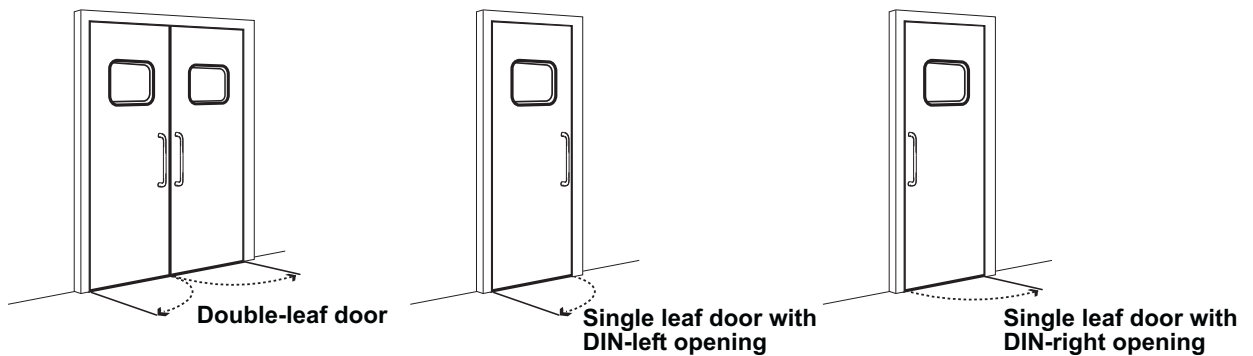


## DATA SHEET

# HERMETIC SWING DOOR

## P50 LEAF + BLOCK FRAME

### 1- DESCRIPTION

**i**

Single or double leaf swing door with hermetic sealing of the opening. Available as manual or automatic by incorporating an automatic swing door actuator. In the case of manual doors each leaf can open up to 180°.

This product has been designed to guarantee:

- **Sealing:** With the door in close position, the leaf closes against the wall frame which includes a rubber gasket, to help sealing the opening on all three sides. At the bottom of the door leaf, a mechanical system drops down to seal against the floor. 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, vision panel and the wall frame.

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). At the bottom of the leaf, a windstopper drops down to ensure sealing between the leaf and the floor when the door is in close position. The concealed hinges makes cleaning easier to guarantee hygiene.

The wall frame is designed to embrace the wall thickness on both sides, adapting easily to walls between 75 mm and 250 mm thick (please consult Manusa for thicker walls).

### 2- FINISH OPTIONS

FINISH OPTION	HPL	HPL + Lead	St. steel	St. st + 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 (sides)	Silver anodized	Silver anodized	AISI-304 / 316**	AISI-304 / 316**
Wall frame (centre)	HPL color*	HPL color*	AISI-304 / 316**	AISI-304 / 316**

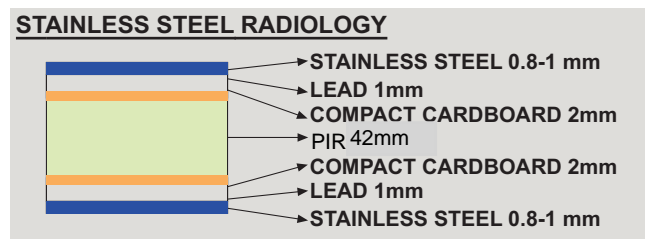
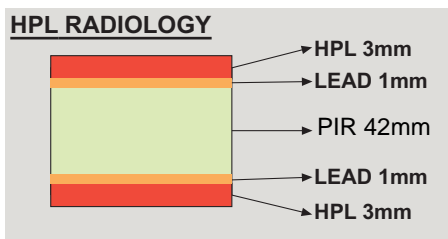
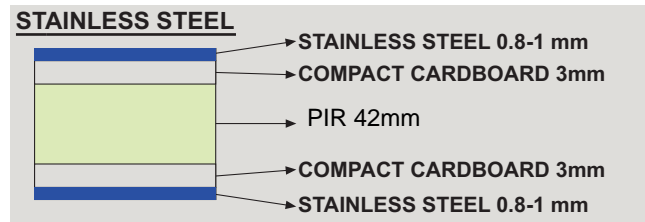
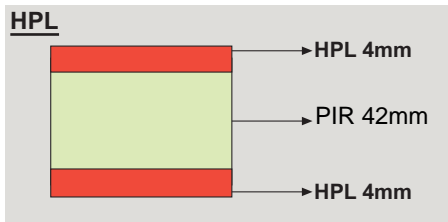
\* Standard HPL colour: blue, green, white and beige.

\*\* High quality AISI 316 stainless steel (optional), recommended only for corrosive or saline atmospheres.

### 3- P50 LEAF

The P50 leaf consists of a sandwich panel and a perimetrical frame made of aluminium profile. The core of the door leaf is composed of 42mm thick polysocyanurate (PIR) board while the external surface is available on different options.

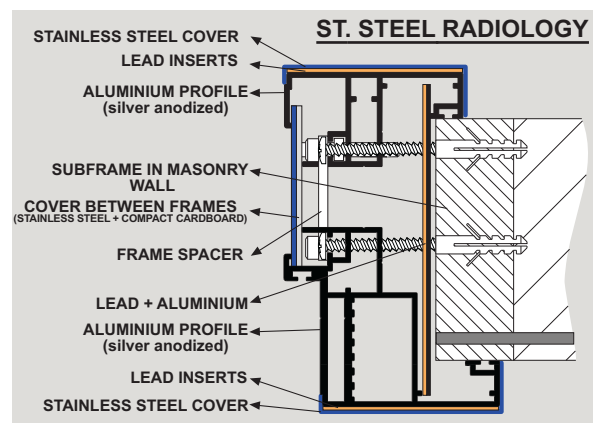
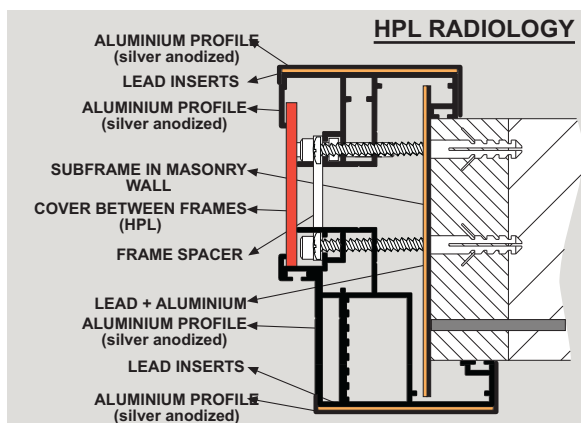
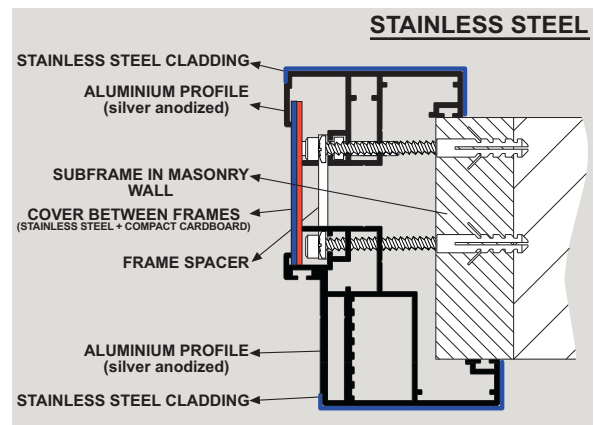
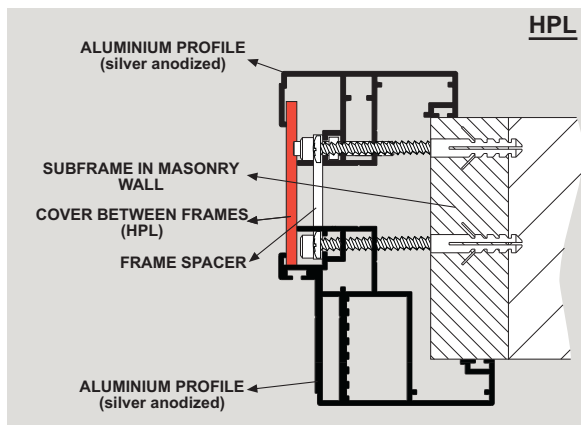
For radiology rooms a special version with lead inserts is also available:



### 5- BLOCK FRAME

The block frame is especially designed to adapt and easily install the hermetic door on any type of wall. Aluminium frames embrace the wall on both sides of the opening providing a solid, even block that guarantees a proper overlap with the moving leaf. It can be adapted to any wall between 75 and 250 mm thick (please consult for thicker walls).

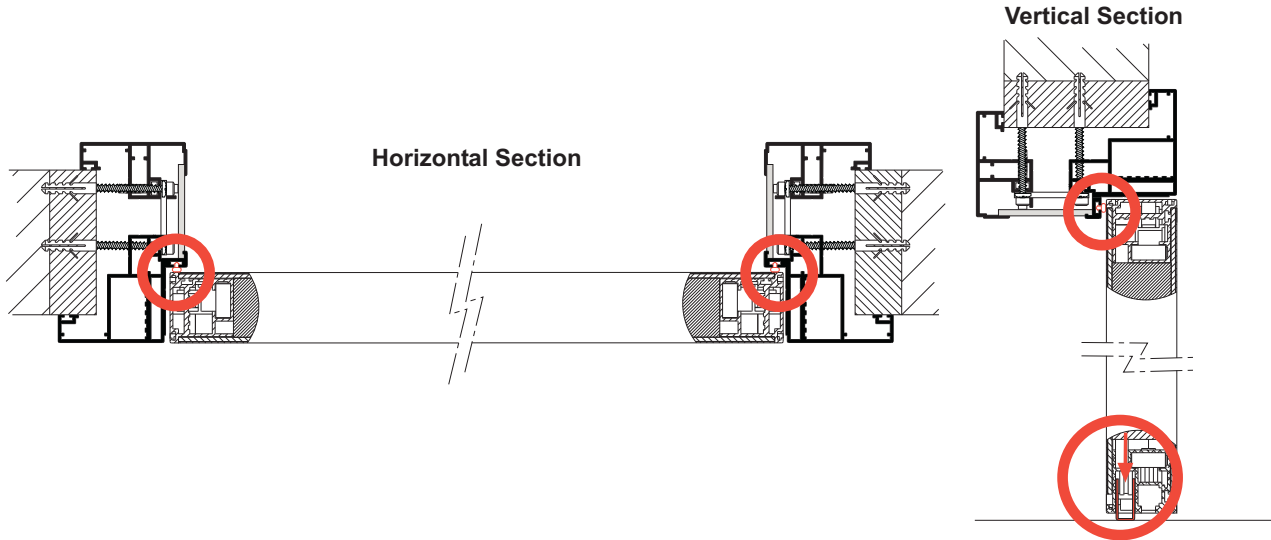
**IMPORTANT: A subframe previously installed in a masonry wall opening is advised to ensure a good installation of the block frame**



## 6- SEALING

The block frame includes a rubber gasket around the entire edge, to seal the opening and provide optimum hygienic conditions inside the clean room.

At the bottom of the leaf, a mechanical device with a rubber gasket provides an effective sealing between the leaf and the floor when the door is in close position.



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)	Actual (Pa)	m <sup>3</sup> /h	m <sup>3</sup> /h · m <sup>2</sup>	m <sup>3</sup> /h · m
15	14	4.79	2.31	0.82
20	16	4.92	2.37	0.84
25	20	23.22	11.21	3.98
30	24	26.50	12.80	4.55
-15	-14	13.40	6.47	2.30
-20	-18	16.43	7.93	2.82
-30	-30	20.95	10.12	3.59
-40	-41	25.33	12.23	4.35
-50	-49	27.74	13.40	4.76
-75	-74	34.20	16.52	5.87
-100	-98	38.92	18.80	6.68

**manusa's** test record number (Applus) is:

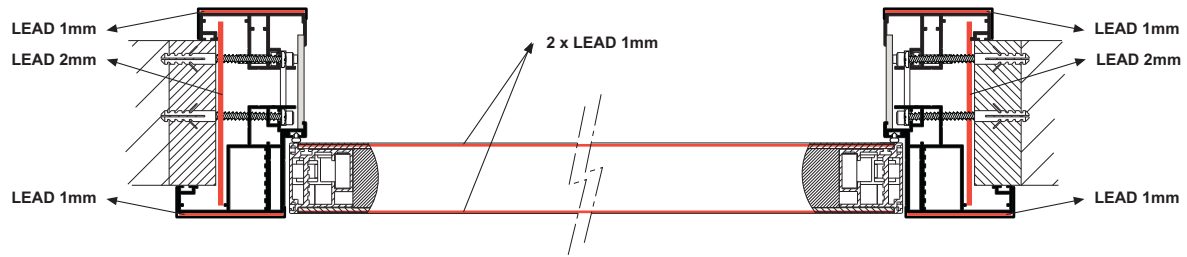
P50 Side Hermetic Swing Door Record n° 07/32304785

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

**Applus**<sup>+</sup>

## 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, frame and vision panel:.



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						Members of public (5 mSv/year) to					
			1m	2m	3m	4m	6m	8m	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 Equipment 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
Equipment 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						Members of public (5 mSv/year) to					
			1m	2m	3m	4m	6m	8m	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 Equipment 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
Equipment 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

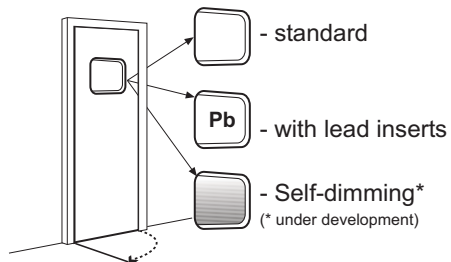
\*The primary barrier refers to the wall that is behind the camera in the direction of the primary beam. The rest of the walls, floor and ceiling will be secondary barriers. In radioscopy facilities, the primary barrier is built into the imaging system, and so all the walls will be considered as secondary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

## 8- ACCESSORIES

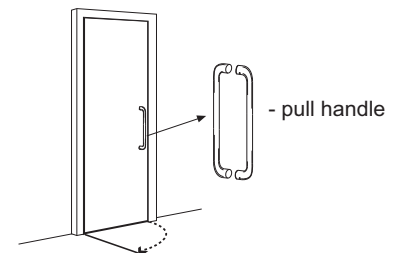
**manusa** hermetic swing doors can be combined with the most common accessories for automatic doors, such as: radar, push button, elbow switch...

Other exclusive accessories for this type of door are:

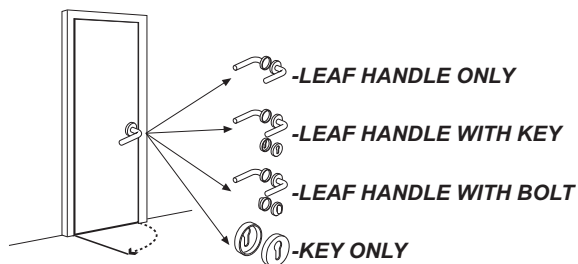
### 1.- Vision panel



### 2.- Handles:



### 3.- Door handles (manual doors only):

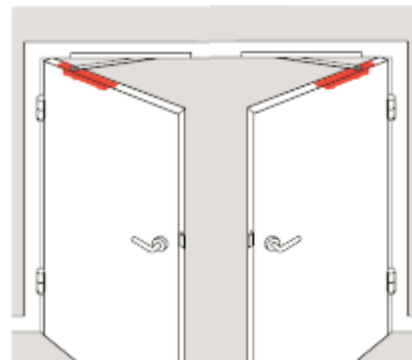
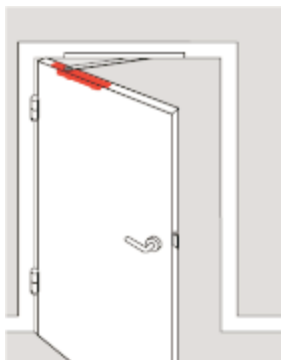


### IMPORTANT

Please see the chart below for the correct combination of the different accessories, to guarantee the correct function of the swing door:

	A	B	C	D
Swing door operator	X	-	-	-
Door closer	-	X	-	X
Door handles	-	-	X	X

### 4.- Door closer (manual doors only):

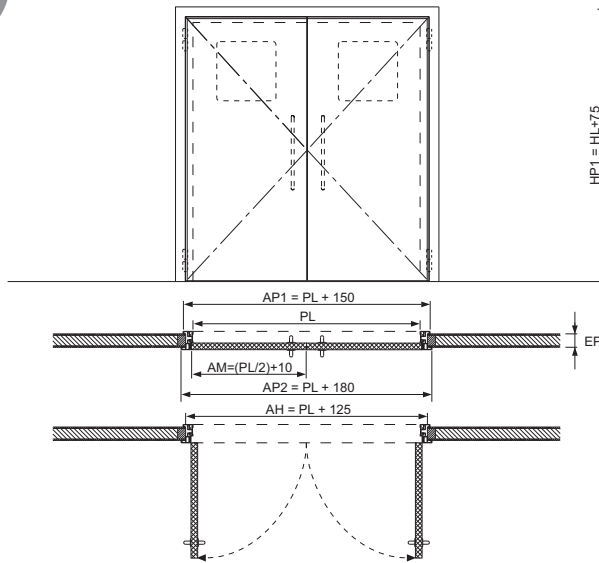


On **double leaf hermetic swing doors**, unless an automatic swing door operator is installed, a door closer must be installed on the two leaves to ensure **synchronisation of both leaves**.

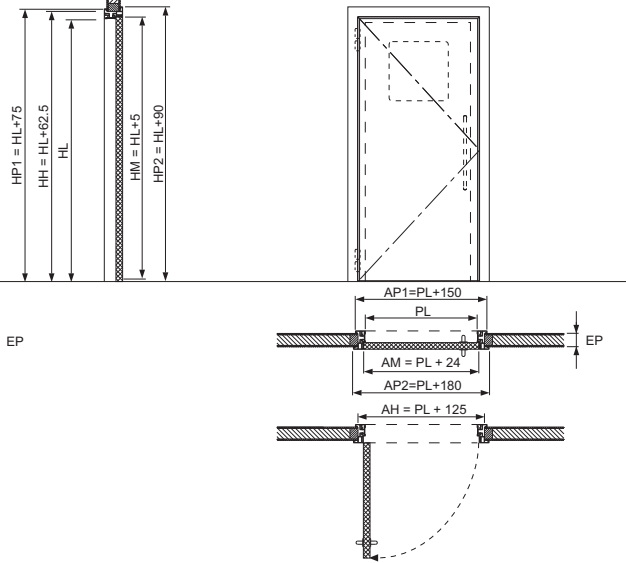
9- DOOR TYPES



DOUBLE LEAF SWING DOOR



SINGLE LEAF SWING DOOR

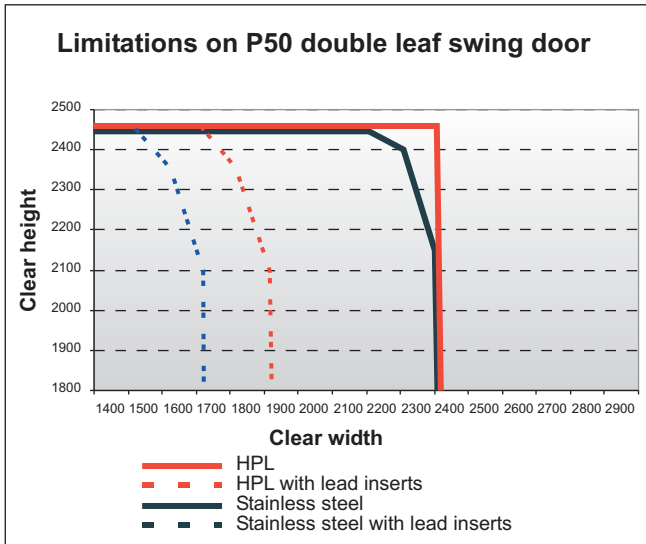


LEGEND

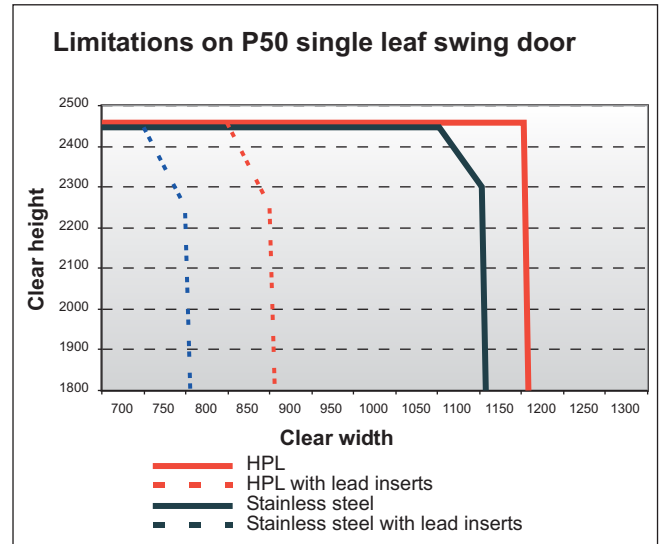
PL	Clear width	HL	Clear height
AM	Width of door leaf	HH	Opening height
AT	Total width	HT	Total height
AH	Opening width	HNT	Necessary height
AP	Door width	HBO	Height below operator
EP	Wall thickness	HM	Height of moving leaf
		DH	Door height

10- LIMITATIONS

Limitations on P50 double leaf swing door



Limitations on P50 single leaf swing door



**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 without prior notice.

Last revision: January 2010



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