FERMOD®

Mounting instructions

10/2021

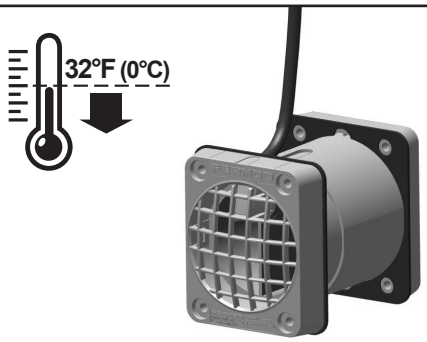
NM2224-2226-B

VALVES 2224NT / 2226PT

NSF® COMPONENT

2224

c UL us
E495930

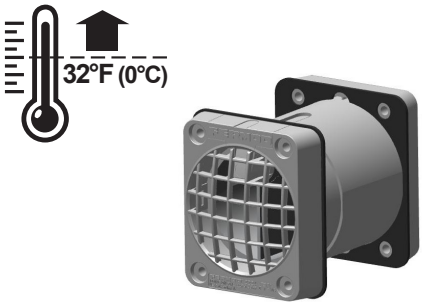


Wall or ceiling mounted valve

- ✓ **with** heating cord
- ✓ **only for negative temperature cold room** down to -22°F (-30°C)
- ✓ **for 2 ¼ to 4 ¾ inches (*60 to 120mm*) thickness frame**

2226

c UL us
E495930

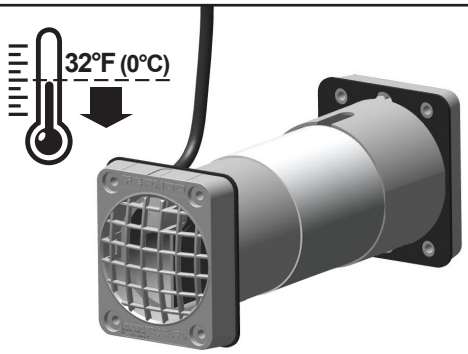


Wall or ceiling mounted valve

- ✓ **without** heating cord
- ✓ **for positive temperature cold room**
- ✓ **for 2 ¼ to 4 ¾ inches (*60 to 120mm*) thickness frame**

2224-L200

c UL us
E495930



Wall mounted valve

- ✓ **with** heating cord
- ✓ **only for negative temperature cold room** down to -22°F (-30°C)
- ✓ **for 4 ¾ to 7 ¾ inches (*120 to 200mm*) thickness frame**

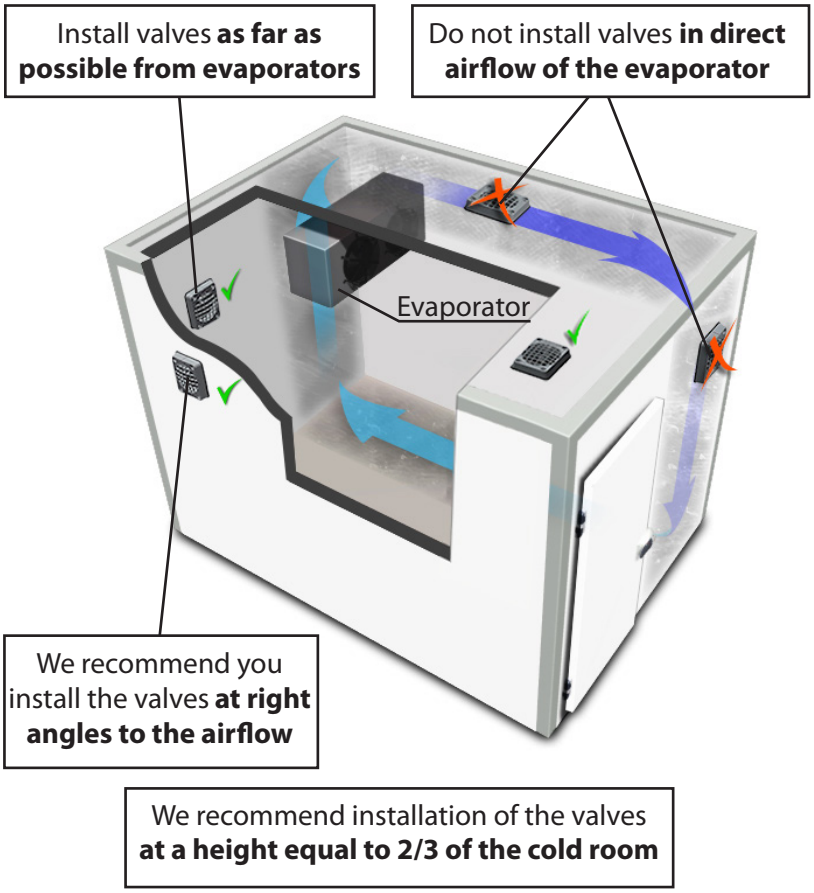
The 2224 and 2226 valves are Recognized under the Component Recognition Program of UL according to the following standards: UL 471 & CSA C22.2 N°120.

Not for direct separate installation in the field.

This instructions manual includes the mounting, utilization and the maintenance instructions. We recommend to read this carefully and to place it at the user's disposal. The english version of our general conditions of sales and mounting instructions are not binding, and are only given for information purposes. Only the french version can be used in case of legal action.

1 - WARNINGS

TO ENSURE CORRECT OPERATION OF THE VALVES



CAUTION

- **DO NOT INSTALL 2224 / 2224-L200** valves within a **POSITIVE TEMPERATURE** *cold room*
- **DO NOT INSTALL 2224-L200** valve into **THE CEILING**
- Valves must only be installed in a position where there is adequate airflow volume available both sides of the wall
- **DO NOT OBSTRUCT THE VALVE GRILLS**
- The heating element **(E)** is permanently powered : should at any time a negative room be converted to a positive temperature room, **THE ELECTRICAL POWER MUST BE DISCONNECTED FROM ANY VALVE WITHIN THE COLD ROOM**
- **DO NOT REMOVE** the heating element
- These valves are designed for **-22°F to 86°F** (**-30°C to +30°C**) cold room **external temperature**

2 - GENERAL INFORMATIONS

Liabilities

1 – The installer and the user must observe the safety rules (collective protection, individual protection) applicable during transport, assembly, use, and discarding of the product or its components.

2 – The liability of the user may be engaged in circumstances that are not marginal. Thus, the user must scrupulously comply with the recommendations for storage, assembly, use, maintenance, health and safety, use-by date, etc. supplied by the manufacturer.
Likewise, where the producer be held liable for the non-conformity of the product, the user may also share the liability, insofar as he has not, from his side, checked this conformity, even if the product in question is administratively in conformity.
The user is also held liable if he himself increases the fault in the product. The liability of the manufacturer can be reduced or eliminated, taking all the circumstances into consideration, when the damage is caused jointly by the product, and by the fault of the victim or a person for whom the victim is responsible.

3 - The installer or the user's responsability would be engaged if the working conditions of the cold room (put into service, shutdown) are not respected.

4 - The staff of the company installing the equipment, and / or staff of the user company in charge of specific functions, such as maintenance, must be qualified, trained and certified in the case of particularly risky work, such as work under power.

5 – The final user must carry out the periodical yearly or twice-yearly checks, or have them carried out, with keeping of a maintenance register.

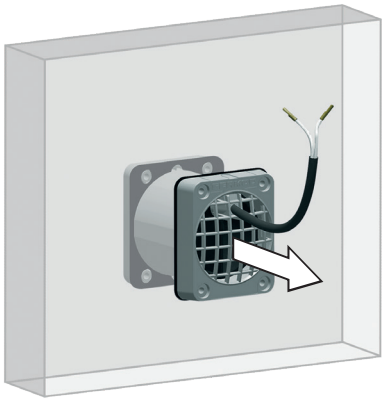
3 - CHARACTERISTICS

The walls of a cold room are constantly subject to strains caused by pressure variations, either from inside or from outside.
The 2224 / 2226 valves makes it possible to balance internal and external pressures, through venting.
It's mechanically operated valves, with two water tight mobile flaps, one for admission and the other for exhaust. The intake and exhaust are separated by a partition.

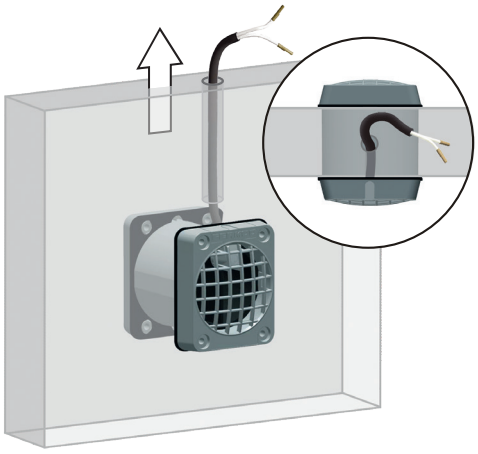
▪ 3 references

REFERENCE	Frame thickness	Description
2224	2 ¼ to 4 ¾ in. *(60 to 120mm)*	Wall or ceiling mounted valve **with heating cord**, only for negative temperature cold room down to -22°F *(-30°C)*
2226	2 ¼ to 4 ¾ in. *(60 to 120mm)*	Wall or ceiling mounted valve **without heating cord** for positive temperature cold room
2224-L200	4 ¾ to 7 ¾ in. *(120 to 200mm)*	Wall mounted valve **with heating cord**, only for negative temperature cold room down to -22°F *(-30°C)*

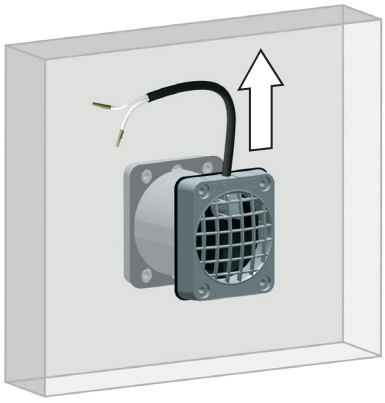
▪ 3 possible options for the cable outlet



2224-H
2224-H L200
Horizontal, external



2224-M
2224-M L200
Through the panel



2224-V
2224-V L200
Vertical, external

▪ Electric parts

The heating element is completely encapsuled in the valve, do not remove it.

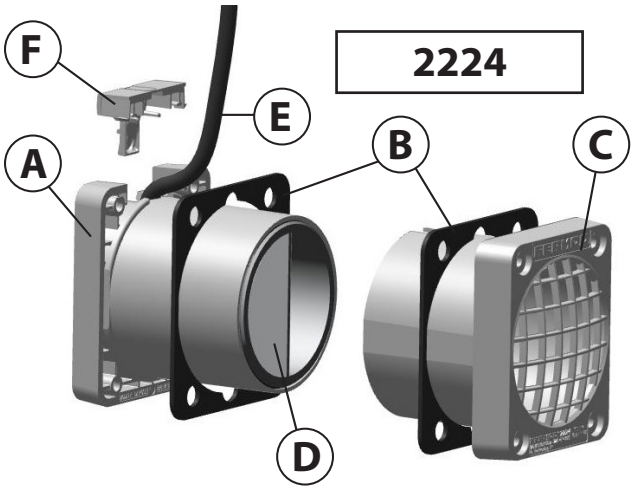
Tension: 120 V AC - 60 Hz - Vave power: 10W

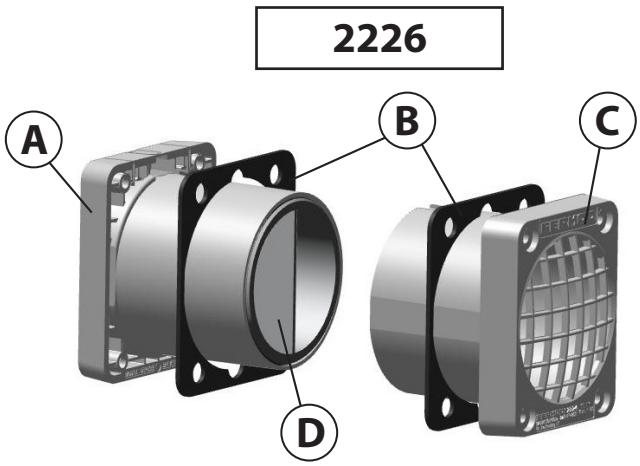
Note : in case of protection of the electrical installation, use a **200 mA** fuse.

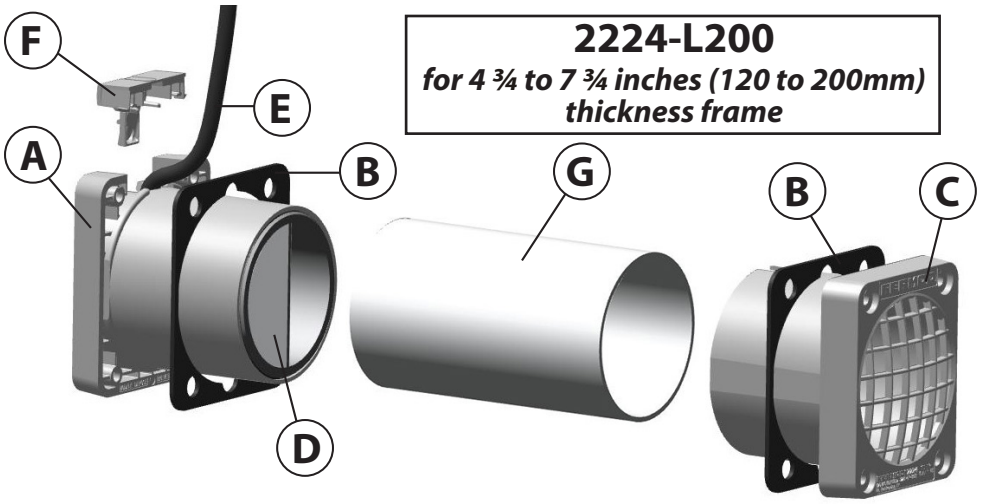
4 - TRANSPORT AND *S*TORAGE

This equipment must be protected from bad weather during transport and storage.
The original packing is designed for all types of transportation means.

5 - PARTS LIST

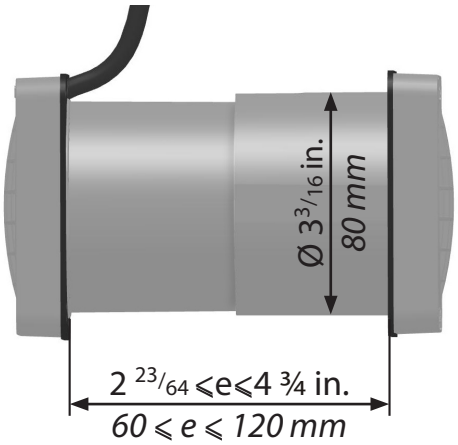




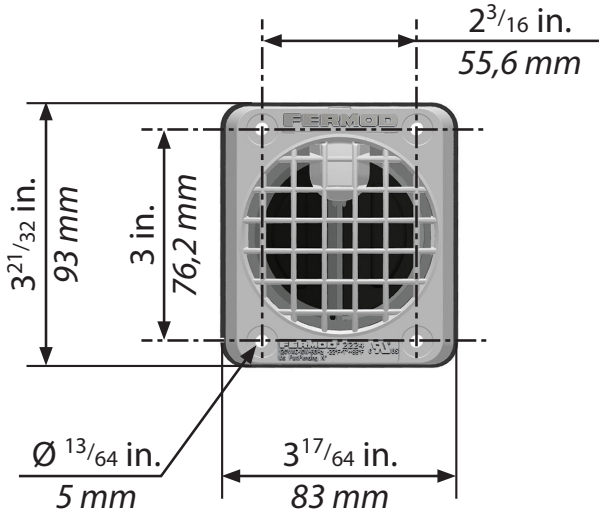


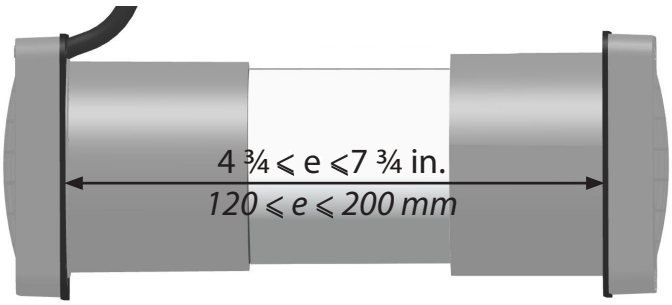
A	Valve
B	Joint
C	Clamp
D	Flap (or shutter)
E	Heating cord **(**2224) ⚠ **DO NOT REMOVE**
F	Cable outlet
G	Aluminium tube

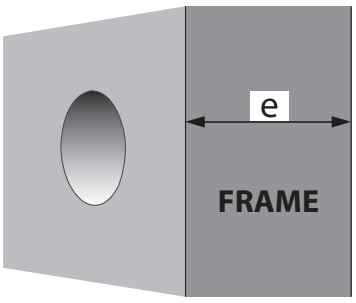
▪ Measurements



e = frame thickness







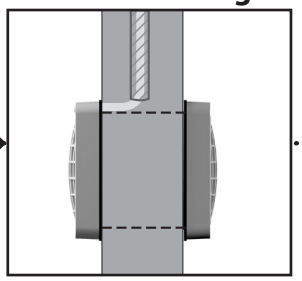
6 - MOUNTING INSTRUCTIONS

This material must be installed as per our mounting instructions and the following instructions.
The installation must be realised in accordance with local regulations.

According to the reference of the valve, please see the following pages :

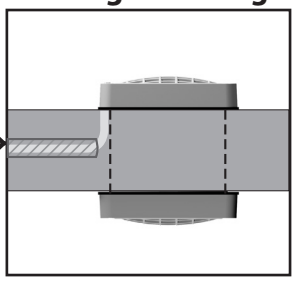
2224-M

Wall mounting



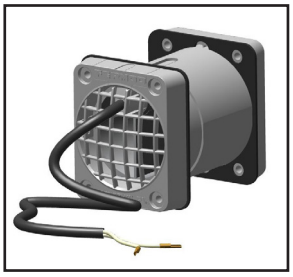
▶ See p.6

Ceiling mounting

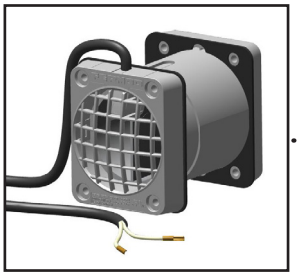


▶ See p.7

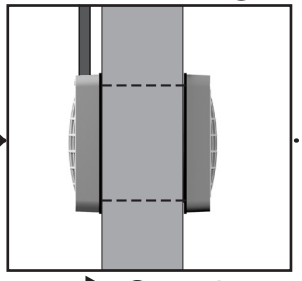
2224-H



2224-V

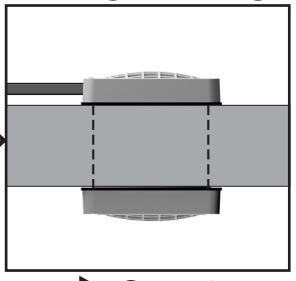


Wall mounting



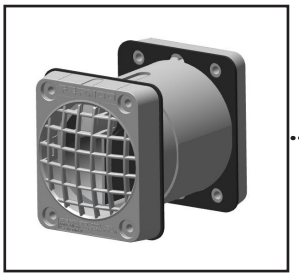
▶ See p.8

Ceiling mounting

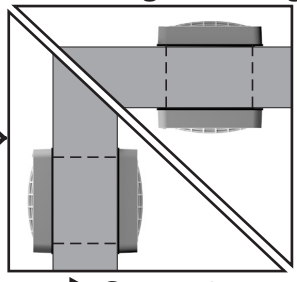


▶ See p.9

2226

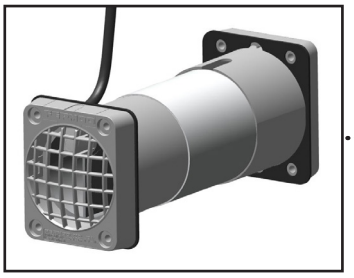


Wall/ceiling mounting

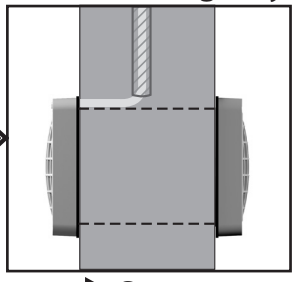


▶ See p.10

2224-L200



Wall mounting only



▶ See p.11

▪ Calculation of required number of valves

The following formula determines number of valves needed for a given case:

V = Volume of the room in ft^3 **T** = Time variation in minute for 1°F
t = Temperature of the room in °F **459 / 0,127 / 0,156 =** *constant values*

According to DTU 45.1 (Norm NF P75-401-1):
for a maximum evenly distributed pressure of **200 Pa** (0,8 in. H_2O pressure):

$$\text{Number of valves} = \frac{0{,}156\ V}{T(459 + t)}$$

Example : V = 4200 ft^3 T = 2 minutes for 1°F t = -13°F

$$\text{Number of valves} = \frac{0{,}156 \times 4200}{2(459 - 13)} = 0{,}73 = 1 \text{ valve}$$

As an indication, for a maximum evenly distributed pressure of **300 Pa** (1,2 in. H_2O pressure):

$$\text{Number of valves} = \frac{0{,}127\ V}{T(459 + t)}$$

Example : V = 2700 ft^3 T = 1 minute for 1°F t = -13°F

$$\text{Number of valves} = \frac{0{,}127 \times 2700}{1(459 - 13)} = 0{,}77 = 1 \text{ valve}$$

If the data used for calculation are exactly observed, our valves will ensure that the maximum evenly distributed pressure is not exceeded.

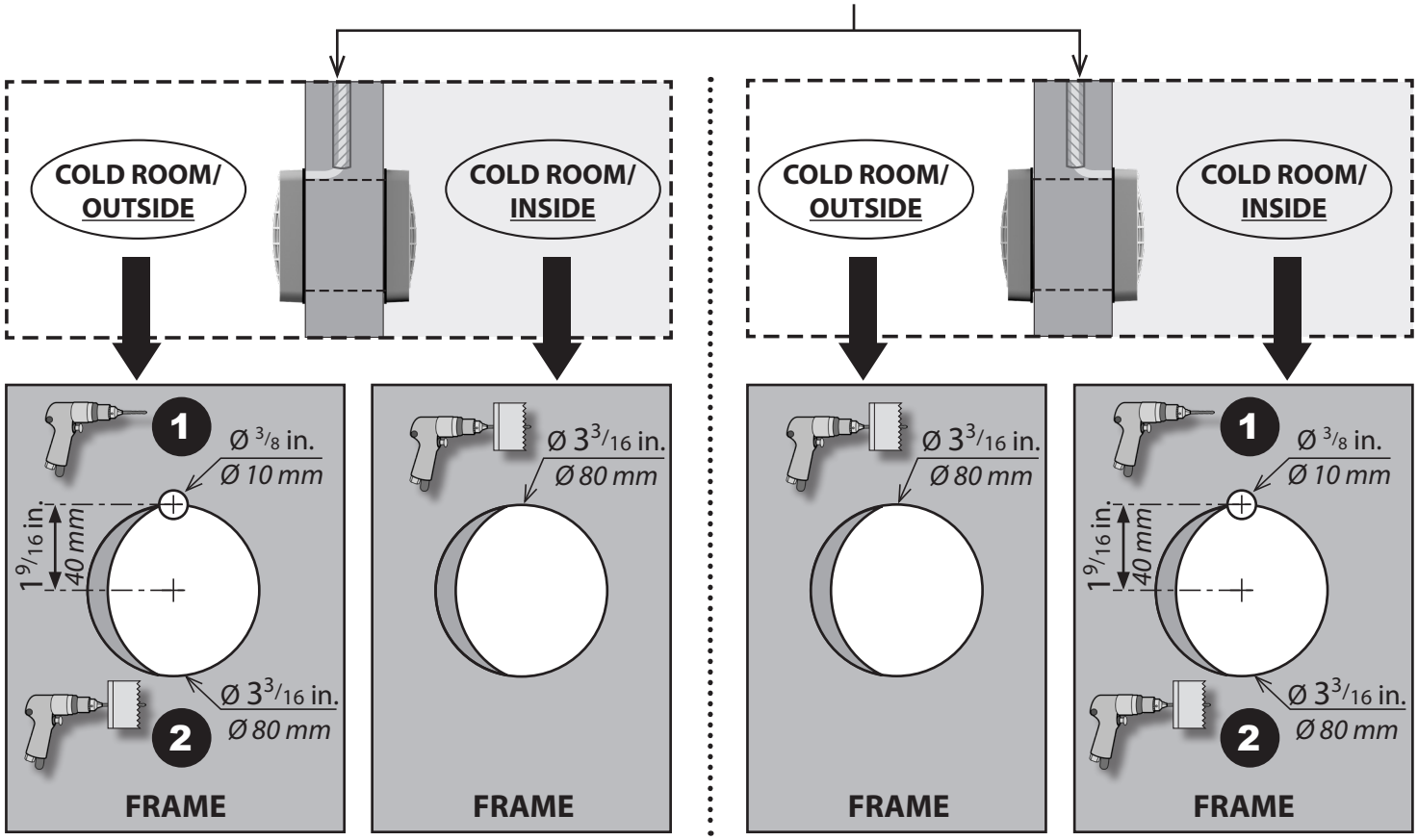
6.1 - VALVE 2224-M MOUNTING

WALL MOUNTING

Ceiling mounting: see page **7**

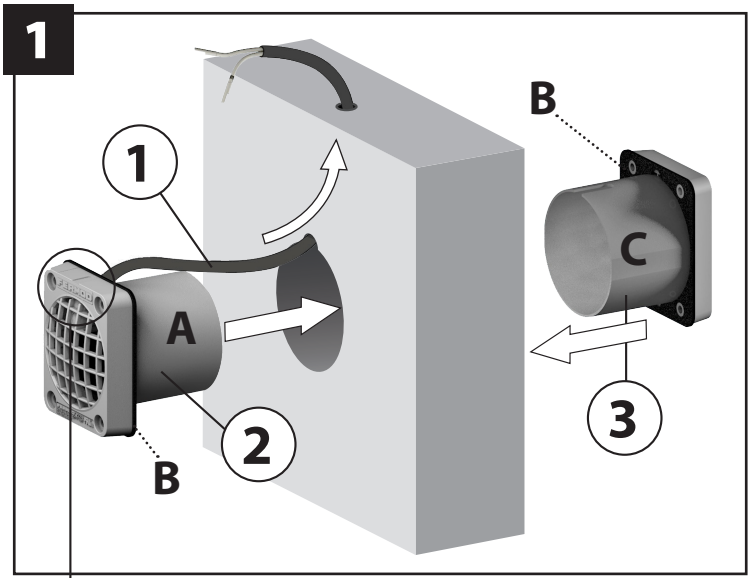
▪ Drilling the wall

The valve 2224-M can be mounted in either direction:

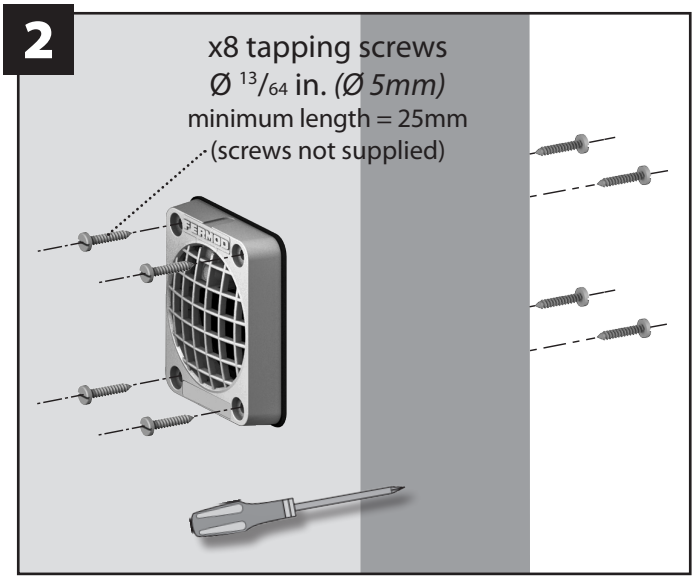


▪ Wall mounting

1



2



To ensure correct operation, install the valve with "FERMOD" **upward**.

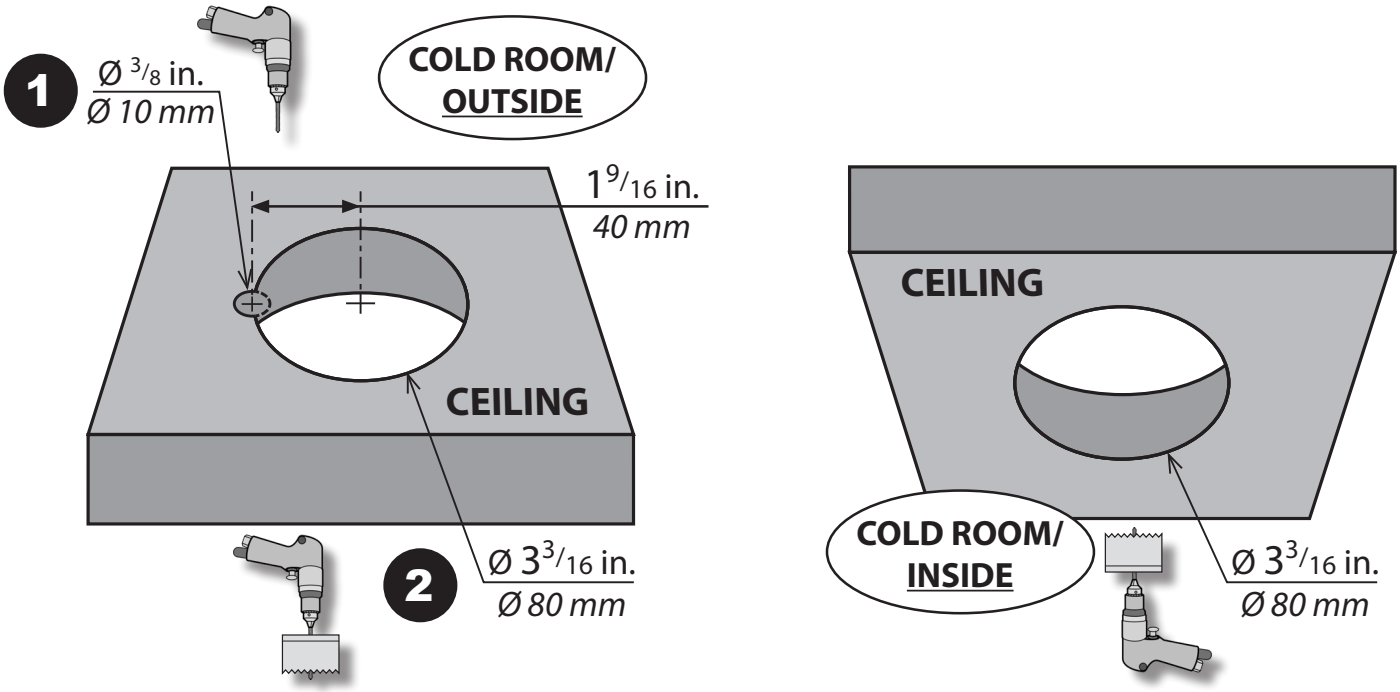
3

POWER SUPPLY
110V

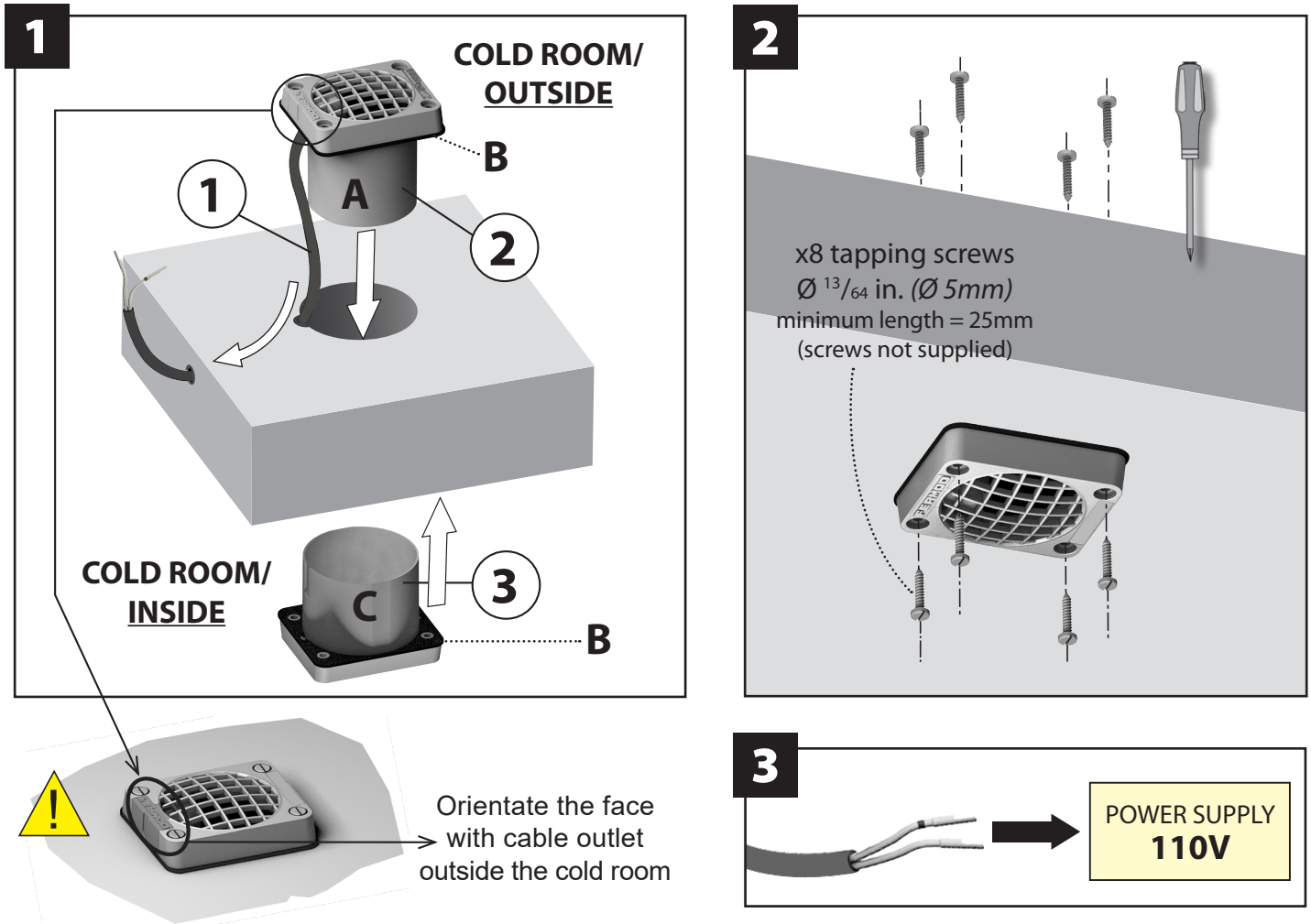
CEILING MOUNTING

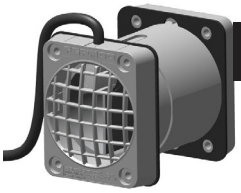
Wall mounting: see page **6**

▪ Drilling the ceiling



▪ Ceiling mounting





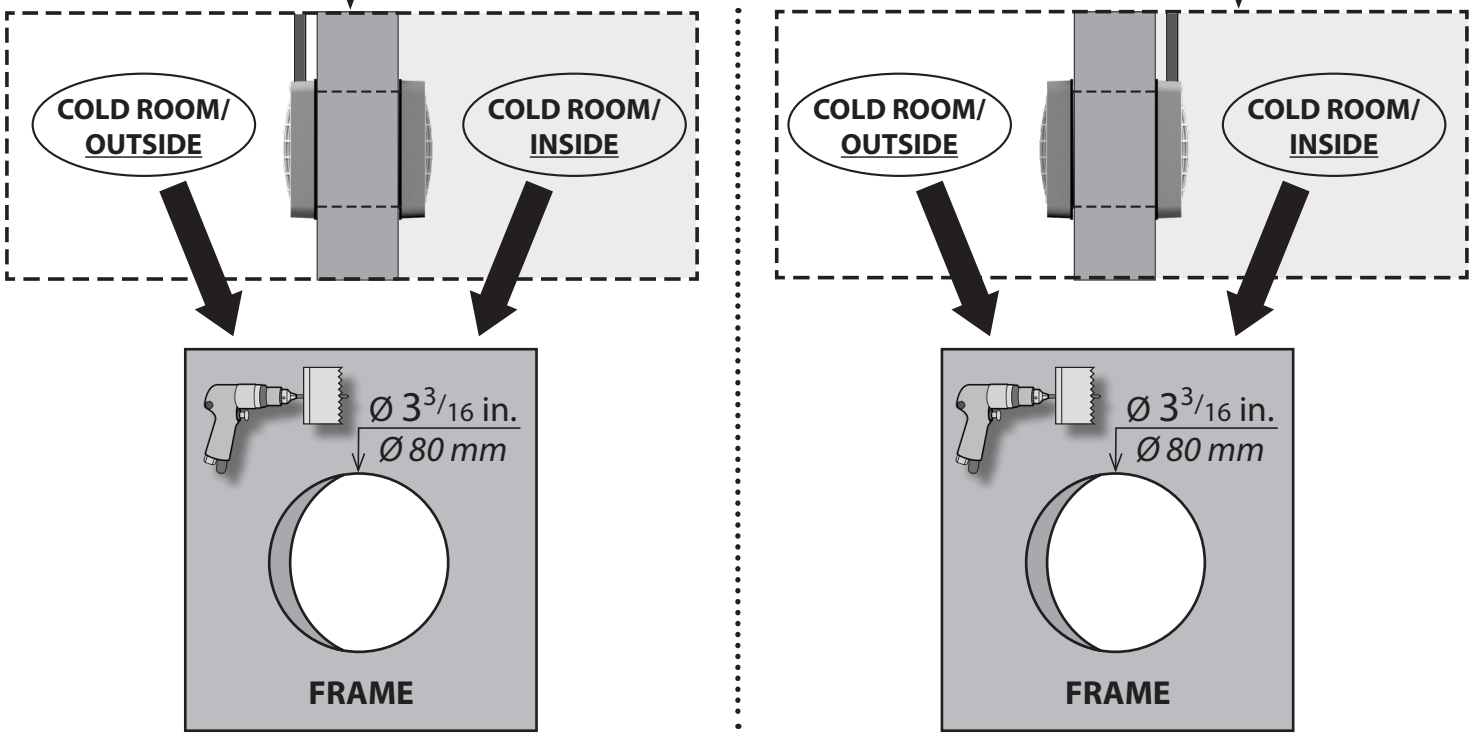
6.2 - VALVE 2224-H and VALVE 2224-V MOUNTING

WALL MOUNTING

Ceiling mounting: see page **9**

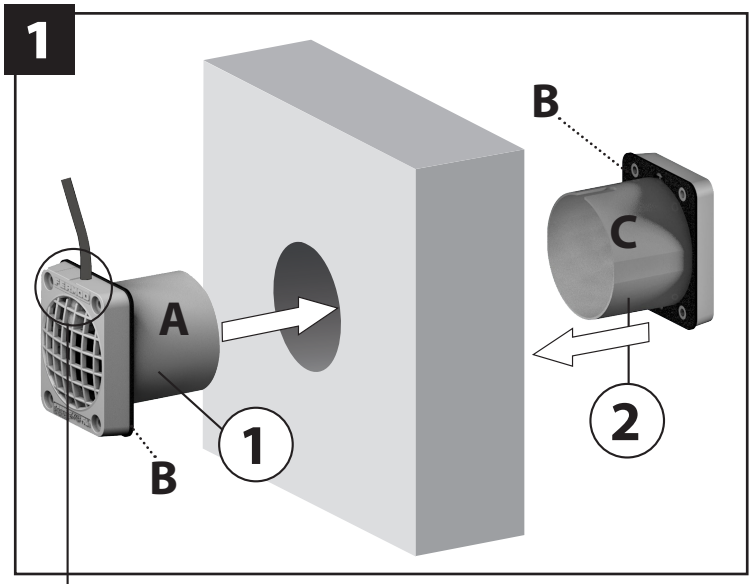
▪ Drilling the wall

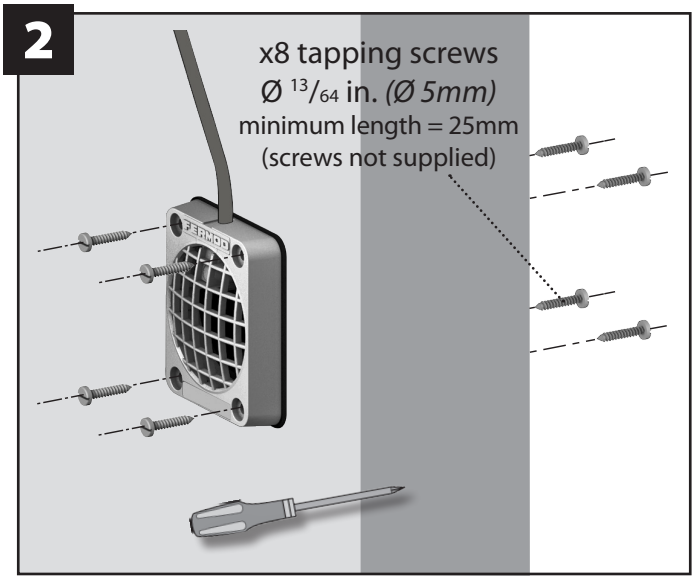
The valves 2224-H and 2224-V can be mounted in either direction:



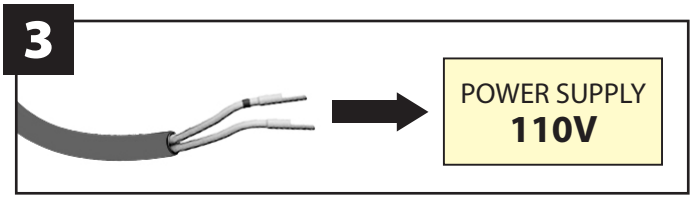
Nota: drawings showing 2224-V / Same as 2224-H

▪ Wall mounting





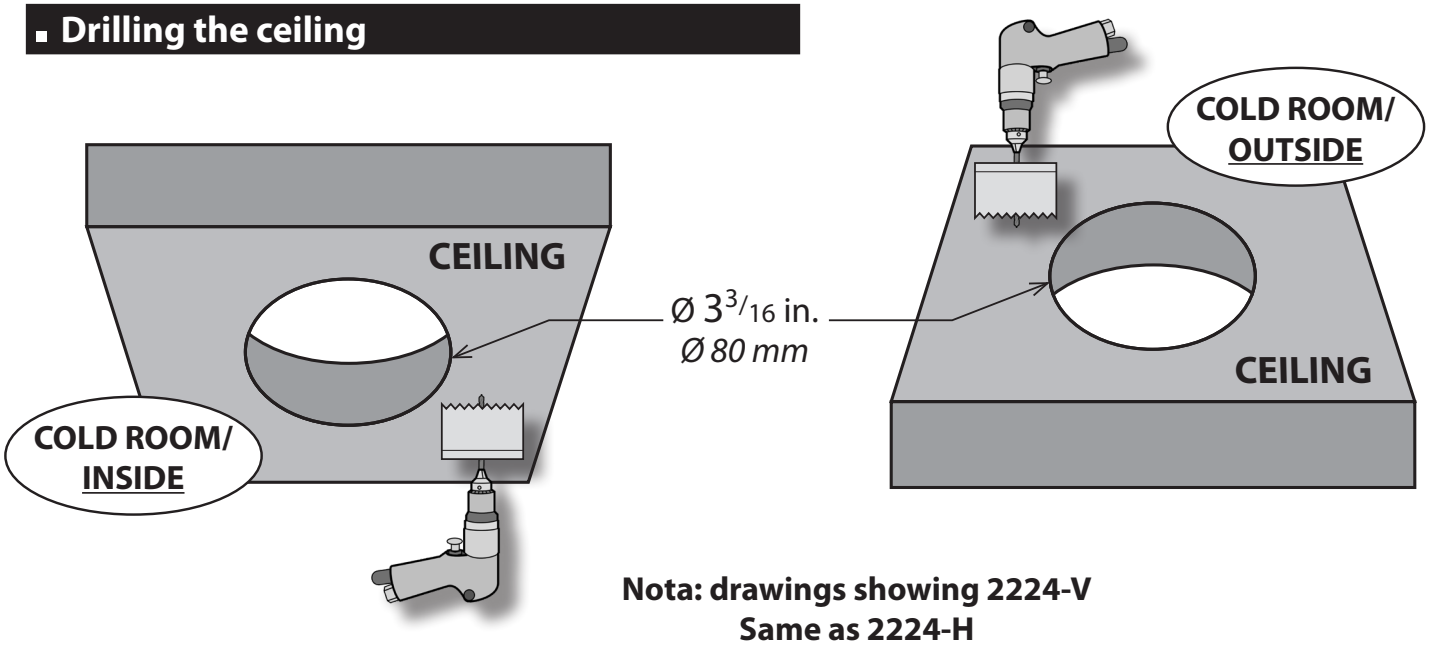
To ensure correct operation, install the valve with "FERMOD" **upward**.



CEILING MOUNTING

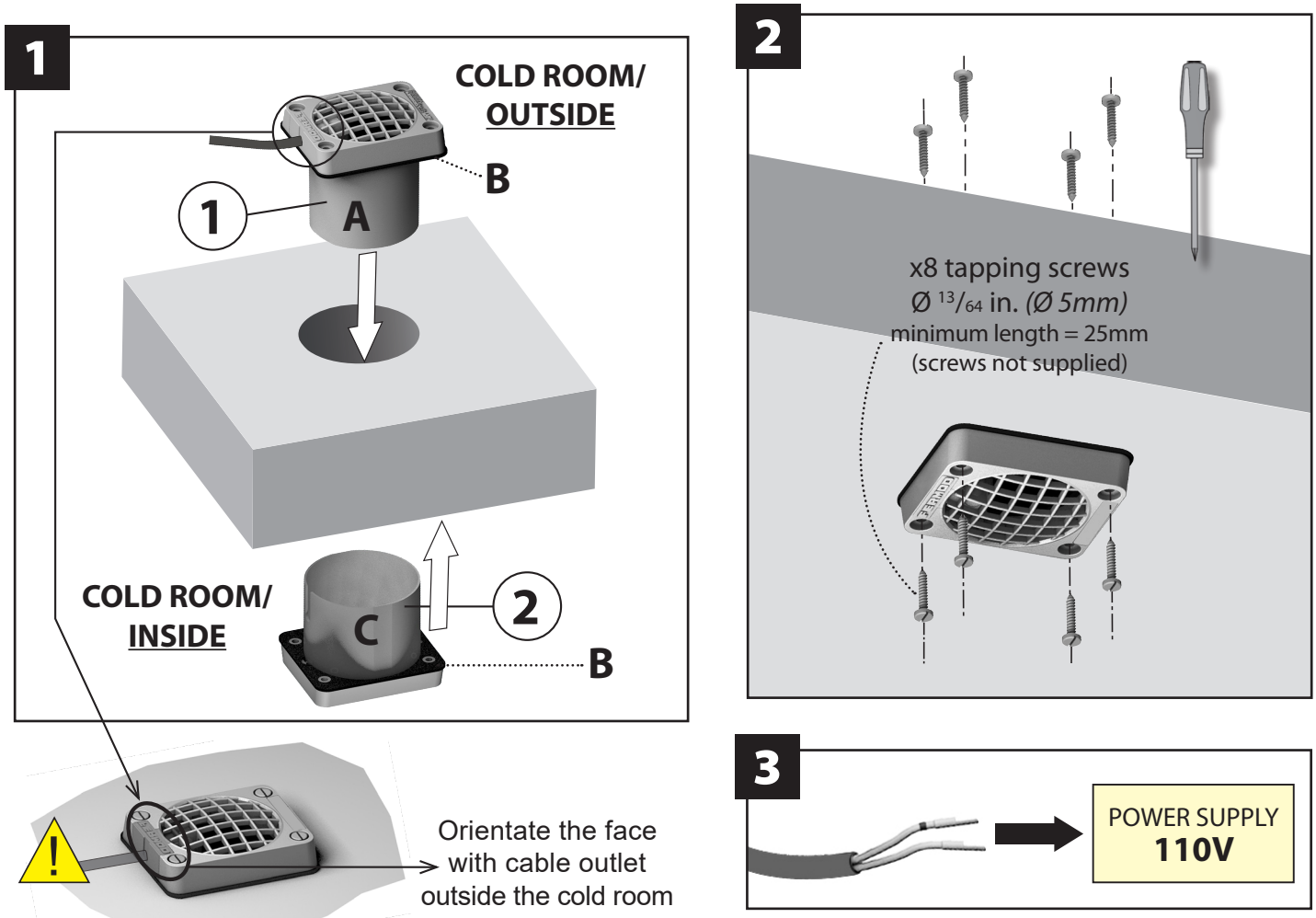
Wall mounting: see page **8**

▪ Drilling the ceiling



Nota: drawings showing 2224-V
Same as 2224-H

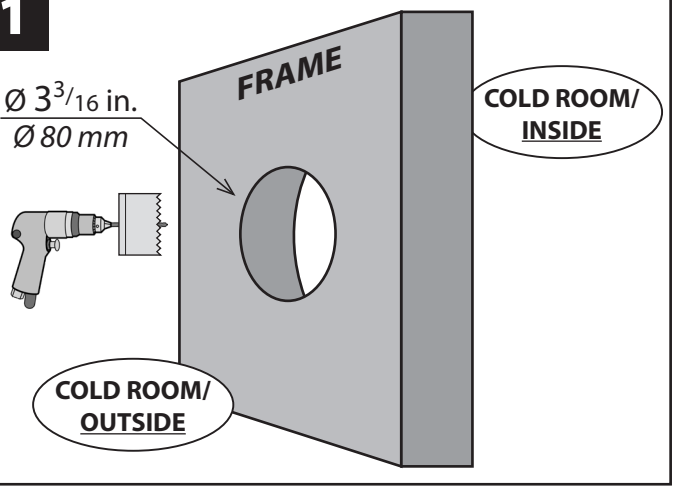
▪ Ceiling mounting



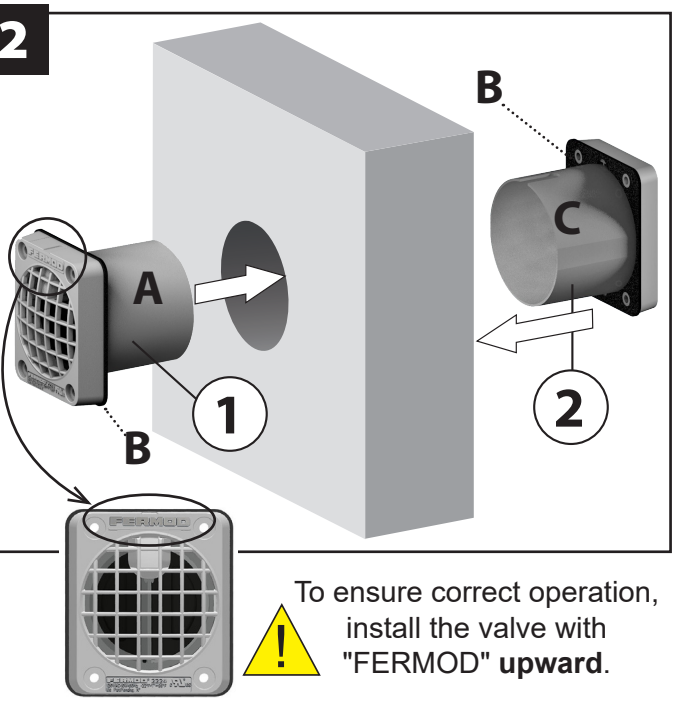
6.3 - VALVE 2226 MOUNTING

WALL MOUNTING

1

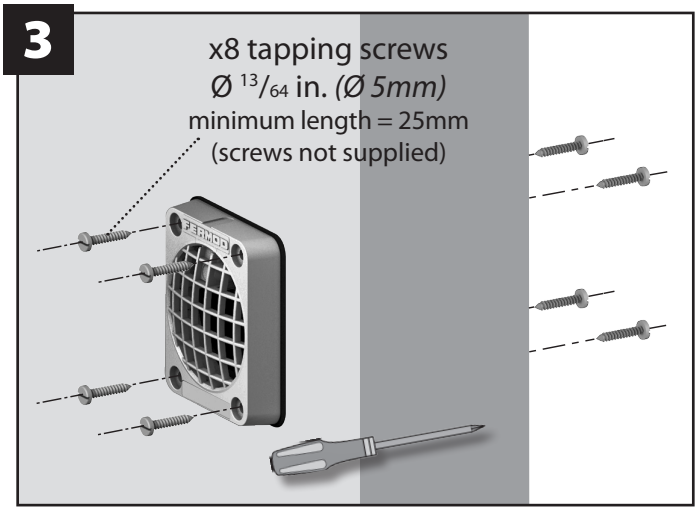


2



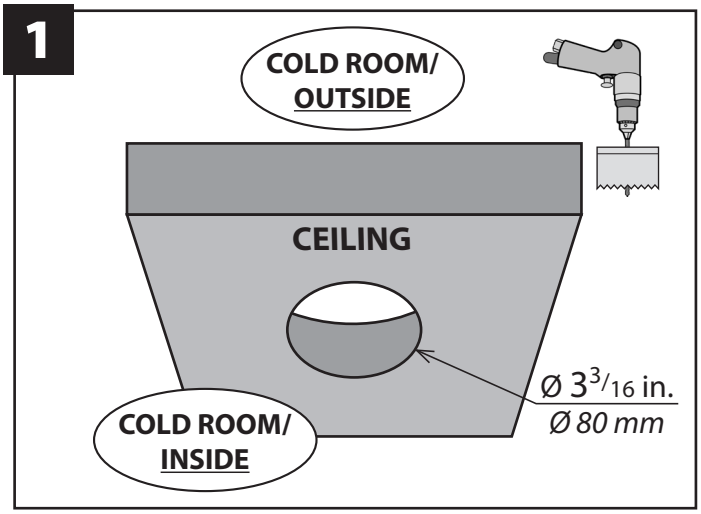
To ensure correct operation, install the valve with "FERMOD" **upward**.

3



CEILING MOUNTING

1



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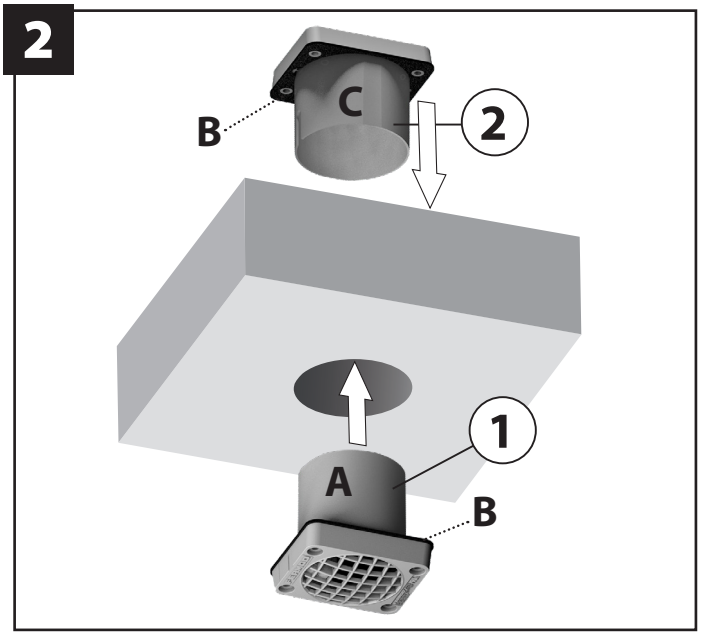
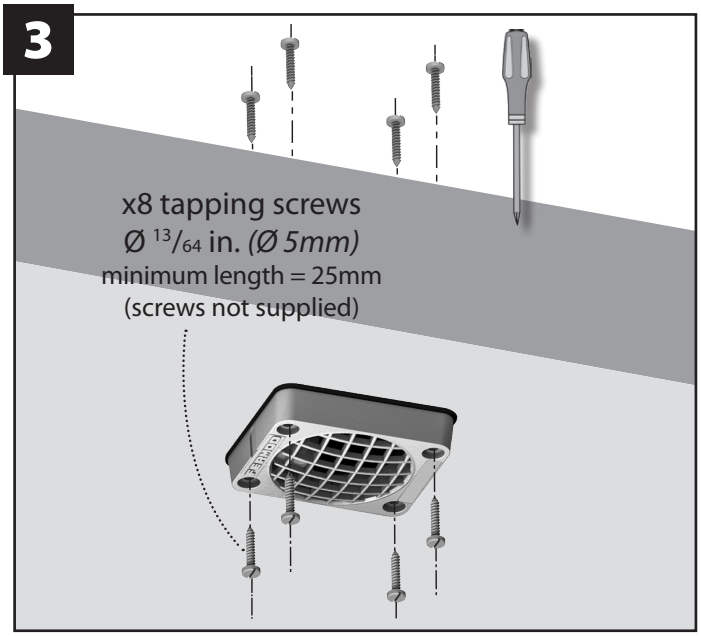
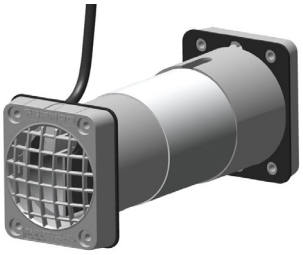


3

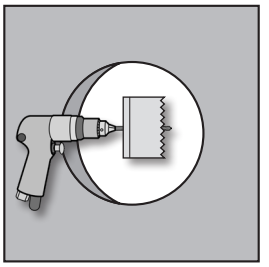


6.4 - VALVE 2224-L200 MOUNTING



⚠ **Wall mounting only**

▪ Drilling the wall



2224-M L200
▶ See p.6

OR

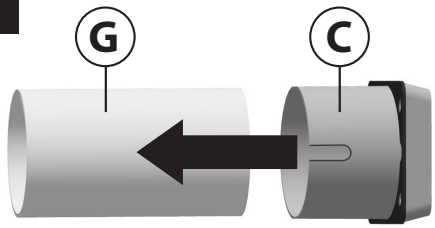
2224-H L200
▶ See p.8

OR

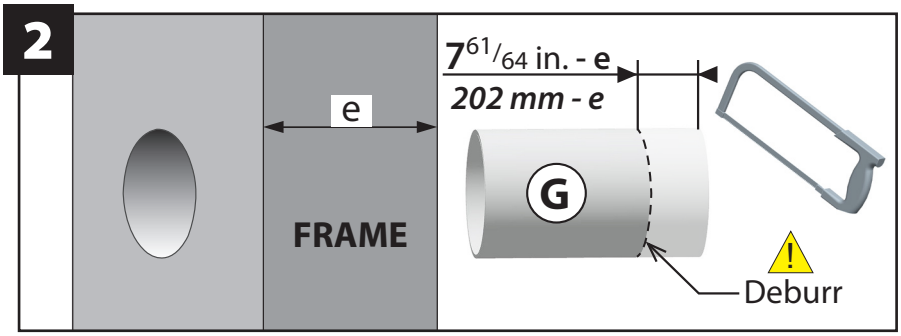
2224-V L200
▶ See p.8

▪ Cutting the aluminium tube and wall mounting

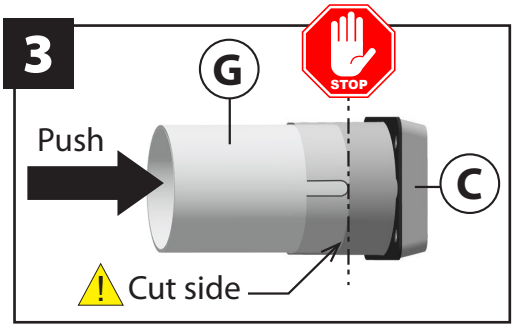
1



2

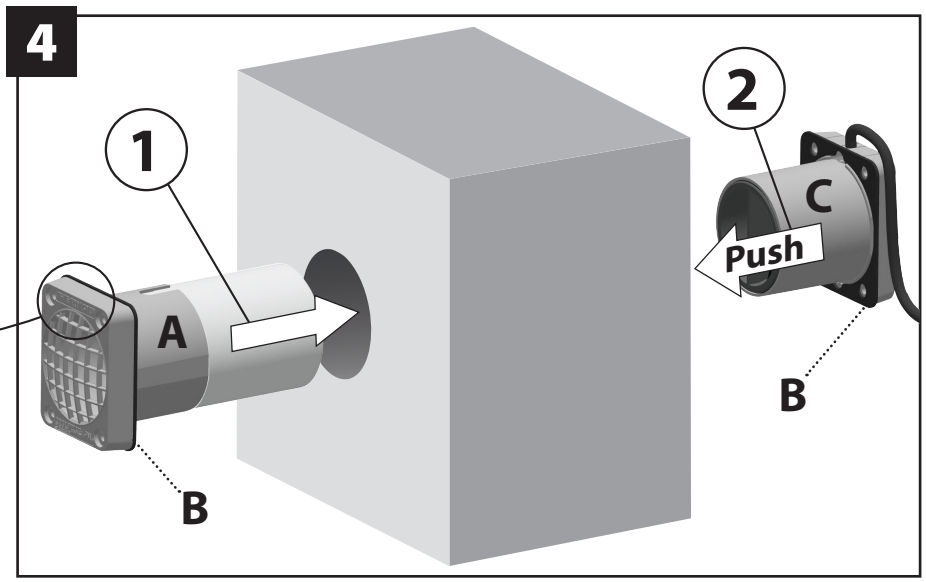


3

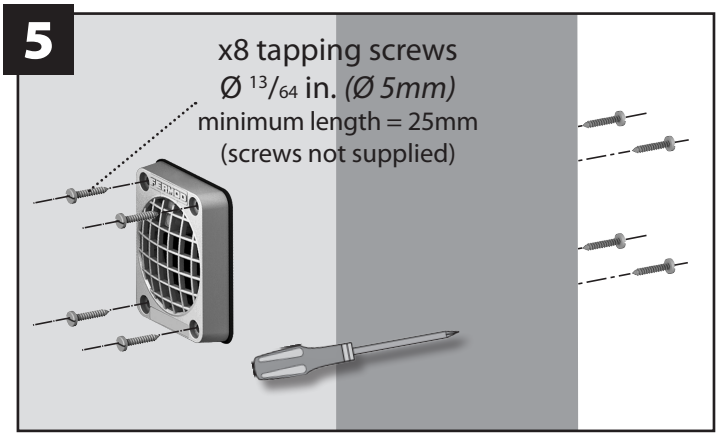


⚠ To ensure correct operation, install the valve with "FERMOD" **upward**

4



5



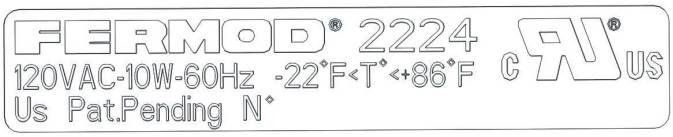
Nota:
drawings showing 2224-V L200.
Same as 2224-H L200 and 2224-M L200

7 - USING

▪ Normal using

Valve functionment is fully automatic.

▪ Security marking



▪ Cleaning

Do not use a water jet under hight pressure for the cleaning of the valve.
The equipment should be cleaned using cleaning agents that are compatible with the materials of the supplied product. For the dilution percentages, refer to the instructions of the cleaning agents to be used.

8 - MAINTENANCE

Maintenance must be carried out by qualified staff.
When replacing a component, choose the right component from the manufacturer's after-sales service, and respect the instructions of the different sections in this instructions manual.
Check the flaps mobility.
When starting or stopping the cold room, please follow the Local Regulations.

9 - SCRAPPING

Take all the Local Regulation texts into consideration, which deal with scrap and packaging waste.

It is agreed that the buyer, keeping this equipment, shall ensure the financing and organization of scrapping the waste from this equipment.
The buyer, on scrapping his waste, should keep proof of the full application of these regulation obligations.

These materials give off harmful vapors during combustion:

Reference	Material
Shutter	POM

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Siège Social : Senlis (Oise) - Société Anonyme au Capital de 1 004 400 €
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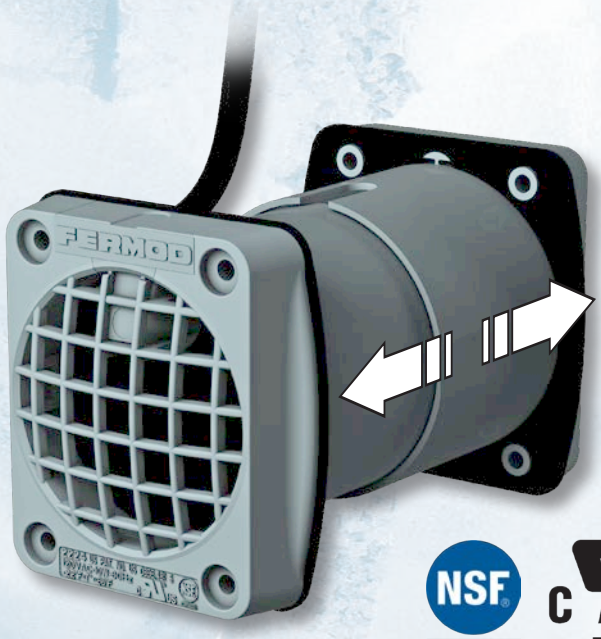
DEALER

PRESSURE RELIEF PORTS 2224-2226

Wall or ceiling mounted pressure relief vent for cold rooms up to 2700 ft³ - Patented

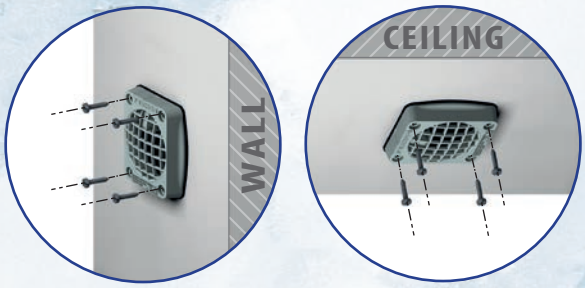


- **Extends in depth from 2 ¼ to 4 ¾ inches (up to 7 ¾ inches with the aluminium extension tube)**
- **Easy mounting**
- **Increased air-flow**

NSF COMPONENT

c UL us

E495930



Wall or ceiling mount

The walls of a cold room are constantly subjected to strains caused by pressure variations, either from inside or outside.
The patented FERMOD pressure relief vents allow the balance of internal and external pressures.

TWO REFERENCES:

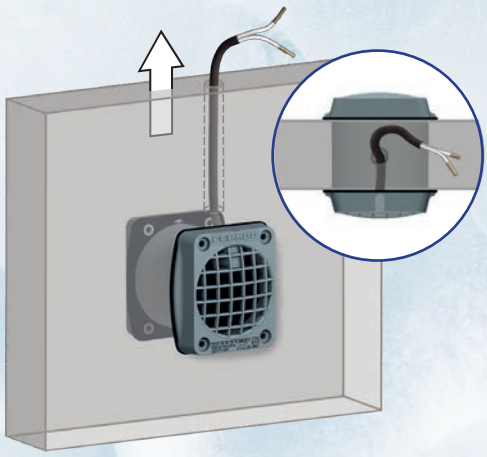
(0°C) 32°F **2224NT**

Wall or ceiling mounted vent with heating cord, 10W continuous power, **only for negative temperature cold room** down to -22°F (-30°C).

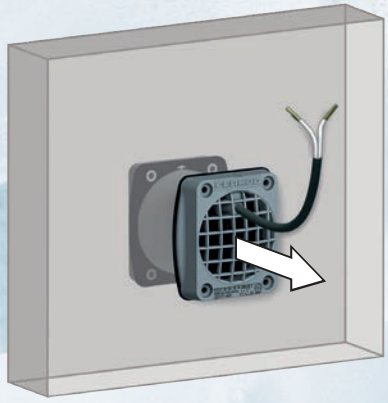
(0°C) 32°F **2226PT**

Wall or ceiling mounted vent without heating cord, **for positive temperature cold room** up to 180°F (80°C).

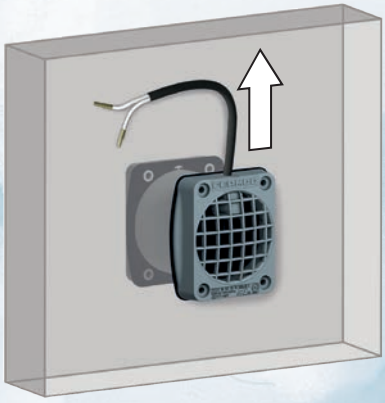
THREE POSSIBLE OPTIONS FOR THE CABLE OUTLET:



Through the panel
2224-M



Horizontal, external to the panel
2224-H



Vertical, external to the panel
2224-V

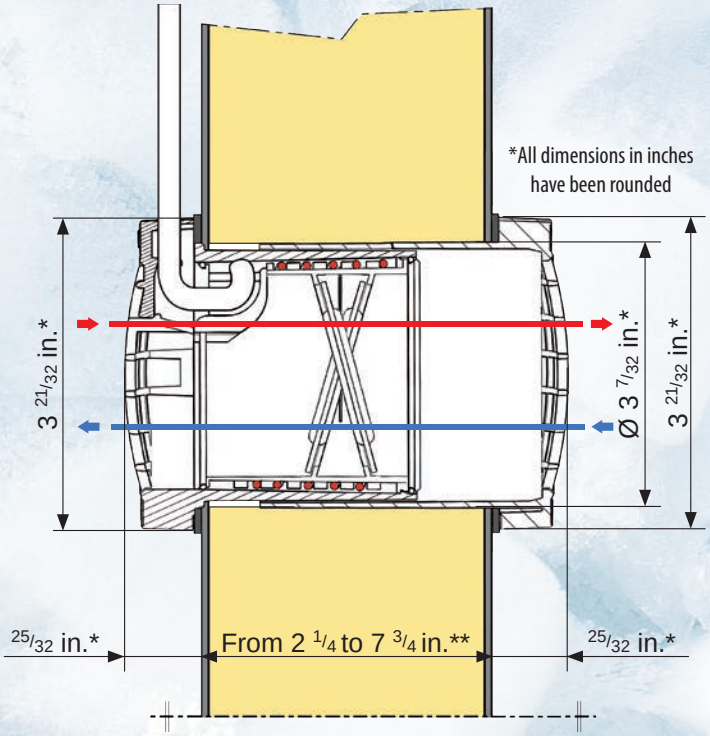
PRESSURE RELIEF PORTS 2224-2226

Wall or ceiling mounted pressure relief vent for cold rooms up to 2700 ft³ - Patented

DESCRIPTION OF THE VENT:

- Expandable vent : one size fits all-from 2 ¼ inches to 4 ¾ inches wall thickness and up to 7 ¾ inches with the aluminium extension tube
- For 4 ¾ inches maximum ceiling thickness
- 3 possible options for the cable outlet: external/vertical to the panel or through the panel
- Wall or ceiling mounting

- 28% increase in flow compared with the market-leading competitor
- Fermod vent saves significant mount time vs the competition
- Airtight mobile flaps to limit ice formation in cold room
- Watertight mounting to avoid ice formation between the valve and the wall
- 10W heating element is completely encapsulated in the vent
- Rust free
- Made of chemically resistant composite material
- The 2224 and 2226 vents are Recognized under the Component Recognition Program of UL according to the following standards: UL 471 & CSA C22.2 N° 120



** Standard dimension: from 2 ¼ to 4 ¾ in.
Up to 7 ¾ in. with the optional aluminium connection tube

HOW TO DETERMINE THE NUMBER OF VENTS REQUIRED ?

The following formula determines the number of vents needed for a given case:

V = Volume of the room in ft³

T = Time variation in min. for 1°F

t = Temperature of the room in °F

459 / 0.127 / 0.156 = constant values

- For a maximum evenly distributed pressure of **300 Pa** (1.2 in. H2O pressure):

$$\text{Number of vents} = \frac{0.127\,V}{T(459 + t)}$$

Example : V = 2700 ft³ / T = 1 minute for 1°F / t = -13°F

$$\text{Number of vents} = \frac{0.127 \times 2700}{1(459-13)} = 0.77 = \sim 1 \text{ vent}$$

If the data used for calculation are exactly observed, our vents ensure that the maximum evenly distributed pressure is not exceeded.

(The application and the result of the formulas are dependent on the initial data being correct.)

FERMOD®

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2022-03