OptX™ 1kW

Handheld Laser Welder

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.

CUSTOM MILLER PROGRAMS
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INDUSTRIAL MILLER OptX WIRE FEEDER

HIGHLY PRODUCTIVE

EASY TO SET UP AND USE
EASY

REDUCED TRAINING TIME

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 warrantied for three years, parts and labor.

Miller

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

MillerWelds.com

Certified System™
ISO 9001
Quality

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 240 V	KVA	KW	Dimensions (H x W x D)	Net Weight
Laser Welding	1-phase	1 kW	1 kW 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.
*Wobble Frequency set at -25.
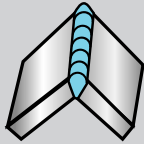
Aluminum Parameters

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.
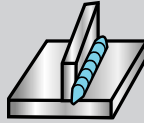*Wobble Frequency set at -25.

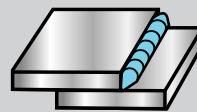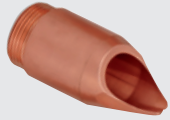Miller.

Welding Nozzle Selection
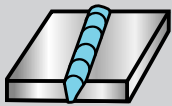
Butt Joint	Corner Joint	T Joint	Lap Joint	Edge Joint
301812 1-point **301815** Wire feed	**301812** 1-point **301815** Wire feed	**301812** 1-point **301815** Wire feed	**301812** 1-point **301815** Wire feed	**301812** 1-point **301815** Wire feed
301813 2-point (6 mm) **301814** 2-point (9 mm)		**301811** Conical	**301813** 2-point (6 mm) **301814** 2-point (9 mm)	
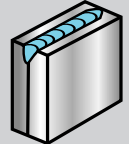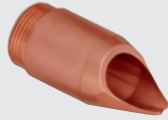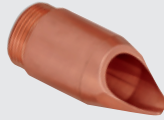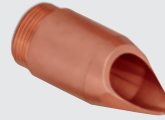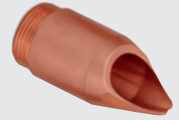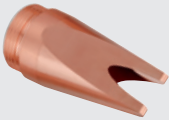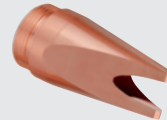
951000204 package includes:

- 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.

Oversized

Standard

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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