

FRANK OTTERBACH
EXECUTIVE SALES MANAGER
DANIELI FRÖHLING

4th IAC IRAN INTERNATIONAL
ALUMINIUM CONFERENCE
OLYMPIC HOTEL
TEHRAN, IRAN
11-12 MAY 2016

DANIELI CENTRO ALUMINIUM “DIAMOND” COLD ROLLING MILL TECHNOLOGY

DANIELI
PASSION TO INNOVATE
AND PERFORM
IN THE METALS INDUSTRY



DANIELI TEAM
A CENTURY
OF PARTNERSHIP
EXPERIENCE

1. **DIAMOND MILL SOLUTION**
2. **MAIN FEATURES**
3. **PROCESS CONTROL**
4. **RECENT REFERENCES**

Danieli's Diamond Mill meets and exceeds Market Requirements for flat cold rolled products.



AUTOMOTIVE



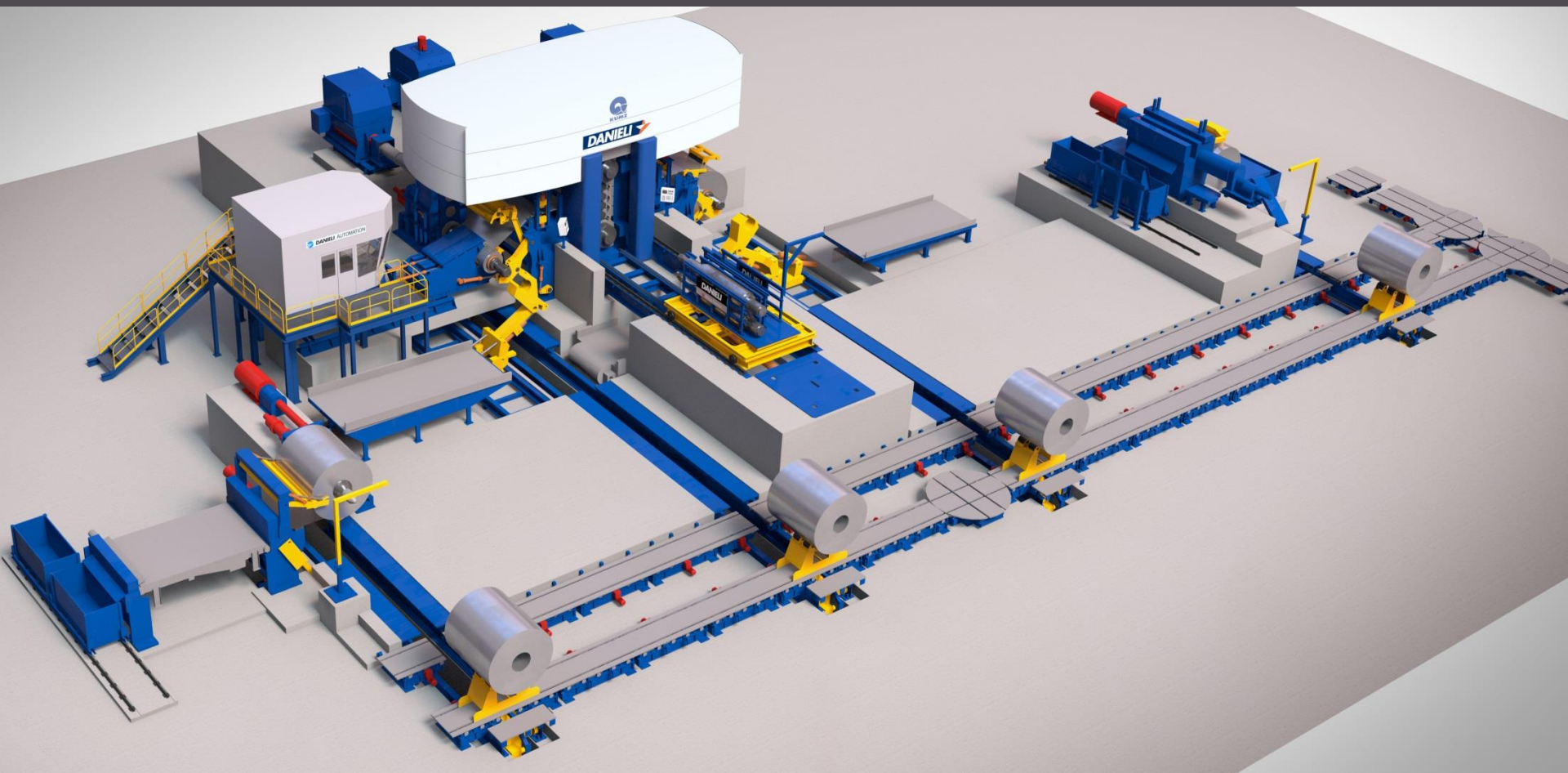
PACKAGING



AEROSPACE

- **Strip Thickness**
from Incoming maximum 12.0 mm
down to Finish minimum 0.2 mm
- **Strip Width**
up to maximum 2800 mm
- **Maximum Productivity for Cold Reduction**
Operation with high speed and minimum coil-to-coil time
- **Ability for Automotive Finish Rolling on same Mill Stand (“EDT-Rolling”)**
- **World beating levels of flatness & thickness tolerances**
- **Flexibility of operation**
(current & future) i.e. rolling other products
- **Specifically Designed to the latest Safety directives & Manufactured to the Highest**





Mill Stand Configuration, tailored to Application

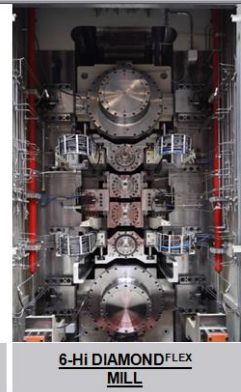
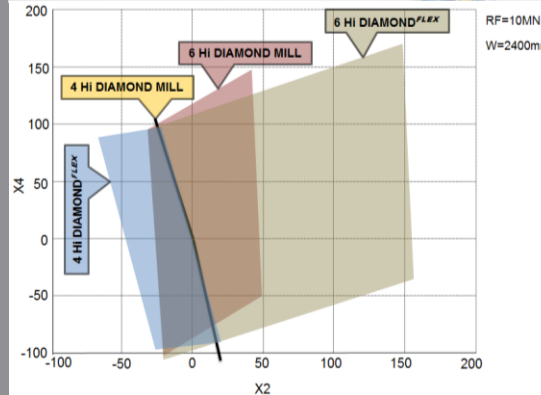
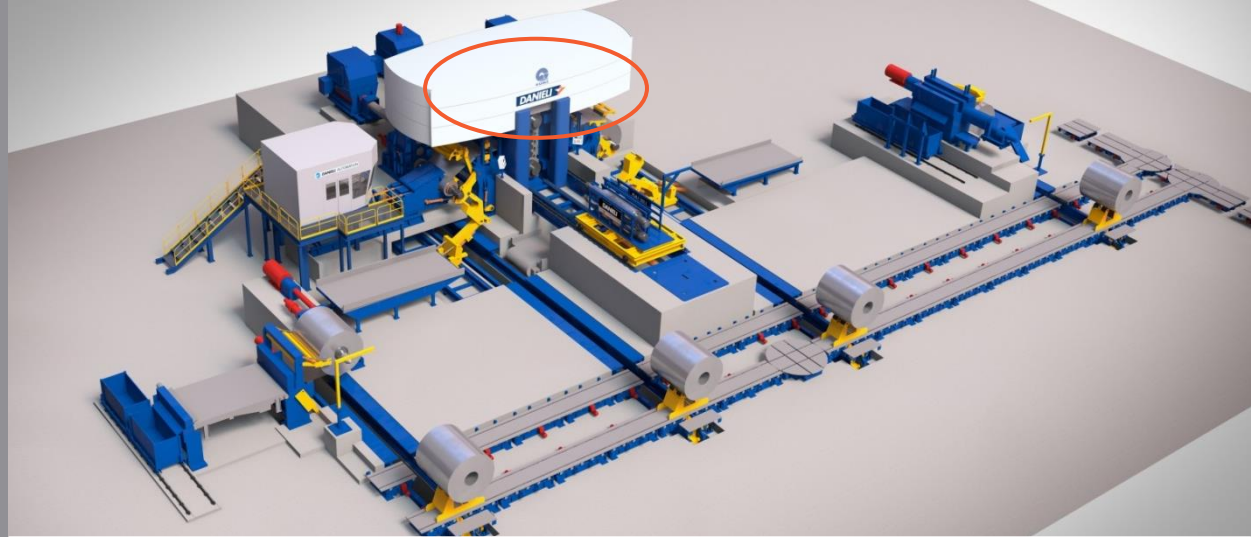
- > 4-hi Diamond Mill
- > 4-hi Diamond ^{FLEX} Mill
- > 6-hi Diamond Mill
- > 6-hi Diamond ^{FLEX} Mill

- > Either parallel or shaped roll technology

- > Long stroke shifting

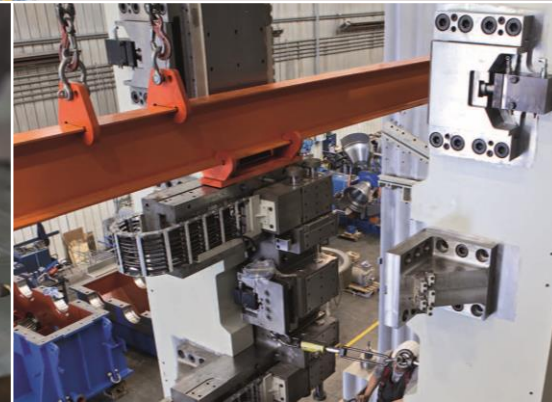
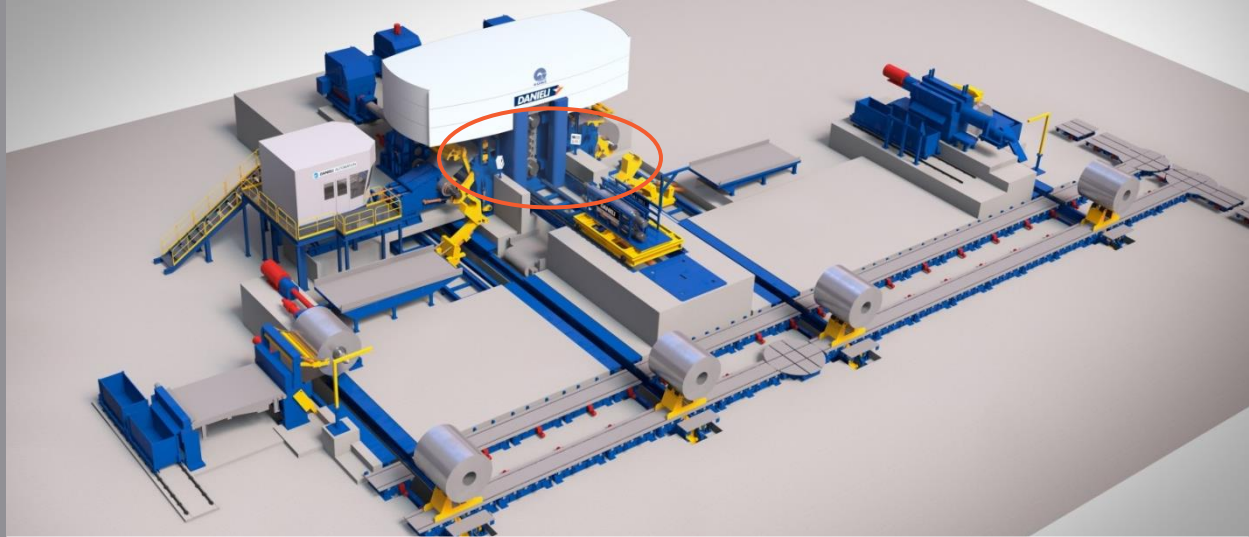
- > Work roll driven

- > Proven design for best flatness and thickness tolerances over wide product range



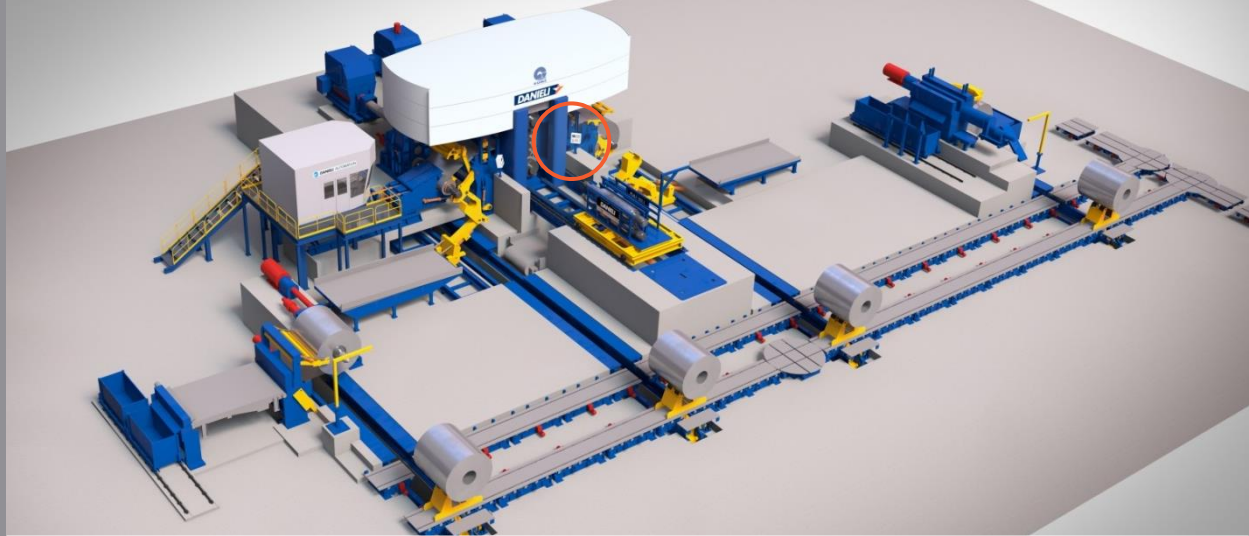
DYNAMIC ROLL STABILITY SYSTEM (DRSS)

- Required for Stable Rolling and Roll Stack Stability
- Compensation for Horizontal Rolling Forces during all rolling phases
- Essential for EDT passes with roll forces as low as 1100 kN
- Without this function unstable rolling Conditions can occur potentially resulting in Strip Break, Chatter and stand vibration



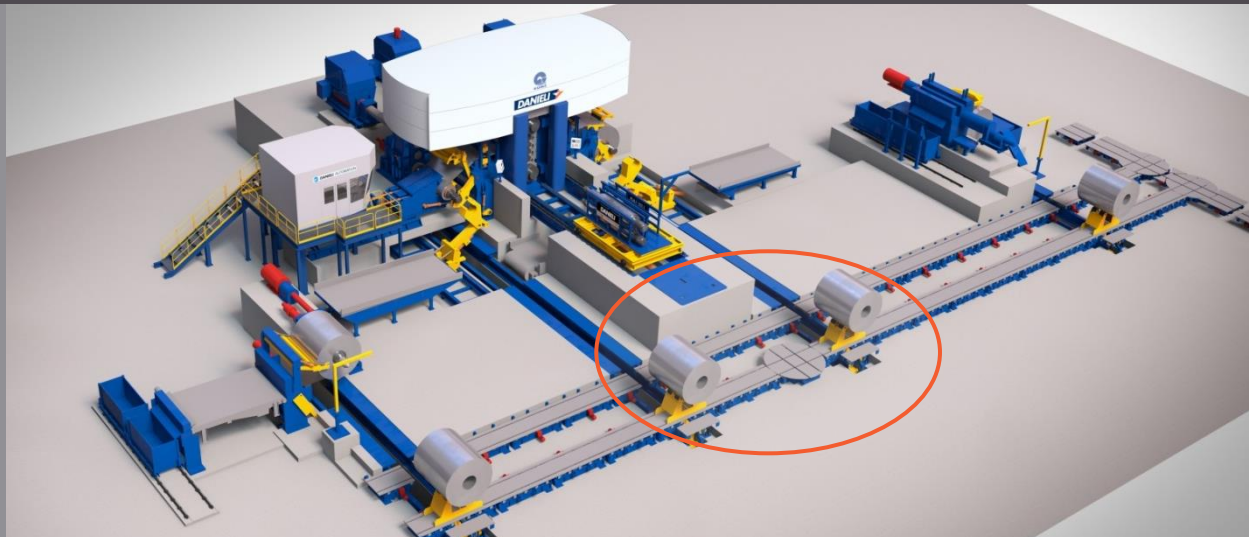
HI-RES® COOLANT SPRAY SYSTEM

- > Automatic spray stand-off for roll turn-down
- > High nozzle pitch resolution (26mm)
- > Multi-level, Mark-space ratio (electrically pulsed) spray control
- > Hot Edge Inductors (HEI)
- > Innoval's Spray Design Know-how



COIL TRANSPORTATION SYSTEMS

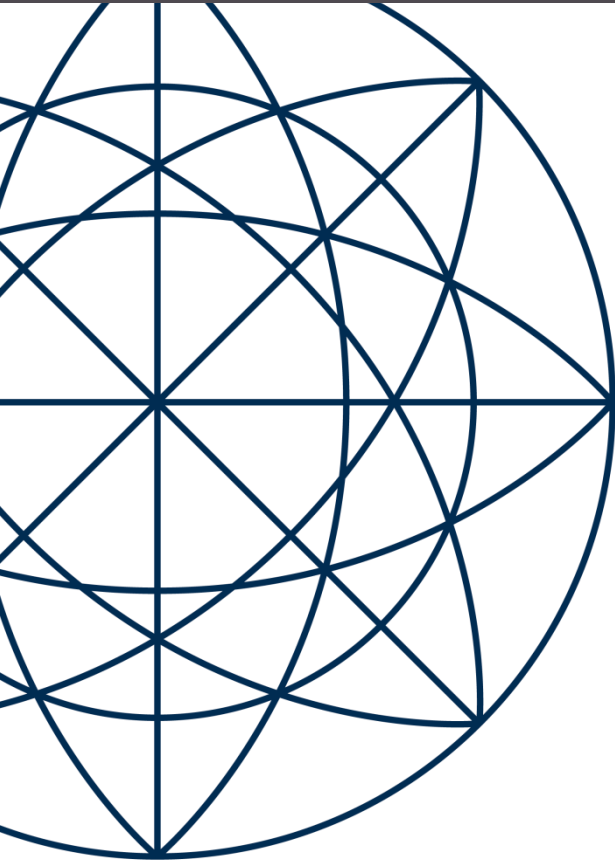
- > Pallet Conveyor System
- Or
- > Coil Transfer System
- Or
- > Coil On Spool Solutions



ALUMINIUM AUTOMATION & ELECTRICAL TECHNOLOGY

- > Automation Solutions based on Process Knowledge
- > Electrical Integrator
- > Hi-PAC Platform
- > High Performance AGC & AFC
- > Level 2 Process Models for Cold Mills





The Combination of:

- > The latest Hardware & Software Tools
- > In-depth process control from Danieli Automation
- > Aluminium production process experience from Innoval
- > Creates world beating process control system for Aluminium Rolling



MILL DATA

Mill Type	6-Hi Single Cold Rolling
Roll Dimensions	1,400/560/480x2,500 mm
Line Speed Max.	1,000 m/min
Main Drive Power	5,500kW (nominal) AC

COIL DATA

Material	Aluminium + Alloys
Entry Thickness Max	10 mm
Strip Width Max	2,350 mm
Coil Weight Max	25 ton





MILL DATA

Mill Type	6-Hi Single Stand Cold Mill
Roll Dimensions	1,400/580/510 x 2,950 mm
Line Speed Max	1,500 m/min
Main Drive Power	7,000kW (nominal) AC

COIL DATA

Material	Aluminium + Alloys
Production	150,000 tpy
Entry Thickness Max	10.0 mm
Entry Thickness Min	0.2 mm
Strip Width Range	1,000 TO 2,800 mm
Coil Weight Max	25 tons





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