QH Lifts

Passenger, Goods/Car Lift

MIH/MDH model

TECHNICAL SPECIFICATIONS

ET-405en
V.04
28/01/13

contents

1. Basic Description

1.1. Usage

Lifts for the vertical transport of heavy loads. Three usages are available

QHP: Passengers and goods Lift
Vertical transportation of. largo volume of people and goods in busy public buildings such us: shopping centers, supermarkets, air ports, offices, hotels...

QHG: Good Lifts
Vertical transportation of heavy goods.

QHV: Car Lift
Vertical transportation of vehicles for apartment buildings, offices, and public car park...

Figure 1. QHP - Passengers and Goods Lift

Both of the models are different technical answers for the same usages. Differences are briefly summarized next:

- **MDH:** It is a direct acting lift, without any ram guiding, any speed governor, no safety gear or liftting chains.Therefore, its assembly is much simpler. We supply it in a run range up to 4 m. **Model MIH will not be supplied within that range.**

- **MIH:** Indirect acting lift, differential relation 2:1, is supplied for runs between 3.7 and 20 m approximately.

Figure 2. QHG - Good Lift

1.2. Regulations

Designed and manufactured in accordance with requirements of **Lifts Directive 95/16/CE**, throughout the accomplishment of **Harmonized Norm EN 81-2** and the **Directive of Electromagnetic Compatibility 2004/108/CE**.

Figure 3. QHV - Car Lift

1.3. Characteristics

Load

QHP: rated load between 2000 and 6000 kg. Maximum car surface according to Table 1.1 in the EN 81-2 standard.
QHG: rated load between 1500 and 6000 kg. Maximum car surface according to Table 1.1.a in the EN 81-2 standard. Different guide layouts and suspension for lower rated loads.
QHV: rated load between 3500 and 5000 kg. Maximum car surface according to Table 1.1.a in the EN 81-2 standard.

Carga nominal Q **(Kg)**	**1.500**	**2.000**		**2.500**		**3.000**		**3.500**		
Aplicación										
Upper maximum AxB **(m²)**	≤ 4.8	≤ 4.2	≤ 6.6	≤ 5.0	≤ 8.6	≤ 5.8	≤ 10.6	≤ 6.6	≤ 12.6	≤ 12.6

Carga nominal Q **(Kg)**	**4.000**			**4.300**	**4.500**			**5.000**		
Aplicación										
Upper maximum AxB **(m²)**	≤ 7.4	≤ 14.6	≤ 14.6	≤ 15.8	≤ 8.2	≤ 16.6	≤ 16.6	≤ 9.0	≤ 18.6	≤ 18.6

Nominal Load Q **(Kg)**	**6.000**	
Usage		
Upper maximum AxB **(m²)**	≤ 10.6	≤ 22.6

For QHG, the maximum admissible load in the entrances, during loading and unloading is 85% of the maximum specified load.

Speed

	Nominal Load Q **(Kg)**									
Usage	**1.500**	**2.000**	**2.500**	**3.000**	**3.500**	**4.000**	**4.300**	**4.500**	**5.000**	**6.000**
		0.4 m/s y 0.6 m/s						0.2 m/s y 0.4 m/s		
	0.2 m/s, 0.3 m/s, 0.4 m/s y 0.6 m/s					0.2 m/s, 0.3 m/s y 0.4 m/s				
					0.2 m/s, 0.3 m/s y 0.4 m/s					

Stops

Up to 6 stops.

Travel distance

- **MDH** (direct acting lift): For travels **up to 4 m** approximately, depending on pit depth and headroom height. **This model is supplied for this travel range when suitable. For longer run distances, MIH is supplied.**
- **MIH** (indirect acting lift): **Between 3.7 and 20 m**. Check for longer travel distances.

Power supply

400 V ± 5% 3-phases, 50/60 Hz. **Ask us for other voltage possibilities.**
Y-D starting always included within the basic standard equipment.

Fixations

The fixation of the elevator to the shaft will be made through fixations that don't specify of welding, since it is designed with screwed unions.

Anchorajes

The supplied anchorages are for massive concrete walls.

QH Lifts
Passengers, Goods/Car lift

1.4 Dimensions

Q (Kg.)	S (m²)	A (mm)	B (mm)	H (mm)	PL (mm)	HL (mm)
2.000	≤ 4.2	1.500 - 2.400	1.600 - 3.300	2.200 - 2.700	1.200 - 2.600	2.000 - 2.700
2.500	≤ 5.0	1.500 - 2.400	1.600 - 3.300	2.200 - 2.700	1.200 - 2.700	2.000 - 2.700
3.000	≤ 5.8	1.600 - 2.400	1.700 - 3.300	2.200 - 2.700	1.200 - 2.700	2.000 - 2.700
3.500	≤ 6.6	1.600 - 2.400	1.700 - 3.300	2.200 - 2.700	1.200 - 2.800	2.000 - 2.700
4.000	≤ 7.4	1.700 - 2.800	1.800 - 4.300	2.200 - 2.700	1.200 - 2.800	2.000 - 2.700
4.500	≤ 8.2	1.700 - 3.000	1.800 - 4.800	2.200 - 2.700	1.200 - 3.000	2.000 - 2.700
5.000	≤ 9.0	1.800 - 3.100	1.900 - 5.000	2.200 - 2.700	1.200 - 3.100	2.000 - 2.700
6.000	≤ 10.6	1.900 - 3.200	2.000 - 5.500	2.200 - 2.700	1.200 - 3.200	2.000 - 2.700

Q (Kg.)	S (m²)	A (mm)	B (mm)	H (mm)	PL (mm)	HL (mm)
1.500	≤ 4.8	1.500 - 3.000	1.600 - 4.600	2.200 - 2.850	1.200 - 3.000	2.000 - 2.800
2.000	≤ 6.6	1.500 - 4.100	1.600 - 4.600	2.200 - 2.850	1.200 - 4.100	2.000 - 2.800
2.500	≤ 8.6	1.500 - 4.500	1.600 - 4.600	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
3.000	≤ 10.6	1.600 - 4.500	1.700 - 6.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
3.500	≤ 12.6	1.600 - 4.500	1.700 - 6.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
4.000	≤ 14.6	1.700 - 4.500	1.800 - 6.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
4.500	≤ 16.6	1.700 - 4.500	1.800 - 7.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
5.000	≤ 18.6	1.800 - 4.500	1.900 - 7.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800
6.000	≤ 22.6	1.900 - 4.500	2.000 - 7.000	2.200 - 2.850	1.200 - 4.500	2.000 - 2.800

Q (Kg.)	S (m²)	A (mm)	B (mm)	H (mm)	PL (mm)	HL (mm)
3.500	≤ 12.6	2.200 - 2.700	4.700 - 5.700	2.000 - 2.200	2.000 - 2.700	2.000 - 2.200
4.000	≤ 14.6	2.300 - 2.800	5.000 - 6.000	2.000 - 2.200	2.100 - 2.800	2.000 - 2.200
4.300	≤ 15.8	2.300 - 2.800	5.000 - 6.000	2.000 - 2.200	2.100 - 2.800	2.000 - 2.200
4.500	≤ 16.6	2.500 - 3.200	5.200 - 6.600	2.200 - 2.850	2.300 - 3.200	2.000 - 2.800
5.000	≤ 18.6	2.500 - 3.200	5.200 - 7.000	2.200 - 2.850	2.300 - 3.200	2.000 - 2.800

Standard door dimensions

Tipos	PL (mm)*	HL (mm)*
	1.200 - 3.200	2.000 - 2.800
	1.500 - 3.200	2.000 - 2.800

*Door dimensions in 100 mm increments.

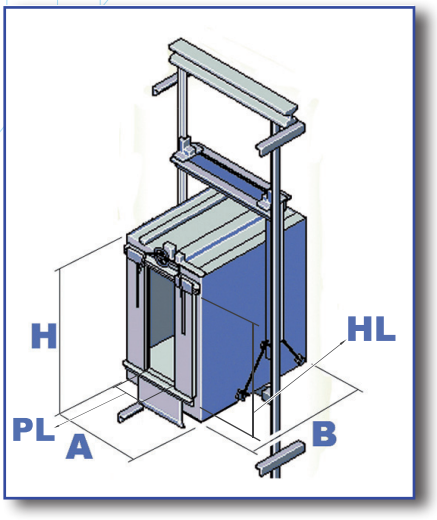


Figure 4: Cabin dimensions diagram.

1.5 Installed power

The following table shows the motor rated power and the line current at full load (400 V three-phase 50 Hz), according to the speed, load and car surface criteria; the data have been calculated for a car with a 2200 mm height. This values could be higher for cars with more clear height and with heavier doors. The consumption of other additional elements such as oil coolers and heat resistances should also be evaluated; the power of the car and shaft lighting should also be taken into consideration as an independent circuit.

	1.500 kg.		2.000 kg.				2.500 kg.			
	4.8 m²		4.2 m²		6.6 m²		5.0 m²		8.6 m²	
0.2 m/s	12kW	32A	12kW	31A	16kW	38A	16kW	37A	16kW	38A
0.3 m/s	16kW	38A	16kW	37A	20kW	45A	20kW	44A	24kW	55A
0.4 m/s	20kW	45A	20kW	44A	24kW	55A	24kW	54A	29kW	66A
0.6 m/s	29kW	66A	29kW	65A	33kW	75A	33kW	74A	48kW	107A

	3.000 kg.						3.500 kg.					
	5.8 m²		8.6 m²		10.6 m²		6.6 m²		8.6 m²		12.6 m²	
0.2 m/s	16kW	38A	16kW	38A	16kW	38A	16kW	38A	20kW	45A	20kW	45A
0.3 m/s	24kW	55A	24kW	55A	29kW	66A	24kW	55A	24kW	55A	29kW	66A
0.4 m/s	29kW	66A	29kW	66A	29kW	66A	29kW	66A	29kW	66A	33kW	75A
0.6 m/s	48kW	107A	48kW	107A	58kW	129A	48kW	107A	48kW	107A	58kW	129A

	4.000 kg.						4.300 kg.		4.500 kg.							
	7.4 m²		8.6 m²		14.6 m²		15.8 m²		8.2 m²		10.6 m²		14.6 m²		16.6 m²	
0.2 m/s	20kW	45A	20kW	45A	20kW	45A	20kW	45A	20kW	45A	20kW	45A	24kW	55A	24kW	55A
0.3 m/s	29kW	66A	29kW	66A	29kW	66A	29kW	66A	29kW	66A	29kW	66A	29kW	66A	33kW	75A
0.4 m/s	33kW	75A	33kW	75A	40kW	88A	40kW	88A	40kW	88A	40kW	88A	40kW	88A	40kW	88A

	5.000 kg.								6.000 kg.							
	9.0 m²		10.6 m²		14.6 m²		18.6 m²		10.6 m²		14.6 m²		18.6 m²		22.6 m²	
0.2 m/s	24kW	55A	24kW	55A	24kW	55A	24kW	55A	24kW	55A	24kW	55A	29kW	66A	29kW	66A
0.3 m/s	29kW	66A	29kW	66A	33kW	75A	29kW	66A	29kW	66A	33kW	75A	33kW	75A	40kW	88A
0.4 m/s	40kW	88A	40kW	88A	40kW	88A	48kW	107A	48kW	107A	48kW	107A	58kW	129A	58kW	129A

2. Drawings

2.1. Elevation and plan views, model MDH

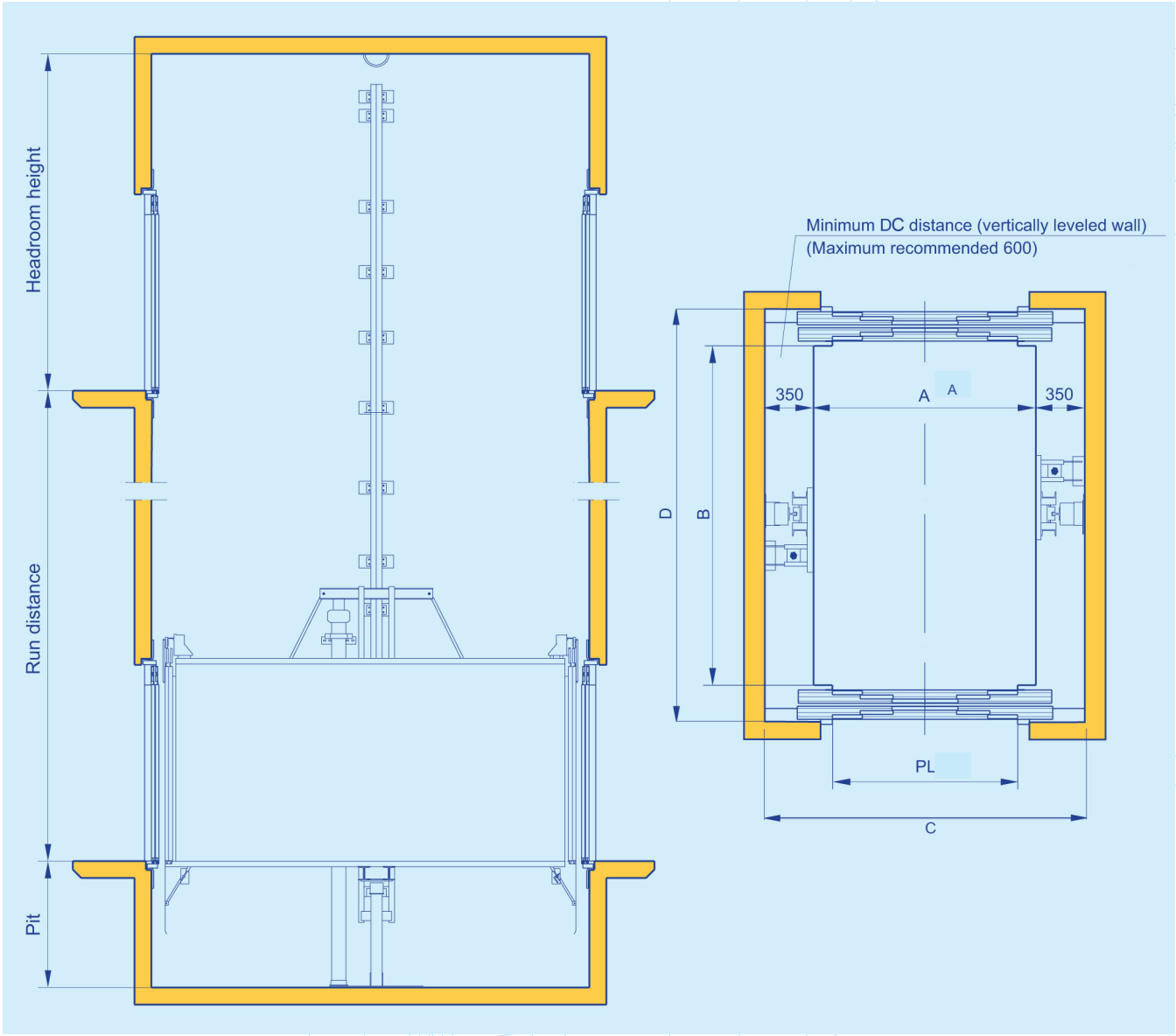


Figure 5: This model is a direct acting lift, only valid in the travel range described below. For this travel range we supply this model, but not MIH model (indirect acting lift). This model is simpler than the MIH one as it has no drive chains, pulley head-stocks, speed restrictors, nor cylinder guides. We supply doors type Wittur.

The travel for this lift has to be designed depending on the pit and the headroom height; for this, we have two different formulae according to the given headroom height:

Pit	Headroom height (1)	Travel
1,100 mm ≤ Pit ≤ 1,800 mm	Headroom height ≤ 3,650 mm	Travel ≤ Pit + Headroom height - 1,000 mm
	Headroom height > 3,650 mm	Travel ≤ Pit + 2,650 mm

(1) Provided the ratio Headroom = Car height + 1120 mm. is fulfilled. Enquire in case of smaller headrooms.

Note: For further data, refer to next pages.

2.2. Elevation view, model MIH

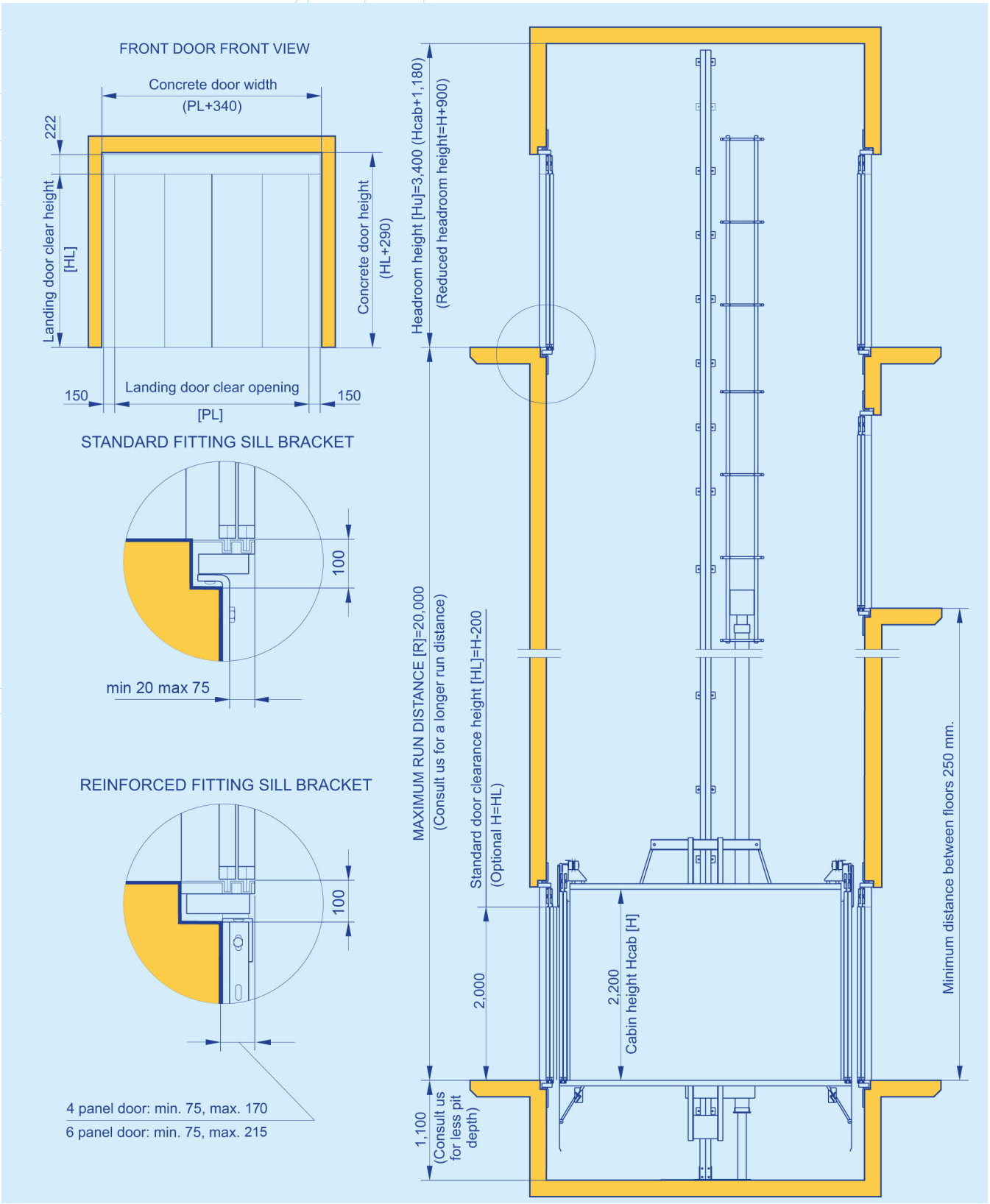
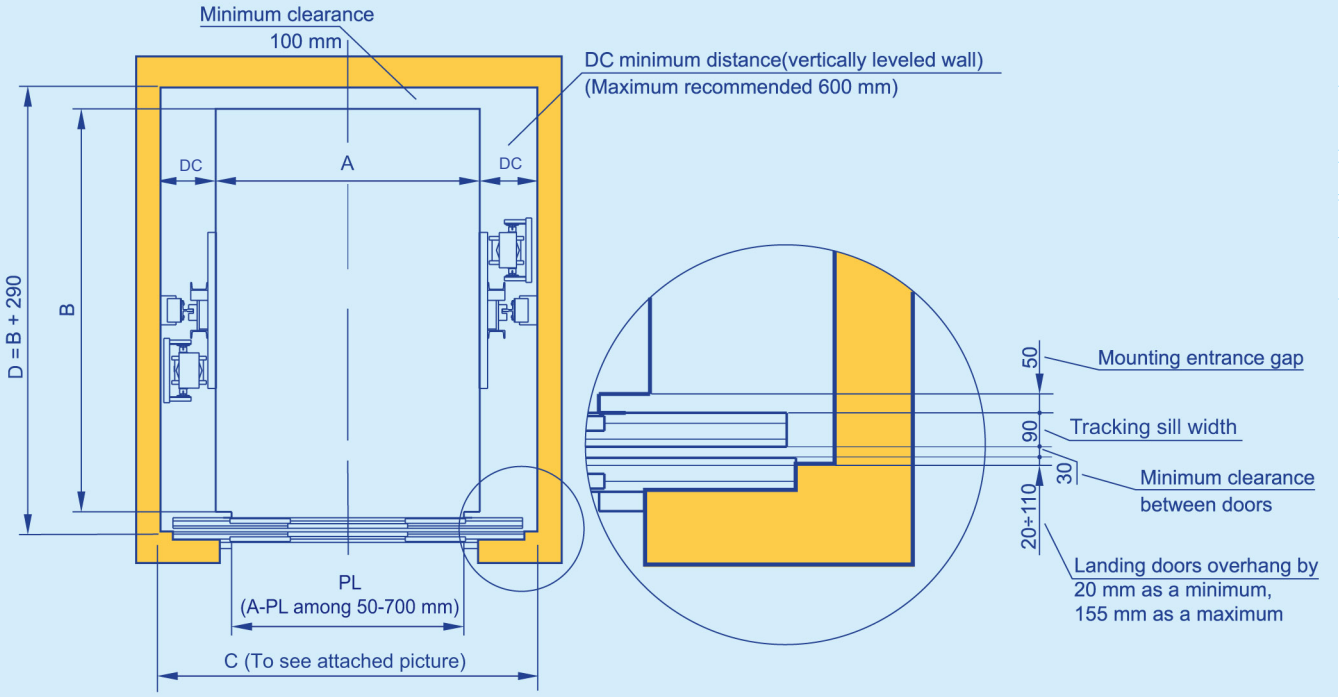


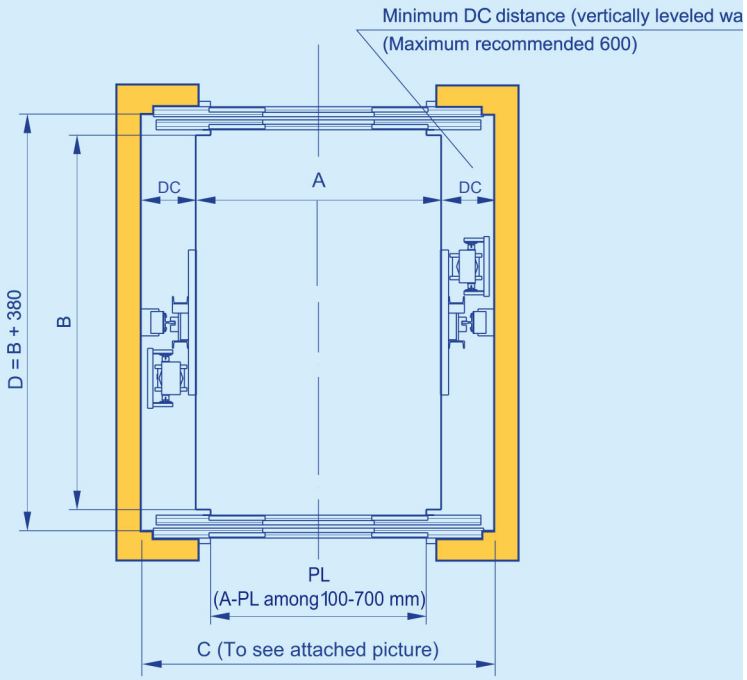
Figure 6: Example of standard measure, Cabin Height = 2,200 mm. Supplied doors type Wittur.

2.3. Plan view, model MIH with 4 leaf doors

SINGLE SHIPMENT



DOUBLE SHIPMENT



C = It must be the maximun figure from both expresions below:
a) A+2xDC
b) 1,5 PL+150 *
*(except for PL=1.200, 1.500, 1.800 or 2.400 that must be 1,5 PL+180)

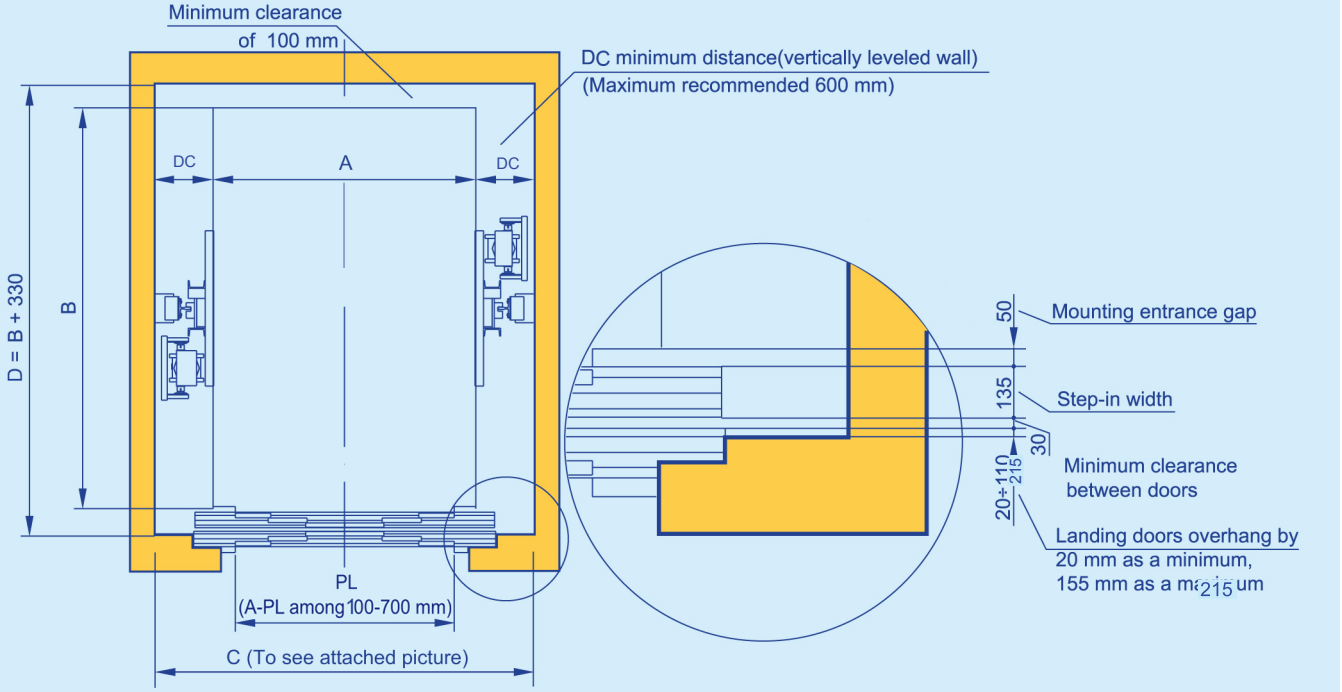
PL = Width clear openning
Optional A=PL

Load Range (Kg)	Surface (m^2)	DC Distance
1.500 - 4.000	≤ 14.6	400
4.500	≤ 14.6	400
4.500	>14.6, ≤ 16.6	500
5.000	>14.6, ≤ 18.6	500
6.000	≥ 10.6, ≤ 18.6	500
6.000	>18.6	500

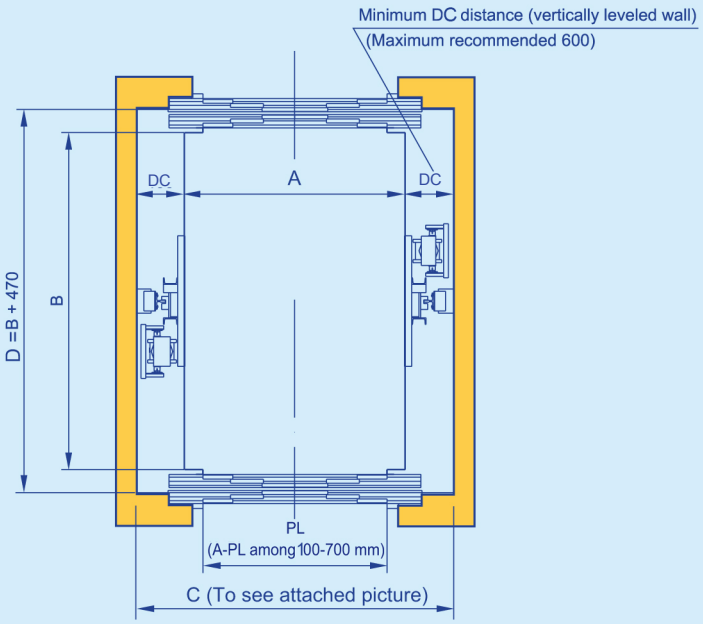
Figure 7: Minimum dimensions of lift shaft (ground plan). Central automatic actuator of 4 panels in cabin. Automatic doors of 4 panels for central opening in landings.

2.4. Plan view, model MIH with 6 leaf doors

SINGLE SHIPMENT



DOUBLE SHIPMENT



C = It must be the maximun figure from both expresions below:
a) A+ 2xDC or
b) 4/3 PL+150 *
*(except for PL= 1.200, 1.500, 1.600, 1.800, 2.300, 2.600 or 2.700 that must be 4/3PL+200)

PL = Width clear openning
Optional A=PL

Load Range (Kg)	Surface (m²)	DC Distance
1.500 - 4.000	≤ 14.6	400
4.500	≤ 14.6	400
4.500	>14.6, ≤ 16.6	500
5.000	>14.6, ≤ 18.6	500
6.000	≥ 10.6, ≤ 18.6	500
6.000	>18.6	500

Figure 8: Minimum dimensions of lift shaft (ground plan). Central automatic actuator of 4 panels in cabin. Automatic doors of 4 panels for central opening in landings. .

2.5. Lift reactions in the shaft

MDH

$$R_x^* = \frac{1}{8} \cdot Q \cdot \frac{B}{(H + 910)} \cdot 9.8 \cdot 10^{-3}$$

$$R_y = \frac{1}{4} \cdot Q \cdot \frac{A}{(H + 910)} \cdot 9.8 \cdot 10^{-3}$$

$$R_c = (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

$$R_a = 2 \cdot (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

MIH

$$R_x^* = \frac{3}{16} \cdot Q \cdot \frac{B}{(H + 910)} \cdot 9.8 \cdot 10^{-3}$$

$$R_y = \frac{3}{8} \cdot Q \cdot \frac{A}{(H + 910)} \cdot 9.8 \cdot 10^{-3}$$

$$R_z = (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

$$R_c = 2 \cdot (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

$$R_g = \frac{3}{2} \cdot (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

$$R_a = 2 \cdot (P + Q^*) \cdot 9.8 \cdot 10^{-3}$$

* In case of Goods Lifts for forklifts (Q ≥ 4.000 kg.)

$$R_x = \frac{0.85}{4} \cdot Q \cdot \frac{B}{(H + 910)} \cdot 9.8 \cdot 10^{-3}$$

R	Reactions (kN)
Q	Nominal load (kg)
Q*	Maximum between the rated load and the load according to table 1.1 in the EN 81-2 standard
P	Unloaded cabin weight (kg).
A	Car width (mm)
B	Car depth (mm)
H	Clear car height (mm)

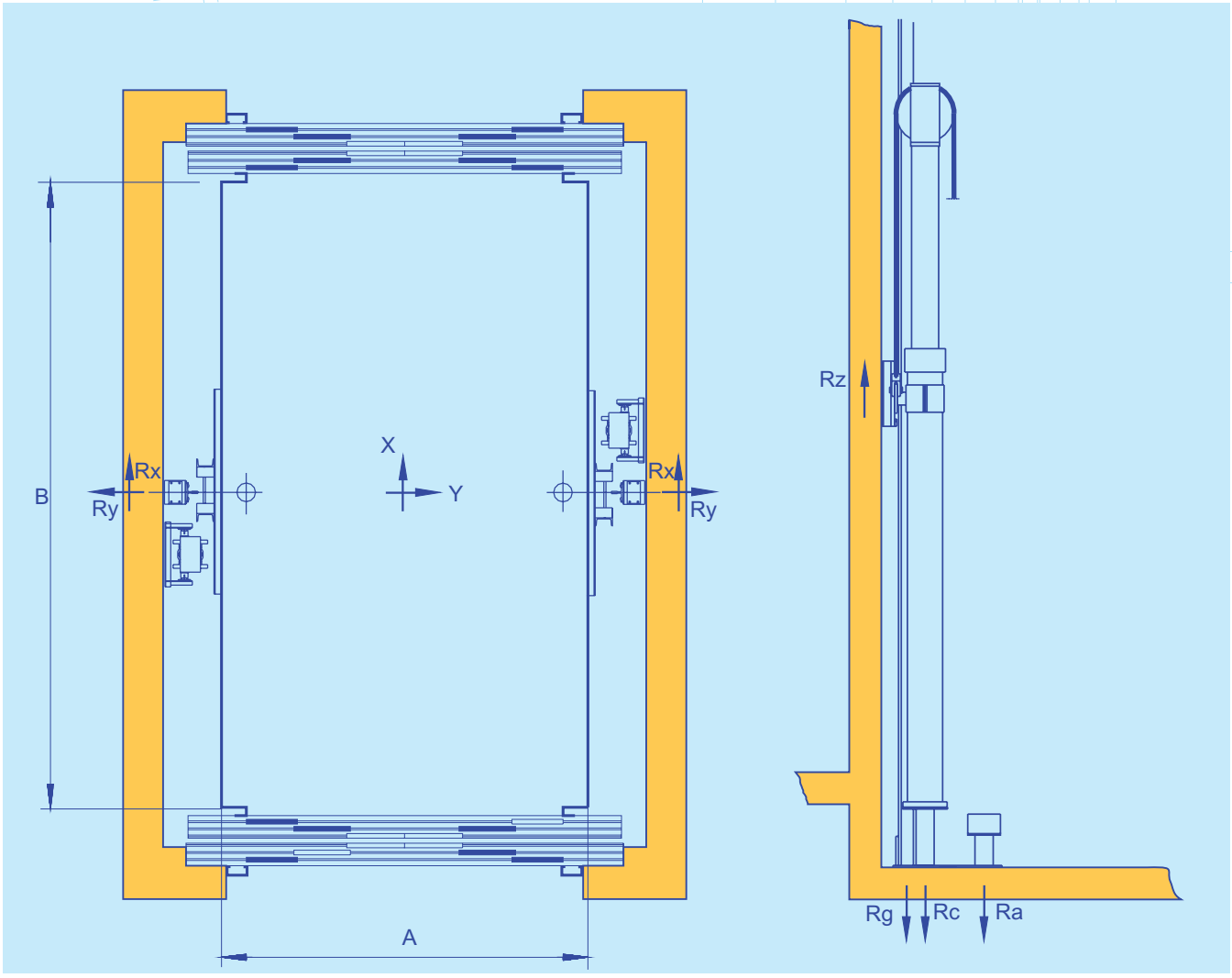
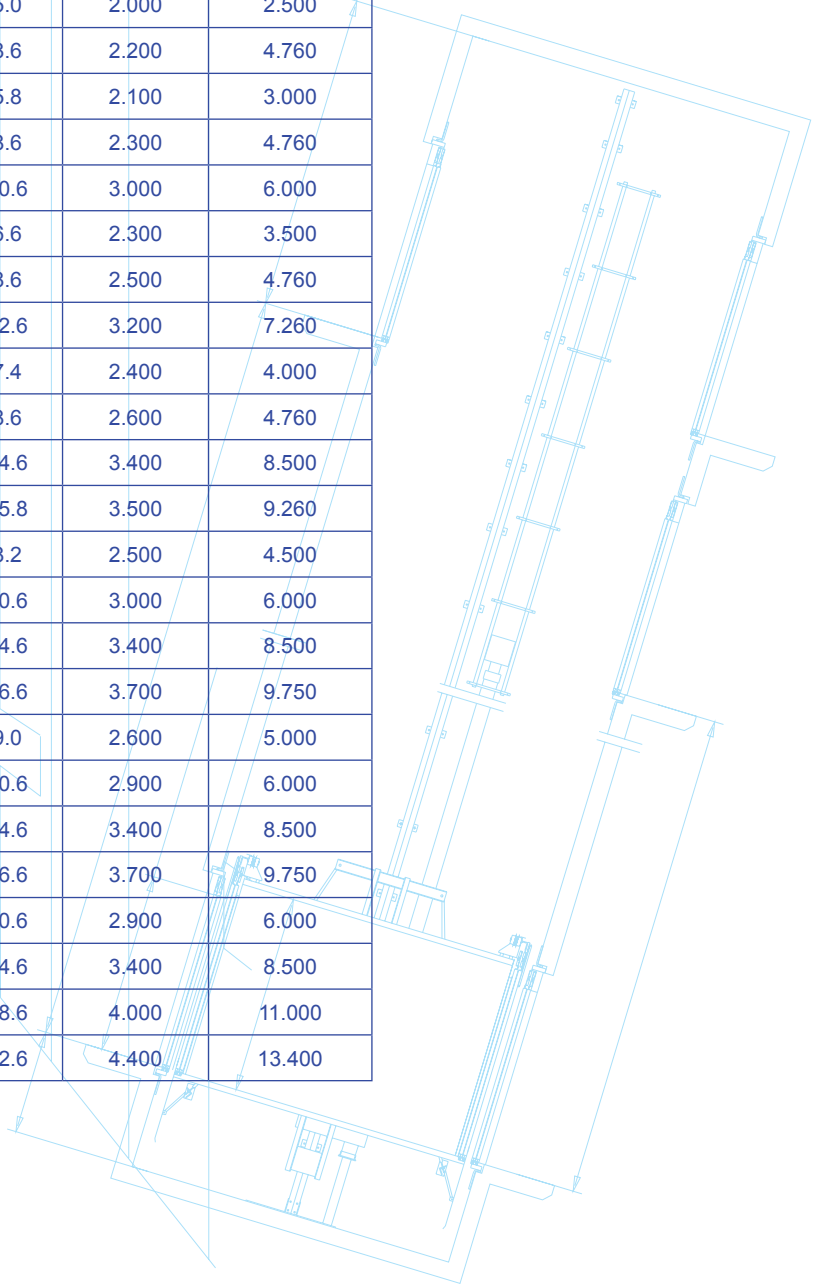


Figure 9: Lift shaft reactions.

Nominal Load Q (kg)	Usage	S (m^2)	P(kg)	Q*(kg)
1.500		4.8	1.800	2.380
2.000		4.2	1.700	2.000
		6.6	2.200	3.550
2.500		5.0	2.000	2.500
		8.6	2.200	4.760
3.000		5.8	2.100	3.000
		8.6	2.300	4.760
		10.6	3.000	6.000
3.500		6.6	2.300	3.500
		8.6	2.500	4.760
		12.6	3.200	7.260
4.000		7.4	2.400	4.000
		8.6	2.600	4.760
		14.6	3.400	8.500
4.300		15.8	3.500	9.260
4.500		8.2	2.500	4.500
		10.6	3.000	6.000
		14.6	3.400	8.500
		16.6	3.700	9.750
5.000		9.0	2.600	5.000
		10.6	2.900	6.000
		14.6	3.400	8.500
		16.6	3.700	9.750
6.000		10.6	2.900	6.000
		14.6	3.400	8.500
		18.6	4.000	11.000
		22.6	4.400	13.400



notes

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CERTIFIED IQNet QUALITY SYSTEM
ISO 9001

Hidral

HIDRAL, S. A. **CAR/GOODS LIFT MCH MODEL** TECHNICAL SPECIFICATIONS

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