



FORZA

Ranger T

V250216

Datasheet

Model NT1530P30



FORZA

Ranger T

Industrial CNC laser cutting machine for metal plates and tubes

Cutting / Marking / Perforation

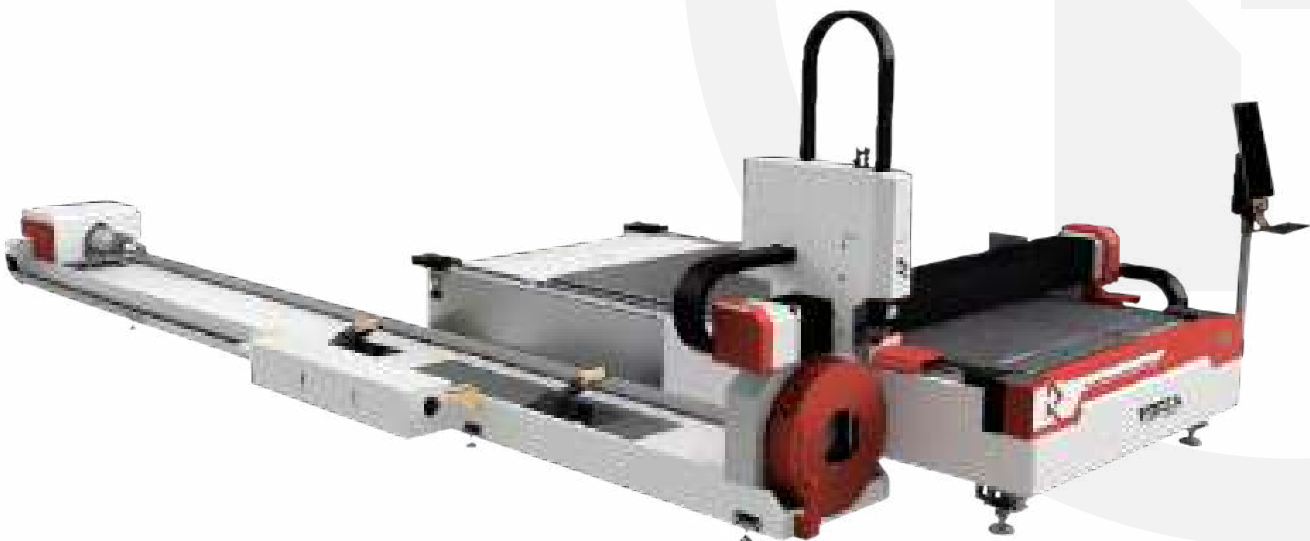
The FORZA RANGER T laser cutter represents the latest generation of our mixed plate and tube machinery line.

With enhanced cutting speed, acceleration, and robustness, it is capable of processing full-size 5ft x 10ft sheets and tubes up to 220mm in diameter and 6 meters in length.

Specific Features

FEATURE	DETAIL
Application	Cutting metal plates and tubes
Total plate workspace	1525mm x 3050mm 5ft x 10ft
Max tube length & diameter	L:6000mm x D:220mm L:20ft x D:8.6in
Laser power rating	3000W
Nominal cutting thickness in ASTM A36 ¹	14 mm 9/16 in
Maximum cutting limit in ASTM A36 ²	19 mm 3/4 in
Maximum acceleration	1.0G 32.0ft/s ²
Maximum XY translation speed	100 m/min 5.5 ft/s
Cutting precision ³	± 0.1mm

1. This is the maximum limit at which a burr-free and clean cut can be obtained. Up to this thickness, cutting can be performed continuously.
2. It is not recommended to size the machine with this power if the intention is to work permanently with thicknesses exceeding the nominal limit. As the thickness increases beyond the nominal value, the cut may exhibit more pronounced lines and possible burrs. Additionally, piercing may become unstable at maximum thicknesses, requiring meticulous operator control.
3. Cutting precision is measured on a 0.7mm stainless steel sheet, considering the machine's repeatability and accuracy. A precision of 0.1mm means that when cutting a 100.0mm plate, the actual measurement may be 100.1mm or 99.9mm. If the material thickness increases, the error may become greater due to material properties and cut width.



SPECIAL FEATURES:

Smart Focus Technology



Automatic laser head adjustment for working on uneven surfaces. The head maintains a constant distance, even if the plate is warped.

Marking Technology



Not only cuts but also performs marking, ideal for engraving bending lines, numbers and letters.

Gravity Cut



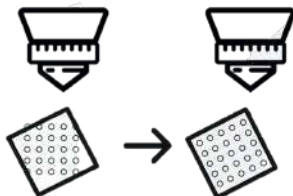
Reduces cutting time by up to 60% for rectangular and circular patterns by utilizing movement inertia.

Software FORZA Play.



User-friendly Spanish/English cutting software with collision detection and maintenance alerts.

Find edge system.



Automatically detects edges to position designs optimally, reducing material waste by up to 40%.

Centering Technology



Refers to the process of precisely aligning an object or component at the center. This process is crucial for tube cutting, as it ensures the equipment's functionality and precision.

GENERAL SPECIFICATIONS:

SPECIFICATION	DETAIL
Model	FORZA RANGER T – NT1530P30
Laser Type/Technology	Fiber Laser 1064nm ± 30nm
Laser beam diameter at QBH	20um
Rated Fiber Laser Power	3000W
Fiber laser working power range	5 a 100% (±0.5%)
Output Power Stability	± 1.5W
Laser working frequency	4 to 5000Hz
Source protection level	IP54
Laser Source Model	MFSC-3000W Max Photonics
Working Modes	CUTTING / MARKING / PERFORATION
Focusing system	SMART FOCUS TECHNOLOGY ⁽¹⁾
Auxiliar Gas type for cutting	O2, N2 or Air
Proportional oxygen control	Analog control 10 bar (Airtac)
Laser head model	OSPRI - LC40
Focus range	-10mm ~ +10mm
Max focusing speed	100mm/s
Protection system	Collision prevention and detection
Preloaded Cutting Profiles	Yes ⁽²⁾
Laser cutting width	0.1mm ~ 1.5mm ⁽³⁾
Cutting precision	Thickness-dependent ⁽⁴⁾
Cutting angle	<2° ⁽⁵⁾

1. The focusing system incorporates an internal servo motor that moves the lens, along with a capacitive sensor that maintains the distance between the head and the plate during cutting.
2. Cutting parameters are available on the library.forzalaser.com platform, where customers can download them for free. A local backup is also stored on the machine for quick access.
3. The cutting width is directly proportional to the material thickness; as thickness increases, so does the cutting width. The type of assist gas also plays a role, with oxygen producing a wider cut line.
4. Cutting precision is 0.1mm for thicknesses up to 0.7mm. As material thickness increases, precision may be affected due to the widening of the cut line, reaching up to 0.5mm on 1/2-inch plates.
5. The cut angle depends on the material thickness and the type of assist gas used. Thicker materials can result in greater cut angles, and oxygen may increase the cut angle.

Repeatability	±0.05mm
Motion accuracy	±0.02mm
Nominal working area	1500mm x 3000mm 4.9ft x 9.8ft
Total plate space per unit	1525 mm x 3050 mm 5ft x 10ft
Tube working length	500mm a 6000mm 1.6ft x 20ft
Tube working diameter	20mm a 220mm 0.8in a 8.6in
Z-axis Travel	350 mm 13.8in
Max cutting speed	30 m/min 1.64ft/s
Max travel speed	100 m/min 5.5ft/s
Max tube rotation speed	30rev/min
Max XY acceleration	1.0G 32.0ft/s²
XY motion system	Rack / Pinion
Z motion system	Screwball
Servo motor power (XYZA)	X: 750W
	Yx2:850W
	Z:400W
	Ax2:1300W
Servo motor brand	Inovance
Lubrication system	Automatic by working path
Wireless Control	Wi-fi remote control
Fume Extraction System	Centrifugal blower
Maximum plate Load Capacity	700kg⁽⁶⁾

6. The maximum plate weight is for a full 5ft x 10ft, 3/4-inch ASTM A36 steel plate, which must be evenly distributed.

Laser source power	10 kW		
Chiller power	3.8 kW		
Fume Extractor Power	1.5 kW		
Motion and control system power	7 kW		
Peak machine power	22.3 kW		
Minimum Sizing Power ⁽⁷⁾	17.05 kW		
Average energy consumption ⁽⁸⁾	10.23 kWh		
Operating Voltage	Three-phase: 220/250/380/440/480V (50-60Hz)		
Minimum current per line	49.7A @ 220VAC 3ph		
	43.8A @ 250VAC 3ph		
	28.8A @ 380VAC 3ph		
	24.9A @ 440VAC 3ph		
	22.8A @ 480VAC 3ph		
Required cable gauge for breaker panel ⁽⁹⁾	Up to 60°C (TW,Uf)	Up to 90°C (THHW,THHNF)	Voltage
	3 x 6AWG	3 x 8AWG	220VAC 3ph
	3 x 6AWG	3 x 8AWG	250VAC 3ph
	3 x 8AWG	3 x 12AWG	380VAC 3ph
	3 x 10AWG	3 x 14AWG	440VAC 3ph
	3 x 10AWG	3 x 14AWG	480VAC 3ph
	+1 x 10AWG PE (Ground)		
Recommended breaker	50A @ 220VAC 3ph		
	45A @ 250VAC 3ph		
	30A @ 380VAC 3ph		
	25A @ 440VAC 3ph		
	25A @ 480VAC 3ph		

7. The minimum power sizing for electrical configuration is calculated based on typical power consumption of the laser source and chiller, along with half the power of the fume extractor and machine actuators.
8. Average power consumption is estimated at 60% of the sizing power. Not all components operate simultaneously; the intermittent activation of systems such as the chiller, motors, and laser source results in lower actual consumption.
9. The cable gauge sizing was done based on NEC 310-16 for maximum conductor temperatures of 60°C and 90°C, considering conduit installation. If installing cables in open air, a smaller gauge may be used upon consultation with FORZA Laser's technical department.

Power cable length ⁽¹⁰⁾	10 m 32.8ft
Air supply required for rotor	6bar (hose inlet 8mm)
Communication Interface	RJ45, WIFI, USB 3.0
Compatible Design Formats	AI, DXF, PLT, LXD, G
Software	FORZA PLAY
Software Language	Spanish and English
PC control interface	By screen and by manual control
Cooling method	Water-cooled
Chiller tank capacity	21L / 5.45 gal
Gas connection diameter	8mm O2 and 8mm N2 hose (Nylon)
Max Gas Pressure at Head	25bar / 362.6 psi
Max air/N2 input pressure	20bar 290psi
Max O2 input pressure	10bar 145psi
Recommended N2 input pressure	≤ 16bar 232psi
Recommended O2 input pressure	8bar ⁽¹¹⁾
Net Machine Weight	3230kg
Gross Machine Weight	3300kg
Machine dimensions	8476 x 3720 x 2257mm 27.8 x 12.2 x 7.4ft
Part A dimensions for transport	4200 x 2300 x 750mm ⁽¹²⁾ 13.8 x 7.6 x 2.5ft
Part B dimensions for transport	8000 x 1100 x 750mm ⁽¹³⁾ 26.3 x 3.6 x 2.5ft
Required Floor Resistance	6.5 Kg/cm ²
Relative humidity	< 85%
Working temperature	2 – 35o C / (35.6 – 95 °F)
Storage temperature	8 – 30o C / (46.4 – 86 °F)
Certifications	CE, RoHS

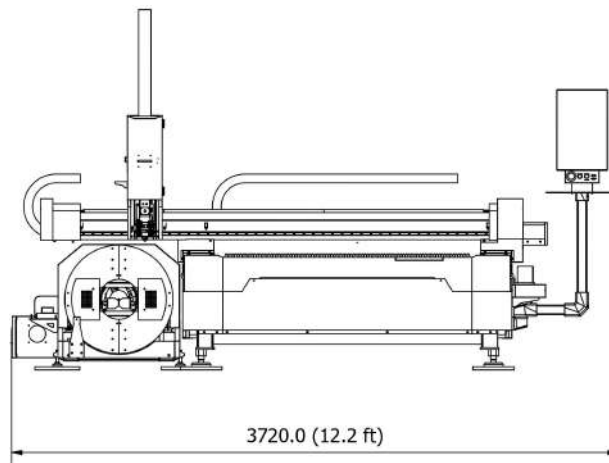
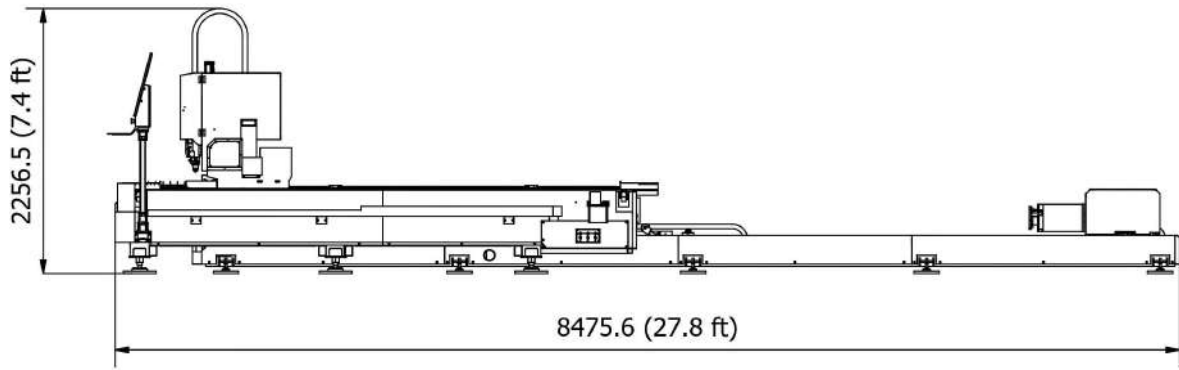
10. The power cable length is measured from the breaker to the transformer..

11. The specified pressure is measured at the tank gauge output; from this pressure, the valves are calibrated

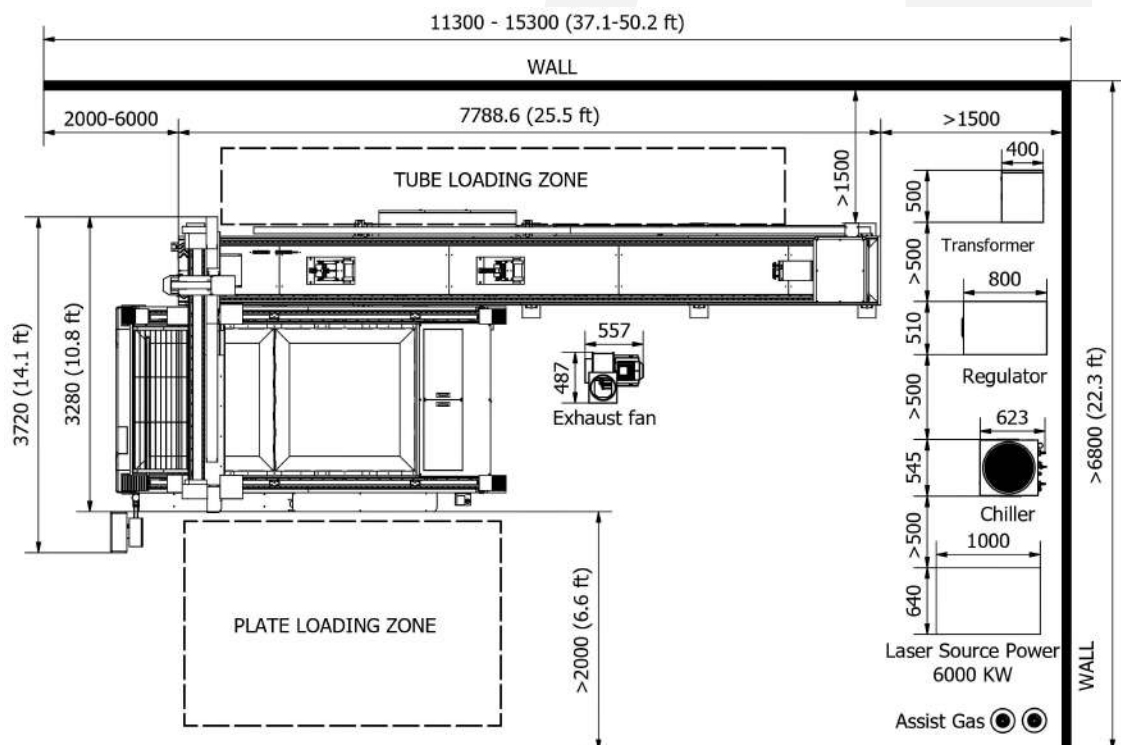
12. Part A consists of the cutting bed and peripheral components.

13. Part B comprises the structure supporting the tubes.

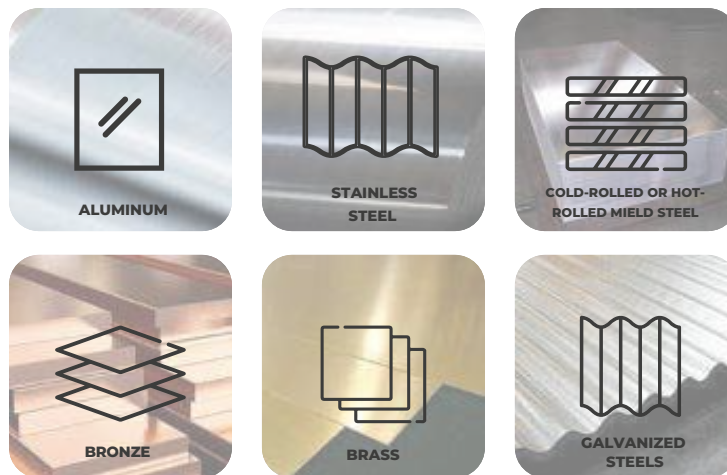
Machine dimensions



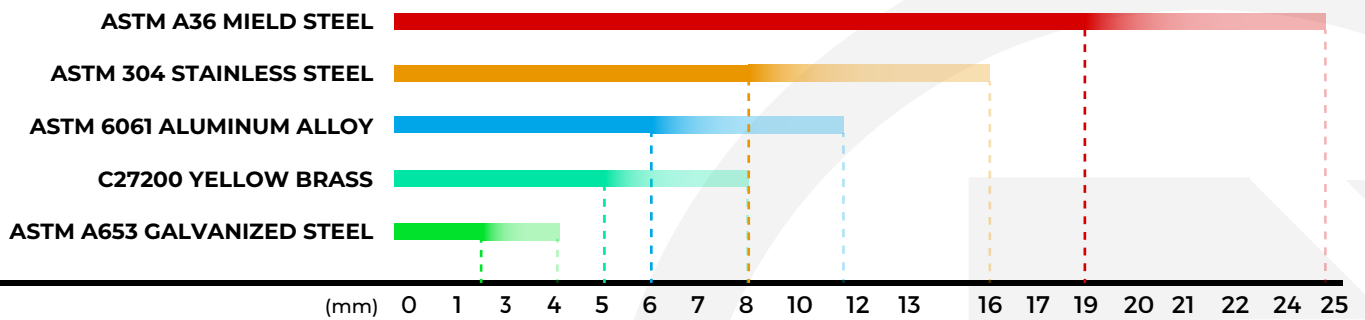
Required Space



APPLICABLE MATERIALS

















Cutting thicknesses by material

















MATERIAL	Ideal thickness ¹			Maximum thickness ²		
	mm	in	Gauge	mm	in	Gauge
ASTM A36 MILD STEEL	14	9/16	-	19	3/4	-
ASTM 304 STAINLESS STEEL	7	9/32	-	12	5/32	-
ASTM 6061 ALUMINUM ALLOY	5	13/64	-	9	23/64	-
C27200 BRASS	4	5/32	-	7	9/32	-
ASTM A653 GALVANIZED STEEL	2	5/64	14	3	1/8	8

1. The ideal thickness refers to the thickness that can be cut with a completely clean edge and without burrs.
2. The maximum thickness is the upper cutting limit. Beyond the ideal thickness, cut lines may appear as thickness increases. It is not recommended to size the machine based on the maximum thickness. Cutting at the maximum thickness also restricts the geometries that can be processed due to material temperature effects.

Packing List:

- ❑ 1 x x FORZA RANGER T 3000W principal part. (1) 
- ❑ 1 x Rotary axis part (2) 
- ❑ 1 x X axis part.(3) 
- ❑ 1 x LC80 head cutting 
- ❑ 1 x MFSC-3000W Max Photonics Power Source 
- ❑ 1 x Wireless remote control. 
- ❑ 1 x Wireless keyboard and Mouse. 
- ❑ 1 x Laser Protective Glasses with Case. 
- ❑ 2 x Waste collecting cart 
- ❑ 6 x Machine leveling fee 
- ❑ 1 x Screen support structure kit (2 pieces). 
- ❑ 1 x Gutter and tracks assembly kit (4 pieces). 
- ❑ 49 x Support Swords 
- ❑ 1 x Monitor screen 
- ❑ 1 x Industrial CPU 

-POWER CABLES AND DUCTS-

- ❑ 1 x x Gas extraction tube/hose x4.8m x10" 
- ❑ 1 x Monitor Power Cable. 
- ❑ 10m x Metal cable tray. 
- ❑ 2 x PU/Nylon hoses for C-H cooling, 10mx8mm. 
- ❑ 2 x PU/Nylon hoses for C-F cooling, 10mx19 mm 
- ❑ 1 x Voltage regulator for monitor. 
- ❑ 5m x Cable 3x6 AWG + 1x10AWG, B-T (T:Ring-Spade)@220v3ph 
- ❑ 5m x Cable 3x6 AWG + 1x10AWG, B-T (T:Ring-Spade) @250v3ph 
- ❑ 5m x Cable 3x8 AWG + 1x10AWG, B-E (T:Ring-Spade) @380v3ph 
- ❑ 5m x Cable 3x10 AWG + 1x10AWG, B-T (T:Ring-Spade) @440v3ph 
- ❑ 5m x Cable 3x10 AWG + 1x10AWG, B-E (T:Ring-Spade)@480v3ph 
- ❑ 2m x Cable 4x6 AWG + 1x10AWG, T-E(T:Ring-Ring)@220 480v3ph 
- ❑ 10m x Cable 4x6 AWG + 1x10 AWG, E-M (T:Ring-Spade) 
- ❑ 15 x Cable 4x12 AWG, M-X (T:Ring-Spade) 

-LICENSES-

- ❑ 1 x FORZA Play Lifetime Software License
- ❑ 1xLicense by FORZA Vectors 1 year
- ❑ 1xFull License FORZA Academy 1 year
- ❑ 1xLicense of SOPORTE Super 7 for 4 years







T: Transformer, B: Breaker, E: Stabilizer, M: Machine, F: Laser Source, C: Chiller, H: Head, X: Exhaust, G: Ground)

*The reference cables are with TW type coating






Transport symbols:  (Package).  (Inside a package).  (Installed on the machine)

Item	Dimension	Net Weight	Gross Weight	CBM
 1	W: 2300mm H: 750mm L:4200mm	1500kg	1600kg	7.25
 2	W:1100mm H: 750mm L:8000mm	1630kg	1700kg	6.60
 3	W: 820mm H: 900mm L:3000mm	350kg	400kg	2.21
 4	W: 1020mm H: 1050mm L:1200mm	175kg	200kg	1.28
 5	W: 1020mm H: 800mm L:1200mm	175kg	200kg	0.97
 6	W: 1000mm H: 1100mm L:640mm	160kg	185kg	0.7


















-PERIPHERALS-

- ❑ 1 x Voltage stabilizer 380V / 40 KVA. (4) 
- ❑ 1 x 4kW automatic chiller (Chiller). (4) 
- ❑ 1 x MFSC-6000W Max Photonics. (6) 
- ❑ 1 x Industrial exhaust fan 1.5 kW. (5) 
- ❑ 1 x 50KVA Transformer [220V - 380V] @220v3ph. (5) 
- ❑ 1 x 50KVA Transformer [480V - 380V] @250v3ph. (5) 

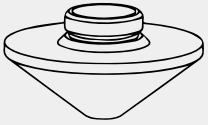


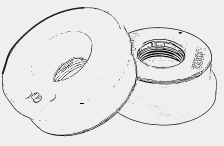





-CONSUMABLES-

- ❑ 1 x Top protective lens. 
- ❑ 9 x Bottom protective lenses. 
- ❑ 16 x Cutting nozzles, multiple sizes 
- ❑ 1 x Capacitive ceramic sensor base 
- ❑ 1 x Liter ISO 68 Oil 

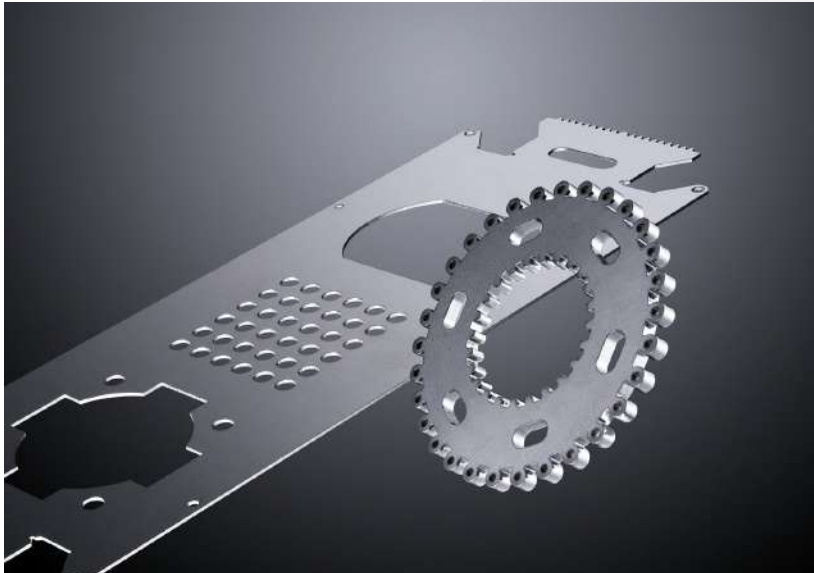
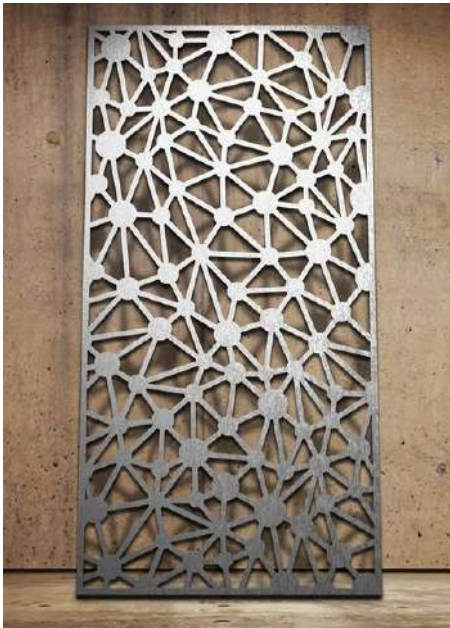
-TOOLBOX-

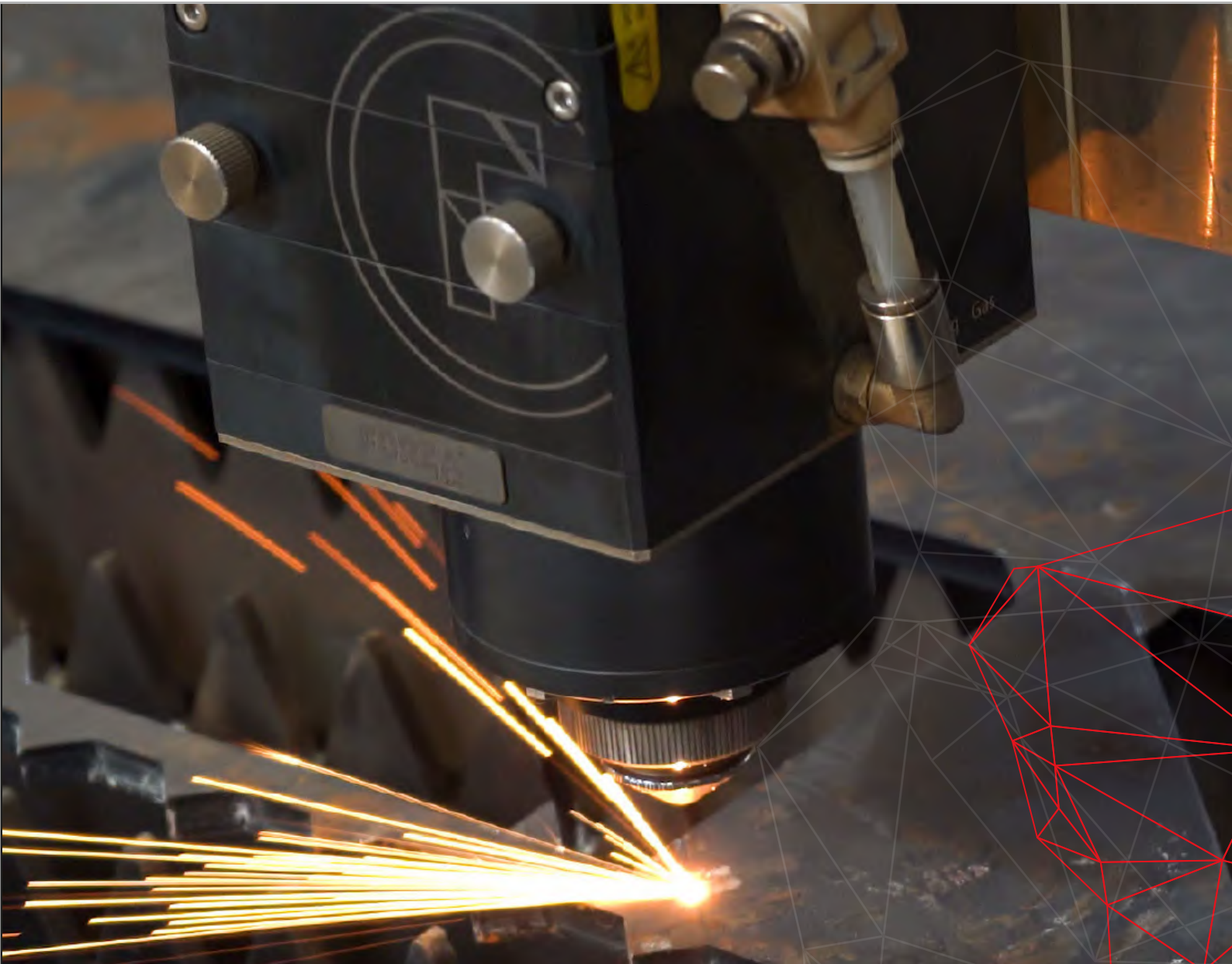
- ❑ 1 x Bag of 6mm bolts and anchors 
- ❑ 1 x Plastic tool box 
- ❑ 1 x Scotch tape. 
- ❑ 1 x Masking Tape. 
- ❑ 1 x Metric allen key set 
- ❑ 1 x 4 pcs Screwdriver Set 
- ❑ 1 x Set of door and switch keys. 
- ❑ 1 x Adjustable pipe wrench 
- ❑ 1 x Cotton swabs and cleaners 
- ❑ 1 x Branding poster 
- ❑ 1 x Wi-Fi module 
- ❑ 1 x Set of electrical terminals 
- ❑ 1 x Set of service terminals 
- ❑ 10 x 3/8" expansion bolt 
- ❑ 30 x Screws + Fischer plug 
- ❑ 1 x QBH Protector 
- ❑ 2 x 10" Clamps for flexible pipe. 

CONSUMABLES:

Photo	Article	Model	Dimensions	Service life
	Cutting nozzle: single/double	xxxx	D:28mm M11x0.75 H:15mm	200 hours
	Bottom protective lens	CF-L30.0X5.0-4K	D:30mm T:5mm	200 hours
	Distilled water	xxxx	21 liters	2 months
	Capacitive sensor ceramic base	CF-BCD28M1L12	D(e):28mm	1000 hours
			D(j):24.5mm	
			M11x0.75	
			H:12mm	
	ISOVG68 lubricating oil	xxxx	1 liter	50 000 meters
	Support slats	xxxx	L:1600mm T:2mm	300 000 meters
	Blue grease for pinions	xxxx	Lithium grease	10 000 meters
	Secondary Bottom Protection Lens	CF-L30.0X5.0-4K	D:30mm T:5mm	Not Specified
	Top protection lens	CF-L21.5X2.0-4K	D:21.5mm T:2mm	Not Specified

MANUFACTURED PARTS:





With Forza Laser, specialists in laser technology, our equipment provides everything you need to maximize the growth of your business.

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