

Introduction of NABCO hermetic door

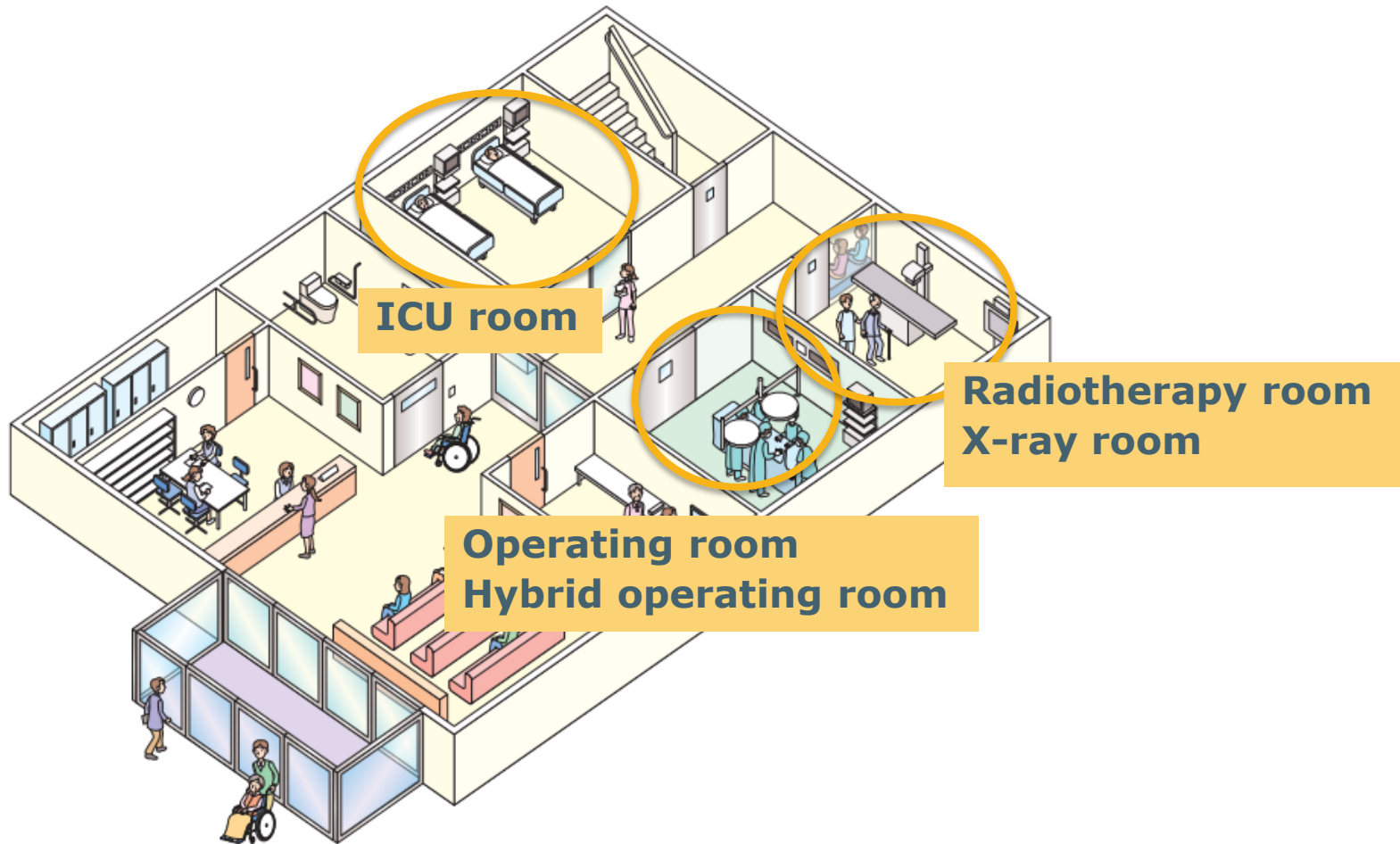
Nabtesco Corporation

Accessibility Innovations Company

Necessity of hermetic door

Necessity of Hermetic door

1. Rooms in healthcare facilities which may require hermetic doors

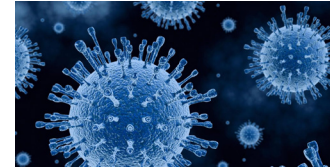


Necessity of Hermetic door

2. For operating room/ICU room (general)

-There is a higher risk for patients to have a secondary disease caused by air-borne infection or dust.

*Examples of air-borne infection: tuberculosis(T.B.) , measles, Chicken pox, SARS.....



-Temperature and humidity should be appropriate.

	Temperature(°C)	Humidity(%)
General surgery	22~26	45~60
Child surgery	22~30	
Heart surgery	18~30	

*Refer to the guidance of Healthcare Engineering of Association of Japan

⇒Hermetic door can help to reduce the risk and keep the good air-condition.

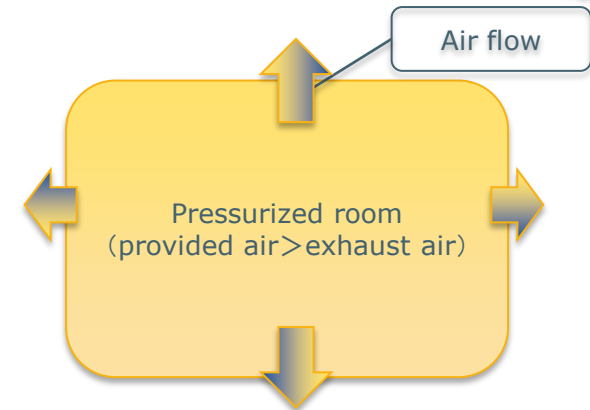
Necessity of Hermetic door

3. For operating room/ICU room (with high function)

-Air-conditioning facility system is installed to make the room pressurized/depressurized.

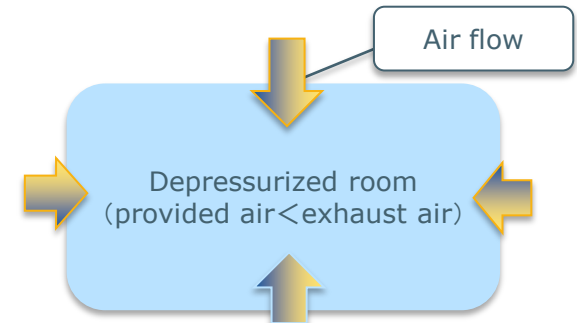
◎ **Pressurized room** ⇒ to prevent the virus from outside to inside

*Example: Operating room ICU room



◎ **Depressurized room** ⇒ to prevent the virus from inside to outside

*Example: Isolation room



⇒ Hermetic door can keep the good environment with an air-conditioning facility system

Necessity of Hermetic door

4. For Radiotherapy room/X-ray room/Hybrid operating room

-Radiation has to be blocked in order to prevent the harm to people.



©Hybrid operating room

Basically, radiography devices are installed in a laboratory such as X-ray room.

Hybrid operating room is an **operating room with the radiography devices**.



⇒Hermetic door with Lead (PB) can help to block X-ray.

NABCO hermetic door

NABCO Hermetic door



1. Types of NABCO hermetic door

Name : NAX (NABCO Airtight eXtension)

Types : NAX-SN 【Air tightness + sound insulation (flush type)】
NAX-SG 【Air tightness + sound insulation (Glass type)】
NAX-SX 【Air tightness + radiation shield (flush type)】



«Aluminum flush»



«Stainless steel flush»



«Glass»



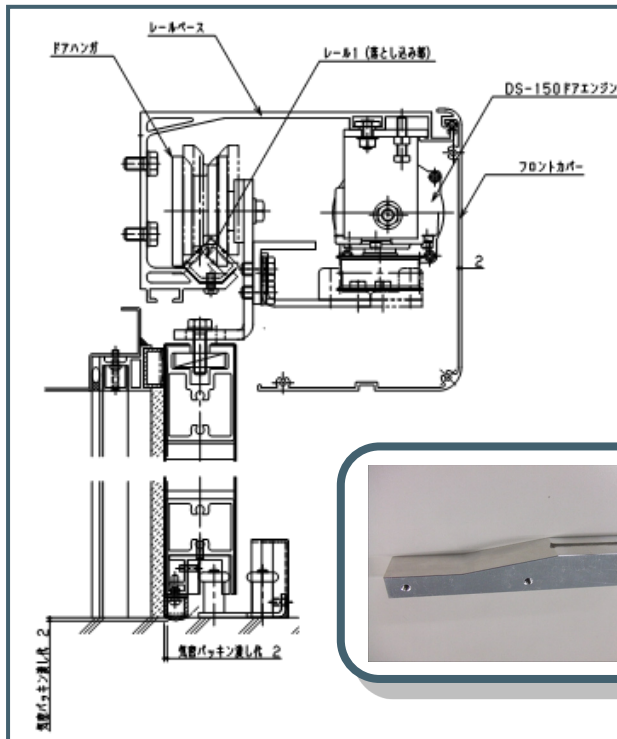
Glass type may be able to meet the request of ICU room because medical staff can check patients in the room

2. Features of NAX

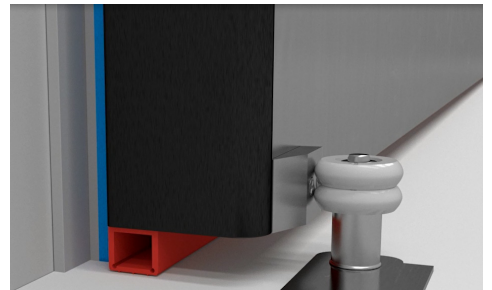
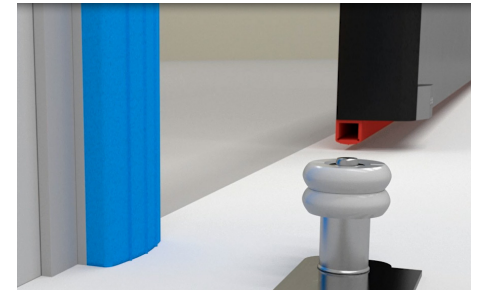
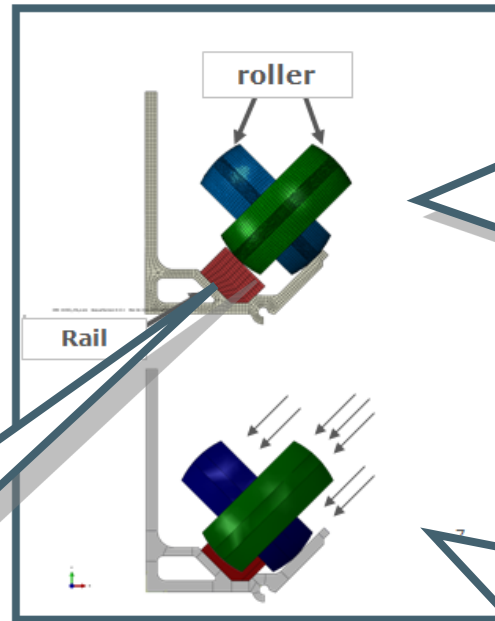
(1) Hermetic function

- The door panel is dropped and pushed onto the wall.
⇒ **Easy to install** and able to keep **air tightness even in case of a blackout**

《Outline》



《Detail of the rail》



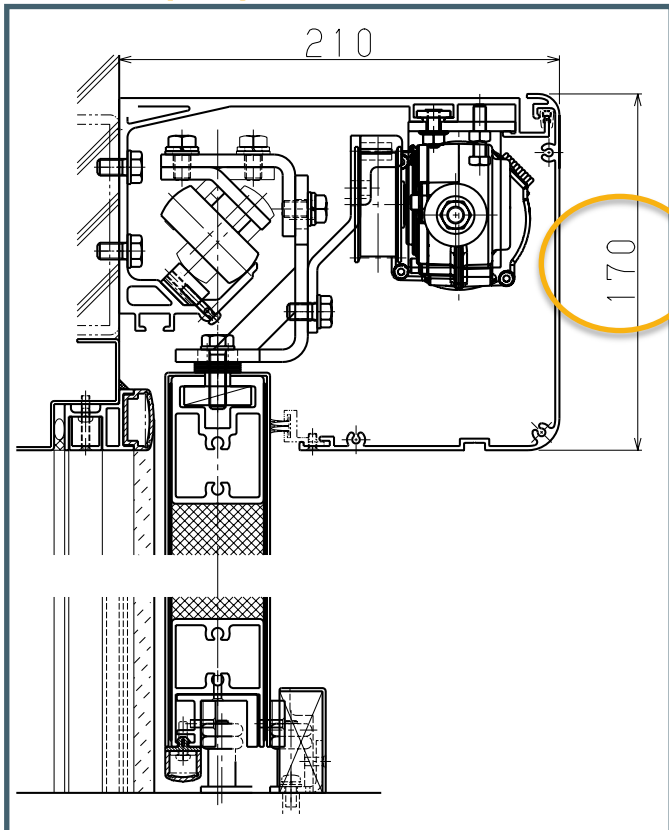
NABCO Hermetic door



(2) Header box

- The header box is very small and can be installed as surface mount.
⇒The height is **smaller than the other brand's header box**

«NABCO(NAX)»



NABCO Hermetic door



(3) Door handle

-In case of a blackout, the door can be **opened easily by hand with a door handle** (3 types of the door handles can be chosen)

⇒ **The door can be opened fully if the recessed handle is chosen**

«Recessed handle»



Recommendation

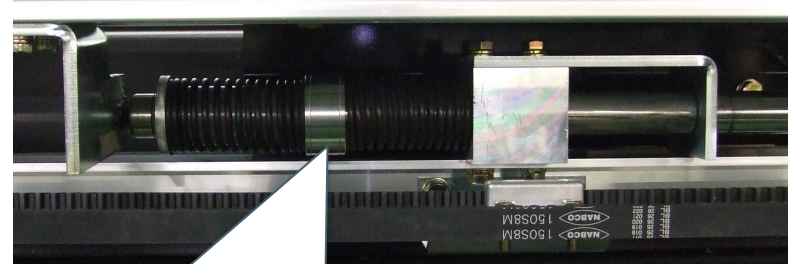
«Tubular handle»



«Lever handle»



« Spring in the operator »



The spring makes it easily to open manually

(4) Flat floor

-The floor should be flat for stretchers

⇒ **Barrier free can be realized as flat floor designing.**



(5) Windows for door leaf

-3 types of windows are selectable for the flush door panel.

Flat frame structure can prevent the accumulation dust.

«Flat frame for both side»



Both side

«Flat frame for one side»



Inside



Outside

«Flat frame for one side»



Inside

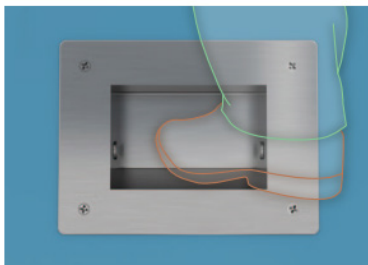


Outside

(6) Detection devices

-**Foot switch** or **Touch less sensor** can be suitable with the hermetic door.

«Foot switch»



«Touch less sensor»



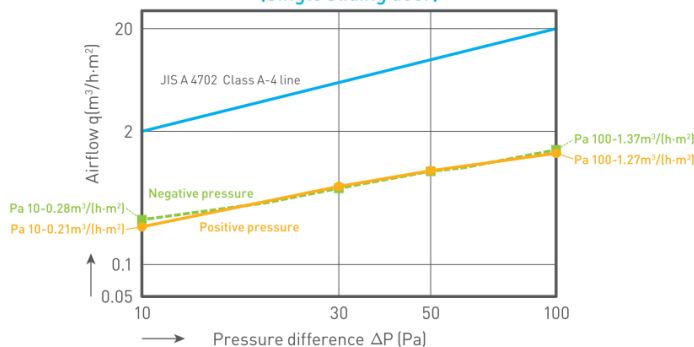
3. Specification of NAX

(1) Air tightness/Sound insulation/Radiation shield

- ① Air tightness: the highest class (A-4) of JIS A4702
(Equivalent of GB-T 7106 2008 class 8 / UNE-EN 12207 class 4)

« JIS A 4702 A-4 »

NAX Airtightness performance
(Single sliding door)



« GB/T 7106-2008 »

China

class	Air permeability 10Pa (m³/h·m²)
0	$10.5 < q \leq 12$
...	...
6	$3.0 < q \leq 4.5$
7	$1.5 < q \leq 3.0$
8	$q \leq 1.5$

« UNE-EN 12207 »

Europe

Class	Air permeability 100Pa (m³/h·m²)
0	Without testing
1	≤ 50
2	≤ 27
3	≤ 9
4	≤ 3

- ② Sound insulation: 【Glass】 Class (T-2) of JIS A4702 【Flush】 Class (T-1) of JIS A4702

- ③ Radiation shield: 2mm of lead(PB)

NABCO Hermetic door



(2)Specification table

Specifications					
Use applications		Air tightness + Sound insulation		Air tightness + Sound insulation + X-ray shield	
Door leaf		Aluminum/Stainless steel/Glass		Aluminum	Stainless steel
Door type		Single	Bi parting	Single	Single
Clear opening (mm)	Width (W)	700 - 2000	1200 - 2800	700 - 1600	700 - 1100
	Height (H)	1900 - 2500	1900 - 2500	1900 - 2500	1900 - 2500
Max weight		150kg			
Opening speed		up to 0.7m/s			
Hold open time		adjustable			
Ambient temperature		-10°C - 50°C			
Power supply		230VAC +6/-10% 50/60Hz Note: with transformer specified by NABCO			
Power consumption		45Wh			
Relative humidity		20% - 85% RH			
Air permeability		A-4 [JIS A 4702]			
Sound insulation		T-1 [JIS A 4702]**1		T-1 [JIS A 4702]**2	
X-ray shield		—		○ (Lead plate 2mm)	
Electric lock		○			

*1 The type of glass door leaf has T-2 class of sound insulation.

If T-2 class is required for aluminum/stainless door leaf, please contact our sales distributor.

*2 Calculated value

Reference (comparison with the other brands)

Comparison with the other brands



1. Line-up of hermetic door

	Air tightness (Flush)		Air tightness (Glass)		Sound insulation (Flush)		X-ray shield (Flush)	
	Single	Bi-parting	Single	Bi-parting	Single	Bi-parting	Single	Bi-parting
NABCO	○	○	○	○	○	○	○	×
Manusa	○	○	○	○	○	○	○	○
Besam	○	×	×	×	×	×	?	?
Record	○	△	×	×	×	×	?	?

Flush type (NABCO) : Aluminum or Stainless steel

Flush type (European brands) : HPL(high pressure laminate) or Stainless steel

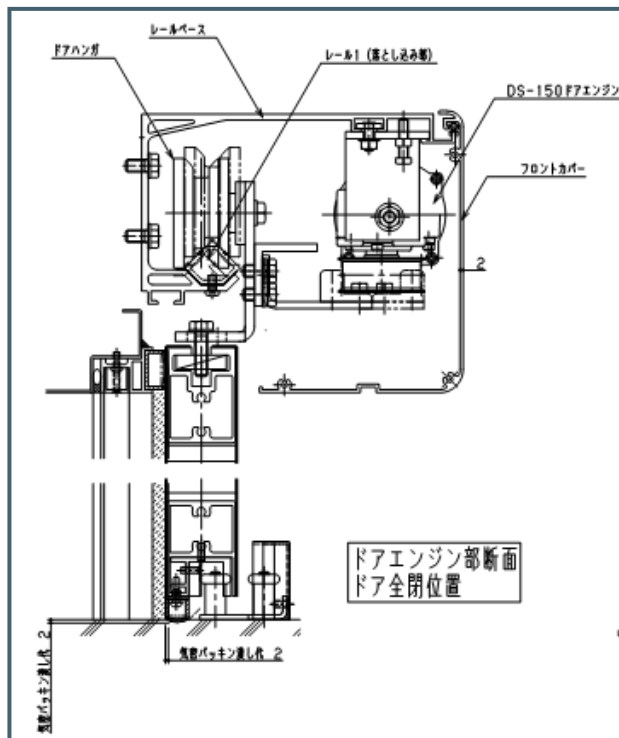
Comparison with the other brands

2. Hermetic function

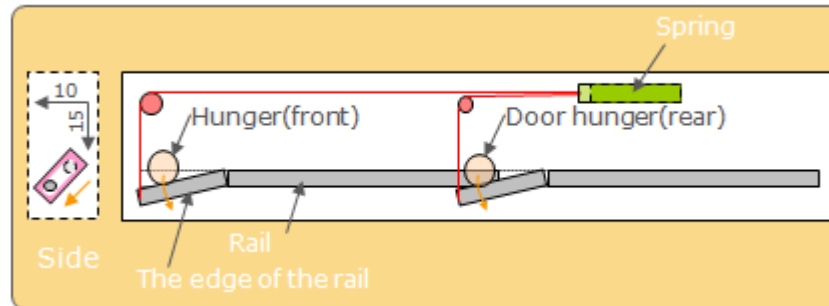
-Hermetic door of other brands are almost same function (the door panel is dropped and pushed onto the wall).

⇒ **installation skill is very important**

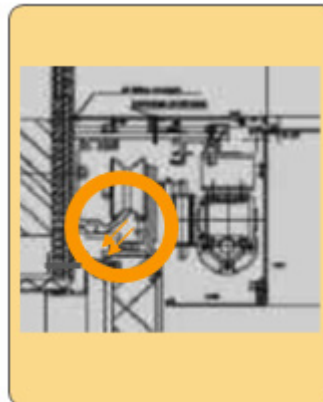
《NABCO(NAX)》



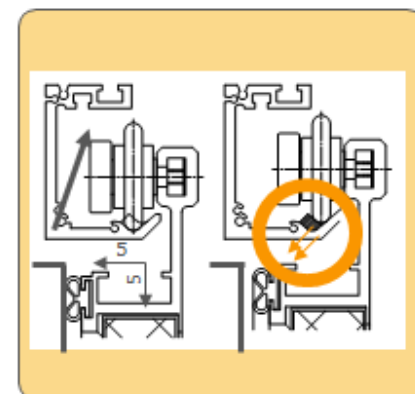
《Manusa》



《Record》



《Besam》

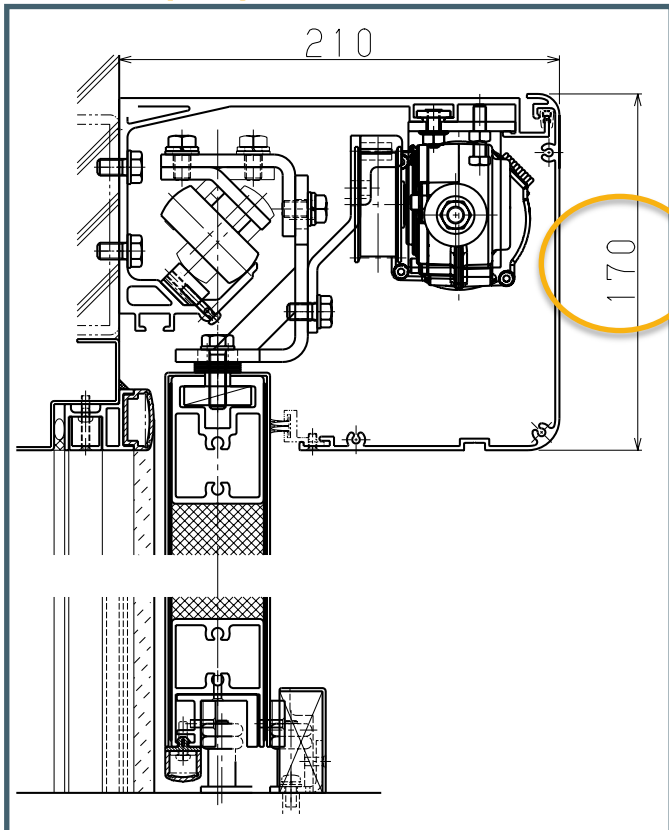


Comparison with the other brands

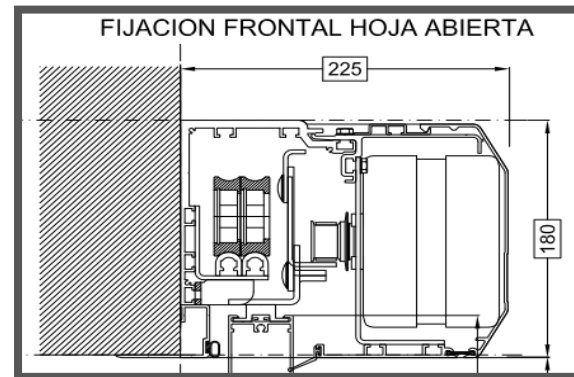
3. Header box

- The height is **smaller than the other brand's header box**

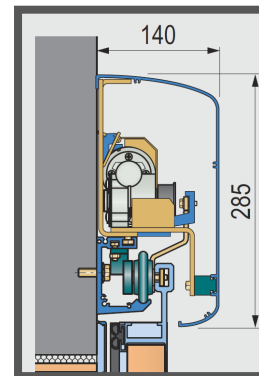
«NABCO(NAX)»



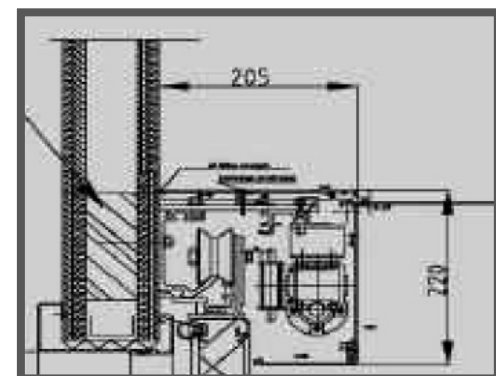
«Manusa»



«Besam»



«Record»



Comparison with the other brands

4. Door handle

Besam 's and Record's hermetic door has to be used a lever handle for opening manually.

⇒ **The door can't be opened fully**

«NABCO(NAX)»



«Manusa»

Selectable for recessed type



«Besam»



«Record»



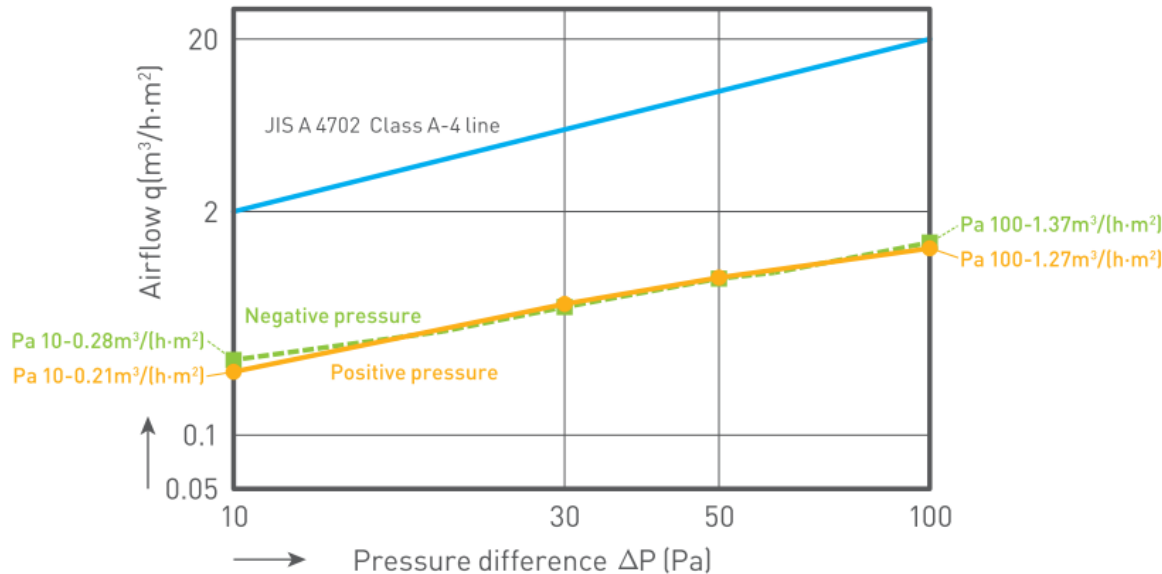
Comparison with the other brands



5. Specification of air tightness

NABCO hermetic door (NAX) has same level of class 4 of UNE EN-12207.

NAX Airtightness performance
(Single sliding door)



« UNE-EN 12207 »

Europe

Class	Air permeability 100Pa ($\text{m}^3/\text{h}\cdot\text{m}^2$)
0	Without testing
1	≤ 50
2	≤ 27
3	≤ 9
4	≤ 3