

OptX™ 1kW

Handheld Laser Welder

Issued April 2025 • Index No. LS/2.0

Laser
Welding



Quick Specs

Applications

Sheet metal
Fabrication
Manufacturing
Aerospace and defense
Transportation
HVAC

Processes

Laser welding

Laser Output

1,000 W average power, 1,500 W peak power
Class 4 primary laser: invisible high-power fiber laser (material processing laser for welding)
Class 2M guide laser: visible red guide laser beam (visual aid laser for positioning torch nozzle prior to starting welding process)

Input Power

20 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 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 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.

CUSTOM MILLER
PROGRAMS



INDUSTRIAL
MILLER
OptX
WIRE FEEDER

HIGHLY
PRODUCTIVE

EASY TO SET UP
AND USE



REDUCED
TRAINING TIME



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An ITW Welding Company
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MillerWelds.com



OptX™ 1kW 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 0–1,000 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 1kW 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	1-phase	1 kW	1 kW at 30°C	240 V	KVA	KW	21 x 12.4 x 25.2 in. (533 x 315 x 640 mm)	140 lb. (64 kg)
				20	6	5.85		

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™ 1kW Performance Data

Metal	Material Thickness Range (Wire Autogenous)	Spot Welding Penetration Depth	Laser Welding Travel Speed	Shielding Gas Required
Steel/Stainless Steel	20–12 gauge	20–12 gauge	15–20 ipm (0.3–0.5 mpm)	Nitrogen
Aluminum	20–12 gauge	20–12 gauge		Argon
Copper	18–14 gauge	18–14 gauge		Nitrogen

Welding 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
Steel	100% nitrogen	Spot	–	A3	210 / –	270 / –	330 / –	420 / –	660 / –	850 / –
		Autogenous	–	A4	310 / –	390 / –	470 / –	620 / –	750 / –	970 / –
		Wire ER70S-6	.045 in.	A5	520 / 15	600 / 15	720 / 15	920 / 15	1,000 / 10	– / –
Stainless steel	100% nitrogen	Spot	–	A0	200 / –	270 / –	340 / –	430 / –	700 / –	780 / –
		Autogenous	–	A1	310 / –	390 / –	470 / –	620 / –	800 / –	970 / –
		Wire 308L	.045 in.	A2	480 / 15	540 / 15	640 / 15	820 / 15	1,000 / 12	– / –

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

*Wobble Frequency set at -25.

Aluminum Parameters

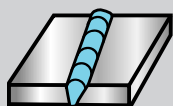
Metal	Shielding Gas	Weld Type	Wire Size	Program	Power /WFS					
					20 gauge	18 gauge	16 gauge	14 gauge	12 gauge	1/8 inch
Aluminum 6XXX	100% argon	Spot	–	F3	– / –	300* / –	400 / –	480 / –	600 / –	950 / –
		Autogenous	–	F4	– / –	300 / –	400 / –	480 / –	600 / –	900 / –
		Wire 5356	.047 in.	F5	– / –	500 / 20	600 / 20	750 / 20	900 / 20	– / –
Aluminum 5XXX	100% argon	Spot	–	F0	– / –	300* / –	380 / –	450 / –	550 / –	900 / –
		Autogenous	–	F1	– / –	300 / –	400 / –	450 / –	600 / –	900 / –
		Wire 5356	.047 in.	F2	– / –	500 / 20	600 / 20	750 / 20	900 / 20	– / –

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

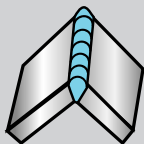
*Wobble Frequency set at -25.

Welding Nozzle Selection

Butt Joint



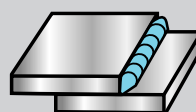
Corner Joint



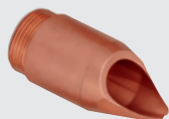
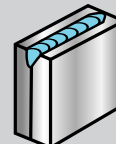
T Joint



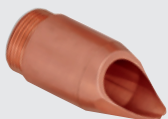
Lap Joint



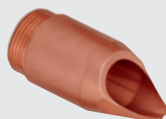
Edge Joint



301812 1-point
301815 Wire feed



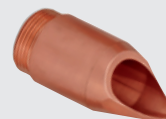
301812 1-point
301815 Wire feed



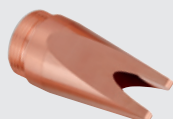
301812 1-point
301815 Wire feed



301812 1-point
301815 Wire feed



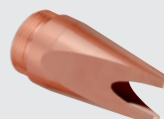
301812 1-point
301815 Wire feed



301813 2-point (6 mm)
301814 2-point (9 mm)



301811 Conical



301813 2-point (6 mm)
301814 2-point (9 mm)

OptX™ 1kW Package



951000204 package includes:

- OptX 1kW laser machine
- OptX wire feeder
- OptX laser torch
- 11-foot (3.4 m) conduit wire, steel
- 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)
 - 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
 - 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



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	301809	301825 (kit)	—
.047 in. (1.2 mm)	Aluminum	301808	—	301826 (kit)

Ordering Information

Package	Stock No.	Description	Qty.	Price
OptX™ 1KW Package	951000204	See page 6 for package contents		
Accessories				
OptX™ Carbon Fiber Laser Welding Helmet	301829			
OptX™ Laser Safety Glasses	301830 301831	Standard glasses Oversized frame		
OptX™ Cart	301792			
OptX™ Torch Cradle	301803			
OptX™ Torch Cover	301798			
Work-Sense Clamp	296162			
Welding Nozzles		See page 7		
Contact Tips		See page 7		
Protective Window (5-pack)	301823			
Ethernet Cable	301810			
Performance TIG Gloves		See page 7		
Grain Leather Jacket		See page 7		
OptX™ Wire Delivery Guide Attachment	301806			
OptX™ Wire Delivery Guide Adapter	301807	For conduit to attachment		
OptX™ 11-Foot Liner	301796 301795	For .045 in. steel For .047 in. aluminum		
OptX™ Focus Lens Installation Tool	301794			
OptX™ Nozzle Protective Cap	301799			
OptX™ Nozzle Extension	301817 301816	Steel Aluminum		
OptX™ Nozzle Tube	301818	58 mm		
Feeder Consumables				
OptX™ 11-Foot Conduit Wire	301809 301808	For .045 in. steel For .047 in. aluminum		
V-Groove 4-Drive Roll Kit for Steel Wire	301825	.045 in. Includes inlet wire guide and intermediate wire guide		
U-Groove 4-Drive Roll Kit for Aluminum Wire	301826	.047 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 for additional information on safety and laser processes.

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