

MME



***Mines and Metals Engineering GmbH***  
***Mines and Metals Engineering GmbH***  
***Mines and Metals Engineering GmbH***  
***since 1996***





*MME GmbH is officially established and registered company in Düsseldorf, Germany since 1996 to provide engineering services for mining and metals industries worldwide*







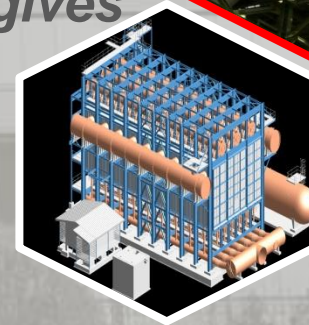
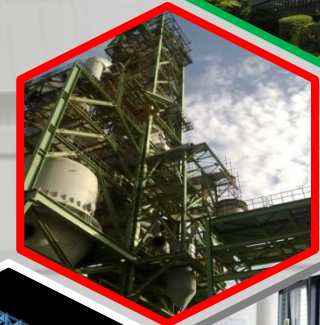
***MME GmbH can provide consultancy and support, development in projects from feasibility study guiding customers from concept to commissioning to realize their targets with high quality***





***MME GmbH staff are specialists of steel industries with excellent experience and high profile careers in different fields***

***The well established exposure in the field of management, engineering, construction, commissioning in steel plants worldwide gives guarantee of final product quality.***







***MME fields:***

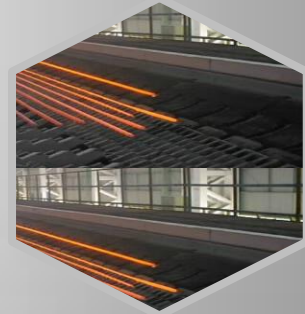
***Iron Mines Industries***

***Iron Making Industries – Direct Reduction***

***Steel Making Industries***

***Pelletizing plant***

***Rolling Mills***





***MME has a wide range of activities:***

***feasibility studies***

***engineering development and services***

***management for EPC project execution***

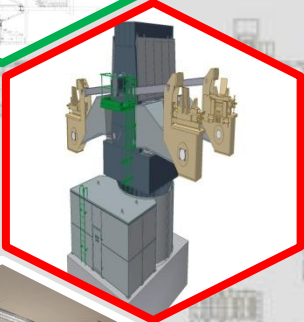
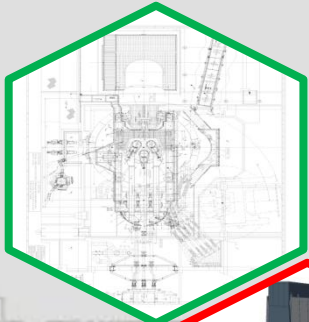
***start up and commissioning of plants***

***maintenance and spare parts management***

***systems and automation implementation***

***training and technical assistance services***

***project financing***







***MME is connected and supported by leading companies and well known experts in different fields to provide to the Customer best expectations***

***We are your partner to develop processes from Mines, Iron & Steelmaking, through Secondary Metallurgy up to Continuous Casting and Rolling Mill***







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 Hormozan St. · Shahrak Gharb  
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**MME GmbH** innovation is the passion

Looking to the future







# ***PERED***<sup>®</sup>

*Is the Direct Reduction Technology invented and patented*

*by*

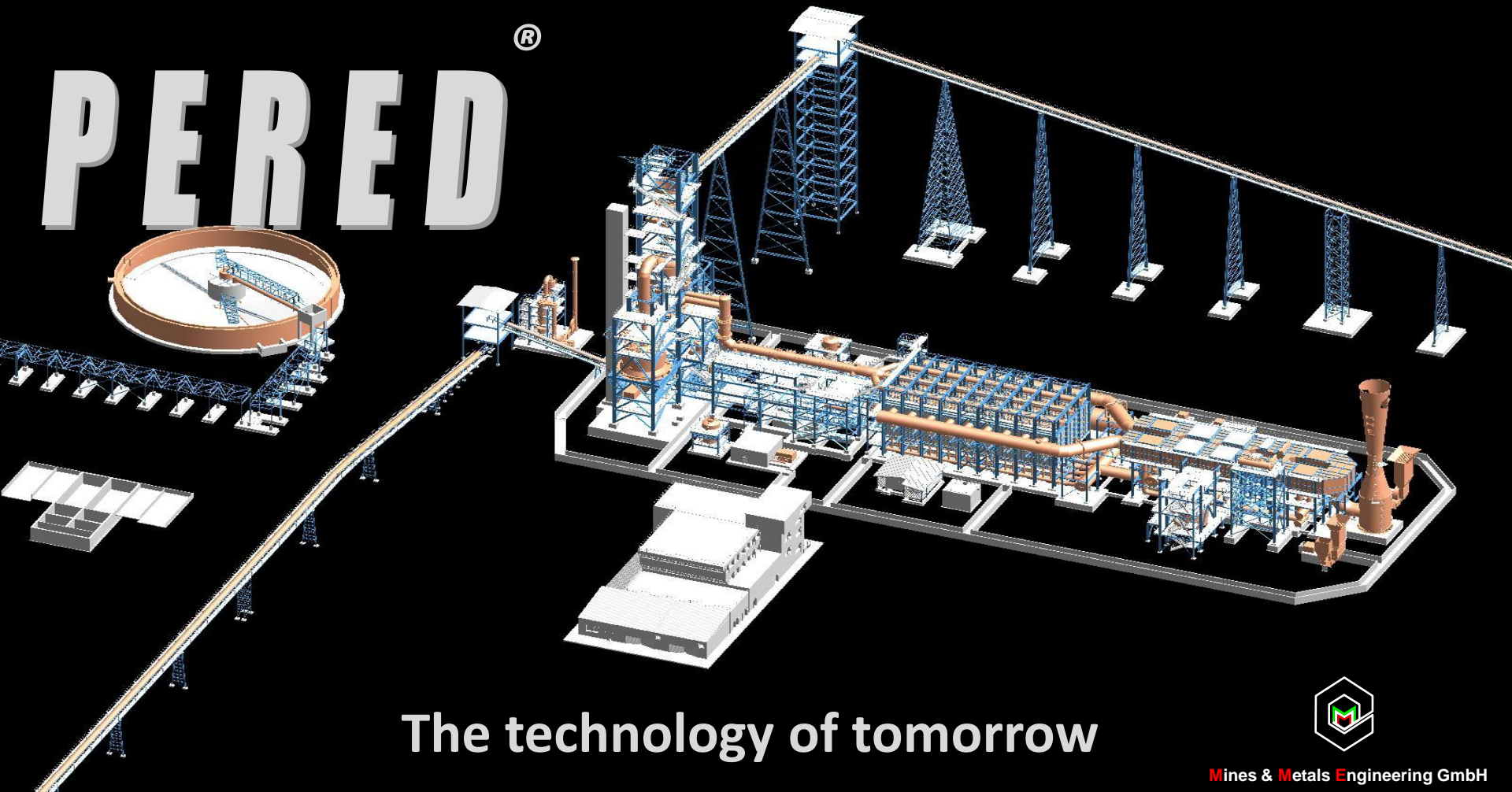
***Mines and Metals Engineering GmbH***



**Mines & Metals Engineering GmbH**



# PERED<sup>®</sup>



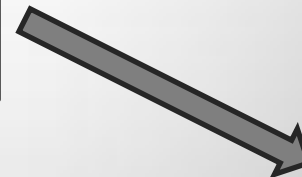
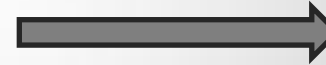
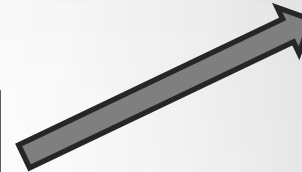
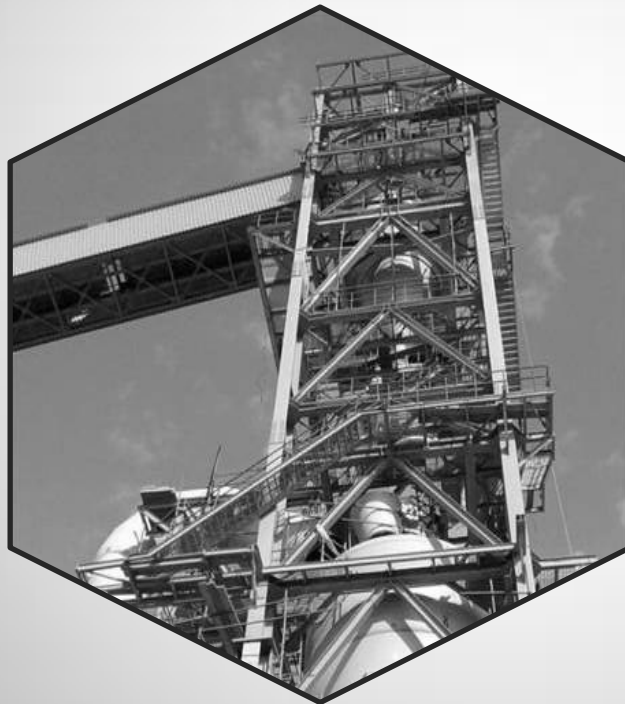
The technology of tomorrow



Mines & Metals Engineering GmbH



The PERED<sup>®</sup> Direct Reduction Process converts iron oxides, in the form of pellets or lump ore, to highly reduced product suitable for steel making





# **PERED<sup>®</sup>**

## **Goals and Benefits**

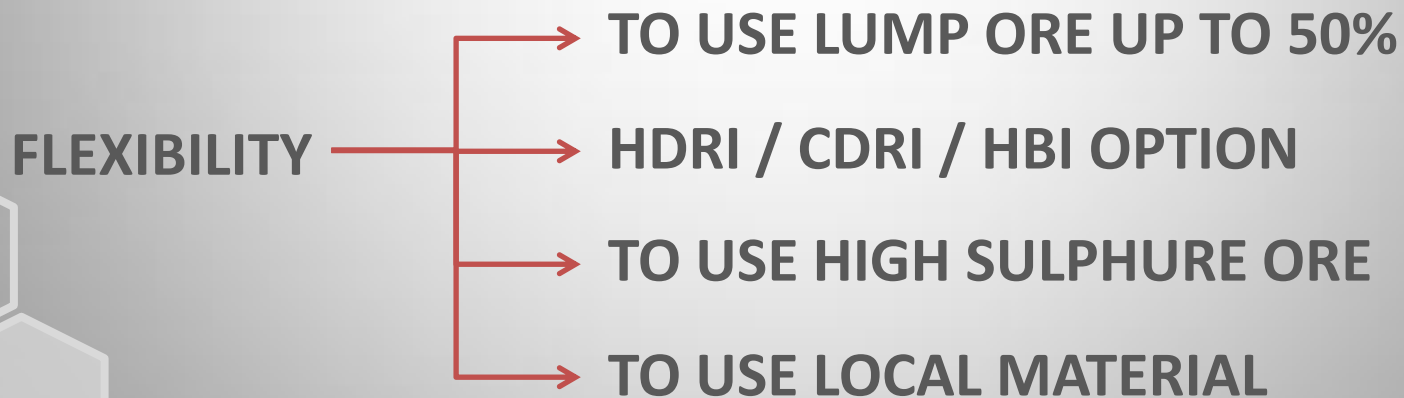






# **PERED<sup>®</sup>**

## **Goals and Benefits**



# BUNDESREPUBLIK DEUTSCHLAND

## URKUNDE

über die Erteilung des

## Patents

Nr. 10 2006 062 689

IPC

C21B 13/02 (2006.01)

Bezeichnung

Verfahren zur Gewinnung von Eisen aus

Patentinhaber

MINES and METALS Engineering GmbH (M.E.), München, D

Erfinder

Najmossadat, Seyed Mohammed Reza, Teheran, IR

Tag der Anmeldung

21.12.2006

München, den 22.01.2009



Die Präsidentin des Deutschen Patent- und Markenamts

*Rudolf-Schäffer*

Rudloff-Schäffer



Mines & Metals Engineering GmbH

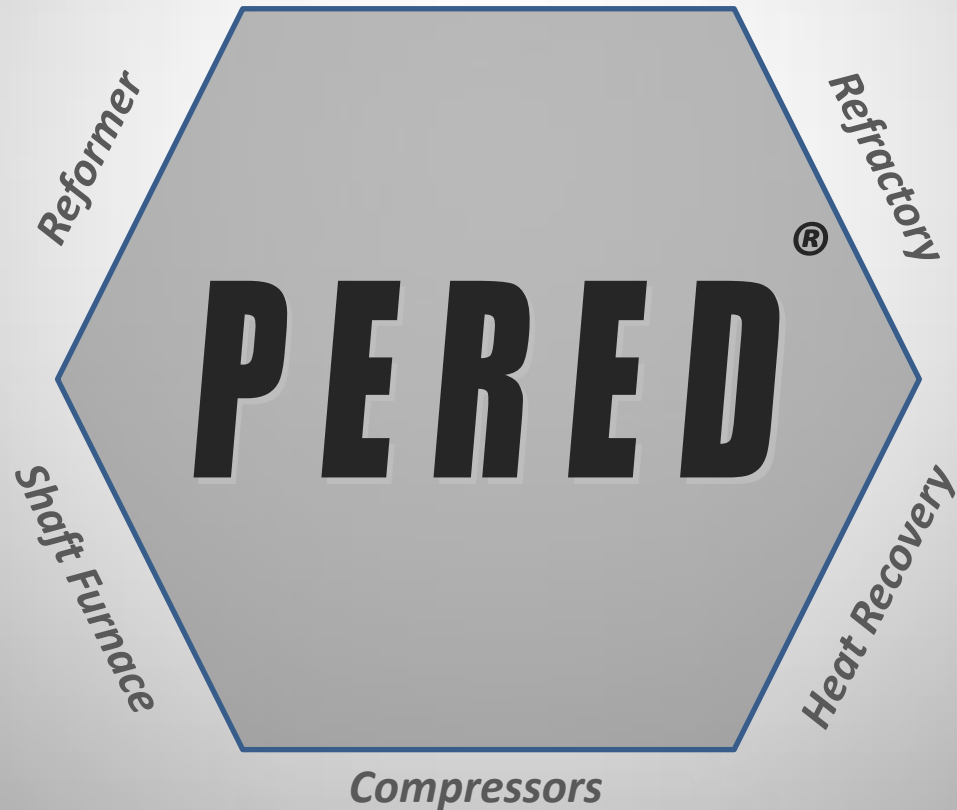
PATENTED IN GERMANY



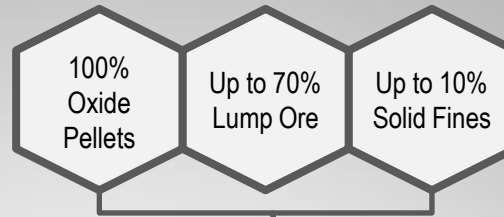


## Where we innovated

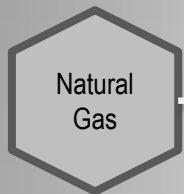
*Scrubbers*



## FEEDSTOCK OPTIONS



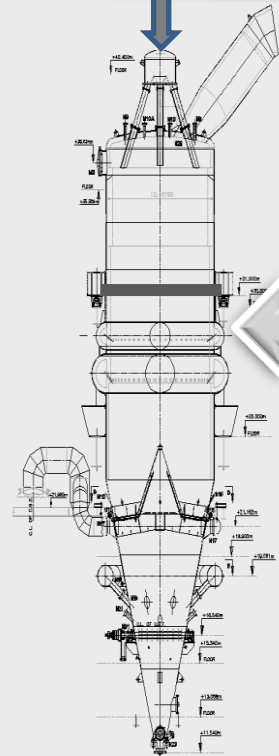
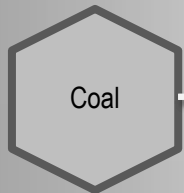
## ENERGY OPTIONS



## REFORMER OPTIONS



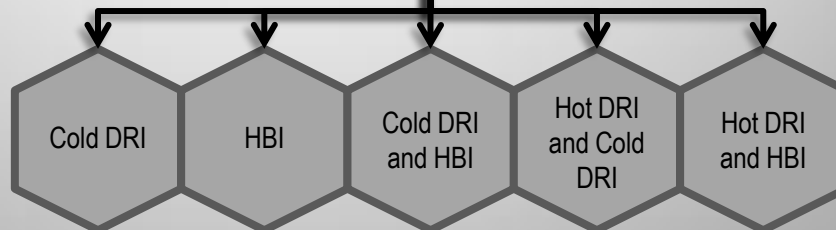
## COAL GAS OPTION



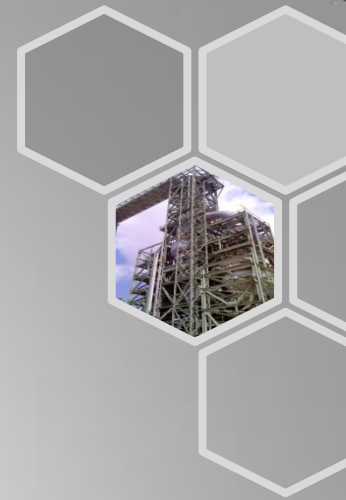
Shaft internal diameter  
5,65m to  
6,65 m

## MODULE CAPACITY OPTION

300.000 tpy to 2.200.000 tpy

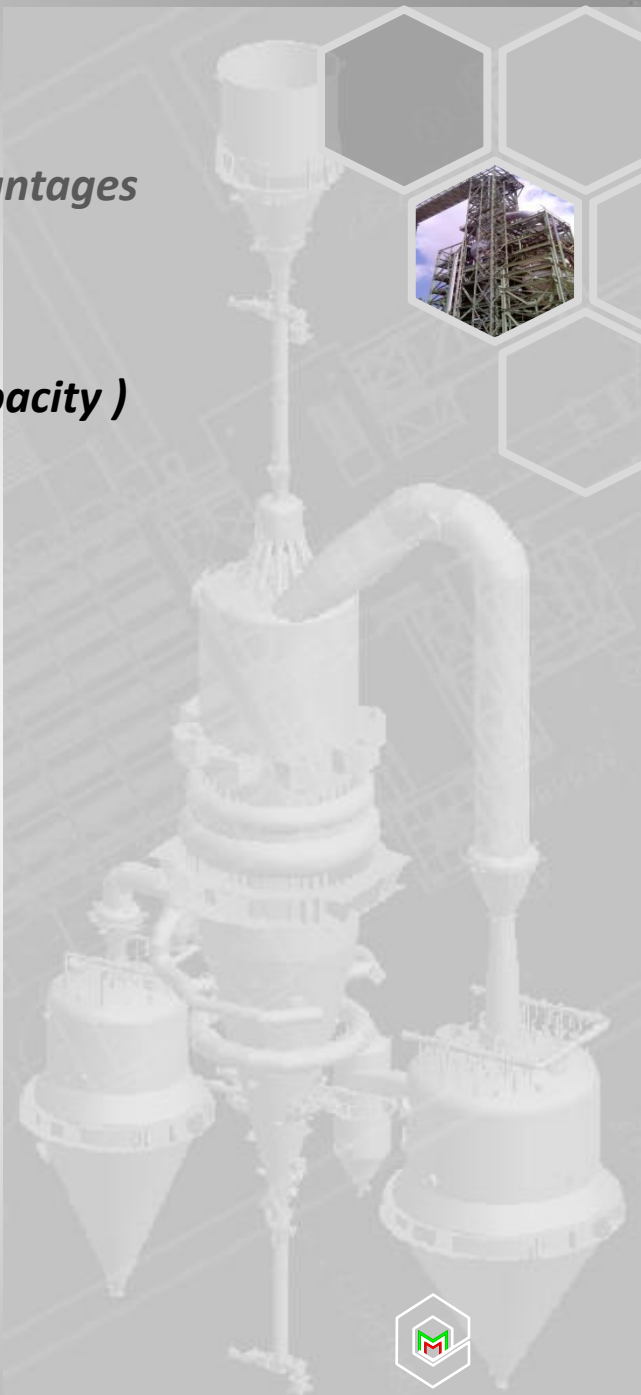
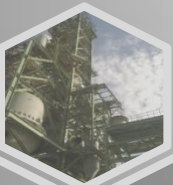


## PRODUCT OPTIONS



*PERED® technology brings the following advantages*

- *Less License fees ( per Ton of installed capacity )*
- *Lower capital investment*
- *Lower energy & operation costs*
- *Lower environment pollution*
- *Jumbo module for more than 1 MTPY*
- *Option for hot DRI / HBI*
- *Flexibility to use local high sulphur ore*







## LOOKING TO THE FUTURE

**MEGA MODULE DRI**

**HOT CHARGING OF DRI TO STEEL MAKING**

**HOT DRI TRANSPORT**

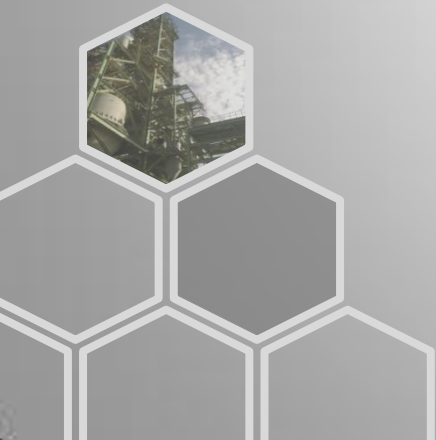
**BRIQUETTING OF COLD DRI**





*The continuous rising challenges on the steel market speed up or incentive to develop product to our Clients*

*Innovation is our passion and we develop new design looking always for Customer benefits*





***MME GmbH is your partner to develop the process in  
the Steel Making, Secondary Metallurgy up to  
Continuous Casting and Rolling Mills***



# ***Electric Arc Furnace***

***The market dictated to be flexible, MME gives the right solutions for Electric Arc Furnace***

- Eccentric Bottom Tap Hole***
- Current Conductive Electrode arms***
- Furnace Gantry***
- Roof Lifting and Swivelling system***



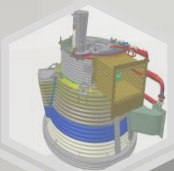


# ***Ladle Furnace***

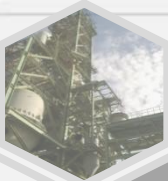
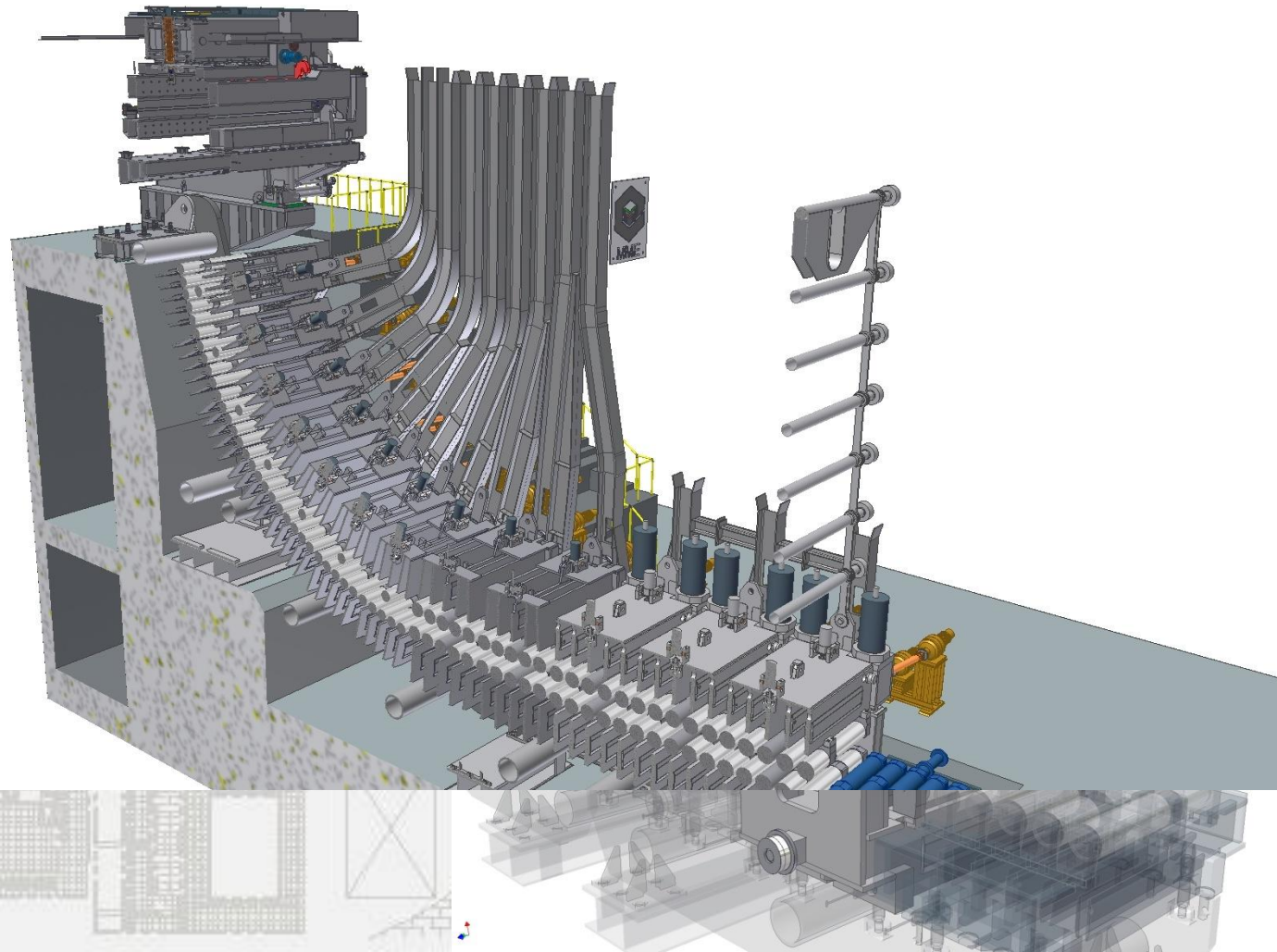
***MME designs the Secondary Metallurgy Process to improve the quality as well as productivity of the designed Steel Making Facilities***

***Ladle Furnace features gives***

- Water cooled roof***
- Wire feeding for de-oxydation and micro alloying***
- Automatic lance for temperature measuring and sampling***



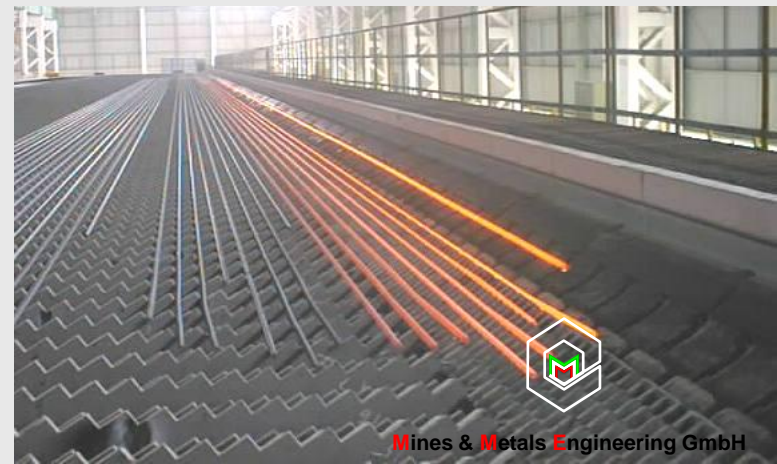
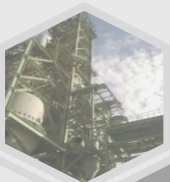
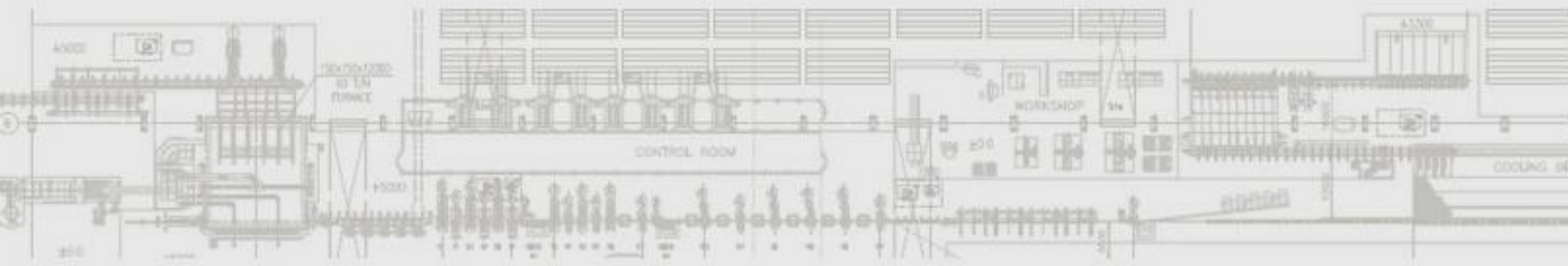
*The capability to complete Steel Making facilities is a continuous development in the scope of work of  
**Mines and Metals Engineering GmbH***







***The experience of MME is not limited to the Steel Making Plant but achieves the process and product allowing the production chain through different type of Rolling Mills***



***Mines and Metals Engineering GmbH experience can manage and support the Customer for the auxiliary plant to be installed in a Steel Making, Iron Making and Rolling Mill plants***

***Material Handling System***

***Material Scrap Handling***

***Water Treatment Plants***

***Dedusting Systems***

***Preheating and Drying Systems***

***Refractory Equipment and Management***

***Mobile Equipment definition and co-ordination***

***Compressed Air Plant***

***Fire Fighting Plants and HVAC installations***

***Automation Systems***

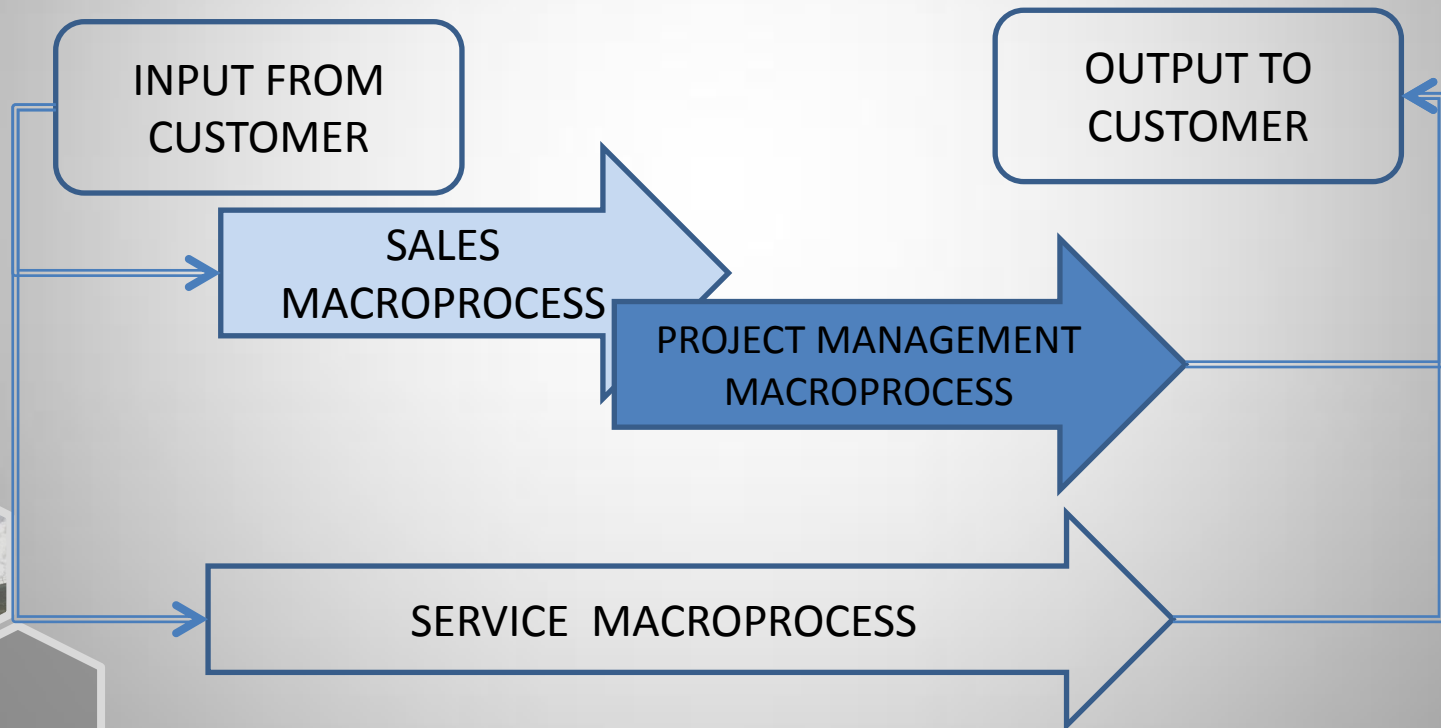
***Slag Reconditioning***



**Mines and Metals Engineering GmbH** serves the project by use of the most advanced techniques of management.

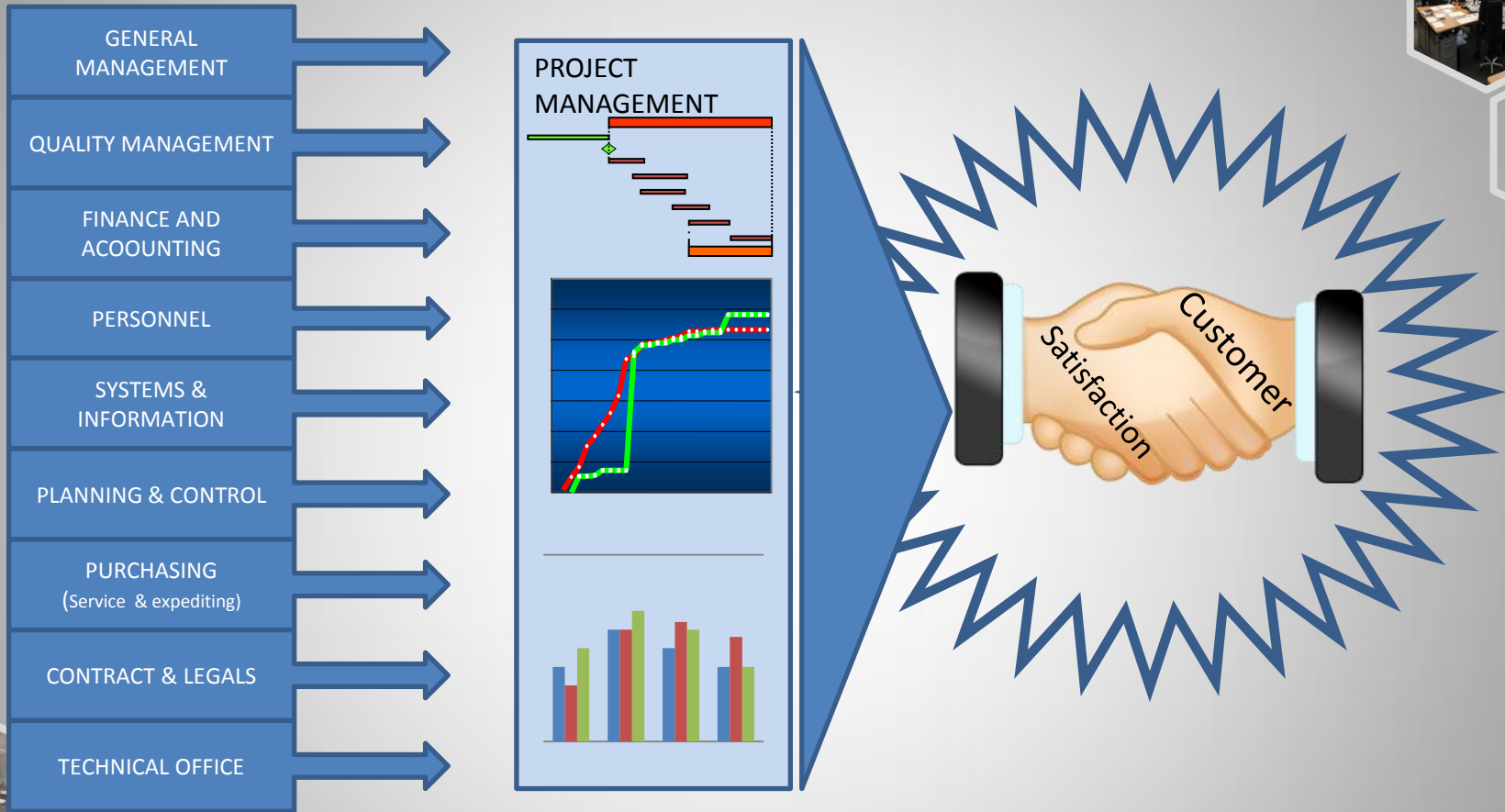
The Quality Management System is always our base for the project execution

## Business Macroprocess





# Business Macroprocess



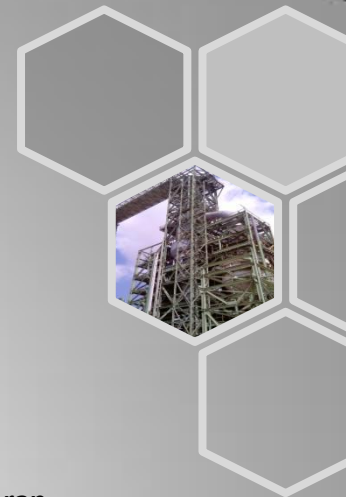
# MME Germany Headquarters

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Connection in 10 minutes  
from Düsseldorf International Airport  
Connection in 1 hour  
from Düsseldorf Weeze Airport

*"The combination of excellent  
experienced and highly motivated team  
of engineers is our foundation  
for customer satisfaction"*

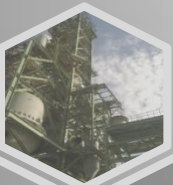
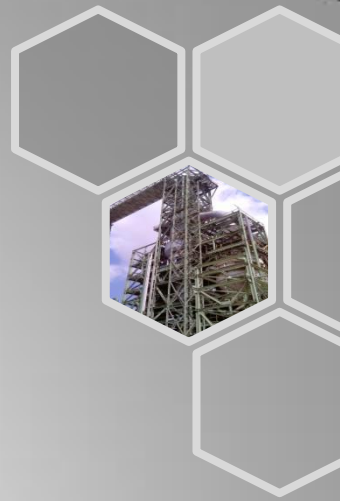


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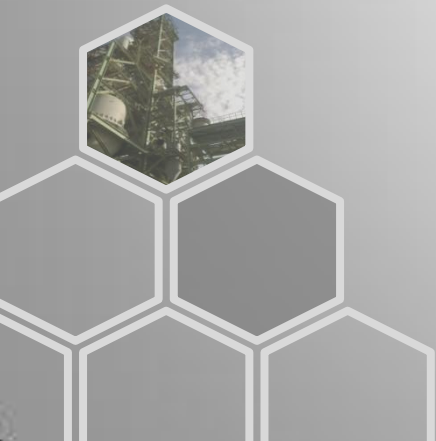
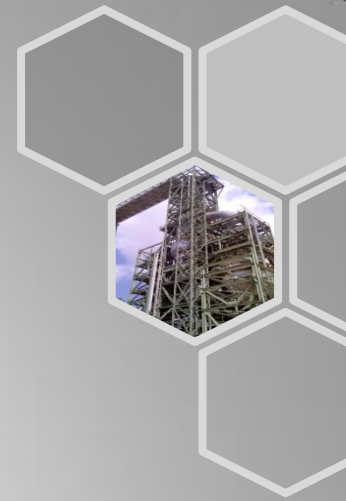


# ***Why MME ?***





# ***Because***



***we have the technology for  
today and tomorrow***

**M**ines and **M**etals **E**ngineering GmbH

**MME**

***The right partner for your next project***

