

HYUNDAI's Optimized PIT System

for high speed elevator (3~4m/s)



PIT SYSTEM FOR HIGH SPEED ELEVATORS

The PIT System has the effect of space utilization and budget reduction.

Key Benefits

1) Optimized PIT System

Lower pit and overhead size especially for high speed elevators

2) No need for an additional PIT floor

An access door and additional PIT floor are not required where the PIT depth does not exceed 2,500mm. (According to the EN 81-20 lift standards)

3) Space use and Budget saving effect

It gives construction more flexibility in the use of space and budget savings.

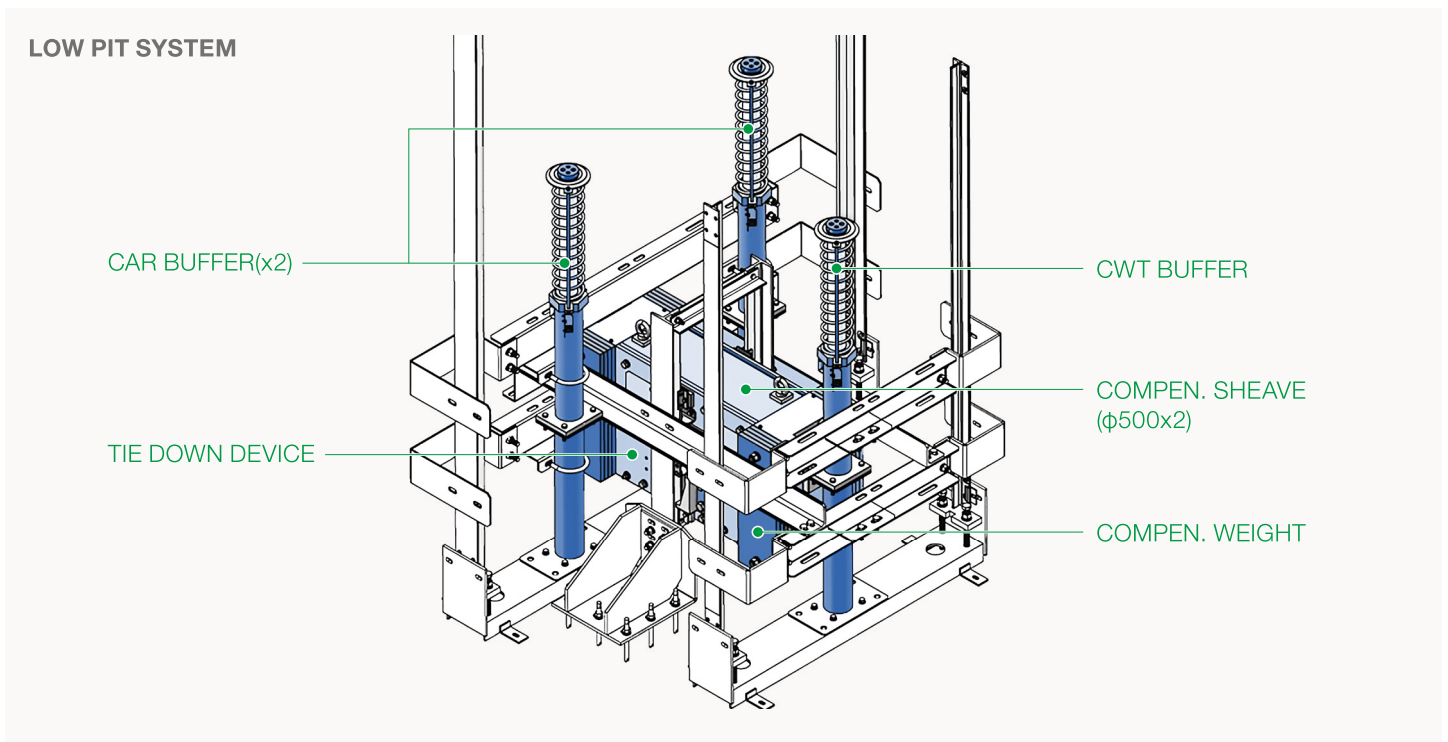
4) Comply with the EN81-20/50

The system fully comply with the EN81-20/50 using compressed stroke buffer and ETS System.

Applicable Range

Up to 1,600kg, speed of 3~4m/s

PIT SYSTEM CONFIGURATION



A. Dual Compact Buffer

- Safety device to soften force of crash in the PIT
- Using Dual Buffers for Car Side
- Buffers having reduced buffer stroke (EN81-20. 5.8.2.2)

B. Compact Compensation Device

- Device to compensate the weight of main rope
- Using the connected two compact pulleys having lower diameter
- Applied the improved TIE DOWN DEVICE in proper location

C. ETS System (PESSRAL)

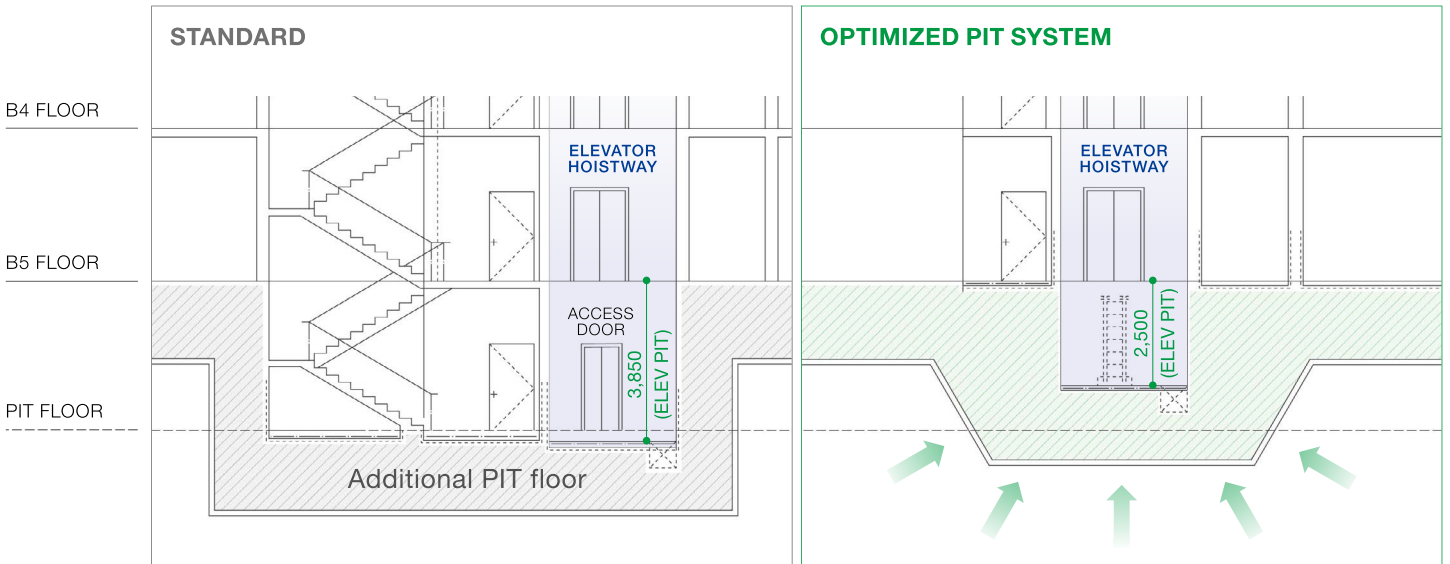
- Emergency Terminal Stopping System
- To force decelerating if needed (EN81-20. 5.12.1.3)
- Compliant with SIL3 listed in EN 81-50:2014, 5.16.

POINT OF VALUE ENGINEERING BENEFITS

A. PIT depth can be shortened

Speed	I-XEL (WBHS)	H300 (STVF)
3m/s	2700mm → 2500mm	2700mm → 2500mm
3.5m/s	3200mm → 2500mm	3500mm → 2500mm
4m/s	3850mm → 2500mm	4000mm → 2500mm

B. No need to build additional PIT floor, which gives construction more flexibility in the use of space and budget savings.



RELEVANT CODE EN81-20

5.2.2.4 A means to enter the pit shall be provided consisting of;

- a) an access door where the pit depth exceeds 2,50 m;
- b) either an access door or a ladder inside the well, easily accessible from the landing door, where the pit depth is not exceeding 2,50 m.

5.8.2.2 Energy dissipation type buffers

5.8.2.2.1 The total possible stroke of the buffers shall be at least equal to the gravity stopping distance corresponding to 115 % of the rated speed ($0,0674 v^2$), the stroke being expressed in metres.

5.8.2.2.2 When the slowdown of lift at the ends of its travel is monitored according to 5.12.1.3 for rated speeds above 2,50 m/s, the speed at which the car (or the counterweight) comes into contact with the buffers may be used instead of 115 % of the rated speed, when calculating the buffer stroke according to 5.8.2.2.1.

However, the stroke shall not be less than 0,42 m.

5.12.1.3 Monitoring the normal slowdown of the machine in case of reduced buffer stroke

In the case of 5.8.2.2.2, electric safety devices in conformity with 5.11.2 shall check that the slowdown is effective before arrival at terminal landings. If the slowdown is not effective the machine brake shall cause the car speed to be reduced in such a way that if the car or the counterweight comes into contact with the buffers, the striking speed shall not exceed that for which the buffers were designed.



I-XEL(WBHS) ETS

H300(STVF) ETS