FANUC

Laser Systems

Product overview

100% FANUC

No. 1 in the world

FANUC is the leading global manufacturer of factory automation, with more than 55 years experience in the development of computer numerical control equipment, 3 million CNCs and about 20,000 laser systems installed worldwide, 65% market share in the global CNC sector, and satisfied customers in every corner of the globe.

1

Integrated laser systems – unique FANUC package solution

Take advantage of the market leader's comprehensive expertise for high-quality laser applications with a completely integrated solution: Specifically designed CO_2 laser sources from 1 to 6 kW, CNC control with integrated laser control functions for 2-D and 3-D laser cutting machines, CNCs to control combined punching and laser cutting machines, and high-performance servo drive systems – all together in an optimised interfaced laser package. For the industry's leading performance and reliability in the dusty, high-vibration environment of even the most challenging fabricating shops.

One supplier – one contact for laser source, CNC and servo drives.

Your advantages:
- fast and efficient start-up
- easy operation, monitoring and maintenance
- high speed and accuracy for cutting and piercing processes
- highest versatility and reliability
- low energy and extremely low gas consumption
- compact unit, small footprint
- reduced maintenance
- perfect cutting edge quality from thin to thick materials

about **20.000** laser system installations **worldwide**

up to **160** CO_2-laser production **capacity per month**

FANUC Laser Systems - 4 strong models from 1 kW to 6 kW

FANUC laser C1000*i*-C

Low cost for thin sheet and non-metal quality cutting

- cutting of mild steel up to 10 mm thickness
- replacing water-jet and plasma cutting machines
- cutting of wood or plastics
- smallest weight and volume of its class
- best cost/cutting performance ratio

FANUC laser C2000*i*-C

Entry level with 2.5 kW for standard laser cutting machines

- cutting of mild steel up to 22 mm thickness
- cutting of stainless steel up to 12 mm thickness
- cutting of aluminium
- cost effective solution to compete with 3 kW laser cutting machines

FANUC laser C4000*i*-C

High performance machines for a large range of applications

- cutting of mild steel up to 28 mm thickness
- cutting of stainless steel up to 15 mm thickness
- highest cutting quality and speed
- highest range of materials and applications
- extremely low gas and electrical power consumption

FANUC laser C6000*i*-C

Highest power for the widest range of applications

- cutting of mild steel up to 32 mm thickness
- cutting of stainless steel up to 20 mm thickness
- ideal for high performance thick plate cutting applications
- enormous laser peak power (7kW), easy handling
- wide range of applications from surface treatment and welding to cutting from thin to thick material




		C1000*i*-C	C2000*i*-C		C4000*i*-C		C6000*i*-C
Optical path length			Short	Long	Short	Long	
System principle		RF discharge excitation fast axial gas flow					
Structure		Integrated type [1] (oscillator and power supply)					
Laser rated output (W)		1000	2000		4000		6000
Laser maximum output (W)		1000	2500		4000		6000
Pulse peak power (W)		1000	2700 [2]		4000		7000 [2]
Output stability		± 1% [3]			± 2% [3]		
Laser wavelength		10.6 µm					
Beam mode		Low order mode					
Beam diameter at exit (mm)		< ø 20	< ø 27	< ø 24	< ø 27	< ø 24	< ø 27
Polarization		45° linear			circular	90° linear	
Beam divergence angle (full angle)		2mrad or less					
Pulse frequency		5 to 32,767 Hz					
Pulse duty		0 to 100%					
Laser gas [4]		Gas A	Gas B				
Gas consumption rate (l/h)		Approx. 10					Approx. 20
Colling water	Water rate (l/min.)	40	75		160		250
	Circulated water pressure	0.5MPa or less gauge pressure					
	Water temperature / Water temperature stability	20 to 30°C / ± 1°C			20 to 30°C / ± 2°C		
	Redommended cooling capacity (kW)	11	22		44		66
Input power supply		AC200V + 10%, -15% 50/60Hz ± 1Hz or AC220V + 10%, -15% 60Hz ± 1Hz or AC230V + 5%, -10% 60Hz ± 1Hz					
Power supply capacity (kVA)		18	33		55		75
Mass (kg)		350 30 (pump)	700		900		1300

[1] In **C1000*i*-C**, the vacuum pump is placed outside of the main unit.
[2] Within limited pulse duty
[3] At rated power with laser power feedback during 8 hours.
[4] Gas A / Pre-mixed gas of CO_2:N_2:He (volume ratio, N_2 balance) 5:55:40% ±5% or less for each compositione
Gas B / Pre-mixed gas of CO_2:N_2:He (volume ratio, Ne balance) 5:35:60% ±5% or less for each compositione

Highest performance and functionality

Excellent cutting performance
Thanks to superior beam quality FANUC CO_2 laser offer an overall outstanding cutting speed when cutting mild steel from 1 mm up to 32 mm. With a surface roughness reduced by up to 70% they guarantee a superior surface smoothness of the cutting edge. And with 2,5kW laser output power the C2000*i*-C cuts stainless steel up to 12mm free from oxidation.

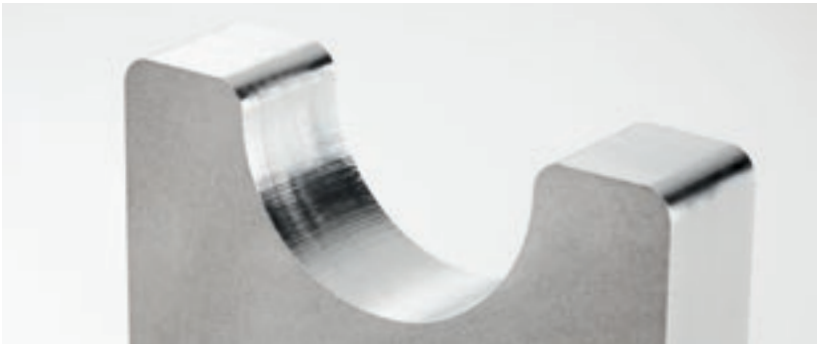
Two controlls in one
for laser and machine tool. Your benefit: All interfaces are prepared ex factory. Intelligent software features enable high efficient and effective laser processing. And the features of standard FANUC CNCs can be utilised – your access to all the CNC, drive systems and automation technologies of the world's leading CNC manufacturer.

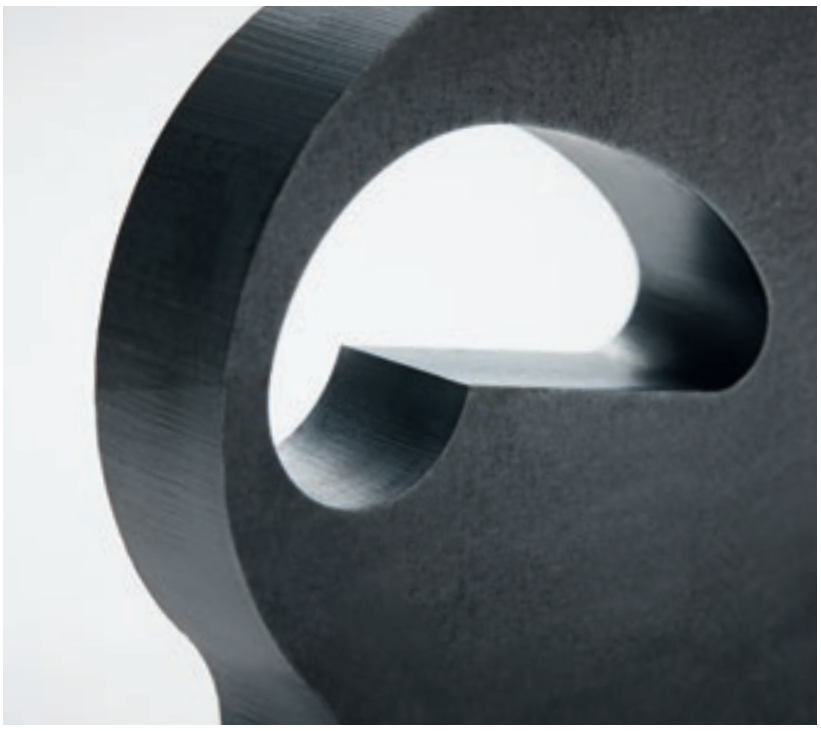
Synchronisation of laser power and axis movement in real time
by only one processor – for high speed and high quality cutting

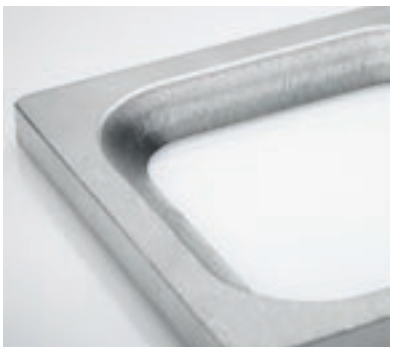
3-D-Laser-cutting
To enable the configuration of a laser machine tool for 3-D machining including tubes and bevels, the FANUC laser package can simultaneously control up to 6 axes. Nozzle attitude control can be achieved with both zero-offset and offset processing heads. Other functions include teaching function, 3-D coordinate conversion and W-axis tracing control.

Green efficiency
Due to smart functions we have diminished the energy consumption of our laser systems by 25% thus significantly improved the energy balance. Your advantage: major savings in energy and laser gas costs.

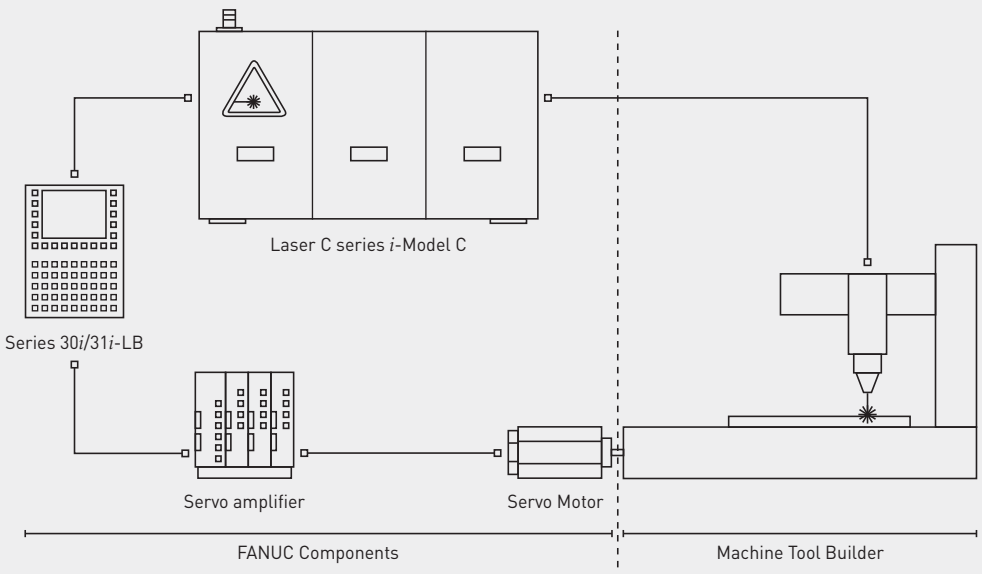
Open CNC Option
enables the connection of a PC to the Open CNC via a serial high-speed optical fibre interface for individual customizations. Your benefit: easy transfer of large volumes of data and easy implementation of specific functions – for highest flexibility to the demands of individual customers.







System Configuration



Highly efficient start-up of your laser machines

Using the FANUC laser package, you have no additional work to establish communication between CNC and laser source. The laser control is directly integrated into the CNC's system – including all necessary laser control and diagnostic screens. This safe and efficient connection allows the easy integration of many useful laser processing functions:

Diagnostic functions
- screens for all relevant laser source data (internal pressure, discharge voltages, output power etc.)
- automatic calculation and display of laser power coefficient
- automatic leak check
- cutting data library

Processing parameter controls
- laser power as a function of feedrate
- high speed laser cutting and piercing
- edge machining function to process sharp edges when cutting thick mild steel material
- total power control function to reduce thermal load when cutting thin material even at high speed
- direct control of assist gas

Special functions for efficient processing
- tracing axis control by means of an analogue input to connect gap sensor
- tracing function to keep the distance between cutting nozzle and workpiece surface constant
- sensor controlled piercing time
- CNC-beam length compensation to control an additional trombone axis by means of a servomotor
- retry function to enable unmanned machine operation

The yellow way to easy automation

Customise your laser package!

Choose and customize your laser dedicated multichannel CNC model FS30*i*-LB for 2-D and 3-D laser cutting machines or cost optimized CNC model FS31*i*-LB for standard 2-D laser cutting machines. Both CNC controls providing intelligent software solutions for effective and efficient laser processing and even those software functions to enable powerful laser/punch combination machines. All to enhance the performance of your FANUC laser system in terms of cycle time, speed, accuracy and quality. The integrated laser control and diagnostic functions predict necessary maintenance to guarantee machine uptime and therefor high productivity. This will satisfy your customer.

Software functions for higher productivity:
- support of material handling in laser machines
- reduced laser power consumption
- support of stable laser cutting
- real time control of laser output power
- stabilisation of laser operation in severe environment
- integrated laser diagnostics

	31*i*-B	30*i*-B
Max. controlled axes total / per path	26 / 16	40 /28
Max. feed axes total / per path	20 / 12	32 /24
Max. spindle axes total / per path	6 / 4	8 / 4
Max. simultaneously controlled axes / path	4	24
Max. controlled paths	4	10
PMC function		
Max. number of I/O	4096 / 4096	4096 / 4096
Max. number of I/O-Link channels	3	3
Max. number of PMC channels	5	5
Smooth simultaneuous 5-axis machining	–	•

Our strength: Service and Support

Intensive application support and personal customer service are major aspects of the FANUC's yellow world – from the first step to the last. A very skilled and dedicated service team will help you to build and operate the most efficient machines. Always flexible, always fast, always near. And with special FANUC Service packages and intensive training programs with our skilled laser field engineers you can improve the performance of your machines.

Wherever you need us: we are there

Thanks to our global network of branch offices in Europe, America, Asia, Africa and Australia we are always there to meet your requirements quickly and effectively.

Throughout the whole of Europe, our extensive FANUC network provides support in the areas of sales, technical support, logistics, and service. So you´ll always have a contact person who speaks your language.

SMART · STRONG · YELLOW

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