

# OptX™ 2kW

## Handheld Laser Welder

Issued April 2025 • Index No. LS/1.0

Laser  
Welding



### Quick Specs

#### Applications

Sheet metal  
Fabrication  
Manufacturing  
Aerospace and defense  
Transportation  
HVAC

#### Processes

Laser welding  
Laser cleaning

#### Laser Output

2,000 W average power, 3,000 W peak power  
Class 4 primary laser: invisible high-power fiber laser (material processing laser for welding/cleaning)  
Class 2M guide laser: visible red guide laser beam (visual aid laser for positioning torch nozzle prior to starting welding/cleaning process)

#### Input Power

32 A, 240 V, single-phase

#### Process Gases

Argon, nitrogen

#### Net Weight

140 lb. (64 kg)

Change the welding game with the OptX handheld laser. Unleash the workforce's welding potential and significantly reduce the learning curve, so any welder can drive output and be productive. Increase throughput with distortion control that eliminates post weld straightening and reduced pre-weld processing.

**NEW!**



#### Highly productive

- High speed welding that is up to four times faster than TIG, with simple material preparation and minimal post-finishing.
- Spot, autogenous and wire welding, along with a cleaning function, provide high-quality, consistent results.
- The OptX wire feeder is designed and manufactured specifically for the handheld laser application, providing consistent results in an industrial setting.

#### Easy to use

- Simple interface with pre-built parameters for welding and cleaning applications provide reliable results for different material types and thicknesses.
- Nearly eliminate the need for pre- and post-weld processing where tight part fit-up is available.

**TRUE BLUE®**  
3YR. WARRANTY

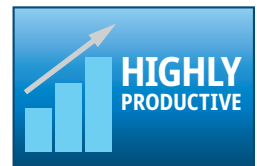
Power source is warranted for three years, parts and labor.



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An ITW Welding Company  
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**MillerWelds.com**  
f X y o i n



# OptX™ 2kW Control Panel



**1. Laser Emission Indicator**

**2. Interlock Indicator**

**3. Weld Gas Indicator**

**4. Error Indicator**

**5. Emergency Stop Button**

**6. Key (Power Switch)**

**7. Laser Power Control and Meter**

Range 0–2,000 W

**8. Mode (Program) Selector**

**9. Wobble Frequency Control and Meter**

Range 0–300 Hz

**10. Wobble Length Control and Meter**

Range 0–0.59 in. (0–15 mm)

## OptX™ Wire Feeder Control Panel



1. Retract
2. Power Switch
3. Wire Feed Speed  
Range 5–80 ipm
4. Toggle Switch
  - a. Left: Manual Wire Retract
  - b. Right: Manual Wire Jog
  - c. Right (Double Click): Auto Wire Load

# Specifications (Subject to change without notice.)

## OptX 2kW Power Source

Mode	Input Power	Output	Rated Output at 100% Duty Cycle	Amps Input at Rated Output, 50/60 Hz			Dimensions (H x W x D)	Net Weight
Laser Welding and Cleaning	1-phase	2 kW	2 kW at 30°C	32	6	5.85	21 x 12.4 x 25.2 in. (533 x 315 x 640 mm)	140 lb. (64 kg)

## OptX Wire Feeder

Input Power	Wire Feed Speed	Wire Diameter Capacity	Spool Size Capacity	Dimensions (H x W x D)	Net Weight
120 VAC, 3.5 A, 50/60 Hz	5–80 ipm (0.127–2.032 m/min.)	.023–5/64 in. (0.6–2.0 mm) .045 in. (1.1 mm) recommended	8 in. (203 mm) and 12 in. (305 mm)	16 x 12.375 x 27.875 in. (406 x 314 x 708 mm)	46 lb. (21 kg)

## OptX™ 2kW Performance Data

Metal	Material Thickness Range (Wire Autogenous)	Spot Welding Penetration Depth	Laser Welding Travel Speed	Shielding Gas Required
Steel/Stainless Steel	20 gauge–1/4 in.	20 gauge–1/4 in.	15–20 ipm (0.3–0.5 mpm)	Nitrogen
Aluminum	20 gauge–1/4 in.	20 gauge–1/4 in.		Argon
Copper	18 gauge–1/8 in.	18 gauge–1/8 in.		Nitrogen

## Welding and Cleaning Parameters

### Steel/Stainless Steel Parameters

Metal	Shielding Gas	Weld Type	Wire Size	Program	Power /WFS								
					20 gauge	18 gauge	16 gauge	14 gauge	12 gauge	1/8 inch	3/16 inch	1/4 inch	5/16 inch
Steel	100% nitrogen	Spot	–	A3	210 / –	270 / –	330 / –	420 / –	660 / –	850 / –	1,360 / –	1,990 / –	– / –
		Autogenous	–	A4	310 / –	390 / –	470 / –	620 / –	750 / –	970 / –	1,480 / –	1,940* / –	2,000* / –
		Wire ER70S-6	.045 in.	A5	520 / 15	600 / 15	720 / 15	920 / 15	1,300 / 15	1,550 / 15	2,000 / 10	2,000* / 5	– / –
			1/16 in.	A6	– / –	800 / 15	980 / 15	1,170 / 15	1,600 / 15	1,860 / 12	1,950* / 8	– / –	– / –
Stainless steel	100% nitrogen	Spot	–	A0	210 / –	270 / –	340 / –	430 / –	700 / –	780 / –	1,150 / –	1,750 / –	– / –
		Autogenous	–	A1	310 / –	390 / –	470 / –	620 / –	800 / –	970 / –	1,480 / –	1,940* / –	2,000* / –
		Wire 308L	.045 in.	A2	480 / 15	540 / 15	640 / 15	820 / 15	1,360 / 15	1,660 / 15	2,000 / 10	2,000* / 5	– / –
			1/16 in.	A8	– / –	800 / 15	980 / 15	1,170 / 15	1,600 / 15	1,860 / 12	1,900* / 8	– / –	– / –
Steel/stainless steel	100% nitrogen	Cleaning	–	C0	Low (Default Setting: 800 W, 15 mm)								
				C1	Medium (Default Setting: 900 W, 15 mm)								
				C2	High (Default Setting: 1,000 W, 15 mm)								

Notes: Recommended retract for .045 in. wire is 0.45 in. and 1/16 in. wire is 0.65 in. All parameters are suggested settings. Additional adjustments may be required.

\*Wobble Frequency set at -25.

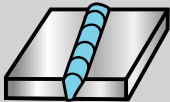
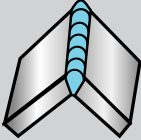
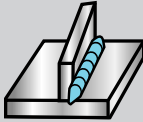
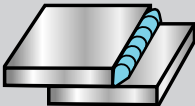
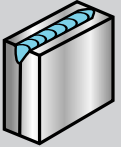
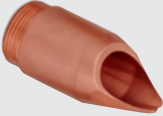
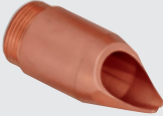
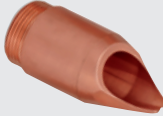
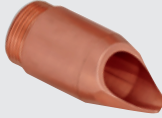
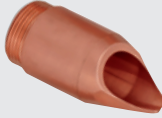
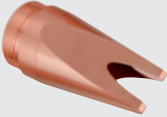


### Aluminum Parameters

Metal	Shielding Gas	Weld Type	Wire Size	Program	Power /WFS								
					20 gauge	18 gauge	16 gauge	14 gauge	12 gauge	1/8 inch	3/16 inch	1/4 inch	5/16 inch
Aluminum 6XXX	100% argon	Spot	–	F3	– / –	300* / –	400 / –	480 / –	600 / –	950 / –	1,500 / –	– / –	– / –
		Autogenous	–	F4	– / –	300 / –	400 / –	480 / –	600 / –	900 / –	1,400 / –	– / –	– / –
		Wire 5356	.047 in.	F5	– / –	500 / 20	600 / 20	750 / 20	900 / 20	1,700 / 20	2,000** / 8	– / –	– / –
			1/16 in.	F6	– / –	– / –	650 / 20	750 / 20	1,050 / 20	1,500 / 20	– / –	– / –	– / –
Aluminum 5XXX	100% argon	Spot	–	F0	– / –	300* / –	380 / –	450 / –	550 / –	900 / –	1,600 / –	– / –	– / –
		Autogenous	–	F1	– / –	300 / –	400 / –	450 / –	600 / –	900 / –	1,350* / –	1,750* / –	– / –
		Wire 5356	.047 in.	F2	– / –	500 / 20	600 / 20	750 / 20	900 / 20	1,650 / 20	2,000 / 10	2,000** / 8	– / –
			1/16 in.	F7	– / –	– / –	620 / 20	750 / 20	950 / 20	1,400 / 20	2,000 / 8	– / –	– / –
Aluminum 6XXX/ 5XXX	100% argon	Cleaning	–	H0	Low (Default Setting: 1,200 W, 15 mm)								
				H1	Medium (Default Setting: 1,300 W, 15 mm)								
				H2	High (Default Setting: 1,400 W, 15 mm)								

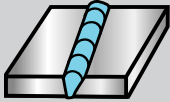
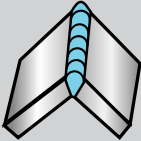
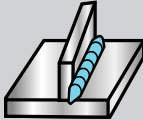
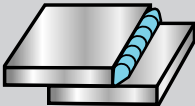
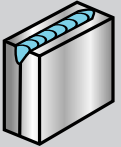
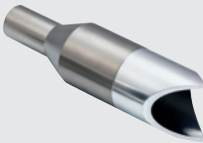
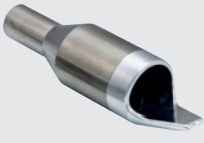


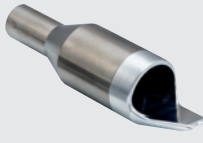
Notes: Recommended retract for .047 in. wire is 0.45 in. and 1/16 in. wire is 0.65 in. All parameters are suggested settings. Additional adjustments may be required.

\*Wobble Frequency set at -25. \*\* Wobble Length set at -2.

## Welding Nozzle Selection

Butt Joint	Corner Joint	T Joint	Lap Joint	Edge Joint
				
				
<b>301812</b> 1-point <b>301815</b> Wire feed	<b>301812</b> 1-point <b>301815</b> Wire feed	<b>301812</b> 1-point <b>301815</b> Wire feed	<b>301812</b> 1-point <b>301815</b> Wire feed	<b>301812</b> 1-point <b>301815</b> Wire feed
				
<b>301813</b> 2-point (6 mm) <b>301814</b> 2-point (9 mm)		<b>301811</b> Conical	<b>301813</b> 2-point (6 mm) <b>301814</b> 2-point (9 mm)	

## Cleaning Nozzle Selection

Butt Joint	Corner Joint	T Joint	Lap Joint	Edge Joint
				
				
<b>301821</b> 2-point	<b>301819</b> Outer corner	<b>301820</b> 1-point	<b>301820</b> 1-point	<b>301819</b> Outer corner



## OptX™ 2kW Package



### 951000109 package includes:

- OptX 2kW laser machine
- OptX wire feeder
- OptX laser torch
- 11-foot (3.4 m) conduit wire, steel
- 11-foot (3.4 m) conduit wire, aluminum
- OptX accessory kit consisting of:
  - OptX carbon fiber laser welding helmet
  - OptX standard laser safety glasses
  - OptX torch cradle
  - OptX torch cover
  - Welding nozzles (set of 5)
  - Cleaning nozzles (set of 3)
  - Contact tips
  - Protective windows with o-rings (5-pack of each)
  - 10-foot (3 m) Cat 6 Ethernet cable
  - Additional components and tools
- OptX hardware kit consisting of:
  - Work-sense clamp
  - Smith regulator (30-150-580)
  - 5-foot (1.5 m) gas hose
  - .045 in. V-groove 4-roll drive roll kit
  - .047 in. U-groove 4-roll drive roll kit
  - Trigger cable

## Genuine Miller® Accessories



### OptX™ Carbon Fiber Laser Welding Helmet 301829

This lightweight, carbon fiber helmet was developed specifically for the OptX handheld laser system to protect against 1070 nm infrared laser light.



### OptX™ Laser Safety Glasses

**301830** Standard glasses

**301831** Oversized frame

Polycarbonate glasses rated for OD 7 or greater at 1070 nanometers.



### OptX™ Cart 301792

Provides a sturdy foundation for your OptX handheld laser welder, OptX wire feeder and two gas bottles. With plenty of storage for accessories, consumables and PPE, the rugged wheels allow for the ability to move the system around.



### OptX™ Torch Cradle 301803

Magnetic cradle used to support the OptX torch head. Attached to metal tabletop or OptX cart for easy storage.



### OptX™ Torch Cover 301798

Rubber cover that helps protect the torch assembly from impact.



### Work-Sense Clamp 296162

Ensures continuity between the laser torch nozzle and the workpiece.



### Welding Nozzles

**301811** Conical

**301812** 1-point

**301813** 2-point (6 mm)

**301814** 2-point (9 mm)

**301815** Wire feed

**301832** Set of five — conical, 1-point, 2-point (6 mm and 9 mm) and wire feed



### Cleaning Nozzles

**301819** Outside corner

**301820** 1-point

**301821** 2-point

**301833** Set of three — outside corner, 1-point and 2-point



### OptX™ Contact Tips (Package of 10)

**301822** .045–.047 in. (1.2 mm)

**301845** 1/16 in. (1.6 mm)



### Protective Window (5-pack) 301823

Used to protect the laser optics from debris in the OptX torch.



### Ethernet Cable 301810

Used to connect a PC to the OptX power source for online access to customizing parameter settings and troubleshooting.



### Performance TIG Gloves

**263346** Small

**263347** Medium

**263348** Large

**263349** X-Large  
Completely unlined, goat grain leather with triple-padded palm.



### Grain Leather Jacket

**231090** Large

**231091** X-Large

**231092** 2X-Large

Top-grain pigskin leather with flame-resistant inside cuff, satin lining and tapered, athletic cut. Sewn entirely with Kevlar® thread, adding structural durability at each seam.

## Feeder Consumables

Wire Size	Wire Type	Guide Conduit	V-Groove Drive Rolls	U-Groove Drive Rolls
.045 in. (1.1 mm)	Steel	<b>301809</b>	<b>301825 (kit)</b>	—
.047 in. (1.2 mm)	Aluminum	<b>301808</b>	—	<b>301826 (kit)</b>
1/16 in. (1.6 mm)	Steel	<b>301834</b>	<b>301843 (kit)</b>	—
1/16 in. (1.6 mm)	Aluminum	<b>301835</b>	—	<b>301844 (kit)</b>

## Ordering Information

Package	Stock No.	Description	Qty.	Price
<b>OptX™ 2KW Package</b>	<b>951000109</b>	See page 6 for package contents		
<b>Accessories</b>				
OptX™ Carbon Fiber Laser Welding Helmet	<b>301829</b>			
OptX™ Laser Safety Glasses	<b>301830</b> <b>301831</b>	Standard glasses Oversized frame		
OptX™ Cart	<b>301792</b>			
OptX™ Torch Cradle	<b>301803</b>			
OptX™ Torch Cover	<b>301798</b>			
Work-Sense Clamp	<b>296162</b>			
Welding Nozzles		See page 7		
Cleaning Nozzles		See page 7		
Contact Tips		See page 7		
Protective Window (5-pack)	<b>301823</b>			
Ethernet Cable	<b>301810</b>			
Performance TIG Gloves		See page 7		
Grain Leather Jacket		See page 7		
OptX™ Wire Delivery Guide Attachment	<b>301806</b>			
OptX™ Wire Delivery Guide Adapter	<b>301807</b>	For conduit to attachment		
OptX™ 11-Foot Liner	<b>301796</b> <b>301795</b> <b>301836</b> <b>301837</b>	For 0.045 in. steel For 0.047 in. aluminum For 1/16 in. steel For 1/16 in. aluminum		
1/16-Inch Conversion Kits	<b>301827</b>  <b>301828</b>	Steel kit: 1/16 in. steel wire conduit (11 ft. length), 1/16 in. V-groove drive roll kit, and 1/16 in. contact tips (10-pack) Aluminum kit: 1/16 in. aluminum wire conduit (11 ft. length), 1/16 in. U-groove drive roll kit, and 1/16 in. contact tips (10-pack)		
OptX™ Focus Lens Installation Tool	<b>301794</b>			
OptX™ Nozzle Protective Cap	<b>301799</b>			
OptX™ Nozzle Extension	<b>301817</b> <b>301816</b>	Steel Aluminum		
OptX™ Nozzle Tube	<b>301818</b>	58 mm		
<b>Feeder Consumables</b>				
OptX™ 11-Foot Conduit Wire	<b>301809</b> <b>301808</b> <b>301834</b> <b>301835</b>	For 0.045 in. steel For 0.047 in. aluminum For 1/16 in. steel For 1/16 in. aluminum		
V-Groove 4-Drive Roll Kit for Steel Wire	<b>301825</b> <b>301843</b>	.045 in. Includes inlet wire guide and intermediate wire guide 1/16 in. Includes inlet wire guide and intermediate wire guide		
U-Groove 4-Drive Roll Kit for Aluminum Wire	<b>301826</b> <b>301844</b>	.047 in. Includes inlet wire guide and intermediate wire guide 1/16 in. Includes inlet wire guide and intermediate wire guide		

Date:

Total Quoted Price:

Call us toll-free at 866-931-9730 or email us at [PWSService@millerwelds.com](mailto:PWSService@millerwelds.com) for additional information on safety and laser processes.

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