

Project NODO Machinery

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Oaklins

Machinery (1/5)

Main equipment

- Waldrich-Coburg and LGB Huron grinding machines up to 2200 x 1450mm.
- Vertical CNC machining centers Micron VCE 1600 PRO & DMG EcoMill 800
- Traveling column basic CNC machine MATEC 30-HV
- CNC milling and drilling machine MECOF CS105 – 2300 x 1700 x 900 mm.
- Coordinate drilling machine – working dimensions: 1 400 x 2 200 mm.
- EDM wire cutting machines Charmilles Robofil, GF CUT 400 & Sodic – 4 units.

MECOF CS105



Mikron VCE 1600 PRO



MATEC 30-HV



Machinery (2/5)

Main equipment

- Four vertical turning lathes, up to D=7000, H=3300.
- CNC Lazzati boring & milling machine X=14000, Y=3500, Z=2250.
- Ronin GM L80 boring machine X = 8000 mm, Y = 2500 mm, Z = 1500 mm.
- Hartford PRW - 626R milling machine X = 6050 mm, Y = 2600 mm, Z = 920 mm.
- Two conventional boring machines: X = 5 000 mm, Y = 2 850 mm, Z = 1 800 mm and X = 3 000 mm, Y = 3 000 mm, Z = 1 000 mm.
- Milling and drilling machines – 2 units.
- Bending rolls – width: 3 m.

Hartford PRW – 626R



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Vertical turning - TK8



CNC Lazzati milling and boring machine



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Machinery (3/5)

Laminations and Core Department

- Punching of segments & round sheets:
 - Automatic SCHULER and HEILBRONN presses with automatic material feed from coils and receipt of punched segments used for punching of segments and round laminations (4 000 kN – 3 units, 2 500 kN – 1 unit, 1 600 kN – 3 units, 1 000 kN – 1 unit),
 - Manually operated punching presses,
- Round sheet slotting on single slotting machine:
 - Automatic SCHULER and WEINGARTEN single notching presses for round sheets – 8 units,
 - Automatic WEINGARTEN tandem notching press for round laminations,
- Grinding, varnishing and deburring:
 - 5 grinding machines – burr height after grinding = 0 microns,
 - 4 varnishing machines – average thickness of added varnish layer 4 to 7 micrometers per ea



Notching presses



Machinery (4/5)

Laminations and Core Department

TRUMPF CNC laser cutting machines



EAGLE fiber laser cutting machine



ROFIN CNC laser cutting machines



GEM automatic spot welding machine



- Laser cutting equipment:
 - Laser cutting machines with automatic material handling. LIFTMASTER R used for laser cutting of segments and round laminations as well as special laminations of all kinds,
 - TRUMPF CNC laser cutting machines
 - TRUMATIC L 3030 - 3 000 x 1 500 mm – 2 units,
 - TRUMATIC L 4030 - 4 000 x 2 000 mm – 1 unit,
 - EAGLE fiber laser cutting machine - 4 000 x 2 000 mm – 1 unit,
 - ROFIN CNC laser cutting machines (coil loading) – 3 units
- Ventilation and end segments:
 - GEM automatic spot welding machine – 1 unit
 - Manual spot welding machines – 3 pcs,
 - Manual projection welding machines – 2 pcs,
- Other:
 - Stacking stands for stator and rotor stacked cores – 6 pcs,
 - Moveable presses for stacked core pressings,
 - Stacked core fixation methods: welding, clamping, baking,
 - Ovens – 3 pcs.

Machinery (5/5)

Frames and Stacking Department



- Welding, assembling, and cores stacking:
- Multi-type stator frames for large-sized generators and motors,
- Medium and large-sized stator stacked cores of all types,
- Key bars manufacturing and assembly,
- SciTeeX shot blasting and painting – 5x5x12m
- Astherm painting & curing cabins

Astherm shot blasting & painting facility



SciTeeX shot blasting & painting facility



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