

Successful Examples of Sustainability Strategies and Practices

– The most Green Terminal in Taiwan



KMCT
Terminal of Excellence
Your Best Choice

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Hi-Tech Application

Efficiency - Operation and Energy,

2

Environmental protection

Reduction in Air Pollution and Greenhouse Emission

3

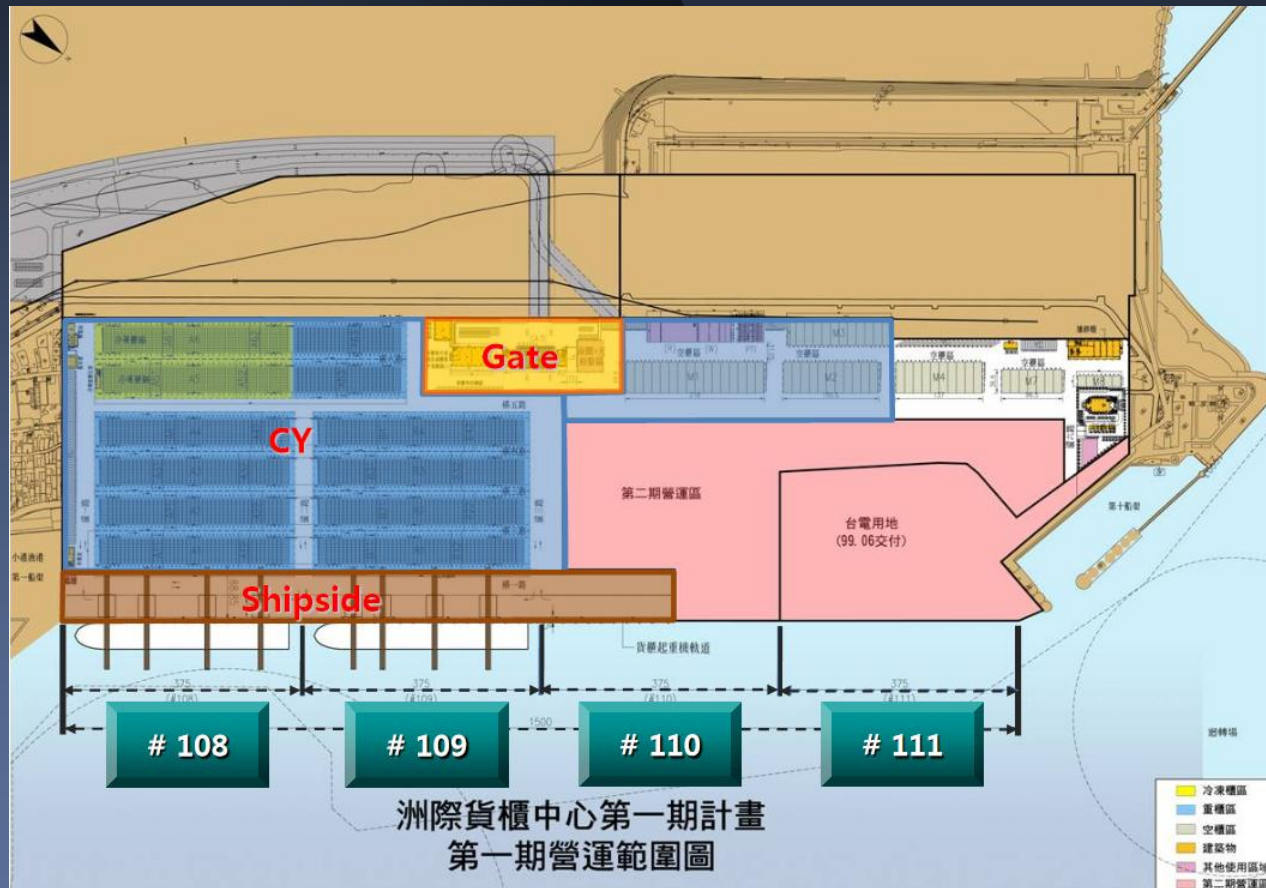
Ensure Safety and Health

1

Hi-Tech Application

Efficiency - Operation and Energy,

Operation Mode



Note1: OCR – Optical Character Recognition.

Note2: RFID – Radio Frequency Identification.

Note3: RCS – Remote Control Station.

Note4: GC – Gantry Crane.

Note5: YT – Yard Tractor.

Gate

**Auto Gate
OCR & RFID**

CY

**ARMG: Semi-Auto
RCS & RFID**

Shipside

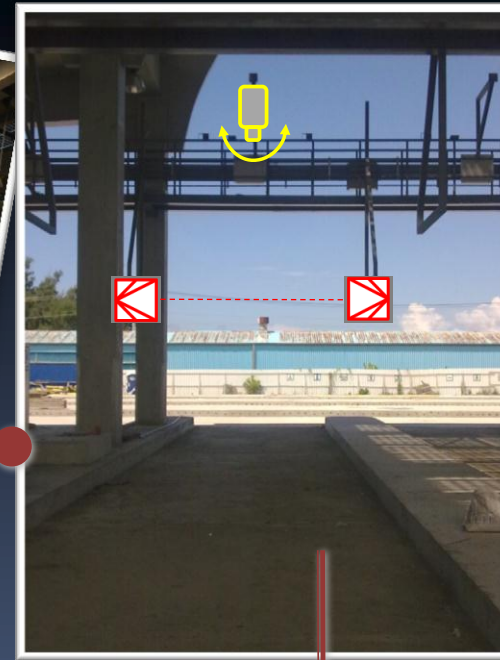
**GC: Tandem Lift
YT Pooling**

KAO MING CONTAINER TERMINAL CORP.

高明貨櫃碼頭股份有限公司



Gate Operation



Auto Gate

OCR

(Optical Character Recognition)

- Auto-Recognition
 - Vehicle No.
 - Container No.
- Symbol



Infrared Rays

- Identify the container loaded on chassis or not.
- Symbol



Inductance

- Set Underground
- Trigger OCR, Infrared Rays.

Gate Operation

Auto Gate – KIOSK

Character

- Auto Process and Fast pass

- No need to get off tractor
- Auto Check & Release
- Location slip auto printed
- Manual gate for back up



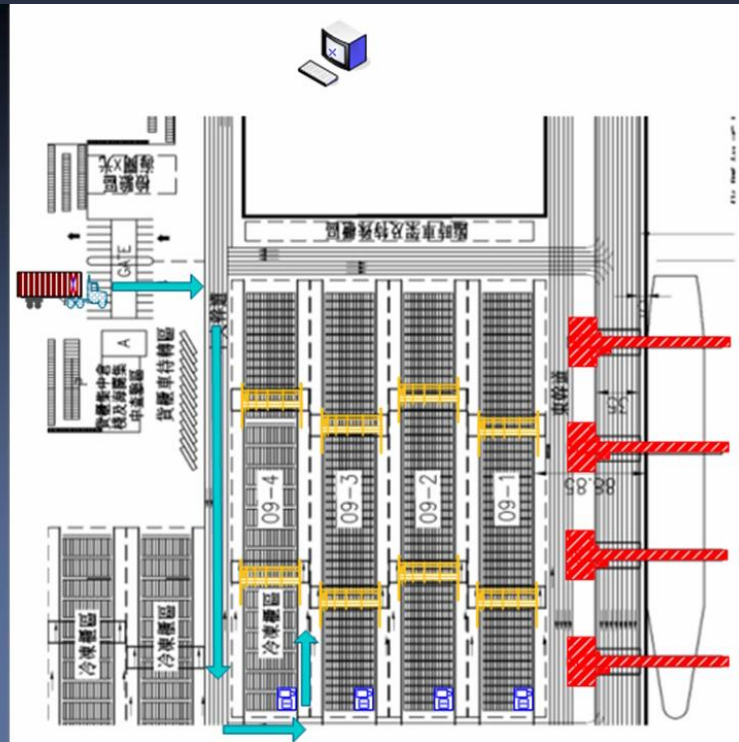
CY Operation

RFID

(Radio Frequency Identification)

Equipment

- ARMGs are activated by RFID Card
- Information is shown on LED screen



LED Screen



RFID Sensor



Note1: ARMG – Automated Rail Mounted Gantry.

Note2: LED – Light Emitting Diode.

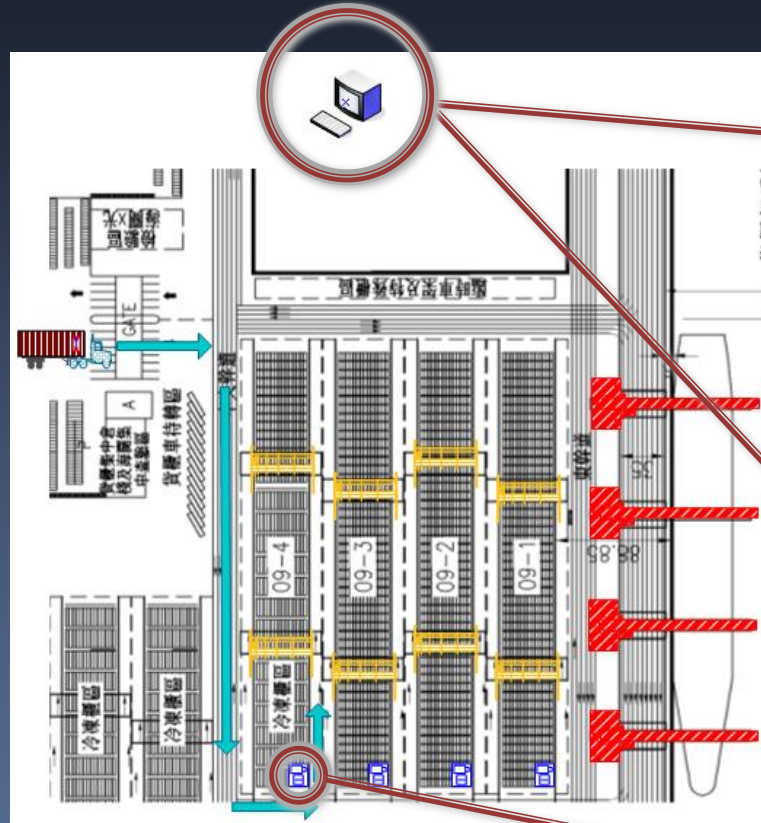
CY Operation

RCS

(Remote Control Station)

Equipment

- ARMG with CCTV
- Each operator handles 4~6 ARMGs
- Auto shifting of containers in slack time



Note1: CCTV – Closed Circuit Television.

CY Operation



ARMG (Automated Rail Mounted Gantry)

Specification

- Gauge: 42.5 Meters
(14 rows under span)
- Tier: 5 stacking tiers
+ 1 passing tier
- Loading Capacity: 40 Tons

Others

- Remotely Controlled
 - Operators by RCS
 - No Carbon on ARMG
- Activated by RFID

Advantage

- **Manpower Saving**
- **Safety**
- **Efficiency**
- **0 Carbon Dioxide Emission**

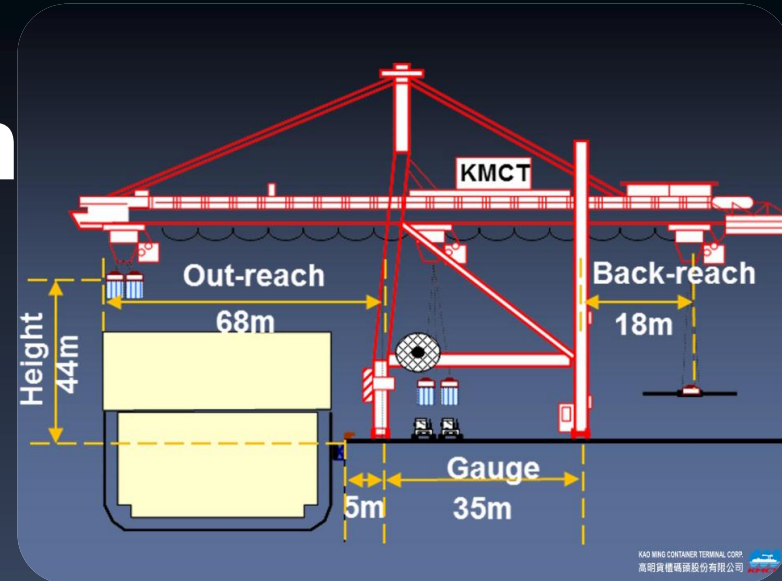
CY Operation



Shipside Operation



GC (Gantry Cranes)



Specification

- Gauge: 35 Meters
(8 lanes under span)
- Out-reach: 68 Meters
(23 rows)
- Back-reach: 18 Meters
- Height: 44 Meters

Capacity

- Tandem Mode
 - Twin 40'/45' under spreader: 80 Ton
 - Twin cargo under beam: 100 Ton
- Single Mode
 - under spreader: 61 Ton
 - under beam: 70 Ton

Advantage

- **Provide High Productivity**
- **Efficiency**
- **Save Port Time**
- **Save Fuel**



Shipside Operation



**Dual-Hoist
Quayside
Gantry Crane**

**Shipside
Operation**

Efficiency

- Enhance productivity to ensure high quality service.

Save Time

- Reduce the berthing time to avoid speeding up during the voyage.

Performance

Productivity

- Average Gross Productivity
 - 44 mph
- Maximum Berth Productivity
 - 231 mph

Turn Time

- Average Trucker Turn Time
 - 12 minutes

2

Environmental protection

Reduction in Air Pollution and Greenhouse Emission

Green Terminal

Office Building



Solar Power System

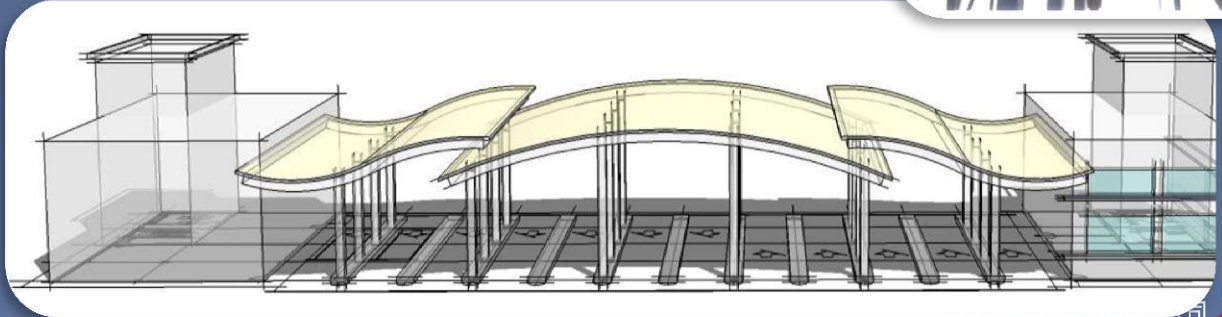
Facility

(Office Building + Gate)

- Generate Electricity
- Reduce Carbon Dioxide



Gate House



Green Terminal

Solar and Wind Power light

Character

- Energy Source
 - Lights set in administrative zone.
 - Combine solar with wind power
- Generate Electricity
- Reduce Carbon Dioxide

Solar and Wind Module



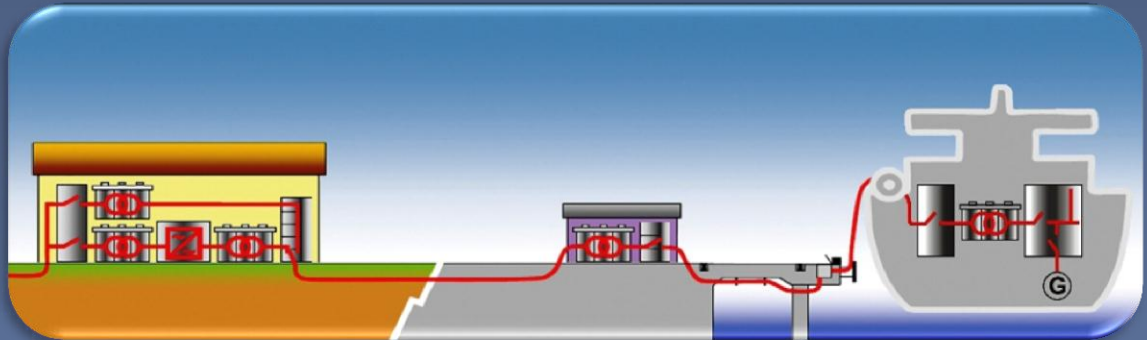
Green Terminal

AMP

(Alternative Maritime Power)

Advantage

- Shore-to-ship power
- Reduce Carbon Dioxide

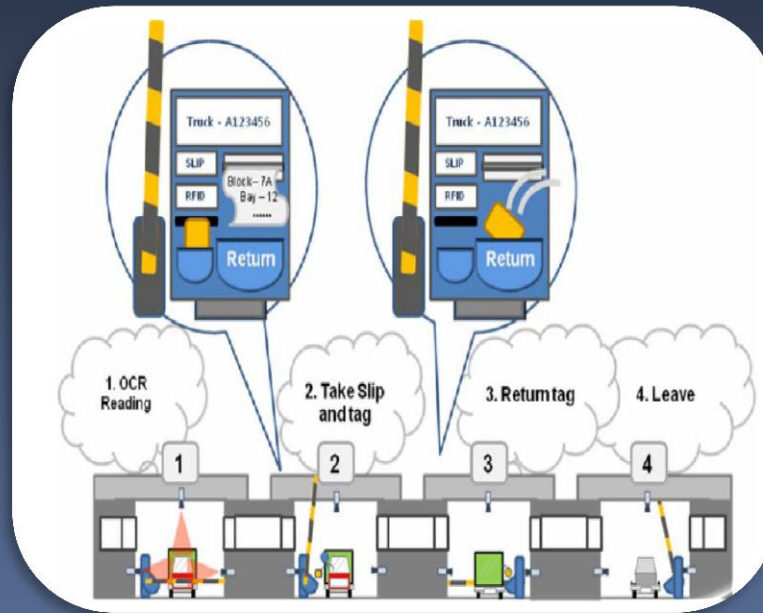


Green Terminal

Auto Gate

Character

- Traffic Volume
 - 710,066 vehicles/year
(Approx.2,000 vehicles/day)
- Reduce Fuel consumption
- Reduce Carbon Dioxide



KIOSK



Auto Process



Green Terminal

Container Yard

Character

- Average Trucker Turn Time
 - 12 minutes
- Reduce Carbon Dioxide
- Save Manpower

Unmanned Auto Rail Mounted Gantry



Remote Control Station



Smooth Operation



Green Terminal

Electric Vehicles

Character

- Purpose

- Internal transportation for employees, sailors, workers, etc.

- Reduce Carbon Dioxide

Electric Vehicle



Internal Transportation



3

Ensure Safety and Health

Safety

**Gate Monitoring
Center
(GMC)**

**Auto Gate
Operation**

Auto Process



No need to get off



Enhance Safety

- With kiosks, drivers no need to get off the tractors and reduce car accidents.

Safety

**Remote Control
Station
(RCS)**

**Container Yard
Operation**

Reduce Work Accidents



Real-Time Monitoring



Enhance Safety

• Reduce Work Accidents

- With RCS and ARMG, the container yard operation area is made absolute clear to reduce work accidents and to ensure safe operation.

• Real-Time Monitoring

- With 19 CCTVs in the container yard, able to be real-time monitoring.

Health

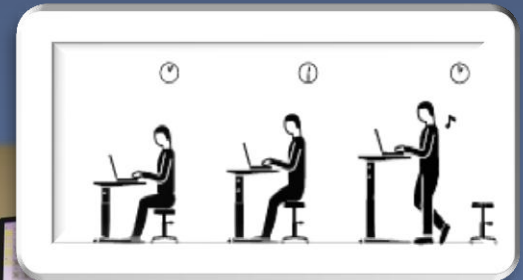
**Remote Control
Station
(RCS)**

**Container Yard
Operation**

Humanized Work Place

- Set height-adjustable desks in RCS.
 - Avoid bearing all that weight and pressure on your back.

Height - Adjustable Desks



THANK YOU

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