

# Reference Sound Source

## Nor278

### Application

- Comparison method for determination of sound power of noise sources according to ISO 3741, ISO 3743-1 and ISO 3747.

### Features

- A weighted Sound power output: 94 dB re 1 pW (50 Hz line frequency)
- Sound power 50 Hz – 20 kHz: 94 dB re 1 pW (50 Hz line frequency)
- Fulfils ISO 6926 - 1999 (ANSI S12.5 - 2006) for reference sound sources in the extended frequency range 50 Hz – 20 kHz.
- Individual calibrated (accredited calibration optional)
- Long-term stability
- Weight 18 kg (50 Hz) / 24,5 kg (60 Hz)
- Rugged



The reference sound source Nor278 is designed to produce a stable and uniform sound power output with unique long-term stability. The high sound power output makes it ideal for sound power measurements in a noisy environment. The rugged, but yet portable and light weight construction is perfect for field use as well as laboratory use. Every effort is made in the design to ensure a uniform frequency response and optimum directional characteristic well inside the requirements in ISO 6926 - 1999.

### Accredited Calibration

Each unit is carefully assembled and individual tested. To enhance the level of quality and traceability of your measurements every unit can optionally be accredited calibrated by the Norsonic Calibration Laboratory in accordance to ISO 6926 - 1999. This service is also offered for periodic recalibration.



Norsonic Calibration Laboratory is an accredited laboratory to work in compliance with ISO/IEC 17025 in carrying out calibration of acoustical equipment for measuring noise (sound level meters, microphones, dose meters and acoustical calibrators), accelerometers, tapping machines and reference sound sources. The accreditation is recognized internationally through European and global multilateral agreements in more than 40 countries around the world made through the International Laboratory Accreditation Cooperation – ILAC. Thus the Norwegian Accrediting body has established that Norsonic calibrations are internationally accepted as being carried out in an accredited laboratory.



## Typical sound power levels

### 50 Hz

Freq. [Hz]	Third Octave bands	Octave bands	Dir. [dB]
50	72 dB		2,3 dB
63	72 dB	78 dB	2,1 dB
80	74 dB		2,1 dB
100	76 dB		2,2 dB
125	77 dB	81 dB	2,5 dB
160	76 dB		2,4 dB
200	75 dB		2,5 dB
250	76 dB	81 dB	2,3 dB
315	77 dB		2,5 dB
400	78 dB		2,4 dB
500	78 dB	83 dB	2,6 dB
630	78 dB		3,2 dB
800	79 dB		3,5 dB
1 k	79 dB	84 dB	2,9 dB
1,25 k	80 dB		2,9 dB
1,6 k	81 dB		3,1 dB
2 k	83 dB	88 dB	2,2 dB
2,5 k	85 dB		2,3 dB
3,15 k	85 dB		2,9 dB
4 k	84 dB	89 dB	3,1 dB
5 k	83 dB		1,4 dB
6,3 k	82 dB		2,6 dB
8 k	80 dB	85 dB	1,5 dB
10 k	78 dB		1,3 dB
12,5 k	76 dB		1,3 dB
16 k	74 dB	79 dB	2,0 dB
20 k	70 dB		1,0 dB
A-weight.	94 dB		-
Lin	94 dB		-

### 60 Hz

Freq. [Hz]	Third Octave bands	Octave bands	Dir. [dB]
50	73,2 dB		2,0 dB
63	76,7 dB	80,3 dB	1,7 dB
80	76 dB		2,1 dB
100	77,7 dB		2,0 dB
125	79,8 dB	84,8 dB	2,0 dB
160	81,6 dB		2,7 dB
200	80,9 dB		2,6 dB
250	79,3 dB	85 dB	2,5 dB
315	80,3 dB		2,6 dB
400	81,2 dB		2,7 dB
500	81,2 dB	86,1 dB	2,9 dB
630	81,6 dB		3,0 dB
800	82,7 dB		3,0 dB
1 k	82,9 dB	87,9 dB	2,4 dB
1,25 k	83,6 dB		2,8 dB
1,6 k	84 dB		2,5 dB
2 k	85 dB	90,6 dB	2,4 dB
2,5 k	87,5 dB		2,9 dB
3,15 k	88,1 dB		2,2 dB
4 k	87 dB	92 dB	2,5 dB
5 k	86,5 dB		2,8 dB
6,3 k	86,3 dB		2,2 dB
8 k	84,4 dB	89,4 dB	2,3 dB
10 k	82,3 dB		1,5 dB
12,5 k	79,6 dB		1,1 dB
16 k	78,1 dB	82,9 dB	1,6 dB
20 k	76,1 dB		1,1 dB
A-weight.	97,1 dB		-
Lin	97,4 dB		-

Dir. = Directivity index, i.e. the difference between the maximum SPL in one particular direction and the SPL averaged in all direction of a hemisphere.

### Specifications

**Device type:** Reference sound source according to IEC 6926 (1999) for extended frequency range 50 Hz – 20 kHz.

**Power Supply:** 200 – 240 volt (50 Hz) / 110 - 115 volt, (60 Hz)

**Power consumption:** <750 W (typical 650 watt) (50 Hz) / <900 W (typical 800 watt) (60 Hz)

**Fuses:** 10A – slow blow (110 V) / 20A - slow blow (220 V)

**Sound power output each 1/3-octave frequency band:** >75 dB re 1 pW (50 Hz) / >77 dB re 1 pW (60 Hz) in each 1/3-octave bands in the range 100 Hz to 10 kHz.

**A-weighted sound power output:** 94 dB (typically) (50 Hz) / 97 dB (typically) (60 Hz)

**Weight:** 18 kg (50 Hz) / 24,5 kg (60 Hz)

**Height exclusive handle:** 396 mm

**Height inclusive handle:** 464 mm

**Diameter:** 283 mm

**Temperature:** -25° to 50°C. Above 35°C intermittent use only.

**Humidity:** Up to 90 %, non-condensing.

**Compliance:** ISO 6926 - 1999, ANSI S12.5 - 2006  
CE-mark indicates compliance with: Machinery Directive, EMC Directive and Low Voltage Directive.

#### Order information:

**Nor278:** Including packaging, instruction manual and power cord

**Nor278/01:** Accredited calibration