

# OptX™ 2kW

## Handheld Laser Welder



### QUICK SPECS

#### Applications

Sheet metal  
Fabrication  
Manufacturing  
Aerospace and defense  
Transportation  
HVAC

**Processes** Laser welding and 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

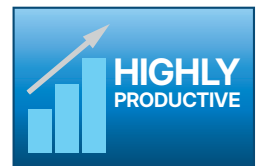
#### Process Gases

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.



#### 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 that 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.



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



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An ITW Welding Company  
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**MillerWelds.com**  
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# 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
				240 V	KVA	KW		
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 inch	18 gauge–1/8 inch		Nitrogen

## Welding and Cleaning Parameters

### Steel/Stainless Steel Parameters

METAL	SHIELDING GAS	WELD TYPE	WIRE SIZE	PROGRAM	POWER/WFS								
					20 GA.	18 GA.	16 GA.	14 GA.	12 GA.	1/8 IN.	3/16 IN.	1/4 IN.	5/16 IN.
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 GA.	18 GA.	16 GA.	14 GA.	12 GA.	1/8 IN.	3/16 IN.	1/4 IN.	5/16 IN.
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
301812 1-point 301815 Wire feed	301812 1-point 301815 Wire feed	301812 1-point 301815 Wire feed	301812 1-point 301815 Wire feed	301812 1-point 301815 Wire feed
301813 2-point (6 mm) 301814 2-point (9 mm)		301811 Conical	301813 2-point (6 mm) 301814 2-point (9 mm)	

# Cleaning Nozzle Selection

Butt Joint	Corner Joint	T Joint	Lap Joint	Edge Joint
301821 2-point	301819 Outer corner	301820 1-point	301820 1-point	301819 Outer corner

# OptX™ 2kW Packages

## OptX 2kW Package

951000109

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



## OptX 2kW Ready-to-Weld Package

951000240

Includes

- OptX 2kW Package (see contents above)
- OptX laser welding enclosure (see below)
- OptX door interlock switch, 2NC, 32 ft. 301804



# Genuine Miller® Accessories



**OptX™ Laser Welding Enclosure 301902**  
8 x 8 foot laser welding enclosure rated up to 2,500 W/cm<sup>2</sup>. For use with all OptX products.

**OptX™ Laser Welding Enclosure Panel 301904**

48 x 92 inch laser welding panel rated up to 2,500 W/cm<sup>2</sup>. For use with all OptX products.



**OptX™ Carbon Fiber Laser Welding Helmet 301901**  
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 1,070 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™ Process Validation Fixture 301878**  
Easily check the integrity of the protective window (301823) and focus lens (301802) to provide ongoing validation of laser power delivery.



**OptX™ Torch Cover 301798**  
Rubber cover that helps protect the torch assembly from impact.



**Work-Sense Clamp 301793**  
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 (10-pack)**  
**301822** .045–.047 in. (1.2 mm)  
**301845** 1/16 in. (1.6 mm)



**Protective Windows (5-pack) 301823**  
Used to protect the laser optics from debris in the OptX torch.



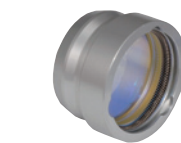
**Ethernet Cable 301810**  
Used to connect a PC to the OptX power source for online access to customizing parameter settings and troubleshooting.



**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.



**OptX™ Focus Lens Assembly 301802**  
Replacement focus lens ensures consistent weld performance with OptX systems. Focus lens installation tool (301794) required for installation.

## 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

POWER SOURCE PACKAGES	STOCK NO.	DESCRIPTION	QTY.	PRICE
<b>OptX™ 2kW Package</b>	<b>951000109</b>	See page 6 for contents		
<b>OptX™ 2kW Ready-to-Weld Package</b>	<b>951000240</b>	See page 6 for contents		
<b>Accessories</b>				
OptX™ Laser Welding Enclosure	<b>301902</b>			
OptX™ Laser Welding Enclosure Panel	<b>301904</b>			
OptX™ Carbon Fiber Laser Welding Helmet	<b>301901</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™ Process Validation Fixture	<b>301878</b>			
OptX™ Torch Cover	<b>301798</b>			
Work-Sense Clamp	<b>301793</b>			
Welding Nozzles		See page 7		
Cleaning Nozzles		See page 7		
Contact Tips		See page 7		
Protective Windows (5-pack)	<b>301823</b>			
Ethernet Cable	<b>301810</b>			
Performance TIG Gloves		See page 7		
Grain Leather Jacket		See page 7		
OptX™ Focus Lens Assembly	<b>301802</b>			
OptX™ Focus Lens Installation Tool	<b>301794</b>			
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 .045 in. steel For .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™ 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 .045 in. steel For .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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