

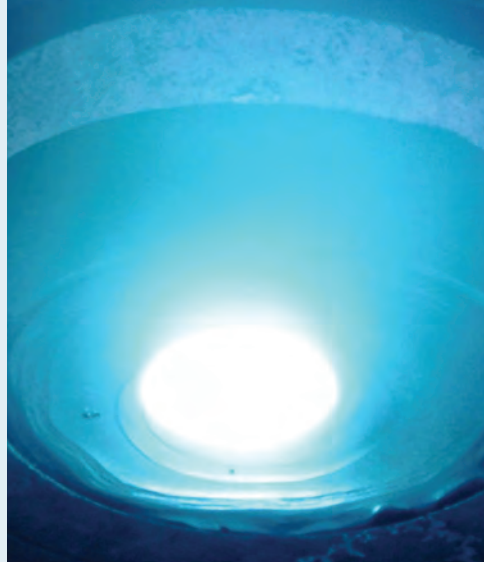


MAXi

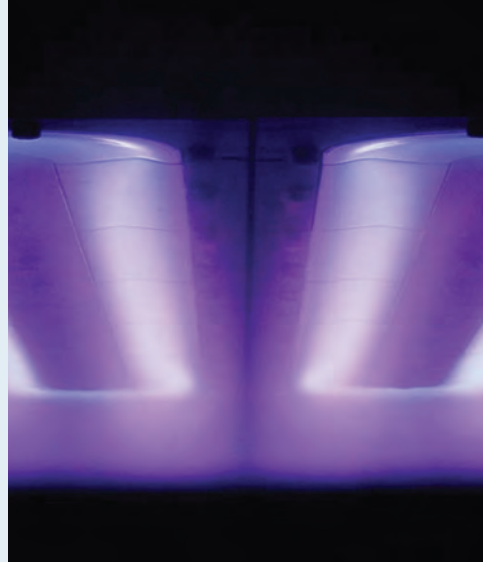
**In-line vacuum coating equipment
for sheets and metal strips**



Electron beam evaporation



SAD process



Pulse magnetron sputtering

Applications

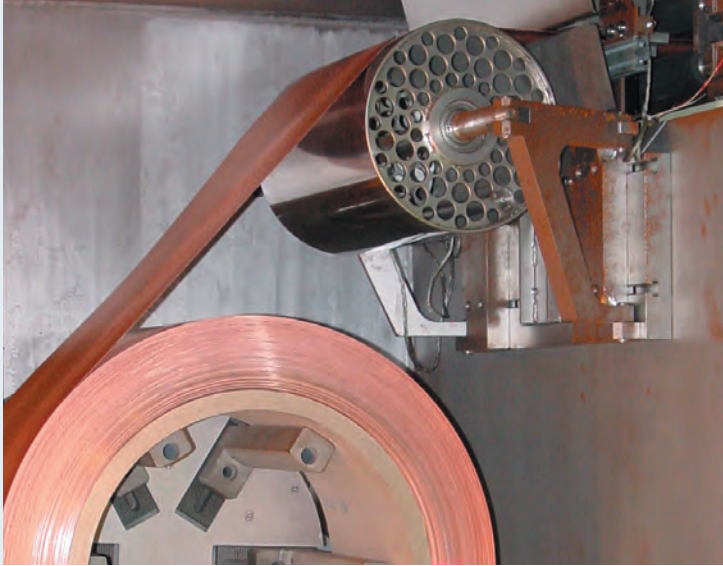
Corrosion-resistant coatings	ZnMg, Ti, Al, Cr, Cu, Sn, Zn
Decorative coatings	TiN, Cr, Ti, TiO ₂
Transparent abrasion-resistant coatings	SiO _x , Al ₂ O ₃
Hard coatings	TiN, TiC, a-C, WC, Al ₂ O ₃ , a-C(:H)(:Ti/W)
Insulating coatings	SiO _x , Al ₂ O ₃
Conductive coatings	Al, Cu, Sn, Mo
Brazing and welding layers	Cu, Sn, Si
Photo catalytic layers	TiO ₂
Solar absorption layers	Ti- or Cr based cermets
Conversion layers	SiO _x
High-reflective layers	SiO ₂ , TiO ₂
Special function layers	Al, Cu, Sn

Coating processes

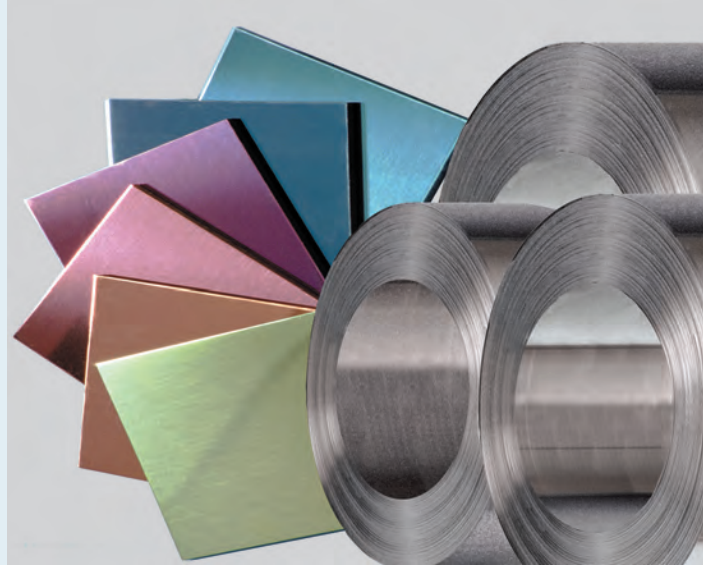
- High-rate electron beam evaporation
- Evaporation of metals, compounds, alloys
- Plasma-activated deposition processes (SAD and HAD)
- Reactive deposition processes
- Pulse magnetron sputtering
- Other PVD processes (e.g. jet evaporation)
- PECVD processes

Equipment

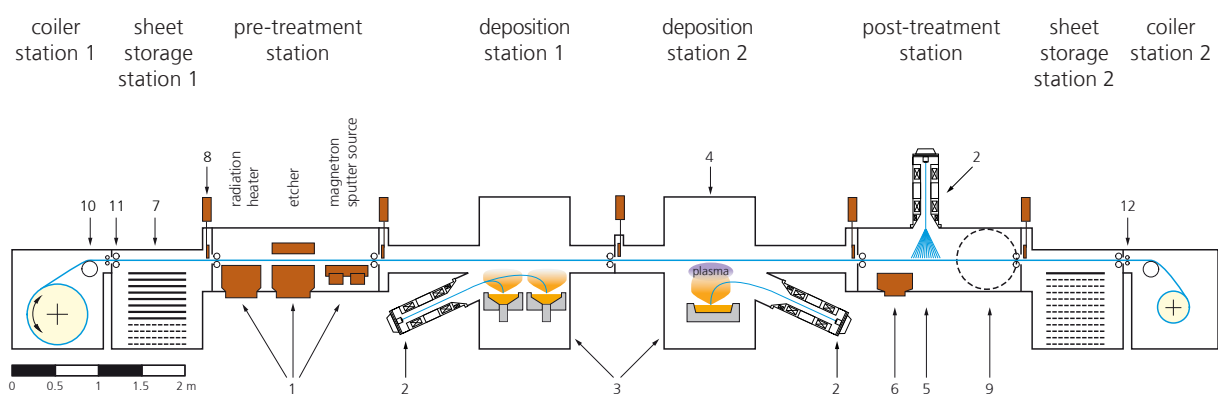
General	modularly built 8-chamber equipment
General dimensions	length / width / height: 14 m / 2.5 m / 4m
Coating width	up to 500 mm
Substrate speed	0.001 ... 1.0 m/s
Strip dimensions	<ul style="list-style-type: none"> ■ width up to 300 mm ■ thickness 0.015 mm ... 1.5 mm ■ weight of coil up to 1000 kg
Sheet dimensions	<ul style="list-style-type: none"> ■ size up to 500 mm × 500 mm ■ weight up to 15 kg
1 st electron beam gun	power maximum 160 kW
2 nd electron beam gun	power maximum 300 kW
Additional equipment	<ul style="list-style-type: none"> ■ heater, power maximum 60 kW ■ different ion etchers, power maximum 30 kW ■ dual magnetron sputter system, power maximum 30 kW ■ power supply for plasma activation, arc current max. 3000 A ■ magnetic trap for the EB coating of temperature sensitive substrates ■ turn-over device for double side coating of sheets ■ XRF thickness distribution measurement system ■ optical film thickness measurement system by using acromatic light



Coiler station 1



Coating of metal sheets and strips



general
(flexible technological equipment - example)

1 ... various pre-treatment processes,
e.g. heating, etching, deposition of interfacial layers

2 ... high power electron beam gun

3 ... various crucibles to evaporate different materials
(metals, alloys or compounds)

4 ... plasma-activated deposition process

5 ... thermal after-treatment, e.g. electron beam heating

6 ... XRF thickness distribution measurement system, optical
film thickness measurement system by using acromatic light

7 ... sheets in frames, stacked

8 ... valves, to decouple pressure

9 ... turn-over device for double side coating of sheets

10 ... strip edge control system

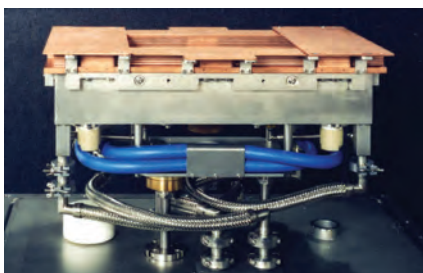
11 ... sealing roll pairs, to decouple pressure

12 ... squeeze valve, during coil change

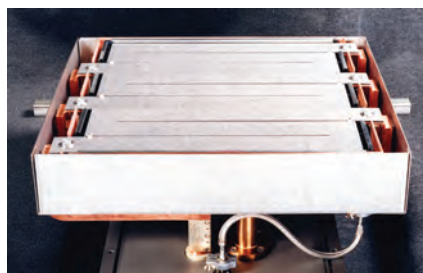
sheets
maximum size: 500 mm x 500 mm
maximum weight: 15 kg
speed: 0.001 ... 1.0 m/s

strips
maximum width: 300 mm
maximum thickness: 0.015 ... 1.5 mm
speed: 0.001 ... 1.0 m/s

Schematic layout of the MAXI plant



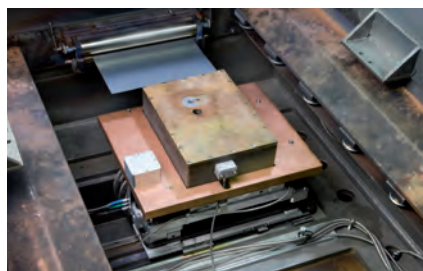
Magnetic field enhanced ion etcher



Radiation heater



Post-treatment station



XRF thickness distribution measurement system



High-power electron beam gun

Contact

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