

### FEATURES

- FM Approved
- 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 Detection System)

### APPLICATIONS

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 system is designed for use on industrial equipment and a wide variety of hazards found on mobile equipment used in many different markets such as:

- Agricultural
- Construction
- Forestry
- Mining
- Solid Waste Handling
- Public Utilities
- Public Transportation

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.

### 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, pressurizes and fluidizes 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 fixed temperature heat detection using linear pneumatic detection tubing or 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) consists of a welded steel tank, gas tube, brass fill cap, agent outlet bursting disc and union, and instruction nameplate. Tanks for temperature ranges of +32 °F to +120 °F (0 °C to +49 °C) 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, (–65 °F to +210 °F (–54 °C to +99 °C)), have a separate remote cartridge which is connected to the tank by a high pressure 1/4 in. hose. The tank is painted with a red enamel paint. Agent storage tanks are available in nominal three sizes (10 lb., 20 lb., and 30 lb.).



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**Mounting Bracket** – 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.

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

**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 nozzles 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 fluidizes 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.

**Automatic Detection System** – Two types of automatic detection systems are available for use with the Ansul A-101 fire suppression systems: Electric or pneumatic.

Electric systems consist of the CHECKFIRE Series I, CHECKFIRE SC, or the CHECKFIRE MP.

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

CHECKFIRE Series I	–40 °F to +140 °F (–40 °C to +60 °C)
CHECKFIRE SC	–40 °F to +140 °F (–40 °C to +60 °C)
CHECKFIRE MP	+32 °F to +120 °F (0 °C to +49 °C)
CHECKFIRE Pneumatic	–40 °F to +120 °F (0 °C to +49 °C)

## SPECIFICATION CHART

Model	Part No.	Capabilities (Application Guidelines)	Capacity	Shipping Weight
A-101-10 Basic unit consists of: • Agent tank with CO <sub>2</sub> cartridge • Tank mounting bracket • Installation manual	16559	Total flooding: 350 cu. ft. (9.9 m <sup>3</sup> ) Overhead: 12.5 sq. ft. (1.2 m <sup>2</sup> ) Tankside: 25 sq. ft. (2.3 m <sup>2</sup> )	8 1/2 lbs. (3.9 kg) FORAY multi-purpose dry chemical	31 lbs. (14 kg) (with bracket)
A-101-20 Basic unit consists of: • Agent tank with CO <sub>2</sub> cartridge • Tank mounting bracket • Installation manual	16430	Total flooding: 700 cu. ft. (19.8 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	17 lbs. (7.7 kg) FORAY multi-purpose dry chemical	43 lbs. (19.5 kg) (with bracket)
LP-A-101-20-B Basic unit consists of: • Agent tank • Tank mounting bracket • CO <sub>2</sub> cartridge • Cartridge bracket • Pneumatic actuator • Installation manual	31344	Total flooding: 700 cu. ft. (19.8 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	17 lbs. (7.7 kg) FORAY multi-purpose dry chemical	54 lbs. (24.4 kg) (with bracket)
A-101-30 Basic unit consists of: • Agent tank with CO <sub>2</sub> cartridge • Tank mounting bracket • Installation manual	16131	Total flooding: 1000 cu. ft. (28.2 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	25 lbs. (11.3 kg) FORAY multi-purpose dry chemical	61 lbs. (27.6 kg) (with bracket)
LT-A-101-10 Basic unit consists of: • Agent tank with CO <sub>2</sub> cartridge • Tank mounting bracket • Installation manual	31581	Total flooding: 350 cu. ft. (9.9 m <sup>3</sup> ) Overhead: 12.5 sq. ft. (1.2 m <sup>2</sup> ) Tankside: 25 sq. ft. (2.3 m <sup>2</sup> )	8 1/2 lbs. (3.9 kg) FORAY multi-purpose dry chemical	31 lbs. (14 kg) (with bracket)
LT-LP-A-101-20-B Basic unit consists of: • Agent tank • Tank mounting bracket • N <sub>2</sub> cartridge • Cartridge bracket • Pneumatic actuator • Installation manual	24307	Total flooding: 700 cu. ft. (19.8 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	17 lbs. (7.7 kg) FORAY multi-purpose dry chemical	54 lbs. (24.4 kg) (with bracket)
LT-A-101-20 Basic unit consists of: • Agent tank • Tank mounting bracket • N <sub>2</sub> cartridge • Cartridge bracket • Pneumatic actuator • Installation manual	24306	Total flooding: 700 cu. ft. (19.8 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	17 lbs. (7.7 kg) FORAY multi-purpose dry chemical	43 lbs. (19.5 kg) (with bracket)
LT-A-101-30 Basic unit consists of: • Agent tank • Tank mounting bracket • Installation manual	53003	Total flooding: 1000 cu. ft. (28.2 m <sup>3</sup> ) Overhead: 25 sq. ft. (2.3 m <sup>2</sup> ) Tankside: 50 sq. ft. (4.6 m <sup>2</sup> )	25 lbs. (11.3 kg) FORAY multi-purpose dry chemical	66 lbs. (29.9 kg) (with bracket)
• N <sub>2</sub> cartridge • Cartridge bracket • Pneumatic actuator	24883	(4.6 m <sup>2</sup> )		

CHECKFIRE Electric systems utilize 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 the 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.

CHECKFIRE Pneumatic operates using a simple mechanical/pneumatic principle. Pressurized detection tubing runs throughout the hazard area. When a fire breaks out in that area, the tubing melts, releasing its pressure. The absence of pressure causes the detection system to actuate the fire suppression system. (Refer to the specific Checkfire Data Sheets for more information.)

	Dimensions	Actuation	Nozzles	Cartridges	Temperature
	H: 16 3/4 in. (425.5 mm) (with bracket) 16 1/2 in. (419.1 mm) (without bracket) W: 8 1/4 in. (209.5 mm) (with bracket) D: 5 1/4 in. (133.4 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 2 per tank maximum	Dry chemical propellant (CO <sub>2</sub> ) 840 PSI (57.2 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	+32 °F to +120 °F (0 °C to +49 °C)
	H: 19 7/8 in. (504.8 mm) (with bracket) 19 7/8 in. (504.8 mm) (without bracket) W: 11 1/2 in. (292.1 mm) (with bracket) D: 8 in. (203.2 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (CO <sub>2</sub> ) 840 PSI (57.2 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	+32 °F to +120 °F (0 °C to +49 °C)
	H: 15 1/4 in. (387.3 mm) (with bracket) 14 7/8 in. (377.8 mm) (without bracket) W: 9 3/4 in. (247.6 mm) (with bracket) D: 8 1/2 in. (215.9 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (CO <sub>2</sub> ) 840 PSI (57.2 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	+32 °F to +120 °F (0 °C to +49 °C)
	H: 23 in. (584.2 mm) (with bracket) 22 in. (558.8 mm) (without bracket) W: 12 in. (304.8 mm) (with bracket) D: 9 1/2 in. (241.3 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (CO <sub>2</sub> ) 840 PSI (57.2 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	+32 °F to +120 °F (0 °C to +49 °C)
	H: 16 3/4 in. (425.4 mm) (with bracket) 16 1/2 in. (419.1 mm) (without bracket) W: 8 1/4 in. (209.5 mm) (with bracket) D: 5 1/4 in. (133.3 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 2 per tank maximum	Dry chemical propellant (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	-65 °F to +210 °F (-54 °C to +99 °C)
	H: 15 1/4 in. (387.3 mm) (with bracket) 14 7/8 in. (377.8 mm) (without bracket) W: 9 3/4 in. (247.6 mm) (with bracket) D: 8 1/2 in. (215.9 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	-65 °F to +210 °F (-54 °C to +99 °C)
	H: 22 3/8 in. (568.3 mm) (with bracket) 21 3/8 in. (542.9 mm) (without bracket) W: 12 (304.8 mm) (with bracket) D: 9 1/2 in. (241.3 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	-65 °F to +210 °F (-54 °C to +99 °C)
	H: 22 5/8 in. (574.6 mm) (with bracket) 22 3/8 in. (568.3 mm) (without bracket) W: 9 7/8 (258.8 mm) (with bracket) D: 7 3/4 in. (196.8 mm) (with bracket)	Electric or Pneumatic detection each with pneumatic actuation; manual remote pneumatic, push button	F-1/2, C-1/2 or V-1/2, 6 per tank maximum	Dry chemical propellant (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C) Remote actuators (N <sub>2</sub> ) 1800 PSI (122.5 bar) at 70 °F (21 °C)	-65 °F to +210 °F (-54 °C to +99 °C)

## **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 recognized 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 Ansul A-101 System has been approved by Factory Mutual Research Corporation.

## **ORDERING INFORMATION**

Order all system components through Ansul Customer Service Department, One Stanton Street, Marinette, WI 54143-2542  
(715) 735-7411.

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