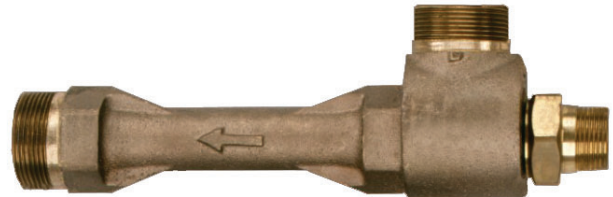


JET PUMP PROPORTIONING FOR NF GLADIATOR® HIGH CAPACITY NOZZLE & TERMINATOR II NME020

- For Use With Gladiator Nozzle
- For Use With Terminator II Monitor
- Alternate Use In Around-The-Pump Proportioning Applications
- Marine Environment Compatible
- Portable or Fixed Installations



Description

Although the Gladiator can be adapted for use as a direct foam pickup nozzle it is specifically designed to be used with a remotely located jet pump proportioner. Jet pumps are eductors that use water to perform the work of pumping foam concentrate from drums, tote tanks or bulk tankers. The jet pump principle involves taking a high pressure water stream, accelerating it through a tapered nozzle (jet) to increase its velocity thus creating a negative pressure area. Foam concentrate is drawn into this negative pressure zone through an inlet connection located on the side of the jet pump body. Clear flexible pickup hose is used for inducting foam concentrate from storage containers to the jet pump. The foam concentrate is mixed with the jet pump water stream at approximately a 60/40 ratio of foam to water. This 60% (rich) foam solution is then delivered to the Gladiator nozzle where it is thoroughly mixed and accurately proportioned into the water stream flowing through the nozzle.

Jet Pump Selection

There are several important factors involved in proper selection and application of National Foam jet pumps:

1. The jet pump foam induction rate must be compatible with the Gladiator nozzle capacity.

Example:

- A. 2000 GPM Gladiator® nozzle requires a Model JP-2000-3% jet pump for 3% injection rate. The JP-

2000-3% will induct about 65 GPM of foam concentrate or about 3% of 2000 GPM.

- B. Using two jet pumps in parallel will provide 6% foam induction rate for 1500 or 2000 GPM Gladiator nozzles.
2. The size and length of hose lay between the jet pump discharge and Gladiator nozzle inlet is critical for proper jet pump operation. Jet pumps are sensitive to back pressure imposed on the discharge outlet. When maximum discharge pressure limits are exceeded the jet pump will cease to induct foam concentrate at the proper rate. The chart on page 2 gives maximum hose lays for different hose sizes assuming jet pump inlet pressures from 100 to 200 PSI. As can be seen from the chart, allowable hose lay lengths increase with larger hose size and increased jet pump inlet pressure.
3. Pick up tube sizing must be correct for proper jet pump operation. Refer to the Ordering Information for correct pick up tube kit selection.

Pick-Up Tube Kits

The Gladiator is offered with several different flow rate and foam percentage options creating a need for several different pick up tube kits. When the Gladiator is flowing 2000 or 3000 GPM the jet pump is inducting foam concentrate at 60 to 90 GPM. This may require the use of multiple pick up tubes to meet this demand by taking foam from multiple containers simultaneously.

Notes:

1. Each jet pump requires a pick up tube kit.
2. Dual jet pump kits (3%/6% units) will require 2 of the desired pick up kits.
3. Dual pick up kit is required for 2000 GPM at 6% and 3000 GPM at 3%.
4. When Tote tanks are used, the 2" hoses can be connected to the 2" male outlet on the tank. Tote tanks must be vented when foam is being removed.

Nozzle Hose Adapter Kit

The nozzle hose adapter kit is required when using the jet pump to supply a Gladiator nozzle. It is used to make the transition from the 2" NPT nozzle connection to the 2-1/2" hose thread of the supply hose from the jet pump. The kit consists of a 2" nozzle elbow connection, a 2" ID X 53" long, clear plastic reinforced flexible hose with 2" FSW NPSH couplings and a 2" MNPSH X 2-1/2" FNH adapter. The reinforced hose is required to prevent damage to the nozzle during operation.

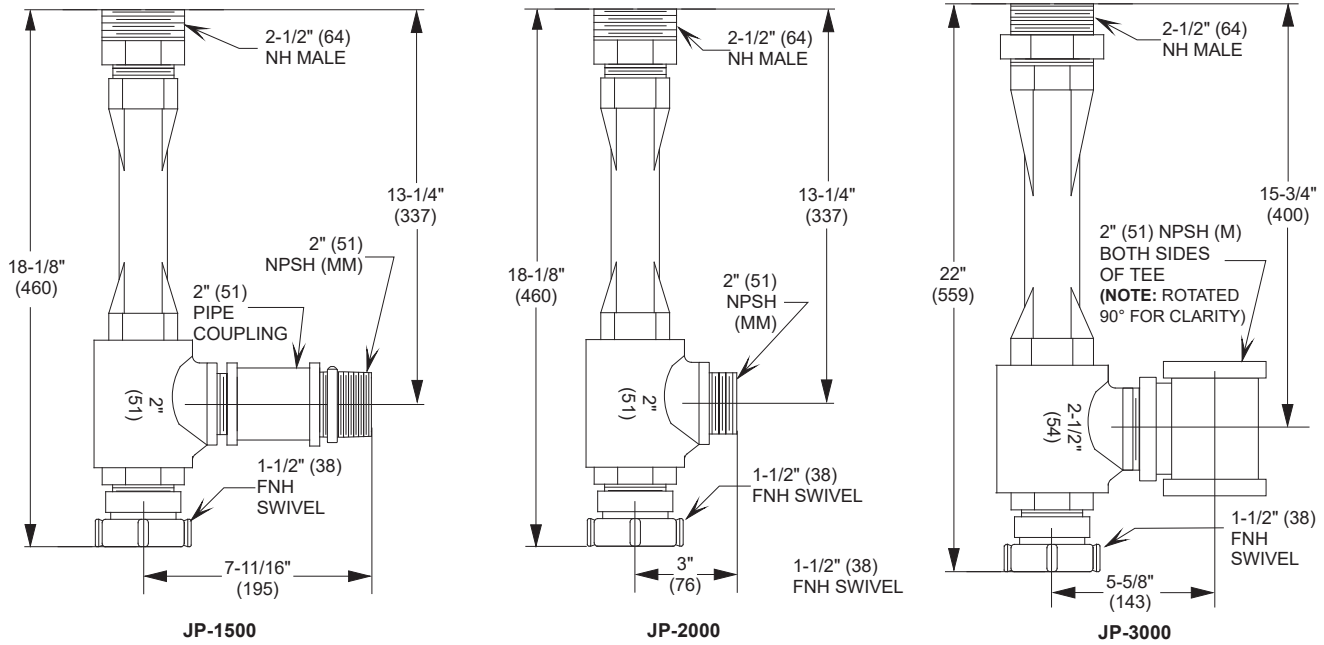
Notes:

1. The 1500 GPM (3%) and 2000 GPM (3%) nozzles require one nozzle hose adapter kit.
2. The 1500 GPM (6%), 2000 GPM (6%) and 3000 GPM (3%) nozzles require two nozzle hose adapter kits.
3. When the Gladiator® nozzle is factory installed on a Terminator II monitor, the adapter is included as part of the Terminator package and does not need to be ordered separately.

JET PUMP PROPORTIONING

FOR NF GLADIATOR® HIGH CAPACITY NOZZLE

NME020

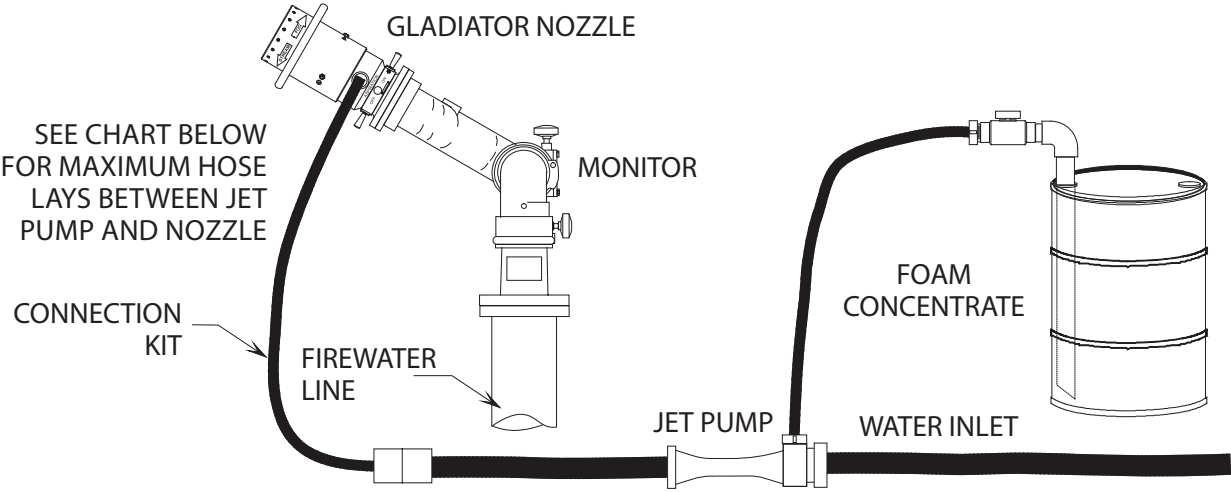


OUTLINE ASSEMBLY JET PUMPS

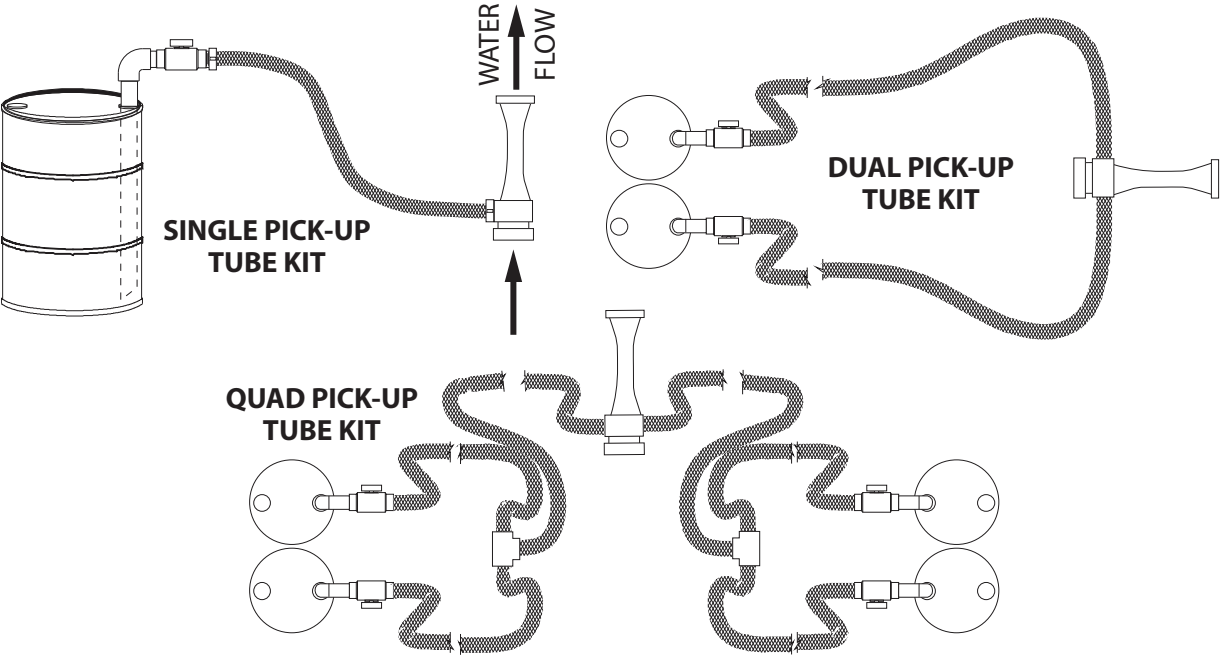
MAXIMUM ALLOWABLE HOSE LENGTH CHART						
Maximum Allowable Hose Lay in Feet (Meters) for Various Jet Pump Inlet Pressures-PSI (Bar)						
JET PUMP	HOSE SIZE	100psi(6.9)	125psi(8.6)	150psi(10.3)	175psi(12.1)	200 psi(13.8)
JP-1500-3%	3" Hose 2-1/2" Couplings 2-1/2 Hose	3100(945)	3400(1036)	3600(1097)	4000(1219)	4100(1250)
		1200(366)	1300(396)	1400(427)	1600(488)	1700(518)
JP-1500-6%	3" Hose 2-1/2" Couplings 2-1/2 Hose	1350(411)	1650(503)	1900(579)	2250(686)	2350(716)
		550(168)	650(198)	750(229)	900(274)	950(290)
JP-2000-3%	3" Hose 2-1/2" Couplings 2-1/2 Hose	2000(610)	2150(655)	2400(732)	2700(823)	2800(853)
		800(244)	850(259)	1000(305)	1100(335)	1100(335)
JP-2000-6%	3" Hose 2-1/2" Couplings 2-1/2 Hose	250(76)	400(122)	700(213)	900(274)	1000(305)
		100(31)	150(46)	300(91)	400(122)	400(122)
JP-3000-3%	3" Hose 2-1/2" Couplings 2-1/2 Hose	150(46)	200(61)	350(107)	400(122)	400(122)
		50(15)	50(15)	100(31)	150(46)	150(46)

JET PUMP PROPORTIONING FOR NF GLADIATOR® HIGH CAPACITY NOZZLE

NME020



TYPICAL INSTALLATION FOR JET PUMP



TYPICAL INSTALLATION FOR PICK-UP TUBE KITS

JET PUMP PROPORTIONING FOR NF GLADIATOR® HIGH CAPACITY NOZZLE

NME020

ORDERING INFORMATION

Description	Model Number	Part Number	Description
1500 GPM - 3%	JP-1500 3%	1252-0412-0	Single jet pump 1-1/2" FSWNH x 2-1/2" MNH outlet
1500 GPM - 6%	JP-1500 6%	1252-0412-1	Dual jet pumps with 2-1/2" siamese fitting
2000 GPM - 3%	JP-2000 3%	1252-0412-2	Single jet pump 1-1/2" FSWNH x 2-1/2" MNH outlet
2000 GPM - 6%	JP-2000 6%	1252-0412-3	Dual jet pumps with 2-1/2" siamese fitting
3000 GPM - 3%	JP-3000 3%	1252-0412-4	Single jet pump 1-1/2" FSWNH inlet x 2-1/2" MNH outlet

Pick Up Tube Kits

Pick up tube kits consist of 2" diameter dip tube(s) with shut off valve, clear plastic reinforced flexible pick up hose(s) 12 feet long with 2" NPSH (straight pipe thread) couplings. Dual and quad pick up kits also contain fittings for interconnecting the pick up hoses. All pick up tube kits fit onto 2" NPSH male (straight pipe thread) connection at the jet pump foam inlet and dip tube. Any jet pump can be used with single, dual or quad pick up tube kits listed below:

Part Number	Description
1252-0413-0	Single pick up tube kit consisting of 1 dip tube with shut off valve and 1 pick up hose. This kit allows foam to be taken from one drum or tote tank.
1252-0413-1	Dual pick up tube kit consisting of 2 dip tubes with shut off valves, 2 pick up hoses, and interconnecting fittings. This kit allows foam to be taken from two drums or two tote tanks simultaneously.
1252-0413-2	Quad pick up tube kit consisting of 4 dip tubes with shut off valves, 4 pick up hoses, and interconnecting fittings. This kit allows foam to be taken from four drums or four tote tanks simultaneously.

Nozzle Hose Adapter Kit

Nozzle adapter kit consists of a 2" nozzle elbow connection, a 2" ID X 53" long, clear plastic reinforced flexible hose with 2" FSW NPSH couplings and a 2" MNPSH X 2-1/2" FNH adapter. The nozzle elbow connection is constructed of stainless steel nipples with brass elbow fitting.

Part Number	Description
1251-2513-7	Nozzle Hose Kit - for Gladiator High Flow - 1500 3% Only
1251-2513-8	Nozzle Dual Hose Adapter Kit - for Gladiator 1500 6%, 2000 3% & 3000 3%

Notes:

1. The 1500 GPM (3%) and 2000 GPM (3%) nozzles require one nozzle hose adapter kit.
2. The 1500 GPM (6%), 2000 GPM (6%) and 3000 GPM (3%) nozzles require two nozzle hose adapter kits.
3. When the Gladiator® nozzle is factory installed on a Terminator II monitor, the adapter is included as part of the Terminator package and does not need to be ordered separately.