

1. GENERAL

- 1.1 The system shall be a pre-engineered, fixed pipe, automatic dry chemical fire suppression system for protection of all hazards including, as applicable, hazard material storage, tanks, spill areas, work areas, plenums, exhaust ventilation pits, and ductwork requiring protection.
- 1.2 The system shall be Kidde Dry Chemical, Model IND, manufactured by Kidde Fire Systems, 400 Main Street, Ashland, MA 01721, USA. The manufacturer shall be ISO 9001:2015 certified.
- 1.3 All requirements outlined in this specification shall be completed in their entirety. These requirements, combined with good engineering practices must be followed in order to produce a safe and effective fire protection and suppression system.

2. CODES & STANDARDS COMPLIANCE

- 2.1 The system shall conform to, and be in accordance with, the following (as applicable):
 - A. UL 1254, *Standard for Pre-Engineered Dry Chemical Extinguishing System Units*
 - B. FM Approvals, where applicable
 - C. NFPA 17: *Standard on Dry Chemical Extinguishing Systems*
 - D. NFPA 33: *Standard for Spray Application Using Flammable or Combustible Materials*
 - E. NFPA 34: *Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids*
 - F. NFPA 70: *National Electrical Code® (NEC)*
 - G. NFPA 72: *National Fire Alarm and Signaling Code*
 - H. Kidde Fire Systems *Dry Chemical Industrial and Open-Face Spray Booth Fire Suppression System Design, Installation, Operation and Maintenance (DIOM) Manual* part number WK-220423-000, and all applicable addenda, as identified by Underwriters Laboratories File No. UL EX2153
 - I. All applicable insurance company requirements
 - J. All applicable local and state codes and standards
 - K. Requirements of the Local Authorities Having Jurisdiction (AHJ)
- 2.2 The fire suppression system must have the following listings and approvals:
 - A. Underwriter's Laboratories (UL)
 - B. Underwriter's Laboratories Canada (ULC)
 - C. FM Global (Industrial Applications)
 - D. Fire Department, City of New York, Certificate of Approval
- 2.3 The manufacturer shall meet ISO 9001 requirements for the design, production and distribution of the IND Dry Chemical fire suppression systems.

3. SYSTEM DESCRIPTION

- 3.1 All Industrial Dry Chemical fire suppression equipment and accessories shall be manufactured and/or supplied by Kidde Fire Systems, 400 Main Street, Ashland, MA 01721, USA, Telephone 508.881.2000, www.kiddefiresystems.com.

- 3.2 The manufacturer shall warrant all IND fire suppression system products for three (3) years from the date of purchase.
- 3.3 The system shall be installed by a factory-authorized, Kidde Fire Systems distributor. The organization and installer shall be trained by the manufacturer to design, install, test and maintain the IND Dry Chemical Fire suppression system and shall be able to produce a certificate stating such on request.
- 3.4 The dry chemical fire suppression system for the {specify application} shall be a pre-engineered, modular Kidde model IND designed for {select one: Total Flood / Local Application / Open Front Spray Booth} hazards.
- 3.5 The system shall consist of Kidde IND Dry Chemical storage Cylinder(s), Kidde XV Control System, Kidde actuation hardware, and Kidde agent distribution nozzles attached to a pipe network.
- 3.6 The system shall be suitable for suppression of {select all applicable hazard type(s): Class A (wood, paper, cloth), Class B (flammable liquid) and Class C (electrical)} fires and shall employ {select one: Kidde 90 Multi-Purpose ABC / Kidde Regular BCM} Dry Chemical agent.

4. COMPONENTS

4.1 IND Cylinder and Valve Assembly

- A. The Kidde dry chemical agents shall be contained in one or more stored pressure DOT/TC rated steel cylinder and valve assemblies. Cylinders requiring an external source to pressurize the agent shall not be acceptable.
- B. The Kidde Model IND cylinder(s) shall be of the appropriate type, quantity, and size for the protected area(s), as required by the Kidde DIOM manual.
- C. The cylinder(s) shall have a tin-nickel alloy plated brass valve, with pressure gauge. Agent cylinders without pressure gauges shall not be acceptable. The valve shall contain a check stem which is operated by the stroke of the actuating assembly. Agent cylinders utilizing a burst disc as a means of sealing the discharge outlet will not be acceptable.
- D. The cylinder and valve assemblies shall be factory pressurized with nitrogen to 360 PSIG (24.8 bar) at 70°F (21.1°C). The cylinder and valve assemblies shall be capable of being stored and operated at a temperature range of -40°F to 120°F (-40°C to 48.9°C).
- E. The cylinder shall have a shield to protect the gauge. The shield shall be a separate assembly from that of the gauge, and shall be separately mounted.
- F. Kidde bracketing shall be provided to mount the cylinder securely to the intended mounting surface.

4.2 Control Equipment

- A. The system control equipment shall be capable of all functions associated with automatically and manually discharging the dry chemical agent from all cylinder-and-valve assemblies, including automatic shutdown of the fuel and heat source(s), and electrical power, to all protected areas upon system discharge.
- B. The system control equipment shall include a control head, model XV, for each system, and a System Valve Actuator for each cylinder valve. The control head shall be capable of attachment directly to a cylinder actuator, or wall mounted, whichever is applicable.

- C. The system shall be capable of automatic and manual actuation. The control head shall be capable of actuation by electrical and/or mechanical means. The control head shall be equipped with micro-switch contacts for audible alarm and/or equipment shutdown. All cylinders protecting a single-hazard area must be connected for simultaneous discharge by all methods of system actuation
 - 1. For automatic electric actuation, the electric solenoid shall be actuated by a listed and compatible control panel. The detectors shall be Fenwal Detect-a-Fire thermostat fire detectors. All detection and releasing circuits shall be supervised and the system shall provide for a secondary power supply calculated, at minimum, according to NFPA and UL standards. Fenwal thermostats shall be located according to NFPA 72, standard for detection, and shall be chosen with a rating suitable to their expected normal exposure temperature(s).
 - 2. For automatic mechanical actuation, the system control head shall be activated by Kidde Fire Systems KG series link fire detectors. A mechanical thermo-bulb link system shall require no outside source of power for operation. Thermo-bulb links shall be located in accordance with the Kidde IND DIOM manual part number WK-220423-000, and applicable NFPA, UL, FM, and local standards. Thermo-bulb link(s) shall be chosen with a rating suitable to their expected normal exposure temperature(s).

4.3 Distribution Nozzles

Nozzle type(s) and quantity shall be selected and located to protect all hazard areas requiring protection per Kidde Fire Systems DIOM manual part number WK-220423-000, all applicable codes, and requirements of the local AHJ.

4.4 Distribution Piping

- A. The distribution pipe network shall be Schedule 40 galvanized steel pipe. Pipe thread compound or tape shall not be used.
- B. All fittings shall be 150lb class minimum, galvanized malleable iron, ductile iron, or steel. Couplings and unions shall be permissible.
- C. Use of reducing bushings and reducing tees for shall be permissible for changes in pipe diameter.

5. SYSTEM INSTALLATION AND COMMISSIONING

5.1 Kidde IND Fire Suppression System Equipment

A factory authorized Kidde Fire Systems distributor shall install and commission the system in accordance with Kidde Fire Systems DIOM manual part number WK-220423-000.

5.2 Training Requirements

The installer shall be trained and certified by Kidde Fire Systems on design, installation, testing and maintenance of the Kidde IND Dry Chemical Fire Suppression System.

5.3 Routine Maintenance

Routine maintenance shall be performed by an authorized Kidde Fire Systems distributor, and in accordance with Kidde Fire Systems DIOM manual part number WK-220423-000, NFPA 17, all applicable local codes and standards, and requirements of the local Authority Having Jurisdiction.