-Ignited Pyrotechnic Aerosol Type Fire-Suppression System components are covered in SSL's ActivFire Scheme listing.

Description	ANSUL® Part No.
Air Cylinder Assembly	15733
Alarm Bell, 120 Vac	24751
Ansul AUTOMAN Electrical/Pneumatic Release Panel	426588
Ansul AUTOMAN Mechanical/Pneumatic Release Panel	426587
Band style Bracket, 0.6 kg Generator	57698
Band style Bracket, 1.1 kg Standard & 'P' Generators	427616
Clamp Style Bracket, 1.1 kg Standard Generator	422737
Cocking Lever, AUTOMAN Panels	14995
Conduit Offset Assembly	79825
Electric Snap-Acting Switch Kit, Four Switches	423881
Electric Snap-Acting Switch Kit, One Switch	423878
Electric Snap-Acting Switch Kit, Three Switches	423880
Electric Snap-Acting Switch Kit, Two Switches	423879
Electric Thermal Detector (Rate Compensating), 107°C	13976

Technical Specification (continued)**3. Equipment Covered by this Listing (continued)**

Description	ANSUL® Part No.
Electric Thermal Detector (Rate Compensating), 163°C	13975
Electric Thermal Detector (Rate Compensating), 232°C	13974
Electric Thermal Detector (Rate Compensating), 316°C	13971
Electric Thermal Detector (Rate Compensating), 385°C	13977
Electric Thermal Detector (Rate Compensating), 60°C	4727
Electric Thermal Detector (Rate Compensating), 88°C	13970
Fusible Link, 'K' Style, 100°C	415740
Fusible Link, 'K' Style, 138°C	415741
Fusible Link, 'K' Style, 182°C	415742
Fusible Link, 'K' Style, 232°C	415743
Fusible Link, 'K' Style, 74°C	415739
Fusible Link, 'ML' Style, 260°C	56816
Lock Bar, AUTOMAN Panels	14985
Mechanical Actuator, with Manual Pull Station	419264
Mechanical Fire Detector, Series Type	417369
Mechanical Fire Detector, Terminal Type	417368
Micro-KTM Generator, Pressure ('P') Type, 1.1 kg	426810
Micro-KTM Generator, Standard Type, 0.6 kg	417948
Micro-KTM Generator, Standard Type, 1.1 kg	418202
Micro-KTM Mechanical Fire Suppression System - Installation, Operation, Recharge, Inspection, and Maintenance Manual, dated 11-1-99, ULC Listed ULC CEx 1336	427605
Nitrogen Cartridge, AUTOMAN Model LT-10-R	13193
Pressure Switch, Re-settable, DPDT Type, Crouse-Hinds	24377
Pressure Switch, Re-settable, DPDT Type, Crouse-Hinds	46250
Pressure Switch, Re-settable, SPDT Type, Crouse-Hinds	53133
Pressure Trip	5156
Pulley Elbow, Compression Joint Type	423250
Pulley Elbow, Socket Joint Type	415670
Pulley Tee	15342
Remote Manual Pull Station, with 15 m Wire Rope cable	54011
Remote Manual Pull Station, without Wire Rope cable	4835
Safety Relief Valve	15677
Unistrut Channel, Band Style Brackets	68379
Wire rope cable, 15 m	15821
Wire rope cable, 152 m	79653

Supplementary information

Nil Supplementary Information.