

Freight Lift Export Project Case Analysis

Pit-less Through-floor Freight Lift Solution for Ultra-tight Industrial Space

Project Overview

This project was designed for an industrial decoration and material handling application in Jiaxing, China. The client required a customized reciprocating freight lift system capable of operating inside an extremely limited shaft space while maintaining reliable high-travel performance. Due to unexpected site changes after order confirmation, the original pit installation plan was cancelled and replaced with a through-floor anchoring solution extending from the basement level.

Project Item	Specification
Lift Type	Reciprocating Freight Lift
Rated Capacity	500 kg
Travel Height	16.4 m
Stops / Levels	3 Stops / 3 Levels
Car Size	1600 × 1600 × 2700 mm
Access Direction	1600 mm C-shaped Access
Installation Method	Pit-less Through-floor Installation
Delivery Requirement	30 Days Fast Delivery

Core Engineering Challenges

- Pit-less Through-floor Installation:** The basement-to-ground-floor height reached 4.65m, requiring the lift columns to extend downward and anchor directly into the basement slab.
- Extremely Tight Structural Space:** The beam spacing was only 2.65m × 2.65m, creating severe limitations for shaft layout and equipment assembly.
- Special C-shaped Access Requirement:** Materials enter from one side, rotate inside the lift car, and exit from an adjacent side, requiring customized structural and operational layout.
- High Travel with Fast Delivery:** The system required 16.4m travel and 3-level operation while still meeting a strict 30-day delivery schedule.

Integrated Engineering Challenge Diagram

1 无底坑·贯通式安装

地下室到地面层高度 4.65m
升降机立柱需向下延伸 4.65m, 穿过开孔楼板, 锚固在地下室地面。

2 极小空间·极限挑战

梁间距仅 2.65m × 2.65m (正方形), 严重限制电梯井道尺寸。

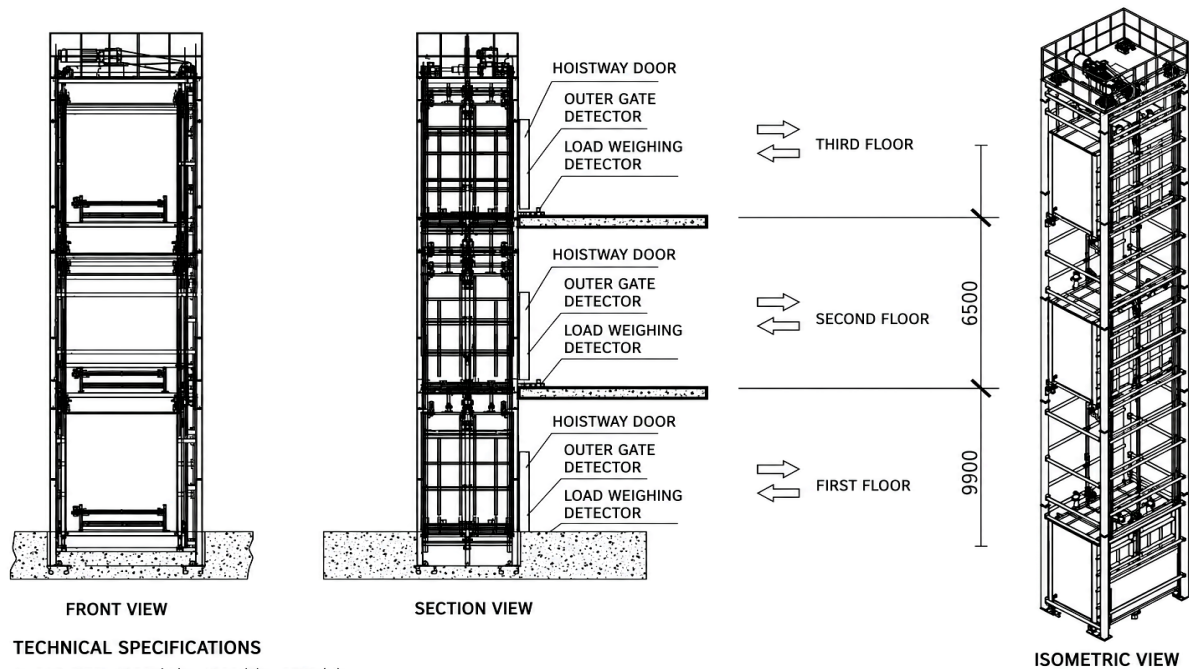
3 特殊进出方向·C型通行

沿 1,600mm 方向 C 型进出:
物料从一侧进入, 在轿厢内转向, 从相邻一侧退出, 非直通或直角进出。

4 高行程·大载重·交期短

- 总行程 16.4m
3 站 / 3 层
- 额定载重 500kg
- 交期极短
下单后 30 天发货
- 快速响应现场变更
工程快速出图配合

Freight Lift Structural Drawing



TECHNICAL SPECIFICATIONS

- CAR SIZE: 1650 (W) × 1600 (L) × 2700 (H) mm
- RATED LOAD: 500 kg
- TOTAL TRAVEL: 16400 mm, 3 STOPS / 3 LEVELS
- SHAFT SIZE: 1300 mm × 1300 mm × 2200 mm

PROJECT	DRAWING TITLE	DRAWING NO.
	FREIGHT LIFT STRUCTURE DRAWING	FL-001

Customized Engineering Solution

The engineering team redesigned the support structure after the client modified the site conditions. Instead of a conventional pit foundation, the columns were extended downward through the opened floor slab and fixed directly onto the basement floor. A compact guide rail and frame configuration was adopted to fit the ultra-limited beam spacing. To support the C-shaped loading direction, the car structure and control logic were specially optimized for safer material handling inside the confined space.

Project Result & Customer Value

The project was successfully completed within the required delivery schedule despite the late-stage structural modifications. The customized freight lift achieved stable operation, precise floor leveling, and efficient multi-floor material transfer under extremely restricted installation conditions. The solution significantly improved logistics efficiency inside the building while minimizing civil construction workload and installation risks.

Prepared for international industrial lifting equipment presentation and export marketing use.