

# 工程能力 Engineering Capability

中鋼機械導入專案管理系統，整合設計、採購及施工，結合上下游供應鏈，提供業主完整的服務。已完成：鋼廠整廠天車、集塵系統、電廠輸送系統、鋼板強力冷整平機、高爐氣儲槽更新、電廠循環水泵及附屬設備、水淬爐石研磨產線等專案。

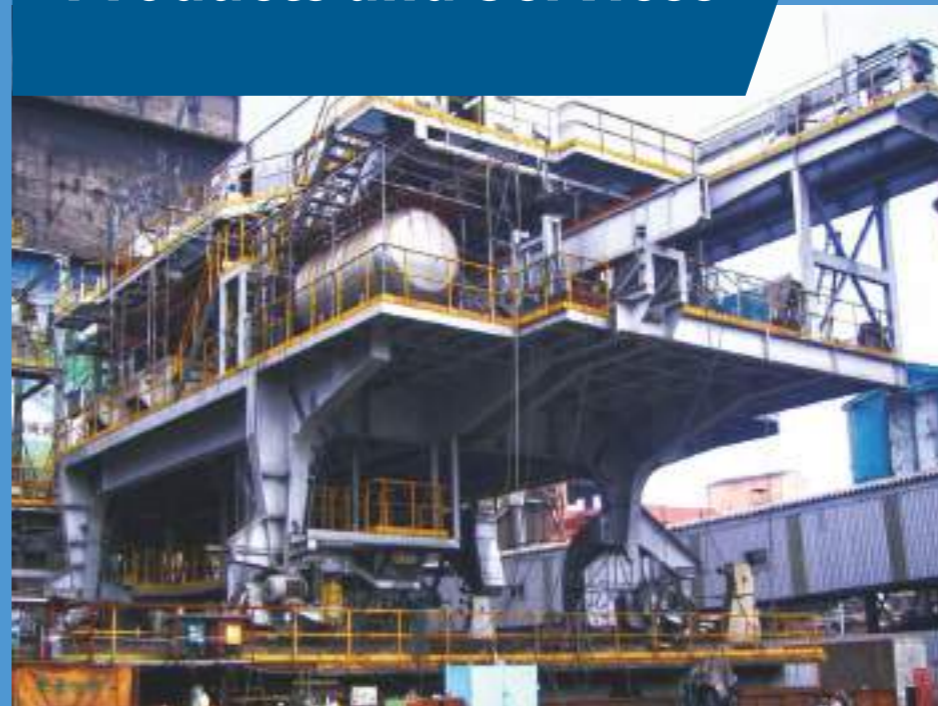
By introducing the Project Management System and Integration of Engineering, Procurement and Construction (EPC), CSMC has combined the upstream and downstream supply chains to provide clients with comprehensive services. Accomplished EPC projects include: Crane of entire steel plant, Dust Collection System, Power Plant Conveying System, High-power Steel Plate Cold Leveler, Blast Furnace Gas holder, Power Plant Circulation Water Pump with accessories, steel slags pulverization line, etc.

中鋼高爐氣儲槽 CSC BF Gas holder



林口電廠輸煤系統  
Lin Kou Power Plant Coal Conveying System

# 主要業務 Products and Services



中龍推焦車  
DSC coke oven pushing car



中龍煉焦爐  
DSC coke oven

# 鋼鐵廠設備 Steel Plant

中鋼機械負責中鋼集團擴建及大型改造案，提供重要設備與部品，並具備規劃重捲、分切、裁剪、檢驗等附屬產線的能力。

中鋼機械是台灣最大型的重型機械製造公司，擁有完整的鋼廠製程各式設備供應實績，包含原料輸送、煉鐵、煉鋼、連鑄、軋鋼、成品線，同時提供現場安裝、試車服務。

CSMC undertakes the expansion and revamping projects of the CSC Group, and provides key facilities and components, as well as be able to plan and integrate the processing lines, including recoil and slit, shear and inspection station. CSMC is the largest heavy machine manufacturing company in Taiwan. It has a complete supply record in raw material transportation, iron making, steel making, continuous casting, rolling and packing process equipment for steel plant. Not only providing equipment, CSMC can provides installation and commissioning services at job site.

中龍乾式淬火設備  
DSC CDQ facility

中龍熱風爐  
DSC Hot blast stove

煉焦爐爐門框  
Coke oven door frame



250 噸盛鋼桶  
250 ton Steel ladle

高溫復熱器  
High-temperature re-heater

煤化學鈦固定 氨蒸餾塔  
Titanium fixed ammonia distillation column of coal chemistry

中龍熱軋  
DSC Hot Strip Mill



中龍高爐  
DSC Blast furnace



袋式集塵機  
Bag filter



中龍熱軋大邊軋機  
DSC Hot strip mill sizing press



中龍高爐爐殼  
DSC Blast furnace shell



中鋼扁鋼胚連鑄機  
CSC Slab Continuous Casting Machine.



中鋼 Y41 #3 加熱爐  
CSC Hot strip Mill Reheating furnace

## 魚雷車

透過魚雷車運送高溫鐵水至煉鋼廠，是煉鋼過程中至關重要的環節。中機整合鑄造、冷作焊接、機械加工及組裝測試，以高品質工藝，打造中鋼所需 300 噸魚雷車，為提升中鋼集團鋼鐵產能與製程安全奮鬥推進，貢獻一己之力。

## Torpedo Car

Conveying high-temperature molten iron to the steel smelting plant is a crucial ring in the steel making process. By integrating casting, cold work welding, machining, assembly and tests, CSMC fabricated the 300 ton Torpedo Car necessary for CSC via high-standard craftsmanship, contributing its efforts in improving steel productivity as well as promoting process safety of CSC Group.



中鋼 W2 300 噸魚雷車  
CSC 300 ton torpedo car



中鋼 W3 二廠 270 噸盛鋼桶  
CSC 270 ton ladle

## 盛鋼桶

盛鋼桶是一種用來運送、冶煉和傾倒熔融金屬的容器，廣泛被應用於煉鋼廠製程中。中機打造鋼廠所需高品質盛鋼桶，除新品製作外，亦提供舊品整修服務，延長產品使用。

## Ladle

A ladle is the container used for conveying, smelting and pouring the molten metal, it is extensively used in smelting processed of Steel Plants. CSMC fabricates high-quality ladles for steel plants. In addition to new products, we also provide refurbishing of old ladles for prolonging their service life.

# 碼頭輸送設備

## Wharf Material Handling System

原物料輸送系統廣泛應用於鋼廠、電廠、紙廠、水泥產業，因應集團公司中龍鋼鐵擴建，中鋼機械於 2006 年進入連續式卸船機製作領域，並於 2015 年成功回銷日本市場。

Material handling system is extensively used in the steel plant, power plant, pulp plant and cement industry; to cope with the expansion of Dragon Steel (a Group Subsidiary), CSMC entered into the manufacturing of Continuous Ship Unloader in 2006, with products exported to Japan successfully in 2015.



中龍堆取料機  
DSC 4,500/2,500 T/H Stacker/Reclaimer



中鋼堆取料機  
CSC 4,500/2,000 T/H Stacker Reclaimer



台塑河靜連續式卸船機  
2,400 T/H CSU for Formosa Ha Tinh Steel Corporation



中龍堆料機  
DSC 450/800/250 T/H Stacker



日本長崎港用 40 噸貨櫃吊車  
40 ton Container crane for Nagasaki Prefectural Government



孟加拉連續式卸船機  
1,500 T/H CSU for Matarbari, Bangladesh

中龍連續式卸船機  
DSC 3,000/2,100 T/H CSU



日本鋼廠用連續式卸船機  
2,700 T/H CSU for Japanese Steel Company



# 天車與起重設備

## Crane & Lifting System



興達海洋基礎公司整廠天車  
Whole Plant Crane of SING DA MARINE STRUCTURE



鑽油平台 100 噸 BOP 起重機  
Oil rig 100 ton BOP crane



越南 CSVC 34 台架空式天車 CSVC (Vietnam) 34 sets EOT crane

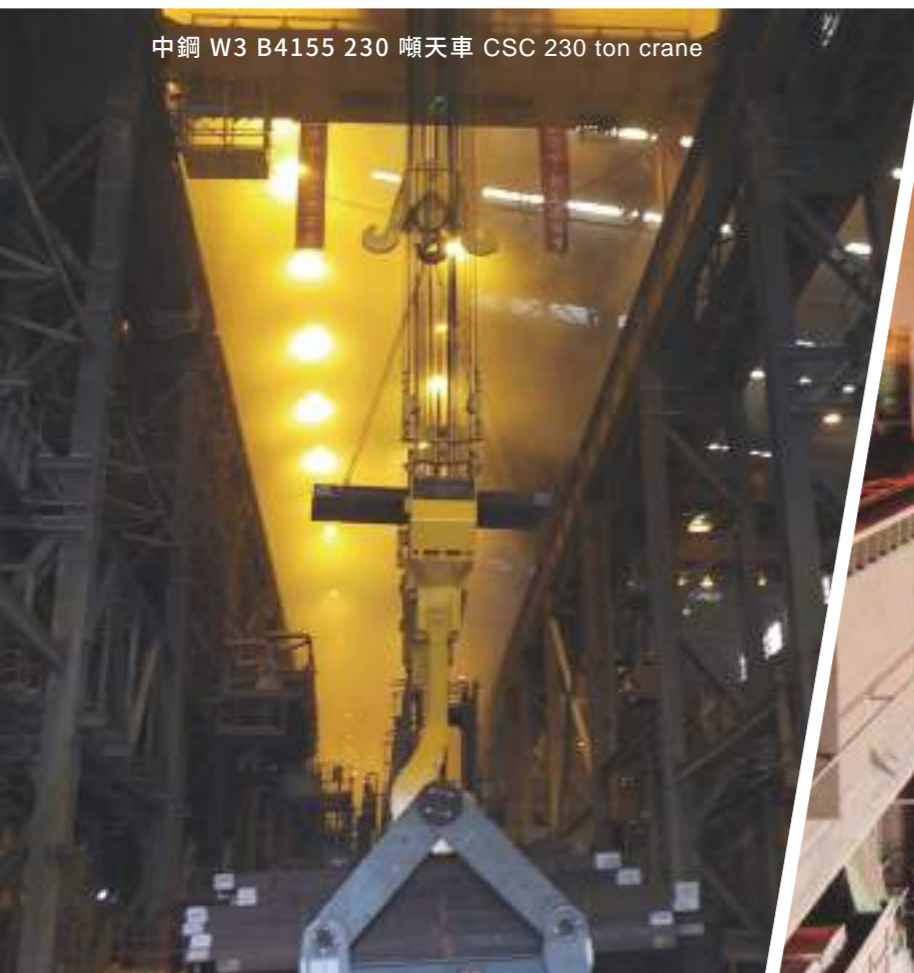
天車為產線重要的吊運設備，中機專注於 CMAA(美國天車製造協會) E、F 等級天車承製，並已累積超過三百台的工程統包實績，從機電設計、生產規劃、採購、製作、品質管控、運輸、安裝試車至工檢作業等各細節，中機皆展現專業的工程管理能力，提供客戶一個完整的吊運設備解決方案。

Crane is an important lifting equipment for the production line. CSMC endeavored to make CMAA Class E and Class F Overhead Cranes by turnkey basis, and accumulated references exceeding 300 sets. CSMC expresses its professional project management capabilities from mechanical and electrical design, planning, procurement, manufacturing, quality control, transportation, installation, commissioning, up to detailed industrial inspection tasks, providing clients solutions.

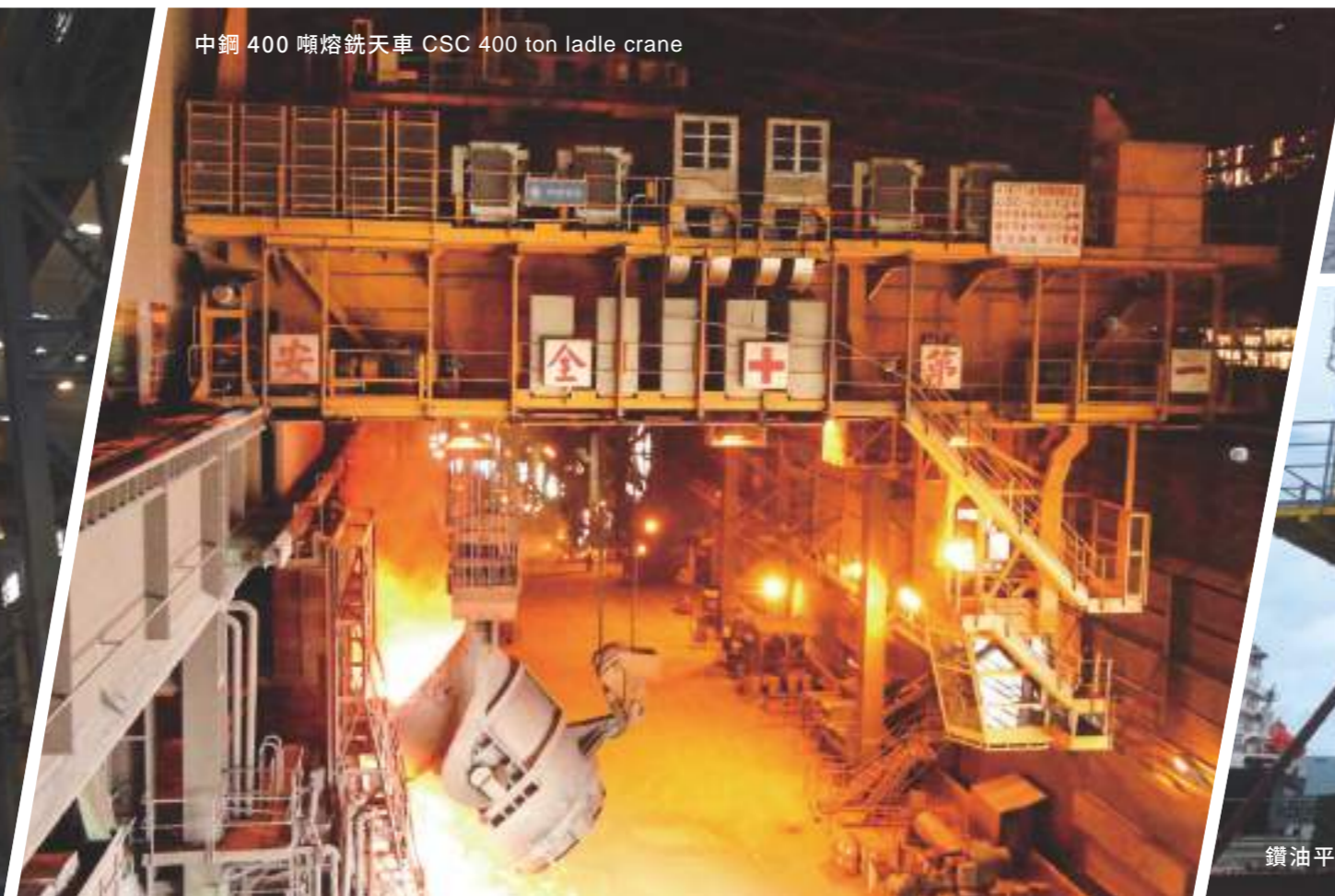


鑽油平台 100 噸半門型起重機 Oil rig 100 ton semi portal crane

中鋼 W3 B4155 230 噸天車 CSC 230 ton crane



中鋼 400 噸熔銑天車 CSC 400 ton ladle crane



鑽油平台 65 噸夾管式吊車 Oil rig 65 ton pinch crane

# 輸送帶設備

## Conveyors

中鋼機械擁有豐富的輸送帶實績，除鋼廠實績，更跨入公共工程領域。

CSMC has plentiful achievements of conveyors. In addition to steel plants, CSMC has also set foot into the realm of power plants.

林口電廠更新擴建運煤系統 TPC Linkou Coal conveyor system



林口電廠煤礦轉運塔  
TPC Linkou Coal transport tower



林口電廠煤倉區輸送帶  
TPC Linkou coal bunker conveyor



林口電廠大傾角輸送帶  
TPC Linkou Coal Steep angle conveyor



林口電廠袋式集塵機  
TPC Linkou Bag filter



林口電廠氣浮式輸送機  
TPC Linkou Flow Dynamics Conveyor (FDC)



中鋼煉焦爐增設煤倉設備  
CSC Coke Oven Plant Coal Bin & Conveyor

# 電廠設備

## Power Plant Facilities

中鋼機械工程整合能力及負責任的態度深受電廠信賴，參與台電多項重大電廠興建專案，遍及核能、燃煤及複循環發電廠。

CSMC's engineering integration capabilities and attitude of commitment have won the trust of TPC, with following awarding of the construction of power plants in Taiwan, including nuclear power, coal-fired and combined cycle power plants.

台電興達電廠一二號機氣對氣排煙脫硫廢熱回收性能改善  
 TPC Hsinta No.1.2 GGH-FGS waste heat recovery performance enhancement



台電龍門電廠核能級防爆特殊門新建  
 TPC Lungmen Explosion proof door



台電大林電廠鍋爐大樑  
 TPC Talin Top girder



磨煤機耐磨鑄件 Coal mill wear-resistant castings



台電龍門電廠核廢料控制棒減容設備  
 TPC Lungmen Nuclear waste control rod volume reduction container



# 風力發電

## Wind Power

中鋼機械擁有全台灣最豐富的陸域塔架製造經驗，累計至今，全台共有 295 套風力塔架為中鋼機械製造。

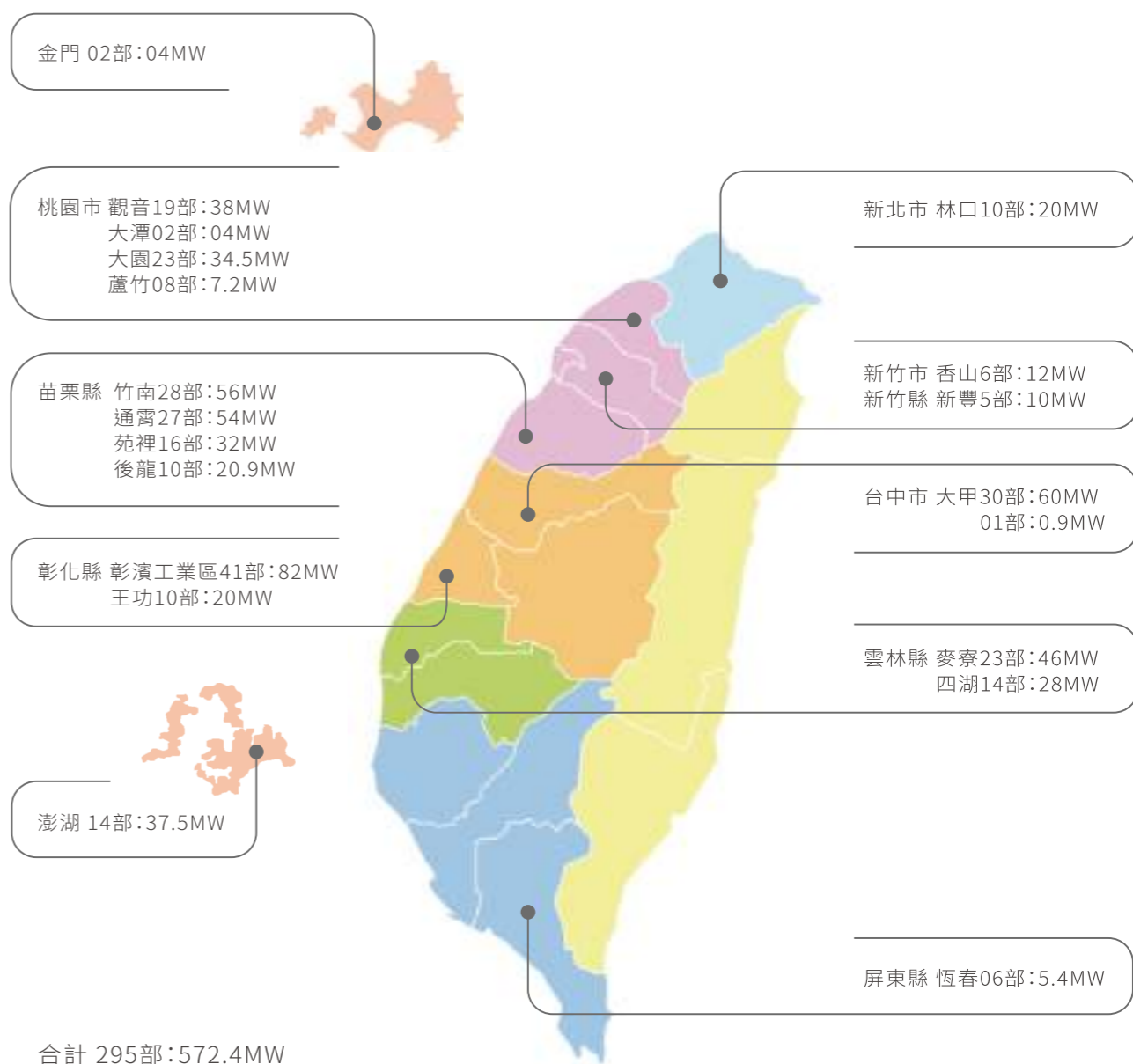
此外，中鋼機械作為離岸風電構件國產化重要成員之一，協助興達海基公司承攬沃旭大彰化離岸風場案水下基礎，由中鋼機械供應關鍵構件，如：轉接段 (TP)、節點 (Node)、靠船鋼管 (Boat Landing)、插樁 (Stabbing Pin)、腳柱 (Leg) 等，是國內第一家百分百國內製造且達標的公司。

CSMC is the most experienced maker of onshore wind towers in Taiwan; with 295 sets delivered up to now.

Furthermore, as a key member of domestic offshore wind power jacket fabricator, CSMC is the first one to achieve the goal of applying 100% local made.

CSMC supply the critical components such as Transition Pieces (TP), Nodes, Boat Landings, Stabbing Pins, Legs, etc., which has successfully assisted Sing Da Marine Structure (SDMS) to finish Orsted Greater Changhua Offshore Wind Farm project.

台電離岸風力發電測風塔  
Anemometer tower of TPC Changhua  
Fang-Yuan offshore wind power project.



合計 295部:572.4MW  
全台灣中機製造之陸岸風力發電塔架分布圖  
Taiwan onshore wind power turbines map



陸域風力發電塔架製造流程  
Procedure of wind tower



水下基礎轉接段  
Transition Piece (TP)



TP-BOX GIRDER

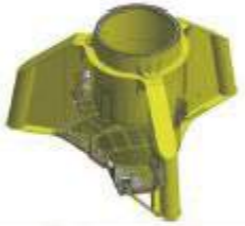






水下基礎轉接段 Transition Piece (TP)



管架式水下基礎  
Pipe rack type underwater foundation



				
Transition Piece Component- Can、I Girder、Lid Plate	Lower Jacket Component- X、K、Y Node	Lower Jacket Component- Stabling	secondary steel Component- Boat Landing	Lower Jacket Component- Jacket Leg
Plate : SDMS Flange : SDMS	Main pipe : SDMS Stub pipe : SDMS	Plate : SDMS	Pipe : SDMS	Plate : SDMS
CSMC Scope ■ Cutting ■ Rolling ■ Fit up ■ Welding	CSMC Scope ■ Cutting ■ Fit up ■ Welding	CSMC Scope ■ Cutting ■ Rolling ■ Fit up ■ Welding	CSMC Scope ■ Cutting ■ Fit up ■ Welding	CSMC Scope ■ Cutting ■ Rolling ■ Fit up ■ Welding
Self-production	Self-production	Self-production/ Outsourcing	Outsourcing	Outsourcing

中機離岸風電負責項目說明圖

CSMC scope in offshore wind power project.

# 軌道車輛工程

## Rolling Stock

中鋼機械參與鐵路交通工程不遺餘力，涵蓋鐵路、捷運、輕軌等車輛核心部品、機場設施及改造更新工程。

CSMC has made great efforts to participate in railway projects, which included core vehicle parts of TRA, MRT, Light Rail; airport facilities as well as modification/ refurbishing works.

台灣高鐵 THSRC



道岔設備  
Turn-out system



同步頂升設備  
Under floor lifting system

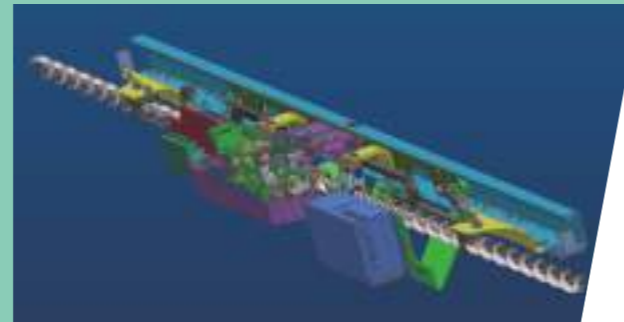


洗車設備  
Car wash system

台鐵車廂無階化等 41 項改造工程 TRA-The project of automatic access doors retrofit stepless access.  
總改造門數：6,236 門 Total Doors Retrofit : 6,236 doors  
總改造車輛：1,351 輛 Total Vehicles Retrofit : 1,351 Vehicles



電腦輔助設計  
Computer Aided Design, CAD



3D 模擬  
3D Simulation



工程規劃  
Engineering planning



門機改造後動態試車  
Dynamic Test Run After Door Mechanism Modification

### 車輛本體及主零件新製 TRA-Vehicle body and main components



50 噸貨櫃平車  
50 ton Freight flat car



30 噸石斗車  
30 ton Ballast car



重型聯結器  
Heavy duty type coupler



密著式聯結器  
Tight lock type coupler

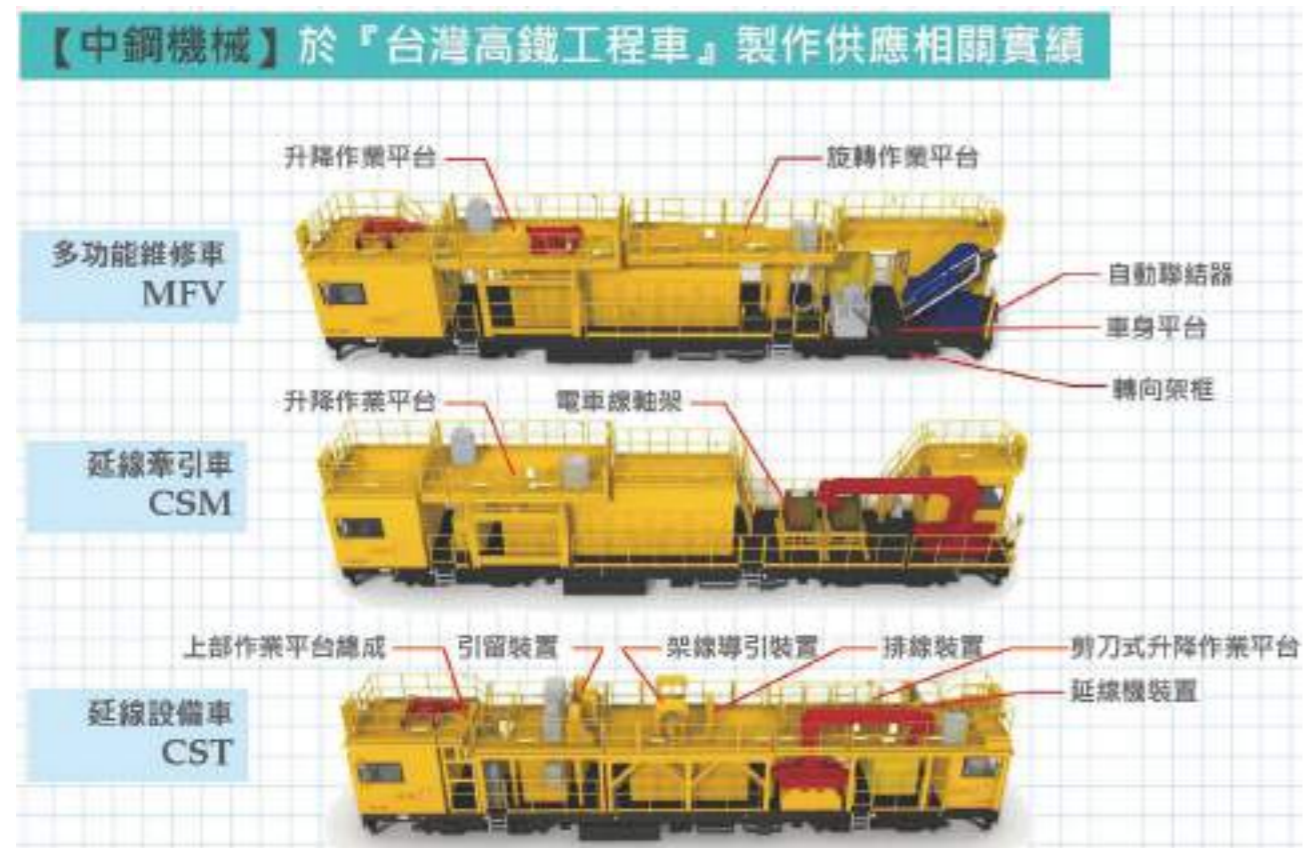
## 台灣高鐵工程車車體底盤架及附屬結構

由中鋼設備處設計開發，結合中鋼機械之產製能力（鑄造、冷作焊接、機械加工及組裝測試），將台灣高鐵現有六款日系及德系工程車型，依維修及操作需求量身打造，整合為多功能維修車、延線設備車及延線牽引車等三款工程車，兼具客製化、整合性及安全性等優點，有助於提升台灣高鐵維修作業能力。

### THSRC Engineering Car Chassis Frame and Auxiliary Structure

Designed and developed by the CSC Plant Engineering & Maintenance Dept., in combination with CSMC's production capabilities (casting, fabrication, machining, and assembly and commissioning), the existing 6 models of Japanese and German maintenance vehicles are integrated into 3 types of maintenance vehicles: multi-function vehicle (MFV), Catenary Stretch Trailer (CST) and Catenary Stretch Motor (CSM), which have the advantages of customization, integration and safety, and will help to improve THSRC maintenance operations

中機於台灣高鐵工程車製作供應相關實績  
CSMC's achievements in the production of THSRC engineering vehicles.



## 淡海輕軌機廠設備

大眾交通運輸是促進都市發展的重要基礎，近年來各地均積極推動爭取軌道建設計畫。中鋼機械遵循「國車國造」理念，承接「淡海及安坑輕軌機廠全功能維修基地」，中鋼機械負責設計、採購、製作、運輸、安裝、試車、保固、系統整合測試、訓練及 2 年備品，致力於滿足輕軌列車營運所需儲車、維修、列車調度及物料儲存等需求。

### Danhai LRT Depot Facilities

Public transportation is fundamental to facilitate urban developments with emerging projects; localities are actively seeking track infrastructure projects in recent years. Abiding by the policy of "Localized development and manufacturing of rail transportation", CSMC was contracted for the "Danhai and Ankeng Full-function Light Rail Depot" project, carrying out design, procurement, manufacturing, transport, installation, commissioning, warranty, system integration and tests, and training as well as being responsible for providing 2-year spare parts. It endeavored to satisfy the needs in regard of vehicle storage, maintenance, train dispatching and material storage required for operating light rail trains.

輕軌機廠設備  
Light Rail Depot Facilities



# 轉向架框

## Bogie Frame

中鋼機械於 2005 年建立轉向架框專業產線，持續與國際級車輛系統廠合作捷運及鐵路電聯車用轉向架框製作。2016 年響應政府國車國造政策，參與輕軌列車轉向架框製作。

CSMC established a specified production line for bogie frames in 2005, and continuing collaboration with international railway rolling stock vendors in making bogie frames for MRT and EMUs. In 2016, in response to the government's "design and build localization" policy for railway rolling stock, CSMC participated in the manufacturing of bogie frames for light rail trains.

台灣車輛 新北市淡海輕軌車輛轉向架框  
Taiwan Rolling Stock Co., Ltd. New Taipei City Danhai LRT bogie frame



川崎重工  
北捷信義松山線電聯車轉向架框  
Kawasaki Heavy  
Taipei Metro Xinyi-Songshan line EMU bogie frame



日本車輛  
台鐵普悠瑪傾斜電聯車轉向架框  
Nippon Sharyo  
TRA Tilting EMU bogie frame



川崎重工  
桃園機場捷運電聯車轉向架框  
Kawasaki Heavy  
Taoyuan Airport MRT EMU bogie frame



日本車輛  
台鐵 800 型電聯車轉向架框  
Nippon Sharyo  
TRA EMU800 bogie frame



川崎重工  
桃園機場捷運電聯車枕樑  
Kawasaki Heavy  
Taoyuan Airport MRT EMU bolster



日本車輛  
台鐵 700 型電聯車轉向架框  
Nippon Sharyo  
TRA EMU 700 bogie frame

# 水利工程

## Hydraulic Engineering

中鋼機械延續台機技術並拓展各項大型水利工程設備業務，承攬多項抽、排水系統之水工設備及相關零組件安裝更新工程，其中抽水機組、現場安裝與專案管理經驗尤其豐富。工程實績包含林口電廠及大林電廠 CWP 擴建工程、建國抽水站暨擴建站、新生抽水站暨擴建站、全市抽水站、玉成抽水站等抽水機組設備更新。

Based on TMMC's technique CSMC continues on hydraulic engineering and participates in pump station, drainage system, and related revamping projects, especially good at site installation and management. Supply records are as following: TPC Linkou and Talin CWP project, Jianguo pump station, Xinsheng pump station, and Yucheng pump station renewal.

大林電廠 CWP 現場安裝  
TPC Talin CWP on site installation

林口電廠 CWP 現場安裝  
TPC Linkou CWP on site installation



景美抽水站  
抽水機於中機廠內組裝  
Jingmei pump station  
Assembling in CSMC



建國抽水擴建站  
抽水機於中機廠內組裝  
Jianguo pump station  
Assembling in CSMC



新生擴建抽水站  
抽水機組現場安裝  
Xinsheng pump station  
On-site installation



建國抽水擴建站  
可動翼葉輪檢修  
Jianguo pump station  
Examination for impeller



新生擴建抽水站抽水機組  
下部組件現場吊裝  
Xinsheng pump station  
On-site installation



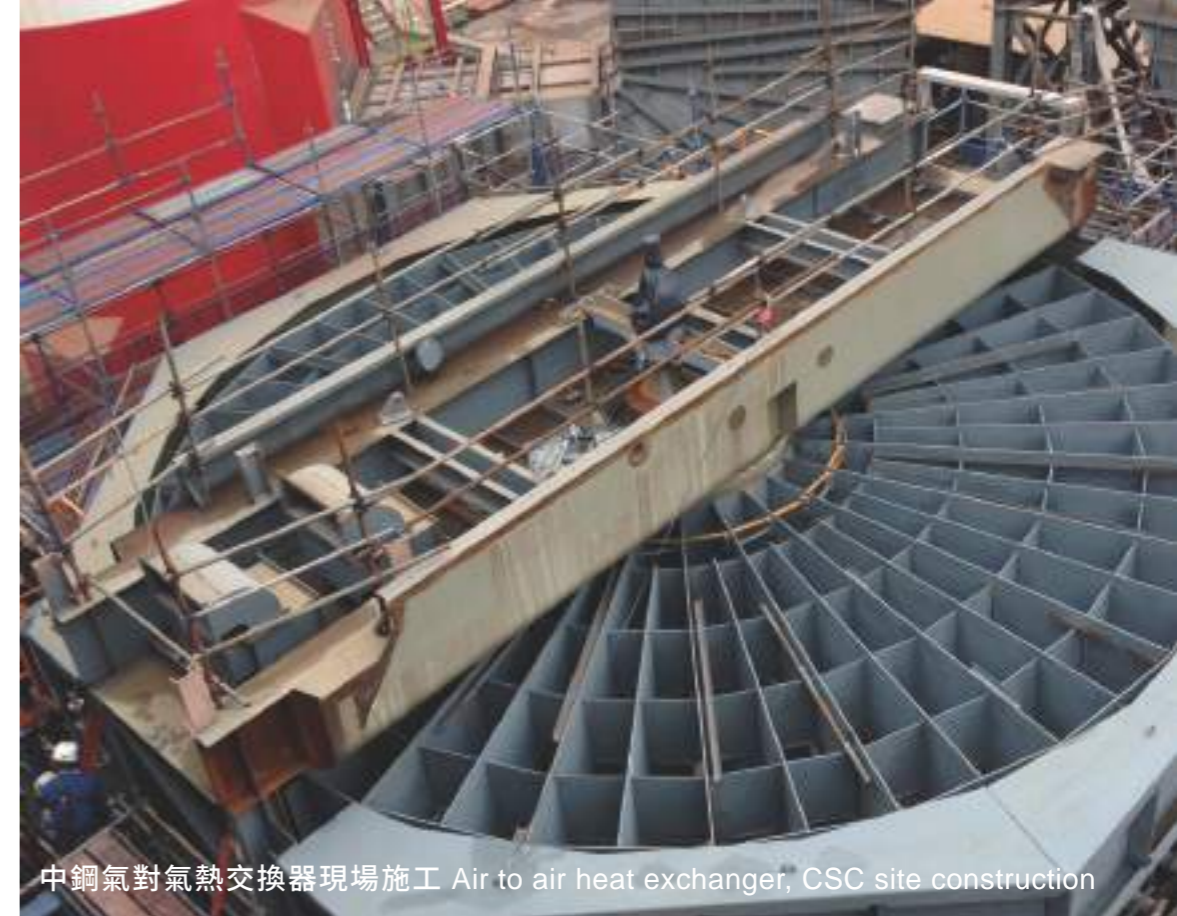
建國抽水站角齒輪減速機檢修  
Jianguo pump station Examination  
for gear reducer

# 儲槽與壓力容器

## Tanks and Pressure Vessels



中龍 CDQ DSC CDQ



中鋼氣對氣熱交換器現場施工 Air to air heat exchanger, CSC site construction



中鋼 2SP FGD/SCR 製裝工程  
CSC 2SP FGD/SCR construction.

中鋼機械從事高品質冷焊件及壓力容器製造，擁有 ASME S、U、U2 認證，提供儲槽、鈦槽、氮（氧）氣槽、油槽、低溫球槽、FGD/SCR 及 CDQ 等設備。

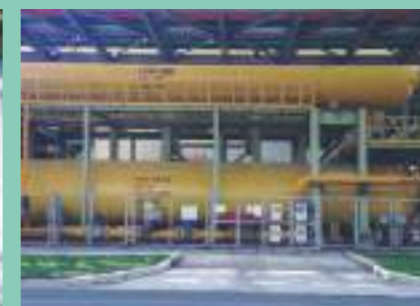
Engaged in offering high-quality fabrication works and pressure vessels, CSMC possesses ASME S, U and U2 Certificates for the storage tank, titanium tanks, nitrogen (oxygen) tanks, oil tanks, low-temperature sphere tanks, FGD/SCR & CDQ, etc.



中油 桃煉廠球槽  
CPC spherical tank of Taoyuan petroleum refinery



中龍 高壓氧氣儲槽  
DSC Hyperbaric oxygen tank



中龍 氮氣儲槽  
DSC Nitrogen tank



中龍 氮氣儲槽  
DSC Titanium adsorption tank



中鋼 轉爐氣體儲槽更新  
CSC LDG holder



中油 油槽  
CPC Oil storage tank



中鋼 全氫退火爐  
CSC Hydrogen batch annealing furnace

# 鑄件 Casting

## 產品包括：

1. 鋼鐵廠設備：輓輪軸承座、渣盤、燒結台車及相關鑄件、天車輪、煉焦爐門、爐門框、保護板、滾筒渣處理設備、魚雷車耳軸 / 澆口等相關鑄件。
2. 水泥、電廠設備：磨球、磨台、壓環等。
3. 軌道車輛零件：輪軸箱、中心銷、連結器等。

## Product:

1. Steel Plant Facilities: roller bearing house, slag pan, sintering trolley and relevant castings, crane wheels, coke oven door, door frame, protection plate, roller slag treatment facility, torpedo car lug/sprue and relevant castings.
2. Cement Plant, Power Plant Facilities: grinding ball, grinding table, clamping ring, etc.
3. Rolling Stock Parts: wheel axle, center pin, coupler, etc.

## 煉焦爐門 Coke oven door



軸承座  
Roller chock



燒結台車  
Sinter pallet car



中心銷  
Center pin for bogie frame



密著式連結器  
Coupler for EMU



輪軸箱  
Axle box for bogie frame