



FORZA

Solder

V 2502 19

Technical Data Sheet
Model W4IN1P30



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.

Specific features

FEATURE	DETAIL		
Nominal laser power	3000W		
Type of work allowed	SOLDIER	COURT	CLEANING
Maximum working thickness in ASTM A36 ⁽¹⁾	6mm 1/4 in	3mm 1/8 in	0.2mm 7.8mils oxide layer
Maximum working speed at 0.7mm of ASTM A36	70 mm/s 2.8 in/s	200 mm/s 8 in/s	4000 mm2/s 6.2 in2/s 0.05 mm oxide layer
Type of permissible working gas	ARGON, NITROGEN	NITROGEN, 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	(2) 6 types	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. Synchronization between the wire feed and the laser gun allows for fast and efficient welding.

Multi-purpose Software



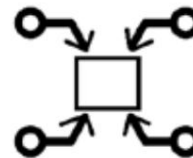
Using the touchscreen, the software intuitively allows you to save parameters and configure different types of welding (continuous, spot, fish scale), as well as cutting and cleaning.

Quick Change Lenses



The gun's design allows for quick lens exchange 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

Double 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 – W4IN1P30
Laser Type/Laser Technology	Fiber Laser 1080nm \pm 10nm
Laser diameter in the QBH	20um
Nominal power of Fiber laser	3,000 W
Fiber laser working power range	10 to 100%
Stability at output power	\pm 1.5%
Laser working frequency	5kHz
Source protection level	IP54
Source model for use	RFL – C3000 RAYCUS
Types of work	SOLDERING/CUTTING/REMOTE CLEANING/CLEANING OF CORD
Focusing system	Fixed
Type of gas to use in welding	Argon, Nitrogen (Air not recommended)
Type of gas to use for cutting	Nitrogen, Air
Type of gas to use for cleaning	Nitrogen, 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) —	~15 mm/s 0.6 in/s
Maximum travel speed	200 mm/s 7.9 in/s
Weld thickness (Depending on the filler material)	0.5 – 7mm 0.02–0.27in (2) —

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 welding	8 mm 0.3 in		
Maximum laser width in cleaning	20 mm 0.8 in		
Laser cutting width	0.1mm ~ 3mm 0.12 in (3) —		
Cutting precision	Depending on the thickness		
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	10 kW		
Chiller power	4.3 kW		
Wire Feeder Power automatic	0.2 kW		
Maximum power of the equipment	14.5 kW		
Average energy consumption (5) —	8.7 kWh		
Working voltage	Three-phase: 220V/380V 50Hz - 60Hz		
Maximum current per line	42.3 A @ 220VAC 3ph		
	24.5 A @ 220VAC 3ph		
Required wire gauge of the box breaker	Up to 60°C (TW,UF)	Up to 90°C (THHW, THHN)	Voltage
	3 x 6AWG	3 x 8AWG	220VAC 3ph
	3 x 10AWG	3 x 14AWG 380VAC 3ph	
	+1 x 10AWG Ground		
Recommended breaker for the machine	45 A @ 3ph 220VAC		
	25 A @ 3ph 220VAC		
Power cable length	5m 16.4ft		
Gun cable length	10m 32.8ft		

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.

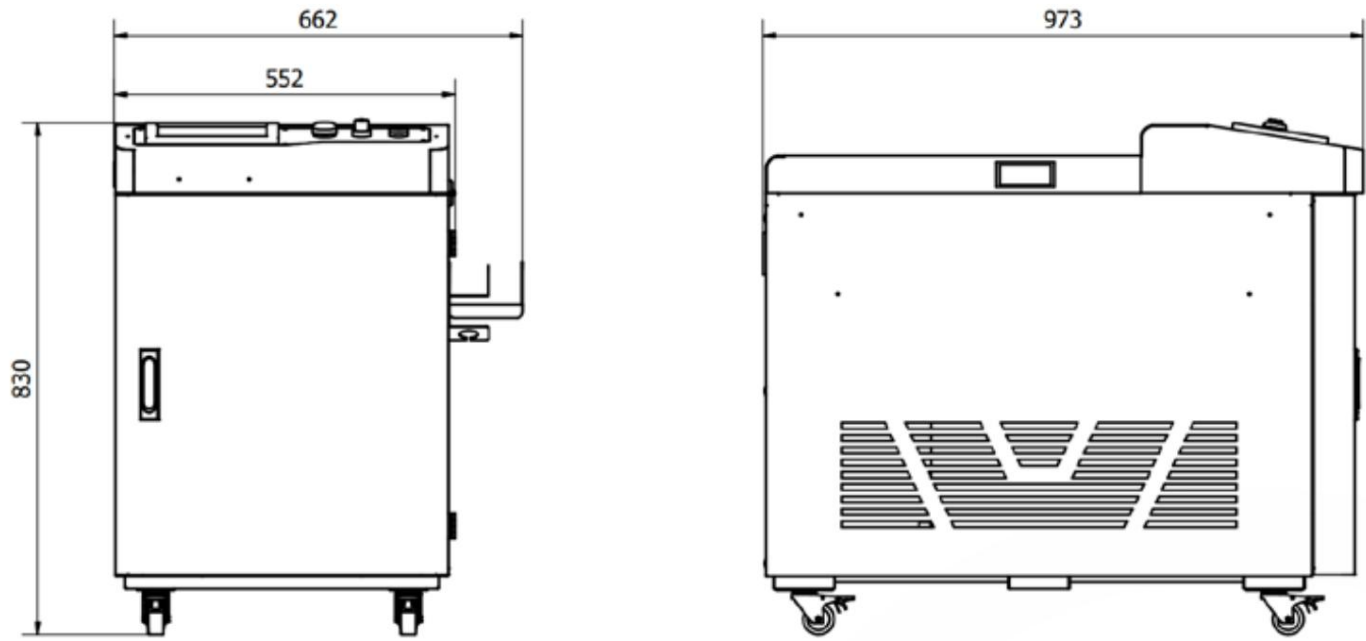
4. The tilt angle depends on the thickness of the cutting material and also the type of gas being used; the greater the thickness, the more the tilt angle can be affected.

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.

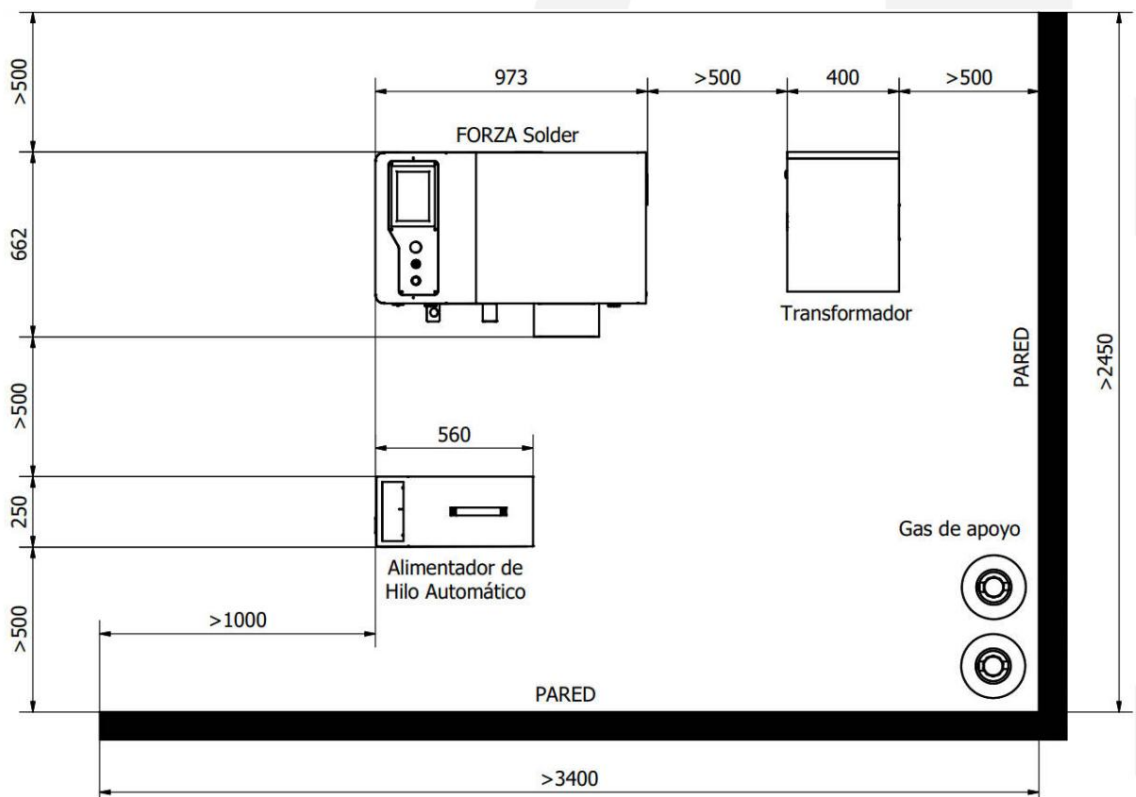
Hose length for feeder thread	5m 16.4ft
Minimum bending radius of the cable gun	175mm 6.9in
Cooling method	Dissipated by water
Chiller tank size	16L
Gas connection diameter	6mm hose (Nylon)
Maximum gas inlet pressure	15 bar
Recommended gas inlet pressure	6 bar
Laser gun weight	0.75kg
Equipment weight	265kg
Weight of equipment for transport	350kg
Team measurements	973 x 662 x 830mm 3.2 x 2.2 x 2.7ft
Transport measures	1400mm x 870mm x 1300mm 4.6 x 2.9 x 4.3ft
Relative humidity	< 85%
Working temperature	2 – 35o C
Storage temperature	8 – 30o C
Certifications	CE, RoHS
Required PPE (Not included)	Protective glasses for 1060nm
	KN95 mask
	Gloves
	Gas extraction system

6. The maximum length of the power cable is 5 m (16.4 ft) to avoid voltage drops and ensure optimal system performance.

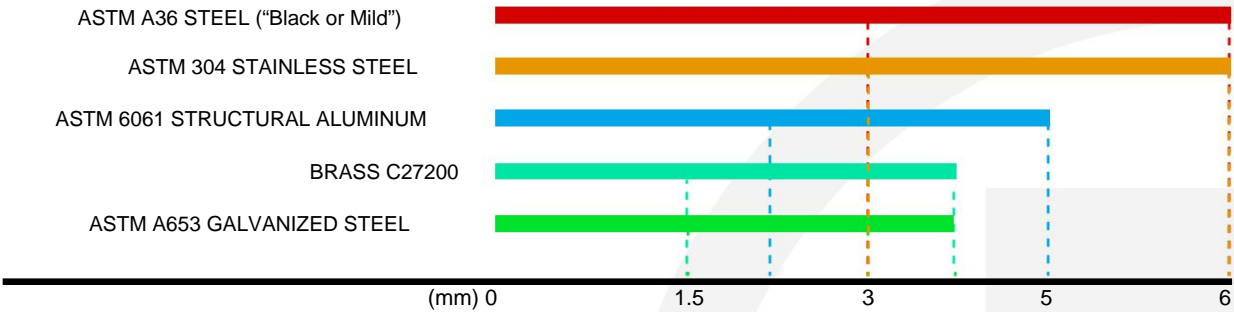
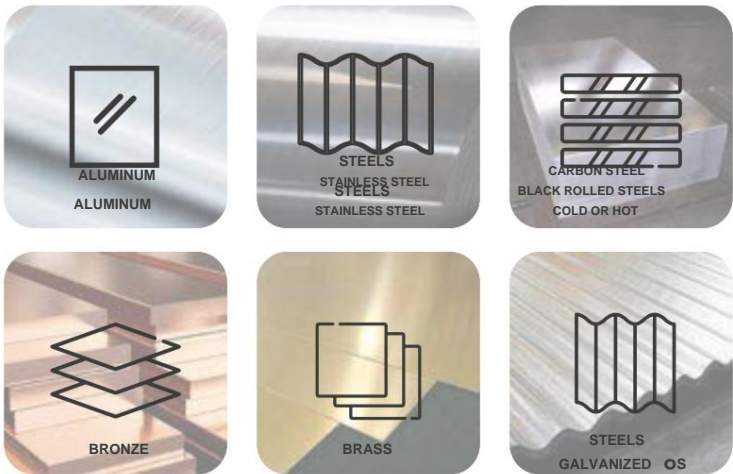
Machine measurements



Space required



Applicable materials



MATERIAL	SOLDIER	COURT
ASTM A36 STEEL ("Black or Mild")	6mm 1/4in	3mm 1/8in
ASTM 304 STAINLESS STEEL	6mm 1/4in	3mm 1/8in
ASTM 6061 STRUCTURAL ALUMINUM	5mm 3/16in	2mm 5/64in
BRASS C27200	4mm 5/32in	1.5mm 1/16in
ASTM A653 GALVANIZED STEEL	4mm 5/32in	1.5mm 1/16in

Packing List:

- 1 x FORZA SOLDER 4IN1 3000W machine. (1)
- 1 x Multifunction gun.
- 1 x 1500W Laser Source
- 1 x HMI Touch Screen
- 1 x Integrated CPU
- 1 x Clamping Clap

-CONSUMABLES / ACCESSORIES-

- 5 x Protective lens
- 7 x Welding/Cutting/Cleaning Nozzles
- cord
- 4 x Wire Feeder Nozzles

-PERIPHERALS-

- 1 x Automatic thread feeder (2)
- 1 x Voltage transformer [220-380] 3ph - 30kVA (3)

-TOOL BOX-

- 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 1080nm Protective Glasses
- 1 x Plastic funnel
- 1 x QBH Protector

-CABLES, CONNECTORS AND DUCT-

- 1 x WeldFeed control cable
- 1 x WeldFeed power cable
- 1 x Hose for feed of filler wire
- 2m x Cable 3x6 AWG + 1x10 AWG, BT (T:Eye-Tip) @220v
- 5m x Cable 3x6 AWG + 1x10 AWG, TM (T:Eye-Tip) @220v
- 5m x Cable 3x10 AWG + 1x10 AWG, TM (T:Eye-Tip) @380v

-LICENSES-

- 1 x FORZA Academy Full License 1 Year
- 1 x 4-year Super 7 SUPPORT License.

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

The reference cable is with TW type coating

Transport symbols:



(Bulk)














(Inside a package)



(Installed on the computer)

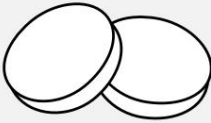

Item	Measures	Net Weight	Gross Weight
(1)	W: 870mm H: 1300mm L:1400mm	265kg	350kg
(2)	W: 330mm H: 460mm L: 630mm	13.5kg	-
(3)	W: 400mm H: 600mm L: 500mm	65kg	70kg

NOZZLE / BASES KIT:

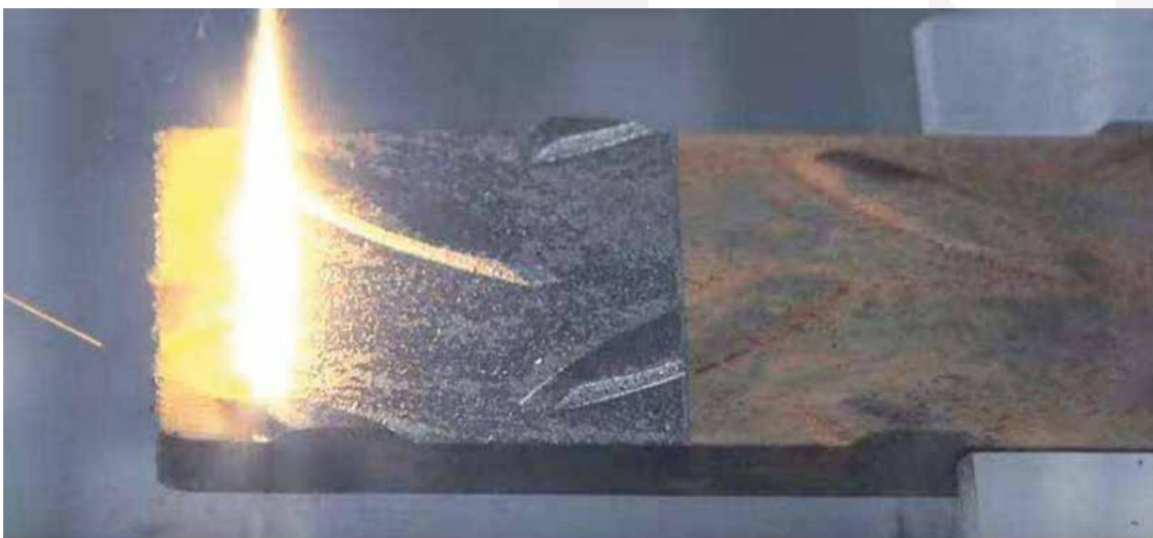
Photo	Model	Operation
	<u>AS-12</u>	FLAT WELDING
		INSIDE CORNER
		For 0.8/1/1.2mm wire
	BS-16	FLAT WELDING
		INSIDE CORNER
		For 1.6mm wire
	CS-12	WELDING
		OUTSIDE CORNER
		For 0.8/1/1.2mm wire
	ES-12	FLAT WELDING
		OUTSIDE CORNER
		For 0.8/1/1.2mm wire
	FS-16	FLAT WELDING
		OUTSIDE CORNER
		For 1.6mm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

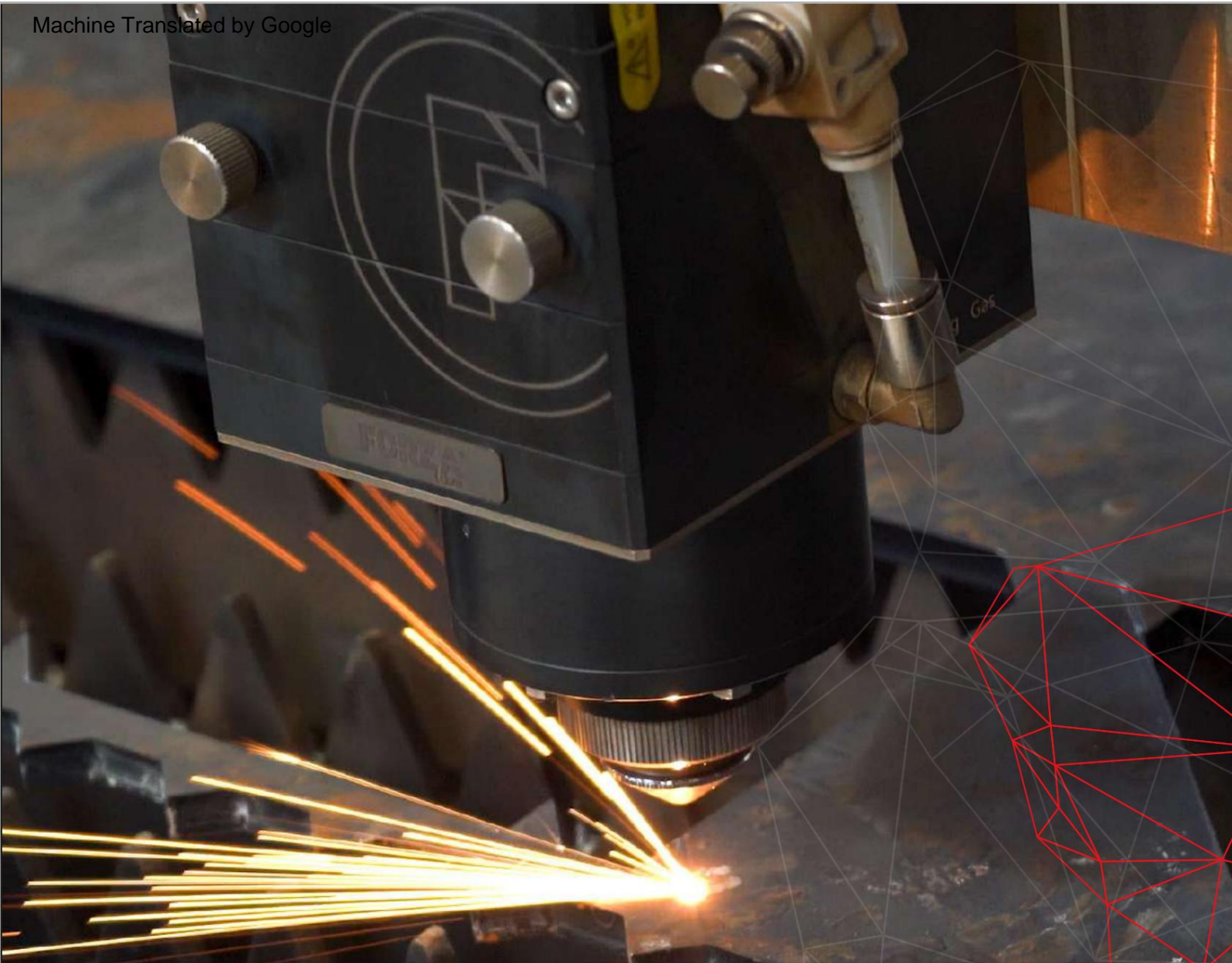
NOTE: The included nozzle kit may vary depending on the equipment version.

Consumables:

Photo	Model	Article	Measures	Life time
	CF-L18.0X2.0-3K	Lenses of protection	D:18mm T:2mm	200 hours
	xxxx	Distilled water	16 liters	1 month

Manufactured Parts:





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

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