**UNIQUE MANUFACTURING PROCESS : FROM COIL TO PART**

**LINACUT® BENEFITS**

- **CUTTING PROCESS NEVER STOPS**
  - Unique and patented continuous mode
  - Coil feeding allows no length limit for product

- **80 % LESS FLOOR REQUIREMENT**
  - Coil material is 6 to 10 % cheaper than sheets
  - Storage area is 80 % smaller with coils

- **AUTOMATIC SORTING OF FINISHED COMPONENTS**
  - Simultaneous cutting and off loading increase output

- **AUTOMATIC SCRAP COLLECTION**
  - 70 % LESS SCRAP

**BENEFITS**

- Fully automated process minimizing operator requirement and allowing continuous and unattended production

[Diagram of the manufacturing process]

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MACHINE RANGE

OVER 60 YEARS OF COIL HANDLING EXPERIENCE

BLANKING LINE - STEEL CENTER AND AUTOMOTIVE SPARE PARTS SUPPLIER

- 15 ton single uncoiler with coil-car and line axis regulation.
- Precision straightener with 13 roller cassettes and cleaning system.
- 3 kW XL-LINACUT with slot conveyor.
- Cutting area : 2000 x 3000 mm (80" x 120").
- Unloading zone : 5 meters (16').
- Gantry system for tailored part sorting and stacking.
- Double stacking table.

STAINLESS STEEL CUTTING AND EMBOSsing LINE MANUFACTURER OF HAND HYGIENE AND DOSAGE SOLUTION

- 4.5 ton single uncoiler.
- 11 straightening roll straightener.
- Dual head LINA/PUNCH turret punch press with 4 cassettes (including 3 multi index stations).
- 3 kW M-LINACUT with slot conveyor.
- Cutting area : 1000 x 1000 mm (40" x 40").
- Gantry system with pallet conveyor system.
- Triple pallet storage.

SHORT CUTTING LINE - RECREATION VEHICLE COMPONENTS MANUFACTURER

- 4.5 ton single uncoiler.
- 11 roll straightener/feeder.
- 3 kW M-LINACUT with slot conveyor.
- Cutting area : 1000 x 1000 mm (40" x 40").
- Sorting and stacking with FANUC 6 axis robot system.
- 3 slot pallet conveyor.

SHORT CUTTING LINE - BAND SAW BLADES MANUFACTURER

- 3 ton single uncoiler.
- 11 straightening roll straightener.
- 2 kW S-LINACUT without slot conveyor.
- Cutting area : 500 x 500 mm (20" x 20").
- 8 meter long part (2.4').

XL series
- Maximum coil width: 2000 mm (80")

L series
- Maximum coil width: 1500 mm (60")

M series
- Maximum coil width: 1000 mm (40")

S series
- Maximum coil width: 500 mm (20")

LINACUT 4 SIZES

PART HANDLING AND SORTING PER CUSTOMER NEEDS

LINACEUT LINE - STAINLESS STEEL CUTTING AND EMBOSsing LINE MANUFACTURER

- 4.5 ton single uncoiler.
- 11 straightening roll straightener.
- Dual head LINA/PUNCH turret punch press with 4 cassettes (including 3 multi index stations).
- 3 kW M-LINACUT with slot conveyor.
- Cutting area : 1000 x 1000 mm (40" x 40").
- Gantry system with pallet conveyor system.
- Triple pallet storage.

LINACEUT LINE - SHORT CUTTING LINE MANUFACTURER

- 4.5 ton single uncoiler.
- 11 roll straightener/feeder.
- 3 kW M-LINACUT with slot conveyor.
- Cutting area : 1000 x 1000 mm (40" x 40").
- Sorting and stacking with FANUC 6 axis robot system.
- 3 slot pallet conveyor.

LINACUT LINE - SHORT CUTTING LINE MANUFACTURER

- 3 ton single uncoiler.
- 11 straightening roll straightener.
- 2 kW S-LINACUT without slot conveyor.
- Cutting area : 500 x 500 mm (20" x 20").
- 8 meter long part (2.4').
**Fiber laser**

Pressurized gas is required in the laser cutting process to evacuate the material molten by the laser. We currently use 15 to 25 bars (210 to 360 psi) gas pressure. The gas consumption is connected to size of nozzle and pressure: we consider an average 20 to 25 mm/h. Nitrogen (N2) is used a lot as it provides a protection against oxidation. Oxygen (O2), or compressed air can be used depending on application and material.

Linacut gets 3 separate valves allowing customer to use 3 different gas.

1 - Assist gas / 2 - Cutting nozzle / 3 - Nozzle after / 4 - Cutting direction / 5 - Molten material
6 - Dross / 7 - Cut roughness / 8 - Heat affected zone / 9 - Kerf width

**Laser resonator :  2 - 3 - 4 - 5 - 6 kW output power**

- Brand : ROFIN / IPG
- Yb-fibre (wave length 1070 nm)
- Fiber Ø 50 µm
- Pulse generator mode
- Profimat connection to Dimeco PLC
- External Chiller (design : water / air)

**Cutting head**

Precise 2 kW and 3 to 6 kW versions are implemented on Linacut and are driven by Z axis for automatic height adjustment. Kerf width : 0,12 mm (0,005”).

As option : - Autofocus (with 2, 4, 5, 6 kW laser resonator)
- Automatic control of the laser beam power
- Automatic nozzle cleaning

**Fume and dust collector system**

Fumes and dust created by laser cutting need to be collected. Linacut can be delivered with a dust collector with high performance cartridge filters to allow a W3 certification (efficiency 99.999% with 0.5 µm particles).

Flameproof enclosure is required for aluminium cutting. When available existing centralized factory vacuum system may be used.

**Linear motor**

The cutting head motion X + Y is powered by linear motors to match 3 m/s² acceleration / deceleration and to guarantee the accuracy in the angles. Suitable water cooling system is part of the package. The Z height adjustment is powered by precision rack and pinion solution. Linear motors are not only required to increase speed, but they are mandatory to match cutting quality!!!

Ball screw or rack and pinion drives need to slow down when the cutting direction changes, thus changing laser cutting parameters, creating a chatter and cutting quality disruption in the corners. Linear motors allow full speed motion generating high level cut quality all along cutting pattern. Linear motors require less maintenance and have longer life span.

**Slat conveyor**

To allow simultaneous cutting and part off loading, slats are simultaneously moving with the strip (sawyer design). The accuracy of specific Dimeco construction and synchronisation allows to move accurately the parts to the pick-up area in order to obtain quality blanks stacking, and avoid any scratches.

**Numerical control and line monitoring**

Main control panel : - BOSCH/REXROTH (INDRAMAT) MTX numerical control
- 2 color displays : line monitoring screen and screen for PC applications, keyboard, mouse
- USB port onto the PC machine
- Storage compartment for documentation
- Graphic process control with alarm display
- Management of network connections
- VPN remote connection for maintenance
- INDRAWORKS development interface

**CAD-CAM software**

A complete software, AIMA “Actcut” allows :

- 2D drawings import from other cad system
- Creation/modification of any drawings
- Mass file import
- Parts nesting along the cut with many strategies
- Automation of the nesting or manual nesting
- Automatic generation of skeleton trimming
- Automatic generation of ISO code for the CNC control
- Automatic generation of the CSV file for the gantry/robot picking system (if option is taken)

Option : - Production data import (link to your ERP system)
- Unfolding 3D / 2D module when importing the CAD parts

**Working mode**

- Continuous mode : cutting during sheet metal movement
- Static mode : stop sheet metal in order to reach high accuracy
- Sheet loading (instead of coil) from slot conveyor
PART UNLOADING AND SORTING

Automatic pick up

As a secondary benefit of our “patented continuous laser coil cutting”, slat conveyor continuously drives cut parts out of Linacut area for manual or automatic pick up. Accuracy of slat conveyor transfer is the key for quality off loading and stacking. Parts position on slat conveyor is automatically recorded in the system to give accurate pick up position and orientation to the robot. This information is automatically generated by nesting software.

Pick up is achieved in tracking mode for continuous soft handling and to avoid scratches. Scraps ejection is automatic, slugs falling down into a bin at the end of slat conveyor.

Customized gripper

Automatic and manual configuration

6 axis robot for basic stacking
7 axis robot for multiple stacking positions
Gantry system for Taylor made part collection organization
Manual handling
Part sorting on shelves
Part sorting on shuttle tables
Camera

Live viewing of cutting process and recording machine stops.

Scrap conveyor

Special powered scrap conveyor dedicated for laser cutting applications can be added along with the Linacut machine to collect both scraps and skeleton bits. Scraps and skeleton go into a bin.

Marking unit

Different marking solutions can be added along in the line such as:
- inkjet
- laser marking
- dot peen
Thanks to its wide press feed line range, Dimeco gains its own knowledge of coil handling and leveling. We are able to match any material specification and any coil size, using our home made equipment. Therefore, Dimeco offers turnkey systems for coil processing, with all equipment from one single source.

**Single/dual uncoilers**

Dimeco strong engineering department allows to match many coil line configuration and all part-sorting solutions to comply with customer factory needs and environment.

**Corrective Leveller**

A standard coil-fed tunnel punch press (Linapunch) on a dedicated punching station is located before the laser cutting area. It enables to perform either forming or punching operations (punching can be faster than laser cutting, especially on thick material).

Dimeco long lasting experience in punching will allow us to find the best relevant solution to any customer application.