Beduan 1yf-sns

Beduan 1/2" NPT Male Spiral Cone Atomization Nozzle Instruction Manual

Model: 1yf-sns

Introduction

Thank you for choosing the Beduan 1/2" NPT Male Spiral Cone Atomization Nozzle. This manual provides essential information for the proper installation, operation, and maintenance of your new nozzle. Designed for durability and efficiency, this stainless steel 316 nozzle is suitable for a wide range of industrial and commercial applications requiring fine atomization.

Specifications

Material	Stainless Steel 316
Connection Size	1/2" NPT Male External Thread
Jet Angle Scope	60 to 170 degrees (depending on pressure and specific nozzle variant)
Model Number	1yf-sns
Unit Count	10 Count (for this specific product variant)
Exterior Finish	Stainless Steel

The nozzle is constructed from food-grade 316 stainless steel, offering strong oxidation resistance, high and low temperature resistance, and excellent corrosion resistance for a durable and safe working environment.



Pipe size NPT or BSPT (male)	Spray angle (at 0.7bar)					Flow code	Spray hole Dia(mm)	Free flowing Dia.(mm)	Flow rate(L/min)				
	60°	90°	120°	150°	170°				0.7bar	1.5bar	3bar	7bar	25bar
1/4	●	●	●	●	●	20	4.0	3.2	7.6	11.2	15.8	24	46
3/8	●	●	●	●	●	82	7.9	3.2	31	46	65	99	187
1/2	●	●	●	●	●	164	11.1	4.8	62	92	129	198	370
3/4	●	●	●	●	●	210	12.7	4.8	80	117	166	255	480
1	●	●	●	●	●	470	19.1	6.4	179	260	370	565	1070

Detailed size chart illustrating various NPT sizes, corresponding spray angles, and flow rates at different pressures.

Installation and Setup

This spiral nozzle is designed for easy integration into most pipeline systems. Proper installation ensures optimal performance and prevents leaks.

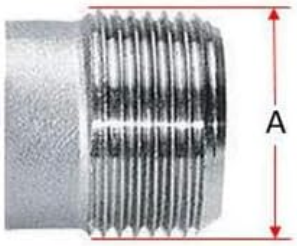
1. Selecting the Correct Fitting Size

Pipe size is a nominal designation and does not represent the true inside or outside diameter. Refer to the chart below to accurately measure and select the correct NPT male thread size for your application.

Selecting the Correct Fitting Size:

Pipe size is widely considered as nominal and sometimes referenced from the former iron pipe size (IPS) system. Pipe size is not a measured size but rather an industry designation and it ***dose not*** represent the true inside or outside diameter. Please see the chart below for actual outside diameter sizes and the corresponding pipe size.

Outside Diameter		Pipe Size
Fraction (nearest 1/8")	Decimal (exact size)	Nominal/ IPS
1/4"	0.3125"	1/16"
3/8"	0.405"	1/8"
1/2"	0.540"	1/4"
5/8"	0.675"	3/8"
3/4"	0.840"	1/2"
1"	1.050"	3/4"
1-1/4"	1.315"	1"
1-5/8"	1.660"	1-1/4"
1-7/8"	1.900"	1-1/2"
2-3/8"	2.375"	2"
2-7/8"	2.875"	2-1/2"
3-1/2"	3.500"	3"
4"	4.000"	3-1/2"
4-1/2"	4.500"	4"



For pipe or fittings with male threads, measure the ouside diameter of the large portion of the thread - (A)



For pipe or fittings with female threads, measure the top diameter of the thread - (B)

Guide for selecting the correct fitting size by measuring the outside diameter of male threads or the top diameter of female threads.

2. Installation Steps

1. **Preparation:** Ensure the pipeline system is depressurized and drained before installation. Gather necessary tools, including a wrench and thread sealant (e.g., PTFE tape or pipe dope).
2. **Thread Application:** Apply an appropriate amount of thread sealant to the male NPT threads of the nozzle. This helps create a watertight seal and prevents galling.
3. **Hand Tighten:** Carefully thread the nozzle into the female fitting on your pipeline. Hand tighten until snug.
4. **Wrench Tighten:** Use a wrench to tighten the nozzle further, typically 1 to 3 turns past hand-tight, depending on the fitting material and sealant used. Avoid over-tightening, which can damage threads or the nozzle.
5. **Leak Check:** Once installed, slowly repressurize the system and check for any leaks around the connection. If leaks occur, depressurize, reapply sealant, and retighten.



Close-up of the nozzle's male NPT threads, ready for sealant application and installation.

Operation

The Beduan spiral cone atomization nozzle is designed to produce a solid cone spray pattern, ideal for various applications.

Spray Pattern and Performance

- The unique spiral design creates a fine, atomized spray with a wide jet angle, typically ranging from 60 to 170 degrees.
- Performance is dependent on water pressure. Higher pressure generally results in finer atomization and a wider spray pattern.
- The compact design features smooth flow paths to minimize liquid blocking, ensuring consistent spray performance.



The nozzle in action, demonstrating its wide, atomized spray pattern.

Applications

This versatile nozzle is widely applied in various fields due to its efficient atomization capabilities:

- **Dust Removal:** Effective in industrial settings for suppressing airborne dust particles.
- **Exhaust Gas Processing:** Used in scrubbers and other systems for gas cooling and purification.
- **Water Disposal:** Aids in processes requiring fine water dispersion.
- **Fireproofing & Fire Fighting:** Suitable for applications requiring a wide, fine spray for fire suppression or prevention.
- **Spraying Cleaning:** Can be used in various cleaning processes where a broad, atomized spray is beneficial.
- **Gas Cooling:** Efficiently cools gases through evaporative cooling.



Visual representation of the diverse applications for the Beduan spiral nozzle.

Maintenance

Regular maintenance ensures the longevity and optimal performance of your Beduan spiral nozzle.

- **Inspection:** Periodically inspect the nozzle for any signs of wear, damage, or corrosion. The stainless steel 316 material is highly resistant, but harsh environments may still cause issues over time.
- **Cleaning:** If the spray pattern becomes irregular or flow is reduced, the nozzle may be partially clogged.
  - Depressurize the system and carefully remove the nozzle.
  - Rinse the nozzle with clean water. For stubborn clogs, use a soft brush or compressed air to clear the internal spiral channels. Avoid using sharp metal objects that could scratch or damage the precision-machined surfaces.
  - Reinstall the nozzle following the installation steps.
- **Storage:** If the nozzle is to be stored for an extended period, ensure it is clean and dry to prevent any potential buildup or corrosion.

Troubleshooting

Problem	Possible Cause	Solution
No spray or reduced flow	Clogged nozzle orifice or internal channels	Clean the nozzle as described in the Maintenance section. Check for debris in the pipeline.
Irregular spray pattern	Partial clog or damage to the spiral element	Clean the nozzle thoroughly. If damage is visible, replace the nozzle.

Leakage at connection point	Insufficient thread sealant or improper tightening	Depressurize, remove, reapply thread sealant, and retighten the nozzle. Ensure threads are not cross-threaded or damaged.
Insufficient atomization	Low water pressure	Verify that the system pressure meets the requirements for the desired spray performance.

Warranty and Support

Beduan is committed to providing high-quality products. For any questions, technical assistance, or warranty inquiries regarding your spiral cone atomization nozzle, please contact Beduan customer support through your purchase platform or the official Beduan website.
Please retain your proof of purchase for warranty claims.

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