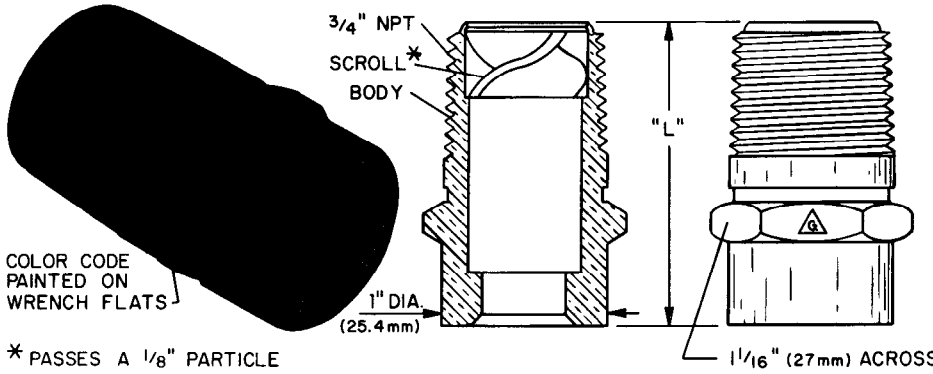
MULSIFYRE® NOZZLES

MODELS F822 THRU F834



MODEL NUMBER	NOMINAL LENGTH "L"	COLOR CODE
F822	1 5/8" (42mm)	YELLOW
F824	1 5/8" (42mm)	RED
F826	1 5/8" (42mm)	ORANGE
F828	1 11/16" (43mm)	WHITE
F832	1 13/16" (47mm)	ALUMINUM
F834	2 3/4" (70mm)	GRAY

FIGURE A
MODELS F822 THRU F834 MULSIFYRE NOZZLES

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. The 3/4 inch NPT series consists of three configurations: the basic Mulsifyre Nozzle shown in Figure A, with a Blow-off Cap Assembly as illustrated in Figure B, and with a Dust Cap as shown in Figure C. Each configuration is available in six different models which 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 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,
- conveyor systems,
- openings in fire walls, and
- other equipment that is defined as hazardous due to the possibility of a rapidly spreading fire.

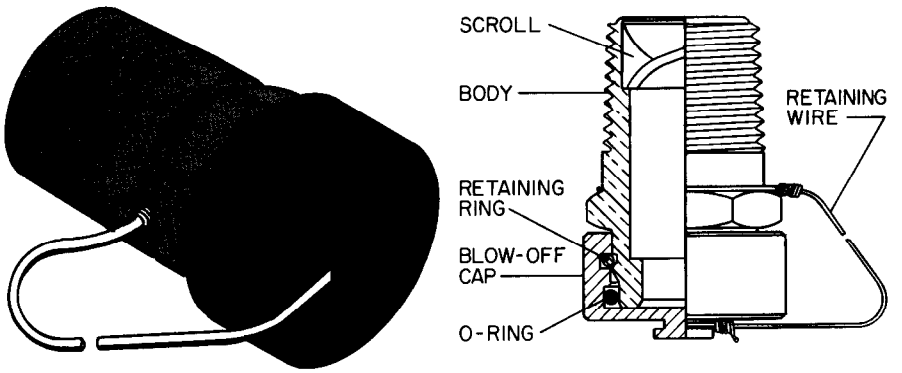


FIGURE B
MODELS F822B THRU F834B MULSIFYRE NOZZLES
WITH BLOW–OFF CAP ASSEMBLY

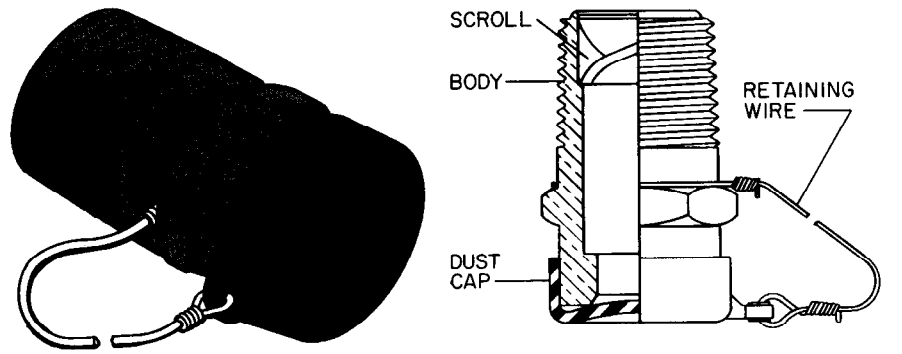


FIGURE C
MODELS F822 THRU F834 MULSIFYRE NOZZLES
WITH MODEL F880 DUST CAP ASSEMBLY

Mulsifyre Nozzles with Blow-off Cap Assemblies are designed to retain the priming water in ultrahigh speed, primed water spray deluge systems. They are typically used in conjunction with the 2 and 2-1/2 inch Model F460 Primac Valves as well as the 4 and 6 inch Model F461 Primac-Multimatic Valves.

The F880 Dust Cap Assembly shown in Figure C is used in applications where protection is required against insect infestation or the accumulation of debris within the nozzle. The Dust Cap is designed for both indoor and outdoor use.

APPROVALS AND STANDARDS

The Models F822 through F834 Mulsifyre Nozzles and the Model F880 Dust Cap Assembly are listed by Underwriters Laboratories Inc. and Underwriters' Laboratories of Canada, and they are approved by the Factory Mutual Research Corporation.

The Models F822B through F834B Mulsifyre Nozzles with Blow-off Cap Assembly are listed by Underwriters Laboratories Inc. and Underwriters' Laboratories of Canada.

WARNING

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 integrity 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 limitations as well as capabilities of such systems.

The design of ultrahigh speed water spray systems for fire protection applications involves a technology which is substantially different from that associated with the design of automatic sprinkler or deluge systems. The speed of water delivery from all the nozzles of such systems is highly dependent on the nozzle discharge characteristics, the design of the detection system and piping network as well as the water supply characteristics and proper priming of the system. Consequently, the design of ultrahigh speed water spray systems for fire protection applications must only be performed by experienced designers who thoroughly understand the limitations as well as capabilities of such systems.

The owner is responsible for maintaining his fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted relative to any questions.

TECHNICAL DATA

The 3/4 inch NPT series of Mulsifyre Nozzles are rated for use at a maximum service pressure of 175 psi. The nominal discharge curves for the various models are plotted in Figure D and the water distribution design data for residual (flowing) pressures of 30 to 60 psi are illustrated in Figure E. The "Design Spray Area" shown in the upper-right of Figure E consists of the square of length and width "S" within the circular, "Overall Spray Area".

NOTES

Refer to the Warning Section for an important notice concerning the use of the water distribution design data given in Figure E.

Inquiries concerning nozzle installation and usage criteria, not covered by these instructions, should be mailed to the attention of the Technical Data Department. Include sketches and technical details, as appropriate.

The Model F822B through F834B Mulsifyre Nozzles with the Blow-off Cap Assembly are rated for use with a maximum prime pressure of 12 psi (27.7 feet of water head), as measured at their inlet; and, a minimum residual (flowing) pressure of 30 psi is required to assure release of the Blow-off Cap Assembly. The Blow-off Cap Assembly is rated for use at a maximum service temperature of 150F/65C.

The Model F822 through F834 Mulsifyre Nozzles with the Model F880 Dust Cap Assembly are rated for both indoor and outdoor use over a temperature range of –60F/–51C to 150F/65C; and, a minimum residual (flowing) pressure of 15 psi is required to assure release of the Dust Cap Assembly.

The Body and Scrolls of the Mulsifyre Nozzles are brass per ASTM B16 (C36000). The openings in the Scrolls will pass a 1/8 inch particle. The Mulsifyre Nozzles are supplied with chrome plated tips when used with either a Blow-off or Dust Cap Assembly.

The Blow-off Cap Assembly (Ref. Figure B) consists of a Cap, Retaining Wire, O-ring, and Retaining Ring. The Cap is Delrin† 500AF (21% TFE) Type I, Class A per ASTM D2133; the approximately 12 inch long Retaining Wire is stainless steel; the O-ring is silicone rubber; and the Retaining Ring is Teflon† coated titanium per ASTM B348.

NOTES

The tips of the Model F822B through F834B Mulsifyre Nozzles are specially machined to accept the Blow-off Cap Assembly and, consequently, the Nozzle and Blow-off Cap are ordered as an assembly.

The Model F880 Dust Cap Assembly (Ref. Figure C) has an EPDM Cap and approximately 12 inches of stainless steel wire is connected to a brass eyelet in the Cap, to prevent the Cap from becoming lost after its release from the Mulsifyre Nozzle.

NOTE

The Model F822 through F834 Mulsifyre Nozzles must be factory chrome plated to accept the Dust Cap Assembly and, consequently, the Nozzle and Dust Cap are ordered as an assembly.

SYSTEM DESIGN PARAMETERS

Main line pipe strainers are required for all systems using the 3/4 inch NPT series of Mulsifyre Nozzles since their waterways are less than 3/8 inch diameter. Individual strainers are not required since the openings in the scrolls will pass a 1/8 inch particle.

When using the F822B through F834B Mulsifyre Nozzles in ultrahigh speed, primed water spray deluge systems, they should be orientated with their centerlines at least 3° (i.e., slope of 1 ft./20 ft) below horizontal, in order to prevent an excessive amount of air from becoming trapped within the nozzle and the connecting piping. Trapped air pockets will increase the water discharge time.

INSTALLATION

The Mulsifyre Nozzles must be in-

†DuPont Registered Trademark

that the nozzles will perform as intended in the event of a fire.

It is also recommended that outdoor installations of Mulsifyre Nozzles with Dust Caps be periodically inspected, during freezing weather conditions, for the presence of ice build-up from trapped condensate which could affect the proper release of the Dust Caps.

NOTE

Before closing a fire protection system main control valve for maintenance work on the fire protection system which 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.

It is recommended that water spray fixed systems for fire protection be inspected by a qualified Inspection Service.

WARRANTY

Seller warrants for a period of one year from the date of shipment (warranty period) that the products furnished hereunder will be free from defects in material and workmanship.

For further details on Warranty, see Price List.

ORDERING PROCEDURE

Mulsifyre Nozzles:
Specify: Model (number) Mulsifyre Nozzle, PSN (specify).

Model F822 . . . . . PSN 49–800–1–822
Model F824 . . . . . PSN 49–800–1–824
Model F826 . . . . . PSN 49–800–1–826
Model F828 . . . . . PSN 49–800–1–828
Model F832 . . . . . PSN 49–800–1–832
Model F834 . . . . . PSN 49–800–1–834

Mulsifyre Nozzles with Blow-off Cap:
Specify: Model (number) Mulsifyre Nozzle with Blow-off Cap Assembly, PSN (specify).

Model F822B . . . . . PSN 49–802–1–822
Model F824B . . . . . PSN 49–802–1–824
Model F826B . . . . . PSN 49–802–1–826
Model F828B . . . . . PSN 49–802–1–828
Model F832B . . . . . PSN 49–802–1–832
Model F834B . . . . . PSN 49–802–1–834

Mulsifyre Nozzles with Dust Cap:
Specify: Model (number) Mulsifyre Nozzle with Model F880 Dust Cap Assembly, PSN (specify).

Model F822 . . . . . PSN 49–801–1–822
Model F824 . . . . . PSN 49–801–1–824
Model F826 . . . . . PSN 49–801–1–826
Model F828 . . . . . PSN 49–801–1–828
Model F832 . . . . . PSN 49–801–1–832
Model F834 . . . . . PSN 49–801–1–834

Replacement Parts:
Specify: Blow-off Cap Assembly for use with Models F822B thru F834B Mulsifyre Nozzles, PSN 56–802–1–001.

Specify: Model F880 Dust Cap Assembly, PSN 56–880–1–001.

NOTE

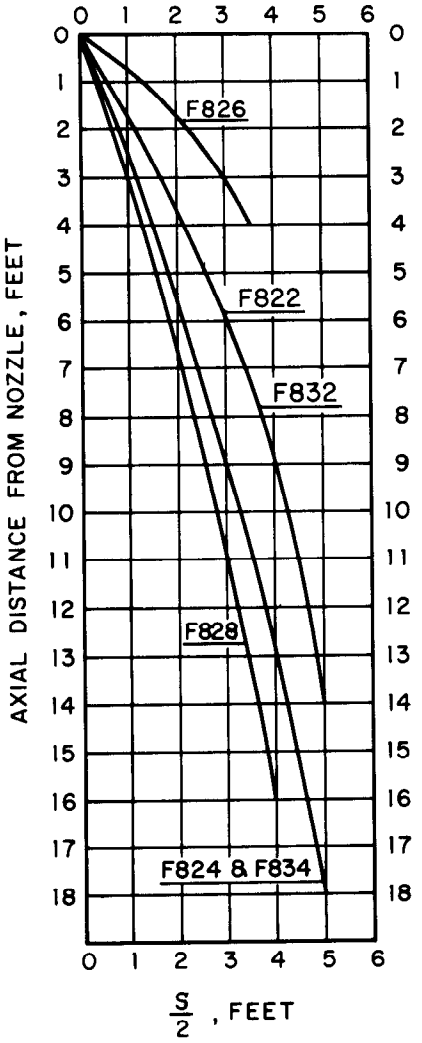
The Model F880 Dust Cap Assembly can only be used as a replacement part on Model F822 thru F834 Mulsifyre Nozzles with a factory chrome plated nozzle tip.

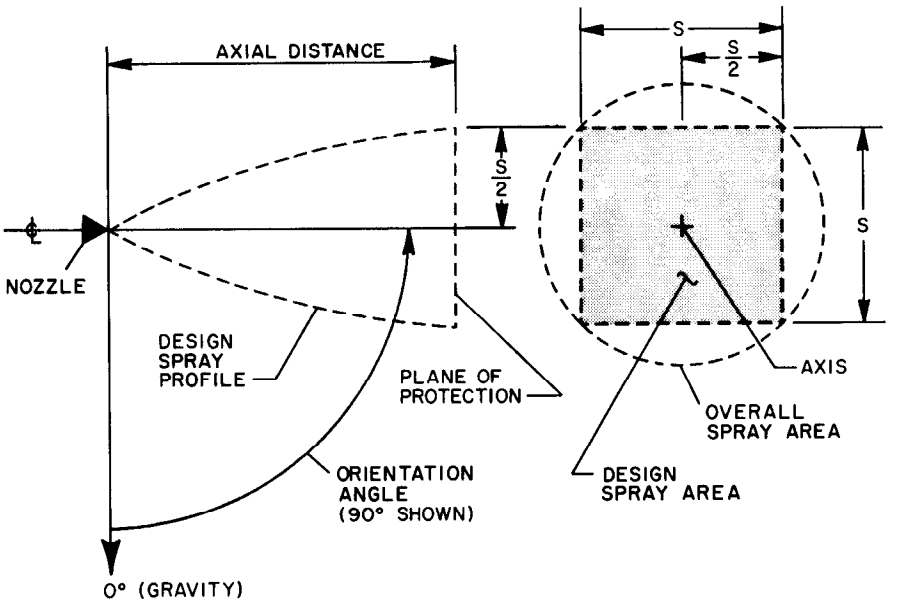
CONVERSION FACTORS

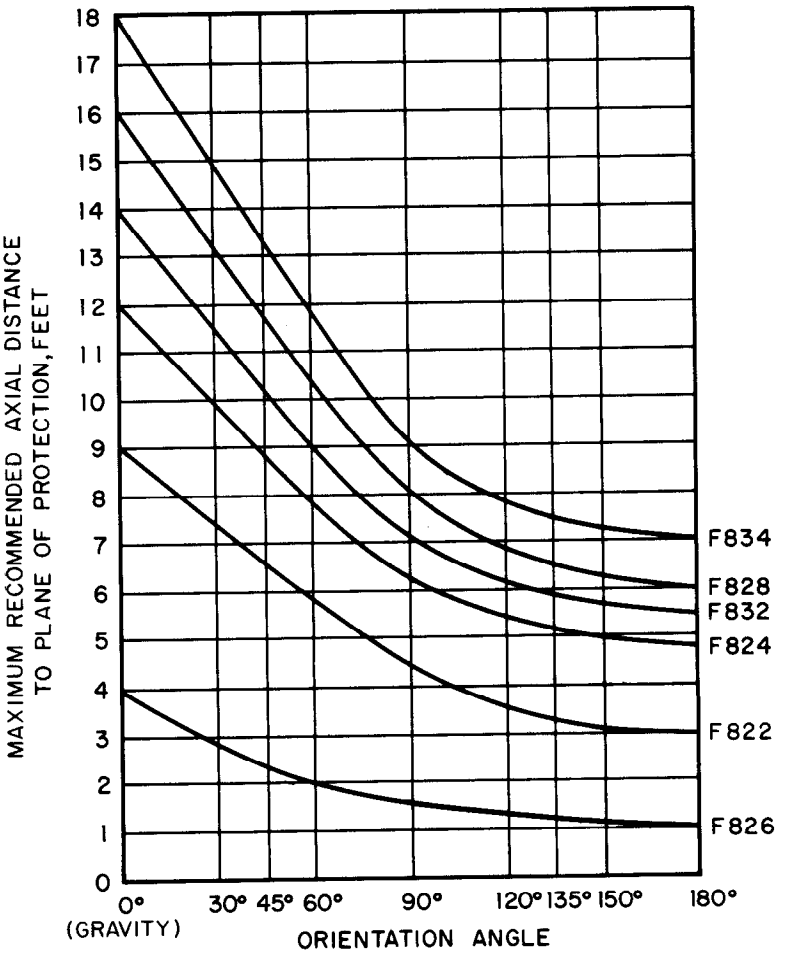
Parenthetical metric conversions cited herein are approximate.

1 inch	=	25.400 *mm*
1 foot	=	0.3048 m
1 psi	=	6.895 kPa
	=	0.0689 bar*
	=	0.0703 kg/cm2*
1 lb.	=	0.4536 kg
1 U.S. gallon	=	3.785 dm^3
	=	3.785 litres*

*Not recognized International System units.



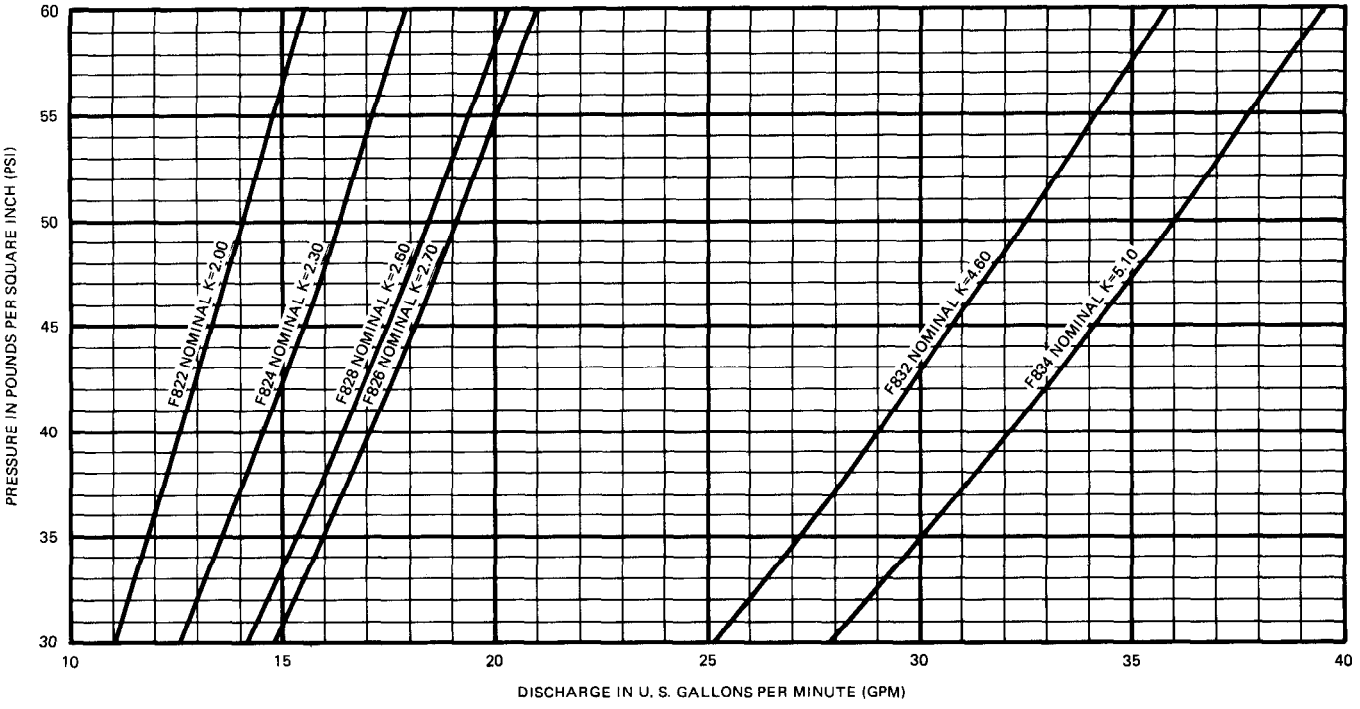




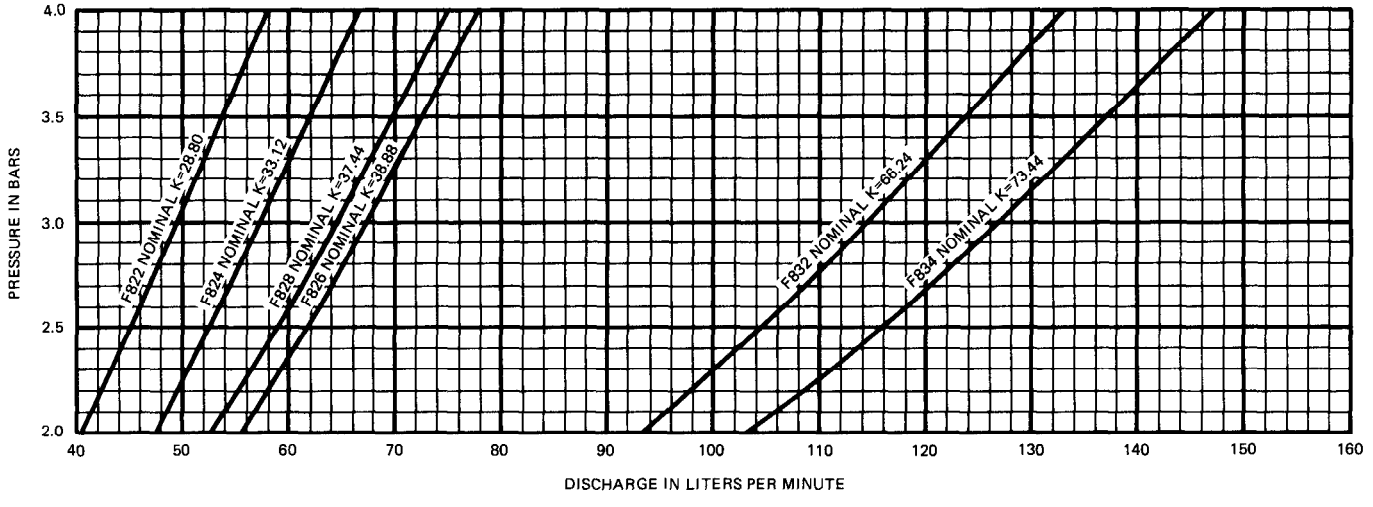
NOTES

1. Data applies to a maximum wind condition of 15 MPH.
2. Data applies to a residual (flowing) pressure range at the nozzle inlet of 30 to 60 psi. (For pressures up to 175 psi consult the Technical Data Department.)
3. The shapes of the Design Spray Profiles remain essentially unchanged over the maximum recommended axial distance and the residual (flowing) pressure range of 30 to 60 psi.
4. See Technical Data Sheet TD675T for Drawing Templates of the Design Spray Profiles.

FIGURE E
WATER DISTRIBUTION DESIGN DATA



NOTE: $Q = K\sqrt{p}$; where "Q" = flow in U.S. gallons per minute, "p" = pressure in pounds per square inch, and "K" is the nominal discharge coefficient.



NOTE: $Q = K\sqrt{p}$; where "Q" = flow in liters per minute, "p" = pressure in bars, and "K" is the nominal discharge coefficient.

FIGURE D
NOMINAL DISCHARGE CURVES

stalled by wrenching only on the hex portion of the Mulsifyre Body.

When reattaching the Blow-off Cap Assembly to an F822B through F834B Mulsifyre Nozzle, apply a slowly increasing force against the end of the Blow-off Cap and press until the Retaining Ring snaps into position.

CARE AND MAINTENANCE

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

Water spray fixed systems for fire protection service require regularly scheduled care and maintenance by trained personnel. It is recommended that the Mulsifyre Nozzles be periodically inspected for broken or missing caps, loading/obstructions, or other evidence of impaired protection. The inspections should be scheduled weekly or as frequently as may be necessary and, corrective action taken to ensure

MULSIFYRE NOZZLES, MODELS F822 THRU F834