



FORZA

Solder

V250828

Datasheet
Model W4IN1P15



FORZA Solder

Professional Laser Gun for Clean Welding Processes.

CUTTING / WELDING / REMOTE CLEANING / BEAD CLEANING

FORZA Solder is designed for laser welding, cutting, and cleaning of various types of metals. An operator can be trained in just 15 minutes, without the need for highly qualified welders.

The FORZA SOLDER revolutionized welding, offering an undeniable advantage over MIG, TIG, or electrode welding. Since it doesn't rely on an electric arc, the filler material won't stick or the arc will be lost. The welding principle consists of a high-powered light beam that melts the material and automatic filler wire feeding.

Main Features

FEATURES	DETAIL		
Laser power rating	1500W		
Type of work allowed	WELDING	CUT	CLEANING
Maximum working thickness in ASTM A36 ⁽¹⁾	5/32 in 4mm	5/64 in 2mm	0.1mm 4mils Oxide layer
Maximum working speed at 0.7mm of ASTM A36	2 in/s 50 mm/s	6 in/s 150 mm/s	2800mm2/s 4.3 in 2/s 0.05mm layer of oxide
Type of permissible working gas	ARGON, NITROGEN	NOTROGEN, AIR	NITROGEN, AIR
Average gas flow required	15L/min	70L/min	32L/min
Type of consumer thread	Solid wire 0.8 to 1.6mm	-	-
Interchangeable nozzles	6 types ⁽²⁾	1	1 ⁽³⁾

1. It is not recommended to scale the machine to this power if you plan to permanently work with thicknesses greater than the nominal. As the cut moves away from the nominal thickness, it will begin to show more pronounced lines and possible burrs. For greater thicknesses, purchase the higher-power model.
2. One of the welding nozzles is also used for cleaning the weld seam, this is detailed later.
3. Remote cleaning does not require an interchangeable nozzle, only the tube holding the nozzle is removed.



Special Features

Auto Wire Feeder



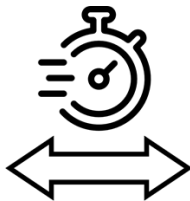
The machine includes an automatic wire feeder for filler material (Optionally upgradeable to double thread). Synchronization between the wire feed and the laser gun allows for fast and efficient welding.

Multi-purpose Software



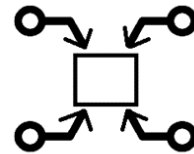
Using the touchscreen, the software intuitively allows you to save parameters and configure different types of welding (continuous, spot, fish scale), as well as cutting and cleaning.

Quick Change Lenses



The design of the gun allows for quick exchange of lenses depending on the type of work to be performed.

Multifunction 4 in 1



The FORZA Solder machine allows the use of 4 functions: Welding, Welding Seam Cleaning, Cutting and Remote Cleaning.

Multiple Welding Types



By using the different nozzles, the machine allows for different types of welding, whether inside, outside, or flat corners.

Practical and versatile gun



The FORZA Solder's four functions are performed using the same laser gun. Its ease of use and light weight allow the operator to perform the processes in a practical and simple manner.

General Specifications

SPECIFICATION	DETAIL
Model	FORZA Solder – W4IN1P15
Laser Type/Technology	Fiber Laser 1080nm $\pm$ 10nm
Fiber laser diameter	20 μ m
Nominal fiber laser power	1500W
Fiber laser power range	10 to 100%
Output power stability	$\pm$ 1.5%
Laser working frequency	1 to 20kHz
Laser source protection level	IP54
Laser source model	RFL – C1500 RAYCUS
Working modes	CUTTING / WELDING / REMOTE CLEANING / BEAD CLEANING
Focusing system	Fixed
Auxiliar gas type for welding	Argon, N ₂ (Air not recommended)
Auxiliar gas type for cutting	N ₂ or Air
Auxiliar gas type for cleaning	N ₂ or Air
Average gas consumption	Welding: 15L/min
	Cutting: 70L/min (Depending on thickness)
	Cleaning: 32L/min
Laser gun model	SUP 21T
Average welding speed ⁽¹⁾	~ 0.6 in/s 15 mm/s
Maximum travel speed	7.9 in/s 200 mm/s
Weld thickness (Depending on the filler material)	0.02–0.16in 0.5 – 4mm ⁽²⁾
Maximum laser width in welding	0.3 in 8 mm

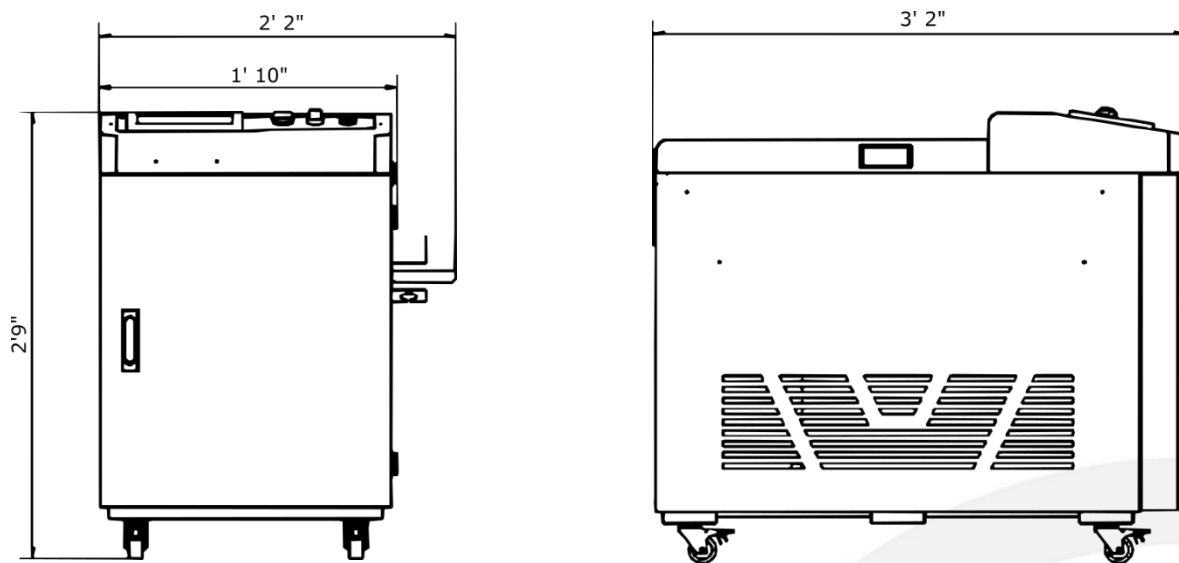
1. The welding speed depends on the thickness of the material, the thickness of the weld and the type of material. In a general reference under similar conditions, it is 3 times faster than traditional welding (electrode, TIG, MIG).
2. The thickness of the weld is related to the amount of material filler that is configured.

Maximum laser width in cleaning	0.8 in 20 mm		
Laser cutting width	0.004in ~ 0.1in 0.1mm ~ 3mm ⁽³⁾		
Cutting precision	Thickness - dependent		
Recommended welding angle	0-30° ⁽⁴⁾		
Ideal welding angle	15°		
Laser repeatability	±0.05mm		
Command control	Horizontal touch screen		
Process control	Button on gun		
Laser source power	5.5kW		
Chiller power	3.5kW		
Automatic wire feeder power	0.2kW		
Maximum power of the equipment	9.2kW		
Average energy consumption ⁽⁵⁾	5.52kW		
Working voltage	Single phase: 220V/1ph 50Hz - 60Hz		
Maximum current per line	46 A @ 220VAC 1ph		
Required wire gauge for breaker box	Up to 140°F 60°C (TW, UF)	Up to 194°F 90°C (THHW, THHN)	Voltage
	2 x 6AWG	2 x 8AWG	220VAC 1ph
	+1 x 10AWG Ground		
Recommended breaker for the machine	50 A @ 1ph 220VAC		
Power cable length	16.4ft 5m		
Gun cable length	32.8ft 10m		

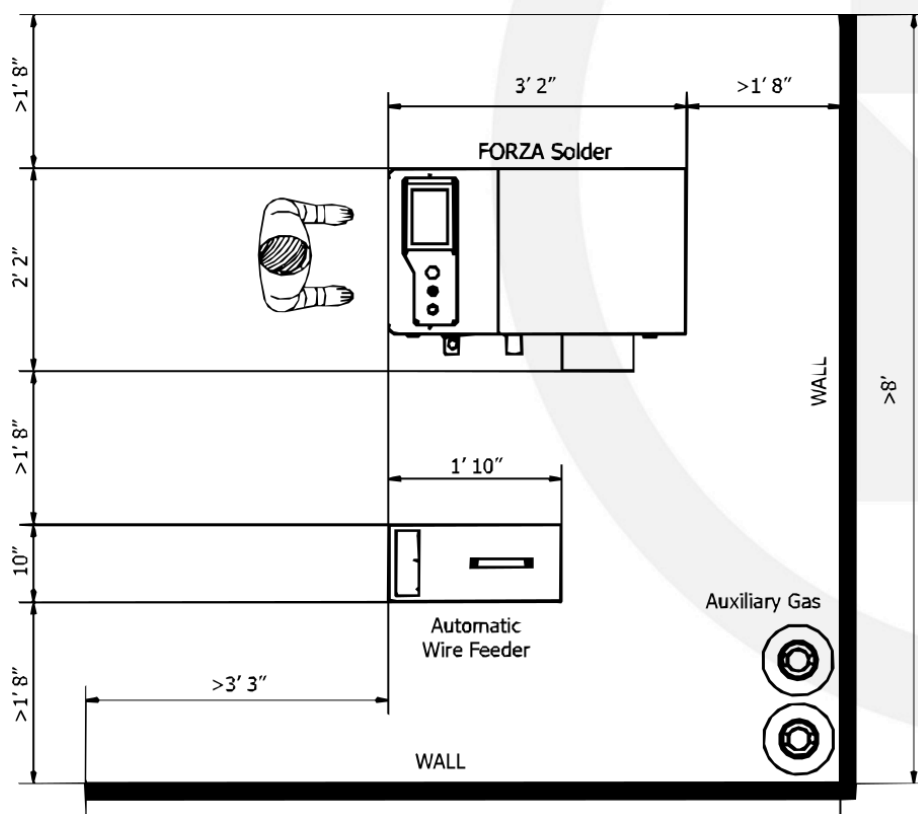
3. The width of the cut is directly proportional to the thickness of the material, the greater the thickness, the greater the width of the cut.
4. The tilt angle depends on the thickness of the cutting material and also the type of gas being used; the greater the thickness, the more the tilt angle can be affected.
5. Average consumption is calculated based on 60% of the power for sizing purposes. Not all components are switched on during operation. The interactions between switching systems such as the chiller and power supply on and off lower this figure. For an hourly electricity consumption calculation, please use the average consumption.

Hose length for feeder thread	16.4ft 5m
Minimum bending radius of the gun cable	6.9in 175mm
Cooling method	Dissipated by water
Chiller tank size	4.2gal / 16L
Gas connection diameter	6mm hose (Nylon)
Maximum gas inlet pressure	15 bar
Recommended gas inlet pressure	≤6 bar
Laser gun weight	0.75kg
Equipment weight	220kg
Weight of equipment for transport	290kg
Equipment dimensions	3.2 x 2.2 x 2.7ft 973 x 662 x 830mm
Transport measures	4.6 x 2.9 x 4.3ft 1400mm x 870mm x 1300mm
Relative humidity	< 85%
Working temperature	2 – 35° C
Storage temperature	8 – 30° C
Certifications	CE, RoHS
Required PPE (Not included)	Protective glasses for 1060nm
	KN95 mask
	Gloves
	Gas extraction system

Machine Dimensions

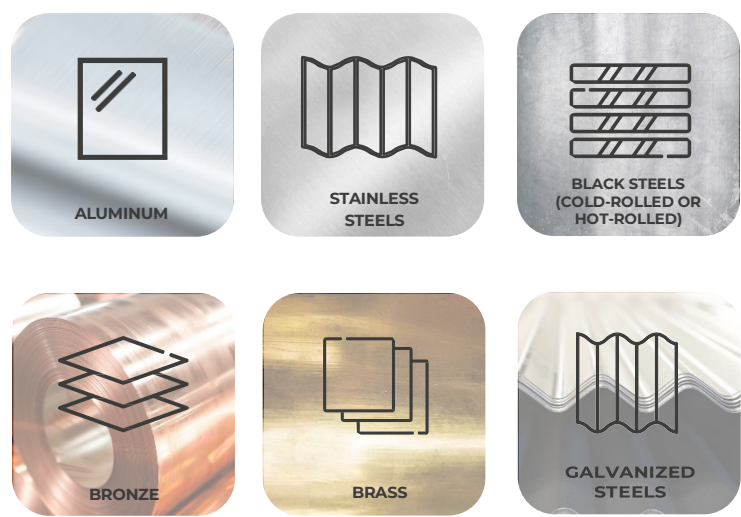


Required Space

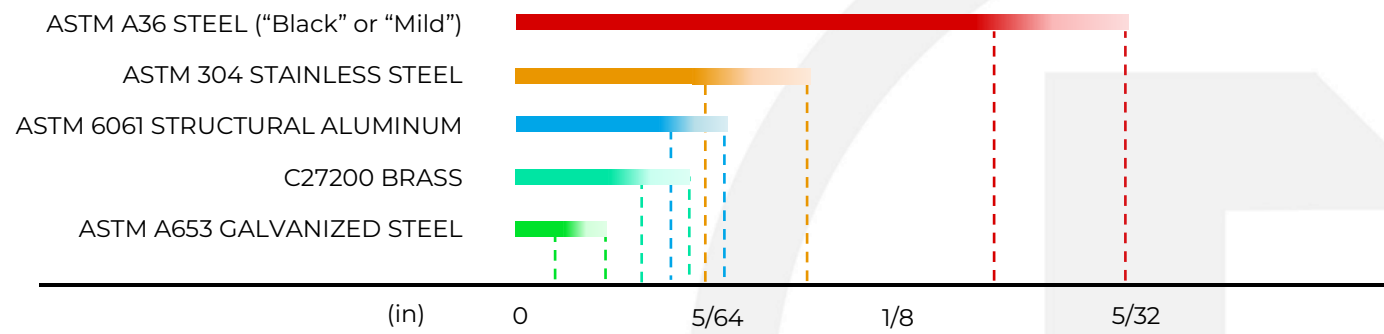


* Peripheral dimensions may vary depending on the machine model

Applicable Materials



Cutting Thicknesses by Material



MATERIAL	WELDING			CUTTING		
	mm	in	gauge	mm	in	gauge
ASTM A36 STEEL ("Black or Mild")	4	5/32	9	2	5/64	14
ASTM 304 STAINLESS STEEL	4	5/32	9	2	5/64	14
ASTM 6061 STRUCTURAL ALUMINUM	3	1/8	11	1.5	1/32	15
C27200 BRASS	2	5/64	14	1	3/64	20
ASTM A653 GALVANIZED STEEL	2	5/64	14	1	3/64	20

Packing List:

- ❑ 1 x FORZA Solder 4IN1 1500W machine  (1)
- ❑ 1 x Multifunction gun 
- ❑ 1 x Laser Source 
- ❑ 1 x HMI Touch Screen 
- ❑ 1 x Integrated CPU 
- ❑ 1 x Clamping Clap 

- TOOLBOX -

- ❑ 1 x Metric Allen key set 
- ❑ 1 x Phillips screwdriver 
- ❑ 1 x Flathead screwdriver 
- ❑ 1 x Cotton swab case 
- ❑ 1 x Cleaning cloths 
- ❑ 1 x Protective Glasses 1080nm 
- ❑ 1 x Plastic funnel 
- ❑ 1 x QBH Protective cover 

- LICENSES -

- ❑ 1 x **FORZA Academy** full license - 1 year
- ❑ 1 x **Super 7 SUPPORT** license - 1 years

- PERIPHERALS -

- ❑ 1 x Automatic thread feeder  (2)

- CONSUMABLES -

- ❑ 5 x Protective lens 
- ❑ 7 x Welding/Cutting/Cleaning nozzles 
- ❑ 4 x Wire feeder nozzles 

- POWER CABLES AND TRAYS -

- ❑ 1 x WeldFeed control cable 
- ❑ 1 x WeldFeed power cable 
- ❑ 1 x Hose for feed of filler wire 
- ❑ 5m x Cable 2x6 AWG + 1x10 AWG, TM (T:Eye-Tip) 

T: Transformer, B: MCCB, E: Stabilizer, M: Machine, F: Laser Source, C: Chiller, H: Head, X: Extractor, G: Ground.
* The reference cables are coated with TW type insulation

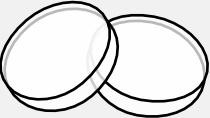
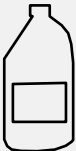
Transport symbols:  (Package),  (Inside the package),  (Installed on the machine).

Item	Measures	Net Weight	Gross Weight
 (1)	W: 870mm H: 1300mm L:1400mm	220kg	290kg
 (2)	W: 330mm H: 460mm L:630mm	13.5kg	-

Nozzle Kit / Bases:

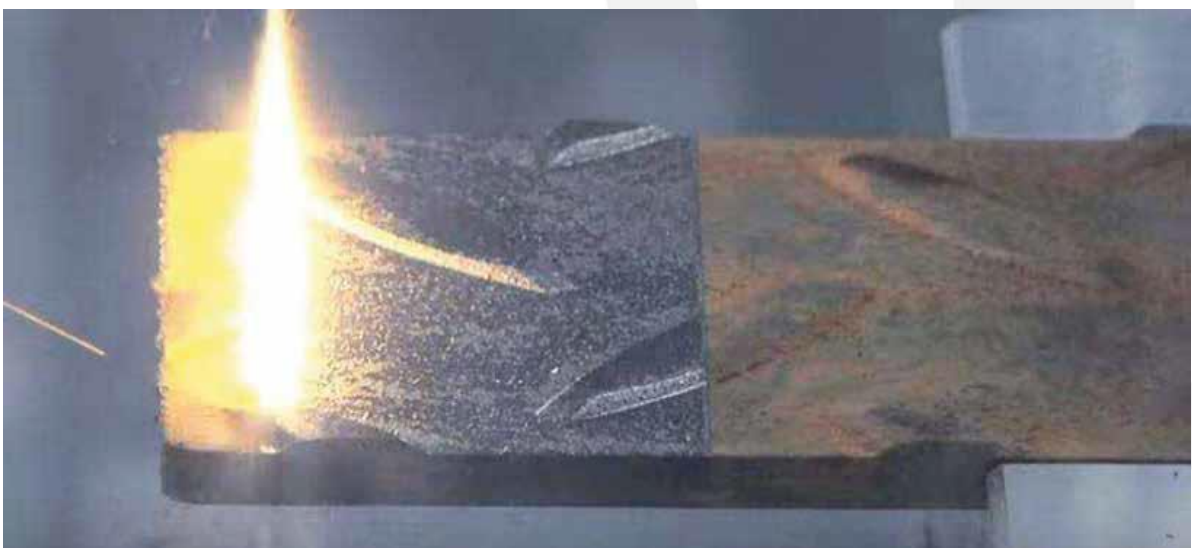
Picture	Model	Operation
	AS-12	FLAT WELDING
		INSIDE CORNER
		For wire 0.8/1/1.2 mm
	BS-16	FLAT WELDING
		INSIDE CORNER
		For wire 1.6mm
	CS-12	WELDING
		OUTSIDE CORNER
		For wire 0.8/1/1.2 mm
	ES-12	FLAT WELDING
		OUTSIDE CORNER
		For wire 0.8/1/1.2 mm
	FS-16	FLAT WELDING
		OUTSIDE CORNER
		For wire 1.6 mm
	C	CORNER WELDING EXTERIOR / CLEANING OF CORD
	CUTTING NOZZLE	COURT
	WIRE NOZZLE	WIRE FEED 0.8
	WIRE NOZZLE	WIRE FEED 1.0
	WIRE NOZZLE	WIRE FEED 1.2
	WIRE NOZZLE	WIRE FEED 1.6

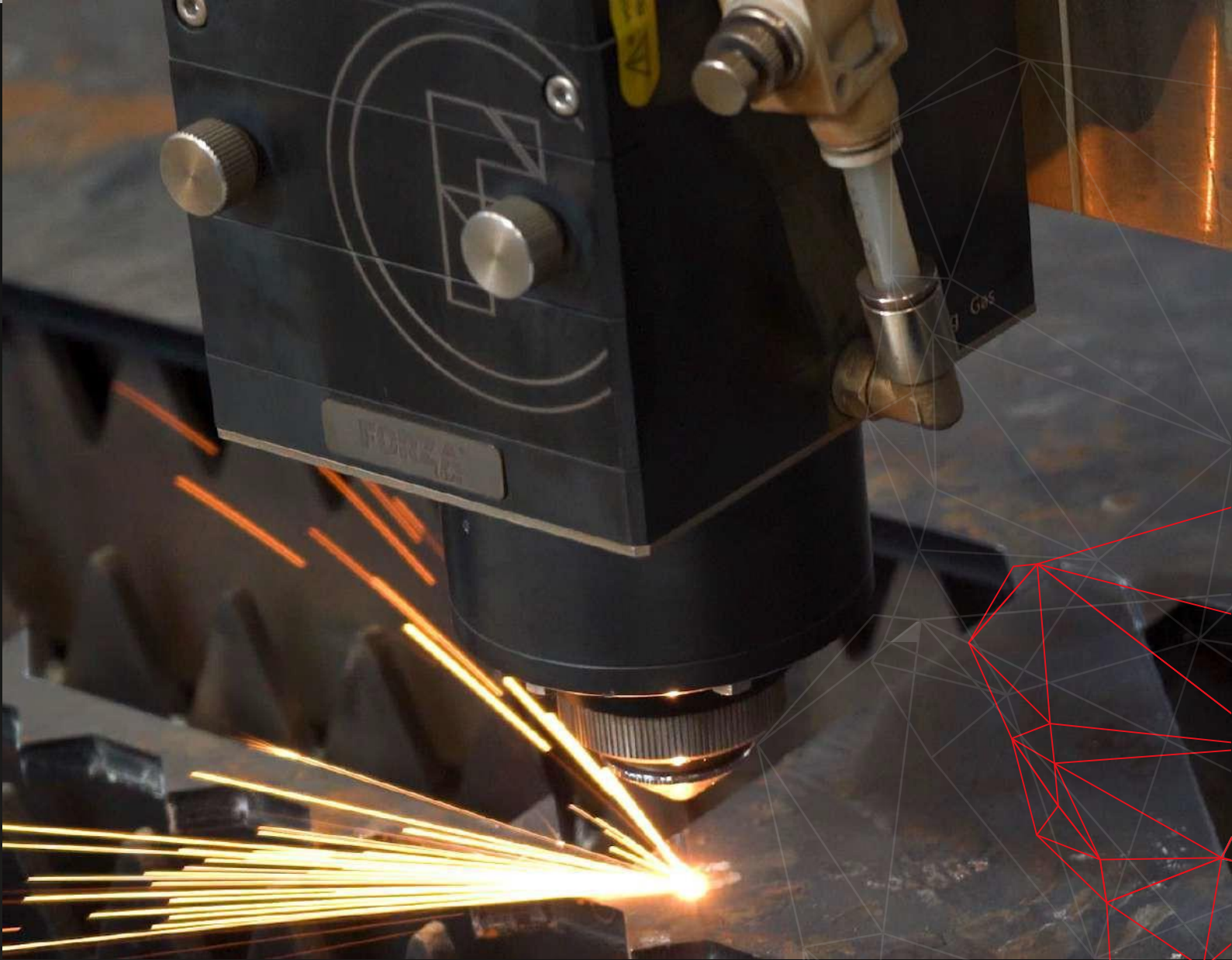
Consumables:

IMAGE	ITEM	MODEL	DIMENTIONS	LIFETIME
	Protective lens	CF-L18.0x2.0-3K	D:18mm T:2mm	200 hours
	Distilled water	xxxx	4.2gal / 16L	1 months



Manufactured Parts:





At FORZA Laser, laser specialists, our team has everything you need to take your business to the next level.

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