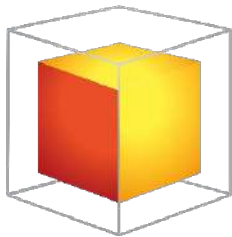


SYNERGY CENTER

ECM LPC DEVELOPMENT LAB



ECM
TECHNOLOGIES



MIRDC
METAL INDUSTRIES RESEARCH &
DEVELOPMENT CENTRE

LOCATION



- Synergy Center
- Address : 1001 Kaonan Highway, Nanzi Dist., Kaohsiung, Taiwan 81160 (R.O.C.)
- Tel : 07-3513121 #3561

Needs

In recent years, the global machinery, vehicle and electronic products have continued to grow rapidly, **increasing the demand for high value-added precision components**, among which **heat treatment is a key technology**. The ECM Group is the world's largest heat treatment equipment manufacturer. If it can establish a **Synergy Center** in Taiwan, Taiwan will be expected to become **a global supply center for mechanical components**.



The ECM Technologies Group's vacuum carburizing heat treatment equipment has a global market share of more than 70%.

With its experience in vacuum heat treatment equipment design and high-precision control, it will help Taiwan's heat treatment industry establish a total solution from materials, processes, systems to equipment.



High pressure gas quenching vacuum carburizing heat treatment



Micro-component heat treatment equipment



Hardware

Software

Synergy Center

Established on
2023/12/13



MIRDC is a professional metal research unit in Taiwan. It has established advantages in composite heat treatment and energy-saving process development and AI detection and verification capabilities and has won awards such as R&D100 and Edison Awards. Through heat treatment simulation analysis, the best process parameters can be quickly established to achieve international quality standards. It has assisted more than 50 manufacturers, and has helped to enter international manufacturers, and has received orders of more than 6 billion NTD.

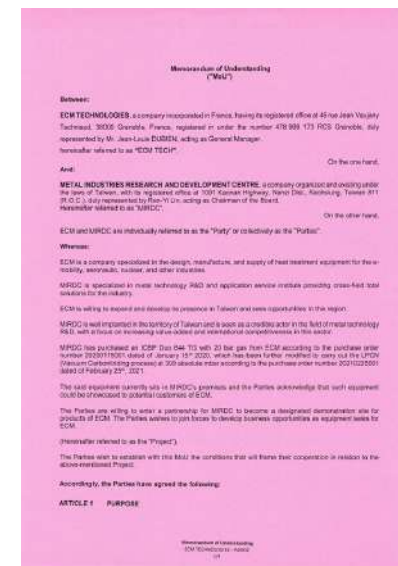
MIRDC develops process parameters suitable for domestic industries for ECM heat treatment equipment and conducts two-way analysis and verification, provides domestic manufacturers with trial production and establishes demonstration sites, and helps domestic industries reduce technology costs and shorten product development schedules (the development period in France was originally 3~4 months, which can be shortened to 1~2 weeks)

MOU SIGNING CEREMONY



MIRDC signs MoU with the ECM Group (2024/10/23)

Photo of the two parties signing the MoU
(Left: CEO Yung-Hsiang Lai; Right: Yvan TROUILLOT, General Manager of French ECM)



ECM commits to providing advisory support to MIRDC, offering guidance on recipe development and process optimization. By feeding back with MIRDC the analysis results of samples after vacuum carburizing heat treatment that the sample is with or without precision blasting and vacuum carburizing heat treatment, ECM will provide process-related suggestions, that is, suggest adjustments to the direction. ECM will also station technical personnel at the MIRDC demonstration site during the cooperation period, and MIRDC A dedicated technical correspondent should also be assigned in the ECM to serve as the primary contact for process information consultation and related technical matters.

SYNERGY CENTER STAFF



MIRDC Department Leader
Chia Hung HUANG



MIRDC Engineer
Jiun Cherng LIU



- Education :

National University of Tainan-
Department of Materials Science-
Master's Degree (2007~2009)

Ming Chi University of
Technology-Department of
Materials Engineering (2003~2007)

Kaohsiung Municipal Kaohsiung
Senior High School (2000~2003)

- Experiences :

- MIRDC Department Leader
(2025~)

- MIRDC Department Vice Leader
(2020~2025)

- MIRDC Department Engineer
(2016~2020)

- MIRDC Department Deputy
Engineer (2009~2016)

- Chia Nan University of
Pharmacy & Science Lecturer
(2010~2011)

- National Quemoy University
Lecturer (2010~2011)



- Education :

National Tsing Hua University-
Department of Materials Science
and Engineering-Master's Degree
(2012~2014)

National Sun Yat Sen University-
Department of Materials and
Optoelectronic Science
(2008~2012)

National Feng-Shan Senior High
School (2005~2008)

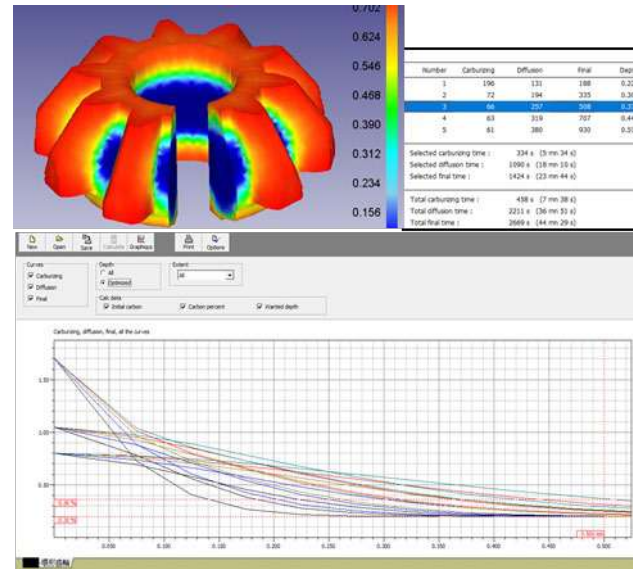
- Experiences :

- MIRDC Department Engineer
(2024~)
- MIRDC Department Deputy
Engineer (2018~2024)
- Yieh Phui Enterprise Co., Ltd.
Deputy Section Chief
(2015~2018)

TECHNICAL SERVICE AND R&D CAPABILITIES



**High pressure gas quenching
vacuum carburizing heat treatment**



Heat treatment simulation



Analysis service

High-pressure nitrogen quenching can adjust the quenching pressure to achieve different quenching rates to meet different quenching rate requirements while reducing deformation. In addition to the equipment itself, MIRD C has established bilateral international cooperation with the ECM Group and established the “Synergy Center” in 2023 to provide the domestic industry with an international development and trial platform.

MIRD C has established complete heat treatment process development, simulation and inspection analysis capabilities, and has cooperated with the ECM Group to establish the “Synergy Center” to assist the domestic heat treatment industry in establishing a one-stop solution from materials, processes, systems to equipment, becoming an important backing for the global precision components supply chain.