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# A-101

## Fire Suppression System

### Models 10, 20, 30, 125, 250



#### Application

The Ansul A-101 Fire Suppression System is an automatic or manual fire suppression system using FORAY® (monoammonium phosphate base) dry chemical agent for Class A, B, and C fires. The fire suppression system is designed for use on large, off-road type construction and mining equipment (such as large excavators/ shovels, draglines, haul trucks, wheeled loaders), and speciality vehicles (such as slag, pot and/or slab carriers, tunnel boring machines, solid waste handling equipment, and forestry vehicles). These types of equipment have large volumes of oils and hydraulic fluids under pressure.

The fire system described is a suppression system only and is not designed or intended to extinguish all fires. It is extremely important that alternative firefighting equipment be available in case the system does not totally extinguish a fire.

If an automatic fire detection and actuation system has not been supplied or has been disconnected, system actuation and discharge will not occur unless the fire suppression system is manually actuated.

#### Features

- FM Approved
  - CE Marked
  - Manual and/or Automatic Detection and Actuation
  - Extreme Temperature Option
  - Low Profile Tank Option
  - Rugged Construction
  - Approved for use in under ground mines for either manual or automatic agent release (automatic detection system incorporating MSHA Approved Ansul CHECKFIRE® MP-N Detection System)
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## Description

The Ansul A-101 Fire Suppression System is a pre-engineered, cartridge-operated dry chemical system with a fixed nozzle distribution network. It is approved by Factory Mutual Research Corporation (FMRC).

The system is capable of automatic detection and actuation and/or remote manual actuation. When a fire is detected, the A-101 system is actuated either manually or automatically, operating the pneumatic actuator. The pneumatic actuator ruptures a seal disc in the expellant gas cartridge. This, in turn, pressurises and fluidises the dry chemical extinguishing agent in the tank, ruptures the burst disc when the required pressure is reached, and propels the dry chemical through the network of distribution hose. The dry chemical is discharged through fixed nozzles and into the protected areas, suppressing the fire.

The automatic detection portion of the fire suppression system incorporates electric detection, either linear detection wire or spot detection.

The fire suppression system is capable of providing total flooding or local application hazard protection for mobile equipment and industrial hazards.

The basic system consists of: Dry Chemical Agent Storage Tank(s), Expellant Gas Cartridge, Distribution Piping (Hose) and Nozzles, Manual/ Automatic Actuator, Automatic Detection System, and Accessories.

### Agent Storage Tank

The agent storage tank(s) consist of a welded steel tank, gas tube, brass fill cap, agent outlet bursting disc and union, and instruction nameplate. Tanks for temperature ranges of 0°C to +49°C (+32°F to +120°F) and the LT-A-101-10, have a cartridge receiver and an expellant gas cartridge located on the side of the tank. Low profile and extreme temperature model tanks (-54°C to +99°C (-65°F to +210°F) have a separate remote cartridge which is connected to the tank by high pressure 1/4 in. hose. The tank is painted with a red enamel paint. Agent storage tanks are available in five sizes (10 lb., 20 lb., 30 lb., 125 lb. and 250 lb.

### Mounting Bracket (10, 20, 30)

Tank mounting bracket consists of a rugged, welded steel back plate and clamp arm assembly. The bracket is designed to retain and protect the agent storage tank in the normal hostile environment that these systems are installed in. The bracket is painted red enamel and can be mounted by bolting or welding.

### Mounting Ring (125, 250)

The mounting ring for the 125, 250 tanks is fabricated of 1/2 in. steel. The ring conforms to the outline of the tank assembly bottom. The ring can be welded to the mounting surface and the tank can then be bolted to the ring, using the pre-threaded holes in the ring.

### Expellant Gas Cartridge

The expellant gas cartridge is a spun high pressure cartridge containing either carbon dioxide for temperature ranges of 0°C to +49°C (+32°F to +120°F), or nitrogen for extreme temperature ranges of -54°C to +99°C (-65°F to +210°F).

### Distribution Piping (Hose) and Nozzles

The distribution piping (hose) network is designed to properly distribute the dry chemical to the nozzles. To survive the vibration found on mobile equipment, hose is used to distribute the dry chemical. In the A-101 pre-engineered system, hose sizes, maximum and minimum hose lengths, and number of nozzles are predetermined. There are three types of nozzle available for the A-101 system. Each type of nozzle has been designed and tested for various applications and area of coverage. Nozzle blow-off caps are available to keep the nozzles free of dirt and grease.

### Manual/Automatic Actuator(s)

The manual actuator consists of an actuator body, a nitrogen cartridge, and a mounting bracket. Two types of manual actuators are available: Remote type and Dashboard type. The Remote type uses either the "S" style bracket or the cartridge guard style enclosure. The Dashboard type uses the "L" or "S" style mounting bracket. When the manual actuator is operated by hand, gas supplied from the nitrogen cartridge is released into 1/4 in. actuation hose. This nitrogen pressure then operates the pneumatic actuator that punctures a larger expellant gas cartridge (either carbon dioxide or nitrogen) and this fluidises and propels the dry chemical from the agent storage tank.

Automatic actuators ( a component of the automatic detection system) operate the same way, except they can be operated automatically by the detection system.

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#### Automatic Detection System

Three automatic detection systems are available for use with the Ansul A-101 fire suppression systems: CHECKFIRE Series I, CHECKFIRE SC-N, or the CHECKFIRE MP-N.

Mounting location temperatures for the control modules for the detection systems are as follows:

CHECKFIRE Series I	-40°C to +60°C (-40°F to +140°F)
CHECKFIRES-C-N	-40°C to +60°C (-40°F to +140°F)
CHECKFIRE MP-N	0°C to +49°C (+32°F to +120°F)

CHECKFIRE systems utilise either an electrical, mechanical, or pneumatic principle. Three types of detector options can be used: A temperature-sensitive linear wire, a spot-type heat detector, or a gas filled stainless steel tubing.

Temperature-sensitive linear wire – When fire breaks out, the wire's insulation melts, completing an electrical circuit and causes the detection system to actuate the fire suppression system.

Spot-type heat detectors – Internal contacts will close when temperature of the surrounding air reaches the set point temperature of the detector. This action completes an electrical circuit and causes the detection system to actuate the fire suppression system.

Gas filled stainless steel tubing – When the gas in the tubing heats up, the increase in pressure operates a responder, thus completing an electrical circuit and causes the detection system to actuate the fire suppression system.

#### Specifications

The fire suppression system shall be the dry chemical pre-engineered fixed nozzle cartridge- operated type, incorporating automatic detection with engine shutdown capabilities. It shall be approved by Factory Mutual Research Corporation (FMRC) for the hazards to be protected based on actual fire tests by the manufacturer and confirmed by the nationally recognised testing laboratory. The design of the system (specific hose sizes, maximum and minimum lengths, hose specifications, number of fittings, number and type of nozzles, and quantity of dry chemical) shall provide protection for the hazard as prescribed by the national testing laboratory. Installation shall be in accordance with the approved Design, Installation, Maintenance Manual and conform to NFPA Standard 17, "Dry Chemical Extinguishing System," and NFPA Standard 121, "Mobile Surface Mining Equipment."

#### Approval

The A-101 System has been approved by Factory Mutual Research Corporation (FMRC). CE Marked.

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Model, Part No. & Unit Elements	Dimensions & Shipping Weight	Capabilities, Capacity & Temperature	Nozzles & Cartridges	Actuation
<b>A-101-10</b> Part No. 16559  Basic unit consists of: – Agent tank with CO <sup>2</sup> cartridge – Tank mounting bracket	Height with bracket 16.75 in. (425.5 mm) Height without bracket 16.5 in. (419.1 mm) Width with bracket 8.25 in. (209.5 mm) Depth with bracket 5.25 in. (133.4 mm) Weight with bracket 31 lbs. (14 kg)	Total flooding: 350 cu. ft. (9.9m <sup>3</sup> ) 8.5 lbs (3.9 kg) FORAY Multi-purpose dry chemical +32°F to +120°F (0°C to +49°C)	F-1/2, C-1/2 or V-1/2, 2 per tank maximum  Dry chemical propellant (CO <sup>2</sup> ) 840 PSI (57.2 bar at 70°F (21°C)) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>A-101-20</b> Part No. 16430  Basic unit consists of: – Agent tank with CO <sup>2</sup> cartridge – Tank mounting bracket	Height with bracket 19.88 in. (504.8 mm) Height without bracket 19.88 in. (504.8 mm) Width with bracket 11.5 in. (292.1 mm) Depth with bracket 8 in. (203.2mm) Weight with bracket 43 lbs. (19.5 kg)	Total flooding: 700 cu. ft. (19.8m <sup>3</sup> ) 17 lbs (7.7 kg) FORAY Multi-purpose dry chemical +32°F to +120°F (0°C to +49°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (CO <sup>2</sup> ) 840 PSI (57.2 bar at 70°F (21°C)) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>A-101-20-B</b> Part No. 31344  Basic unit consists of: – Agent tank – Tank mounting bracket – CO <sup>2</sup> cartridge – Cartridge bracket – Pneumatic actuator	Height with bracket 15.25 in. (387.3 mm) Height without bracket 14.88 in. (377.8 mm) Width with bracket 9.75 in. (247.6 mm) Depth with bracket 8.5 in. (215.9 mm) Weight with bracket 54 lbs. (24.4 kg)	Total flooding: 700 cu. ft. (19.8m <sup>3</sup> ) 17 lbs (7.7 kg) FORAY Multi-purpose dry chemical +32°F to +120°F (0°C to +49°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (CO <sup>2</sup> ) 840 PSI (57.2 bar at 70°F (21°C)) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>A-101-30</b> Part No. 16131  Basic unit consists of: – Agent tank with CO <sup>2</sup> cartridge – Tank mounting bracket	Height with bracket 23 in. (584.2 mm) Height without bracket 22 in. (558.8 mm) Width with bracket 12 in. (304.8 mm) Depth with bracket 9.5 in. (241.3 mm) Weight with bracket 61 lbs. (27.6 kg)	Total flooding: 1,000 cu. ft. (28.2m <sup>3</sup> ) 25 lbs (11.3 kg) FORAY Multi-purpose dry chemical +32°F to +120°F (0°C to +49°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (CO <sup>2</sup> ) 840 PSI (57.2 bar at 70°F (21°C)) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>LT-A-101-10</b> Part No. 31581  Basic unit consists of: – Agent tank with CO <sup>2</sup> cartridge – Tank mounting bracket	Height with bracket 16.75 in. (425.5 mm) Height without bracket 16.5 in. (419.1 mm) Width with bracket 8.25 in. (209.5 mm) Depth with bracket 5.25 in. (133.4 mm) Weight with bracket 31 lbs. (14 kg)	Total flooding: 350 cu. ft. (9.9m <sup>3</sup> ) 8.5 lbs (3.9 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 2 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C)) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button

Model, Part No. & Unit Elements	Dimensions & Shipping Weight	Capabilities, Capacity & Temperature	Nozzles & Cartridges	Actuation
<b>LT-LP-A-101-20-B</b> Part No. 24307  Basic unit consists of: – Agent tank – Tank mounting bracket – N2 cartridge – Cartridge bracket – Pneumatic actuator	Height with bracket 15.25 in. (387.3 mm) Height without bracket 14.88 in. (377.8 mm) Width with bracket 9.75 in. (247.6 mm) Depth with bracket 8.5 in. (215.9 mm) Weight with bracket 54 lbs. (24.4 kg)	Total flooding: 700 cu. ft. (19.8m <sup>3</sup> ) 17 lbs (7.7 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>LT-A-101-20</b> Part No. 24306  Basic unit consists of: – Agent tank – Tank mounting bracket – N2 cartridge – Cartridge bracket – Pneumatic actuator	Height with bracket 22.38 in. (568.3 mm) Height without bracket 21.38 in. (542.9 mm) Width with bracket 12 in. (304.8 mm) Depth with bracket 9.5 in. (241.3 mm) Weight with bracket 43 lbs. (19.5 kg)	Total flooding: 700 cu. ft. (19.8m <sup>3</sup> ) 17 lbs (7.7 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>LT-A-101-30</b> Part No. 53003  Basic unit consists of: – Agent tank – Tank mounting bracket – N2 cartridge 24883 – Cartridge bracket – Pneumatic actuator	Height with bracket 22.63 in. (574.6 mm) Height without bracket 22.38 in. (568.3 mm) Width with bracket 9.88 in. (258.8 mm) Depth with bracket 7.75 in. (196.8 mm) Weight with bracket 66 lbs. (29.9 kg)	Total flooding: 1,000 cu. ft. (28.2m <sup>3</sup> ) 25 lbs (11.3 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 6 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>LT-A-101-125</b> Part No. 427745  Basic unit consists of: – Agent tank – N2 cartridge – Cartridge bracket – Pneumatic actuator	Height 31 in. (787 mm) Width 18 in. (457 mm) Depth 22 in. (559 mm) Weight 247 lbs. (112 kg)	Total flooding: 4,000 cu. ft. (113m <sup>3</sup> ) 112 lbs (50.8 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 12 or 16 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button
<b>LT-A-101-250</b> Part No. 427746  Basic unit consists of: – Agent tank – N2 cartridge – Cartridge bracket – Pneumatic actuator	Height 44 in. (1118 mm) Width 22 in. (559 mm) Depth 28 in. (711 mm) Weight 525 lbs. (238 kg)	Total flooding: 4,000 cu. ft. (113m <sup>3</sup> ) 225 lbs (102.1 kg) FORAY Multi-purpose dry chemical -65°F to +210°F (-54°C to +99°C)	F-1/2, C-1/2 or V-1/2, 12, 16 or 24 per tank maximum  Dry chemical propellant (N2) 1800 PSI (122.5 bar at 70°F (21°C) Remote actuators (N2) 1800 PSI (122.5 bar) at 70°F (21°C)	Electronic detection with pneumatic actuation; manual remote pneumatic, push button