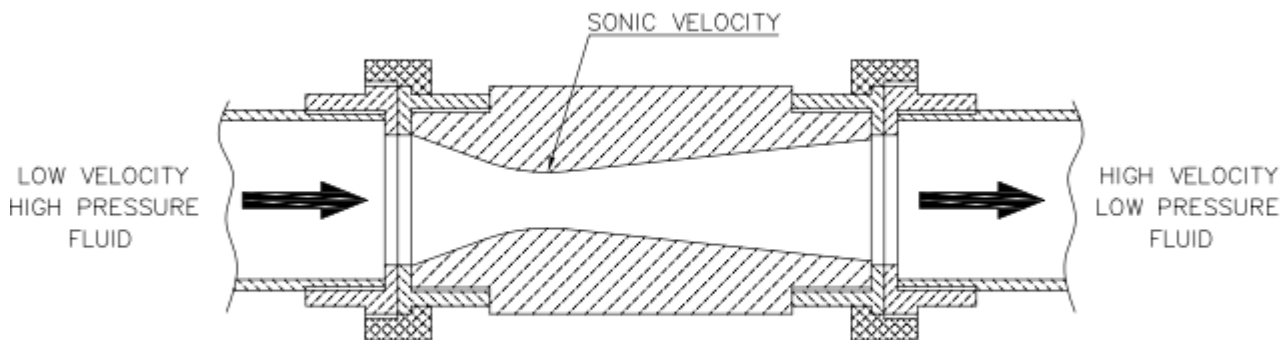


SONIC NOZZLE-E2800 SERIES

A sonic nozzle works as a gas flow limiting device which works according to the principle of critical flow or choked flow. When a gas is accelerated to sonic velocity through the nozzle, its mass flow-rate becomes independent of variations in downstream conditions.



PRINCIPLE OF OPERATION:

Fluid flows through the nozzle from the high pressure chamber to the low pressure region. The pressure at intake is called stagnation pressure and the pressure at exit is called back pressure. When we start to reduce the back pressure, the flow velocity and mass flow rate also starts to increase. But this will only happen up to a certain limit. At that limit, the flow velocity will be equal to the velocity of sound. Beyond this limit, no changes will occur in flow velocity and mass flowrate. This is known as the choked condition and uniform mass flowrate is maintained.



SONIC NOZZLE-E2800 SERIES

APPLICATIONS:

- Using in rocket engines
- Automotive emission testing
- Used in gas pipeline flow measurements
- Compressor Discharge Capacity Tests
- Over Speed Protection of Gas Flow Meters
- Flow Limiting
- Measurement of Automotive Induction Air

ADVANTAGES:

- Low running cost
- Proven performance
- Long Term Accuracy
- Better Repeatability
- No Moving Parts
- Differential Pressure Measurement Not Required
- Flow Rate Is Not Affected by Downstream Flow Disturbances
- Mass flowrate varies linearly with Inlet pressure
- Minimal upstream piping required



SONIC NOZZLE-E2800 SERIES

ADDITIONAL INFORMATION:

- Pressure Range: upto 10 bar (Higher pressure available)
- Temperature Range: 10-50 deg C
- Flow Range: 0.6-1200 Nm³/hr or Higher (Depending upon the nozzle size selected)
- Gases: Air and Non hazardous gases
- Accuracy: ±0.25% of reading or better (Depending upon the calibration and type of gas)
- Repeatability: As good as ±0.1% of reading, depending on Pressure Transducer and the application conditions.

MODEL DATA: (Refer to throat diameter while ordering your nozzle)

Throat Diameter(mm)	Inlet Flowrate in m ³ /hr @ inlet pressure in bar(g)						
	1	2	3	4	5	6	6.5
0.1	0.006	0.012	0.018	0.024	0.030	0.036	0.039
0.14	0.012	0.024	0.036	0.048	0.060	0.072	0.078
0.2	0.024	0.048	0.071	0.096	0.120	0.144	0.156
0.28	0.048	0.096	0.144	0.192	0.240	0.288	0.312
0.4	0.096	0.192	0.288	0.384	0.480	0.576	0.624
0.56	0.192	0.384	0.576	0.768	0.960	1.152	1.248
0.8	0.384	0.768	1.152	1.536	1.920	2.304	2.496
1.12	0.768	1.536	2.304	3.072	3.840	4.608	4.992
1.6	1.536	3.072	4.608	6.144	7.680	9.216	9.984
2.24	3.072	6.144	9.216	12.288	15.360	18.432	19.968
3.2	6.144	12.288	18.432	24.576	30.720	36.864	39.936
4.48	12.288	24.576	36.864	49.152	61.440	73.728	79.872

