



FORZA

Ranger T

V250216

Data Sheet

Model NT1530P60



FORZA

Ranger T

CNC laser cutting for metal plates and tubes.

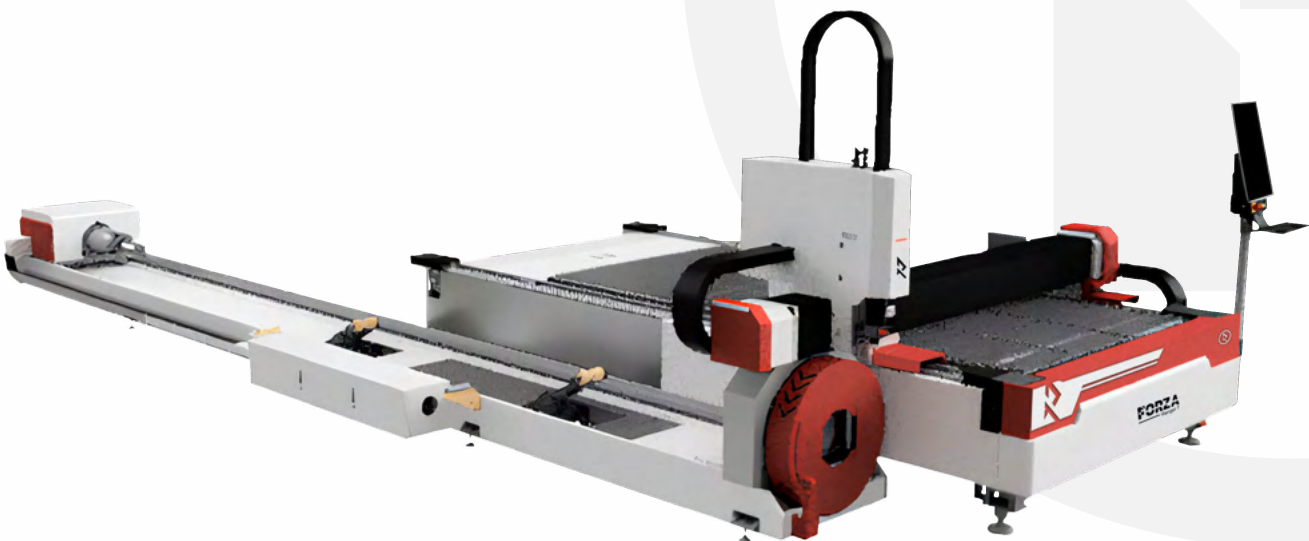
Cutting / Marking / Perforation

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

Specific Features

FEATURE	DETAIL
Application	Plates and Tubes cutting
Standard sheet work area	1525mm x 3050mm 5ft x 10ft
Maximum length and diameter in tube	L:6000mm x D:220mm L:20ft x D:8.6in
Nominal laser power	6000W
Nominal cut thickness in ASTM A36 ¹	19mm 3/4in
Maximum limit cutting thickness in ASTM A36 ²	25mm 1 in
Maximum acceleration	1.0G 32.0ft/s ²
Maximum XY translation speed	100 m/min 5.5 ft/s
Cutting accuracy ³	± 0.1mm

1. It is the limit with which a clean, burr-free cut can be obtained; up to this thickness it can be cut permanently.
2. It is not recommended to size the machine with this power if you intend to work permanently with thicknesses greater than the nominal one, as the cut will begin to present more pronounced lines and possible burrs as it moves away from the nominal thickness. In addition, the piercing may be unstable at maximum thicknesses, so it must be carefully controlled by the operator...
3. The cutting accuracy is taken from a 0.7mm stainless steel sheet, it considers the repeatability and accuracy of the machine. 0.1mm accuracy means that when cutting a 100.0mm sheet it can measure 100.1mm or 99.9mm. If the thickness of the material increases the error may be greater due to the nature of the materials and the width of the cut.



SPECIAL FEATURES:

Smart Focus Technology



Automatic head for working on uneven surfaces, no matter if the plate is warped, the head will maintain a constant distance throughout the cut.

Marking Technology



It is not only for cutting, it also has a marking function, ideal for engraving lines for post-bending processing or engraving numbers and letters.

Gravity Cut



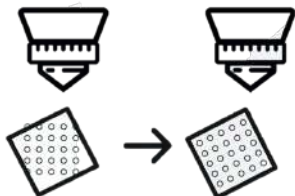
You can save up to 60% of time when cutting rectangular and circular patterns by taking advantage of the movement inertia.

Software FORZA Play.



Software en español especializado para corte, amigable, con sistema de alarmas contra choques y avisos de mantenimientos

Find edge system.



Detects edges to position drawings on contours and take advantage of the material, which can reduce waste by up to 40%.

Centering Technology



It refers to the process of aligning an object or component precisely in the center. This process is crucial for cutting tubes as it ensures the functionality and precision of the equipment.

Especificaciones Generales

SPECIFICATION	DETAIL
Model	FORZA RANGER T – NT1530P60
Laser Type/Laser Technology	Fiber Laser 1064nm ± 30nm
Beam diameter in the QBH	20um
Nominal power of Fiber laser	6000W
Fiber laser working power range	5 a 100% (±0.5%)
Stability at output power	± 1.5W
Laser working frequency	4 to 5000Hz
Source protection level	IP54
Source model for use	MFSC-6000W Max Photonics
Types of work	CUTTING / MARKING / PERFORATION
Focusing system	SMART FOCUS TECHNOLOGY ⁽¹⁾
Gas type to use for cutting	O2, N2 or Air
Proportional oxygen regulation	Analog control 10 bar (Airtac)
Laser cutting head model	OSPRI - LC80
Focus range	-15mm ~ +15mm
Maximum focusing speed	200mm/s
Protection system	Collision prevention and detection
Pre-loaded cutting profiles creation	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 servomotor that moves the lens and in addition to a capacitive sensor that maintains the distance between the head and the plate during cutting.
2. The parameters are available on the library.forzalaser.com platform and the customer can download them for free and a local backup is left on the machine for quick access.
3. The cutting width is directly proportional to the material thickness; as the thickness increases, the cutting width also increases. The type of assist gas also influences the cut width, with oxygen resulting in a wider kerf.
4. Cutting accuracy is 0.1mm for thicknesses up to 0.7mm. If the cutting thickness increases, the accuracy is affected by the cutting width up to 0.5mm for ½ inch sheets.
5. The angle of inclination depends on the thickness of the cutting material and the gas type being used, the greater the thickness the angle of inclination can be affected, oxygen can increase the angle of inclination of the cut.

Repeatability	±0.05mm
Movement accuracy	±0.02mm
Nominal working area	1500mm x 3000mm 4.9ft x 9.8ft
Total sheet 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
Maximum displacement in Z	350 mm 13.8in
Maximum cutting speed	30 m/min 1.64ft/s
Maximum traslation speed	100 m/min 5.5ft/s
Maximum tube rotation speed	30rev/min
Maximum XY acceleration	1.0G 32.0ft/s²
XY motion system	Rack / Pinion
Z motion system	Screwball
XYZA servo motor power	X: 750W
	Yx2:850W
	Z:400W
	Ax2:1300W
Servo motor brand	Innovance
Lubrication system	Automatic by working path
Wireless Control	Wi-fi remote control
Dust removal system	External exhaust fan
Maximum load	700kg⁽⁶⁾

6. The maximum load must be evenly distributed across the worktable. For cutting thicker materials (up to 1 inch), smaller plate dimensions can be used to avoid exceeding the maximum load capacity.

Laser source power	18.5 kW																					
Chiller power	8.5 kW																					
Gas extractor power	1.5 kW																					
Movement and control system power	7 kW																					
Peak power consumption	35.5 kW																					
Minimum power for sizing ⁽⁷⁾	30.25 kW																					
Average power consumption ⁽⁸⁾	18.15 kWh																					
Nominal voltage	Three-phase: 220/250/380/440/480V (50-60Hz)																					
Minimum current per line	88.2A @ 220VAC 3ph																					
	77.6A @ 250VAC 3ph																					
	51.1A @ 380VAC 3ph																					
	44.16A @ 440VAC 3ph																					
	40.43A @ 480VAC 3ph																					
Required wire gauge for breaker panel ⁽⁹⁾	<table border="1"> <thead> <tr> <th>Up to 60°C (TW,UF)</th> <th>Up to 90°C (THHW,THHNF)</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>3 x 2AWG</td> <td>3 x 4AWG</td> <td>220VAC 3ph</td> </tr> <tr> <td>3 x 3AWG</td> <td>3 x 4AWG</td> <td>250VAC 3ph</td> </tr> <tr> <td>3 x 6AWG</td> <td>3 x 8AWG</td> <td>380VAC 3ph</td> </tr> <tr> <td>3 x 6AWG</td> <td>3 x 8AWG</td> <td>440VAC 3ph</td> </tr> <tr> <td>3 x 8AWG</td> <td>3 x 10AWG</td> <td>480VAC 3ph</td> </tr> <tr> <td colspan="3" style="text-align: center;">+1 x 10AWG PE (Ground)</td> </tr> </tbody> </table>	Up to 60°C (TW,UF)	Up to 90°C (THHW,THHNF)	Voltage	3 x 2AWG	3 x 4AWG	220VAC 3ph	3 x 3AWG	3 x 4AWG	250VAC 3ph	3 x 6AWG	3 x 8AWG	380VAC 3ph	3 x 6AWG	3 x 8AWG	440VAC 3ph	3 x 8AWG	3 x 10AWG	480VAC 3ph	+1 x 10AWG PE (Ground)		
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+1 x 10AWG PE (Ground)																						
Recommended breaker for the machine	90A @ 220VAC 3ph																					
	80A @ 250VAC 3ph																					
	50A @ 380VAC 3ph																					
	45A @ 440VAC 3ph																					
	40A @ 480VAC 3ph																					

7. The minimum power requirement for electrical sizing is calculated based on the typical power ratings of the laser source and chiller, along with half the power consumption of the exhaust system and machine actuators.
8. The average power consumption is estimated at 60% of the rated power for sizing purposes. Not all components remain active continuously during operation; the periodic activation and deactivation of systems such as the chiller, motors, and laser source contribute to a lower overall consumption.
9. The cable gauge sizing was done based on NEC 310-16 for maximum conductor temperatures of 60°C and 90°C respectively, where a conduit installation is considered. In case of an open-air cable installation, a smaller gauge than the one shown in this document could be used after consulting the FORZA Laser technical department.

Power cable length ⁽¹⁰⁾	10 m 32.8ft
Pneumatic supply required for rotor	6bar (Inlet 8mm)
Type of communication	RJ45, WIFI, USB 3.0
Supported design formats	AI, DXF, PLT, LXD, G
Software for use	FORZA PLAY
Software Language	Spanish and English
PC control interface	By screen and by manual control
Cooling method	Water-cooled
Chiller tank size	43L / 11.36 gal
Gas connection diameter	8mm O2 and 8mm N2 hose (Nylon)
Maximum pressure allowed in the head	25bar / 362.6 psi
Maximum air/N2 input pressure	20bar 290psi
Maximum O2 input pressure	10bar 145psi
Recommended N2 input pressure	≤ 16bar 232psi
Recommended O2 input pressure	6bar ⁽¹¹⁾
Equipment weight	3290kg
Weight of equipment for transport	3350kg
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
Resistance on the work floor	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

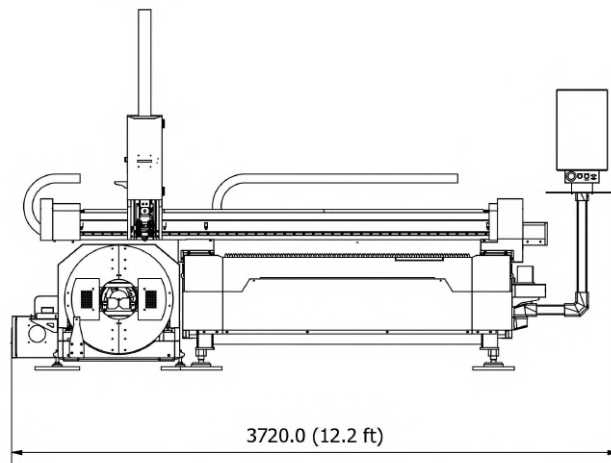
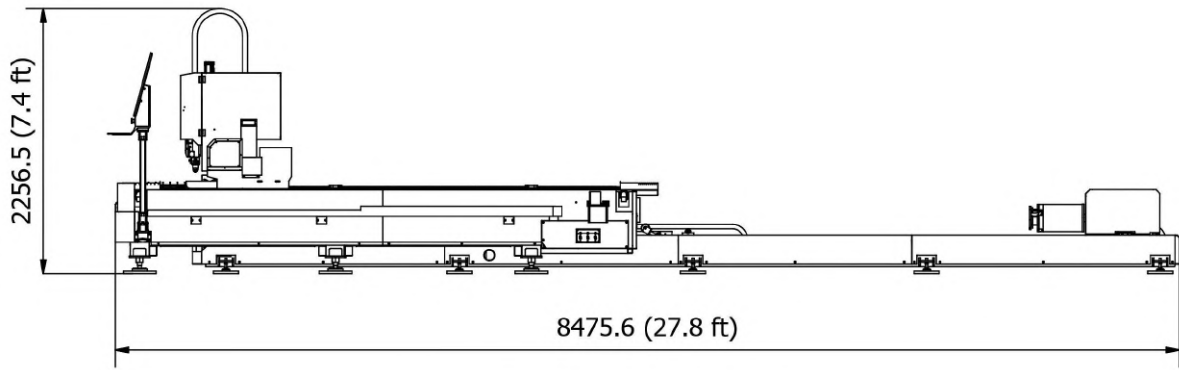
10. The power cable length is measured from the breaker to the transformer..

11. This pressure is measured at the tank gauge outlet, and valve calibration is performed based on this reference.

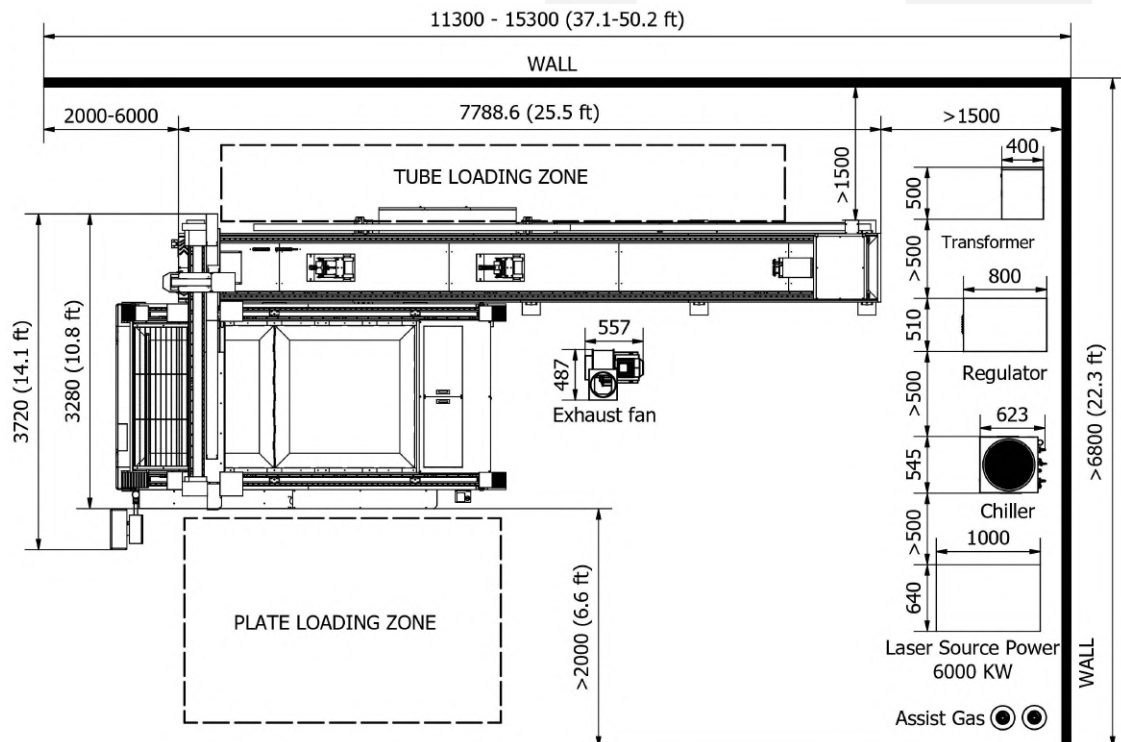
12. Part A consists of the cutting bed and peripheral components.

13. Part B comprises the structure supporting the tubes.

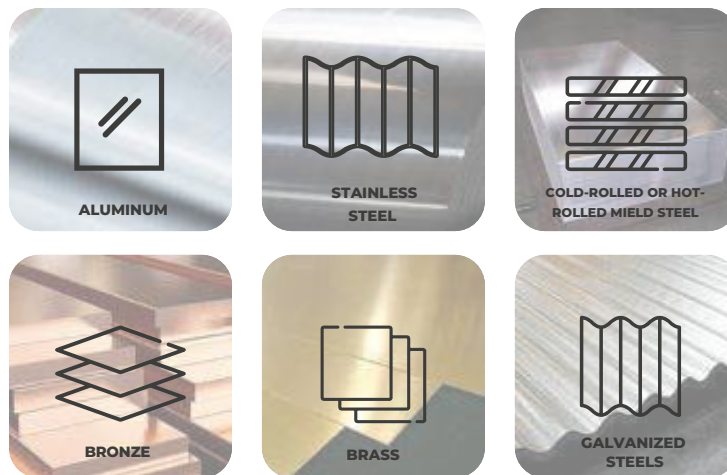
Medidas de la máquina



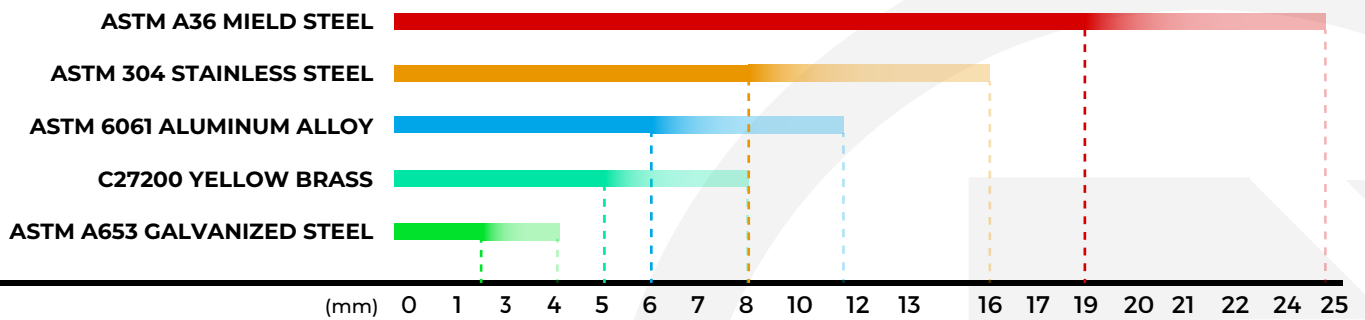
Required Space



APPLICABLE MATERIALS

















Cutting thicknesses by material

















MATERIAL	Ideal thickness ¹			Maximum thickness ²		
	mm	in	Calibre	mm	in	Calibre
ASTM A36 MILD STEEL	19	3/4	-	25	1	-
ASTM 304 STAINLESS STEEL	12	15/32	-	16	5/8	-
ASTM 6061 ALUMINUM ALLOY	9	23/64	-	12	15/32	-
C27200 YELLOW BRASS	7	9/32	2	10	3/8	-
ASTM A653 GALVANIZED STEEL	3	1/8	12	5	3/16	6

1. The ideal thickness is the one at which, when making a cut, the finished edge is completely clean and free of burrs.
2. The maximum thickness represents the upper cutting limit. Beyond the ideal thickness, cut lines become more pronounced as material thickness increases. It is not recommended to size the machine based on the maximum thickness. Cutting at limit thicknesses also restricts the geometries that can be processed due to material temperature effects.

Packing List:

- ❑ 1 x x FORZA RANGER T 6000W principal part. (1) 
- ❑ 1 x Rotary axis part (2) 
- ❑ 1 x X axis part.(3) 
- ❑ 1 x LC80 head cutting 
- ❑ 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 3x3 AWG + 1x8AWG, B-T (T:Ring-Spade)@220v 
- ❑ 5m x Cable 3x3 AWG + 1x10AWG, B-T (T:Ring-Spade) @250v 
- ❑ 5m x Cable 3x6 AWG + 1x10AWG, B-E (T:Ring-Spade) @380v 
- ❑ 5m x Cable 3x6 AWG + 1x10AWG, B-T (T:Ring-Spade) @440v 
- ❑ 5m x Cable 3x8 AWG + 1x10AWG, B-E (T:Ring-Spade)@480v 
- ❑ 2m x Cable 4x6 AWG + 1x10AWG, T-E(T:Ring-Ring)@220-480v 
- ❑ 10m x Cable 4x6 AWG + 1x10 AWG, E-M (T:Ring-Spade) 
- ❑ 15m 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 / 50 KVA. (4) 
- ❑ 1 x 6kW 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 [250V - 380V]@250v3ph. (5) 
- ❑ 1 x 50KVA Transformer [440V - 380V]@440v3ph. (5) 
- ❑ 1 x 50KVA Transformer [250V - 380V] @480v3ph. (5) 

-CONSUMABLES-

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

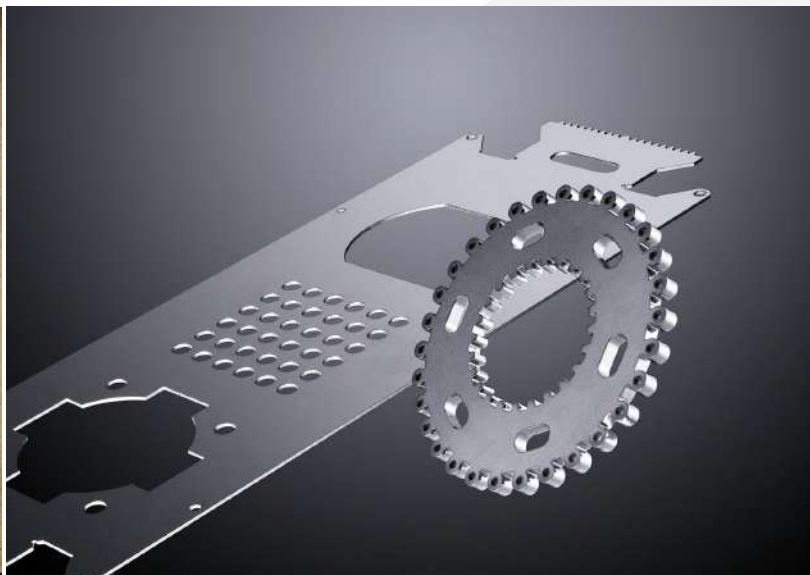
-TOOLBOX-

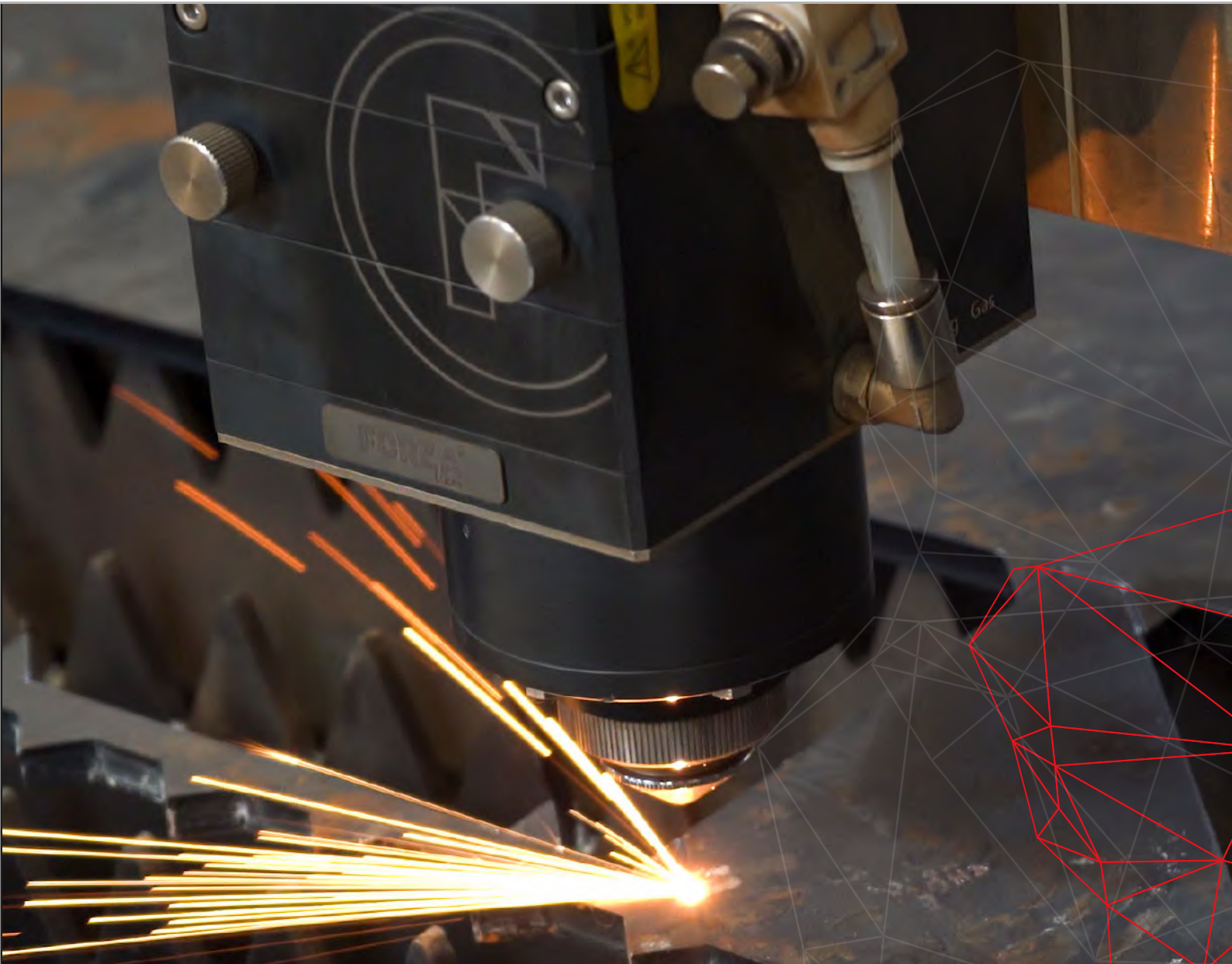
- ❑ 1 x Bag of 6mm bolts and anchors 
- ❑ 1 x Plastic tool box 
- ❑ 1 x Scotch tape. 
- ❑ 1 x Masking Tape. 
- ❑ 1 x Metric allen key set 
- ❑ 1 x 4 pcs Screwdriver Set 
- ❑ 1 x Set of door and switch keys. 
- ❑ 1 x Adjustable pipe wrench 
- ❑ 1 x Cotton swabs and cleaners 
- ❑ 1 x Branding poster 
- ❑ 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-L37.0X7.0-12K	D:37mm T:7mm	200 hours
	Distilled water	xxxx	43 liters	2 months
	Capacitive sensor ceramic base	CF-BCD28M1L12	D(e):28mm	1000 horas
			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 pine nuts	xxxx	Lithium grease	10 000 meters
	Second Bottom Protection Lens	CF-L37.0X7.0-12K	D:37mm T:7mm	Not Specified
	Top protective lens	CF-L21.5X2.0-8K	D:21.5mm T:2mm	Not Specified

MANUFACTURED PARTS:





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

Follow us on social media.

