

# NFS

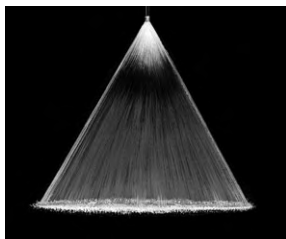
## Stubby Flat Fan

### DESIGN FEATURES

- Extremely short length for minimum projection and maximum clearance
- Produces a flat fan spray pattern available in a variety of spray angles
- Available in straight (parallel) threads only, NPS and BSPP
- Requires gasket to seal connection

### SPRAY CHARACTERISTICS

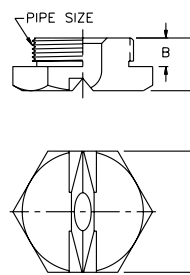
**Spray pattern:** Fan  
**Spray angles:** 20°, 30°, 45°, 60°, 90° and 120° standard  
**Flow rates:** 0.049 to 295 gpm



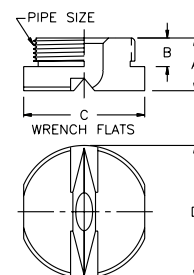
Fan 45°



Fan 90°



Metal



Plastic

Dimensions are approximate. Check with BETE for critical dimension applications.

### NFS Flow Rates and Dimensions

Flat Fan, 20°, 30°, 45°, 60°, 90° & 120° Spray Angles, 1/4" to 2" Pipe Sizes

| ** Male Pipe Size | Nozzle Number | K Factor | GALLONS PER MINUTE @ PSI |        |        |        |        |        |        |        |         |         |         |        | Equiv. Orifice Dia. (in) |
|-------------------|---------------|----------|--------------------------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------------------------|
|                   |               |          | 5 PSI                    | 10 PSI | 15 PSI | 20 PSI | 30 PSI | 40 PSI | 60 PSI | 80 PSI | 100 PSI | 150 PSI | 200 PSI |        |                          |
| 1/4               | NFS 012       | 0.020    | 0.04                     | 0.06   | 0.08   | 0.09   | 0.11   | 0.12   | 0.15   | 0.18   | 0.20    | 0.24    | 0.28    | 0.0315 |                          |
|                   | NFS 019       | 0.031    | 0.07                     | 0.10   | 0.12   | 0.14   | 0.17   | 0.19   | 0.24   | 0.28   | 0.31    | 0.38    | 0.44    | 0.0394 |                          |
|                   | NFS 031       | 0.049    | 0.11                     | 0.16   | 0.19   | 0.22   | 0.27   | 0.31   | 0.38   | 0.44   | 0.49    | 0.60    | 0.70    | 0.0472 |                          |
|                   | NFS 039       | 0.061    | 0.14                     | 0.19   | 0.24   | 0.27   | 0.34   | 0.39   | 0.47   | 0.55   | 0.61    | 0.75    | 0.87    | 0.0531 |                          |
|                   | NFS 050       | 0.078    | 0.18                     | 0.25   | 0.30   | 0.35   | 0.43   | 0.50   | 0.61   | 0.70   | 0.78    | 0.96    | 1.11    | 0.0591 |                          |
|                   | NFS 059       | 0.093    | 0.21                     | 0.29   | 0.36   | 0.42   | 0.51   | 0.59   | 0.72   | 0.83   | 0.93    | 1.14    | 1.32    | 0.0650 |                          |
|                   | NFS 077       | 0.122    | 0.27                     | 0.39   | 0.47   | 0.55   | 0.67   | 0.77   | 0.95   | 1.10   | 1.22    | 1.50    | 1.73    | 0.0787 |                          |
|                   | NFS 098       | 0.155    | 0.35                     | 0.49   | 0.60   | 0.69   | 0.85   | 0.98   | 1.20   | 1.38   | 1.55    | 1.89    | 2.19    | 0.0866 |                          |
|                   | NFS 12        | 0.196    | 0.44                     | 0.62   | 0.76   | 0.88   | 1.07   | 1.24   | 1.52   | 1.75   | 1.96    | 2.40    | 2.77    | 0.0984 |                          |
|                   | NFS 15        | 0.233    | 0.52                     | 0.74   | 0.90   | 1.04   | 1.28   | 1.47   | 1.80   | 2.08   | 2.33    | 2.85    | 3.29    | 0.106  |                          |
| 1/4 or 3/4"       | NFS 20        | 0.309    | 0.69                     | 0.98   | 1.20   | 1.38   | 1.69   | 1.97   | 2.39   | 2.76   | 3.09    | 3.78    | 4.36    | 0.118  |                          |
|                   | NFS 25        | 0.392    | 0.88                     | 1.24   | 1.52   | 1.75   | 2.15   | 2.48   | 3.04   | 3.51   | 3.92    | 4.80    | 5.55    | 0.138  |                          |
|                   | NFS 31        | 0.492    | 1.10                     | 1.56   | 1.91   | 2.20   | 2.70   | 3.11   | 3.81   | 4.40   | 4.92    | 6.03    | 6.96    | 0.157  |                          |
|                   | NFS 39        | 0.612    | 1.37                     | 1.94   | 2.37   | 2.74   | 3.35   | 3.87   | 4.74   | 5.48   | 6.12    | 7.50    | 8.66    | 0.177  |                          |
|                   | NFS 50        | 0.785    | 1.75                     | 2.48   | 3.04   | 3.51   | 4.30   | 4.96   | 6.08   | 7.02   | 7.85    | 9.61    | 11.1    | 0.197  |                          |
| 3/4"              | NFS 62        | 0.981    | 2.19                     | 3.10   | 3.80   | 4.39   | 5.37   | 6.25   | 7.60   | 8.77   | 9.81    | 12.0    | 13.9    | 0.217  |                          |
|                   | NFS 77        | 1.22     | 2.74                     | 3.87   | 4.74   | 5.48   | 6.71   | 7.75   | 9.49   | 11.0   | 12.2    | 15.0    | 17.3    | 0.236  |                          |
| 3/4" or 1-1/4"    | NFS 93        | 1.47     | 3.28                     | 4.65   | 5.69   | 6.57   | 8.05   | 9.29   | 11.4   | 13.1   | 14.7    | 18.0    | 20.8    | 0.272  |                          |
|                   | NFS 124       | 1.96     | 4.39                     | 6.20   | 7.60   | 8.77   | 10.7   | 12.4   | 15.2   | 17.5   | 19.6    | 24.0    | 27.7    | 0.315  |                          |
|                   | NFS 155       | 2.45     | 5.48                     | 7.75   | 9.49   | 11.0   | 13.4   | 15.5   | 19.0   | 21.9   | 24.5    | 30.0    | 34.6    | 0.354  |                          |
|                   | NFS 185       | 2.92     | 6.53                     | 9.24   | 11.3   | 13.1   | 16.0   | 18.5   | 22.6   | 26.1   | 29.2    | 35.8    | 41.3    | 0.374  |                          |
|                   | NFS 195       | 3.09     | 6.91                     | 9.77   | 12.0   | 13.8   | 16.9   | 19.5   | 23.9   | 27.6   | 30.9    | 37.8    | 43.7    | 0.394  |                          |
| 1-1/4"            | NFS 309       | 4.88     | 10.9                     | 15.4   | 18.9   | 21.8   | 26.7   | 30.9   | 37.8   | 43.7   | 48.8    | 59.8    | 69.1    | 0.472  |                          |
|                   | NFS 496       | 7.85     | 17.5                     | 24.8   | 30.4   | 35.1   | 43.0   | 49.6   | 60.8   | 70.2   | 78.5    | 96.1    | 111     | 0.591  |                          |
| 2                 | NFS 557       | 8.81     | 19.7                     | 27.8   | 34.1   | 39.4   | 48.2   | 55.7   | 68.2   | 78.8   | 88.1    | 108     | 125     | 0.630  |                          |
|                   | NFS 620       | 9.81     | 21.9                     | 31.0   | 38.0   | 43.9   | 53.7   | 62.0   | 76.0   | 87.7   | 98.1    | 120     | 139     | 0.669  |                          |
|                   | NFS 775       | 12.2     | 27.4                     | 38.7   | 47.4   | 54.8   | 67.1   | 77.5   | 94.9   | 110    | 122     | 150     | 173     | 0.748  |                          |
|                   | NFS 977       | 15.5     | 34.5                     | 48.9   | 59.8   | 69.1   | 84.6   | 97.7   | 120    | 138    | 155     | 189     | 219     | 0.827  |                          |
|                   | NFS 1130      | 17.9     | 40.0                     | 56.6   | 69.3   | 80.0   | 98.0   | 113    | 139    | 160    | 179     | 219     | 253     | 0.886  |                          |
|                   | NFS 1320      | 20.9     | 46.6                     | 65.9   | 80.8   | 93.3   | 114    | 132    | 162    | 187    | 209     | 255     | 295     | 0.965  |                          |

### NFS Dimensions and Spray Angles

| Pipe Size | Nozzle Number       | Spray Angles Available      | Dimensions (in) |      |      |   |
|-----------|---------------------|-----------------------------|-----------------|------|------|---|
|           |                     |                             | A               | B    | C    | D |
| 1/4       | NFS 012 To NFS 39   | 20° 30° 45°<br>60° 90° 120° | 0.47            |      |      |   |
|           | NFS 50              | 20° 30° 45°<br>60° 90°      | 0.69            |      |      |   |
|           | NFS 62 To NFS 77    | 45° 60° 90°<br>45°          | 0.75            |      |      |   |
| 3/4       | NFS 20 To NFS 77    | 20° 30° 45°<br>60° 90° 120° | 0.59            |      |      |   |
|           | NFS 93*             | 120°                        | 0.31            |      |      |   |
|           | NFS 124             | 20° 30° 45°<br>60° 90° 120° | 1.25            |      |      |   |
|           | NFS 155 To NFS 309  | 20° 30° 45°<br>60° 90° 120° | 1.38            |      |      |   |
|           | NFS 124 To NFS 496  | 20° 30° 45°<br>60° 90° 120° | 0.87            | 0.47 | 2.0  |   |
| 2         | NFS 557 To NFS 1320 | 20° 30° 45°<br>60° 90° 120° | 1.25            | 0.79 | 2.75 |   |
|           |                     |                             | 3.0             |      |      |   |

Flow Rate (GPM) =  $K\sqrt{PSI}$  \*NF93 available in 120° only \*\*Available in straight (parallel threads only), NPS and BSPP

Standard Materials: Brass, 316 Stainless Steel, 303 Stainless Steel and PVC.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.