Type B
Humidifying Nozzles

Fine Atomising Water Spray Nozzles Type “B” Humidifying Nozzles

The **Type B Humidifying Nozzles** were originally designed for use with power humidifiers to be sprayed into the duct work of home hot furnaces, as extra fine atomisation and precise control of flow rates were required.

These nozzles produce the finest possible atomization with direct water pressure operation. Minimum operating pressure is approx. 2.5 bar, but increasingly finer droplets result from higher operating pressures. Each nozzle is individually spray tested for accuracy of flow rate, spray angle and spray quality...your assurance of perfect performance on every installation

Applications
- ⇒ Residual duct humidification
- ⇒ Evaporate cooling
- ⇒ Humidification
- ⇒ Moistening
- ⇒ Misting

Material / Construction
- ⇒ Unique 2 piece construction
- ⇒ 9/16” - 24 UNEF 2A machine thread
- ⇒ 416 Stainless steel
- ⇒ Nickel silver (optional)

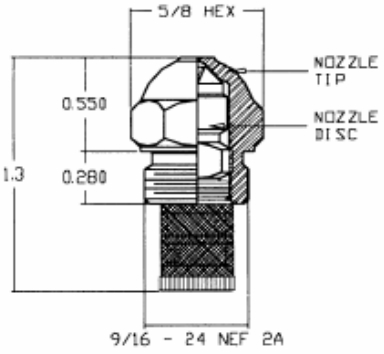
Spray angles / operating pressures
- ⇒ Standard spray angle 70º - other angles avaialble on special request
- ⇒ Minimum operating pressure 2.5 bar

Adapters
- ⇒ Brass—1/4” or 1/8” Female NPT

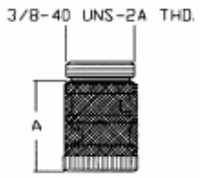
Ordering information
- ⇒ Part number represents flow rate in GPH @ 40PSI (approx 2.5 bar)
- ⇒ Example: B37 = 37 GPH @ 40psi

Flow Charts, Droplet Size Information and Corrosion Resistance Chart
on page 2

NOZZLE

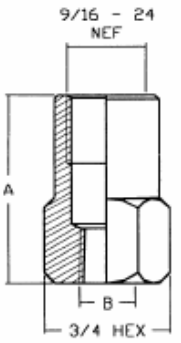


STRAINER



	A
SHORT	3/8
STANDARD	17/32
LONG	1 3/32

ADAPTER



	A	B
SHORT	1	1/8-27 NPT 1/4-18 NPT
STANDARD	1 3/8	
LONG	2	

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Flow rates @ various operating pressures

Nozzle Size	GPH @ psi						
	40	60	80	100	200	300	500
B37	0.37	0.45	0.52	0.59	0.83	1.01	1.31
B50	0.50	0.61	0.71	0.79	1.12	1.37	1.77
B75	0.75	0.92	1.06	1.19	1.68	2.05	2.65
B100	1.00	1.22	1.41	1.58	2.24	2.74	3.54
B150	1.50	1.84	2.12	2.37	3.35	4.11	5.30
B200	2.00	2.45	2.83	3.16	4.47	5.48	7.07

Sauter Mean Diameter @ various operating pressures

Nozzle Size	Micron (µ) @ psi						
	40	60	80	100	200	300	500
B37	54.0	39.4	34.5	32.1	26.5	23.1	19.5
B50	43.6	37.9	34.5	33.3	27.6	23.8	20.5
B75	45.9	37.5	34.3	32.5	26.5	23.9	19.9
B100	44.0	35.9	33.0	31.3	27.0	23.2	19.7
B150	42.9	37.0	35.0	32.5	26.0	21.9	18.0
B200	44.8	37.7	35.2	33.0	27.8	22.9	18.7

Pressure vs. Flow

For general purposes, change in flow rate due to change in pressure can be estimated as being approximately equal to the square root of pressure ratio. Therefore:
Flow rate @ the desired pressure -
RATED FLOW @ 40PSI * √desired pressure/40

OR….F2 - FR √P2/PR

Example: To determine the flow rate of a B50 nozzle @ 300psi, multiply 0.50 times the square root of 300/40….

OR….0.50* √ 300/40
Therefore the flow rate would be 1.37 gph

Droplet sizes: Given in microns (µm)

Test Apparatus: MUNHALL PSA - 32 particle size analyser, which measures drops based on Fraunhofer's Diffraction Principle

Verification: All tests are verify using a photomask test reticle which contains a known distribution of droplets per ASTM photomask / reticle method.

Duct Humidification Nozzle Sizing Chart

Furnace Cap. BTU output	Nozzle Part No
-75,000	B37
75,000-10,000	B50
100,000-125,000	B75
125,000-150,000	B100
150,000-180,000	B150
180,000-250,000	B200

Materials

Type 416 SS - A high chrome grade of stainless steel that is rust resisting, but not absolutely rust proof. Good resistance to erosion at higher water pressures. Medium corrosion resistance. Works well in waters with high mineral content.
Nickel silver - Hago's best grade of material. Nickel silver is a trade name of a non magnetic, nickel copper alloy that has become very popular due to its corrosion resistance which is comparable to 316 SS. Reasonably priced due to its machinability

CORROSION RESISTANCE TABLE FOR NICKEL SILVER

Chemical	Concentration	Temp (F)	Rating
Acetic Acid	2.5%	70	A
Alcohols			A
Ammonia, Dry gas			B
Ammonium Chloride (solutions)		85	B
Bleach		70	B
Boric Acid		all	A
Chlorine Dry gas		all	B
Chromic acid	5%		
Citric acid			A
Gasoline crude			A
Hydrochloric acid	0.50%	70	A
Hydrogen peroxide		70	A
Lactic Acid	all	70	B
Mineral oils			A
Saline (mist/gas)		all	A
Sodium Chloride	all	all	A
Sulphuric acid	pure	70	B
Sulphuric acid	3%	70	A
Water / Brine Extreme salt			A

A=Very good B=Good C=fair D= not recommended

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