



Exploration & Production

GENERAL SPECIFICATION

HVAC

GS EP HVA 221

Pressure Relief Dampers

02	01/2012	Integration of Data Sheet
01	10/2009	Updating of "Reference documents"
00	10/2005	First issue
Rev.	Date	Notes

Owner: DEV/TEC

Managing entity: DEV/TEC/MTH



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1. Scope

The purpose of this document is to define the minimum requirements for design, construction and supply of pressure relief 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



Reference	Title
ISO 15607	Specification and qualification of welding procedures for metallic materials - General rules
ISO 15614 (Parts 2; 8)	Specification and qualification of welding procedures for metallic materials - Welding procedure tests - (Parts 2; 8)

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	HVAC 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.

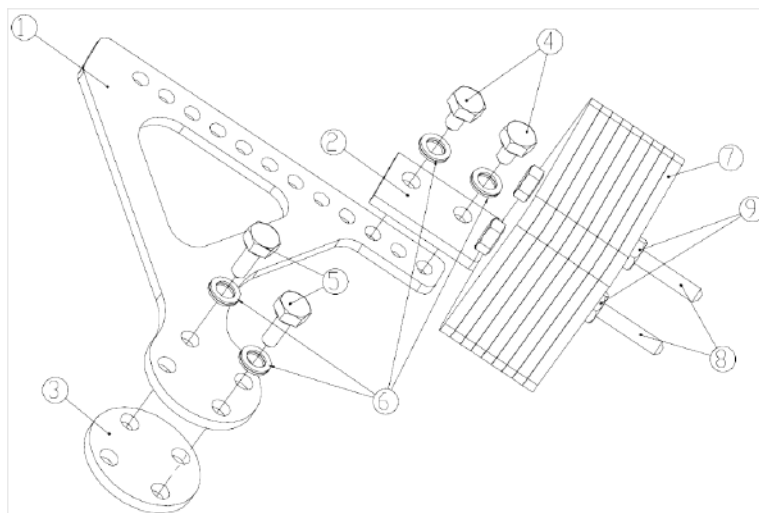
Height: vertical dimension (horizontal duct) or more important dimension (vertical ducting) measured inside the section of the damper, where air is passing.

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

4. Operation

Pressure relief dampers shall be used to control the overpressure in room or duct network. Dampers shall meet international standards for rectangular and round ducts.

The Opening pressure shall be adjusted by changing the position and/or the number of counterweight(s), the opening pressure range shall be between 30 Pa and 300 Pa. When the pressure in the ductwork drops below the adjusted pressure, the blades shall close and seal the duct to prevent backflow and leakage. The final adjustment of counterweights will be carried out during commissioning. The counterweights shall be part of the supply. The position of the counterweights shall be either on left hand side or right hand side, as per request.



No	Part	Material
1	Weight rod	AISI 316
2	Weight mounting pad	AISI 316
3	Spacer (only if H>249)	AISI 316
4	Hex screw M8x12	AISI 316
5	Hex screw M8x20	AISI 316
6	NORD-LOCK	AISI 316
7	Weight	AISI 316
8	Hex screw M8x80	AISI 316
9	Nut	AISI 316

5. Construction

The outer frame shall be 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.

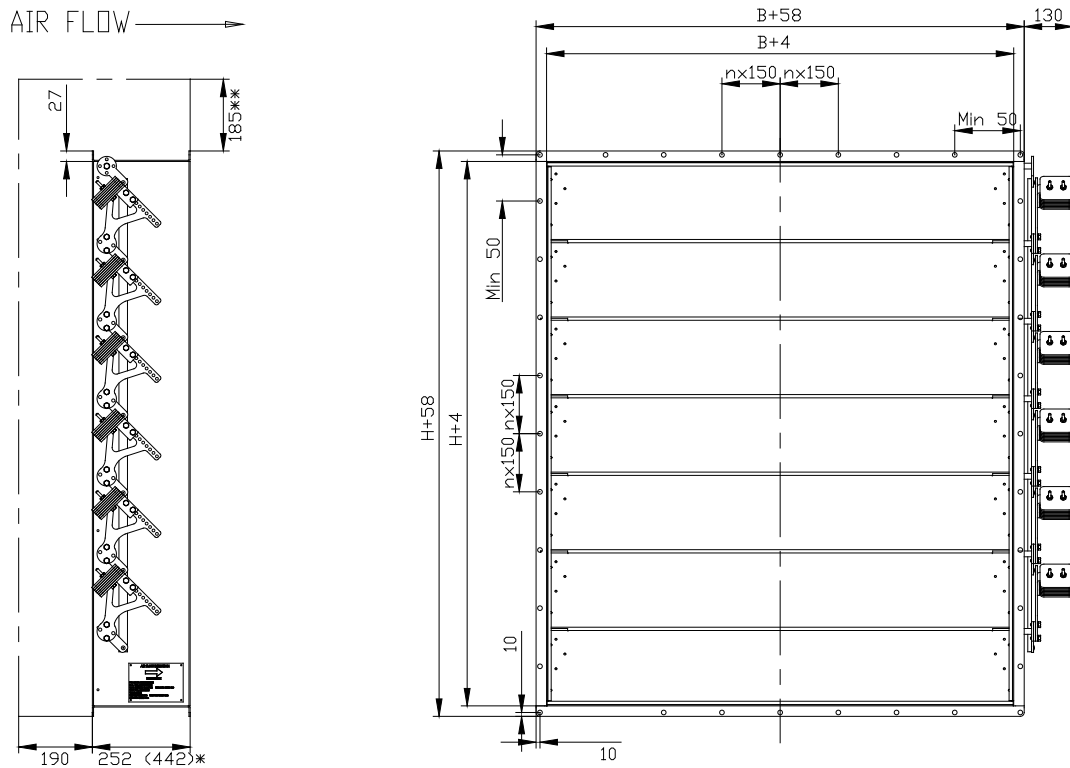
The damper must have silicon gaskets between each blade and between the *frame* and blades.

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 15 m/s.

5.1 Frame

Pressure relief dampers shall be manufactured to international standards for both rectangular (*width* B 200-1200 mm, *height* H 200-1400 mm) and circular ducts (Ø 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 shall be double sheet construction to obtain a blade with thickness of 1.6 mm.

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 Limit switches

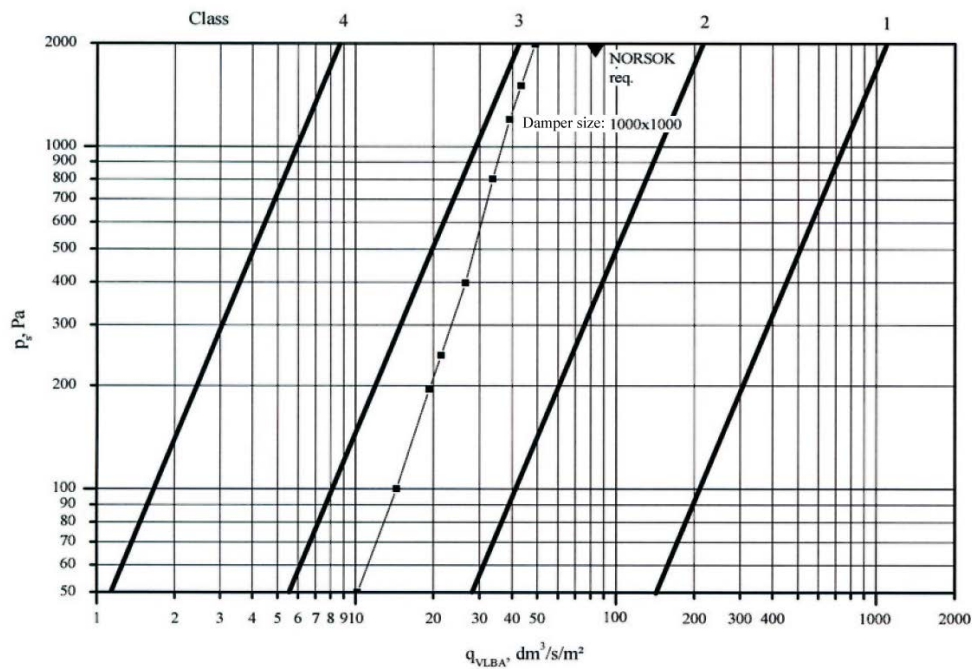
The damper shall be fitted with position sensor to indicate the opening of the damper HVAC PLC. The position sensor shall operate with 24 VDC power supply. The position sensor shall react on the shaft or on the motion mechanism.

5.4 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 in a horizontal flow.

8. Other references

Following documents are applicable:

- Standards: [EN 10204](#), [EN 50262](#), [ISO 15607](#), [ISO 15614 \(Parts 2; 8\)](#)
- Professional Documents: [SMACNA](#)
- Other documents: [SI](#)
- Total General Specifications: [GS EP COR 350](#), [GS EP HVA 100](#).



Appendix 1 Pressure Relief Damper(s) – Data sheet



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DS EP HVA 221

Pressure Relief Damper(s) - Data Sheet

01	10/08	General updating
00	10/07	First issue
Revision	Date	Notes



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PRESSURE RELIEF DAMPER(S) - DATA SHEET

Data sheet presentation

This data sheet is composed of the following sheets:

- Pressure relief damper - ("Main" sheet - Page 1)
This sheet mentions the main data concerning the pressure relief damper(s).
- Main dimensions of pressure relief damper(s) - ("Sizes" sheet - Page 2)
Depending on number of pressure relief dampers on Project, this page can be copied to create the number of requested folios. In this case, page numbering has to be updated.
- Performances of the pressure relief dampers ("PRD Performances" sheet - Page 3) which indicates the performances of pressure relief damper(s).
Depending on number of pressure relief dampers on Project, this page can be copied to create the number of requested folios. In this case, page numbering has to be updated.

Instruction for use of sheets:

Only fields to be filled-in by the *CONTRACTOR* are accessible.

For major part of these fields, contextual help is accessible when roll-over with the mouse.

The contextual help includes a definition of field to avoid misunderstanding.

The "Cover" and "Data sheet presentation" have not to be attached to the data sheet submitted to *COMPANY* for approval.

A "Highlighting" button allows to identify the fields to modify or to fill in for each sheet.

Before printing a sheet, press "Without highlighting" button.

Data sheets approval:

The data sheets have to be fully filled in by *CONTRACTOR*.

The filled data sheet (including all sheets) has to be approved by the *COMPANY*'s Specialist before purchasing the equipment.

Within *HVAC* documents, expression in capital characters and *ITALIC* are defined within the "Terminology, definitions and abbreviations" General Specification.

Within *HVAC* documents, expression in small characters and *italic* are defined within the "Definition" paragraph of the associated specification.

[illegible]



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General Specification

Date: 01/2012

GS EP HVA 221

Rev: 02

Appendix 1

 TOTAL Exploration & Production	COMPANY PROJECT NAME DATA SHEET PRESSURE RELIEF DAMPERS								
	MAIN DIMENSIONS								

1									Page 2 /	
2	Pressure relief damper tag number	Dimensions (mm)						Weight (kg)	Casing metal thickness (mm)	Balancing system location (cf "Observation point" on drawing page 1)
3		Nominal			Maintenance					
4		DI	Dh	Dw	Mt	Mb	MI			
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General Specification

Date: 01/2012

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Rev: 02

Appendix 1

 TOTAL Exploration & Production		COMPANY PROJECT NAME DATA SHEET PRESSURE RELIEF DAMPERS					
		PERFORMANCES					
		Page 3 /					
1	2	3	4	5	6	7	8
Tag number	Inside room Outside	Area classif. (0,1,2)	ATEX classification (when required)	Opening for a differential pressure of (Pa)	Design air flow rate of pressure relief damper (m³/h)	Balancing type : S: Spring W: counter Weight A: Actuator	
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