

# *Mould tubes and plates for continuous casting*



**... we give shape to steel**

## **A New Company With Long Experience**

- *EM Moulds is an Italian company specialized in copper moulds for continuous casting*
- *It is part of an Italian group leader in the world for copper and copper alloys products with more than 100 years of experience in this field*
- *EM Moulds has been founded in 2007, taking over the activity of Europa Metalli Spa, the company that 40 years ago started to produce moulds for continuous casting*

The plant in 1915 ...

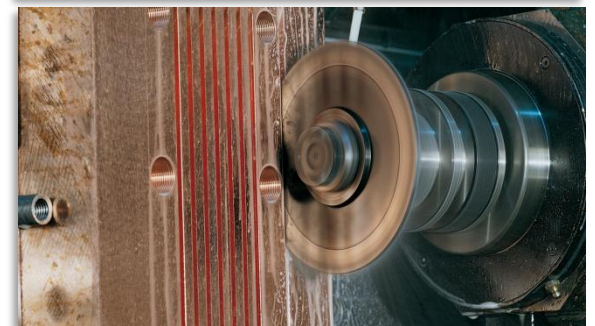


... and nowadays



## Some Figures

- **30 m€ turnover**
- **1000 tons of tubular and plate moulds production**
- **80 employees**
- **25 sales agencies in different countries**
- **more than 400 customers in the world**




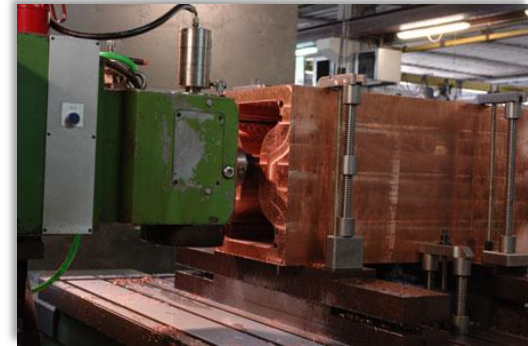
## Our Main References

- **Official supplier of** Danieli Spa
  - **Domestic market:** Riva Group, Pittini Group, Tenaris Dalmine, San Zeno Acciai - Nucor, Beltrame Group
  - **In Europe:** Arcelor Mittal Group, Tata Group, Celsa Group, Evraz Holding, V&M
  - **In America:** Gerdau Group, Nucor Group, Tenaris Group, Votorantim, Arcelor Mittal, De Acero
  - **In Asia:** Baosteel, Tata Steel, Jindal Group, SAIL, Essar
  - **In Africa:** Iscor Group, Mittal Algeria, Ezz Industries
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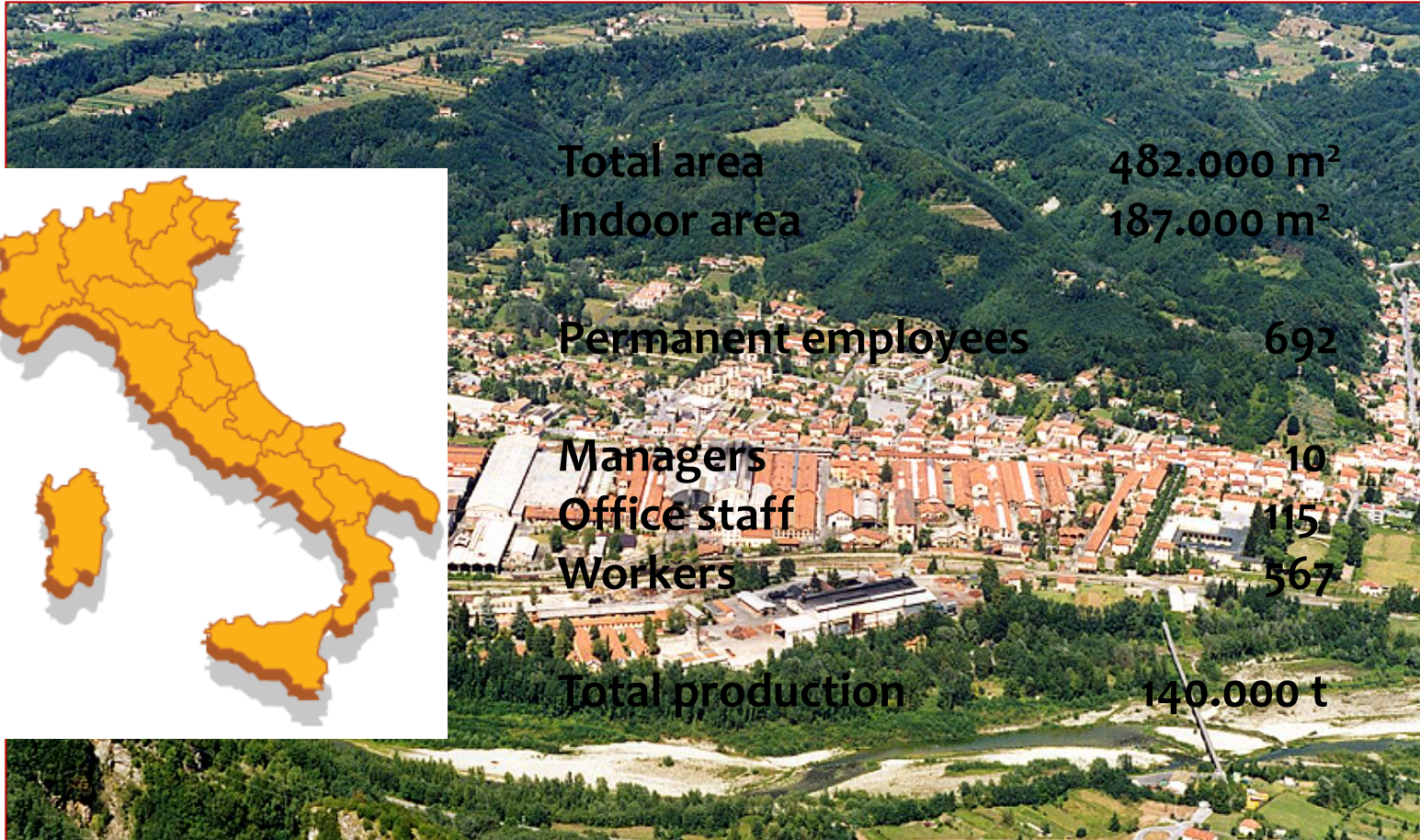


## Production Plant

- Our production plant is located in Fornaci di Barga, in the centre part of Italy
- It is a fully integrated plant with melting and casting equipments
- It is certified ISO 9001:2015 
- It has all the equipments and facilities to produce moulds from casting to coating



## A View Of The Plant



Total area	482.000 m <sup>2</sup>
Indoor area	187.000 m <sup>2</sup>
Permanent employees	692
Managers	10
Office staff	115
Workers	567
Total production	140.000 t

## ***Our Products***

- **Tubular Moulds for Billet, Bloom, and Beam Blanks Casters**
- **Plate Moulds for Slab, Bloom and Beam Blank Casters**
- **Water Jackets for Tubular Moulds**





## Moulds Production Process

### Tubular moulds

- Melting & Casting
- Hot extrusion or Forging
- Cold drawing
- Tapering
- Machining
- Coating
- Final Inspection



### Plate moulds

- Melting & Casting
- Hot rolling or Forging
- Cold rolling
- US inspection
- Machining
- Coating
- Final Inspection



## Moulds Materials

Material	<b>MM1</b> <b>CuDHP</b>	<b>MM2</b> <b>CuAg</b>	<b>MM3</b> <b>CuCrZr</b>	<b>MM8</b> <b>CuNiP</b>
Chemical composition	P 0.015-0.040	Ag 0.08-0.12 P 0.004-0.012	Cr 0.30-1.20 Zr 0.03-0.30	Ni 0.47-0.53 P 0.09-0.115
Thermal conductivity at 20°C (W/mK)	340	377	325	284
Recrystallization Temperature	330	370	700	600
Hardness (HB)	93	95	125	115

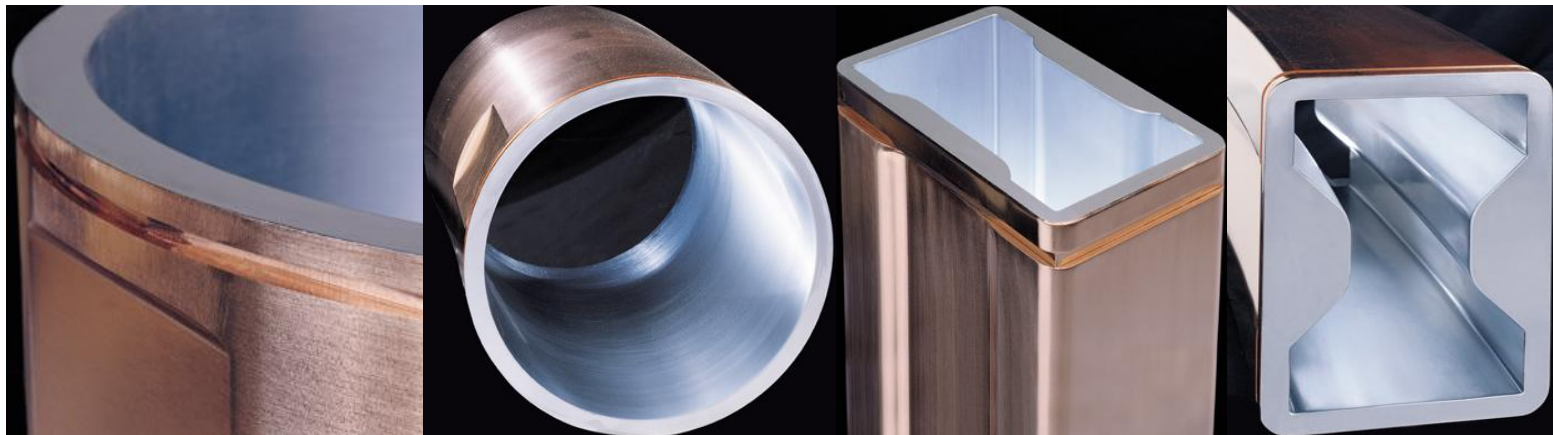
## Moulds Coatings

Material	MM1 CuDHP	Nickel	Chromium
Coefficient of thermal Expansion (°C <sup>-1</sup> )	1,68 10 <sup>-5</sup>	1,28 10 <sup>-5</sup>	0,84 10 <sup>-5</sup>
Thermal conductivity at 20°C (W/mK)	340	88	70
Hardness (HV)	93	220	980

## **Tubular Moulds**

### **Products range**

- **Materials:** MM1, MM2, MM3 and MM8
- **Shapes:** Any shape
- **Sizes:** Over 1200mm diagonal, any length
- **Internal profile:** from single to parabolic taper
- **Coating:** Cr, Ni+Cr , others

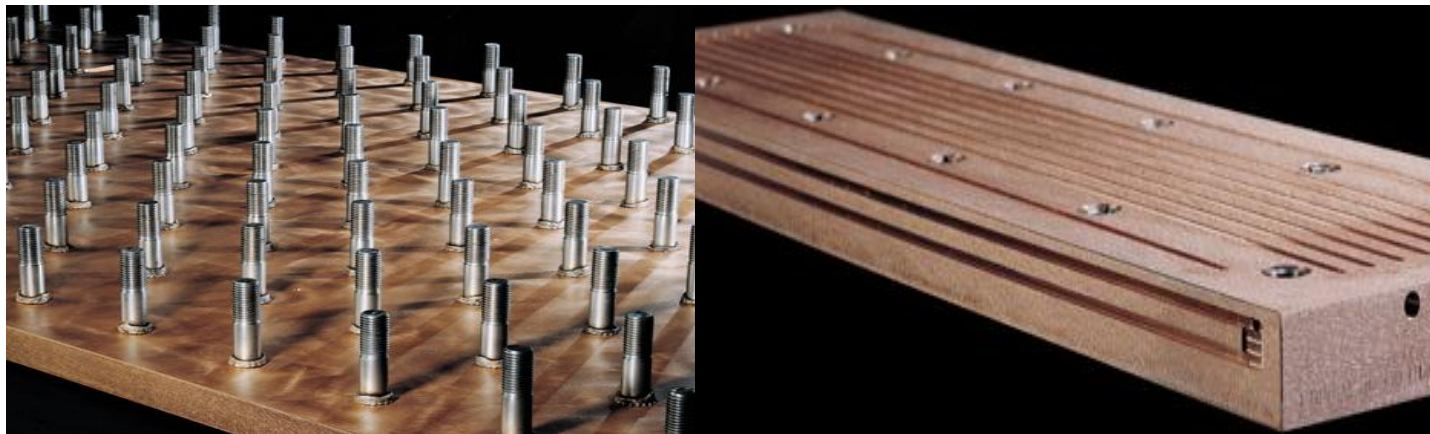




## Plate Moulds

### Products range

- **Materials:** MM2, MM3 and MM8
- **Design:** with cooling slots, drilled channels, welded studs, beam blank
- **Coating:** Cr, Ni+Cr , Ni alloys , others



## Quality Assurance

- EM Moulds got the ISO certification after his constitution in 2007. It is one of the few italian companies to have achieved the ISO9001:2015
- Since 2001 all production lines of Fornaci di Barga plant have been qualified according to UNI EN ISO 9001 : 2000
- Our first Quality Management System dates from 1993. All management and production processes are regulated by written procedures.
- Complete product traceability from melting.



## **Technical Service and Design**

- At the service of our customers with experienced technicians to solve casting problems and improve performances
- Personalized solutions, practical suggestions, training, mould maintenance courses





## **Research & Development**

- EM Moulds is using the competence and experience of Fornaci di Barga Research Centre, a department with 15 researchers who dedicate their activity to product and production process development
- Our Research Centre competences cover metallurgy, chemistry, surface treatments, heat exchange.
- Our R&D Centre works in cooperation with many Universities and international institutions in the field of copper
- Research Centre is available to offer assistance to our customers



## Some of the EM customers in the world

SALMAN GOHAR	ARABIA SAUDITA	EMIRATES STEEL IND.	EMIRATI ARABI UNITI
ACINDAR I.A. ACEROS	ARGENTINA	STRONGHOLD STEEL	FILIPPINE
SIDERCA S.A.I.C.	ARGENTINA	SAM NEUVES MAISONS	FRANCIA
ONESTEEL SYDNEY	AUSTRALIA	V & M FRANCE	FRANCIA
ONESTEEL	AUSTRALIA	LME TRITH	FRANCIA
DANIELI ENGINEERING	AUSTRIA	BRANDENBURGER ELEKTR	GERMANIA
MEGHNA ENGINEERING W	Bangladesh	HES HENNIGSDORFER EL	GERMANIA
SHEEMA	Bangladesh	GIC INTERNATIONAL	GERMANIA
BASHUNDHARA STEEL CO	Bangladesh	SPECIAL STEELS LTD.	GHANA
THY MARCINELLE	Belgio	CORUS	GRAN BRETAGNA
MITTAL STEEL	Bosnia Herzegovina	HELLENIC HALYVOURGIA	GRECIA
GEARDAU ACOMINAS	BRASILE	STEEL AUTHORITY OF I	INDIA
GERDAU SA-DIVINOPOLI	BRASILE	TATA STEEL	INDIA
GERDAU S.A.- S.CRUZ	BRASILE	RASHTRIYA ISPAT NIGA	INDIA
GERDAU ACOMINAS	BRASILE	JINDAL VIJAYANAGAR S	INDIA
SIDERURGICA BARRA MA	BRASILE	VIRAJ FORGINGS LTD	INDIA
ARCELORMITTAL	BRASILE	MUKAND LIMITED	INDIA
GERDAU SA-ARAUCARIA	BRASILE	ISMT	INDIA
VOEST	BRASILE	M/S SUMANGALA STEEL	INDIA
GERDAU S.A.- RECIFE	BRASILE	SUPER SMELTERS LIMIT	INDIA
GERDAU S.A.-BARAO DE	BRASILE	VARDHMAN SPECIAL STE	INDIA
ARCELORMITTAL	BRASILE	JAY JAGDAMBA	INDIA
ARCELORMITTAL	BRASILE	USHA MARTIN INDUSTRI	INDIA
STOMANA INDUSTRY A.D	BULGARIA	HARISONS STEEL	INDIA
RIO TINTO FER ET TIT	CANADA	AMBICA STEELS	INDIA
GERDAU ACOMINAS KY	Cayman Islands	BHUSHAN STEEL AND ST	INDIA
DANIELI CHANGSHU	CINA	CONCAST(INDIA) LIMIT	INDIA
MINMETALS	CINA	V.K.G.	INDIA
ACERIAS	COLOMBIA	LAXCON STEELS	INDIA
KOREA STEEL	COREA DEL SUD	SHREE PARASNATH	INDIA
SEAH BESTEEL	COREA DEL SUD	MODERN STEELS LIMITE	INDIA
ACIERIES DE COTE	COSTA DAVORIO	PT HANIL JAYA METAL	INDONESIA
AL EZZ STEEL REBARS	EGITTO	PT GUNUNG GAHAPI SAK	INDONESIA
ARAB COMPANY FOR SPE	EGITTO		
EMIRATES	EMIRATI ARABI UNITI		

## Some of the EM customers in the world

JOINT STOCK	RUSSIA	TRAN ALLOY STEEL CO.	IRAN
JOINT STOCK	RUSSIA	YAZD ROLLING	IRAN
NOVOROSMETALL	RUSSIA	DANIELI & C. SPA	ITALIA
IZHSTAL	RUSSIA	RIVA ACCIAIO	ITALIA
WEST SIBERIAN	RUSSIA	FERRIERE NORD SPA	ITALIA
ABINSKIY	RUSSIA	ACCIAIERIE VENETE SP	ITALIA
ZELEZIARNE PODBREZOV	Slovacchia	STG GROUP SPA	ITALIA
GSW GLOBAL STEEL WI	SPAGNA	ALFA ACCIAI SRL	ITALIA
SIDERURGICA SEVILLAN	SPAGNA	FERALPI	ITALIA
COMPANIA ESPANOLA DE	SPAGNA	ORI MARTIN SPA	ITALIA
CORRUGADOS GETAFE SL	SPAGNA	RIVA ACCIAIO	ITALIA
CUPRUM S.A.	SPAGNA	ABS ACCIAIERIE BERTO	ITALIA
CAPE GATE	SUDAFRICA	AFV ACCIAIERIE	ITALIA
DANIELI FAR EAST	TAILANDIA	RIVA ACCIAIO	ITALIA
CHIEN SHUN STEEL CO.	TAIWAN	DALMINE S.P.A.	ITALIA
KROMAN CELIK SANAYII	TURCHIA	ACCIAIERIA RUBIERA S	ITALIA
IZMIR DEMIR	TURCHIA	ACCIAIERIE DI SICILI	ITALIA
DILER DEMIR CELIK EN	TURCHIA	INDUSTRIE RIUNITE OD	ITALIA
KARDEMIR	TURCHIA	COGNE ACCIAI SPECIAL	ITALIA
STEEL ROLLING	Uganda	LUCCHINI S.P.A.	ITALIA
PRIVATE JOINT	UKRAINE	SAN ZENO ACCIAI DUFE	ITALIA
OJSC INTERPIPE	UKRAINE	KME ITALY SPA	ITALIA
DNEPROVSKY IRON	UKRAINE	KENIA UNITED STEEL	KENIA
OAM OZDI ACELMUVEK K	UNGHERIA	AL OULA STEEL MFG.	KUWAIT
GERDAU LAISA	URUGUAY	SONASID	MAROCCO
STERLING STEEL	USA	TERNIUM	MESSICO
DANIELI	USA	DEACERO S.A. DE C.V.	MESSICO
CHARTER STEEL	USA	TUBOS DE ACERO DE ME	MESSICO
KEYSTONE STEEL	USA	FONDERIA, S.A.	MESSICO
GERDAU	USA	AMRELI STEELS	PAKISTAN
NUCOR STEEL TEXAS	USA	REHMAT STEEL FURNACE	PAKISTAN
CHARTER STEEL	USA	ACEPAR S.A.- ACEROS	PARAGUAY
GERDAU AMERISTEEL CH	USA	SIDERURGIA	PORTOGALLO
CASCADE	USA	SILCOTUB S.A	ROMANIA
SIDERURGICA ZULIANA	VENEZUELA		



# Thanks for your attention



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