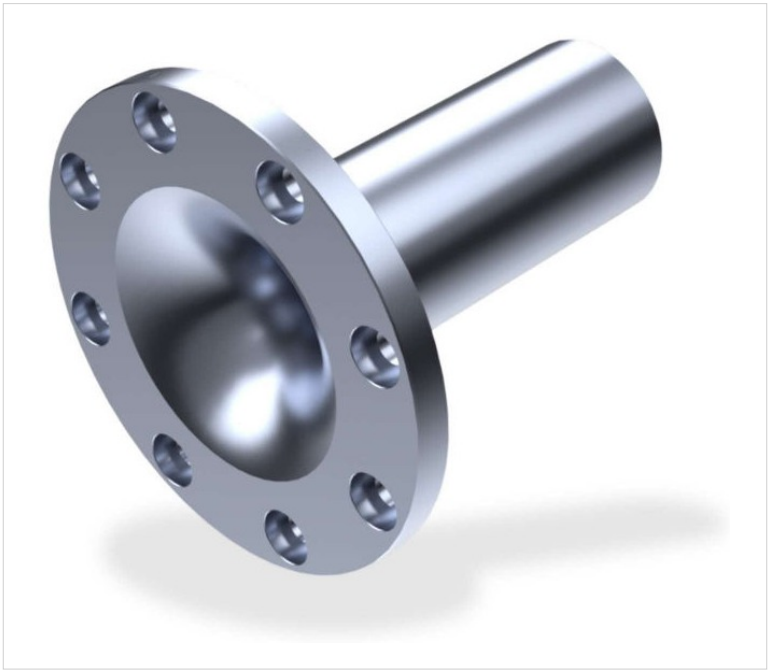
SNZ

Technical Datasheet



Flange nozzle of the SNZ series.

Short Description

Critical nozzles (sonic nozzles) to DIN EN ISO 9300 for air and gases. With the nozzles of the SNZ series, flows of air or gases can be set with very high stability. They are used to calibrate flow meters for volume or mass flow, e.g. gas meters, laminar flow elements and mass flow meters.

If the absolute inlet pressure is at least twice the outlet pressure, the gas reaches the speed of sound in the narrowest cross-section; the volume flow then no longer changes, even when the inlet pressure rises. Mass flow and standard volume flow still depend on the gas density, i.e. on pressure and temperature.

Identification

Product name	SNZ
Type	Critical nozzle
Design	DIN EN ISO 9300
Document status	12.11.2026

Design and Measuring Range

Specified nominal flow rates	0.6 L/h to 6,000 m^3/h (air equivalent)
Pipe nominal size	DN 4 to DN 400
Throat diameter	10 µm to 100 mm; compliant with DIN EN ISO 9300 from 0.1 to 100 mm, below 0.1 mm manufactured based on the standard
Inlet pressure	1 to 7 bar absolute
Manufacturing tolerance	±5 % of setpoint value (standard)
Calibration uncertainty (best possible)	±0.25 % rdg. (k=2)
Recalibration period	5 years for $Q < 2$ Nm^3/h 10 years for $Q \geq 2$ Nm^3/h

rdg. = of reading. Nm^3/h referred to the standard conditions 1,000 mbar, 20 °C, 0 % RH.

Installation Conditions

Critical operation	absolute inlet pressure at least twice the outlet pressure
Preferred operating mode	suction mode: the atmospheric density at the inlet is very constant, disturbances on the outlet side do not pass the throat
Approach flow	no wall closer to the nozzle axis and the inlet plane than 5 times the throat diameter
Minimum inlet nominal size	4 times the throat diameter (critical operation still possible)

Operating Conditions

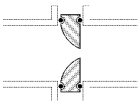
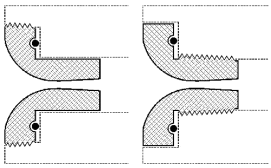
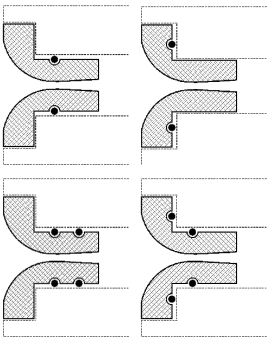
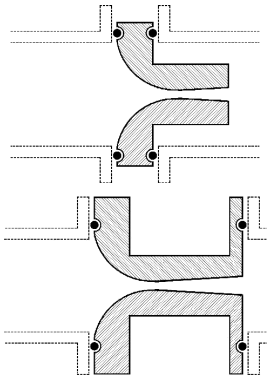
Operating temperature	0 to +50 °C
Operating mode	suction or pressure mode

Media Compatibility

Media	air; inert, non-flammable gases on request; oxygen*, hydrogen*, CO*; prerequisite in each case: compatible with stainless steel
Nozzle body material	stainless steel, other materials on request

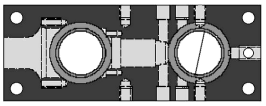
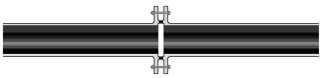
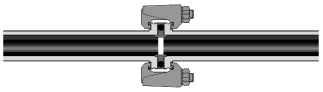
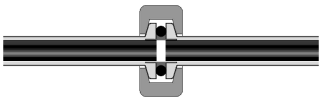
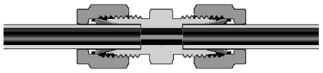
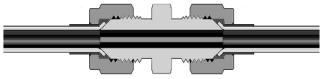
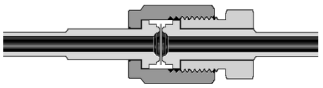
* on request and subject to the Pressure Equipment Directive 2014/68/EU.

Nozzle Types

TYPE	THROAT DIAMETER MAX.	AIR FLOW MAX.	NOMINAL SIZE	SEALING AND MOUNTING	SECTIONAL VIEW
Disc nozzle	2 mm	600 L/h	DN 4 to DN 8	metallic or 2 O-rings; replaces a sealing washer	
Screw-in nozzle	2.5 mm	3,600 L/h	DN 4 to DN 25	1 O-ring; screwed into a tube or block adapter	
Plug-in nozzle	25 mm	350 m^3/h	DN 10 to DN 100	1 or 2 O-rings; insert for tube or block adapter or flange	
Flange nozzle	100 mm	6,000 m^3/h	DN 25 to DN 400	1 or 2 O-rings; between pipe flanges or as intermediate flange	

Screw-in nozzles with standard metric or inch threads at the outer edge or shank. With two O-rings, the pressure between the rings can be measured for leak testing. One-piece nozzles are machined from a single blank together with the pipe section, thread or flange; for large nominal sizes and small throat diameters the two-piece design is more cost-effective: a nozzle body in a machined standard piping component. Sectional views: schematic, not to scale.

Mounting Options and Connections

Tube adapter	DN 10 to DN 25; O-ring sealed inserts; standard metric or inch threads up to G1"	
Block adapter	DN 10 to DN 50; O-ring sealed block rows, individual blocks with adapters for standard threads	
DIN flange to DIN 2500 ff.	DN 25 to DN 400, different pressure ratings; O-ring or flat gasket	
ISO-K flange	to DIN 28404 and ISO 1609, DN 63 to DN 250; O-ring between inner centring and outer supporting ring	
KF flange	to DIN 28403 and ISO 2861, DN 10 to DN 50; O-ring on a centring ring	
Swagelok connection	DN 6 and DN 8; two conical clamping rings	
AN union connection	DN 4 to DN 8; the taper presses the tube into a mating sleeve of the same shape	
VCR connection	DN 4 and DN 8; metal disc in the contact area	

Nozzle types and connections can be combined; not every nozzle can be realised in every connection. The choice also depends on the maximum pressure and the flow range. Drawings: schematic, not to scale.

Calibration

Procedure	in suction or pressure mode
Calibration medium	air or pure gases
Calibration certificate	DAkkS or factory calibration certificate

DESIGN AND ADVICE

For the design of your nozzle or nozzle measuring section, contact us at **+49 7157 5387-0** or **info@tetratec.de**.