



Exploration & Production

GENERAL SPECIFICATION

HVAC

GS HVA 217

Sound attenuator

02	10/04	Updating
01	12/03	Change of Group name and logo
00	10/02	First issue
Rev.	Date	Notes



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1. Scope

The purpose of this document is to define the minimum requirements for design and construction of sound attenuator.

The words and expressions in capital characters are defined inside the general specification **GS HVA 801**.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Equipment and installations must be in accordance with (in order of precedence):

1. The country local regulations where equipment and/or installations shall be operated
2. Total General Specifications as listed in **GS HVA 000**
3. The International Standards
4. The French Regulation (when Country local regulation does not exist).

International System of Units (SI)

Notes:

- In case of discrepancy between documents the more stringent requirements shall apply.
- The HVAC VENDOR or CONTRACTOR may propose proven improvements to the reference documents but shall obtain written approval of the COMPANY prior to implementation.
- A International Standard is a good "engineering practice" which shall be recognised and taken into consideration by VENDOR, SUPPLIER, MANUFACTURER and/or CONTRACTOR. If required, the translation of the standards must be included into HVAC scope.
- The latest revision of Standards, codes, regulations and the published errata if any must be used and applied by VENDOR, SUPPLIER, MANUFACTURER and CONTRACTOR.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS HVA 000	List of HVAC specifications
GS HVA 801	Terminology, definitions, abbreviations
DS HVA 217	Sound attenuator - Data Sheet

3. Construction

3.1 Frame

The material of frame must be steel sheets of thickness at least equal to 1 mm and with a grade selected in accordance with the location of the sound attenuator:

- Outside of buildings: stainless steel 316 L
- Inside buildings: galvanised steel

Reinforcements must be installed if any baffle dimension is greater than 1800 mm.

3.2 Baffles

Inside the frame, several parallel baffles, regularly spaced, shall be installed. The structure of the baffles shall be made of the same material than the frame.

Each baffle internal cavity shall be filled with sound attenuation media of homogeneous density, vertically arranged in successive layers.

A one millimetre glass fibre linen, conglomerated at high temperature, and a perforated steel plate, must be placed on each outer face of media to avoid particles migration.

3.3 Assembly

Assembly must be realised by 4 mm rivets. Rivets are made of aluminium or of the same material than the frame.

4. Characteristics of sound attenuation media

- Mean density: 65 kg/m³ (guaranteed minimum density: 55 kg/m³)
- Maximum percentage of chlorides: 6 ppm
- Fibre aqueous solution pH: 7 at 15°C and 9.5 at 80°C
- Composition:
 - SiO₂: 42 to 48%
 - Al₂O₃: 13 to 17%
 - TiO₂: 1.1 to 1.5%
 - FeO: 3 to 11%
 - CaO: 13 to 25%
 - MgO: 7 to 15%
 - MnO: 0.1 to 0.5%
 - Na₂O: 2 to 4%
 - K₂O: 0.4 to 0.8%
 - Bore: < 50 ppm
 - Cobalt: < 20 ppm
- Capillary: null
- Water absorption by immersion: ≤ 1% in volume
- Mineral wool composed of inorganic fibres
- Fire classification: M0 (French regulation)
- Maximum migration of fibres in 5 hours:
 - at 15 m/s, migration lower than 0.5 µg/m³/m²
 - at 45 m/s, migration lower than 0.9 µg/m³/m²
- Sabine coefficients:

	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
100 mm Thickness	0.64	1.1	1.1	1.0	0.96	0.96
200 mm Thickness	0.93	1.11	1.12	1.0	0.96	0.93

5. Presentation of calculation results

The results of calculation shall be indicated in **DS HVA 217** data sheet which must be used as an integral part of the present specification.

One data sheet per sound attenuator must be filled.

6. Documents to be supplied

Due date	Document
(1)	Preliminary drawings of sound attenuator with dimensions and weight
(1)	Calculation notes including pressure drops and attenuation per octave band
(2)	Final drawings of sound attenuator with dimensions and weight

Due dates:

- (1) Within 30 days after receipt of the order
- (2) Two weeks before delivery.

A fortnight will be given to COMPANY or to Engineering, to control and comment the documents. The comments shall be taken into account by the MANUFACTURER. They are a contractual element.

All documents shall be provided in 4 paper copies and 1 electronic copy on CD ROM (AutoCAD 2000 for drawings and PDF for texts).

Notes:

The transmitted documents shall be specific to the supplied equipment. General documents are not acceptable.

Documents are an integral part of the supply. In case of delay in the issue of documents, the same liquidated damages than for late delivery of equipment may apply.

The transmitted documents between the MANUFACTURER or CONTRACTOR and the COMPANY or Engineering shall be typed. The hand written documents will be refused.

"Proprietary information" cannot be claimed in order not to supply any of the requested documents.