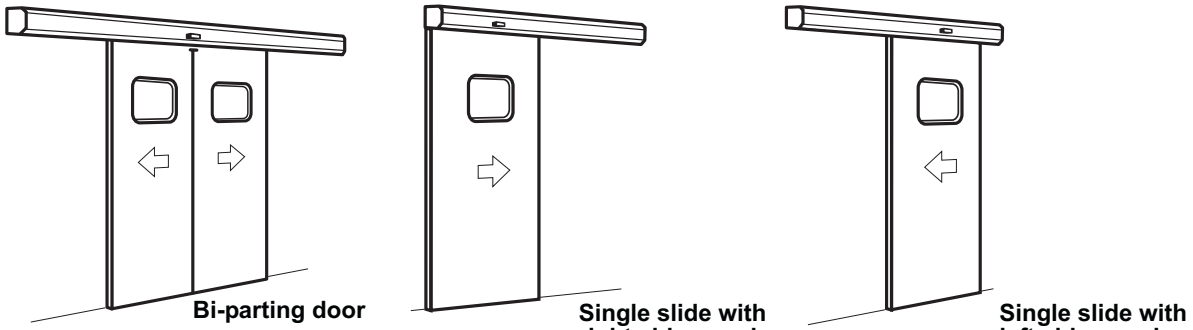
manusa

Data Sheet

HERMETIC SLIDING DOOR

P50 LEAF + ME40 FRAME

1- DESCRIPTION



Bi-parting door

Single slide with right side opening

Single slide with left side opening

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Single slide or bi-part sliding door, consisting of one or two moving leaves that slide sideways automatically or manually leaving a large clear opening when the door is in open position, and to seal the opening when the door is closed.

This product has been designed to guarantee:

- **Sealing**: With the door in close position, the leaves lean against the rubber gasket on the wall frame, while a rubber gasket at the bottom of the leaf seals the lower side of the opening. All this design is made to seal the complete opening and help keeping a positive pressure environment inside the clean room, to prevent dust and bacteria contaminating the clean area
- **X-ray shield**: Manusa also provides solutions for radiology rooms, incorporating the equivalent to 2 mm of lead inserts inside the door leaf and vision panel.

The 50mm-thick leaves are composed of a core panel made of polyisocyanurate (PIR) and an external surface made of High Pressure laminate (HPL) or stainless steel AISI 304(standard) or 316 (optional).

A wall frame made of aluminium profiles and a rubber gasket, is located on one side of the opening.

The Bravo hermetic door operator will slide the leaves backwards against the wall frame and down against the floor to seal the full opening. The exclusive **manusa** hermetic system allows the doors to be opened manually in the event of a power failure, and with very low effort.

2- FINISH OPTIONS

FINISH OPTION	HPL	HPL + Lead	St. steel	St. Steel + lead
Leaf surface	HPL colour*	HPL colour*	AISI-304 / 316**	AISI-304 / 316**
Leaf perimeter	Black RAL 9011	Black RAL 9011	Black RAL 9011	Black RAL 9011
Wall frame	Anod***/Powder coated	Anod***/Powder coated	Anod***/Powder coated	Anod***/Powder coated

*** Standard HPL colour: blue, green, white and beige.**
**** High quality AISI 316 stainless steel (optional), recommended only for corrosive or saline atmosphere**
***** Anodizings available: silver and imitation of stainless steel**

3.- OPERATOR

The **manusa** Hermetic Doors are operated by a Bravo Hermetic operator, which has unique kinematic features in the sector.

MECHANICAL FEATURES	
Actuator dimensions	**225x180**
Bi-part opening maximum clear width	**2800 mm****
Bi-part opening minimum clear width	**1400 mm****
Single slide maximum clear width	**1900 mm****
Single slide minimum clear width	**700 mm****
Maximum clear height	**2400 mm****
Minimum clear height	**2000 mm****
Maximum weight per door	**85 kg**

MOTOR FEATURES	
Adjustable opening speed per leaf	**50 to 80 cm/s**
Relative opening speed for the 2 leaves	**80 to 160 cm/s.**
Adjustable closing speed per leaf	**15 to 40 cm/s.**
Adjustable closing force between	**40N to 150N**
Acceleration	**0,8 m/s$_2$**
Independent speed/force adjustament	**YES**

ELECTRICAL FEATURES	
Standard power supply	**230v 50-60Hz±15%**
Power supply on request	**110v 50-60Hz±20%**
Motor	**2xAC. Three-phase**
Inverter technology (exc. to Manusa)	**VV-VF**
Direct drive motors	**Without gearbox**
Operating power consumption	**265 W**
Fuse protectiion	**4A**
Operating temperature	**-20ºC to 65ºC**

SAFETY	
Safety reopening on obstruction	**YES**
Connectable safety photocells	**1 or 2** (2 recommended)
LEGISLATION IN FORCE PR-EN 12650 (ACTUATOR).	
Low voltage	**2006/095/CEE**
Electromagnetic compatibility	**2004/108/CEE**
Building products	**89/106/CEE**
Safety of machinery	**2006/42/CE**

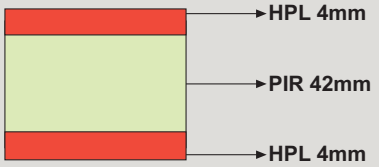
****General dimensions of the operator. Limitations apply depending on the materils used on the door leaf. Refer to section 10 in this manual.**

4- P50 LEAF

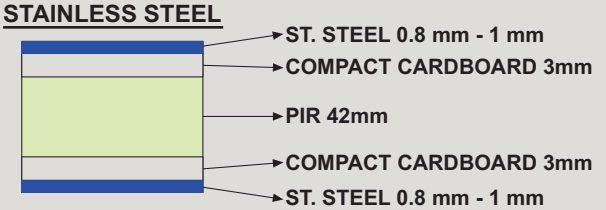
The P50 leaf consists of a sandwich panel and a perimetrical frame made of aluminium profiles.The core of the door leaf is composed of 40 mm thick polyisocyanurate (PIR) board while the external surface is available in different options.

For radiology rooms a special version with lead inserts is also available:

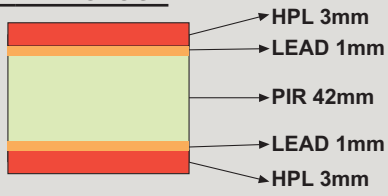
HPL



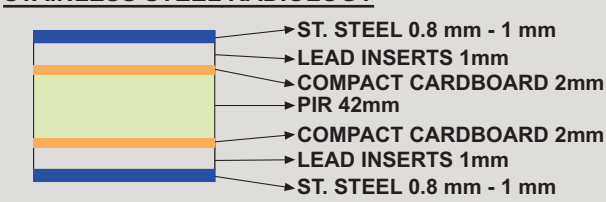
STAINLESS STEEL



HPL RADIOLOGY

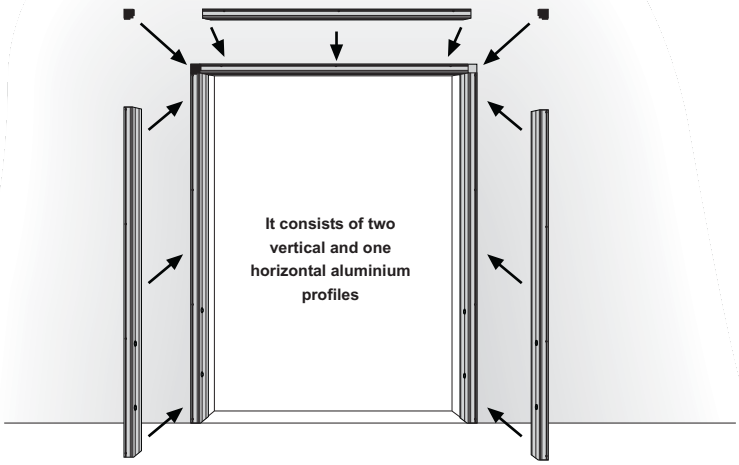


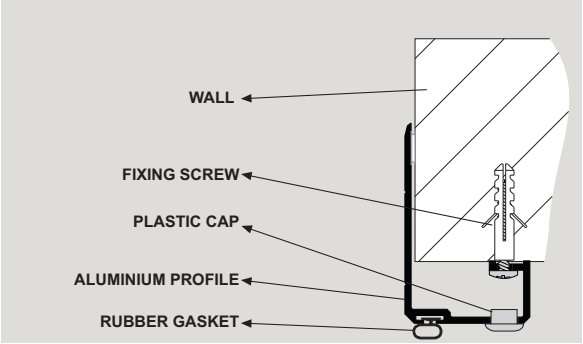
STAINLESS STEEL RADIOLOGY



5- ME40 FRAME

The ME40 frame has been designed to fit to any wall, and ensure a perfect sealing and good performance of the hermetic door. This frame incorporates a rubber gasket, and is fixed to the side of the opening on which the door is to be installed, to ensure a proper sealing of the opening.

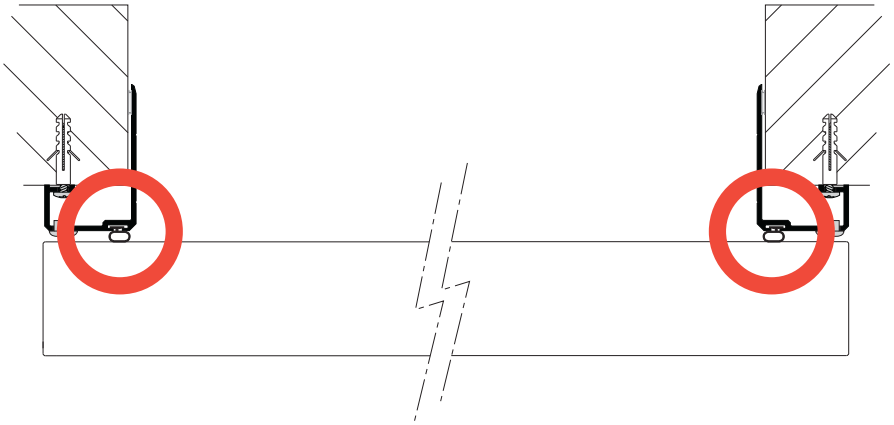




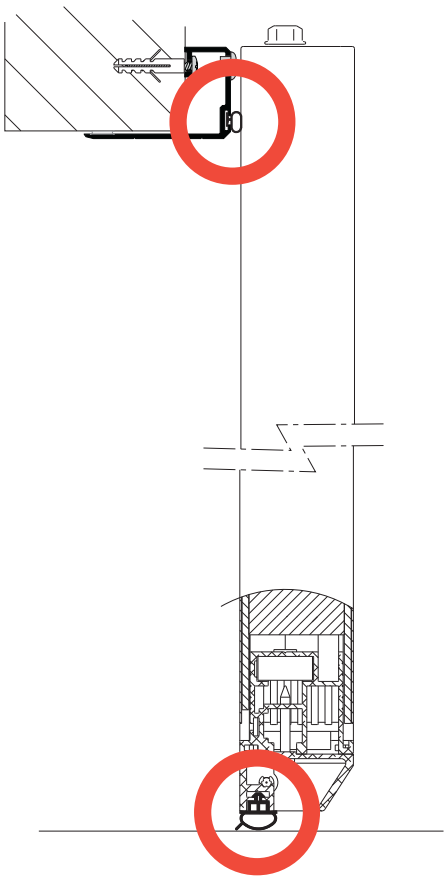
6- SEALING

When the P50 door moves to close position, the leaf slides down and backwards towards the floor and wall frame, at the end of the closing cycle. The rubber gaskets on the wall frame and at the bottom rail of the door leaf, guarantee a perfect sealing of the opening, to keep the room in optimum hygienic and climatic conditions.

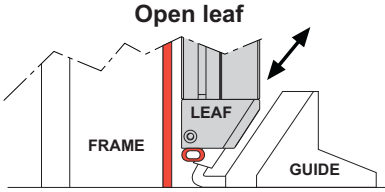
Horizontal Section



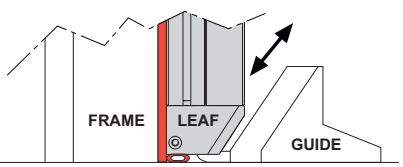
Vertical Section



Open leaf



Closed leaf



CERTIFICATIONS

The **manusa** Hermetic swing doors have been tested to evaluate the air leakage at low pressure.

RESULTS OF THE AIR LEAKAGE TEST:

Total pressure		Total air leakage	Air leakage in terms of total surface	Air leakage in terms of gasket length
Nominal (Pa)	Real (Pa)	m^3/h	$m^3/h \cdot m^2$	$m^3/h \cdot m$
15	17	0.78	0.23	0.10
20	17	0.78	0.23	0.10
30	26	2.09	0.62	0.28
40	36	3.43	1.02	0.46
50	46	4.53	1.35	0.61
75	71	7.15	2.14	0.96
100	97	9.71	2.91	1.31
-15	-15	4.56	1.36	0.61
-20	-19	5.28	1.58	0.71
-30	-31	6.35	1.90	0.85
-40	-39	7.13	2.13	0.96
-50	-49	7.73	2.31	1.04
-75	-74	9.43	2.82	1.27
-100	-99	10.68	3.20	1.44

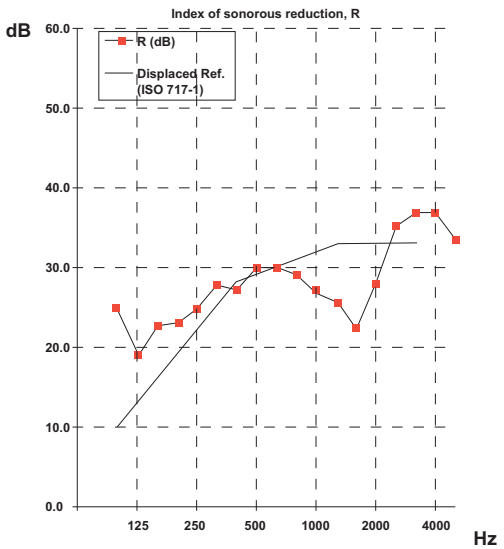
manusa's test record number (Applus) is:

P50 Hermetic Sliding side opening Door Record nº 07/32304784

The **manusa** hermetic sliding doors have been tested to measure in laboratory the sound insulation to the aerial noise of the elements of construction according to European standard ISO 140-3:1995.

RESULTS OF THE NOISE INSULATION TEST:

Frecuency (Hz)	R (db)	Uncertainty ± U
100	24.9	5.5
125	19.0	5.5
160	22.4	3.5
200	22.9	3.0
250	24.8	3.0
315	27.4	2.5
400	27.3	2.5
500	29.6	2.5
630	29.7	2.0
800	28.9	2.0
1000	27.0	1.5
1250	25.6	2.0
1600	22.1	2.0
2000	27.9	2.0
2500	35.1	2.0
3150	36.7	2.0
4000	36.7	2.0
5000	33.2	2.0



Global index of average noise reduction A, R:	**27.7 dBA**
Index of average noise reduction, Rw (C100-5000 ; Ctr,100-5000):	**29 (-1 ; -3) dB**

manusa's test record number (Applus) is:

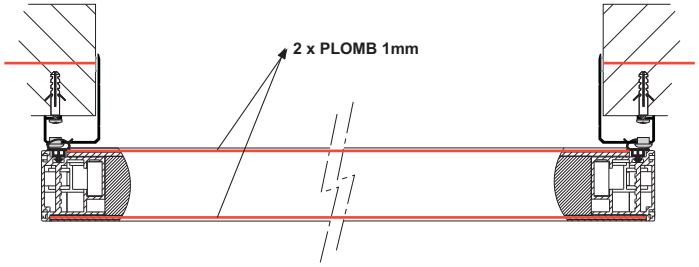
P50 Hermetic Sliding side opening Door Record nº 07/32305121

The tests were conducted at **APPLUS (LGAI)** laboratories.

PRODUCT

7- RADIOLOGY

For radiology rooms with X-ray machines, it is possible to order the doors with an equivalent to 2mm of lead inserts on the door leaf and vision panel:.



LEGISLATION

The following are a series of tables to interpret annex 1 of Royal Decree 1891/1991 regarding the installation and use of X-ray machines for medical diagnosis.

This table is for information purposes only. To ensure fulfilment with local regulations in force, a preliminary engineering survey will have to be conducted by the client, to determine the necessary lead thickness in the door. The complete installation will need to be certified after the X-ray machine has been installed in the radiology room.

MINIMUM SHIELDS FOR PRIMARY BARRIERS (mm of lead)

	KVp	Load weekly mA·MIN/Week	People exhibited (50 mSv/year) to 1m	2m	3m	4m	6m	8m	Members of public (5 mSv/year) to 1m	2m	3m	4m	6m	8m
1 Equipment for radiography	100	160	1.8	1.3	1.0	0.8	0.6	0.5	2.6	2.1	1.8	1.6	1.3	1.1
Equipment for radiography (without radioscopy)	125	80	1.8	1.3	1.0	0.9	0.6	0.5	2.7	2.2	1.9	1.7	1.4	1.2
Equipment for radiography (without radioscopy)	150	40	1.7	1.2	1.0	0.8	0.5	0.4	2.7	2.1	1.8	1.6	1.3	1.1
2 Equipement for radiography: Tables with tube with x-ray below	110	1200	2.5	2.0	1.7	1.5	1.2	1.0	3.2	2.7	2.4	2.2	1.9	1.7
Equipement for radiography: Tables with tube with x-ray above	110	3000	2.5	2.0	1.7	1.5	1.2	1.0	3.2	2.7	2.4	2.2	1.9	1.7
3 Mammography	50	2000	1.1	0.8	0.7	0.6	0.5	0.4	1.7	1.3	1.1	1.0	0.9	0.7
4 Computerized Tomography (1000/week with 300mAs/cut)	120	5000	2.7	2.1	1.8	1.6	1.3	1.1	3.6	3.0	2.7	2.5	2.1	1.9
5 Equipment with dental radiography	60	4	0.3	0.2	0.2	0.2	0.1	0.0	0.7	0.5	0.4	0.2	0.2	0.2
6 Equipment with panoramic dental radiography	85	200	1.5	1.1	0.8	0.7	0.5	0.4	2.3	1.8	1.5	1.4	1.1	0.9

MINIMUM SHIELDS FOR SECONDARY BARRIERS (mm of lead)

	KVp	Load weekly mA·MIN/Week	People exhibited (50 mSv/year) to 1m	2m	3m	4m	6m	8m	Members of public (5 mSv/year) to 1m	2m	3m	4m	6m	8m
1 Equipment for radiography	100	160	- -	0.0	0.0	0.0	0.0	0.0	- -	0.7	0.2	0.1	0.0	0.0
Equipment for radiography (without radioscopy)	125	80	- -	0.0	0.0	0.0	0.0	0.0	- -	0.7	0.1	0.0	0.0	0.0
Equipment for radiography (without radioscopy)	150	40	- -	0.0	0.0	0.0	0.0	0.0	- -	0.2	0.1	0.0	0.0	0.0
2 Equipement for radiography: Tables with tube with x-ray below	110	1200	- -	0.7	0.2	0.1	0.0	0.0	- -	2.9	1.7	1.1	0.7	0.2
Equipement for radiography: Tables with tube with x-ray above	110	3000	- -	0.7	0.2	0.1	0.0	0.0	- -	2.9	1.7	1.1	0.7	0.2
3 Mammography	50	2000	- -	0.1	0.0	0.0	0.0	0.0	- -	1.0	0.6	0.4	0.1	0.0
4 Computerized Tomography (1000/week with 300mAs/cut)	120	5000	- -	0.8	0.2	0.1	0.0	0.0	- -	3.3	1.9	1.3	0.8	0.2
5 Equipment with dental radiography	60	4	- -	0.0	0.0	0.0	0.0	0.0	- -	0.0	0.0	0.0	0.0	0.0
6 Equipment with panoramic dental radiography	85	200	- -	0.0	0.0	0.0	0.0	0.0	- -	0.5	0.1	0.0	0.0	0.0

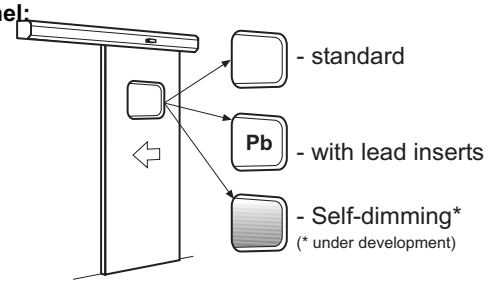
*The primary barrier refers to the wall that is behind the camera in the direction of the primary beam. The rest of the walls, floor and ceiling will be secondary barriers. In radioscopy facilities, the primary barrier is built into the imaging system, and so all the walls will be considered as secondary barriers

8- ACCESSORIES

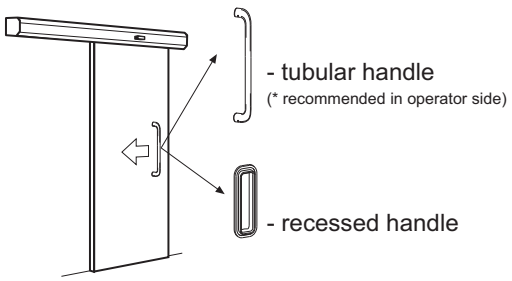
manusa hermetic sliding doors can be combined with the most common accessories for automatic doors, such as: radars, push button, touch-less switch, elbow switch...

Other exclusive accessories for this type of door are:

1.- Vision panel:

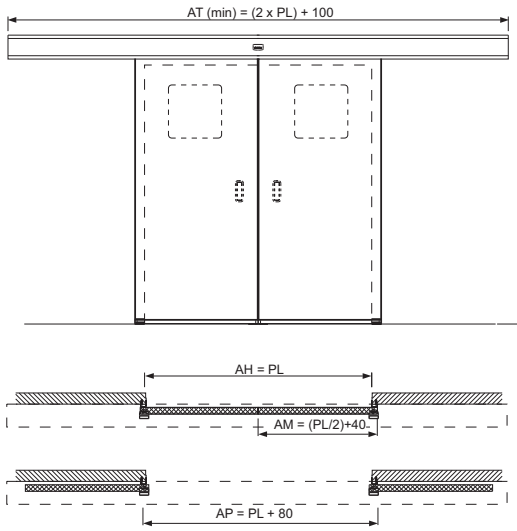


2.- Handles:

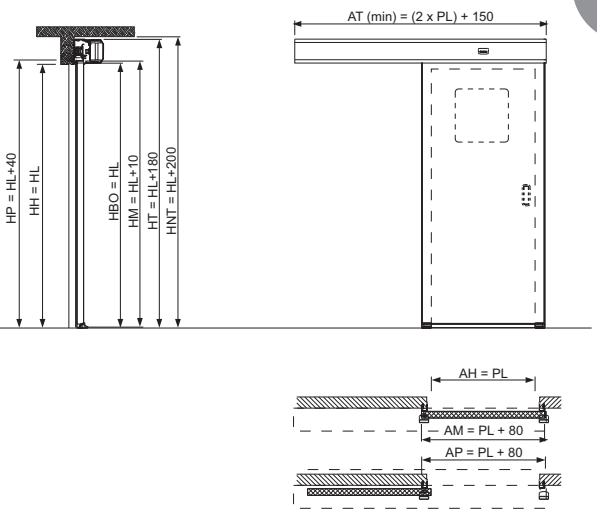


9- DOOR TYPES

BI-PART SLIDING DOOR



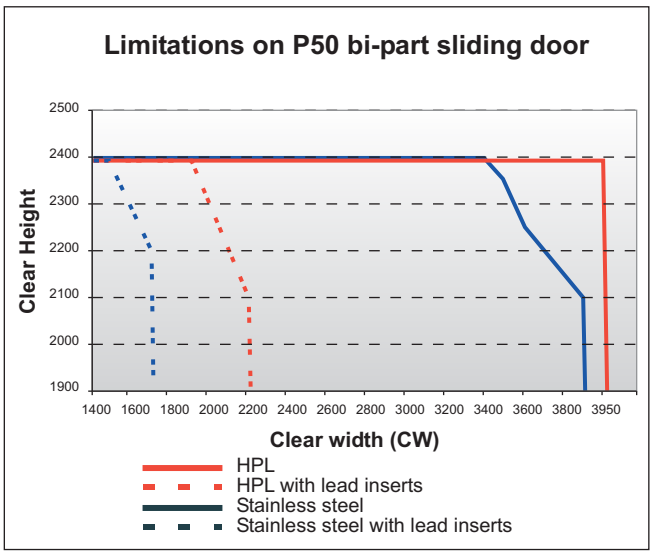
SINGLE SLIDING DOOR

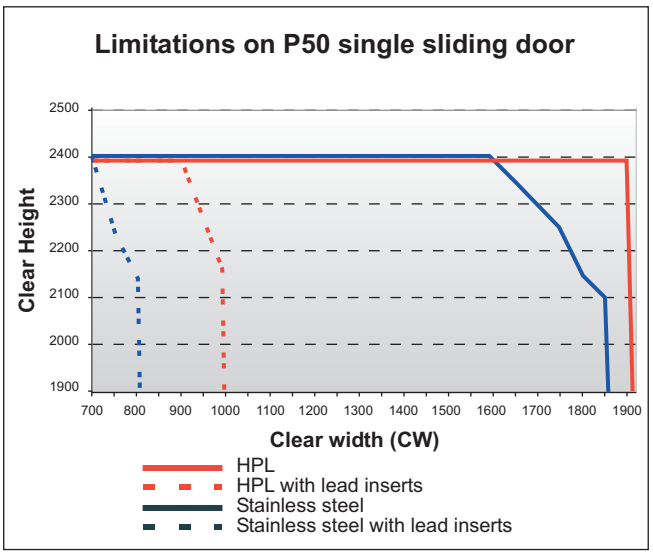


LEGEND

PL	**Clear width**	**HL**	**Clear height**
AM	**Width of moving leaf**	**HH**	**Opening height**
AT	**Operator length**	**HT**	**Overall height**
AH	**Opening width**	**HNT**	**Necessary height**
AP	**Door width**	**HBO**	**Height bellow cover**
EP	**Wall thickness**	**HM**	**Height of sliding leaf**
		HP	**Door height**

10- LIMITATIONS





NOTE: *The features included in this document are given for information purposes only, and are not binding.*

The manufacturer reserves the right to modify its products withoutprior notice.

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manusa

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