

## Model F822 thru F834 Mulsifyre® Directional Spray Nozzles, Open, High Velocity

### General Description

The Mulsifyre Nozzles are open (non-automatic) nozzles and they are designed for use in water spray fixed systems for fire protection applications where a high velocity water application may be required. There are two configurations: the basic Mulsifyre Nozzle shown in Figure 1 and the Mulsifyre Nozzle with Model F880 Dust Cap shown in Figure 2. Each configuration is available in six different models that provide a wide range of orifice sizes and water distribution characteristics.

The Mulsifyre Nozzles are internal scroll type nozzles and they discharge a uniformly filled cone of relatively high velocity water droplets. Although the Mulsifyre Nozzles are designed primarily for use in fire extinguishment and control, they can also be used for exposure protection.

The Mulsifyre Nozzles are typically used in water spray fixed systems for the protection of special hazards such as:

- oil filled transformers and switching equipment,
- flammable liquid and gas storage tanks,
- chemical process equipment,

#### IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the nozzle to fail to operate in a fire situation.

- conveyor systems,
- openings in fire walls, and
- other equipment that is defined as hazardous due to the possibility of a rapidly spreading fire.

Mulsifyre Nozzles with Model F880 Dust Caps are used in applications where protection is required against insect infestation or accumulation of debris within the nozzle. The Dust Cap is designed for both indoor and outdoor use.

It is recommended that the end user be consulted with respect to the suitability of the materials of construction for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, at a minimum, along with the corrosive nature to which the nozzles may be exposed.

The Model F822 thru F834 Mulsifyre Nozzles are a redesignation for the Gem Model F822 thru F834.

#### WARNINGS

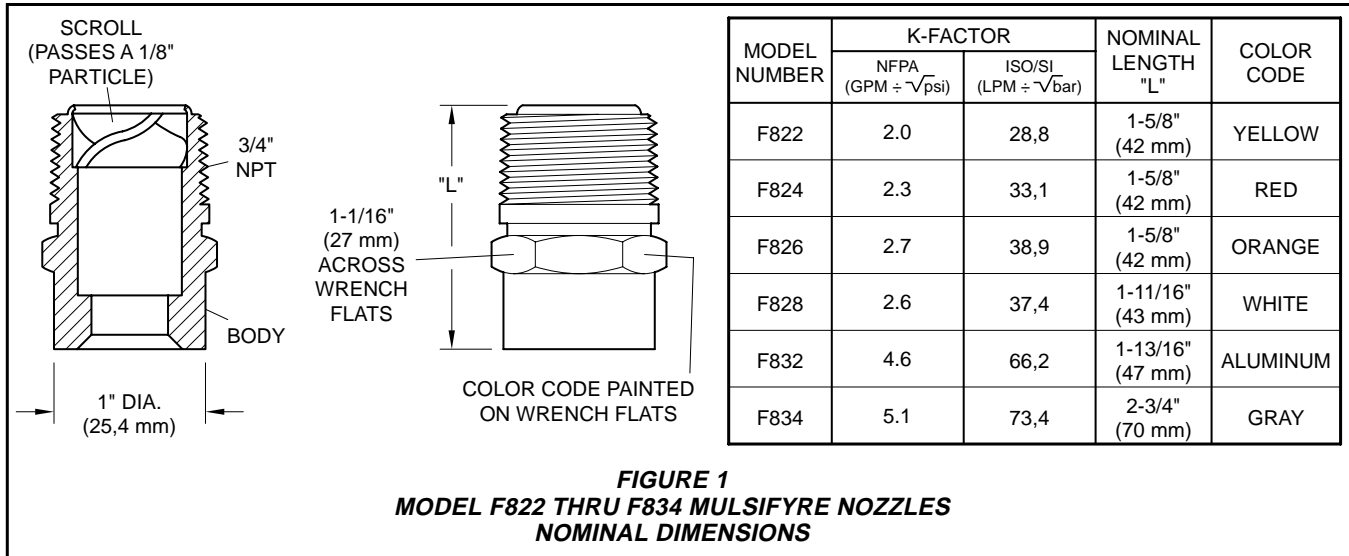
*The Mulsifyre Nozzles described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. **Failure to do so may impair the performance of these devices.***

*The design of individual water spray fixed systems can vary considerably, depending on the characteristics and nature of the hazard, the basic purpose of the spraying system, the configuration of the hazard, and wind/draft conditions. Because of these variations as well as the wide range of available nozzle spray characteristics, the design of water spray fixed systems for fire protection must only be performed by experienced designers who thoroughly understand the limita-*



*tions as well as capabilities of such systems.*

*The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.*



## Technical Data

### Approvals

The Model F822 thru F836 Mulsifyre Nozzles are UL and ULC Listed, as well as FM Approved.

The Model F822 thru F836 Mulsifyre Nozzles with Model F880 Dust Caps are UL and ULC Listed.

### Maximum Working Pressure

175 psi (12,1 bar).  
Also refer to Figure 3, Note 2.

### Discharge Coefficient

Refer to Figure 1.

### Water Distribution

Refer to Figure 2. Optimum flow pressure is 30 to 60 psi (2,1 to 4,1 bar).

### Thread Connection

3/4 inch NPT.

### Physical Characteristics (Basic Nozzle)

Body . . . . . Brass  
Scroll . . . . . Brass

### Physical Characteristics (Nozzle with Dust Cap)

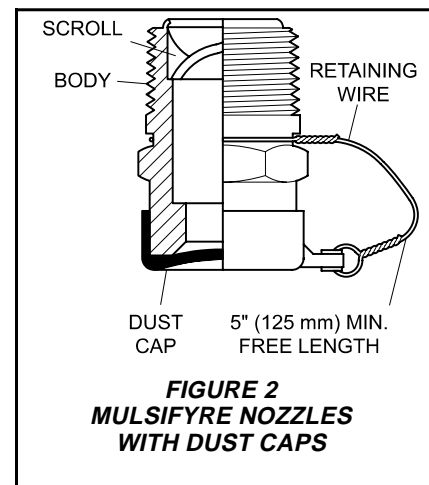
Body . . . . . Chrome Plated Brass  
Scroll . . . . . Brass  
Dust Cap . . . . . EPDM  
Wire . . . . . Stainless Steel

pletely cover the plane-of-protection with the minimum required average density. With reference to Figure 2, use of the "Design Spray Profile" for the "Design Spray Area" will help assure that direct impingement on all surfaces will occur. The "Design Spray Area" shown at the top Figure 2 - Part 2 of 2 on Page 4 consists of the square of length "S" within the circular "Overall Spray Area".

The maximum recommended axial distances given in Figure 2 are based on maintaining the specified spray patterns under a maximum wind condition of 15 MPH (24 km/h).

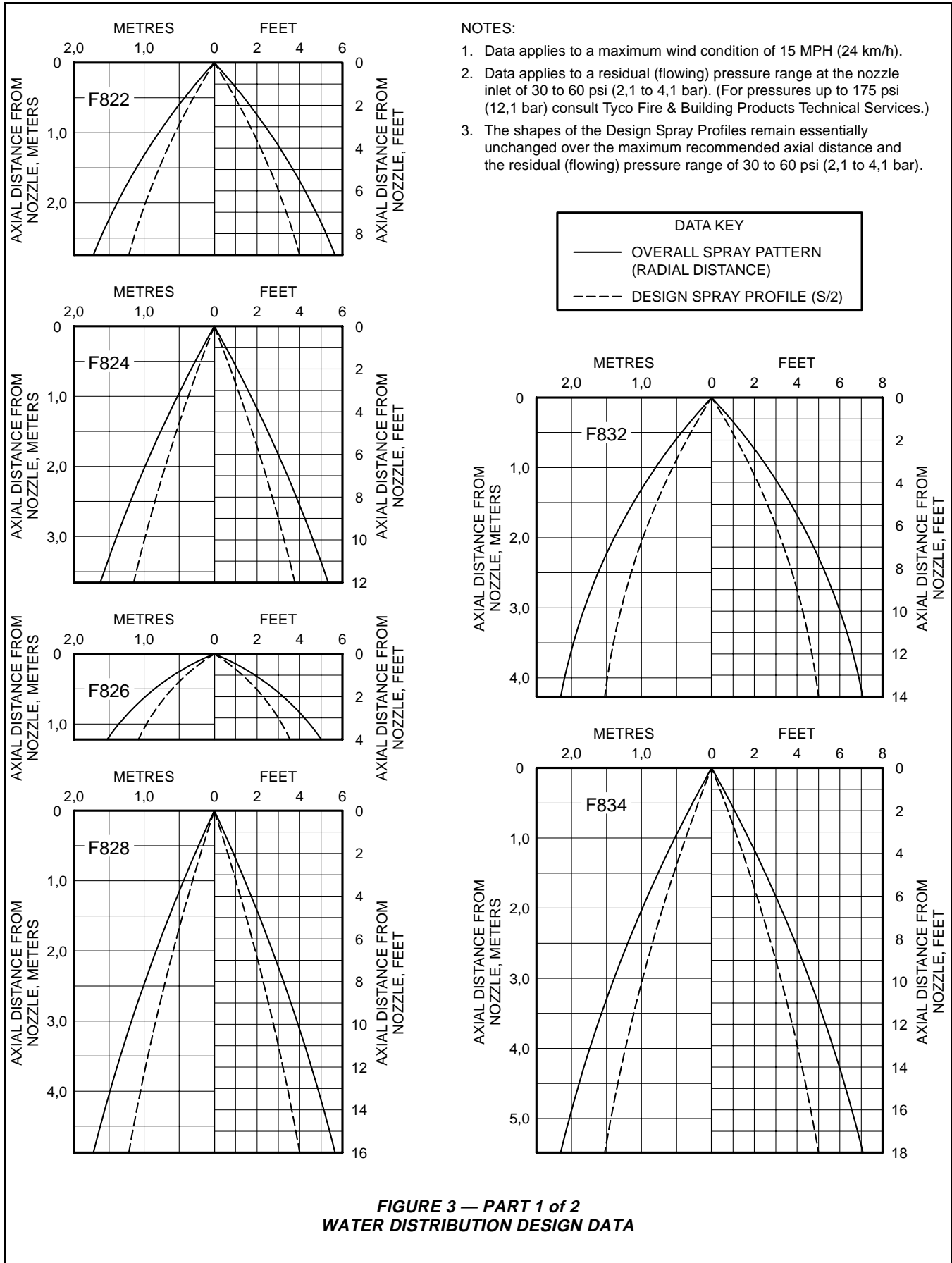
**Dust Caps.** The Model F880 Dust Caps are rated for indoor and outdoor use over a temperature range of -60F to 150F (-51C to 65C). A minimum residual (flowing) pressure of 15 psi (1,0 bar) is required to assure release of the Dust Cap.

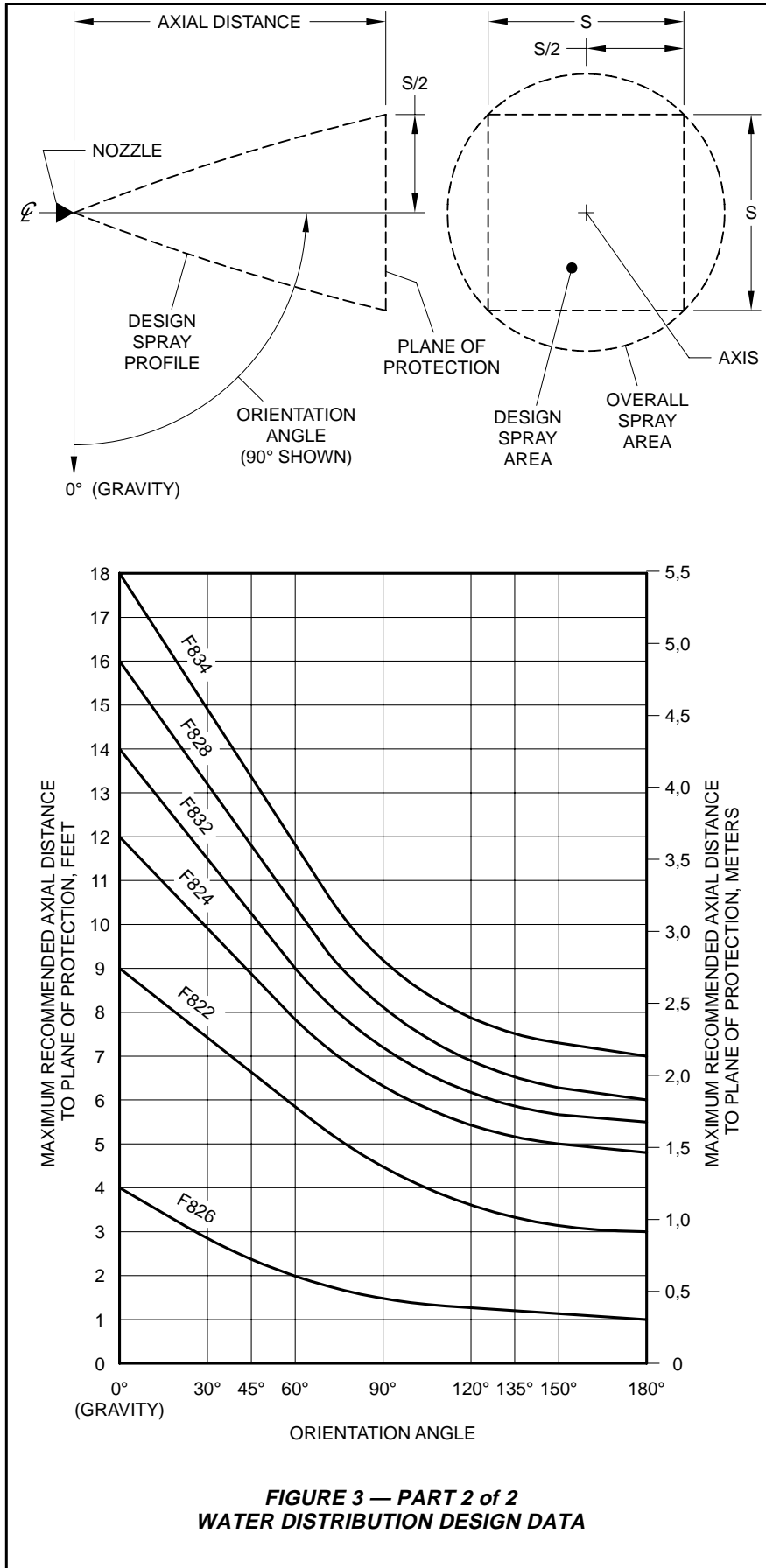
**Main Pipeline Strainers.** Main pipeline strainers per NFPA 15 are required for systems utilizing Mulsifyre Nozzles since their waterways are less than 3/8 inch (9,5 mm) diameter. Individual strainers are not required since the openings in the scrolls will pass a 1/8 inch (3,2 mm) particle.



## Design Criteria

**Nozzle Placement.** Where direct impingement of water spray onto all of the protected surface is required by the Authority having Jurisdiction, the nozzles are to be spaced and directed so that their spray patterns will com-





**FIGURE 3 — PART 2 of 2  
WATER DISTRIBUTION DESIGN DATA**

## Installation

Mulsifyre Nozzles must be installed in accordance with the following instructions:

**NOTE**

A leak tight 3/4 inch NPT nozzle joint should be obtained with a torque of 10 to 20 ft.lbs. (13,4 to 26,8 Nm). A maximum of 30 ft.lbs. (40,7 Nm) of torque is to be used to install nozzles with 3/4 NPT connections. Higher levels of torque may distort the nozzle inlet and cause leakage or impairment of the nozzle.

**Step 1.** With pipe thread sealant applied to the pipe threads, hand tighten the nozzle into the nozzle fitting.

**Step 2.** Tighten the nozzle into the nozzle fitting using an adjustable crescent wrench. With reference to Figure 1 the adjustable crescent wrench is to be applied to the wrench flats.

**REPLACEMENT DUST CAPS**

When replacement Dust Caps are installed, there is to be a minimum of 5 inches (125 mm) of Wire (Ref. Figure 2) between where the Wire is looped around the nozzle thread relief and attached to the Dust Cap. The minimum length of 5 inches (125 mm) will help to assure that there will be an unrestricted flow from the nozzle outlet during operation.

## Care and Maintenance

The Mulsifyre Nozzles must be maintained and serviced in accordance with the following instructions:

**NOTE**

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

Mulsifyre Nozzles must never be painted, plated, coated or altered in any way after leaving the factory; otherwise, the spray performance may be impaired.

Care must be exercised to avoid damage to the nozzles - before, during, and after installation. Nozzles damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced.

Frequent visual inspections are rec-

ommended to be initially performed for nozzles installed in potentially corrosive atmospheres to verify the integrity of the materials of construction as they may be affected by the corrosive conditions present for a given installation. Thereafter, annual inspections per NFPA 25 are required.

Water spray fixed systems for fire protection service require regularly scheduled care and maintenance by trained personnel. In addition to inspecting nozzles for proper spray performance during water flow trip tests of the system, it is recommended that nozzles be periodically inspected for broken or missing parts (including dust caps where applicable), loading/obstructions, or other evidence of impaired protection. The inspections should be scheduled weekly or as frequently as may be necessary, and corrective action must be taken to ensure that the nozzles will perform as intended in the event of a fire.

For installations subject to freezing and where dust caps have been installed, a periodic inspection must be performed for evidence of ice build-up from trapped condensate which could affect the proper release of the dust cap.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

It is recommended that water spray fixed systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

## Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP's sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether TFBP was informed about the possibility of such damages, and in no event shall TFBP's liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

## Ordering Procedure

When placing an order, indicate the full product name and P/N.

Contact your local distributor for availability.

### Mulsifyre Nozzles:

Specify: Model (number) Mulsifyre Nozzle, P/N (specify).

Model F822 .....	P/N 49-800-1-822
Model F824 .....	P/N 49-800-1-824
Model F826 .....	P/N 49-800-1-826
Model F828 .....	P/N 49-800-1-828
Model F832 .....	P/N 49-800-1-832
Model F834 .....	P/N 49-800-1-834

### Mulsifyre Nozzles with Dust Caps:

Specify: Model (number) Mulsifyre Nozzle with Model F880 Dust Cap, P/N (specify).

Model F822 .....	P/N 49-801-1-822
Model F824 .....	P/N 49-801-1-824
Model F826 .....	P/N 49-801-1-826
Model F828 .....	P/N 49-801-1-828
Model F832 .....	P/N 49-801-1-832
Model F834 .....	P/N 49-801-1-834

### Replacement Parts:

Specify: Model F880 Dust Cap Assembly, P/N 56-880-1-001.

#### NOTE

*The Model F880 Dust Cap may only be used for replacement on Mulsifyre Nozzles with chrome plated bodies. Otherwise failure for the Dust Cap to release may occur with resulting impairment of the system.*

Specify: Blow-Off Cap Assembly for use with discontinued Model F822B thru F834B Mulsifyre Nozzles, P/N 56-802-1-001.

#### NOTE

*The Blow-Off Cap Assembly may only be used with the previously offered Model F822B thru F834B Mulsifyre Nozzles.*