

# Handline Nozzles and Eductors

## LOW-EXPANSION FOAM HANDLINE NOZZLES

### Features

- Non-corrosive materials
- Easy-to-operate ball shut-off valve
- Lightweight for ease of handling
- Good foam quality with pressure of 45 psi (3.1 bar) and greater

### Application

The ANSUL® KR-S low-expansion foam handline nozzles can be used with all low-expansion foam agents such as fluoroprotein, aqueous film-forming-foam (AFFF), alcohol resistant AFFF, and Class A foam concentrates. These portable, air-aspirating nozzles can be used in a variety of flammable liquid hazard areas using ANSULITE Class B foam concentrates. Typical applications include municipal fire departments and Crash-Fire-Rescue (CFR) vehicles; or for handline applications around tank farms, loading racks, aircraft hangars, and chemical plants.

When using SILV-EX PLUS Class A foam, an effective blanketing foam is produced. This blanketing foam is ideal for structural fire attack and other deep-seated fires involving tires, rolled paper, baled cotton and coal bunkers.

The advantage of low-expansion compared to medium-expansion foam is the greater stream range and superior cooling effect achieved by the higher water content.

### Description

Two sizes are available for nominal flow rates of 60 gpm and 120 gpm at 100 psi (227 Lpm and 454 Lpm at 6.9 bar). Foam solution is sprayed through the nozzle and as air is drawn into the nozzle, foam is produced in the tube. Each nozzle has a ball shut-off valve. The nozzle tube is constructed of stainless steel with a tough polyurethane handle providing optimum protection against corrosion. Although the normal operating pressure is 75 psi to 100 psi (5.2 bar to 6.9 bar), a minimum operating pressure of 45 psi (3.1 bar) is acceptable. Foam concentrate is usually proportioned to the nozzle using the matching ANSUL Model Z eductor.



KR-S2 (Part No. 415981)  
001227b

### Technical Data

Model Number	KR-S2	KR-S4
Flow rate at 100 psi (6.9 bar)	60 gpm (227 Lpm)	120 gpm (454 Lpm)
Normal Operating Pressure	75 psi to 100 psi (5.2 bar to 6.9 bar)	75 psi to 100 psi (5.2 bar to 6.9 bar)
Expansion Ratio	8:1 – 15:1	8:1 – 15:1
Stream Distance	75 ft (22.8 m)	85 ft (25.9 m)
Overall Length	28 in. (711 mm)	33 in. (838 mm)
Maximum Width	8 in. (203 mm)	8 in. (203 mm)
Recommended Eductors	ANSUL Z-2	ANSUL Z-4

### Ordering Information

The models listed below are provided with 1 1/2 in. NHT female inlet threads. Other thread types are available upon request. The flow rates listed are nominal; see Technical Data for performance characteristics.

Part No.	Description	Approximate Shipping Weight	
		lb	(kg)
415981	KR-S2 Low-Expansion Nozzle 60 gpm (227 Lpm)	9	(4.1)
415982	KR-S4 Low-Expansion Nozzle 120 gpm (454 Lpm)	11	(5.0)

## MEDIUM-EXPANSION FOAM HANDLINE NOZZLES

### Features

- Compact and lightweight
- Stainless steel and hard polyurethane construction for optimum corrosion protection
- Pressure gauge equipped
- Easy-to-operate ball shut-off valve
- Good foam quality with pressures of 45 psi (3.1 bar) and greater

### Application

ANSUL KR-M medium-expansion foam handline nozzles can be used with various types of foam agents. In particular, they are recommended for use with the following foam concentrates for typical applications as noted:

- ANSULITE 3X3 LV Foam – As a vapor suppressant foam for various hazardous fuming compounds including oleum and chlorosulfonic acids. ANSULITE 3X3 LV is also effective with these nozzles as a fire suppressing foam both for flammable and combustible hydrocarbon and polar solvent (water miscible) fuels.
- SILV-EX PLUS Class A Foam – As a high-performance fire suppressant on difficult Class A fuel fires including wood, paper, coal and rubber. The medium-expansion nozzles, when combined with SILV-EX PLUS foam, proportioned between 0.5% to 1.0%, provide longer surface wetting with reduced risk of ignition/re-ignition. Additionally, the concentrate creates a foam blanket which provides an insulating barrier between the fuel and air.

The advantage of medium-expansion foam compared to low-expansion foam is that far more foam can be produced using less water. For some hazard types (e.g., tire fires, trash landfills, baled cotton, rolled paper), three-dimensional protection can be achieved. Medium-expansion foam is also effective when injected through door, window, or basement openings.

### Description

Two sizes are available for nominal flow rates of 60 gpm and 120 gpm at 100 psi (227 Lpm and 454 Lpm at 6.9 bar). Foam solution is sprayed through the nozzle and as air is drawn into the nozzle, foam is produced in the tube. Each nozzle has a ball shut-off valve. The nozzle tube is constructed of stainless steel with a tough polyurethane handle providing optimum protection against corrosion. Although the normal operating pressure is 75 psi to 100 psi (5.2 bar to 6.9 bar), a minimum operating pressure of 45 psi (3.1 bar) is acceptable. Foam concentrate is usually proportioned to the nozzle using the matching ANSUL Model Z eductor.



KR-M4 (Part No. 415984)  
001228a

### Technical Data

<u>Model Number</u>	<u>KR-M2</u>	<u>KR-M4</u>
Flow rate at 100 psi (6.9 bar)	60 gpm (227 Lpm)	120 gpm (454 Lpm)
Normal Operating Pressure	75 psi to 100 psi (5.2 bar to 6.9 bar)	75 psi to 100 psi (5.2 bar to 6.9 bar)
Expansion Ratio	50:1	50:1
Quantity of Foam Produced	400 ft <sup>3</sup> /min (11.3 m <sup>3</sup> /min)	800 ft <sup>3</sup> /min (22.6 m <sup>3</sup> /min)
Stream Distance	25 ft (7.6 m)	30 ft (9.1 m)
Overall Length	20 in. (508 mm)	24 in. (610 mm)
Maximum Width	7 1/2 in. (191 mm)	10 1/2 in. (267 mm)
Recommended Eductors	ANSUL Z-2	ANSUL Z-4

### Ordering Information

The models listed below are provided with 1 1/2 in. NHT female inlet threads. Other thread types are available upon request. The flow rates listed are nominal; see Technical Data for performance characteristics.

<u>Part No.</u>	<u>Description</u>	<u>Approximate Shipping Weight</u>	
		<u>lb</u>	<u>(kg)</u>
415983	KR-M2 Medium-Expansion Nozzle 60 gpm (227 Lpm)	8	(3.6)
415984	KR-M4 Medium-Expansion Nozzle 120 gpm (454 Lpm)	9	(4.1)

## DUAL-EXPANSION FOAM HANDLINE NOZZLES

### Features

- Two foam handline nozzles in one
- Change over from medium- to low-expansion foam in seconds
- Non-corrosive materials
- Pressure gauge equipped
- Easy-to-operate ball shut-off valve
- Good foam quality with pressure of 45 psi (3.1 bar) and greater

### Application

ANSUL KR-S/M dual-expansion foam handline nozzles can be used with various types of foam agents. In particular, they are recommended for use with the following foam concentrates for typical applications as noted:

- ANSULITE 3X3 LV Foam – As a vapor suppressant foam for various hazardous fuming compounds including oleum and chlorosulfonic acids. ANSULITE 3X3 LV is also effective with these nozzles as a fire suppressing foam both for flammable and combustible hydrocarbon and polar solvent (water miscible) fuels.
- JET-X High-Expansion Foam – As a fire suppressant for hydrocarbon fuel products when proportioned at a 2–3% concentration in the medium-expansion setting.
- SILV-EX PLUS Class A Foam – As a high-performance fire suppressant on difficult Class A fuel fires including wood, paper, coal and rubber. The dual-expansion nozzles, when combined with SILV-EX PLUS foam proportioned between 0.5% to 1.0%, provide longer surface wetting with reduced risk of ignition/re-ignition. Additionally, the concentrate creates a foam blanket which provides an insulating barrier between the fuel and air.

### Description

Two sizes are available for nominal flow rates of 60 gpm and 120 gpm at 100 psi (227 Lpm and 454 Lpm at 6.9 bar). Foam solution is sprayed through the nozzle and as air is being drawn into the nozzle, foam is produced in the tube. Each nozzle has a ball shut-off valve. The nozzle tube is constructed of stainless steel with a tough polyurethane handle providing optimum protection against corrosion. Although the normal operating pressure is 75 psi to 100 psi (5.2 bar to 6.9 bar), a minimum operating pressure of 45 psi (3.1 bar) is acceptable. Foam concentrate is usually proportioned to the nozzle using the matching ANSUL Model Z eductor.



KR-S/M4 (Part No. 415986)  
001229a

### Technical Data

Model Number	KR-S/M2	KR-S/M4
Flow rate at 100 psi (6.9 bar)	60 gpm (227 Lpm)	120 gpm (454 Lpm)
Normal Operating Pressure	75 psi to 100 psi (5.2 bar to 6.9 bar)	75 psi to 100 psi (5.2 bar to 6.9 bar)
Expansion Ratio (low)	8:1 – 15:1	8:1 – 15:1
Expansion Ratio (medium)	50:1	50:1
Quantity of Foam Produced (medium)	400 ft <sup>3</sup> /min (11.3 m <sup>3</sup> /min)	800 ft <sup>3</sup> /min (22.6 m <sup>3</sup> /min)
Stream Distance (low)	65 ft (19.8 m)	85 ft (25.9 m)
Stream Distance (medium)	23 ft (7 m)	26 ft (7.9 m)
Overall Length	30 in. (762 mm)	32 in. (813 mm)
Maximum Width	11 in. (279 mm)	13 in. (330 mm)
Recommended Eductors	ANSUL Z-2	ANSUL Z-4

### Ordering Information

The models listed below are provided with 1 1/2 in. NHT female inlet threads. Other thread types are available upon request. The flow rates listed are nominal; see Technical Data for performance characteristics.

Part No.	Description	Approximate Shipping Weight	
		lb	(kg)
415985	KR-S/M2 Dual-Expansion Nozzle 60 gpm (227 Lpm)	15	(6.8)
415986	KR-S/M4 Dual-Expansion Nozzle 120 gpm (454 Lpm)	17.5	(8.0)

## FOAM EDUCTORS

### Features

- Tough proven design
- Metering valve adjustable up to 6%
- Efficient, low cost proportioning

### Application

ANSUL Model Z eductors are designed to introduce a variable percentage of foam concentrate into a pressurized water stream. They provide an inexpensive foam proportioning means where available water supply pressures are adequate. Typical applications include use by municipal fire departments, industrial fire brigades and CFR type vehicle personnel. These eductors can be used with all ANSUL foam concentrates. It is important that a matched foam nozzle be used with the eductor to ensure proper performance.

### Description

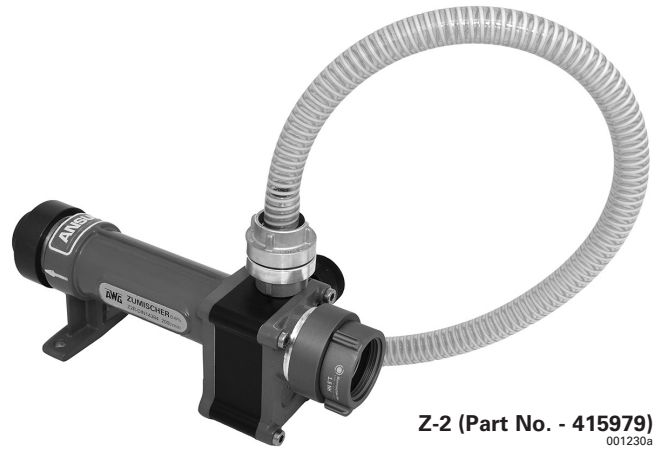
Both the Model Z-2 and Z-4 eductor bodies are constructed of brass. The standard inlet and outlet couplings are anodized aluminum with NHT threads. The eductors have a metering valve variably adjustable from 0% to 6% concentration and have a flexible pick-up hose by which foam concentrate is drawn up from a container. A check valve is incorporated to prevent water from flowing back into the pick-up hose and thus into the foam container when a foam handline nozzle is shut off.

The outlet pressure recovery of the ANSUL Model Z eductors shall not exceed 70% of operating inlet pressure. Typical operating pressure at the inlet to the eductor should be approximately 110 psi to 200 psi (7.6 bar to 13.8 bar).

### Technical Data

<u>Model Number</u>	<u>Z-2</u>	<u>Z-4</u>
Flow/Pressure	55 gpm at 200 psi (208 Lpm at 13.8 bar)	110 gpm at 200 psi (416 Lpm at 13.8 bar)
K-factor at 3%	3.9	7.8
Maximum Allowed Back-Pressure*	70% of Eductor Inlet	70% of Eductor Inlet
Maximum Hose Lay (1 1/2 in.) (eductor to nozzle)	300 ft (91 m)	100 ft (30.5 m)
Overall Length	14 in. (356 mm)	14 in. (356 mm)
Maximum Width	6 in. (152 mm)	6 in. (152 mm)
Maximum Height	6 in. (152 mm)	6 in. (152 mm)

\*Operating inlet pressure of nozzle plus friction loss (hose and elevation)



Z-2 (Part No. - 415979)  
001230a

### Ordering Information

The models listed below are provided with 1 1/2 in. NHT female inlet threads. Other thread types are available upon request. The flow rates listed are nominal; see Technical Data for performance characteristics.

<u>Part No.</u>	<u>Description</u>	<u>Approximate Shipping Weight</u>	
		<u>lb</u>	<u>(kg)</u>
415979	Z-2 Foam Eductor 55 gpm (208 Lpm)	15	(6.8)
415980	Z-4 Foam Eductor 110 gpm (416 Lpm)	17	(7.7)

**Note:** The converted metric values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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