MI.DA.

Innovations in Continuous-Continuous Casting Through Rolling Technologies

June 6, 2023
WHAT IS MI.DA.?
CONVENTIONAL BILLET TO BILLET PROCESS

- Up to 350 kWh/ton saved
- Scope 1 CO₂ emission down to 43 kg/ton
- Up to +4% yield less scale & trimming
- Up to 50 US$/ton opex savings
Compact
Regional, scrap recycling
Energy saving
Quality
Digi&Met Automation, power & robots solutions

- Digimelter
  Powered by Q-One
  Controlled by Q-Melt

- Octocaster
  Endless Casting and Rolling

- Energy Saving Compact
  Rolling and finishing

Row Material
CHARGING

MELTING
CASTING
ROLLING
FINISHING

Less than 2 hours

This document contains proprietary information of Danieli & C. Officine Meccaniche S.p.A., not disclosable, not reproducible. All Rights Reserved.
> **PROFITS** : up to 50 US$/ton OPEX saved
> **PLANET** : down to 43 kg_{\text{scope 1 CO}_2}/ton emissions
> **PEOPLE** : safe, skilled and satisfied
> **QUICKNESS** : Full operation in less than 6 months
> **QUANTITY** : 99% yield + 4.5% run light
> **QUALITY** : best shapes, properties and tolerances
MI.DA.
KEY TECHNOLOGIES
ECO-POWER MOULD®
COPPER MOULD DESIGN

FAST CAST CUBE®
DANIELI MOULD OSCILLATOR

Q-COOL®
AUTOMATED COOLING AND SOLIDIFICATION CONTROL
Q-HEAT®
DANIELI INDUCTION HEATERS

ESS STAND®
DANIELI CANTILEVER STANDS

HOUSINGLESS STANDS
DOUBLE SUPPORT,
CARTRIDGE STANDS
QUICK CHANGING

MI.DA.
INNOVATIONS

ROLLING MILL - KEY TECHNOLOGIES

MI.DA.
INNOVATIONS
Bar Line
From Rebar Ø 8 to 40 mm

Spooler Line
From Rebar Ø 8 to 25 mm

Wire Rod Line
From Rebar Ø 6 to 32 mm
From Round Ø 5.5 to 25 mm

Merchant Line
Angles up to 120x15 mm
Channels up to 160x60 mm
Flats up to 160 mm
Rounds up to Ø75 mm
Squares up to 75x75 mm
FOCUS ON

DANIELI OCTOCASTER®

New pillar of the Endless Casting and Rolling technology
BILLET BULDGING

Casting direction

Solidified shell

Ferostatic pressure

BULDGING

This document contains proprietary information of Danieli & C. Officine Meccaniche S.p.A., not disclosable, not reproducible. All Rights Reserved.
Billet

Octagon
MI.DA. INNOVATIONS

OPTIMAL SHAPE: CONTACT INSIDE MOULD

STANDARD

ROUND

OCTAGON

FOUR POINT CONTACT

UNSTABLE CONTACT

GOOD CONTACT ON 8 POINTS
PASS DESIGN

STANDARD

1 H - stand

2 V - stand

3 H - stand

4 V - stand

OCTAGON

PASS DESIGN
MI.DA. INNOVATIONS

MOULD DEVELOPMENTS

Low speed Technology - 2000

Up to 5 m/min

POWER MOLD 2000-2018

Up to 7 m/min

OCTOCASTER 2018-

> 7 m/min
OCTAGON TEST @ EGYPTIAN STEEL IN 2016
Cruise casting speed @ CMC
353 ipm (9 m/min)

A memento to remember the achievement of the first octagon at CMC
MI.DA.
REFERENCES
IN OPERATION [13]

26 worldwide references

CONSTRUCTION/COMISSIONING [13]
1ST MIDA QLP®
USER MEETING
September 2022
> Total Material Yield in 2022: 99.42% (WRM is slightly higher than Bar Line);
> The Longest Endless Billet Length: 5300 meters;
> The Maximum Endless Casting and Rolling Weight: 1500 ton per strand;
> At present, we are using high speed steel rollers for bar mill, and will change to carbide rollers in the coming months for decreasing change groove time.
CONCLUSIONS
MI.DA. INNOVATIONS

MIDA - ENDLESS CASTING AND ROLLING

REDUCED CARBON FOOTPRINT AND EMISSIONS

CIRCULAR ECONOMY AND SUSTAINABILITY

ENERGY SAVINGS

PROVED TECHNOLOGY AND QUICK LEARNING

REDUCED CAPEX AND OPEX

PRODUCT QUALITY
MAX CONTINUOUS PRODUCTIVITY ON SINGLE STRAND:
> **111 tph** @ Guilin Pinggang

MAX CONTINUOUS CASTING SPEED:
> **9,0 m/min** @ CMC

LONGEST UNINTERRUPTED SEQUENCE:
> **66 Heats (48 h)** @ Egyptian Steel

HIGHEST YIELD:
> **99.7%** @ PINGGANG – Wire Rod Line

SHORTEST ENDLESS COMISSIONING:
> **Endless mode during the very first heat** @ Nucor

LONGEST CONTINUOUS BILLET ROLLED:
> **11,000 meters** @ CMC
> 10+ M/Min casting speed
> 7 Days continuous casting and rolling production
> Endless production of merchant bar
> First MIDA hybrid in operation
> Full digital MIDA
MI.DA.
Innovations in Continuous-Continuous Casting Through Rolling Technologies

June 6, 2023