



FORZA
Ranger

V250218

Datasheet
Model N1530P30



FORZA

Ranger

Industrial CNC laser cutting machine for metal plates

Cutting / Marking / Perforation

The FORZA Ranger laser cutter is the latest generation of our line of metal plates machinery with all the upgrades requested by our customers from previous models

With the higher cutting speed, acceleration and robustness. It is available for working with full 5ftx10ft (1500mmx3000mm) plates up to 3/4in (19mm).

Main Features

FEATURES	DETAIL
Application	Plates cutting
Nominal working area	1500mm x 3000mm 4.9ft x 9.8ft
Total worktop space per unit	1525mm x 3050mm 5ft x 10ft
Nominal laser power	3000W
Ideal cutting thickness in ASTM A36 ⁽¹⁾	14mm 9/16in
Maximum cutting thickness ASTM A36 ⁽²⁾	19mm 3/4in
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. 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 plate, it considers the repeatability and accuracy of the machine. 0.1mm accuracy means that when cutting a 100.0mm plate 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 laser 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



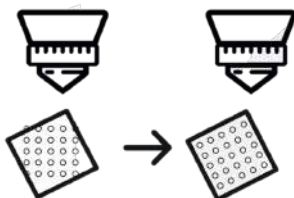
You can save up to 60% of time when cutting rectangular and circular patterns by taking advantage of the inertia of the movement.

FORZA Play software



Specialized Spanish and English software for cutting, user-friendly, with anti-collision alarm system and maintenance notices.

Find edge system.



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

Automatic Gas Control



The machine automatically exchanges and selects the gas it needs to cut depending on the material, whether oxygen or nitrogen.

General Specifications

SPECIFICATION	DETAIL
Model	FORZA Ranger – N1530P30
Laser Type/Laser Technology	Fiber Laser 1064nm ± 30nm
Laser diameter in the QBH	20um
Nominal power of Fiber laser	3000W
Fiber laser working power range	5 a 100% (±0.5%)
Stability at output power	± 1.5W
Laser working frequency	4 a 5000Hz
Source protection level	IP54
Source model for use	MFSC-3000W 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 145 psi (Airtac)
Laser cutting head model	OSPRI - LC40
Focus range	-10mm ~ +10mm -0.4in ~ +0.4in
Maximum focusing speed	100mm/s 3.9in/s
Protection system	Prevention and detection of impacts
Pre-loaded cutting profiles	Yes ⁽²⁾
Laser cutting width	0.1mm ~ 1.5mm 0.004in ~ +0.06in ⁽³⁾

1. The ideal thickness is the one at which, when making a cut, the finished edge is completely clean and free of burrs. When the ideal thickness is exceeded, lines and burrs appear in the finish.
2. The maximum thickness is the one that can be cut under certain parameterization conditions. It is not recommended to size the machine considering the maximum thickness. Working with thicknesses that are increasingly closer to the limit considerably restricts the cutting geometries that can be made, due to the high temperatures that the material reaches
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Cutting precision	Thickness - dependent ⁽⁴⁾
Cutting angle	<2° ⁽⁵⁾
Repeatability	±0.05mm
Movement precision	±0.02mm
Nominal working area	1500mm x 3000mm 4.9ft x 9.8ft
Total space per plate	1525 mm x 3050mm 5ftx10ft
Maximum Z travel	80 mm 3.15in
Maximum cutting speed	30 m/min 1.64ft/s
Maximum travel speed	100 m/min 5.5ft/s
Maximum XY acceleration	1.0G 32.0ft/s²
XY - axis movement system	Rack / Pinion
Z - movement system	Screwball
XYZ servo motor power	X: 750W
	Yx2: 850W
	Z: 400W
Servomotor brand	Innovance
Lubrication system	Automatic by working path
Wireless Control	WiFi remote controller
Dust removal system	External exhaust fan
Maximum load on plate	700kg 1543lb ⁽⁶⁾

4. Cutting precision is 0.1mm for sheet with thickness up to 0.7mm. If the cutting thickness increases, the precision is affected by the cutting width up to 0.5mm for ½ inch sheet.

5. The angle of inclination depends on the thickness of the cutting material and also the type of gas being used, the greater the thickness the angle of inclination can be affected, oxygen can increase the angle of inclination of the cut.

6. The maximum weight is a full 5ftx10ft plates of 3/4in ASTM A36 steel, which must be distributed throughout the bed machine.

Laser source power	10 kW																					
Chiller power	3.8 kW																					
Gas extractor power	1.5 kW																					
Movement and control system power	5 kW																					
Maximum power	20.3 kW																					
Minimum power for sizing ⁽⁷⁾	17.05 kW																					
Average consumption ⁽⁸⁾	10.23 kWh																					
Nominal voltage	3ph: 220/250/380/440/480V (50-60Hz)																					
Minimum current for sizing	49.7A @ 220VAC 3ph																					
	43.8A @ 250VAC 3ph																					
	28.8A @ 380VAC 3ph																					
	24.9A @ 440VAC 3ph																					
	22.8A @ 480VAC 3ph																					
Required wire gauge for breaker box ⁽⁹⁾	<table border="1"> <thead> <tr> <th>Up to 60°C 140°F (TW,UF)</th> <th>Up to 90°C 374°F (THHW,THHNF)</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>3 x 6AWG</td> <td>3 x 8AWG</td> <td>220VAC 3ph</td> </tr> <tr> <td>3 x 6AWG</td> <td>3 x 8AWG</td> <td>250VAC 3ph</td> </tr> <tr> <td>3 x 8AWG</td> <td>3 x 12AWG</td> <td>380VAC 3ph</td> </tr> <tr> <td>3 x 10AWG</td> <td>3 x 14AWG</td> <td>440VAC 3ph</td> </tr> <tr> <td>3 x 10AWG</td> <td>3 x 14AWG</td> <td>480VAC 3ph</td> </tr> <tr> <td colspan="3" style="text-align: center;">+1 x 10AWG Ground</td> </tr> </tbody> </table>	Up to 60°C 140°F (TW,UF)	Up to 90°C 374°F (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 Ground		
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Recommended breaker for the machine	50A @ 220VAC 3ph																					
	45A @ 250VAC 3ph																					
	30A @ 380VAC 3ph																					
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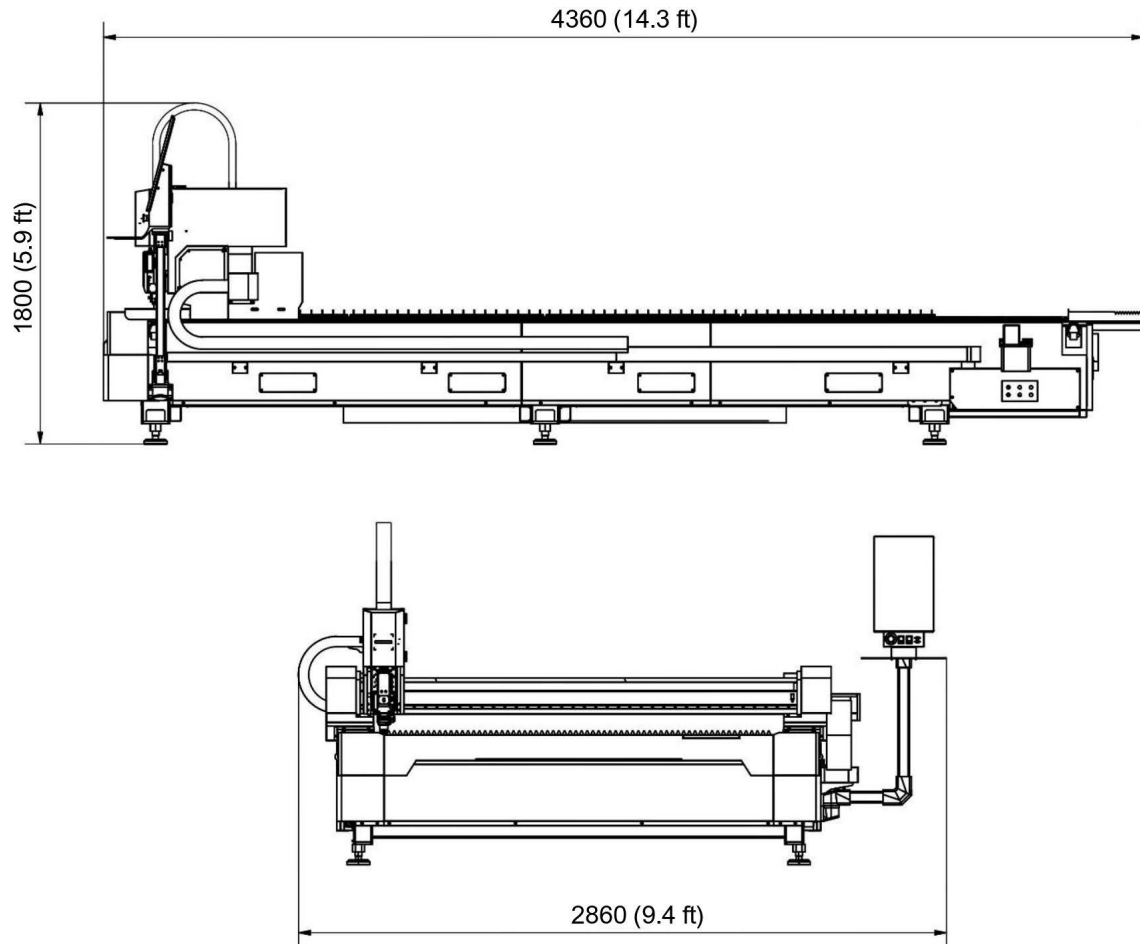
7. The minimum power for electrical sizing is calculated considering the typical powers of the laser source and chiller, along with half the power of the exhaust system and the machine actuators.
8. The average consumption is calculated from 60% of the power used for sizing. Not all components are switched on during operation, the on/off interactions of all systems such as the chiller, motors and laser source cause this index to drop.
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 87psi
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	24L
Gas connection diameter	8mm O2 and 8mm N2 hose (Nylon)
Maximum pressure allowed in the laser head	25bar 362.6psi
Maximum air/N2 input pressure	20bar 290psi
Maximum O2 input pressure	10bar 145psi
Recommended N2 input pressure	≤16bar 232psi
Recommended O2 input pressure	6bar 87psi ⁽¹¹⁾
Equipment weight	1690kg 3726lb
Weight of equipment for transport	1790kg 3946lb
Equipment measurement	4360 x 2860 x 1800 mm 14.3 x 9.4 x 5.9 ft
Transport measures	4245 x 2320 x 1250mm 13.9 x 7.6 x 4.1 ft
Resistance on the work floor	6.5 Kg/cm2 92.5 lbf/in2
Relative humidity	< 85%
Working temperature	2 – 35°C 35.6 – 95°F
Storage temperature	8 – 30°C 46.4 – 86°F
Certifications	CE, RoHS

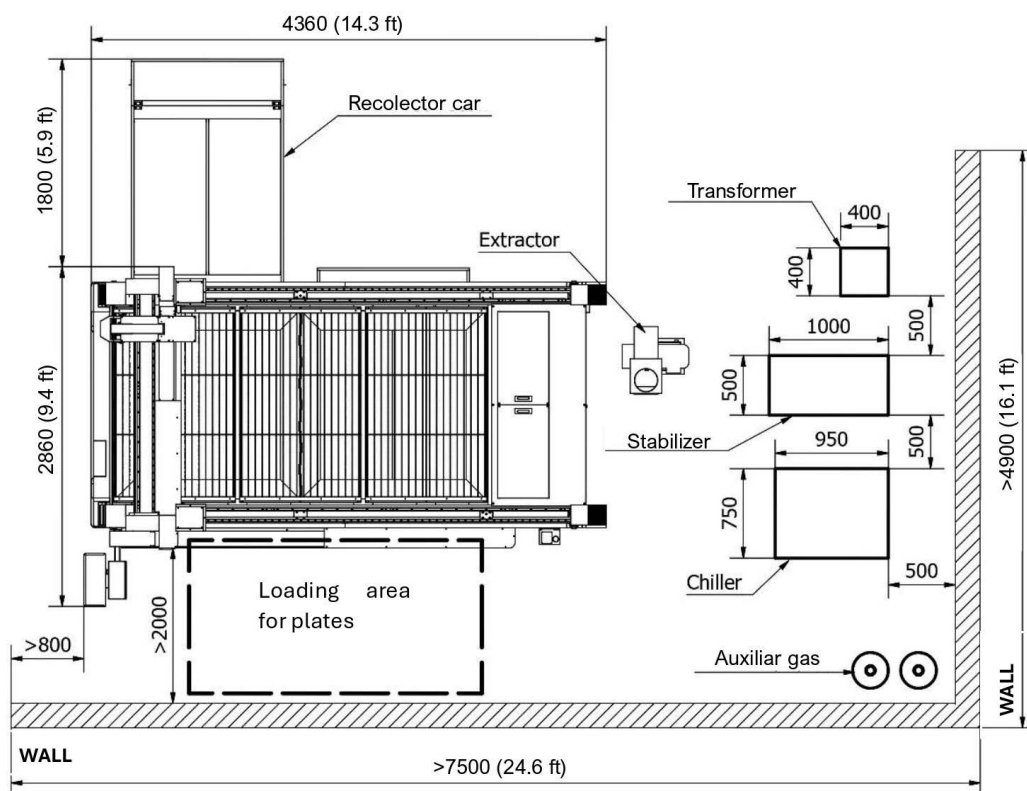
10. The maximum power cable length is 10 m (32.8 ft) to prevent voltage drops and ensure optimal system performance.

11. This pressure is used at the outlet of the tank pressure gauge, and the valves are calibrated from this pressure.

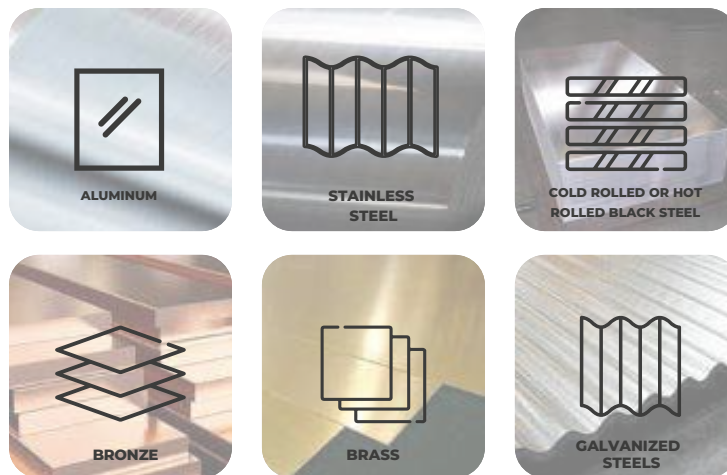
Machine dimensions



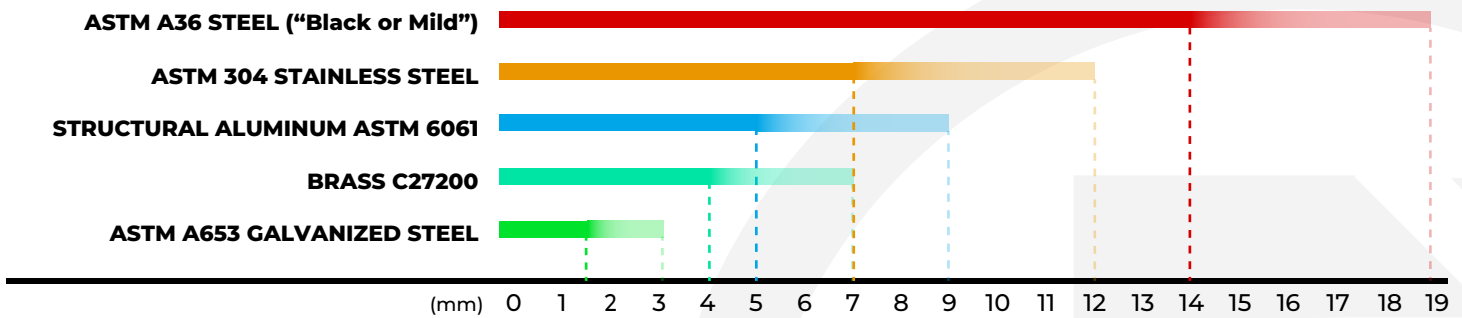
Space required



Applicable materials
















Cutting thicknesses by material

















MATERIAL	Ideal thickness ¹			Maximum thickness ²		
	mm	in	Gauge	mm	in	Gauge
ASTM A36 STEEL("Black or Mild")	14	9/16	-	19	3/4	-
ASTM 304 STAINLESS STEEL	7	9/32	2	12	15/32	-
STRUCTURAL ALUMINUM ASTM 6061	5	13/64	6	9	23/64	-
BRASS C27200	4	5/32	8	7	9/32	2
ASTM A653 GALVANIZED STEEL	2	5/64	14	3	1/8	12

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Packing List:

- ❑ 1 x FORZA RANGER 3000W machine (1) 
- ❑ 1 x LC40 Laser Head. 
- ❑ 1 x Wireless remote control. 
- ❑ 1 x MFSC Power Source– 3000W Max Photonic 
- ❑ 1 x Wireless Keyboard and Mouse. 
- ❑ 1 x Laser Protective Glasses with Case. 
- ❑ 2 x Waste collection cart. 
- ❑ 6 x Machine leveling feet. 
- ❑ 1 x Screen support structure kit (2 pieces) 
- ❑ 1 x Gutter and tracks assembly kit (4 pieces) 
- ❑ 49 x Support sword 
- ❑ 1 x Monitor screen 
- ❑ 1 x Industrial CPU 




-CABLES, CONNECTORS AND TRAYS-

- ❑ 1 x Gas extraction tube/hose x4.8m x10" 
- ❑ 1 x Monitor Power Cable 
- ❑ 10 m 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 
- ❑ 5mxCable 3x6 AWG + 1x10AWG, B-T (T:Ring-Spade)@220v3ph 
- ❑ 5mxCable 3x6 AWG + 1x10AWG, B-T (T:Ring-Spade) @250v3ph 
- ❑ 5mxCable 3x10 AWG + 1x10AWG, B-T (T:Ring-Spade) @380v3ph 
- ❑ 5mxCable 3x10 AWG + 1x10AWG, B-T (T:Ring-Spade @440v3ph 
- ❑ 5mxCable 3x10 AWG + 1x10AWG, B-E (T:Ring-Spade) @480v3ph 
- ❑ 2mxCable 4x10 AWG + 1x10 AWG T-E (T:Ring-Ring) @220...480v3ph 
- ❑ 10mxCable 4x10 AWG + 1x10 AWG, E-M (T:Ring-Spade) 
- ❑ 15mxCable 4x12 AWG, M-X (T:Ring-Spade) 






-LICENSES-

- ❑ 1 x FORZA Play Lifetime Software License
- ❑ 1 x License by **FORZA Vectors** 1 year.
- ❑ 1 x Full License **FORZA Academy** 1 year.
- ❑ 1 x License from **Super 7 Support** 4 años


















-PERIPHERALS-

- ❑ 1 Voltage stabilizer 380V / 40 KVA. (2) 
- ❑ 1 x 3kW automatic chiller. (2) 
- ❑ 1 x Industrial exhaust fan 1.5 kW(3) 
- ❑ 1 x 40KVA Transformer [220V - 380V] @220v3ph. (3) 
- ❑ 1 x 40KVA Transformer [250V - 380V] @250v3ph. (3) 
- ❑ 1 x 40KVA Transformer [440V - 380V] @440v3ph. (3) 
- ❑ 1 x 40KVA Transformer [250V - 380V] @480v3ph. (3) 

-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 Oi. 

-TOOL BOX-

- ❑ 1 x Plastic tool box. 
- ❑ 1 x Scotch Tape. 
- ❑ 1 x Masking Tape 
- ❑ 1 x Metric allen key set. 
- ❑ 1 x4 pcs Screwdriver Set. 
- ❑ 1 x Set of door and switch keys. 
- ❑ 1 x Adjustable pipe wrench. 
- ❑ 1 x Cotton swabs and cleaners. 
- ❑ 1 x Bag of 6mm bolts and anchors 
- ❑ 1 x Branding poster 
- ❑ 1 x WiFi module 
- ❑ 1 x Electrical terminals set 
- ❑ 1 x Service terminals set 
- ❑ 10 x 3/8" expansion bolts 
- ❑ 30 x Screws + Fischer plug 
- ❑ 1 x QBH Protector 
- ❑ 2x10" Clamps for flexible pipe 

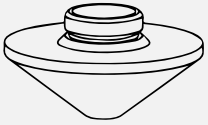


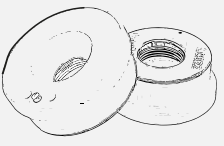
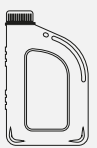
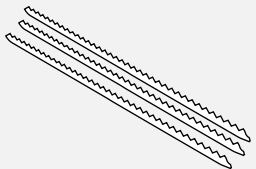



T: Transformer B: Breaker, E: Stabilizer, M: Machine, F: Laser Source, C: Chiller, H: Head, X: Exhaust, G: Ground)

*The reference cables are with TW type coating

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

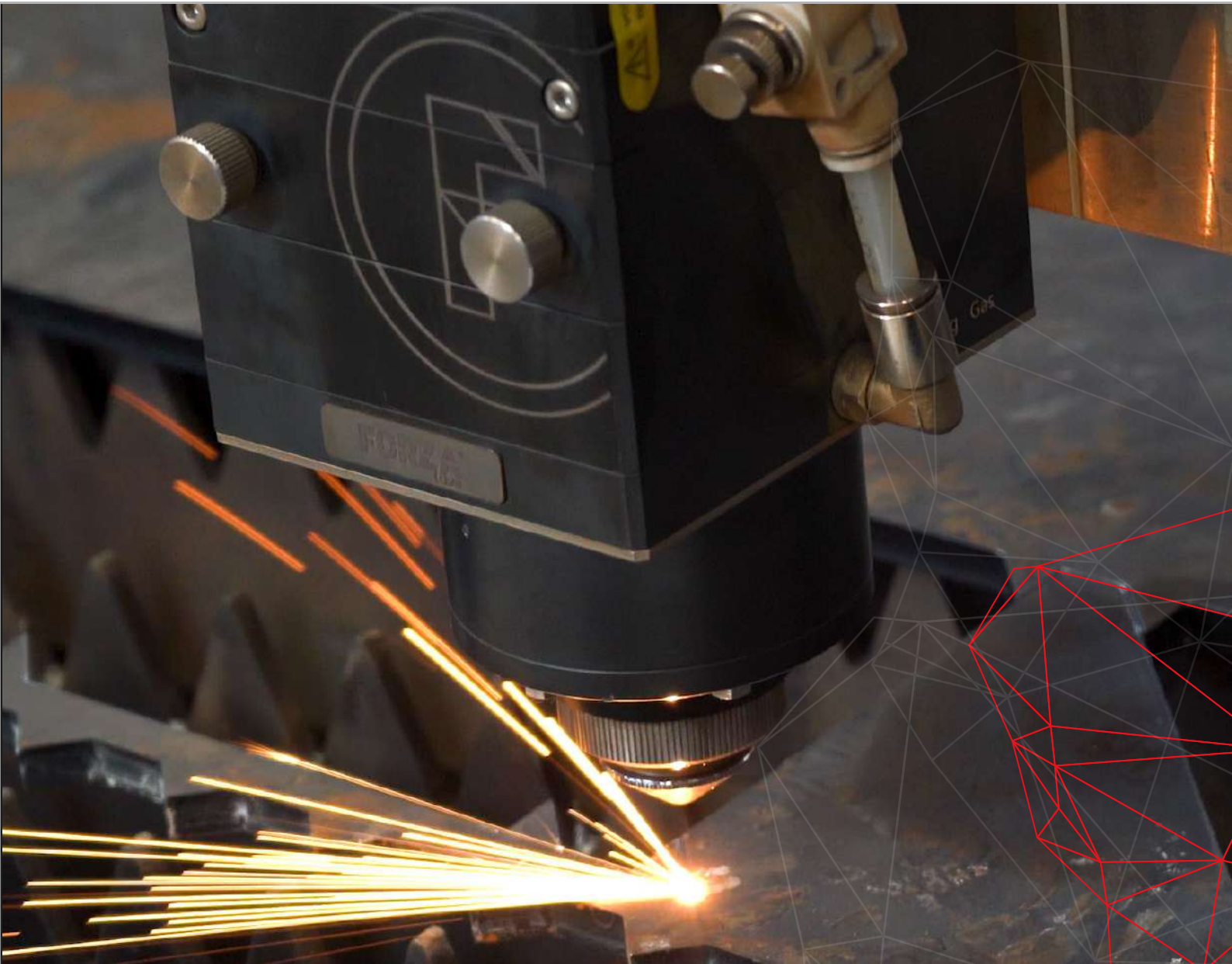
Package	Dimensions	Net Weight	Gross Weight
 (1)	W: 2320mm H: 1250mm L:4245mm W: 7.6ft H: 4.1ft L: 13.9ft	1690kg 3726lb	1790kg 3946lb
 (2)	W: 1020mm H: 1050mm L: 1200mm W: 3.3ft H: 3.4ft L:3.9ft	150kg 331lb	175kg 386lb
 (3)	W: 1020mm H: 800mm L: 1200mm W: 3.3ft H: 2.6ft L: 3.9ft	150kg 331lb	175kg 386lb

Consumables:

Picture	Item	Model	Dimensions	Lifetime
	Cutting nozzle: single/double	xxxx	D:28mm M1x0.75 H:15mm	200 hours
	Bottom protective lens	CF-L30.0X5.0-4K	D:30mm T:5mm	200 hours
	Distilled water	xxxx	24 liter	2 months
	Capacitive ceramic sensor base	CF-BCD28M1L12	D(e):28mm	1000 hours
			D(j):24.5mm	
			M1x0.75	
			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
	Second bottom protection lens	CF-L30.0X5.0-4K	D:30mm T:5mm	Not especified
	Top protective lens	CF-L21.5X2.0-4K	D:21.5mm T:2mm	Not especified

MANUFACTURED PARTS:





With Forza Laser, laser specialists, our team has everything you need to grow your own business to the fullest.

Find us on our social media



www.forzalaser.com

FORZA[®]
Laser