



ISA 1932 Flow Nozzle

Description

ISA 1932 nozzles are generally used for the measurement of liquid or gas flows including steam, erosive, high-velocity and non-viscous media. They do not rely on a sharp edge (which can deteriorate over time) to maintain accuracy and therefore offer excellent long-term accuracy with less wear, reducing the possibility of distortion. They are often used for high accuracy flow measurement in power plant applications.

Flow nozzles are capable of measuring higher flow rates, often double, than an equivalent orifice plate at the same differential pressure. The flow nozzle is available in various designs including mechanically clamped between flanges or permanently welded directly into the pipe line.

Other Available Materials

- Aluminum
- Tantalum
- Duplex SS
- Hastelloy B & C
- Monel
- Zirconium
- 321 SS
- Titanium

Common Materials

- Carbon Steel
- Chrome Moly
- 304 / 316SS

Applications

- Steam and Water
- Hydrocarbon, Liquids and Gas Process
- Water Treatment and distribution
- Oil production and refining
- Chemical and Petrochemical industry
- High Velocity Process

Special Features

- Improved uncalibrated uncertainty as compared to an equivalent ASME long radius nozzle
- Extended product life with no moving parts
- Lower susceptibility to erosion
- Widely used for high pressure and/or high temperature steam and water flow
- These need to be supplied by Darrel Ken Bruce
- Useful for flow measurement at high velocities
- Turndown ratio of 10:1, 20:1, 50:1 and greater can be achieved depending on the specific model and design of the meter as well as the type of secondary instrumentation system utilized
- Repeatability of $\pm 0.1\%$

Model Types

- NZF – Nozzle Flanged
- NZFFR – Flanged Nozzle, Flanged Run
- NZW – Nozzle Weld-In
- NZWWR – Nozzle Weld-In, Welded Run

Specifications

Line Size: 2 to 24 inches

Head Loss (permanent pressure loss) in % of Differential: 30% to 85%, Beta Dependent

Basic Accuracy (% of Total): [Calibrated ± 0.25] [Uncalibrated $\beta \leq 0.6 = \pm 0.80\%$, $\beta < 0.6 = \pm (2\beta - 0.4)\%$]

Recommended Minimum Pipe Reynolds Number: Greater than 20,000 for basic accuracy

Required Straight Piping: Consult PFS for required US & DS piping based on your specific application

Beta Range: 0.30 through 0.80

Useful Service Life: Medium to Long

Service Functional Limits: Clear Liquids, Gas and Steam

Note(s): Several international standards govern use and design of flow nozzles, ASME, ISO and others. While they cover similar meter embodiments, design parameters and requirements, stated performance in key areas they may differ.