



V250828

Datasheet
Model A4IN1P12



FORZA[®]
Aura

Professional Laser Gun for Clean Welding Processes.

CUTTING / WELDING / REMOTE CLEANING – WELD BEAD

FORZA AURA revolutionized welding, offering an undeniable advantage over MIG, TIG, or electrode welding. Laser welding uses a beam of light to weld and doesn't rely on an electric arc, so you can create perfect welds without having to be an experienced professional.

Its main advantage is its small size and portability thanks to the air-cooling system that no longer requires water or a chiller, which means reduced operating costs.

Main Features

FEATURES	DETAIL		
Laser power rating	1200W		
Type of work allowed	WELDING	CUTTING	REMOTE CLEANING
Maximum working thickness in ASTM A36 ⁽¹⁾	9/64 in 3.5mm	1/16 in 1.8mm	0.07mm 2.8mils
			Oxide layer
Maximum working speed at 0.7mm of ASTM A36	1.8 in/s 45 mm/s	3.9 in/s 100 mm/s	1800mm ² /s 2.8 in ² /s
			0.01mm layer of oxide 0.4mils
Type of permissible working gas	ARGON, NITROGEN	NOTROGEN, AIR	NITROGEN, AIR
Average gas flow required	10L/min	70L/min	32L/min
Type of consumer thread	Solid wire 0.8 to 1.6mm	-	-
Interchangeable nozzles	6 types ⁽²⁾	1	_(3)

- 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.
- One of the welding nozzles is also used for cleaning the weld seam, this is detailed later.
- Remote cleaning does not require an interchangeable nozzle, only the tube holding the nozzle is removed.



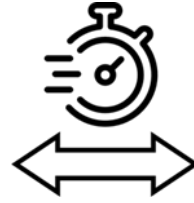
Special Features

Air Cooling System



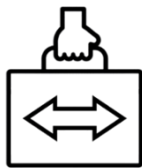
The cooling system is air-based, so the use of water for chiller cooling is no longer necessary.

Quick Change Lenses



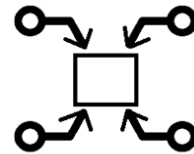
The gun's design allows for quick lens exchange depending on the type of work to be performed.

Ultra-Portable



Its reduced size and weight thanks to the air-cooling system, allows great portability of the machine.

Multifunction 4 in 1



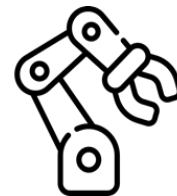
The FORZA Aura machine allows the use of 4 functions: Welding, Welding Seam Cleaning, Cutting and Remote Cleaning.

Double Welding Types



By using the different nozzles, the machine allows you to perform different types of welding according to your needs.

Robot Gripper Option



An additional option is the use of a robotic arm for automated handling of the laser gun thanks to the input/output (I/O) communication port.

General Specifications

SPECIFICATION	DETAIL
Model	FORZA Aura – A4IN1P12
Laser Type/Technology	Fiber Laser 1080nm \pm 10nm
Laser source connection type	QBH
Type of operation	By CW pulses
Nominal fiber laser power	1200W
Fiber laser power range	10 to 100% (\pm 0.5%)
Output power stability	\pm 3%
Laser working frequency	4 to 5000Hz
Laser source protection level	IP54
Laser source model	MSFC-1200W AIR COOLING MAX PHOTONICS
Working modes	CUTTING / WELDING / REMOTE CLEANING / BEAD CLEANING
Focusing system	Fixed
Auxiliar gas type for welding	Argon or N ₂
Auxiliar gas type for cutting	Argon, N ₂ or Air
Auxiliar gas type for cleaning	Argon, N ₂ or Air
Average gas consumption	Welding: 10L/min
	Cutting: 70L/min (Depending on thickness)
	Cleaning: 32L/min
Laser gun model	Geffast - SUP 21
Average welding speed ⁽¹⁾	~ 0.8 in/s 20 mm/s
Maximum travel speed	7.9 in/s 200 mm/s
Depth of weld without filler	\leq 15% of thickness and \leq 0.5mm 1/64in

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).

Depth of weld with filler	≤ 3/64in 1.2mm		
Weld thickness (Depending on the filler material)	1/32 – 5/64in 1 – 2mm ⁽²⁾		
Maximum laser width in cleaning	4.7 in 120 mm		
Laser cutting width	0.004in ~ 0.12in 0.1mm ~ 3mm ⁽³⁾		
Cutting precision	Thickness - dependent		
Recommended welding angle	0-30° ⁽⁴⁾		
Ideal welding angle	15°		
Command control	Horizontal touch screen		
Process control	Button on gun		
Maximum consumption of the laser source	4kW		
Automatic wire feeder power	0.2kW		
Maximum power of the equipment	4.5kW		
Average energy consumption ⁽⁵⁾	2.7kW		
Working voltage	Single phase: 220V/1ph 50Hz - 60Hz		
Maximum current per line	23 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 12AWG	2 x 16AWG	220VAC 1ph
	+1 x 12AWG Ground		
Recommended breaker for the machine	25 A @ 1ph 220VAC		
Power cable length	16.4ft 5m		
Gun cable length	23ft 7m		

2. The thickness of the weld is related to the amount of material filler that is configured.

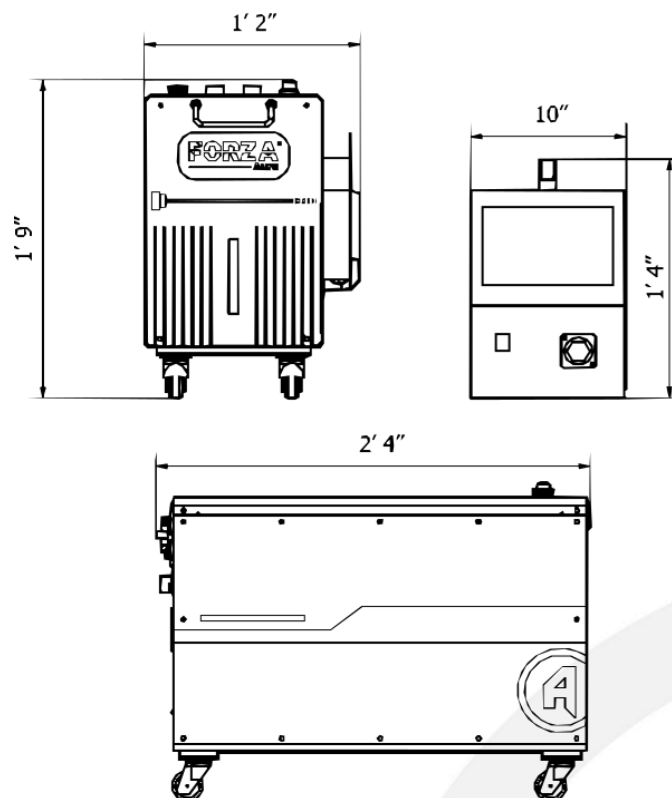
3. The width of the cut is directly proportional to the thickness of the material, the greater the thickness, the greater the width of the cut.

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.

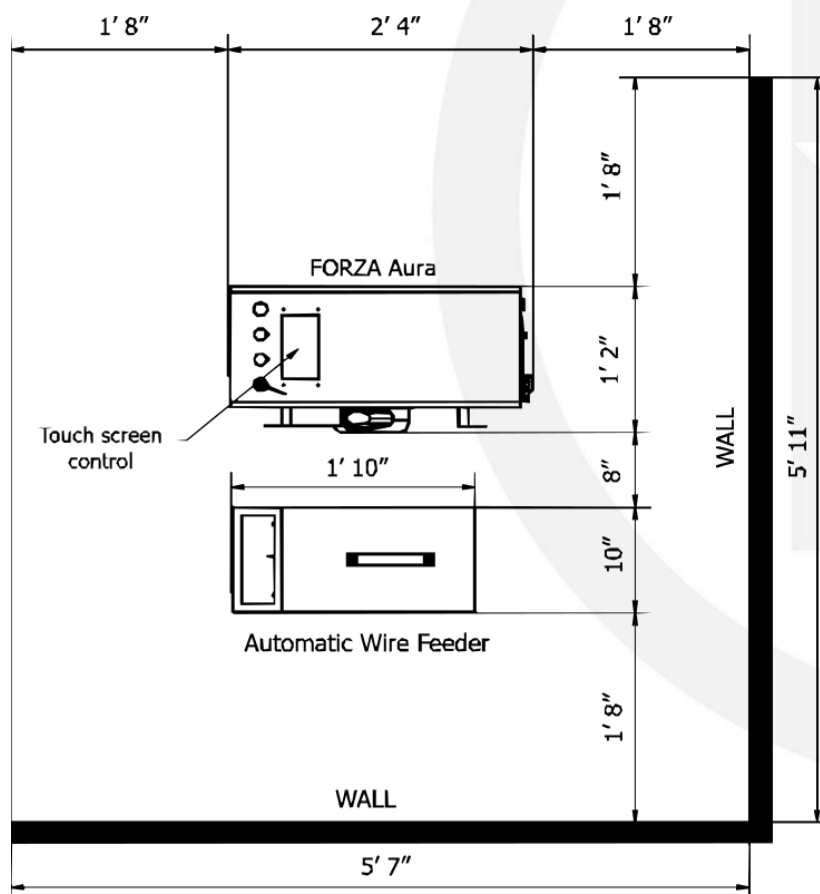
5. Average consumption is calculated based on 60% of the power for sizing purposes. Not all components are switched on during operation. The interactions between switching systems such as the chiller and power supply on and off lower this figure. For an hourly electricity consumption calculation, please use the average consumption.

Hose length for feeder thread	16.4ft 5m
Cooling method	Air cooled
Gas connection diameter	6mm hose (Nylon)
Maximum gas inlet pressure	10 bar
Recommended gas inlet pressure	≤6 bar
Laser gun weight	0.7kg
Equipment weight	45kg
Weight of equipment for transport	50kg
Equipment dimensions	1.2 x 2.3 x 1.8 ft 350 x 704 x 536 mm
Automatic feeder measurements	0.8 x 1.8 x 1.3 ft 250 x 560 x 400 mm
Transport measures	1.7 x 2.9 x 3.2 ft 520 x 870 x 960 mm
Relative humidity	< 85%
Working temperature	-10 – 40° C
Certifications	CE, RoHS
Required PPE (Not included)	Protective glasses for 1060nm
	KN95 mask
	Gloves
	Gas extraction system
	Full protective suit (optional)

Machine Dimensions

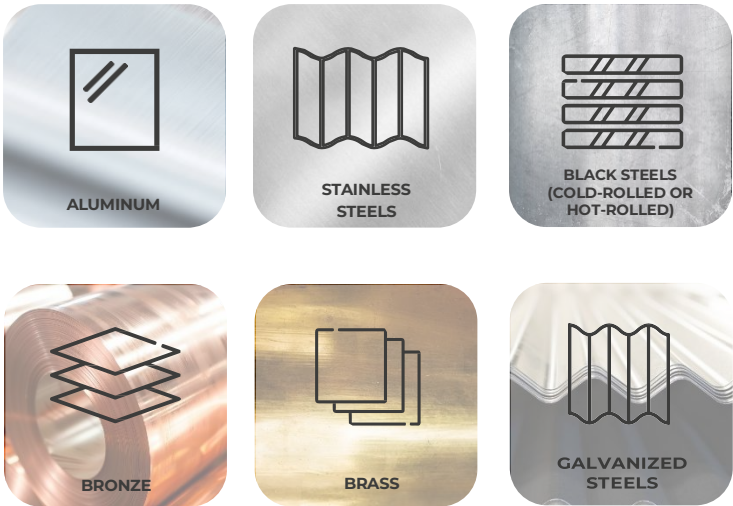


Required Space

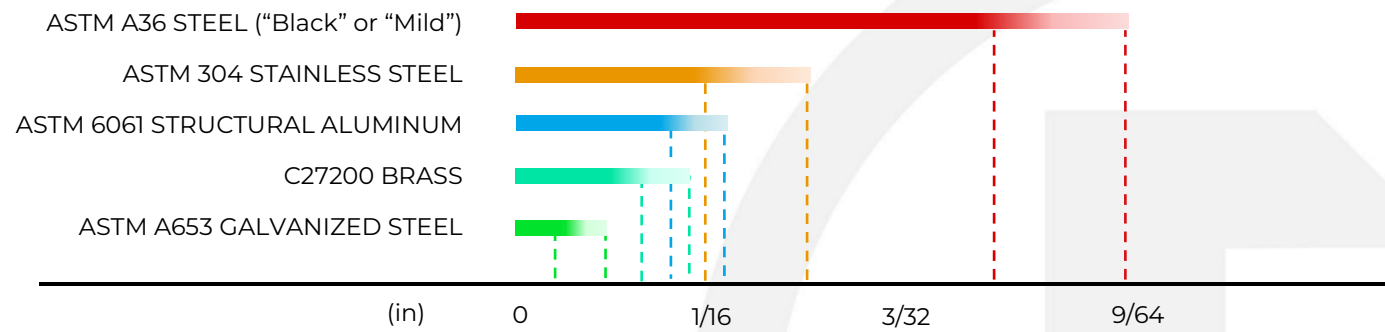


* Peripheral dimensions may vary depending on the machine model

Applicable Materials









Cutting Thicknesses by Material



MATERIAL	WELDING			CUTTING		
	mm	in	gauge	mm	in	gauge
ASTM A36 STEEL ("Black or Mild")	3.5	9/64	10	1.8	1/16	15
ASTM 304 STAINLESS STEEL	3.5	9/64	10	1.8	1/16	15
ASTM 6061 STRUCTURAL ALUMINUM	2.5	3/32	10	1.25	3/64	17
C27200 BRASS	1.5	1/16	17	0.8	1/32	23
ASTM A653 GALVANIZED STEEL	1.5	1/16	17	0.8	1/32	23

Packing List:

- 1 x FORZA AURA 1200W A4IN1P12 machine  (1)
- 1 x Multifunction gun SUP-21S 
- 1 x Laser Source 1200W Air cooling 
- 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 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 -

- 5m x WeldFeed control cable 
- 5m x WeldFeed power cable 
- 5m x Cable 2x12 AWG + 1x12 AWG, Machine power
(T:Tip-Plug connection) 

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

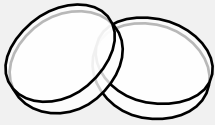
Transport symbols:  (Package),  (Inside the package),  (Installed on the machine).

Item	Measures	Net Weight	Gross Weight
 (1)	W: 520mm H: 960mm L:950mm	45kg	71kg
 (2)	W: 250mm H: 400mm L:560mm	13.2kg	-

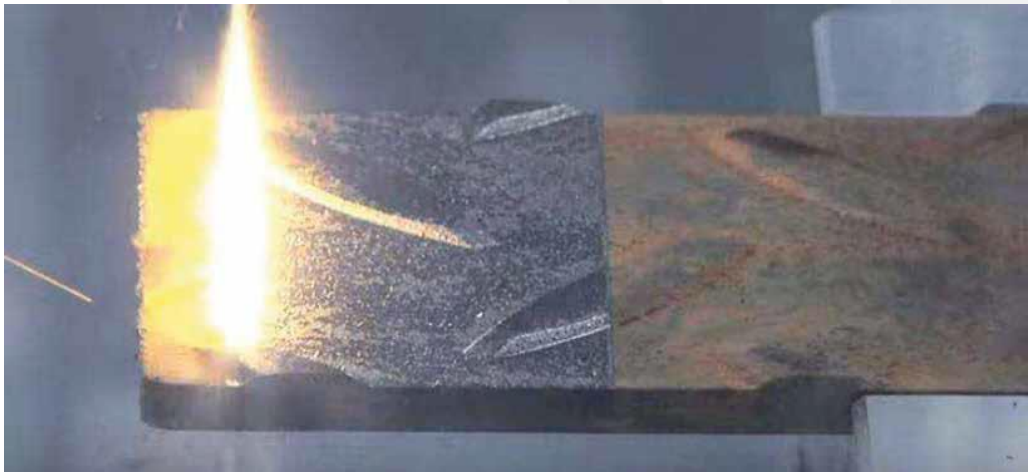
Nozzle Kit / Bases:

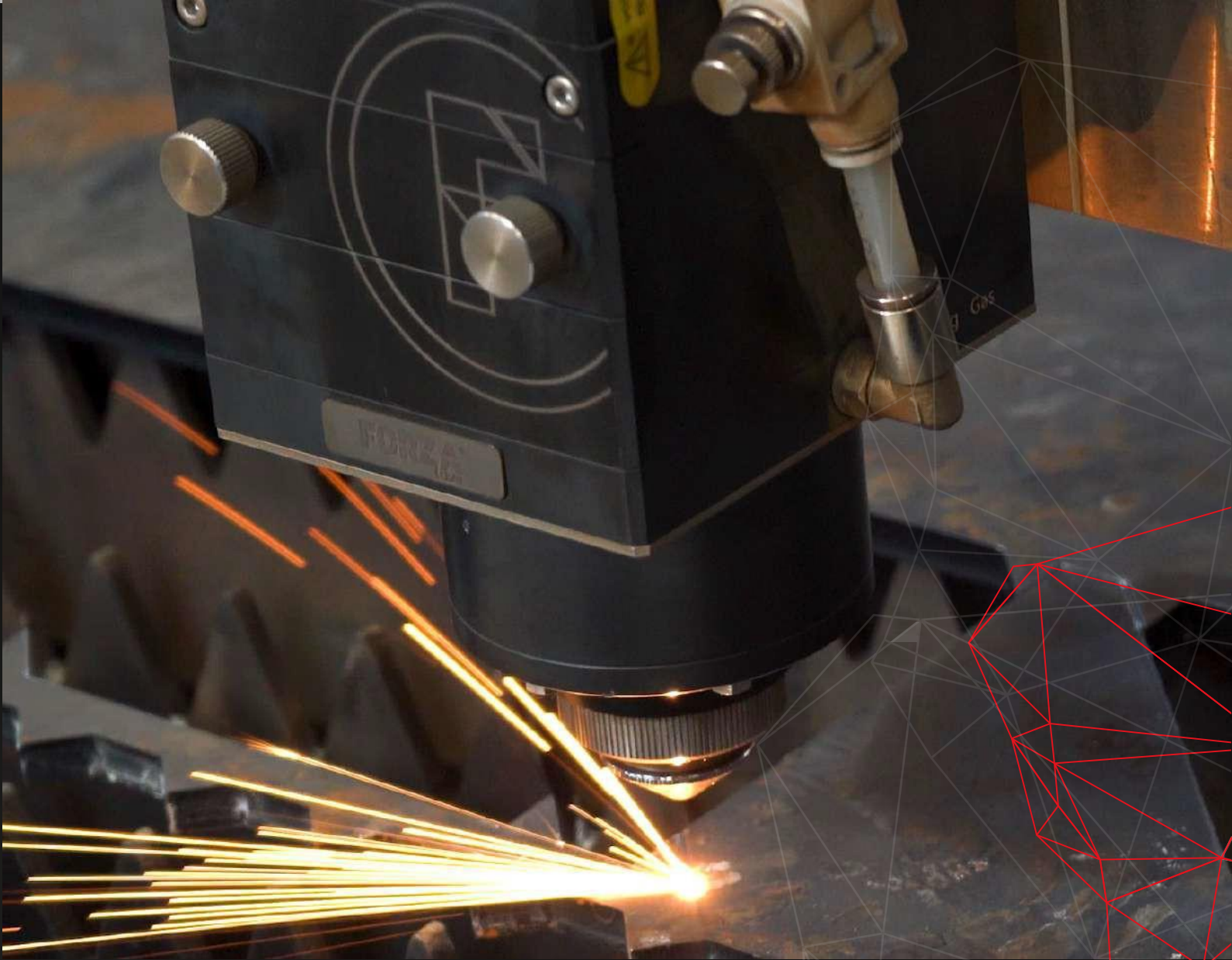
Picture	Model	Operation
	AS-12	FLAT WELDING
		INSIDE CORNER
		For wire 0.8/1/1.2 mm
	BS-16	FLAT WELDING
		INSIDE CORNER
		For wire 1.6mm
	CS-12	WELDING
		OUTSIDE CORNER
		For wire 0.8/1/1.2 mm
	ES-12	FLAT WELDING
		OUTSIDE CORNER
		For wire 0.8/1/1.2 mm
	FS-16	FLAT WELDING
		OUTSIDE CORNER
		For wire 1.6 mm
	C	CORNER WELDING EXTERIOR / CLEANING OF CORD
	CUTTING NOZZLE	CUTTING
	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-L18.0X2.0-4K	D:18mm T:2mm	200 hours

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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