Data Sheet

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

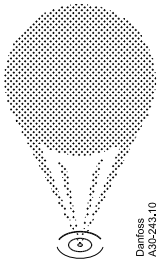
Filtration

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.



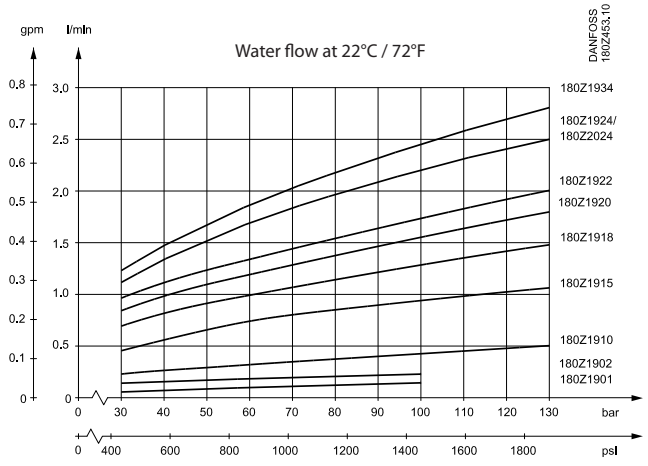
Solid

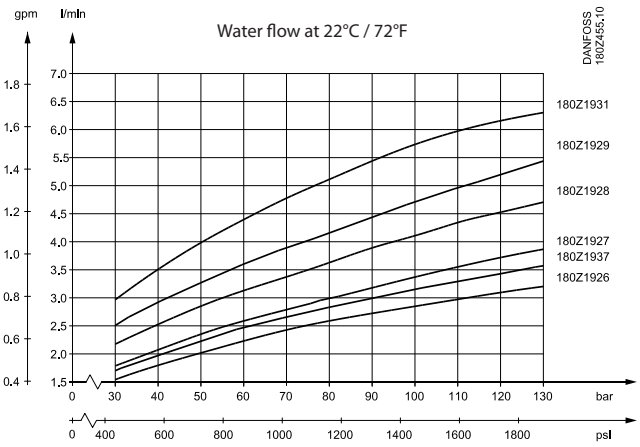
Technical data and code numbers

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

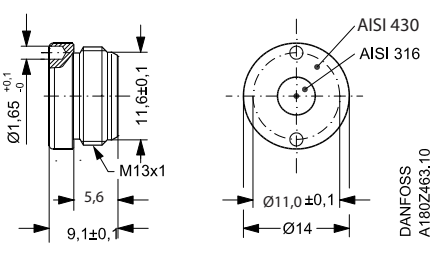
The nozzles are delivered in packages of 10 pcs., and must therefore be ordered in multiplum of 10 pcs
* Not available from stock

Flow characteristics





Dimensions (mm)

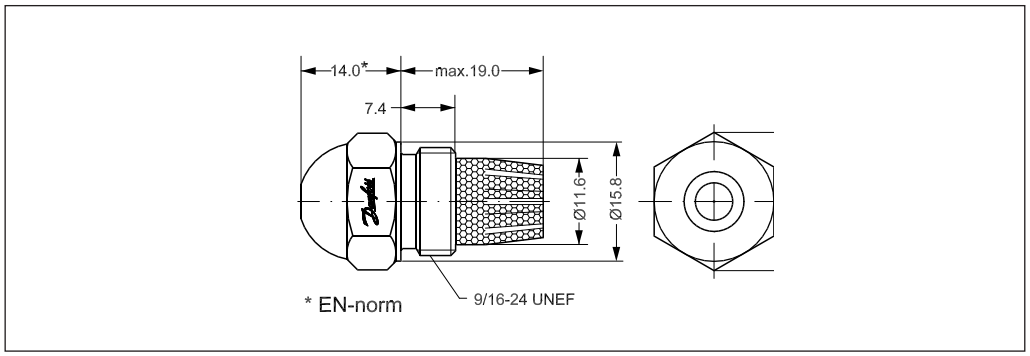


Technical data and code numbers

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%

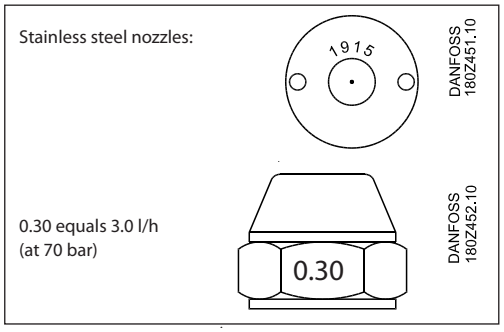
80 bar / 1160 psi:

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

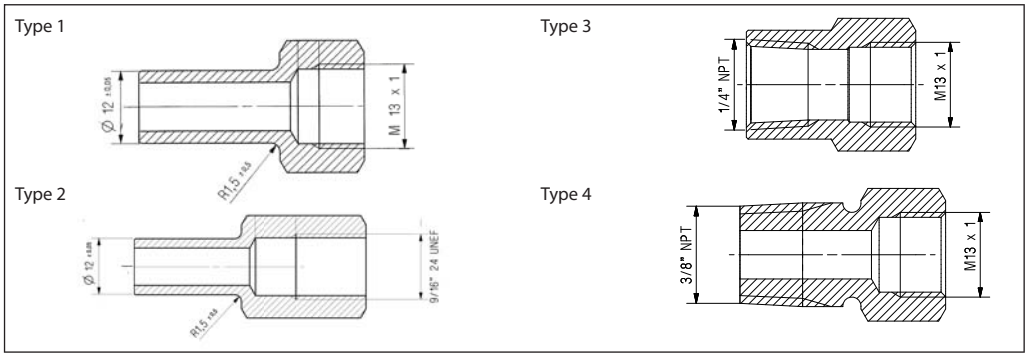
Marking on the nozzle

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 × 1	12 mm pipe	AISI 316	180Z0009
2	9/16" 24 UNEF	12 mm pipe	AISI 316	180Z0017
3	M13 × 1	¼" NPT inner thread	AISI 316	180Z0027
4	M13 × 1	⅜" 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

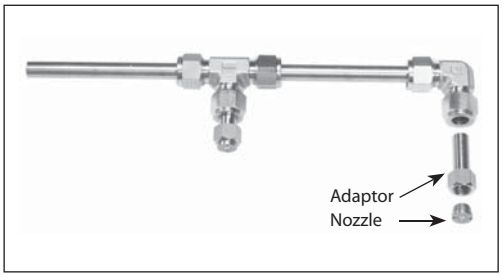
To avoid corrosion, high pressure stainless steel pipes and fittings must be used.

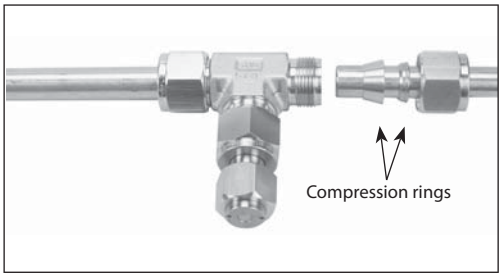
Recommended high pressure pipe:
Seamless stainless steel pipe according to standard ASTM 269 TP 316L / DIN2391 – C.
12 × 1.5 mm
Working pressure: 381 bar / 5525 psi
Burst pressure: 1514 bar / 21950 psi

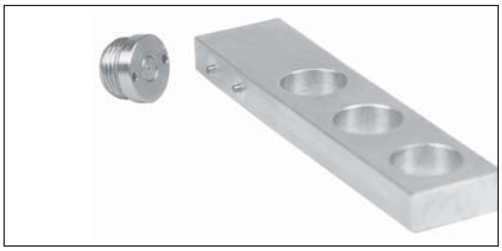
Recommended fittings:
Stainless steel twin ferrule compression ring fittings.

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.

DK-6430 Nordborg
Denmark

Data Sheet

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 expectance; 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

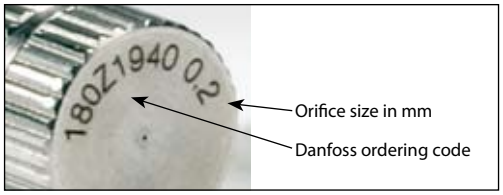
Technical data and code numbers

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	∅9.5 mm/0.374 inch; length 20.0 mm/0.78 inch; 9.0 g/0.32 oz

Marking on the nozzles



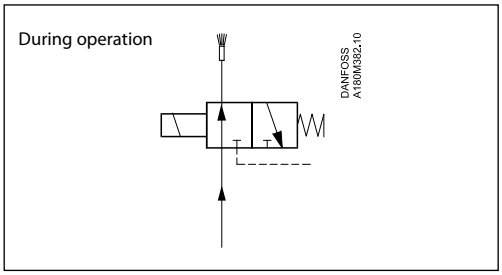
Adapters

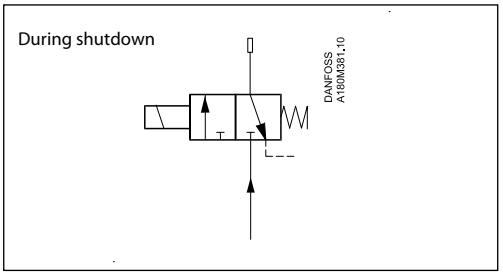
Version No.	Connections	Material	Weight	Length (mm/inch)	Code number
1	12/24 UNC 2B (female) to ∅12 mm/0.47 inch pipe (male)	AISI 304	20 g/0.7 oz.	30/1.18	180Z0022
2	12/24 UNC 2B (female) to ∅10 mm/0.39 inch pipe (male)	AISI 304	12 g/0.4 oz.	30/1.18	180Z0023
3	12/24 UNC 2B (female) to 3/8" NPT (male)	AISI 304	55 g/1.94 oz.	34/1.34	180Z0029
4	12/24 UNC 2B (female) to ∅9.525 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

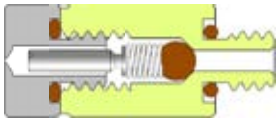
The integrated spring loaded check valve closes at a pressure of approx. 5 bar / 70 psi preventing water from dripping when the nozzle is shut down. To achieve the optimum performance, the supply line pressure should be relieved rapidly the moment the nozzle is shut down. Danfoss 3/2-way valves allow 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