Generality

Cold room walls are constantly subjected to pressure variations. By rise or fall of temperature inside or by change of the atmospherics pressure outside, pressure difference can appear These pressure difference formed up along loading of goods introducing or by evaporator defrosting. Those circumstances create a warming up of the air what give a **overpressure** and caused damage on wall panels or ceiling. These can even lead to a violent opening of the doors
On the other hand a **depressure** can appear by starting up the refrigeration cycle (cooling down of the air) and can heavily damaged the insulation panels
Outside pressures has to be considered by changing of the climate (atmospheric pressure by storm). These pressure variations, to a lesser degree, act too on the outside faces.

To compensation of these expansion and contraction, pressure relief valves are designed.
* These two way valves allows air flow in dual directions and balance internal and external pressures when pressure difference appear.
* The four flaps, working two per two, of the *Gulfstream G07 valve* lift with raising air pressure and return to a closed position by pressure compensation.
* Heated *Gulfstream G07* compensation valves for overpressure and depressure are operated at 230 Volt. Valves operated at 12 Volt available on request.
* Flaps may be have tendency to open by a minimum pressure difference that fruitless import warm air flow and carry along his atmospheric humidity. Our *Gulfstream* flaps open only by a minimum critical pressure variation of 40 Pa, herewith strong reduce from dew covering around the pressure compensation valve.

Safety and installation instructions.

* Before install the pressure relief port in place read the assembly instructions carefully.
* The valve are suitable only for horizontal wall assembly. The best mounting to do is above doors or loading openings on a maximum height of +- two meter and in such way that the pressure is not affected by other wind or fans influence. Consequently never install a pressure valve in front of a ventilator.
* The protection grille with the anti-insect mosquito wire mesh must be fitted on the warm side (on the outside wall of the cold room).
* Goods may not obstruct the air flow in the valve inside and outside of the cold room so that air can flow through it unhindered.
* The valve is provided for wall thickness 80 to 150 mm. In case of thicker walls an extension tube can be delivered. These tube are to fitted on the warm side.
* Very important : The heating element of the pressure valve should be under tension only when the refrigeration equipment is in operation. If the cooling compressor is shut down, also tension of the valve must be shut off.
* For ceiling mounting we can supply a special pressure valve on request.
* Non heating valves for positive temperature on request.

Number and nature of the valves.

The size or the number of valves needed for a given case depend on inner temperature, the speed of temperature decrease (fall) or other factors unprecedented by the factory. For this we refer to the formula below or volume tables.

Calculate formula for determine number of valves :

$$\frac{F \times V}{T \times (273 -/+ t} = n$$

Which n = quantity valves
F = constant 33,2 pa (max. differential pressure)
V = m³ capacity of the room
T = time needed to change the room temperature of 1°C. (T in min/K)
t = temperature in freezer room.
cold room (+) , frost room (-)in °C. (273 K = 0° C)

Recommendation for T : 15 min/K - 15 minute for a temperature difference of 1° C.
Information : 100 Pa (atmospherics pressure) = 100 N/m² or 10,19 Kp/m² 1Kp=9,81 kg m/s²