



## SICE TYPE NV-V2 - TWO MILES RANGE FOG HORN (HIGH RELIABILITY, REDUCED SIZE & WEIGHT)



**SICE NV-V2 FOG HORN  
RANGE 2 NAUTICAL MILES  
INCLUDING OPTION FOR LOCAL CONTROL  
CIRCUIT (CODER & OSCILLATOR)  
ENCLOSED IN A Ex-d JUNCTION BOX**



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ENCLOSED IN A Ex-d JUNCTION BOX  
AND LED LANTERN INSTALLED IN THE TOP**

Durable and very low maintenance fog horn, with reduced size & weight, composed of two omnidirectional acoustic emitters stacked in order to form a vertical column. This type of construction allows a perfect sonorous irradiation of 360 degrees and an excellent sonorous performance (column effect). One fog horn of this model is sufficient, as long as it can emit a 360-degree beam of sound in the horizontal plane.

### GENERAL MAIN TECHNICAL DATA:

- ✓ Complies with IALA Recommendations for 2 Nautical Miles Range
- ✓ Acoustic emitters made in marine grade aluminum, subjected to a special protective treatment suitable for sea climate (treatment performed and tested by SICE).
- ✓ Cylindrical Emitter Covers made in AISI 316L Stainless Steel.
- ✓ Acoustic drivers type SICE DR780, equipped with special stainless steel resonant diaphragm and placed inside the emitter boxes. Each emitter box has two bolted covers, one for each side, for an easy replacement of the driver in case of failure.
- ✓ Mechanical frame made in AISI 316L Stainless Steel.
- ✓ Fixing accessories (bolts and nuts) made in A4 (AISI 316 stainless steel)
- ✓ Suitable to be installed also in classified area of Zone 1, in large buoys or platforms. This construction allows an easy installation on the floor of the platform.
- ✓ Available for safe area version
- ✓ Sound pressure level tests performed in large anechoic chamber, in compliance with E-109 IALA Recommendation "On The Calculation Of The Range Of A Sound Signal", Edition 1 - May 1998.
- ✓ Working (resonance) frequency ranging between 800Hz and 850Hz.
- ✓ Mechanical protection IP66
- ✓ Marking :  $\text{Ex d IIB T5 Gb IP66}$
- ✓ ATEX Certificate Number : INERIS 02ATEX0073X
- ✓ IECEx Certificate Number : INE 14.0043X
- ✓ Operating temperature range: from -40°C to +55°C
- ✓ Emitter painting colour : standard RAL 7000 (other colours can be required)
- ✓ The coder and control circuit can be installed in a centralized control panel or locally, inside an enclosure installed on the support base of the fog-horn. The coder can be programmed for each required sounding code and can be synchronized with other coders.
- ✓ The emitters work by square waves broadcasting a complex sound that reduces the interferences due to reflexions.

### ELECTRICAL DATA:

- ✓ System supply voltage : 24Vdc or 230Vac (other voltage on request)
- ✓ Emitters supply voltage : 40Vac (square wave)
- ✓ Power consumption NV-V2 : 160W peak including control circuit losses (22W average with U code standard IALA)

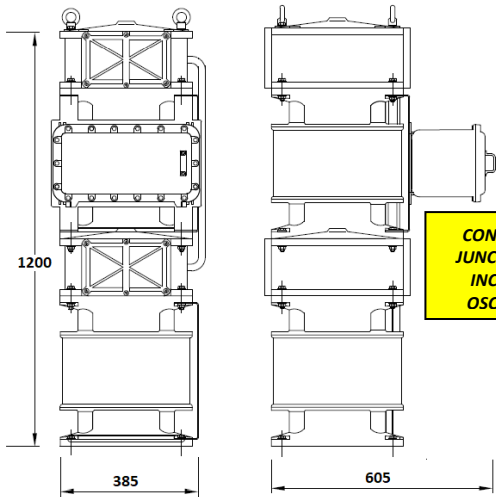
### SOUND PRESSURE INFORMATIONS:

- ✓ NV-V2 sound pressure level : 134dB @ 1m
- ✓ NV-V1 sound pressure level : 128dB @ 1m

**So, in case that one emitter is failed, the range of this fog horn is reduced from 2 nautical miles to 1,5 nautical miles.  
(in compliance with IALA Guideline 1090 - The Use of Audible Signals - December 2012 - Table 2 "Usual Range")**

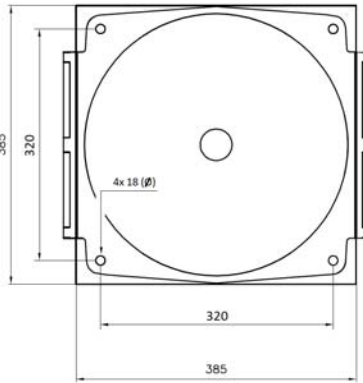


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**(HIGH RELIABILITY, REDUCED SIZE & WEIGHT)**

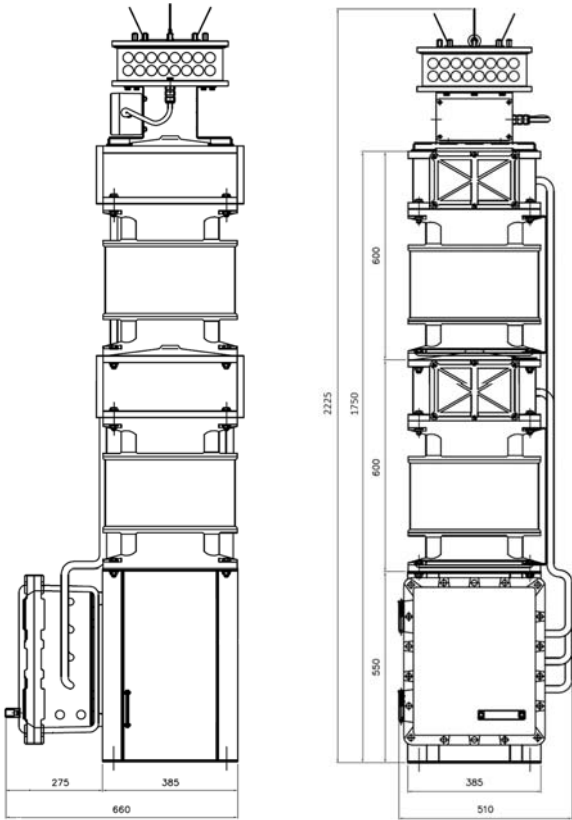


**SICE NV-V2 MAIN FOG HORN - STANDARD VERSION**  
**DIMENSIONAL DRAWINGS INCLUDING BASE FIXING DETAILS**

**WEIGHT 140kg**

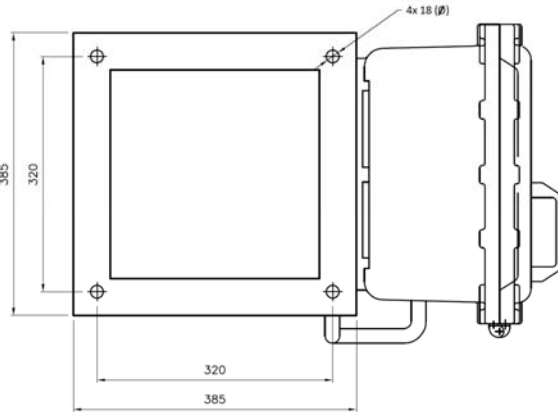


**NV-V2 FOG HORN**  
**STANDARD VERSION**  
**FIXING BASE DETAIL**



**SICE NV-V2 MAIN FOG HORN - RANGE 2 NAUTICAL MILES**  
**INCLUDING LOCAL CONTROL CIRCUIT ENCLOSED IN Ex-d JUNCTION BOX**  
**AND TOP LED LANTERN**  
**DIMENSIONAL DRAWINGS INCLUDING BASE FIXING DETAILS**

**WEIGHT INFORMATION**  
**WEIGHT OF NV-V2 FOG HORN + LOCAL CONTROL CIRCUIT: 200kg**  
**WEIGHT OF NV-V2 FOG HORN + LOCAL CONTROL CIRCUIT + LANTERN: 230kg**



**NV-V2 - FOG HORN**  
**INCLUDING LOCAL CONTROL CIRCUIT**  
**FIXING BASE DETAIL**

*Document can be subjected to modifications, without prior notice*



**SICE TYPE NV-V2 - TWO MILES RANGE FOG HORN**  
**(HIGH RELIABILITY, REDUCED SIZE & WEIGHT AND LOW COST)**

**TEST REPORT FOR NV-V2 FOG HORN SOUND PRESSURE MEASUREMENT**

**MATERIACUSTICA**  
 RESEARCH AND  
 ENGINEERING  
 IN ACOUSTICS  
 AND VIBRATION



**ANNEX 1 – TEST REPORT N. 20180620 – 05/07/2018**

**Client:** SICE S.R.L.  
 Via G. Bartolucci, 16  
 61122 Borgo Santa Maria (Pesaro)

**Subject:** Experimental characterization of sound source for marine navigation  
 Manufacturer: SICE  
 Model: NV-V2 (TWO MILES FOG HORN)

**References:** [1] IALA Recommendation E-109 “On The Calculation Of The Range Of A Sound Signal”, Edition 1 - May 1998.  
 [2] IALA Guideline No. 1090 “On The Use of Audible Signals”, Edition 1 - December 2012.

Data measured in anechoic chamber and described in TEST REPORT N. 20180620 show that the best ratio between sound pressure level and power consumption is achieved in the frequency range from 835 Hz and 840 Hz. Taking this result into account, given the sound pressure level measured at 8 m from the sound source (SPL@8m) it is possible to calculate the sound pressure level at 1 m from the sound source (SPL@1m) using the following formula obtained from standard [1] and based on the free field sound propagation of a spherical sound source:

$$L_{d_1} = L_{d_2} + 20 \log \frac{d_2}{d_1}$$

where  $L_{d_1}$  e  $L_{d_2}$  are the sound pressure levels measure at a distance of  $d_1$  e  $d_2$  respectively. Then, in this case,  $SPL@1m = SPL@8m + 18$  dB. The sound pressure levels calculated at 1 m for the different frequencies are shown in table 1.

Freuenza [Hz]	SPL@8m [dB]	SPL@1m [dB]
835	116.0	134.0
836	116.1	134.1
837	116.0	134.0
838	116.1	134.1
839	116.1	134.1
840	116.2	134.2

Table 1 – Sound pressure level measured at 8 m and calculated at 1 m

All sound pressure levels calculated at 1 m (SPL@1m), in the specified frequency range, are equal or greater than 134 dB, which is the lower limit set by the standard [2] for an “USUAL RANGE” of 2 Nautical Miles (NM).

Ferrara, 5<sup>th</sup> July 2018

Dott. Andrea Farnetani  
  
**MateriAcustica s.r.l.**