

OptX™ 1kW

Handheld Laser Welder



QUICK SPECS

Applications

Sheet metal
Fabrication
Manufacturing
Aerospace and defense
Transportation
HVAC

Process 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.



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 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.

CUSTOM MILLER
PROGRAMS



INDUSTRIAL
MILLER
OptX
WIRE FEEDER

HIGHLY
PRODUCTIVE

EASY TO SET UP
AND USE



REDUCED
TRAINING TIME



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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Appleton, WI 54912-1079 USA

Equipment Sales US and Canada
Phone: 866-931-9730
International Phone: 920-735-4554

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
				240 V	KVA	KW		
Laser welding	1-phase	1kW	1kW at 30°C	20	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™ 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.

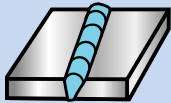
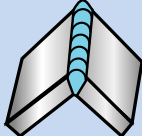
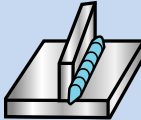
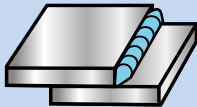
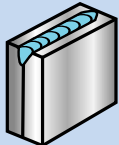
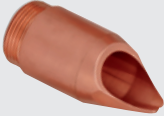
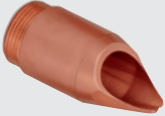
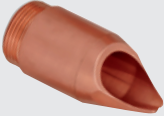
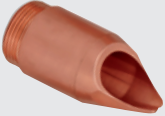
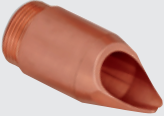
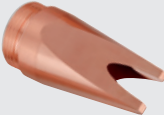
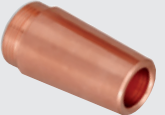
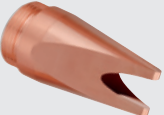
Aluminum Parameters

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
				
				
<p>301812 1-point 301815 Wire feed</p>	<p>301812 1-point 301815 Wire feed</p>	<p>301812 1-point 301815 Wire feed</p>	<p>301812 1-point 301815 Wire feed</p>	<p>301812 1-point 301815 Wire feed</p>
				
<p>301813 2-point (6 mm) 301814 2-point (9 mm)</p>		<p>301811 Conical</p>	<p>301813 2-point (6 mm) 301814 2-point (9 mm)</p>	

OptX™ 1kW Packages

OptX 1kW Package

951000204

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



OptX 1kW Ready-to-Weld Package

951000239

Includes

- OptX 1kW 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/cm². 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/cm². 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.



Standard

Oversized

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



OptX™ Contact Tips (10-pack) 301822 .045–.047 in. (1.2 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	301809	301825 (kit)	—
.047 in. (1.2 mm)	Aluminum	301808	—	301826 (kit)

Ordering Information

POWER SOURCE PACKAGES	STOCK NO.	DESCRIPTION	QTY.	PRICE
OptX™ 1KW Package	951000204	See page 6 for contents		
OptX™ 1KW Ready-to-Weld Package	951000239	See page 6 for contents		
Accessories				
OptX™ Laser Welding Enclosure	301902			
OptX™ Laser Welding Enclosure Panel	301904			
OptX™ Carbon Fiber Laser Welding Helmet	301901			
OptX™ Laser Safety Glasses	301830 301831	Standard glasses Oversized frame		
OptX™ Cart	301792			
OptX™ Torch Cradle	301803			
OptX™ Process Validation Fixture	301878			
OptX™ Torch Cover	301798			
Work-Sense Clamp	301793			
Welding Nozzles		See page 7		
Contact Tips		See page 7		
Protective Windows (5-pack)	301823			
Ethernet Cable	301810			
Performance TIG Gloves		See page 7		
Grain Leather Jacket		See page 7		
OptX™ Focus Lens Assembly	301802			
OptX™ Focus Lens Installation Tool	301794			
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™ 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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