PROTREG

LASER & PLASMA

MACHINERY

Protreg
BY ARMATECH GROUP

www.armatechgroup.com

From Türkiye To Worldwide

We Ship **WORLDWIDE**

Need help finding sheet metal working machines ?

We will gladly assist you in making
the right decision to achieve
your business goals.

About Armatech Group

Protreg © is a brand of Armatech Demir Celik Makina Insaat Sanayi ve Ticaret Ltd. Sti. and newly established manufacturer of sheet metal working machines focus on CNC Plasma cutting and CNC Fiber Laser cutting machines with 2.000sqm closed production area in Bursa, Turkey.

With many years back production experience before establishing the company pushing engineers and technical staff to develop more, and design unique projects on their own. What make special **PROTREG** brand are qualified workers, high quality products, detailed and well calculated work-manship, sophisticated technology, quick deliveries as well as honesty, simplicity in business.

Our Mission and Vision

As a target of being the world-leading cutting technologies and sheet metal working machine provider, Armatech is dedicated to bringing the best results and value for customers with %100 customer satisfactions.

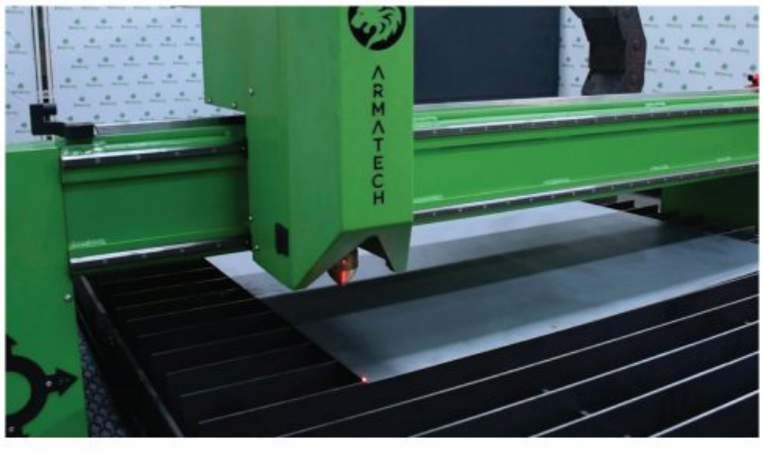
Our Vision

Producing the world's best cutting systems and being %100 trustable company.

Plasma
Cutting Machine

APPC SERIES

COMPACT PLASMA

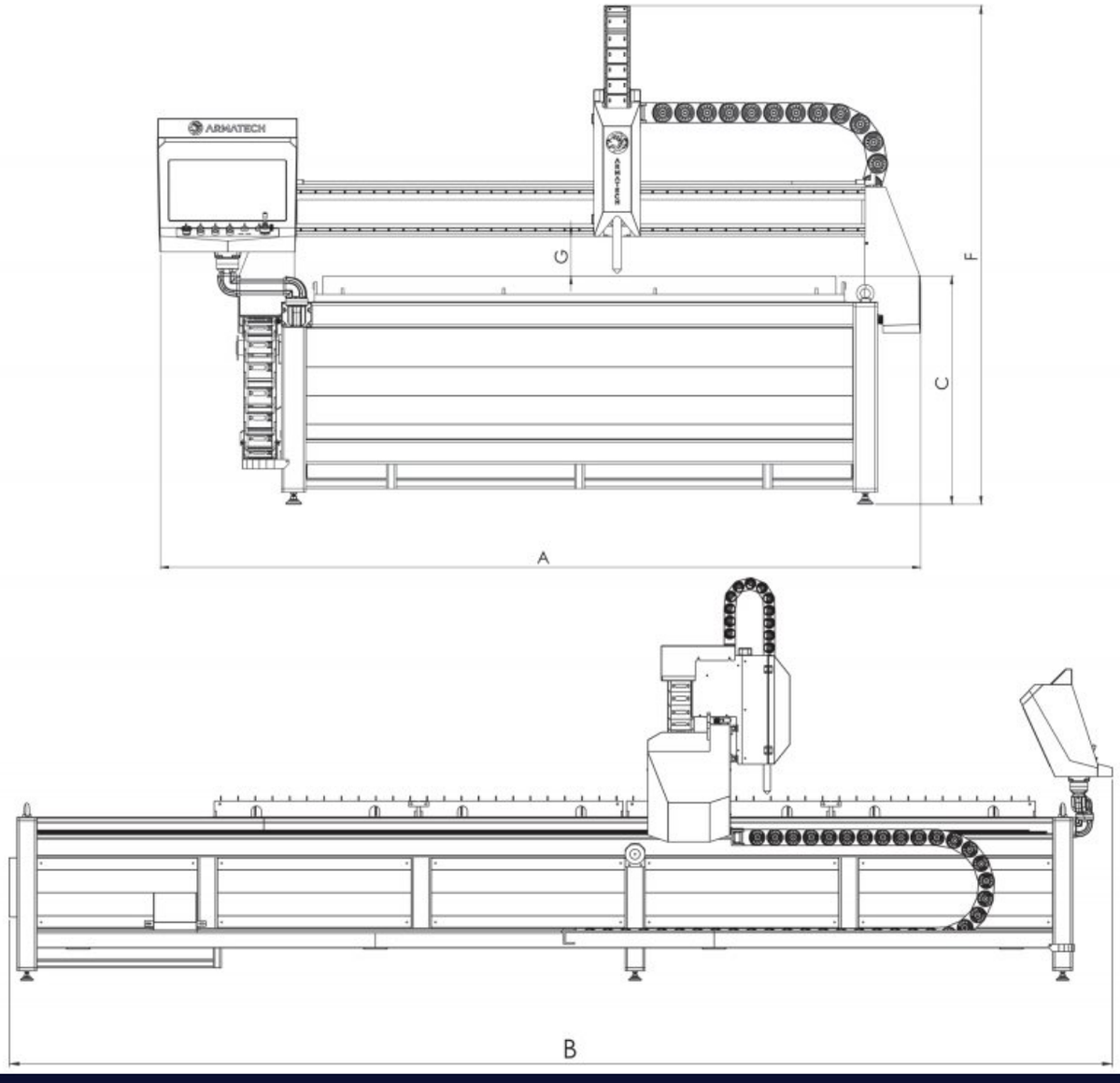


Main Features

- 17” LCD Industrial Touch Screen
- Windows Based Cnc Controller
- Operator Panel
- Safe Module Inputs and Outputs
- Remote Connection Interface
- THC Automatic Height Control System
- Nozzle Sensor
- TORCH Collision Sensor
- 200 mm Standard Stroke
- Laser Pointer
- 3 Axis (X, Y,Z) Movement
- Servo Motor and drivers set
- Planetary Gearbox
- High Precision Linear Rails
- High Precision Helix Gear and Creamer
- Cable Channels on X,Y, Z Axes
- Table with Cnc Controlled Pneumatic System
- Fixed Control Panel System
- 3 Emergency Buttons
- Troubleshooting and service opportunity with remote connection
- Nesting Program

Optional Features

- Plasma Fume Extraction Unit
- 4000 = 4000m3/hour flow
- 6000 = 6000m3/hour flow
- Cooler to Electrical Panel depends on the Working Environment
- Optional Electrical Voltage
- Jet Filter

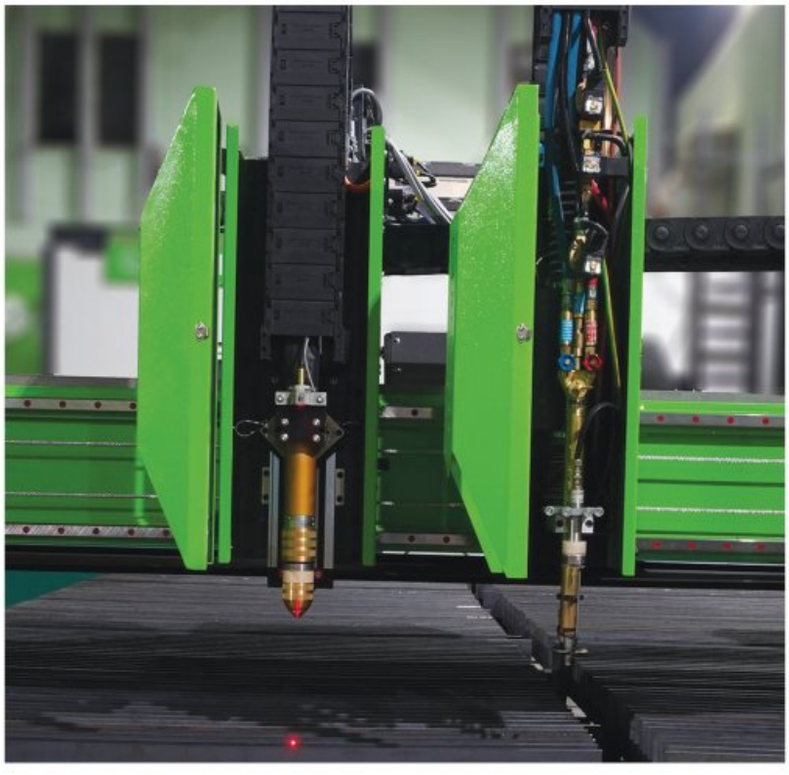


APPC SERIES COMPACT TYPE PLASMA CUTTING MACHINES

	SPECIFICATIONS	APPC 1530 (COMPACT)	APPC 2040 (COMPACT)	APPC 2060 (COMPACT)
A	TOTAL WIDTH (mm)	2615	3115	3115
B	TOTAL LENGTH (mm)	4620	5620	6620
C	CUTTING TABLE HEIGHT (mm)	920	920	920
D	WORKING WIDTH (mm)	1670	2170	2170
E	WORKING LENGTH (mm)	3110	4160	6250
F	TOTAL HEIGHT (mm)	2035	2035	2035
G	DISTANCE BETWEEN BRIDGE AND WORK TABLE (mm)	165	165	165

APPL SERIES

INDUSTRIAL PLASMA

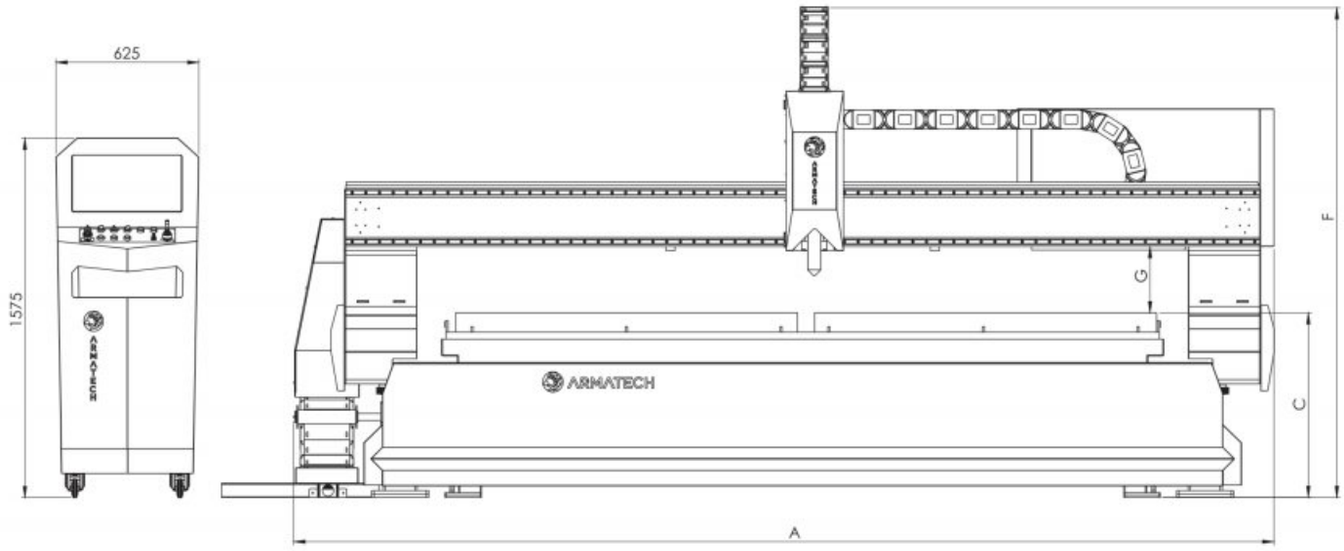


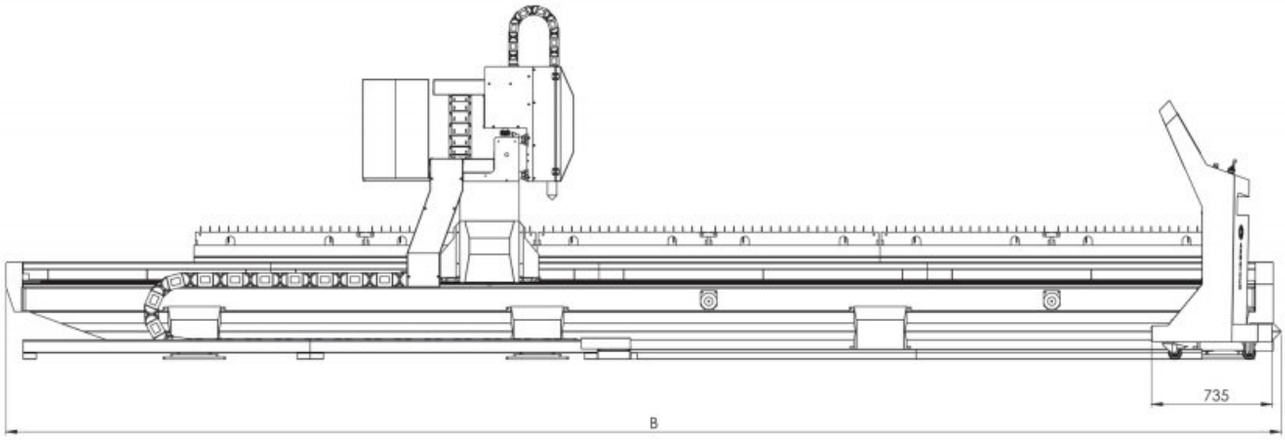
Main Features

- 19” LCD Industrial Touch Screen
- Windows Based Cnc Controller
- Operator Panel
- Safe Module Inputs and Outputs
- Remote Connection Interface
- THC Automatic Height Control System
- Nozzle Sensor
- TORCH Collision Sensor
- 300 mm Standard Stroke
- Laser Pointer
- 3 Axis (X, Y,Z) Movement
- Servo Motor and drivers set
- Planetary Gearbox
- High Precision Linear Rails
- High Precision Helix Gear and Creamer
- Cable Channels on X,Y, Z Axes
- Table with Cnc Controlled Pneumatic System
- Movable Control Panel System
- 3 Emergency Buttons
- Troubleshooting and service opportunity with remote connection
- Nesting Program

Optional Features

- Oxygen Cutting Station
- Messer-Tanaka-IHT Oxygen Torch
- Automatic Ignition System
- IHT Automation Capacitive Distance and Height Control
- -/+ 45 Degree Manual Angle Cutting Tool for Oxygen and Plasma
- 350mm Selectable Stroke for Oxygen and Plasma Torch
- 300mm stroke Torch Height controller
- Bevel cutting technology
- Plasma Fume Extraction Unit
- 4000 = 4000m3/hour flow
- 6000 = 6000m3/hour flow
- 12000 = 12000m3/ hour flow
- 15000- 15000m/3 hour flow
- Cooler to Electrical Panel depends on the Working Environment
- Optional Electrical Voltage.
- Jet Filter



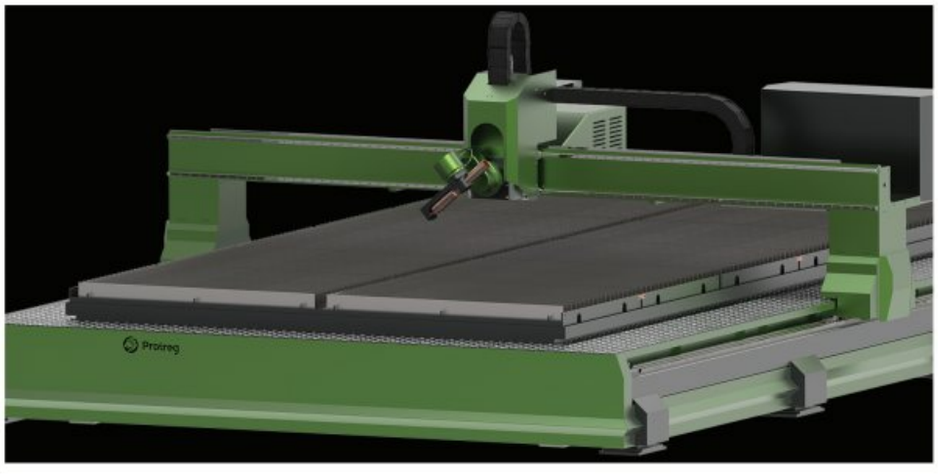


APPL SERIES INDUSTRIAL TYPE PLASMA CUTTING MACHINE

	SPECIFICATIONS	APPL2060	APPL3060	APPL20120	APPL30120	APPL35120	APPL40120	APPL35240
A	TOTAL WIDTH (mm)	3300	4300	3300	4300	4800	5300	4800
B	TOTAL LENGTH (mm)	7770	7770	14050	14050	14050	14050	26550
C	CUTTING TABLE HEIGHT (mm)	800	800	800	800	800	800	800
D	WORKING WIDTH (mm)	2130	3130	2130	3130	3630	4130	3630
E	WORKING LENGTH (mm)	6250	6250	12500	12500	12500	12500	25000
F	TOTAL HEIGHT (mm)	2200	2200	2200	2200	2200	2200	2200
G	DISTANCE BETWEEN BRIDGE AND WORK TABLE (mm)	290	290	290	290	290	290	290

BEVEL OPTION

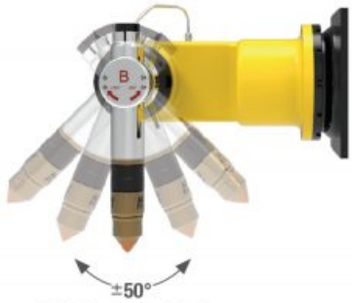
PLASMA OPTIONS



Why Bevel?

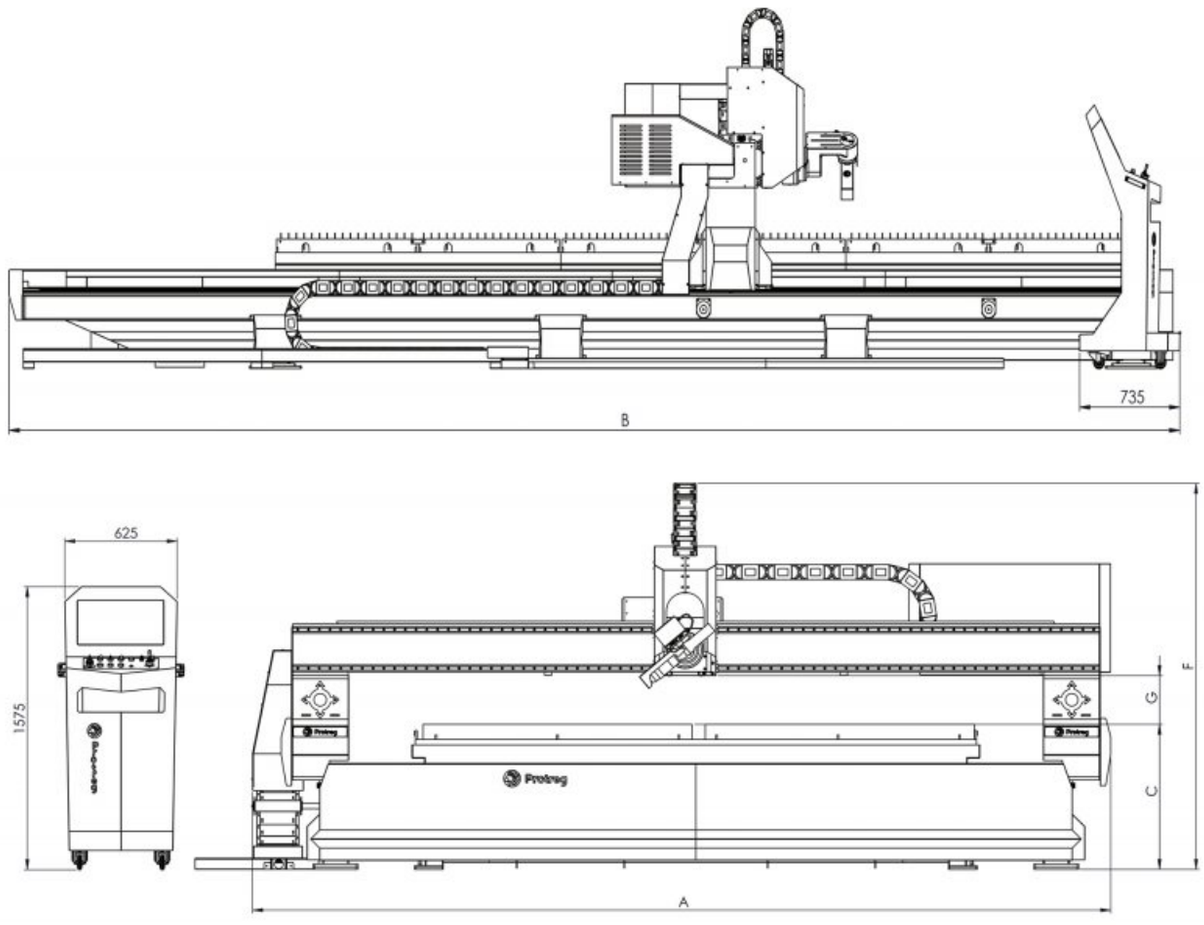
Beveling is most prevalent in industries where heavy-duty equipment is made for off-highway, construction, agricultural, forestry, mining, oil and gas, and shipbuilding applications. Here manufacturers rely on beveling as a part of the weld preparation process. Beveled edges produce a sturdier type of weld needed to support the massive weight and loads on such machines and structures.

Working rotation A axis



Working rotation B axis

SPECIFICATIONS		AXIS A HEAD	AXIS B TORCH
WORK POSITION	TYPE	HORIZONTAL	
ANGLE BEVEL	MAX	± 90°	± 90°
	WORK	± 50°	± 50°
AXIS KINEMATICS	DATA	BACKLASH "0" < 1 ARC/MIN	
MOTOR ENCODER	TYPE	INCREMENTAL / ABSOLUTE MULTITURN	



5 AXIS BEVEL TECHNICAL SPECIFICATIONS

	SPECIFICATIONS	1530	2040	2060	3060	20120	30120	35120	40120	35240
A	TOTAL WIDTH (mm)	3290	3790	3790	4790	3790	4790	5290	5790	5290
B	TOTAL LENGTH (mm)	5580	6580	8580	8580	14800	14800	14800	14800	27370
C	CUTTING TABLE HEIGHT (mm)	800	800	800	800	800	800	800	800	800
D	WORKING WIDTH (mm)	1630	2130	2130	3130	2130	3130	3630	4130	3630
E	WORKING LENGTH (mm)	3150	4200	6250	6250	12500	12500	12500	12500	25000
F	TOTAL HEIGHT (mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200
G	DISTANCE BETWEEN BRIDGE AND WORK WABLE (mm)	290	290	290	290	290	290	290	290	290
	SPEED	20	20	20	20	20	20	20	20	20
	MACHINE AXIS	X,Y,Z,A,B								
	POSITION ACURACY (mm)	± 0,01 DIN28206 , ± (0,0039 DIN28206)								
	POSITION REPEATABILITY ACCURACY (mm)	± 0,05 DIN28206 , ± (0,0019 DIN28206)								

OXY FUEL

PLASMA OPTIONS

Advantages

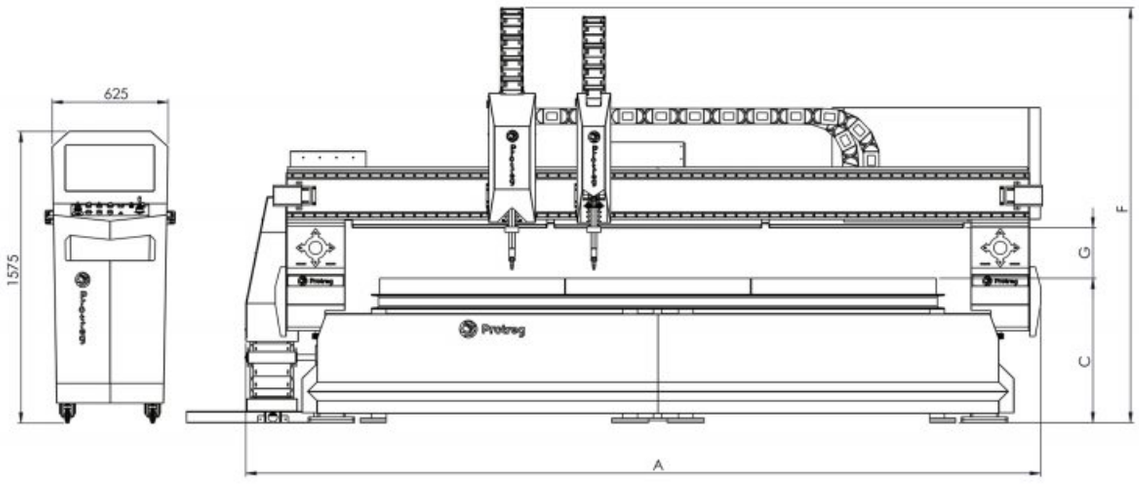
- Flashback detection
- Fits on all carriages
- Easy integration in the CNC controller
- Works with all common CNC controllers on the market
- Optional fieldbus connectivity
- Modular approach allows highest flexibility
- Selection of best components ensures high cutting quality and productivity

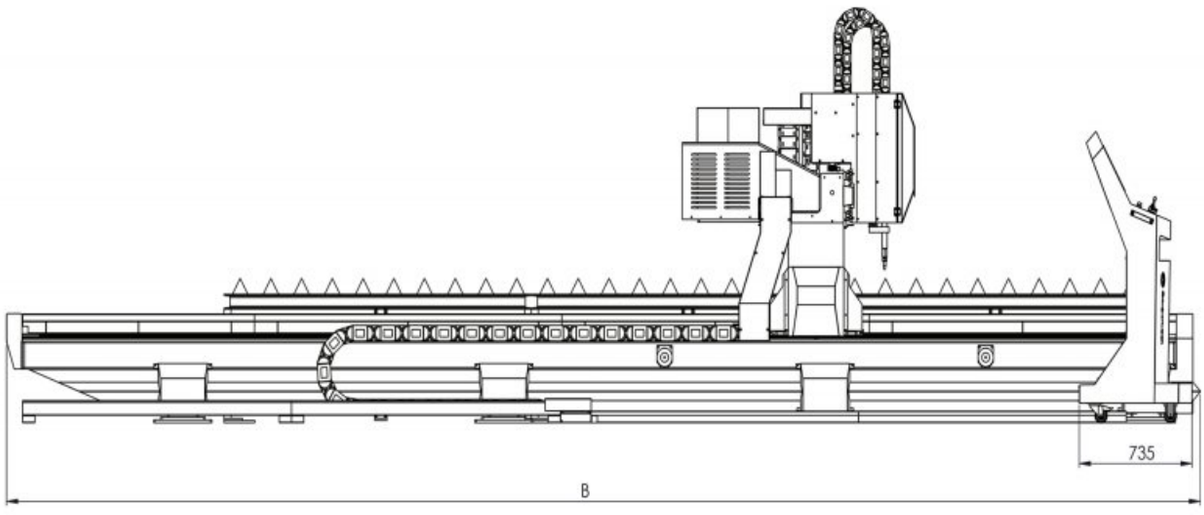
Application Fields

- Oxy-Fuel cutting machines for straight cutting of up to 300 mm thick sheets
- Single or multi torch applications
- Cut sheets up to 100 mm thickness when used with active height sensor and up to 300 mm with Splash Protector

CNC Connections

- In: Automatic, control of torch height On / Off
- In: Clearance Setpoint (0-10 V), torch height setting during cutting process
- In: Piercing Setpoint (0-5 V), torch height setting during piercing process
- In: Ignite, start ignition command
- In: Manual Up, manual torch movement
- In: Manual Down, manual torch movement
- Out: Error/Collision/Flashback
- Out: In Position, confirmation of set position
- Out: Upper Limit, highest possible point



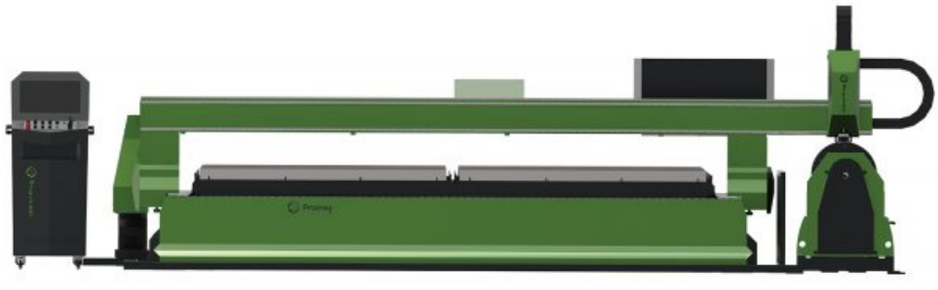


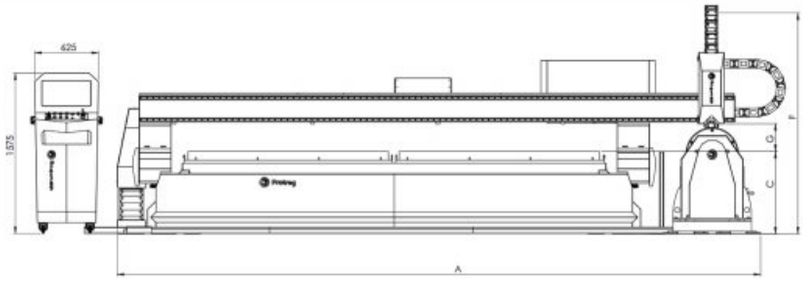
OXYFUEL TECHNICAL SPECIFICATIONS

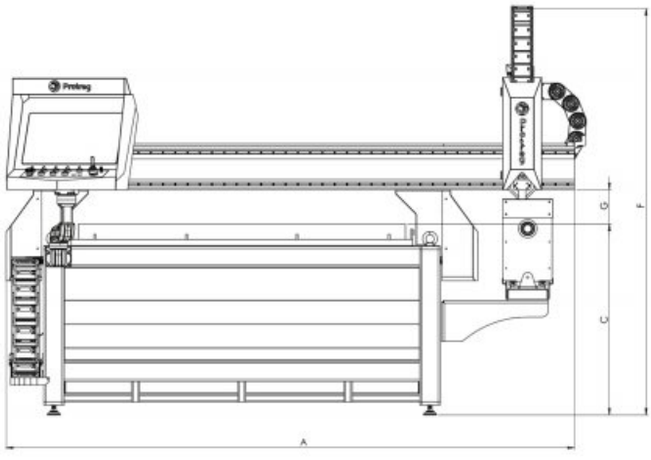
	SPECIFICATIONS	APO 2060	APO 3060	APO 20120	APO 30120	APO 35120	APO 40120	APO 35240
A	TOTAL WIDTH (mm)	3300	4300	3300	4300	4800	5300	4800
B	TOTAL LENGTH (mm)	7770	7770	14050	14050	14050	14050	26500
C	CUTTING TABLE HEIGHT (mm)	780	780	780	780	780	780	780
D	WORKING WIDTH (mm)	2050	3050	2050	3050	3550	4050	3550
E	WORKING LENGTH (mm)	6050	6050	12050	12050	12050	12050	24050
F	TOTAL HEIGHT (mm)	2200	2200	2200	2200	2200	2200	2200
G	DISTANCE BETWEEN BRIDGE AND WORK WABLE (mm)	270	270	270	270	270	270	270

PIPE CUTTING

PLASMA OPTIONS







TECHNICAL SPECIFICATIONS OF 2D PIPE CUTTING

	SPECIFICATIONS	APPC-P 1530	APPC-P 2040	APPC-P 2060	APPL-P 2060	APPL-P 3060	APPL-P 20120	APPL-P 30120	APPL-P 35120	APPL-P 40120	APPL-P 35240
A	TOTAL WIDTH (mm)	2780	3280	3280	4350	5350	4350	5350	5850	6350	6850
B	TOTAL LENGTH (mm)	4760	5800	7800	8750	8750	14750	14750	14750	14750	28150
C	CUTTING TABLE HEIGHT (mm)	930	930	930	800	800	800	800	800	800	800
D	WORKING WIDTH (mm)	1600	2100	2100	2130	3130	2130	3130	3630	4130	3630
E	WORKING LENGTH (mm)	3100	4100	6100	6250	6250	12500	12500	12500	12500	25000
F	TOTAL HEIGHT (mm)	2000	2000	2000	2200	2200	2200	2200	2200	2200	2200
G	DISTANCE BETWEEN BRIDGE AND WORK WABLE (mm)	170	170	170	270	270	270	270	270	270	270
	SPEED	20	20	20	20	20	20	20	20	20	20
	MACHINE AXIS	X,Y,Z,D									
	PIPE CUTTING DIAMETER MIN. MAX. (mm)	Ø30-Ø200			Ø30-Ø500						
	PIPE CUTTING MAX. THICKNESS (MILD STEEL) (mm)	8			20						
	POSITION ACURACY (mm)	± 0,01 DIN28206 , ± (0,0039 DIN28206)									
	POSITION REPEATABILITY ACCURACY (mm)	± 0,05 DIN28206 , ± (0,0019 DIN28206)									

TECHNICAL SPECIFICATIONS OF 3D PIPE CUTTING

A	TOTAL WIDTH (mm)	3280	3780	3780	4350	5350	4350	5350	5850	6350	6850
G	DISTANCE BETWEEN BRIDGE AND WORK WABLE (mm)	170	170	170	270	270	270	270	270	270	270
	SPEED	20	20	20	20	20	20	20	20	20	20
	MACHINE AXIS	X,Y,Z,A,B,D									

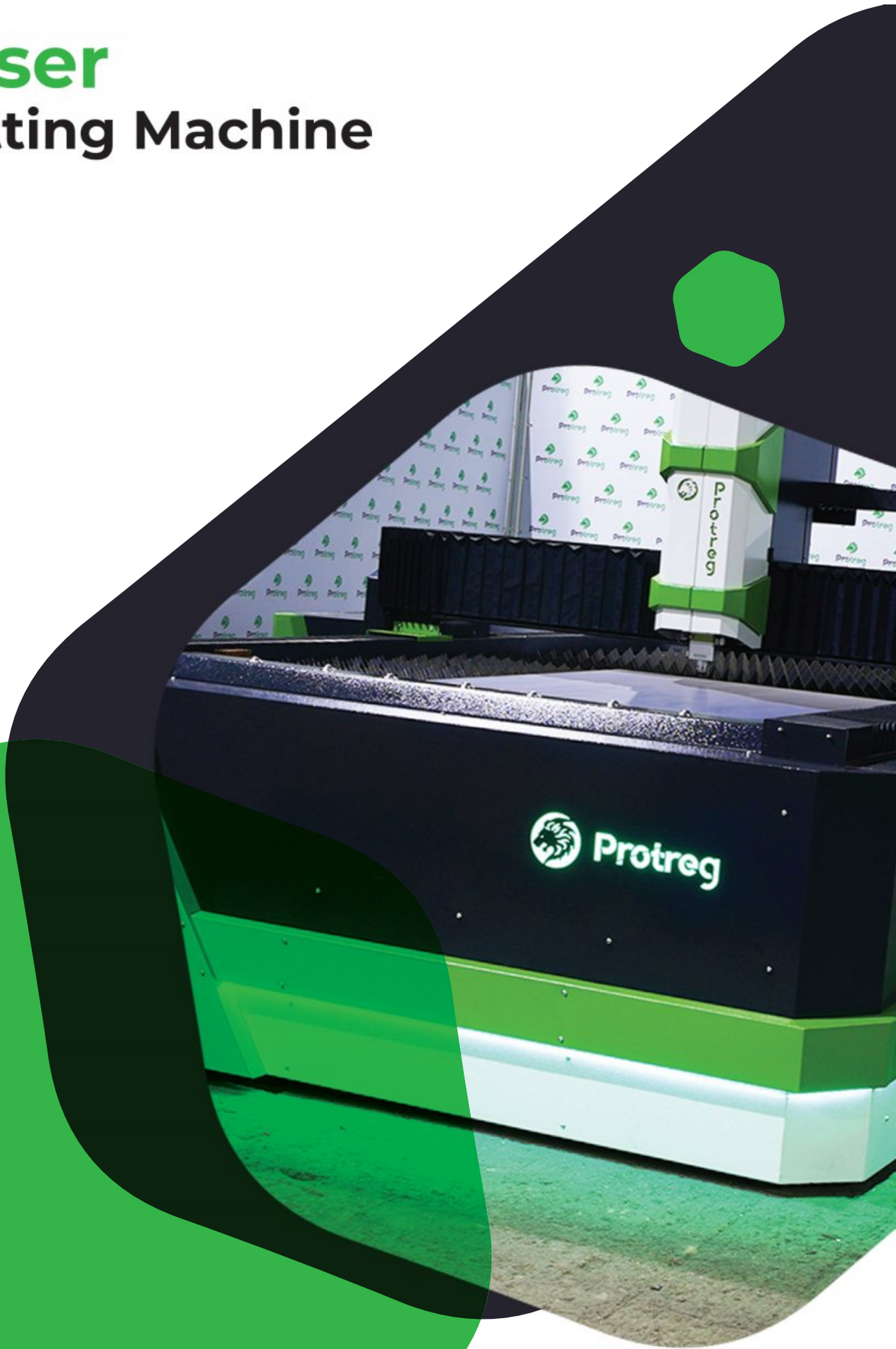
Kjellberg FINSTERWALDE — POWER SUPPLY CUTTING THICKNESSES

PLASMA POWER SUPPLY	MAXIMUM THICKNESS (MM)			PIERCING THICKNESS (MM)			CUTTING CURRENT		GASES
	MILD STEEL	STAINLESS	ALUMINIUM	MILD STEEL	STAINLESS	ALUMINIUM	MINIMUM A	MAXIMUM A	
CUT FIRE 65i	15	15	15	10	10	10	35	65	AIR
CUT FİRE 100i	40	40	40	20	20	20	35	100	AIR
SMART FOCUS 130	40	40	40	27	27	27	35	130	O2,AR - O2,AR,H2,N2,AIR,F5
SMART FOCUS 170	50	50	50	30	30	30	35	170	O2,AR - O2,AR,H2,N2,AIR,F5
SMART FOCUS 200	60	60	60	30	30	30	35	200	O2,AR - O2,AR,H2,N2,AIR,F5
SMART FOCUS 300	80	80	80	40	40	40	35	300	O2,AR - O2,AR,H2,N2,AIR,F5
SMART FOCUS 400	100	100	100	50	50	50	35	400	O2,AR - O2,AR,H2,N2,AIR,F5

Hypertherm SHAPING POSSIBILITY™ — POWER SUPPLY CUTTING THICKNESSES

PLASMA POWER SUPPLY	MAXIMUM THICKNESS (MM)			PIERCING THICKNESS (MM)			CUTTING CURRENT		GASES
	MILD STEEL	STAINLESS	ALUMINIUM	MILD STEEL	STAINLESS	ALUMINIUM	MINIMUM A	MAXIMUM A	
POWERMAX 45	25	19	19	9	9	9	30	45	AIR
POWERMAX 65	25	20	20	16	12	12	30	65	AIR
POWERMAX 85	30	25	25	20	16	16	30	85	AIR
POWERMAX 105	40	32	32	20	20	20	30	105	AIR
POWERMAX 125	40	40	40	25	20	25	30	125	AIR
MAXPRO 200	50	50	38	32	25	32	50	200	AIR - AIR,N2,O2
XPR 170	60	38	38	40	25	25	30	170	O2,N2,AIR - O2,N2,AIR,AR,F5,H2O - O2,N2,AIR,AR,F5,H2 AND WATER
XPR 300	80	70	50	50	38	38	30	300	O2,N2,AIR - O2,N2,AIR,AR,F5,H2O - O2,N2,AIR,AR,F5,H2 AND WATER
HPR 400XD	80	80	80	50	45	40	30	400	AIR,O2,N2,H35,F5,AR

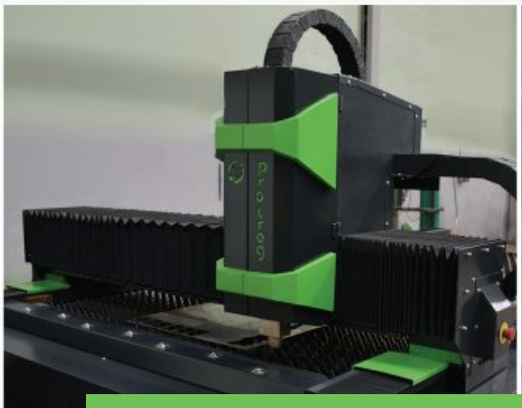
Laser
Cutting Machine



Open Series ALFA

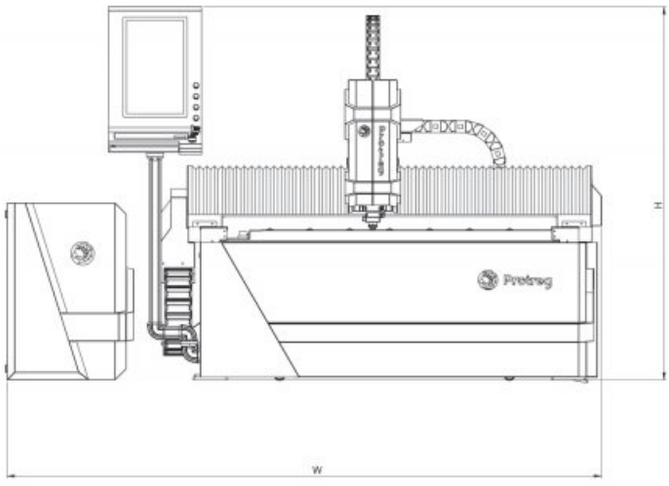
LASER

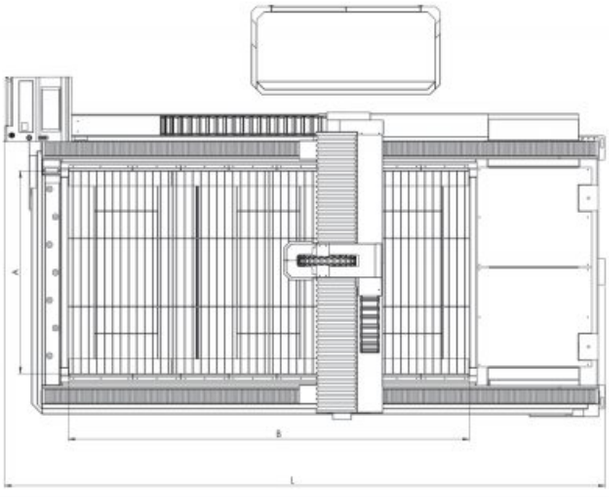
- 21” LCD Industrial Touch Screen
- Windows Based Cnc Controller
- Operator Panel
- Safe Module Inputs and Outputs
- Chiller
- Automatic Height Control System
- Troubleshooting and service opportunity with remote connection
- Automatic lubrication system
- Laser Cutting Head
- 250 mm Standard Stroke
- 3 Axis (X, Y,Z) Movement
- Servo Motor and drivers set
- Planetary Gearbox
- High Precision Linear Rails
- High Precision Helix Gear and Creamer
- Cable Channels on X,Y, Z Axes
- Table with Cnc Controlled Hydraulic System (optional)
- Fixed Control Panel System
- 3 Emergency Buttons
- Nesting Program



RESONATOR SPECIFICATIONS

Resonator	watt	1000	2000	3000
Multi-mode BPP	rad		<2.8, 1.7 Typ.	
Power Stability	%		± 1	
Single-mode Fiber Core	µm		100	
Coolant flow rate	l/min		2	
Thickness	–			
BLACK STEEL (S235JR,S355MC)	mm	8	16	18
STAINLESS STEEL (AISI 304)	mm	3	6	8
ALUMINUM (ALMG3)	mm	3	6	8
COPPER (CU-ETP)	mm	2	4	5
COPPER (CUZN37)	mm	2	4	5
Maximum Modulation Rate	kHz		50	
Wavelength	nm		1075 ± 10	
Auxiliary Gases	–			
OXYGEN	–		0,5-6 Bar	
AZOTE	–		0,5-25 Bar	
DRY AIR	–		0,5-25 Bar	





OPEN LASER SERIES COMPACT TYPE CUTTING MACHINES

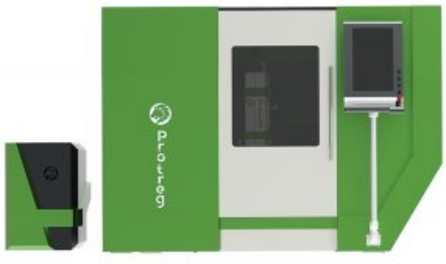
TECHNICAL SPECIFICATIONS

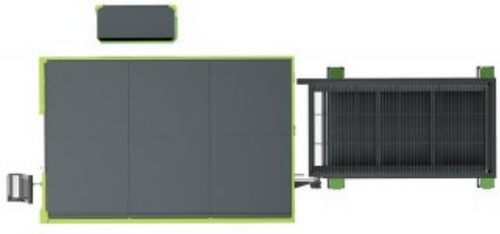
Working Area	mm	1500x3000	2000X4000	2000x6000
Max. Loading	kg	1000	1750	2650
Axis movements	_			
X,U AXES/SERVO MOTOR TABLE (B)	mm	3220	4370	6570
Y, AXIS/SERVO MOTOR BRIDGE (A)	mm	1590	2090	2090
Z, AXIS/SERVO MOTOR CUTTING HEAD	mm	150	150	150
Acceleration	G	1-2	1-2	1-2
Max. Axis speeds	m/min	113 (Result speed) (X,Y single axis speed 80 meters/min)		
Machine dimensions (LxWxH)	mm	4750x2650x2005	6000x3150x2005	8200x3150x2005
Weight ≈	kg	3250	4250	5200
Machine Axis	_	4 Eksen (X,Y,Z,U)		
Positioning accuracy	mm	±0,1		
Repetition accuracy	mm	±0,05		
CNC	_	✓	✓	✓
CAD-CAM Software	_	✓	✓	✓
Network	_	EtherCAT		
Control Panel	_	21-inch touch screen,Industrial type psl. keyboard,PLC keys		

β Closed Series BETA

LASER

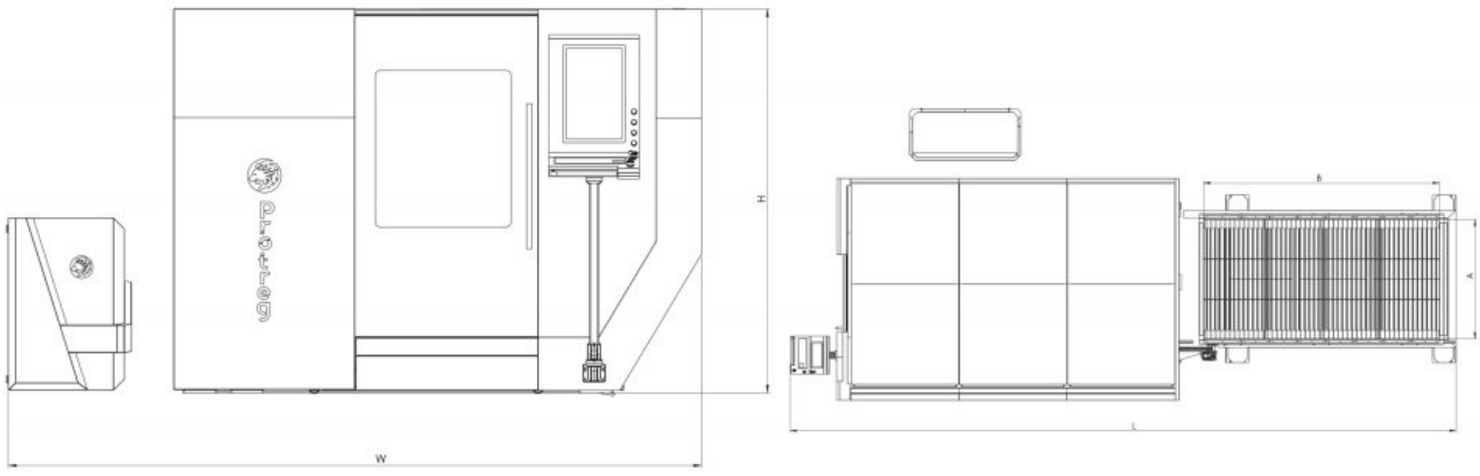
- 21” LCD Industrial Touch Screen
- Windows Based Cnc Controller
- Operator Panel
- Safe Module Inputs and Outputs
- Chiller
- Automatic Height Control System
- Troubleshooting and service opportunity with remote connection
- Automatic lubrication system
- Laser Cutting Head
- 250 mm Standard Stroke
- 3 Axis (X, Y,Z) Movement
- Servo Motor and drivers set
- Planetary Gearbox
- High Precision Linear Rails
- High Precision Helix Gear and Creamer
- Cable Channels on X,Y, Z Axes
- Table with Cnc Controlled Hydraulic System
- Fixed Control Panel System
- 3 Emergency Buttons
- Nesting Program





RESONATOR SPECIFICATIONS

Resonator	watt	1000	2000	3000	4000	6000	8000
Multi-mode BPP	rad		<2.8, 1.7 Typ.			2.0, 3.3, 5.0, 6.0	
Power Stability	%	± 1	± 1	± 1	± 2	± 2	± 2
Single-mode Fiber Core	µm		100			50, 100, 150, 200	
Coolant flow rate	l/min		2			2	
Thickness	_	-	-	-	-	-	-
BLACK STEEL (S235JR,S355MC)	mm	8	16	18	20	25	25
STAINLESS STEEL (AISI 304)	mm	3	6	8	10	12	14
ALUMINUM (ALMG3)	mm	3	6	8	10	12	14
COPPER (CU-ETP)	mm	2	4	5	6	8	12
COPPER (CUZN37)	mm	2	4	5	6	8	12
Maximum Modulation Rate	kHz	50	50	50	50	50	50
Wavelength	nm		1075 ± 10			1074 ± 6	
Auxiliary Gases	_						
OXYGEN	-			0,5-6 Bar			
AZOTE	-			0,5-25 Bar			
DRY AIR	-			0,5-25 Bar			



CLOSED LASER SERIES COMPACT TYPE CUTTING MACHINES

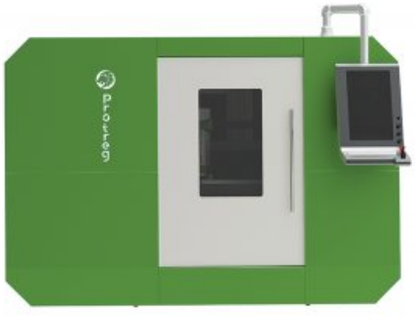
TECHNICAL SPECIFICATIONS

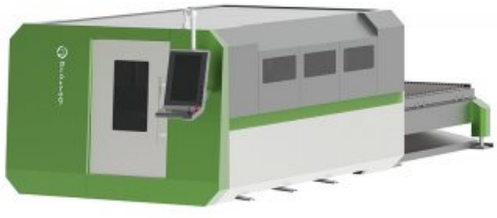
Working Area	mm	1500x3000	2000X4000	2000x6000
Max. Loading	kg	1500	2750	4000
Axis movements	_		-	
X,U AXES/SERVO MOTOR TABLE (B)	mm	3220	4370	6570
Y, AXIS/SERVO MOTOR BRIDGE (A)	mm	1590	2090	2090
Z, AXIS/SERVO MOTOR CUTTING HEAD	mm	150	150	150
Acceleration	G	1-2	1-2	1-2
Max. Axis speeds	m/min	141 (Result speed) (X,Y single axis speed 100 meters/min)		
Shuttle	Palet	Automatic (Double Pallet)		
Machine dimensions (LxWxH)	mm	8000x2650x2005	10500x3150x2005	13000x3150x2005
Weight ≈	kg	5000	6750	9000
Machine Axis	_	4 Eksen (X,Y,Z,U)		
Positioning accuracy	mm	±0,1		
Repetition accuracy	mm	±0,05		
CNC	_	✓	✓	✓
CAD-CAM Software	_	✓	✓	✓
Network	_	EtherCAT		
Control Panel	_	21-inch touch screen,Industrial type psl. keyboard,PLC keys		

Closed Series GAMA

LASER

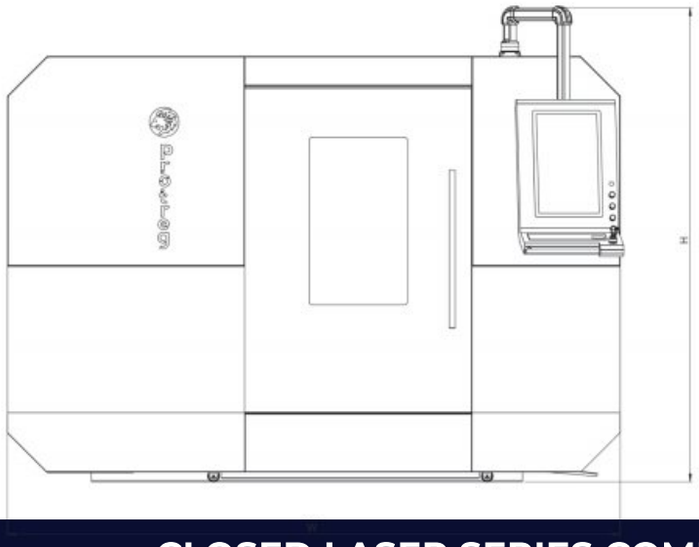
- 21” LCD Industrial Touch Screen
- Windows Based Cnc Controller
- Operator Panel
- Safe Module Inputs and Outputs
- Chiller
- Automatic Height Control System
- Troubleshooting and service opportunity with remote connection
- Automatic lubrication system
- Laser Cutting Head
- 250 mm Standard Stroke
- 3 Axis (X, Y,Z) Movement
- Servo Motor and drivers set
- Planetary Gearbox
- High Precision Linear Rails
- High Precision Helix Gear and Creamer
- Cable Channels on X,Y, Z Axes
- Table with Cnc Controlled Hydraulic System
- Fixed Control Panel System
- 3 Emergency Buttons
- Nesting Program

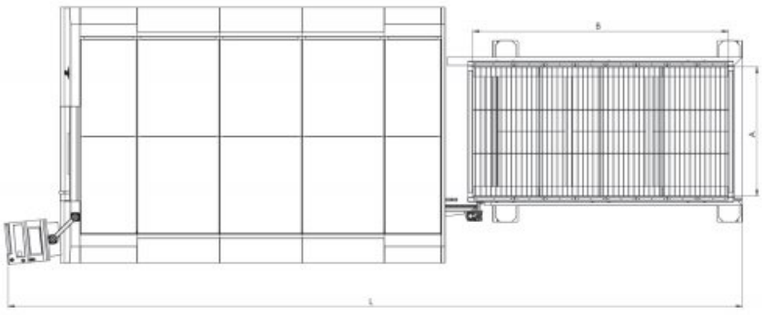




RESONATOR SPECIFICATIONS

Resonator	watt	4000	6000	8000	10000	12000	15000
Multi-mode BPP	rad	2.0, 3.3, 5.0, 6.0				2.0, 3.3, 5.0, 6.0	
Power Stability	%	±2	± 2	± 2	± 2	± 2	± 2
Single-mode Fiber Core	µm	50, 100, 150, 200				<2.2 @ 50 µm, 2.0 typ., <4.0 @ 100 µm, 3.3 typ., <6.0 @ 150 µm, 5.0 typ., <8.0 @ 200 µm, 6.0 typ.	
Coolant flow rate	l/min	2				2	
Thickness	_	-	-	-	-	-	-
BLACK STEEL (S235JR,S355MC)	mm	20	25	25	30	30	-
STAINLESS STEEL (AISI 304)	mm	10	12	14	20	25	-
ALUMINUM (ALMG3)	mm	10	12	14	20	25	-
COPPER (CU-ETP)	mm	6	8	12	16	20	-
COPPER (CUZN37)	mm	6	8	12	16	20	-
Maximum Modulation Rate	kHz	50	50	50	50	50	50
Wavelength	nm	1074 ± 6				1070 ± 5	
Auxiliary Gases	_						
OXYGEN	_	0,5-6 Bar					
AZOTE	_	0,5-25 Bar					
DRY AIR	_	0,5-25 Bar					





CLOSED LASER SERIES COMPACT TYPE CUTTING MACHINES

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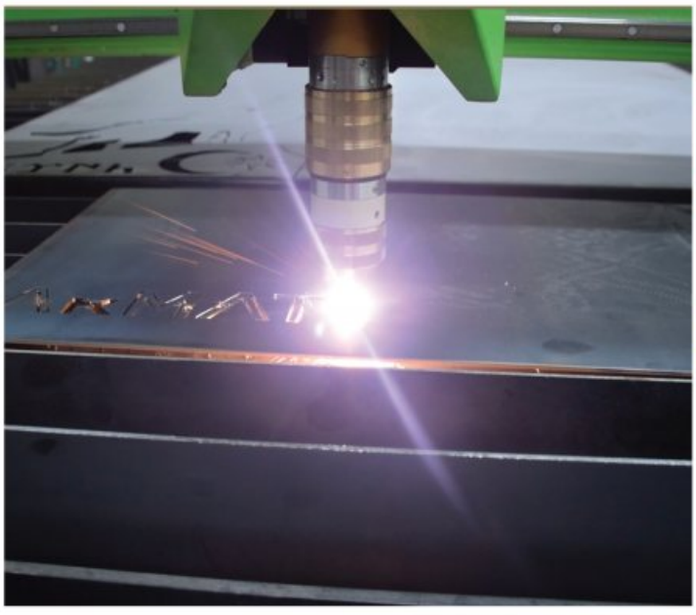
Y, AXIS/SERVO MOTOR BRIDGE (A)	mm	1590	2090	2090
Z, AXIS/SERVO MOTOR CUTTING HEAD	mm	150	150	150
Acceleration	G	2,5 - 3,5	2,5 - 3,5	2,5 - 3,5
Max. Axis speeds	m/min	169 (Result speed) (X,Y single axis speed 120 meters/min)		
Shuttle	Palet	Automatic (Double Pallet)		
Machine dimensions (LxWxH)	mm	9000x3100x2300	11000x3600x2300	15200x3600x2300
Weight ≈	kg	9000	12500	16000
Machine Axis	_	4 Eksen (X,Y,Z,U)		
Positioning accuracy	mm	±0,1		
Repetition accuracy	mm	±0,05		
CNC	_	✓	✓	✓
CAD-CAM Software	_	✓	✓	✓
Network	_	EtherCAT		
Control Panel	_	21-inch touch screen,Industrial type psl. keyboard,PLC keys		

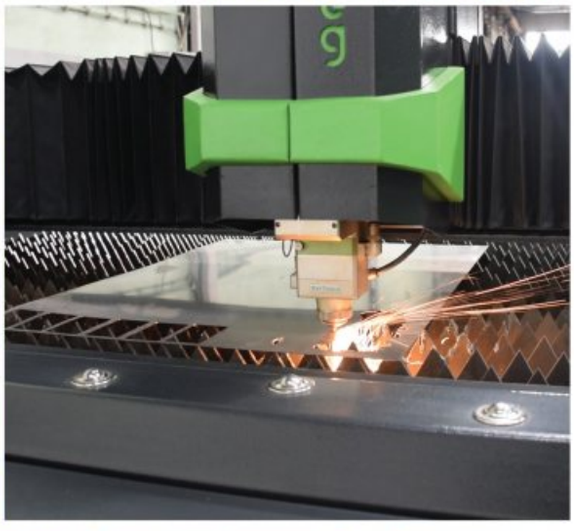
Laser Cutting Thickness & Speed Chart

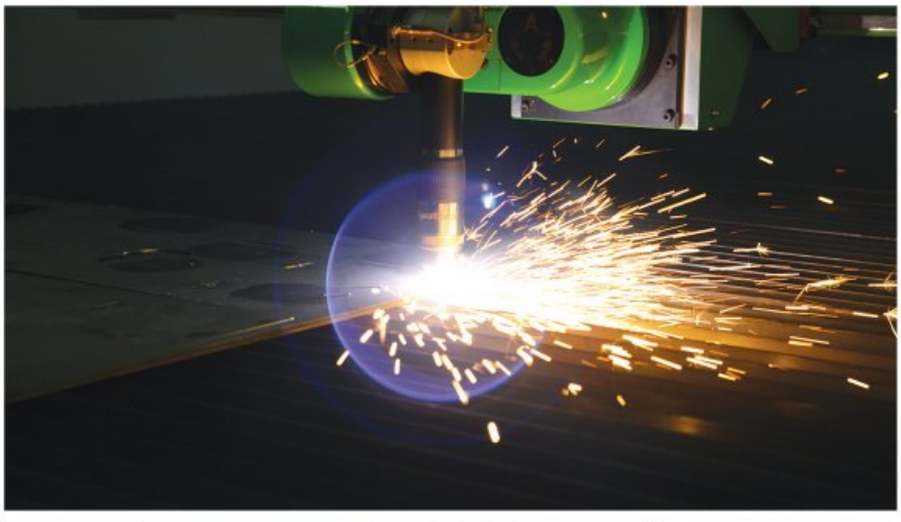
	Thick	500W speed m/min	1000W speed m/min	1500 speed m/min	2000W speed m/min	3000W speed m/min	4000W speed m/min	6000W speed m/min	8000W speed m/min	10000W speed m/min	12000W speed m/min
Carbon Steel (Q235A)	1	7.0–9.0	8.0–10	15–26	24–30	30–40	33–42	35–42	35–42	35–42	35–42
	2	3.0–4.5	4.0–6.5	4.5–7.0	4.7–6.0	4.8–7.5	5.2–8.0	6.0–8.0	6.2–10	7.0–12	10–13
	3	1.8–3.0	2.4–3.0	2.6–4.0	3.0–4.8	3.3–5.0	3.5–5.5	3.8–6.5	4.0–7.0	4.2–7.5	4.5–8.0
	4	1.3–1.5	2.0–2.4	2.5–3.0	2.8–3.5	3.0–4.2	3.1–4.8	3.5–5.0	3.5–5.5	3.5–5.5	3.5–5.5
	5	0.9–1.1	1.5–2.0	2.0–2.5	2.2–3.0	2.6–3.5	2.7–3.6	3.3–4.2	3.3–4.5	3.3–4.5	3.3–4.8
	6	0.6–0.9	1.4–1.6	1.6–2.2	1.8–2.6	2.3–3.2	2.5–3.4	2.8–4.0	3.0–4.2	3.0–4.2	3.0–4.2
	8		0.8–1.2	1.0–1.4	1.2–1.8	1.8–2.6	2.0–3.0	2.2–3.2	2.5–3.5	2.5–3.5	2.5–3.5
	10		0.6–1.0	0.8–1.1	1.1–1.3	1.2–2.0	1.5–2.0	1.8–2.5	2.2–2.7	2.2–2.7	2.2–2.7
	12		0.5–0.8	0.7–1.0	0.9–1.2	1.0–1.6	1.2–1.8	1.2–2.0	1.2–2.1	1.2–2.1	1.2–2.1
	14			0.5–0.7	0.7–0.8	0.9–1.4	0.9–1.2	1.5–1.8	1.7–1.9	1.7–1.9	1.7–1.9
	16				0.6-0.7	0.7–1.0	0.8–1.0	0.8–1.5	0.9–1.7	0.9–1.7	0.9–1.7
	18				0.4–0.6	0.6–0.8	0.65–0.9	0.65–0.9	0.65–0.9	0.65–0.9	0.65–0.9
	20					0.5–0.8	0.6–0.9	0.6–0.9	0.6–0.9	0.6–0.9	0.6–0.9
	22					0.4–0.6	0.5–0.8	0.5–0.8	0.5–0.8	0.5–0.8	0.5–0.8
	25						0.3–0.5	0.3–0.5	0.3–0.7	0.3–0.7	0.3–0.7
Stainless Steel (201)	1	8.0–13	18–25	20–27	24–30	30–35	32–40	45–55	50–66	60–75	70–85
	2	2.4–5.0	7.0–12	8.0–13	9.0–14	13–21	16–28	20–35	30–42	40–55	50–66
	3	0.6–0.8	1.8–2.5	3.0–5.0	4.0–6.5	6.0–10	7.0–15	15–24	20–30	27–38	33–45
	4		1.2–1.3	1.5–2.4	3.0–4.5	4.0–6.0	5.0–8.0	10–16	14–21	18–25	22–32
	5		0.6–0.7	0.7–1.3	1.8-2.5	3.0–5.0	4.0–5.5	8.0–12	12–17	15–22	18–25
	6			0.7–1.0	1.2-2.0	2.0–4.0	2.5–4.5	6.0–9.0	8.0–14.0	12–15	15–21
	8				0.7-1.0	1.5–2.0	1.6–3.0	4.0–5.0	6.0–8.0	8.0–12.0	10–16
	10					0.6–0.8	0.8–1.2	1.8–2.5	3.0–5.0	6.0–8.0	8.0–12
	12					0.4–0.6	0.5–0.8	1.2–1.8	1.8–3.0	3.0–5.0	6.0–8.0
	14						0.4–0.6	0.6–0.8	1.2–1.8	1.8–3.0	3.0–5.0
	20							0.4–0.6	0.6–0.7	1.2–1.8	1.8–3.0
	25								0.5–0.6	0.6–0.7	1.2–1.8
	30								0.4–0.5	0.5–0.6	0.6–0.7
	40									0.4–0.5	0.5–0.6
Aluminum	1	4.0–5.5	6.0–10	10–20	15–25	25–38	35–40	45–55	50–65	60–75	70–85
	2	0.7–1.5	2.8–3.6	5.0–7.0	7–10	10–18	13–25	20–30	25–38	33–45	38–50
	3		0.7–1.5	2.0–4.0	4.0–6.0	6.5–8.0	7.0–13	13–18	20–30	25–35	30–40
	4			1.0–1.5	2.0–3.0	3.5–5.0	4.0–5.5	10–12	13–18	21–30	25–38
	5			0.7–1.0	1.2–1.8	2.5–3.5	3.0–4.5	5.0–8.0	9.0–12	13–20	15–25
	6				0.7–1.0	1.5–2.5	2.0–3.5	4.0–6.0	4.5–8.0	9.0–12	13–18
	8				0.6–0.8	0.7–1.0	0.9–1.6	2.0–3.0	4.0–6.0	4.5–8.0	9.0–12
	10					0.4–0.7	0.6–1.5	1.0–2.0	2.2–3.0	4.0–6.0	4.5–8.0
	12					0.3-0.45	0.4–0.6	0.8–1.4	1.5–2.0	2.2–3.0	4.0–6.0
	16						0.3–0.4	0.6–0.8	1.0–1.6	1.5–2.0	2.2–3.0
	20							0.5–0.7	0.7–1.0	1.0–1.6	1.5–2.0
	25								0.5–0.7	0.7–1.0	1.0–1.6
	35									0.5–0.7	0.7–1.0
Brast	1	4.0–5.5	6.0–10	8.0–13	10–16	20–35	25–30	45–55	55–65	65–75	75–85
	2	0.5–1.0	2.8–3.6	3.0–4.5	4.5–7.5	6.0–10	8.0–12	25–30	30–40	33–45	38–50
	3		0.5–1.0	1.5–2.5	2.5–4.0	4.0–6.0	5.0–6.5	12–18	20–30	25–40	30–50
	4			1.0–1.6	1.5–2.0	3.0-5.0	3.2–5.5	8.0–10	10–18	15–24	25–33
	5			0.5–0.7	0.9–1.2	1.5–2.0	2.0–3.0	4.5–6.0	7.0–9.0	9.0–15	15–24
	6				0.4–0.7	1.0–1.8	1.4–2.0	3.0–4.5	4.5–6.5	7.0–9.0	9.0–15
	8					0.5–0.7	0.7–1.0	1.6–2.2	2.4–4.0	4.5–6.5	7.0–9.0
	10						0.2–0.4	0.8–1.2	1.5–2.2	2.4–4.0	4.5–6.5
	12							0.2–0.4	0.8–1.5	1.5–2.2	2.4–4.0
	14								0.4–0.6	0.6–0.8	0.8–1.5

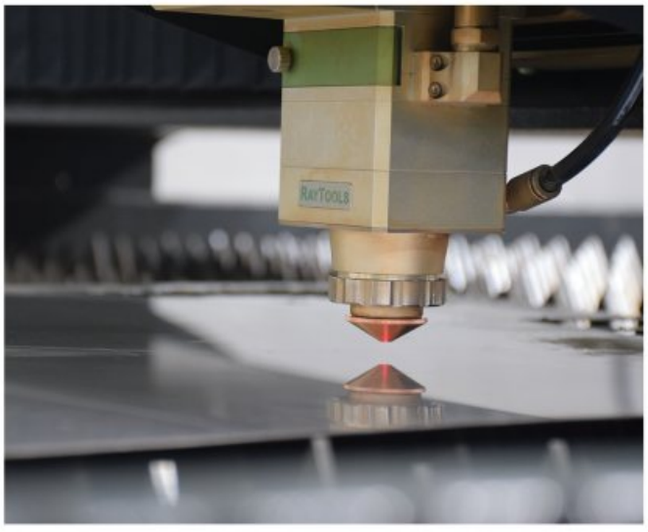
Note: This table data is for reference only!

1. Different fiber optics, material quality, gases, optical lenses, cutting patterns, etc., will affect the cutting speed and need to be adjusted according to site conditions;
2. The yellow part is nitrogen (pure nitrogen) cutting, the green part is oxygen (pure oxygen) cutting;
3. Laser cutting in the processing of the limit material is inefficient and the effect will be reduced, can not be continuous processing;
4. For the cutting of high anti-corrosive materials such as copper and aluminum, attention should be paid to adjusting the process. It is not recommended to continuously process for a long time.







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