

Machine area comparison

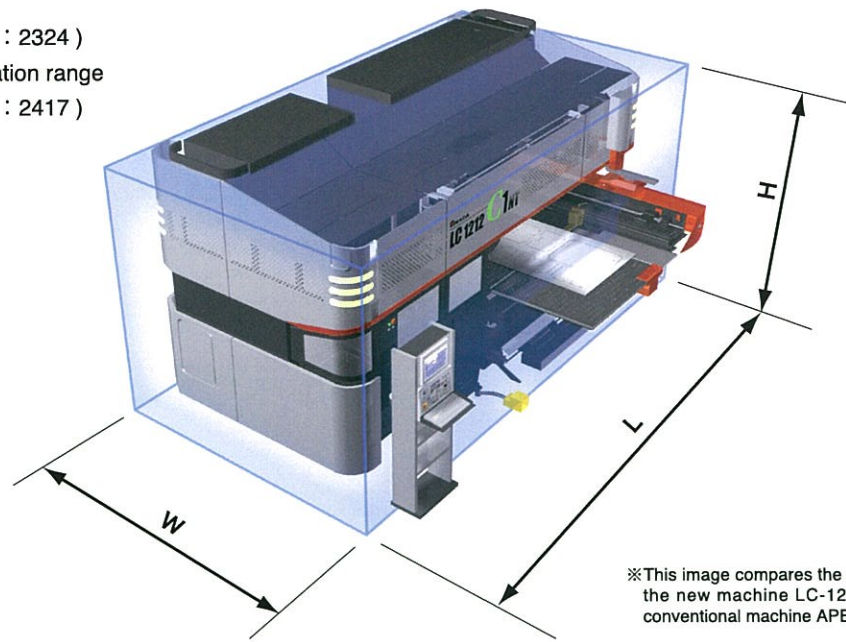
Unit:mm

LC-1212C1NT

(L : 4650 × W : 3305 × H : 2324)

APELIO III-255ECO installation range

(L : 4955 × W : 2665 × H : 2417)



※This image compares the installation area of the new machine LC-1212C1NT with the conventional machine APELIO III-255ECO.

Machine specifications

Model	LC-1212C1NT	LC-2012C1NT
Processing range (punch) X × Y mm	1770 x 1270	2500 x 1270
Processing range (laser) X × Y mm	1270 x 1270	2000 x 1270
Rapid feed rate (punch) X × Y m/min	80 x 60	
Rapid feed rate (laser) X × Y m/min	80 x 60	
Processing accuracy mm	±0.07(Amada punching pattern)	
Material thickness (punch) mm	6	
Material thickness (laser) mm	6	
Maximum material mass kg	50(F1), 150(F4)	
Press capacity kN	200	
Maximum hit rate (X axis) min ⁻¹	370 (5 mm stroke)	
Maximum hit rate (Y axis) min ⁻¹	300 (5 mm stroke)	280 (5 mm stroke)
Power requirement kVA	22	
Mass of machine (including oscillator and electrical enclosure) kg	17000	18000

Oscillator specifications

Model	AF2000E-LU2.5(2.5kW)	
Rated laser power kW	2	
Maximum continuous power kW	2.5	
Maximum pulse peak power kW	2.7	
Laser gas consumption L/H	10	
Power requirement kVA	33	

Environmental compliance for manufacturing to continue to tomorrow

The LC-C1 gives consideration to the hazardous chemical substances covered by the European Union RoHS Directive*. It meets the strict environmental compliance requirements of our customers. It also contributes to the reduction of CO₂ emissions by shortening processing time by increasing processing speed and consequently by reducing power consumption. *European Union Directive on the restriction of use of certain hazardous substances.



●The substances specified in the RoHS directive are not used in members that come into contact with your products.
●The substances specified in the RoHS directive are not used in parts* you dispose of during your routine maintenance.
*Maintenance parts described in the operator's manual.



For Your Safe Use

Be sure to read the operator's manual carefully before use.

- Use of this product requires safeguard measures to suit your work.



This laser product uses a Class 4 CO₂ invisible laser for processing and a Class 3R visible laser for positioning.

- Class 4 invisible laser: Avoid eye or skin exposure to direct or scattered radiation. Never look into the radiation nor touch it.
- Class 3R visible laser: Avoid direct eye exposure.

*Specifications, appearance, and equipment are subject to change without notice by reason of improvement.

*The official model names of machines and units described in this catalog are LC1212C1NT and LC2012C1NT.

Use these registered model names when you contact the authorities for applying for installation, exporting, or financing.

The hyphenated spellings LC-1212C1NT and LC-2012C1NT are used in some portions of this catalog for sake of readability.

*The specifications described in this catalog are for the Japanese domestic market.

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OLG-1801-1251

May.2012

SOLUTION

LC C1 NT SERIES

Process-integrated, technology built-in, compact laser/punch combination machines

Blanking

The Engineering AMADA

Third-generation blanking innovation, following punching and laser cutting

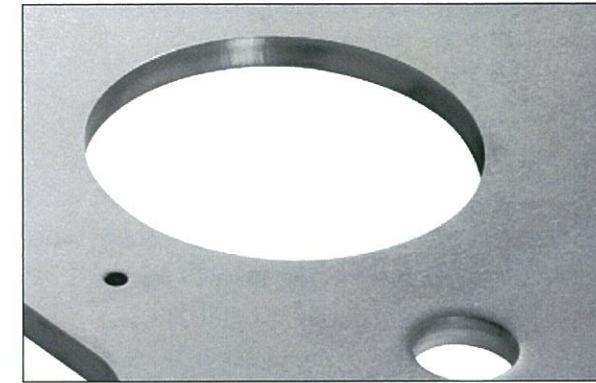
Necessary technologies are built in the machine to ensure rapid startup after installation and to provide superior operability to free the operator from cumbersome setup. Laser cutting and turret punching can be switched from one to the other smoothly and quickly to integrate the two processes and to ensure high accuracy and high-grade processing.



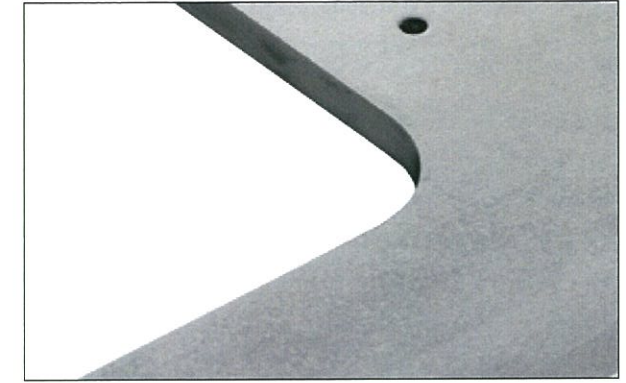
Process-integrated, technology built-in,
compact laser/punch combination machines

LC C1 NT SERIES

Processing examples of typical workpieces (productivity comparison with conventional machine)



Material: SS 6.0mm
Size: 275.0 × 160.0mm



Processing time comparison
78.6% faster per part

	LC-C1NT 2.5kW	Conventional machine (APELIO)2kW
Processing speed	F2600	F1500
Processing time per part	1 min 13 sec	5 min 41 sec

Running cost comparison
82.3% cost reduction per part



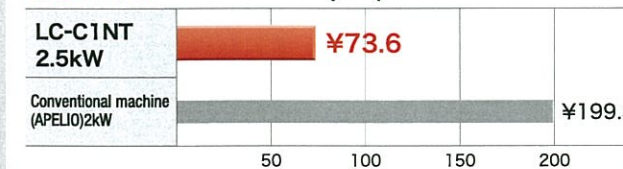
Material: SECC 1.0mm
Size: 419.5 × 166.8mm



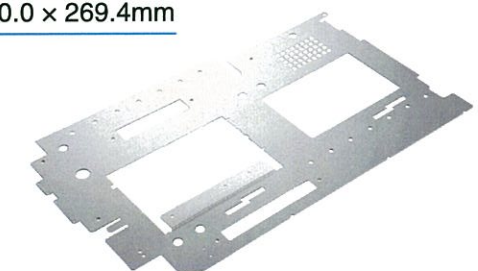
Processing time comparison
35.4% faster per part

	LC-C1NT 2.5kW	Conventional machine (APELIO)2kW
Processing speed	F6500	F4000
Processing time per part	1 min 53 sec	2 min 55 sec

Running cost comparison
63.1% cost reduction per part



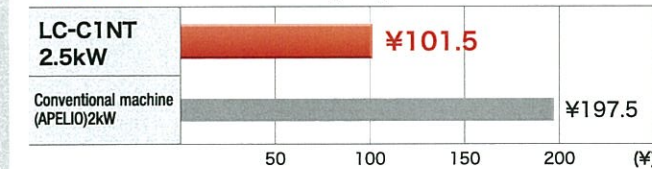
Material: SUS 1.0mm
Size: 460.0 × 269.4mm



Processing time comparison
33.5% faster per part

	LC-C1NT 2.5kW	Conventional machine (APELIO)2kW
Processing speed	F7000	F4000
Processing time per part	2 min 5 sec	3 min 8 sec

Running cost comparison
48.6% cost reduction per part



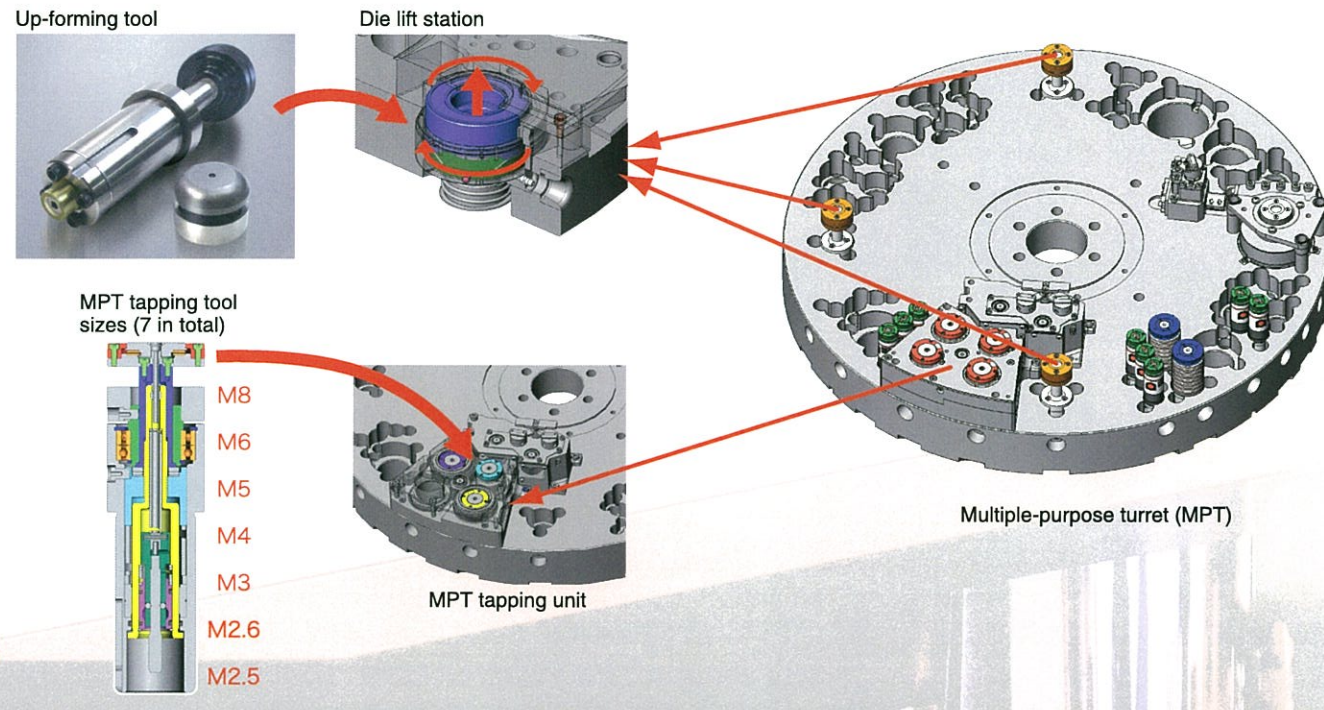
LC-C1NT series New technologies

1 Multiple-purpose turret (MPT)

Elimination of setups for a variety of forming operations and high-speed processing The multiple-purpose turret has:

- ① Dedicated stations for specific purposes (tools installed for specific processing purposes)
- ② Free stations for specific purposes (tools installed for specific processing stations)
- ③ Free stations

It can hold punching and other forming tools, tapping tools, piercing tools, and tap pilot hole punching tools for process integration. Complete elimination of tool setups and high-speed processing are also achieved.



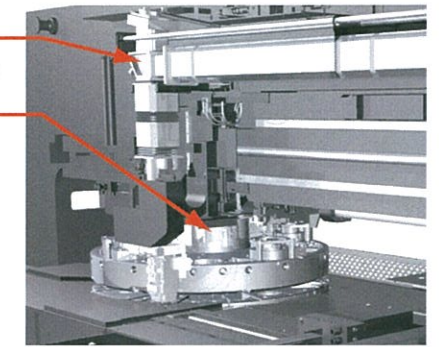
2 Synchronized laser and punch axis control

Laser cutting speed and cut quality improvement

Single servo press drive is adopted to arrange the laser cutting head on the turret side. The punch Y axis and laser Y axis can be controlled as one axis to change between laser cutting and punching operations at high speed.

The punch Y axis and laser Y axis can move simultaneously for rapid approach to the processing point.

Punching, forming, and tapping operations can be switched from one to another within the multiple-purpose turret at high speed.



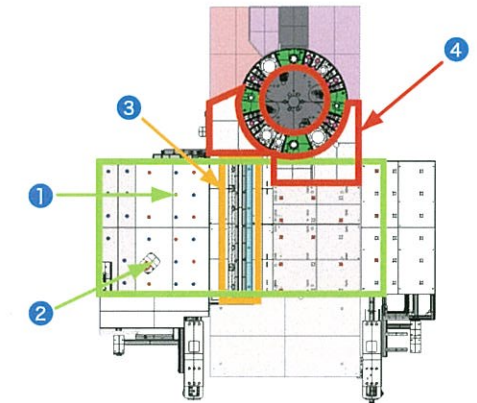
Comparison of average changeover time between laser and punch

Item	LC-C1NT	Conventional machine
From punch to laser Average changeover time, sec	2.2	2.3 - 5
Laser to punch Average changeover time, sec	2.3	4.6 - 5

3 Flexible table

Part bottom surface scratch reduction and material setting time reduction

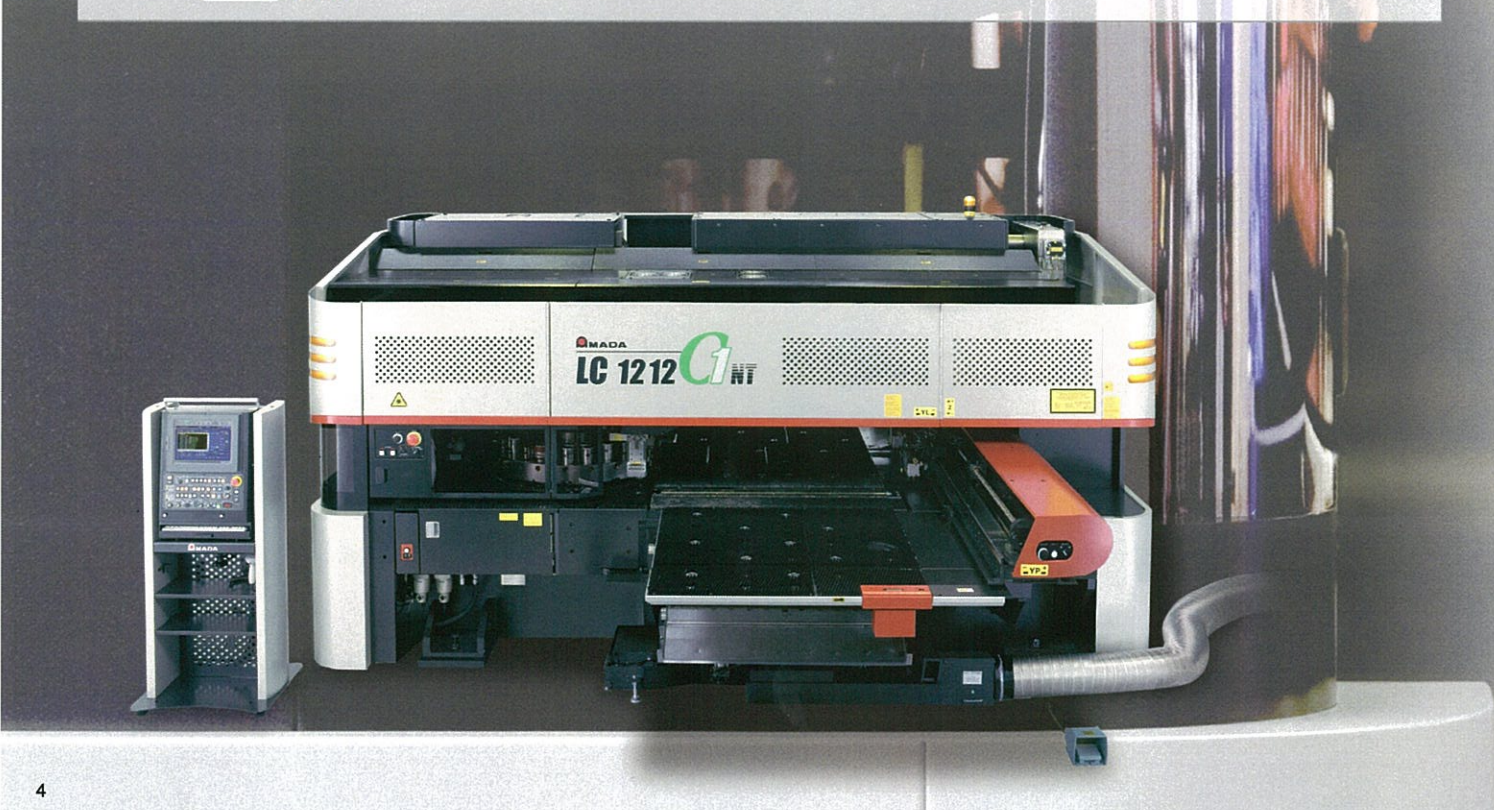
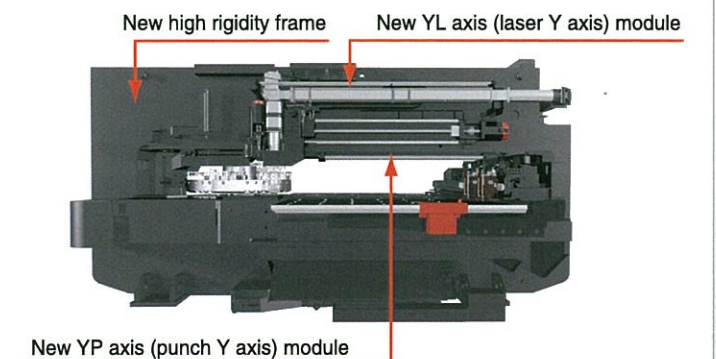
- ① Brush table for laser cutting + urethane rollers
(Material transfer resistance reduction during laser processing)
- ② Automatic material setting
(Material is automatically zeroed when placed on table)
- ③ Brush-type cutting plate
(Completely scratch-free bottom surface for thin to thick sheets)
- ④ High speed floating brush table
(Downward forms are prevented from being caught)
This table helps to eliminate bottom surface scratching and prevent downward forms from being caught. The material can also be zeroed automatically when placed on the table.



4 High accuracy combined drive axis

Maintain combined processing accuracy of ± 0.07 mm

The laser cutting head is arranged on the turret side to minimize the stroke length. The vibration generated by acceleration and deceleration during Y-direction travel is reduced to achieve stable high accuracy and high quality processing. The travel speed of the Z axis is also increased to reduce the processing time.



Other functions and options

○ Laser ○ Punch ○ Option

C1 EML

Laser Y axis and material X axis travel

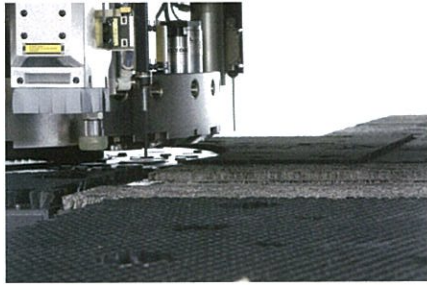
The laser head moves only along the Y axis, and the material moves only along the X axis. This arrangement prevents the material from fluttering and enables high speed processing



C1 EML

High speed floating brush table

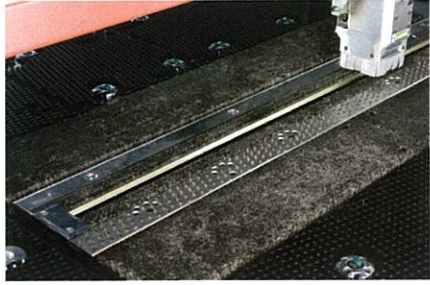
When the material moves after downward forming, the brush table around the turret moves up 5 mm to prevent the material from interfering with the die.



C1

Brush-type cutting plate

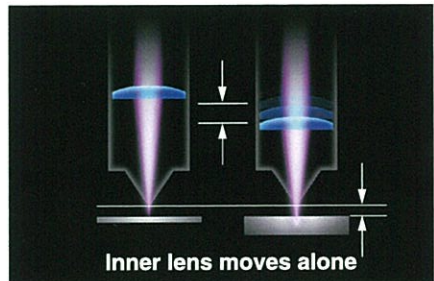
Nonflammable and heat-resistant brushes are used to eliminate bottom surface scratching. As a result, the material can be stably laser cut without fluttering after downward forming.



C1 EML F1 FOMII αIV

NC auto focus control system and Active Cut

The optimum focal point is searched from a database and automatically set to suit any material. The curvature of the mirrors is changed to keep the focus constant. This assures optimum laser beam quality and saves assist gas cost.



C1 EML F1 FOMII αIV

PSAⅢ (nitrogen generator)

Generates 99.999% nitrogen. In case of high pressure application, with capacity of 500L/min type and 1000L/min type is available.



C1 F1 FOMII αIV

Hyper (HP) EZ Cut

Extracts nitrogen from compressed air. This simplified nitrogen generator produces 95 to 97% pure nitrogen.

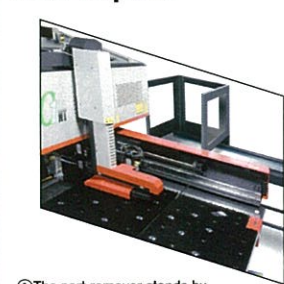


Part remover



The part remover is installed in the space above the front table to achieve space savings. As soon as parts are finally cut, they are held by vacuum pads, stacked on the stacking table, and quickly unloaded to the next process. Unloading parts to the carriage or turret side can also be selected.

Flow of parts



① The part remover stands by in front of the laser head during processing.



② As soon as the parts are completely cut, the part remover starts the vacuum head moving.



③ The parts are held by the vacuum head.



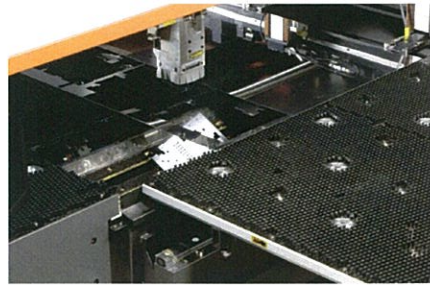
④ The parts are stacked on the conveyor.

C1 = LC-C1NT SERIES EML = EML-NT SERIES F1 = LC-F1NT SERIES FOMII = FO-MII NT SERIES αIV = LC-αIVNT SERIES

C1 EML αIV

Work chute

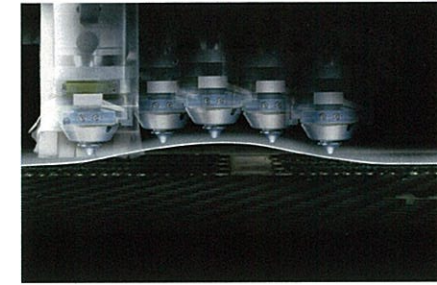
A large 400 × 1270 mm work chute enables highly efficient, microjoint-less processing.



C1 EML F1 FOMII αIV

Non-contact Z-axis sensor

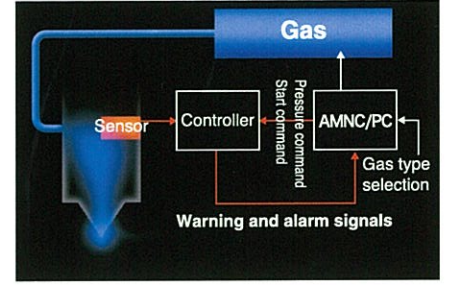
The sensor is constructed to reduce the effect of plasma and adopts a high frequency (MHz) band less susceptible to the effects of noise, which maintains the gap between the material and laser head during high speed processing for stably cut.



C1 EML F1 FOMII αIV

High pressure NC assist gas control system

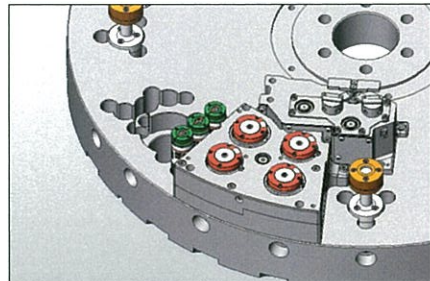
The assist gas pressure is automatically controlled by the NC to suit specific materials. The system is adapted to the processing of various material types and thicknesses.



C1

Tapping stations

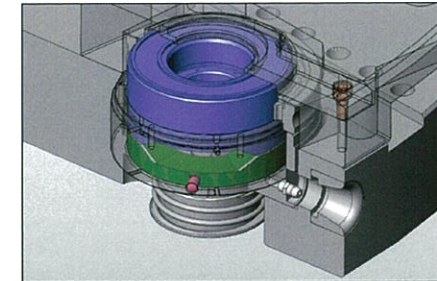
Process integration is made possible by the tapping stations of the multiple-purpose turret (MPT) (M2.5 to M8 taps can be changed, and cutting type taps and forming type taps can be used together).



C1

Die lift stations

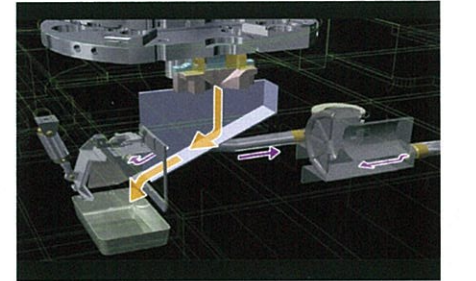
The material is not scratched because tall forming dies are usually located below the pass line.



C1

Slug suction unit

Punching slugs are forced by vacuum into the scrap box to prevent large-diameter slug pulling.



Automation

Manipulator

An automatic space-saving material loading and part stacking unit to match the compact machine.



LC-1212C1NT+MP-1212C1



LC-2012C1NT+MP-2512C1

Shelf specifications

Small footprint shelved cycle loader for LC-C1

LC-2012C1NT+AS-C1

Number of shelves	6
Material size	2500 × 1250 mm maximum and 750 × 300 mm minimum
Material thickness	0.6 – 6 mm
Loading capacity	2000kg/pallet

