

## Nessie® Water Mist Nozzles



### Applications

The nozzles are tailored to atomize water in high pressure water mist systems. The nozzles are very suitable for applications within e.g.:

- Humidification
- Lumber drying
- Fire fighting

The stainless steel design allows operating the nozzle with ordinary tap water.

For even and far-reaching atomization of the water, relatively many nozzles with smaller capacity are superior to few nozzles with large capacity.

### Benefits

- Suitable for ordinary tap water
- Long service life
- Excellent spray pattern

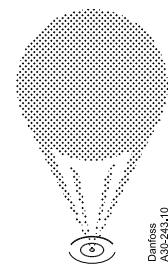
### Filtration

The stainless steel nozzles have a built-in strainer.

It is a general rule that the better the filtration of the water, the higher the expected service life of the nozzles, and the less risk of clogging.

### Spray pattern

Full cone spray nozzles.



Solid

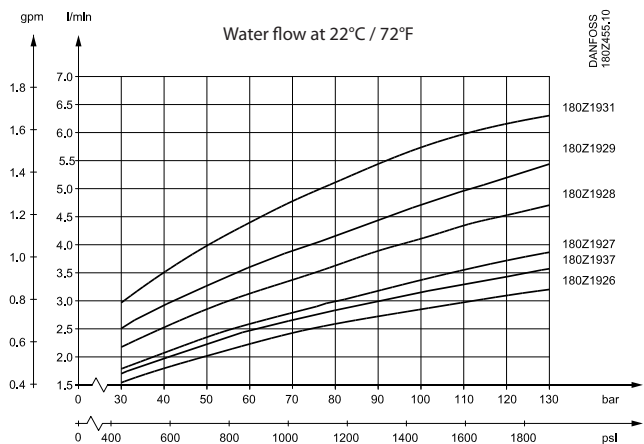
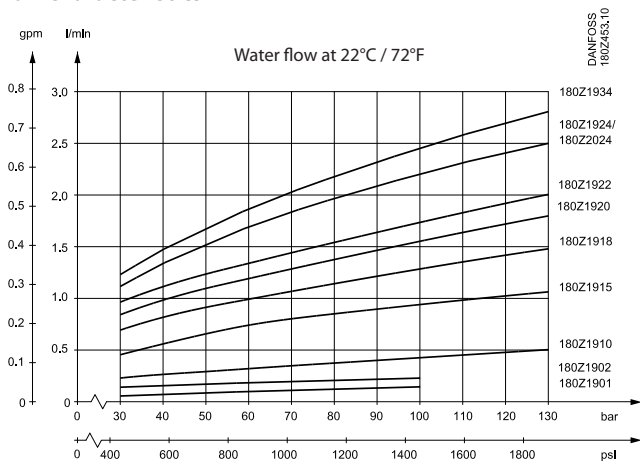
Technical data and code numbers

| Litre per hour | Litre per min. | US Gallon per hour | US Gallon per min. | Spray angle | Operating pressure / Max. pressure bar (psi) | Nozzle / house Material | Nozzle thread | Code number |
|----------------|----------------|--------------------|--------------------|-------------|--|-------------------------|---------------|-------------|
| 25.2           | 0.42           | 6.6                | 0.1                | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1910    |
| 55.2           | 0.92           | 14.4               | 0.24               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1915    |
| 75.0           | 1.25           | 19.8               | 0.33               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1918    |
| 93.0           | 1.55           | 24.5               | 0.41               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1920*   |
| 105            | 1.75           | 27.7               | 0.46               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1922*   |
| 130            | 2.18           | 34.3               | 0.58               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1924    |
| 143            | 2.39           | 37.8               | 0.63               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1934*   |
| 172            | 2.87           | 45.6               | 0.76               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1926    |
| 188            | 3.13           | 49.8               | 0.83               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1937    |
| 202            | 3.36           | 53.4               | 0.89               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1927    |
| 246            | 4.11           | 65.1               | 1.08               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1928*   |
| 282            | 4.7            | 74.5               | 1.24               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1929*   |
| 344            | 5.74           | 91.2               | 1.52               | 60°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z1931    |
| 130            | 2.18           | 42.0               | 0.70               | 80°         | 100 / 130 (1450 / 1900)                      | AISI316 / 430           | M13 × 1 mm    | 180Z2024    |

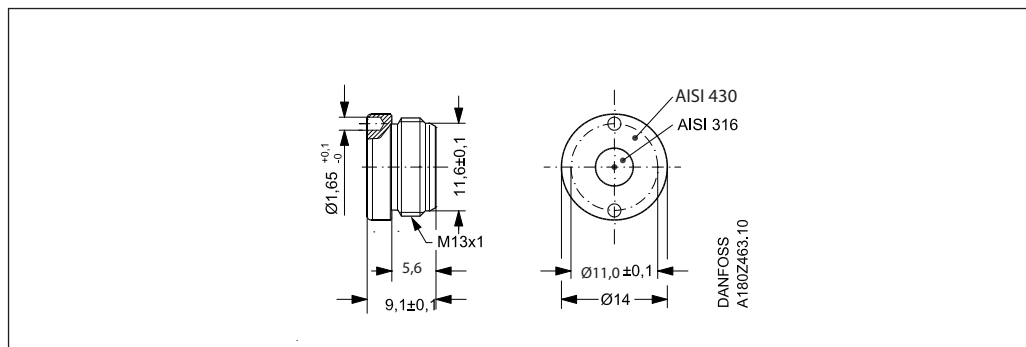
The nozzles are delivered in packages of 10 pcs., and must therefore be ordered in multiplum of 10 pcs

\* Not available from stock

Flow characteristics



Dimensions (mm)

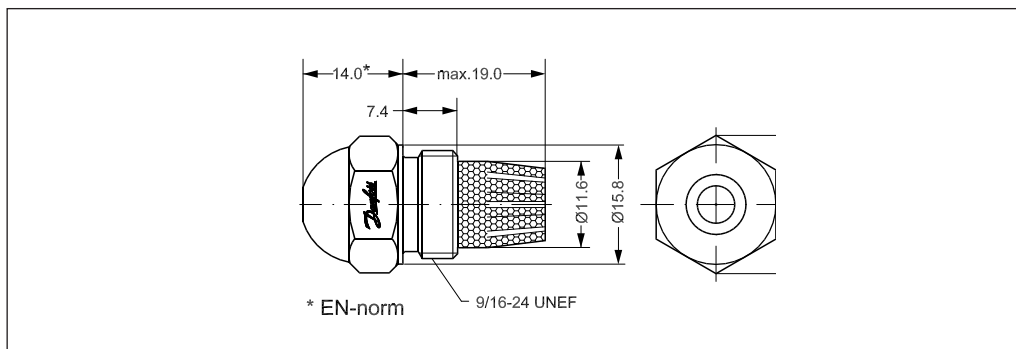


**Technical data and code numbers**

| Litre per hour | Litre per min. | US Gallon per hour | US Gallon per min. | Spray angle | Operating pressure / Max. pressure bar (psi) | House Material | Nozzle thread | Code number |
|----------------|----------------|--------------------|--------------------|-------------|--|----------------|---------------|-------------|
| 3.0            | 0.05           | 0.79               | 0.013              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6002    |
| 5.0            | 0.08           | 1.32               | 0.022              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6008    |
| 7.5            | 0.13           | 1.97               | 0.033              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6016    |
| 10.0           | 0.17           | 2.63               | 0.044              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6020    |
| 12.5           | 0.21           | 3.29               | 0.055              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6024    |
| 15.0           | 0.25           | 3.95               | 0.066              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6028    |
| 17.5           | 0.29           | 4.61               | 0.077              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6030    |
| 20.0           | 0.33           | 5.26               | 0.088              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6032    |
| 25.0           | 0.42           | 6.58               | 0.110              | 60°         | 70 / 100 (1015 / 1450)                       | AISI 416       | 9/16-24 UNEF  | 180Z6036    |

The nozzles are delivered in packages of 12 pcs., and must therefore be ordered in multiplum of 12 pcs.  
 Tightening torque: 15 to 20 Nm (1.5 to 2.0 kpm).  
 Max. tightening torque: 25 Nm (2.5 kpm).

**Dimensions (mm)**



**Drop size by various pressure**

The drop size is depending on the pressure. The distribution of droplets shown below is based

on average measurements from different nozzle inserts:

100 bar / 1450 psi:

| Drop size diameter   | Distribution of droplets |
|----------------------|--------------------------|
| 0 - 25 micron meter  | 13%                      |
| 25 - 50 micron meter | 85%                      |
| 50 - 80 micron meter | 2%                       |

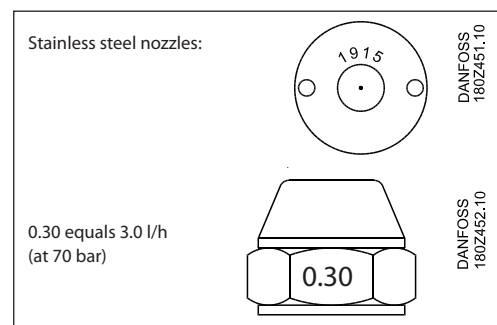
80 bar / 1160 psi:

| Drop size diameter   | Distribution of droplets |
|----------------------|--------------------------|
| 0 - 25 micron meter  | 5%                       |
| 25 - 50 micron meter | 80%                      |
| 50 - 80 micron meter | 15%                      |

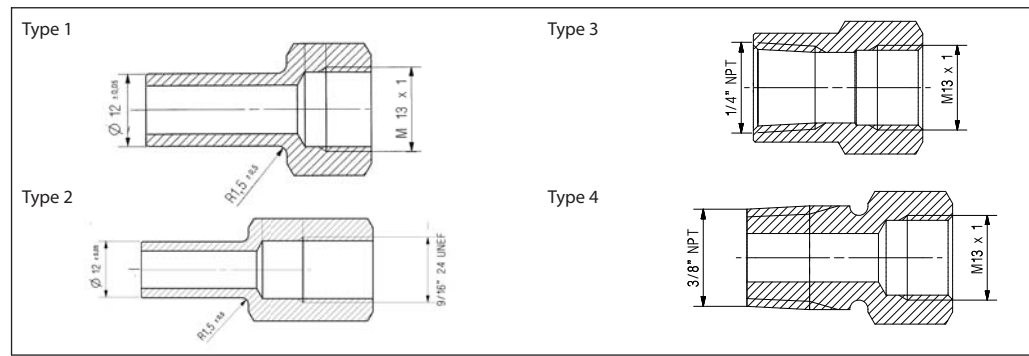
**Marking on the nozzle**

The nozzles are marked with the four last digits of the code number for easy reordering:

Other marking is only for internal use



Nozzle adapters



| Type | Nozzle        | Adaptor version       | Material | Code number |
|------|---------------|-----------------------|----------|-------------|
| 1    | M13 x 1       | 12 mm pipe            | AISI 316 | 180Z0009    |
| 2    | 9/16" 24 UNEF | 12 mm pipe            | AISI 316 | 180Z0017    |
| 3    | M13 x 1       | 1/4" NPT inner thread | AISI 316 | 180Z0027    |
| 4    | M13 x 1       | 3/8" NPT outer thread | AISI 316 | 180Z0028    |

The adapters are delivered in packages of 10 pcs, and must therefore be ordered in multiplum of 10 pcs.

Nozzle and adapter connection

To avoid corrosion, high pressure stainless steel pipes and fittings must be used.

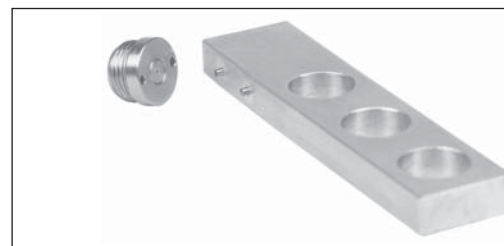
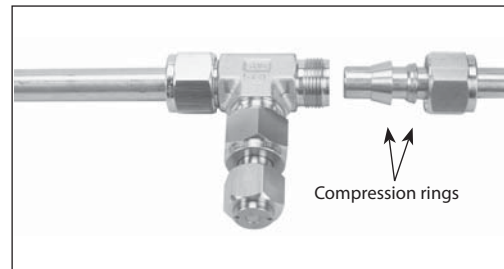
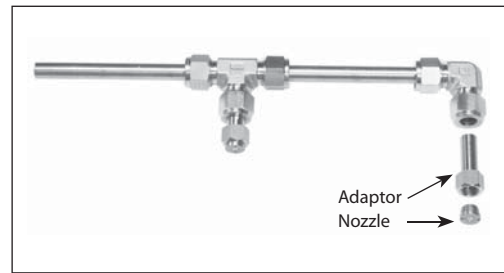
**Recommended high pressure pipe:**  
 Seamless stainless steel pipe according to standard ASTM 269 TP 316L / DIN2391 – C.  
 12 x 1.5 mm  
 Working pressure: 381 bar / 5525 psi  
 Burst pressure: 1514 bar / 21950 psi

**Recommended fittings:**  
 Stainless steel twin ferrule compression ring fittings.

**Recommended Tight gel:**  
 Tight gel must be used between the nozzle and the adaptor.  
 Danfoss recommends Loctite 542 hydraulic thread tight gel.  
 To prevent particles from entering into the system and clogging the nozzles the following procedure must be followed:

- Deburr and clean pipes and fittings prior to the installation.
- Flush the system with water after assembling and before the nozzles are mounted.

**Tool**  
 For easy mounting and dismounting of the stainless steel nozzles, Danfoss offers a handy tool: Code number 180Z0021.



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## Nessie® Water Mist Nozzles with Anti-Drip



### Introduction

This nozzle has been widely used within the humidification industry for years. It is tailored for fine water atomization in applications like comfort humidity control, open space humidification, adiabatic cooling etc.

The nozzle generates billions of very small droplets at a size of 20 micron (D90-value), depending on pressure and water quality. The nozzle has a long life expectancy; due to the stainless steel design the droplet size and spraying pattern will not rapidly deteriorate.

The stainless steel design allows operating the nozzle with ordinary tap water as well as any treated water like deionized, demineralized or reverse osmosis water.

All nozzles come with a built-in check valve as standard. In connection with Danfoss' advanced 3/2-way valve technology an absolutely "dripping-free" operation of the system can be achieved.

The impeller inside the nozzle is removable and can very easily be cleaned if necessary.

### Features

- Dripping-free operation can be achieved
- Suitable for ordinary tap water as well as treated water
- Long service life
- Excellent spray pattern
- Easy to clean

Technical data and code numbers

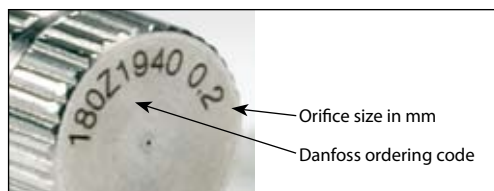
| Litre per hour | Litre per min. | US Gallon per min. (gpm) | US Pounds per hour | Orifice (mm/inch) | Spray angle | Max. pressure (bar/psi) | Nozzle thread | Code number |
|----------------|----------------|--------------------------|--------------------|-------------------|-------------|-------------------------|---------------|-------------|
| 3.0            | 0.050          | 0.013                    | 6.6                | 0.15/0.06         | 60°         | 70/1000                 | 12/24 UNC     | 180Z1939    |
| 4.0            | 0.067          | 0.018                    | 8.9                | 0.20/0.008        | 60°         | 70/1000                 | 10/24 UNC     | 180Z1946    |
| 4.0            | 0.067          | 0.018                    | 8.9                | 0.20/0.008        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1940    |
| 4.9            | 0.082          | 0.022                    | 10.8               | 0.22/0.009        | 60°         | 70/1000                 | 10/24 UNC     | 180Z1947    |
| 4.9            | 0.082          | 0.022                    | 10.8               | 0.22/0.009        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1941    |
| 6.8            | 0.113          | 0.030                    | 14.9               | 0.30/0.012        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1949    |
| 8.5            | 0.142          | 0.037                    | 18.7               | 0.33/0.013        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1944    |
| 10.3           | 0.172          | 0.045                    | 22.7               | 0.40/0.016        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1945    |
| 11.3           | 0.189          | 0.050                    | 25.0               | 0.50/0.020        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1948    |
| 13.8           | 0.230          | 0.061                    | 30.4               | 0.60/0.020        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1950    |
| 16.4           | 0.274          | 0.072                    | 36.2               | 0.80/0.030        | 60°         | 70/1000                 | 12/24 UNC     | 180Z1951    |

Capacity measured at 70 bar/1000 psi. Variation of capacity of ± 10% may occur.

Nozzles and blind plug must be ordered in multiplum of 10 pieces

|                 |   |
|-----------------|---|
| Material        | Body and spring stainless steel (AISI 304), ball and O-ring Viton |
| Thread          | Outer thread of 10/24 or 12/24 UNC 2A, depth 4 mm/0.15 inch       |
| Size and weight | Ø9.5 mm/0.374 inch; length 20.0 mm/0.78 inch; 9.0 g/0.32 oz       |

Marking on the nozzles



Adapters

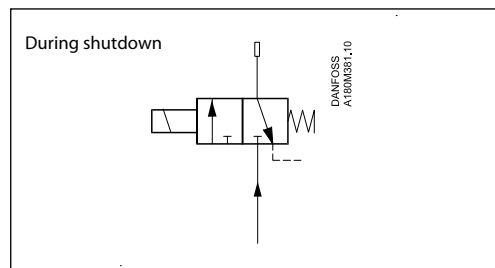
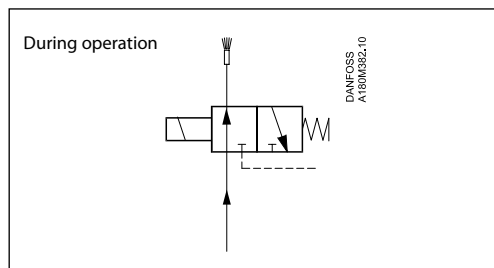


| Version No. | Connections   | Material | Weight        | Length (mm/inch) | Code number |
|-------------|---|----------|---------------|------------------|-------------|
| 1           | 12/24 UNC 2B (female) to Ø12 mm/0.47 inch pipe (male) | AISI 304 | 20 g/0.7 oz.  | 30/1.18          | 180Z0022    |
| 2           | 12/24 UNC 2B (female) to Ø10 mm/0.39 inch pipe (male) | AISI 304 | 12 g/0.4 oz.  | 30/1.18          | 180Z0023    |
| 3           | 12/24 UNC 2B (female) to 3/8" NPT (male)              | AISI 304 | 55 g/1.94 oz. | 34/1.34          | 180Z0029    |
| 4           | 12/24 UNC 2B (female) to Ø9.525 mm/3/8" (male)        | AISI 304 | 12 g/0.4 oz.  | 30/1.18          | 180Z0047    |

Adapter no. 2 is suitable to be welded on a stainless steel pipe.

**No dripping operation**

The integrated spring loaded check valve closes at a pressure of approx. 5 bar / 70 psi preventing water from dripping when the nozzle is shut down. To achieve the optimum performance, the supply line pressure should be relieved rapidly the moment the nozzle is shut down. Danfoss 3/2-way valves allow relieving the pressure instantaneously to atmosphere. In tap water applications, calcification of the nozzles can thus be widely avoided.



**Cleaning**

For cleaning purposes, the nozzle can very easily be taken apart and the impeller can be removed.



**Filtration**

Generally, good filtration of the water increases the service-life of the nozzle and reduces the risk of clogging.

**Mounting**

The nozzle is easy to install; it is hand tightened and comes with an O-ring seal, by means no other sealing materials like Loctite or Teflon tape are needed for installation.

To prevent particles from entering into the system and clogging the nozzles the following procedure must be followed:

- Deburr and clean pipes and fittings prior to installation.
- Flush the system with water after assembling and before the nozzles are mounted

**Blind plug**

|                          | Code number |
|--------------------------|-------------|
| Blind plug for 12/24 UNC | 180Z1938    |



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DK-6430 Nordborg  
Denmark