

Founded on Trust

M-TECH ENG

A leader in the steel industry

1. Overview & history of M-TECH ENG

M-TECH ENG. is an engineering company for domestic and international steel equipment.

We are committed for the best quality and service for customer satisfaction.

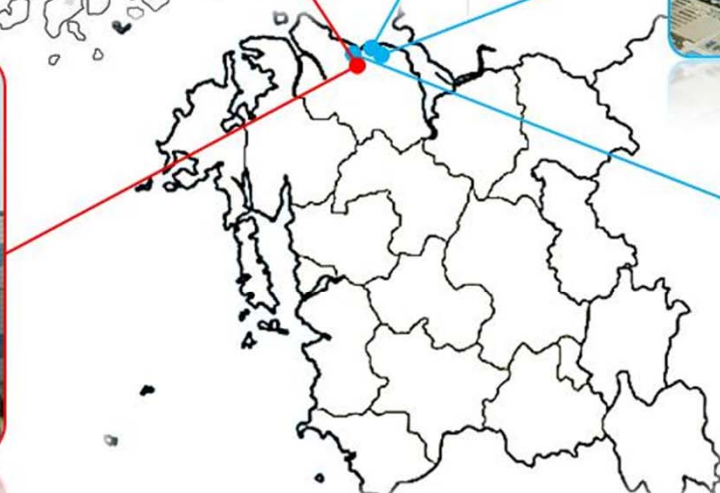
Overview

- CEO : Seong-jin Gang
- Web site : <http://mtecheng.co.kr>
- Established : November 1997
- Main customer
 - Hyundai steel
 - Dongbu steel
 - Daehan steel etc.



✓ **Main Office & Plant :**

✓ Main Office & Plant :
469-5, Dang san-ri, Songsan-myeon,
Dangjin-si Chungnam, Korea



3. Certificates

▶ ISO 9001:2000

▶ ISO 14001:2004

▶ Affiliated research institute
(Korea Industrial Technology Association)

▶ INNO-BIZ
(Small/Medium Business Administration)

Promising small/medium company
(Chungnam Province)

Venture Business Certificate
(Small/Medium Business Administration)

Industrial-academic technology agreement
(with Shin-sung College)

Industrial-academic technology agreement
(with Soonchunhyang University)

4. Plant & Office building

Office building



▼Inside office



▼Inside research institute



◀ Outdoor cranes(20&30 Ton)



▼ Equipment for spray test



Plant No.1▶

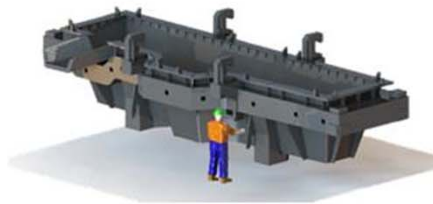
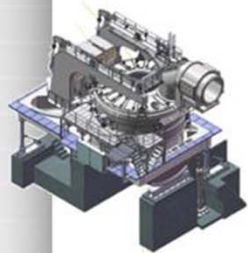


Plant No.2▶



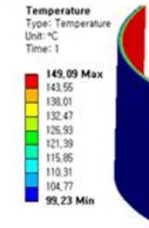
- Site : 17,790m²
- Building : 3,257 m²
- Outdoor Space : 10,154m²

5. Main Business Area



- Supply engineering services for E.A.F. and additional facilities
- We are managing the manpower pool with the latest technology about the operation of E.A.F.

E.A.F. TOTAL SOLUTION



SPRAY SYSTEM

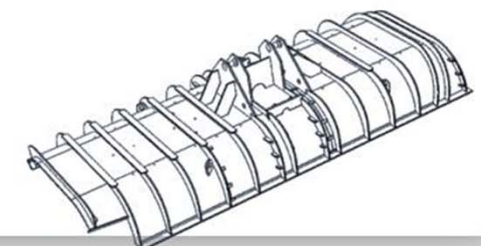
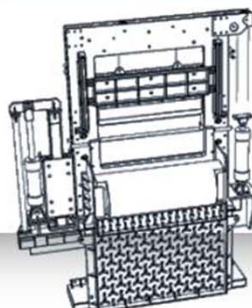
- Supply Cooling system for steel making equipment which exposed to the high temperature (over 1000°C)
- Provide proven quality by performing many projects.
- Provide engineering services for modification, improvement about the existing cooling system

- Modification & Improvement of existing facilities by latest technology
- DUAL SALG DOOR technology of new concept
- LF-ROOF technology can significantly reduce the electrode consumption
- Modification for the existing cooling equipment of Tubular type

SYSTEM UPGRADE

INTEGRATED STEEL AND ROLLING EQUIPMENT

- Many experiences of renovation/improvement and manufacturing about blast furnace and rolling equipment
- High quality fabrication and construction about steel industry and other welded structures



6-1. PROJECT RESULTS [Applications of spray system]

- ▶ Applied to **EAF Roof, ELBOW, SLIDING DUCT, COMBUSTION CHAMBER** of DAEHAN STEEL



- ▶ Applied to **COMBUSTION CHAMBER** of HYUNDAI STEEL (DANGJIN PLANT)



- ▶ Applied to **EAF ROOF** of HYUNDAI STEEL (POHANG PLANT)



Spray cooling technology is applied to protect a damage of steel making equipment by spraying cooling water toward opposite side of the steel plate which is exposed to the high temperature gas over 1000 °C.

1. Can reduce the weight of equipment, the cost of repair and production.
2. Amount of cooling water is ½ in comparison with tubular, jacket type
3. Easy to repair temporarily on site and Minimal downtime .
4. There is not high-pressure when damage, leak (Operation is possible even if the hole of 10cm² is made)

“Create the future & Challenge in the world
with innovative thinking”

6-2. PROJECT RESULTS [Main overseas projects]

We provided total engineering services for the DC EAF's bottom electrode system and other facilities to ARAB STEEL Co.

- ▶ Bottom shell & Tapping system
- ▶ Bottom electrode & Secondary conductor system
- ▶ Air cooling system for bottom electrode
- ▶ Some jigs and hydraulic system for operation
- ▶ Supervising service for installing facilities and stabilizing operation



“**C**reate the future & **C**hallenge in the world
with **innovative thinking**”

6-3. PROJECT RESULTS [Electric Arc Furnace and Peripheral equipment]

MTECH ENG has many experiences and know-how about the facilities in E.A.F. STEEL MAKING PROCESS

- ▶ Performed the modification, design, installation work for the major E.A.F. companies in South Korea.
companies such as HYUNDAI STEEL, DONGBU STEEL, DAEHAN STEEL
- ▶ Especially designated as excellence partner by Hyundai steel.
So we are focusing on the modernization of facilities through mutual research and development



■ SCRAP BUCKET
■ EAF ROOF
■ CONSTEEL HOOD

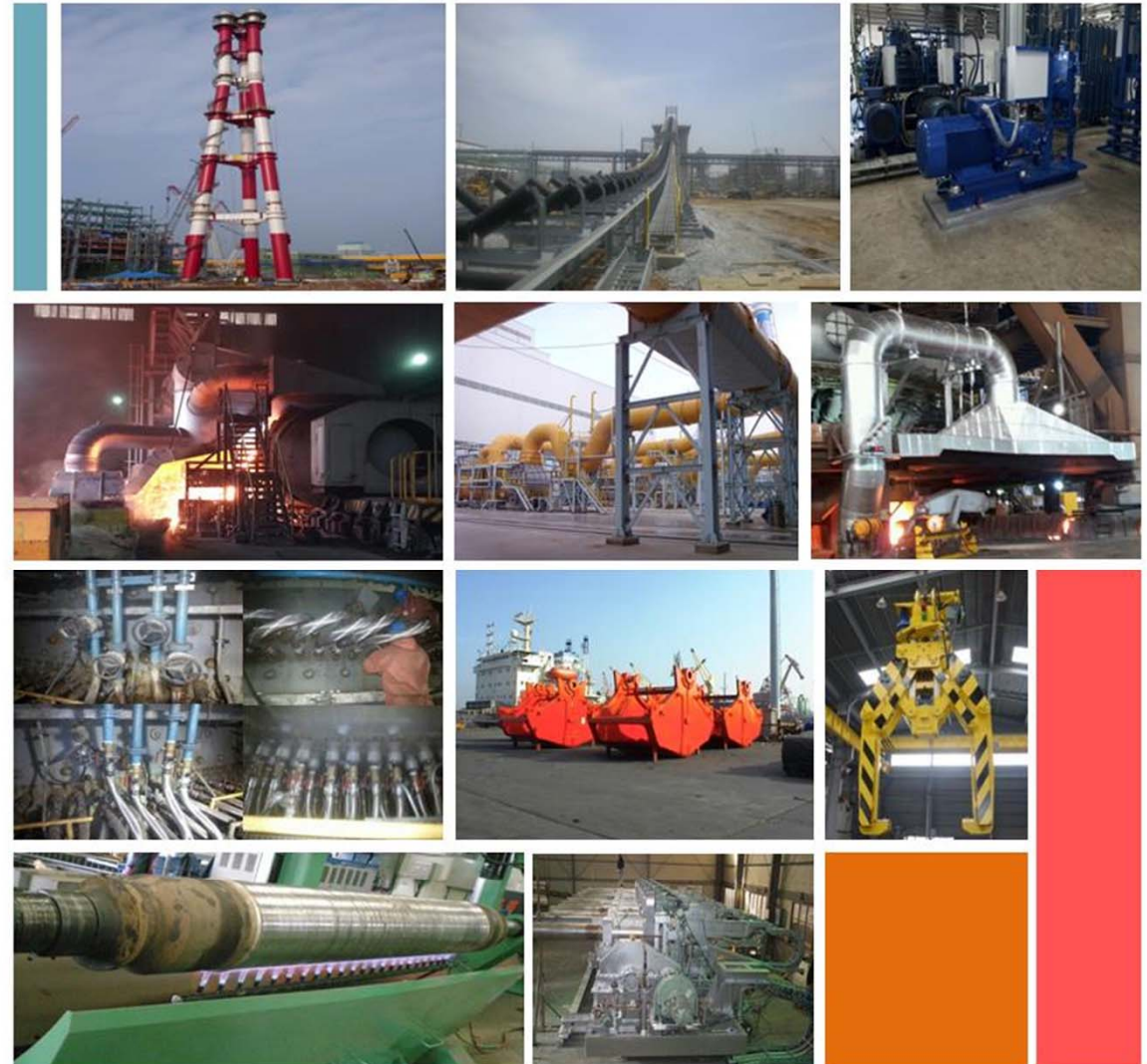
■ PINCH ROLL
■ EAF BODY
■ LADDLE TURRET
■ TUNDISH

■ WATER COOLED DUCT
■ LF ROOF
■ LADDLE
■ SHERE

“**C**reate the future & **C**hallenge in the world
with **innovative thinking**”

6-4. PROJECT RESULTS [Others]

MTECH ENG is committing to satisfy customers by best quality such as integrated steel, other welded structure and machining products as well as facilities of EAF process

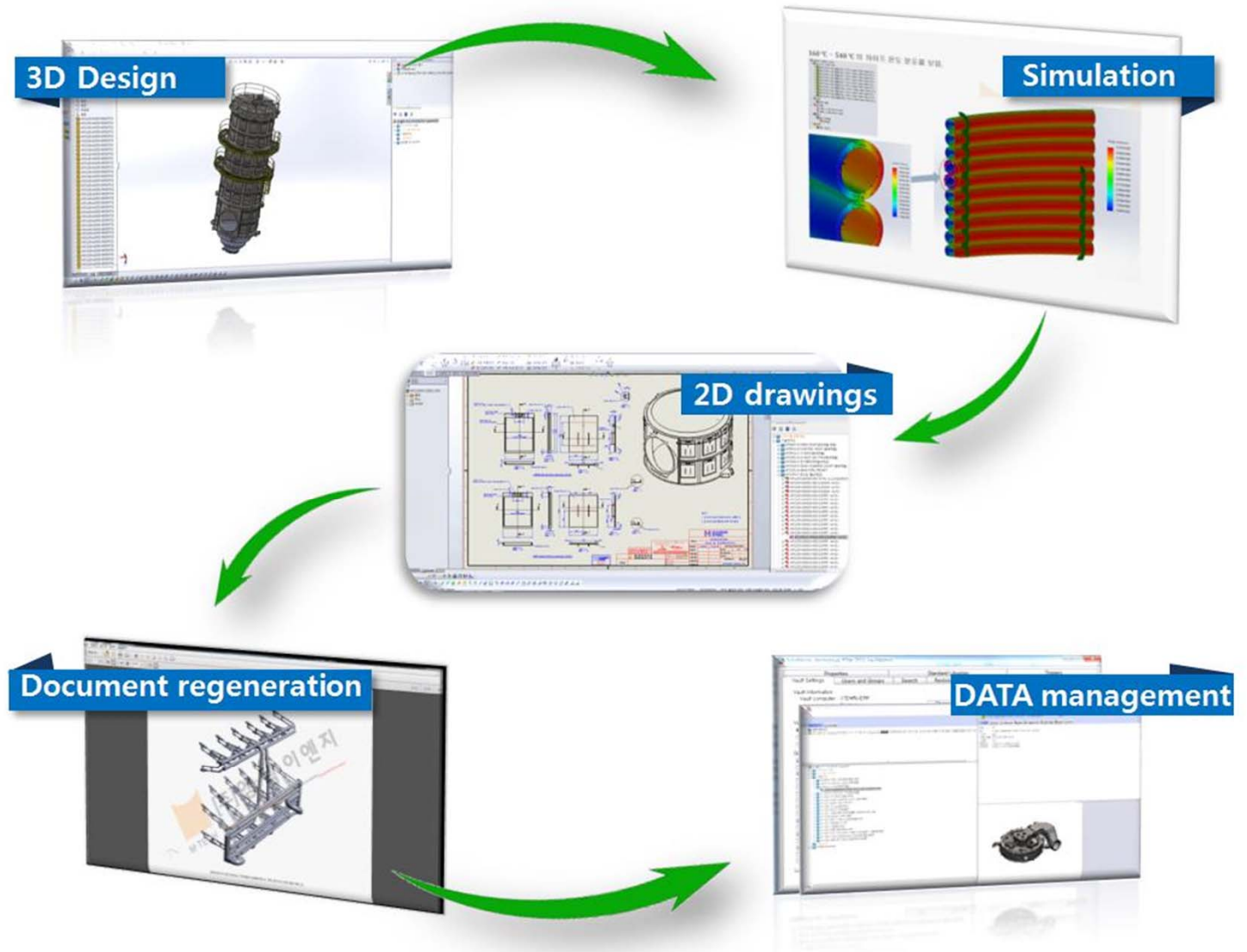


- | | | |
|--|--------------------------------------|------------------------------------|
| ■ FLARE STACK | ■ COAL CONVEYOR | ■ HYDRAULIC PUMP FOR BLAST FURNACE |
| ■ SUCTION HOOD CAR FOR BLAST FURNACE'S PIG MACHINE | ■ FLARE DUCT | ■ SUCTION HOOD FOR BLAST FURNACE |
| ■ INLET VALVE FOR SEPARATING STAVE | ■ BUCKET DEVICE | ■ COIL LIFTER |
| ■ CONTINUOUS ROLL HARD FACING | ■ DISCHARGE ROLLER & EXTRACTOR TABLE | |

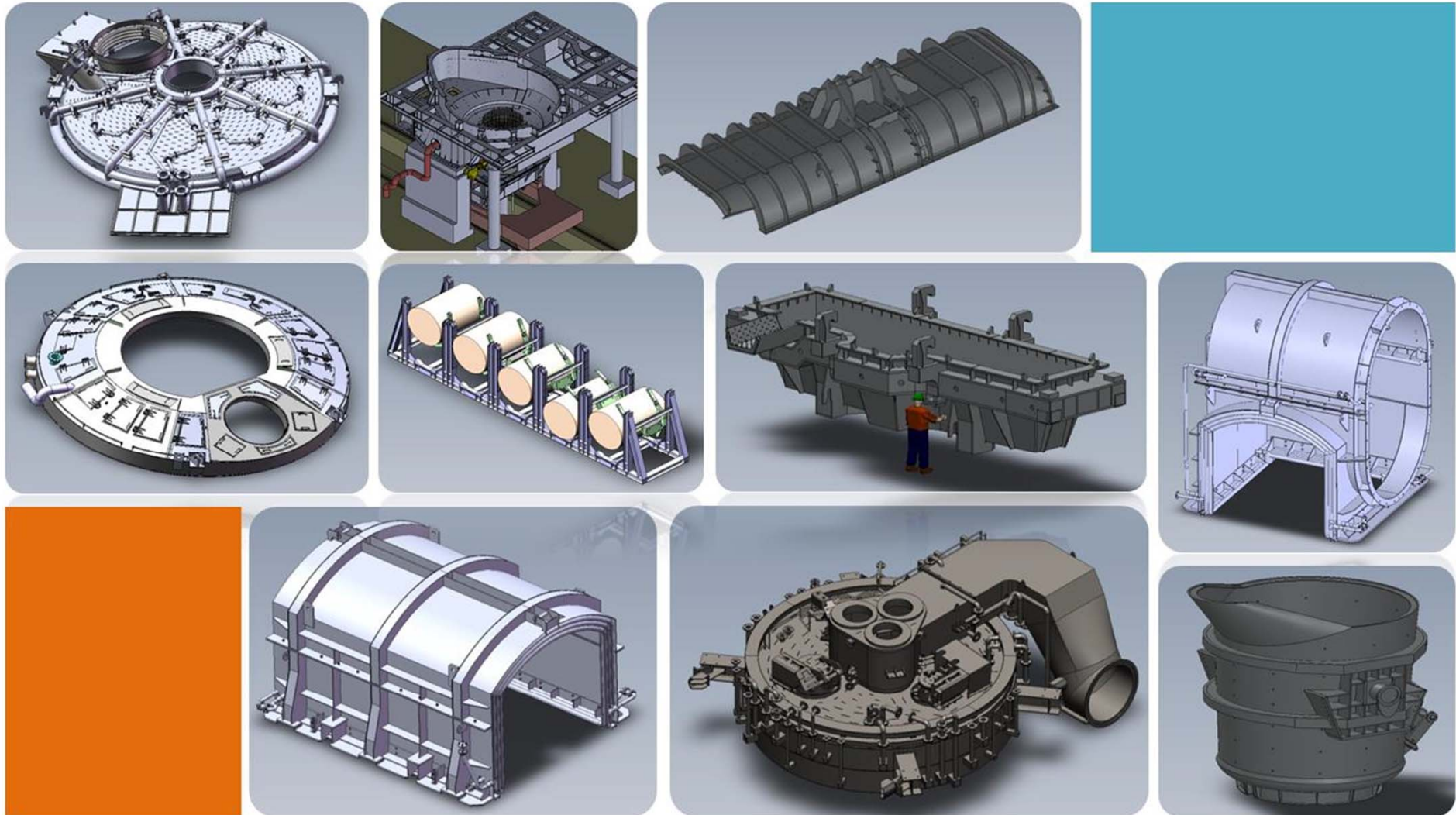
7. PRODUCTS DESIGN

M-TECH ENG has systematized the process of product development such as 3D modeling, structural analysis, drawing, design-data-management.

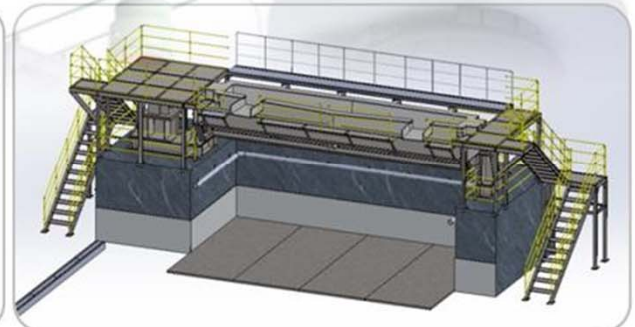
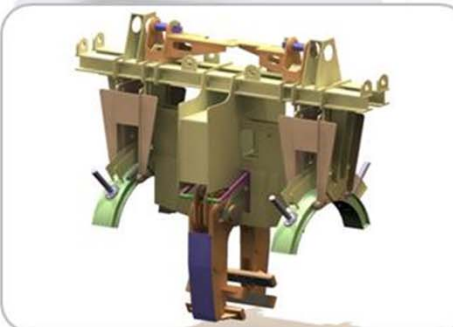
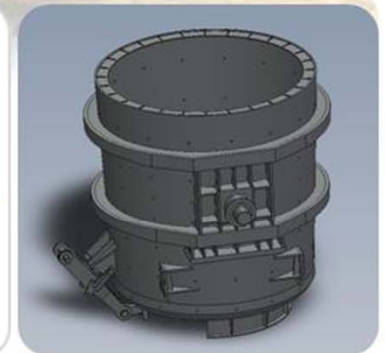
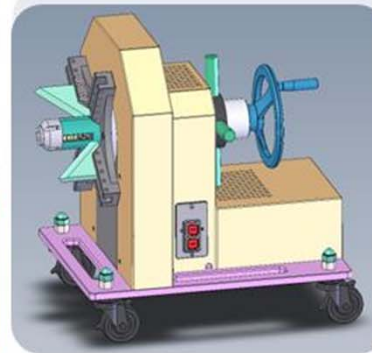
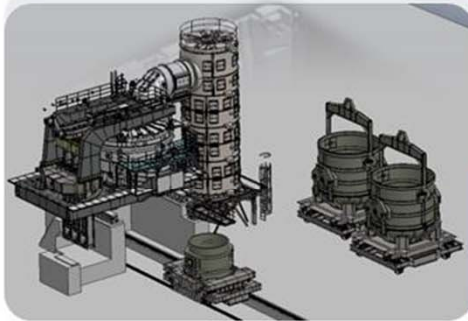
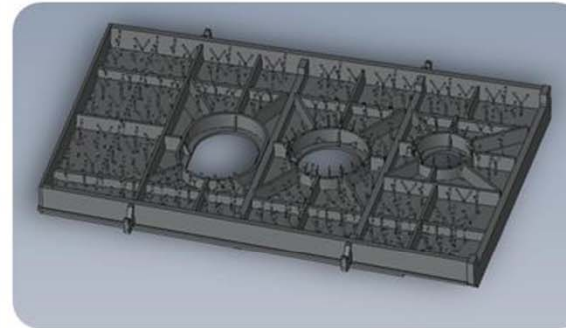
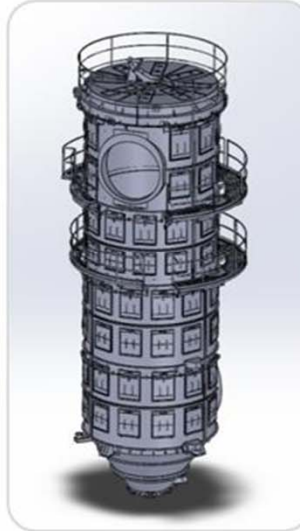
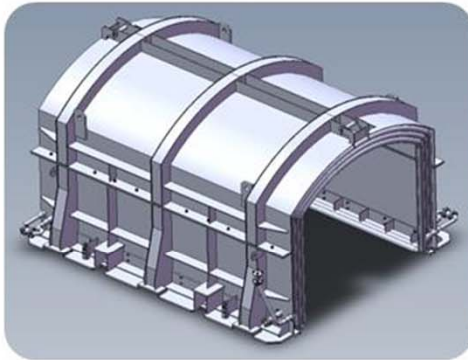
So, re-creating and supplying high-quality documents in order to share design results with customers.



8-1. Examples of product design-1

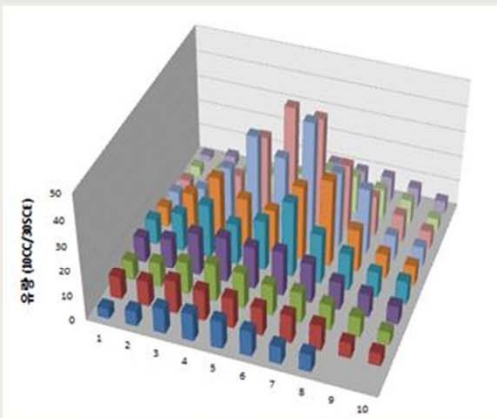


8-2. Examples of product design-2

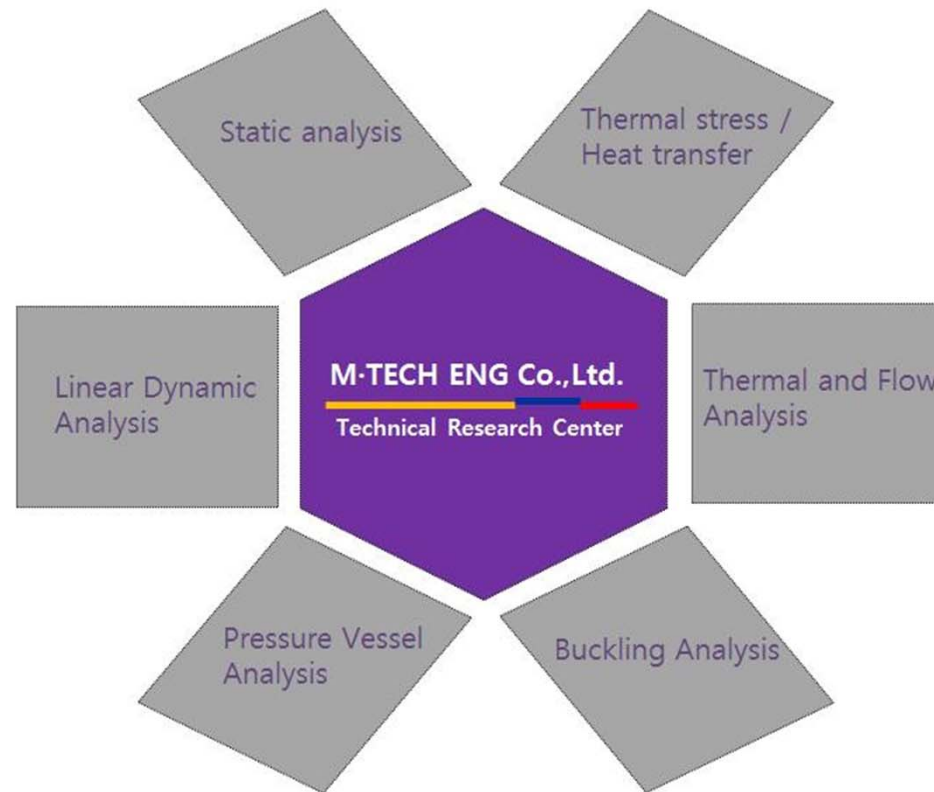


9. Simulations

M-TECH ENG is supplying the reliable and easy-to-read integrated analysis solution by analyzing the customer's intent and the use environment of products Based on the design experience and know-how that acquired over many years in the steel industry



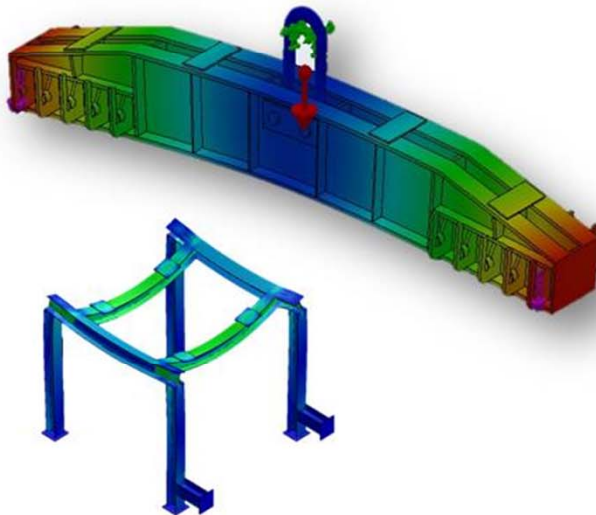
[Verifying the performance of spray nozzle]



10. Examples and application fields of simulation

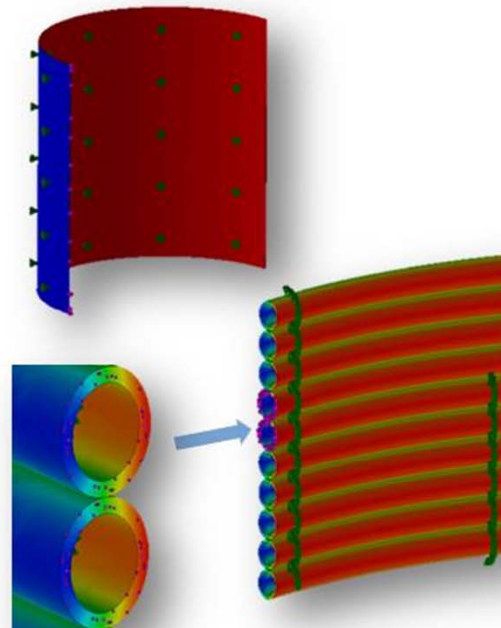
01. Static Analysis

Excess design or expected failure can be avoided through verification of structural analysis on the influence of each load or pressure.



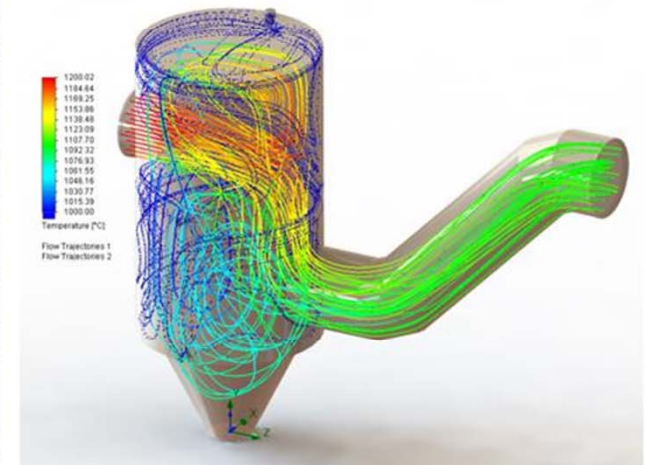
02. Thermal stress / Heat transfer

It is possible to verify cooling system such as predicting the temperature variation of products exposed on high temperature.



03. Thermal and Flow Analysis

Through predicting the velocity or temperature of fluid flow, The life time of system can be extended by taking advantage of these results.



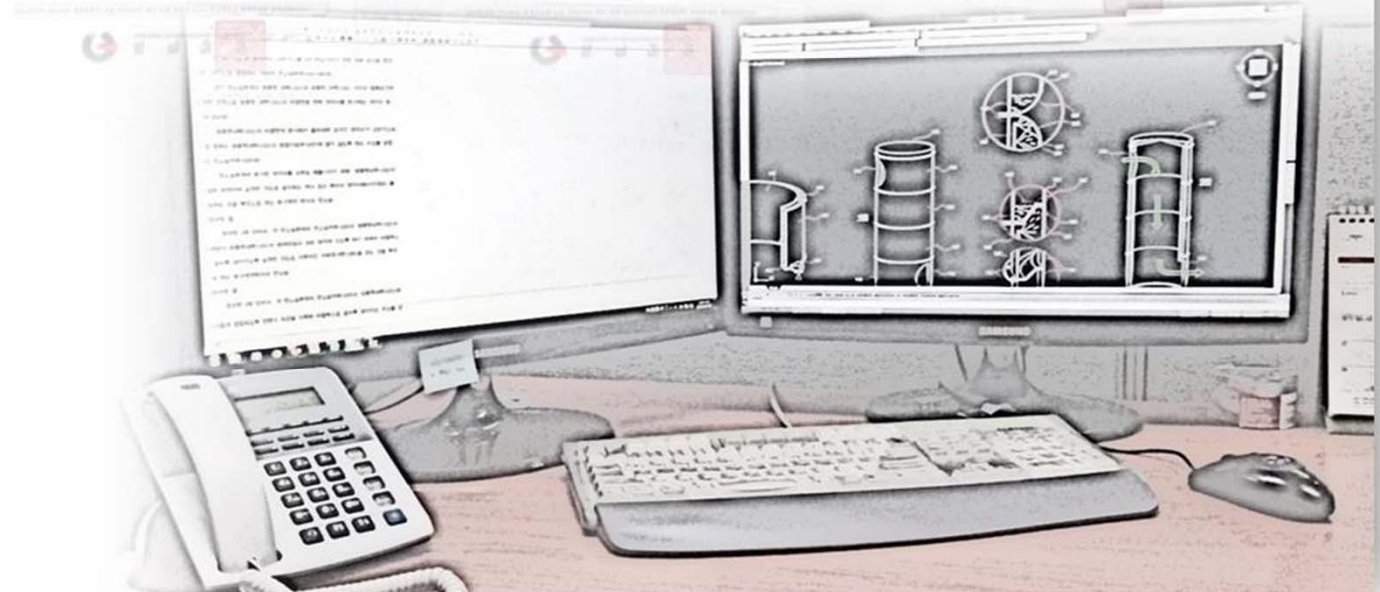
11. Intellectual property

M-TECH ENG is handling all procedures directly such as patent search, patent statement and patent registration

○ Patent registration – 3 cases

- A ROOF APPARATUS FOR LADLE FURNACE
- A COMBUSTION CHAMBER OF SPRAY COOLED TYPE
- WORKING CLOTHES FOR USER COMFORTABILITY

○ Patent-pending - 12 cases



12. Enterprises supported by government

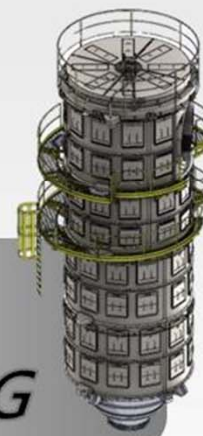
- New Technology Development Project in Small and Medium-sized Enterprises
 - Pipe Beveling Machine Development / 2009
 - Small/Medium Business Administration
- Patent Map Analysis Enterprise
 - Spray System / 2007
 - Chung-nam Intellectual Property Center
- Patent Map Analysis Enterprise
 - Electric Arc Furnace / 2009
 - Chung-nam Intellectual Property Center
- Consulting Enterprise of Foreign Patents Risk
 - Spray system / 2010
 - Korea Intellectual Property Protection Association
- Other enterprises
 - Certified IP STAR COMPANY / Chung-nam Intellectual Property Center
 - Patented product market research business
Chung-nam Northern commerce and industry, Chung-nam Intellectual Property Center
 - Patent application and Prior Art Search, Others



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Leading MTECH-ENG in the steel industry



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