



OEM NFPA 1901/1906 Foam Single-Point Injection Proportioner Test Procedure

2000 / 3000 Series Foam Systems

- 1) Foam pump and water flowmeters must be calibrated per Installation and Operation Manual before testing (Concentrate viscosity must be within the foam proportioner manufactures limits)
- 2) Tools needed for the test are a pitot tube or other calibrated flowmeter to test the system water flow rates. A graduated bucket to collect and calibrate foam concentrate. A stop watch to measure volume unit/time of foam concentrate flow. A load valve to control system back pressure capable of maximum flow of the foam system pump. Appropriate pressure gauge to measure back pressure.

On larger systems, it may be practical to use a calibrated flowmeter instead of a graduated collection container and recirculate the foam concentrate.

- 3) System performance is dependant on flowmeter/pipe size. Identify applicable OEM test points based on size of flowmeter installed. Maximum water flow is determined by the flowmeter range or the maximum water pump output, which ever is less.
- 4) Water and foam concentrate can be tested separately on FoamPro 2000 and 3000 series systems as follows:
 - A) Test main waterway flowmeter at the three (3) test points shown on applicable OEM Certification test chart (If the water pump can not reach the maximum flowmeter rate at 150psi use maximum flow rate of the pump). Water flow rates displayed on the control head should be within 10% of pitot tube measurements.
 - B) Test the foam pump at three (3) test points shown on OEM Certification test chart.
 - 1) Turn the "Cal/Inject" valve to the Calibrate position (Foam system should be primed with no air in the lines).
 - 2) Attach pressure gauge and load valve to the "cal/inject" valve with a hose running to graduated bucket.
 - 3) Enter "Simulated Flow" mode and set the water flow rate to the value listed in the chart for the flowmeter size.
 - 4) Set the percent (%) concentrate to the corresponding value specified in the chart.
 - 5) Press the "ON" button to start the proportioner.
 - 6) Set the load valve back pressure to the corresponding value specified in the chart.
 - 7) Run the system for short period (Not less than 5 seconds electric driven, 20 seconds hydraulic) to assure prime and stabilization. Note the volume of concentrate in the bucket and start the stop watch.
 - 8) Run the system for several minutes. Note the volume in the bucket and time on the stop watch. (Note: Longer run time will increase measurement accuracy)
 - 9) Divide the volume change in the bucket (total concentrate pumped during the timed period) by the number of minutes on the stop watch. The result must match the corresponding Foam (GPM) listed in the chart within NFPA accuracy requirements. (Note: NFPA allows -0% to +40% for solutions of less than 1% and -0% to +30% for solutions greater than 1%; or 1 percentage point whichever is less)
 - 10) Repeat this process for remaining two (2) rows of the OEM Certification Test chart. All three scenarios must meet NFPA guidelines without re-calibrating.
- 5) If system has multiple concentrate tanks, repeat step B for each additional tank.

1 1/2" Thread or 2" Victaulic

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 10 | Min | 0 | 1.0% | Min | 0.1 |
| Max | 320 | Max | 400 | 3.8% | Max | 12.0 |
| Mid | 10 | Mid | 400 | 1.0% | Mid | 0.1 |
| Min | 320 | Min | 0 | 3.8% | Min | 12.0 |
| Mid | 155 | Mid | 400 | 7.7% | Mid | 12.0 |

2" Thread or 2 1/2" Victaulic

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 15 | Min | 0 | 0.7% | Min | 0.1 |
| Max | 520 | Max | 400 | 2.3% | Max | 12.0 |
| Mid | 15 | Mid | 400 | 0.7% | Mid | 0.1 |
| Min | 520 | Min | 0 | 2.3% | Min | 12.0 |
| Mid | 260 | Mid | 400 | 4.6% | Mid | 12.0 |

2 1/2" Thread or 3" Victaulic

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 20 | Min | 0 | 0.5% | Min | 0.1 |
| Max | 750 | Max | 400 | 1.6% | Max | 12.0 |
| Mid | 20 | Mid | 400 | 0.5% | Mid | 0.1 |
| Min | 750 | Min | 0 | 1.6% | Min | 12.0 |
| Mid | 400 | Mid | 400 | 3.0% | Mid | 12.0 |

3" Thread or 4" Victaulic

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 30 | Min | 0 | 0.3% | Min | 0.1 |
| Max | 1150 | Max | 400 | 1.0% | Max | 12.0 |
| Mid | 30 | Mid | 400 | 0.3% | Mid | 0.1 |
| Min | 1150 | Min | 0 | 1.0% | Min | 12.0 |
| Mid | 600 | Mid | 400 | 2.0% | Mid | 12.0 |

4" Thread or 5" Victaulic

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 55 | Min | 0 | 0.2% | Min | 0.1 |
| Max | 1980 | Max | 400 | 0.6% | Max | 12.0 |
| Mid | 55 | Mid | 400 | 0.2% | Mid | 0.1 |
| Min | 1980 | Min | 0 | 0.6% | Min | 12.0 |
| Mid | 1020 | Mid | 400 | 1.2% | Mid | 12.0 |

Insertion Style Flowmeter in 5" Pipe

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 80 | Min | 0 | 0.1% | Min | 0.1 |
| Max | 3050 | Max | 400 | 0.4% | Max | 12.0 |
| Mid | 80 | Mid | 400 | 0.1% | Mid | 0.1 |
| Min | 3050 | Min | 0 | 0.4% | Min | 12.0 |
| Mid | 1200 | Mid | 400 | 1.0% | Mid | 12.0 |

Insertion Style Flowmeter in 6" Pipe

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 117 | Min | 0 | 0.1% | Min | 0.1 |
| Max | 4500 | Max | 400 | 0.2% | Max | 12.0 |
| Mid | 117 | Mid | 400 | 0.1% | Mid | 0.1 |
| Min | 4500 | Min | 0 | 0.3% | Min | 12.0 |
| Mid | 2250 | Mid | 400 | 0.5% | Mid | 12.0 |

Insertion Style Flowmeter in 8" Pipe

| Range | Waterflow | Range | Back Press. PSI | Foam % | Range | Foam Cap. (gpm) |
|-------|-----------|-------|-----------------|--------|-------|-----------------|
| Min | 200 | Min | 0 | 0.1% | Min | 0.1 |
| Max | 7800 | Max | 400 | 0.2% | Max | 12.0 |
| Mid | 200 | Mid | 400 | 0.1% | Mid | 0.1 |
| Min | 7800 | Min | 0 | 0.2% | Min | 12.0 |
| Mid | 3900 | Mid | 400 | 0.3% | Mid | 12.0 |

Type tested with to all known foam concentrate viscosities

1 1/2" Thread or 2" Victaulic

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 60 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 10 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 320 | 400 | 3.0% | Max | 400 | Max | 12.0 |

2" Thread or 2 1/2" Victaulic

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 160 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 15 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 520 | 400 | 3.0% | Max | 400 | Max | 12.0 |

2 1/2" Thread or 3" Victaulic

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 250 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 20 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 750 | 400 | 3.0% | Max | 400 | Max | 12.0 |

3" Thread or 4" Victaulic

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 375 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 33 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 1150 | 400 | 3.0% | Max | 400 | Max | 12.0 |

4" Thread or 5" Victaulic

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 625 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 55 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 1980 | 400 | 3.0% | Max | 400 | Max | 12.0 |

Insertion Style Flowmeter in 5" Pipe

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 1000 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 80 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 3000 | 400 | 3.0% | Max | 400 | Max | 12.0 |

Insertion Style Flowmeter in 6" Pipe

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 1440 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 117 | 100 | 0.1% | Min | 0 | Min | 0.1 |
| Max | 4500 | 400 | 3.0% | Max | 400 | Max | 12.0 |

Insertion Style Flowmeter in 8" Pipe

| Flowmeter | Test Points | Sim Water Flow | Set Foam % | Range | Back Press. PSI | Range | Foam (gpm) |
|-----------|-------------|----------------|------------|-------|-----------------|-------|------------|
| Mid | 2560 | 400 | 1.5% | Mid | 400 | Mid | 6.0 |
| Min | 200 | 100 | 0.2% | Min | 0 | Min | 0.2 |
| Max | 7800 | 400 | 3.0% | Max | 400 | Max | 12.0 |