



Exploration & Production

GENERAL SPECIFICATION

HVAC

GS EP HVA 219

Non-return Dampers

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00	10/2005	First issue
Rev.	Date	Notes



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1. Scope

The purpose of this document is to define the minimum requirements for design, construction and supply of non-return dampers.

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

When other words require a definition only for using within that document, the definition is given in a paragraph of that document and the defined word is marked in small and *italic* letters.

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 EP HVA 000**
3. The International Standards
4. The French Regulation (when Country local regulation does not exist).

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.
- An 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
EN 1751	Ventilation for buildings. Air terminal devices. Aerodynamic testing of dampers and valves
EN 10204	Metallic materials - Types of inspection documents
EN 50262	Metric cable glands for electrical installations
ISO 15607	Specification and qualification of welding procedures for metallic materials - General rules

Reference	Title
ISO 15614-2	Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 2: Arc welding of aluminium and its alloys
ISO 15614-8	Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 8: Welding of tubes to tube-plate joints

Professional Documents

Reference	Title
SMACNA	Sheet Metal and Air Conditioning CONTRACTORS' National Association.

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
Not applicable	

Other documents

Reference	Title
SI	International System of Units

Total General Specifications

Reference	Title
GS EP COR 350	External protection of offshore and coastal structures and equipment by painting
GS EP HVA 000	List of HVAC Specifications
GS EP HVA 100	Basis of design
GS EP HVA 801	Terminology, definitions, abbreviations

3. Definitions

Frame: part of the damper that is used as a duct to drive air from the upstream ducting to the downstream ducting.

Height: vertical dimension (horizontal duct) or more important dimension (vertical ducting) measured inside the section of the damper, where air is passing.

Width: horizontal dimension (horizontal duct) or smaller dimension (vertical ducting) measured inside the section of the damper, where air is passing.

4. Operation

Non-return dampers shall be used to prevent backflow through ventilation ductwork system. When the pressure in the ductwork drops below minimum opening force required, the blades shall close and seal the duct to prevent backflow and leakages.

5. Construction

The outer frame is made of galvanized steel or stainless steel in accordance with used ductwork metal. With regards to the painting, see COMPANY painting specification.

Blades and mechanism shall be contained in the damper frame length.

The bearing shall be made of a material withstanding the environment of its duty (e.g. stainless steel for laboratory fume cupboard or battery room etc.).

Bearings and shafts shall be maintenance-free.

The position of the blades mechanism and associated position indicator shall be either on left hand side or right hand side, as per request.

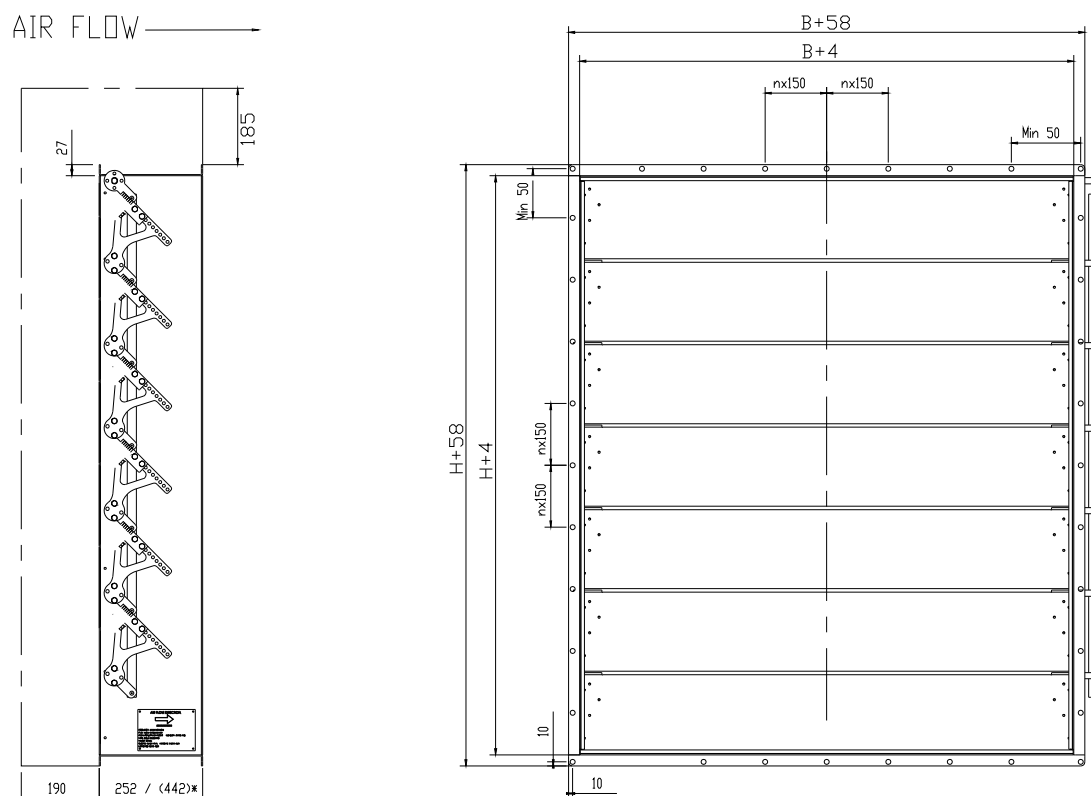
The damper must have silicon gaskets between each blade and between the *frame* and blades.

The leakage class of a closed damper according to [EN 1751](#) is class 3 at 2000 Pa.

The damper shall withstand a maximum operation pressure of 5000 Pa and maximum velocity of 20 m/s.

5.1 Frame

The Non-return dampers shall be manufactured to international standards for both rectangular (*width* B 200-1200 mm, *height* H 200-1400 mm) and circular ducts ($\varnothing$ D 200-1250 mm). Modular construction sizes up to 2400x2800 mm shall be possible with the same international standards. The damper *frame* shall be constructed from 3 mm galvanized steel painted or stainless steel depending on the metal used in ductwork.



(*) This dimension as option is needed if the actuating mechanism must be inside the *frame* length.

The damper shall be fitted with a scaled dial to indicate the current position and the full open/close positions.

5.2 Blades / shafts

The blades shall be made of galvanized steel painted or stainless steel depending on the metal used in ductwork and the duty.

The blades must be double sheet construction to obtain a blade with a 1.6 mm thickness.

The blades are linked together and open in parallel. The mechanism shall be located outside the air stream. A guard shall be provided to cover the mechanism and shall be easily removable for adjustment without removing duct insulation.

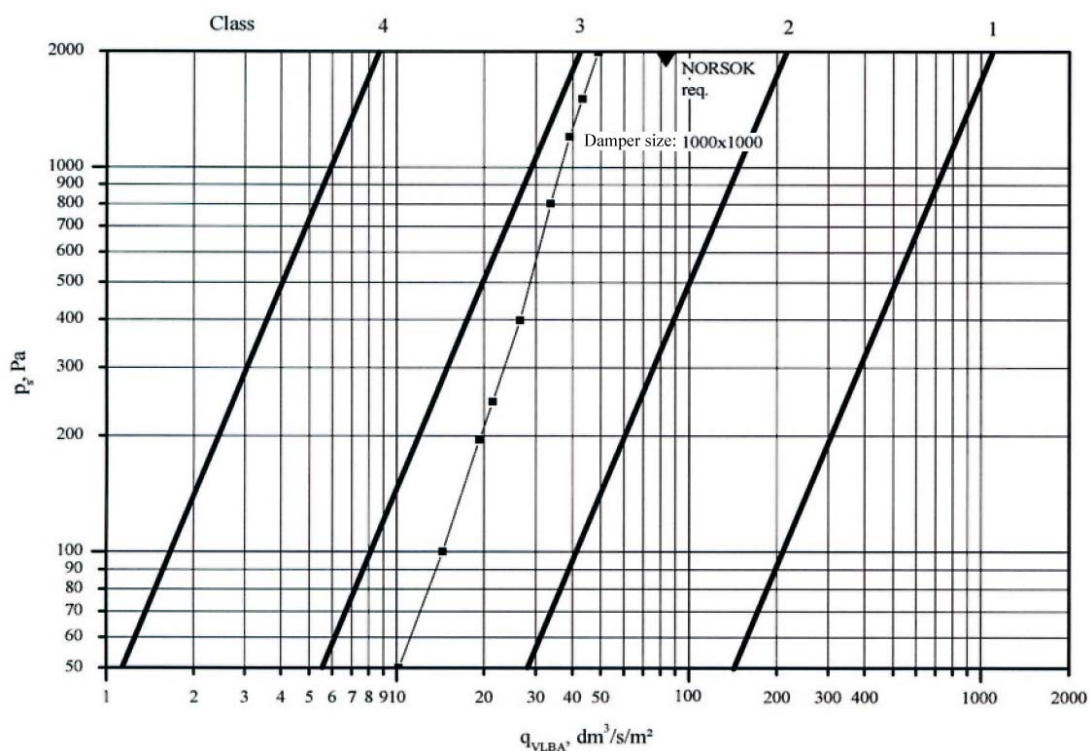
When the blades are in the open position, the device does not cause significant pressure loss or noise.

5.3 Tagging

Tagging shall be in accordance with COMPANY rules.

6. Performances

Non-return dampers must have the maximum following leakage (size 1000x1000):



Symbols and units:

- P_s Static test pressure (Pa)
- q_{VLBA} Closed blade leakage air flow per duct cross sectional area ($dm^3/s/m^2$)

7. Installation

Non-return dampers can only be installed on horizontal flow.