JASIC®

HANDHELD FIBRE LASER WELDING SYSTEM

WILKINSON STAR

2 Year Warranty*

A Brief Introduction To Handheld Fibre Laser Welding

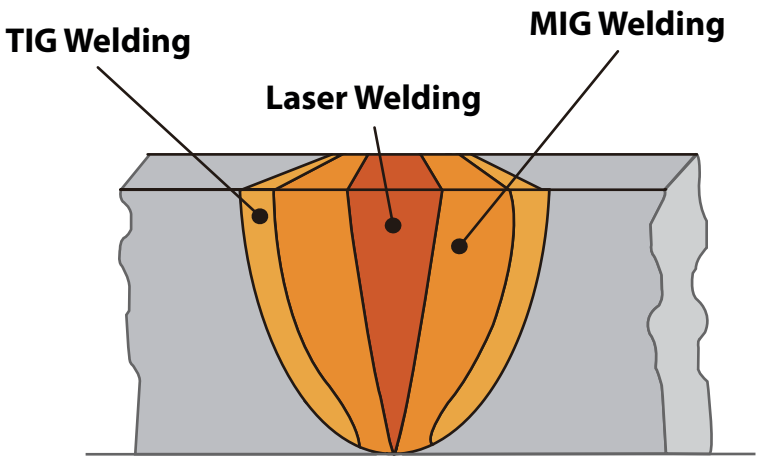
Fibre laser is an emerging technology within the sheet metal fabrication industry that uses a laser beam to melt and join metals.

Fibre laser technology is a great supplement to conventional welding methods in many fabrication applications and can offer advantages over conventional welding methods.

It delivers excellent welding results at low production costs when compared with conventional welding methods. As the challenges of the metal fabrication industry grow, this new technology can significantly improve fabricators efficiency and profitability in a competitive landscape where fast project delivery and effective cost control is vital.

This technology is much more precise than MIG/TIG with faster welding speeds, uniform weld beads and minimal material distortion thanks to the limited heat affected zone (HAZ).

Comparison of HAZ



In Comparison To Other Types Of Welding Technologies...

Welding Technology		Arc Welding	Solid YAG Laser	CW Handheld Fibre Laser
Welding Experience	Heat input	High	Low	Low
	Distortion	High	Low	Low
	Weld seam processing	Fillet	Fillet	Variable
	Post weld processing	Yes	Yes	No
	Welding speed	Low	Medium	High
	Ease of use	Low	High	High
Sustainability	Hazard to people	High	Low	Low
	Pollution to environment	High	High	Low
Cost	Consumables	Electrode/Welding wire/Shielding gas	Crystal, Xenon gas	Shielding gas
	Energy efficiency	High	Low	High
	Skill requirement	High	Moderate	Low
	Footprint	Small	Large	Small

Why JASIC Handheld Fibre Laser Welding?

High Welding Efficiency

- Up to 10x faster than manual TIG welding
- Very limited spatter thus little post-weld cleaning needed
- Little need for rework thanks to minimal porosity, undercut or distortion

High Energy Efficiency

- CW (continuous wave) laser with 40+% electro-optical conversion efficient, 10x that of a solid YAG laser

Cost Efficient

- Minimal welding expertise needed, cut down costs incurred from experienced welders
- Almost 0 maintenance need for key component, pump source has over 100k hours life span

2 - Year Warranty

- Comprehensive quality assurance

High Usability

- New industrial design featuring better ergonomics, flexibility and reliability
- Colour touch screen control panel with intuitive user interface
- Comprehensive job parameter settings
- Small foot print, great mobility and flexibility

New Industrial Design Featuring Better Ergonomics, Flexibility & Reliability

Our product boasts dependability due to strengthened casing and improved wiring layout. It offers user friendly operation with its compact size and reduced weight. Large Castors and a well designed handle provide ease of use.

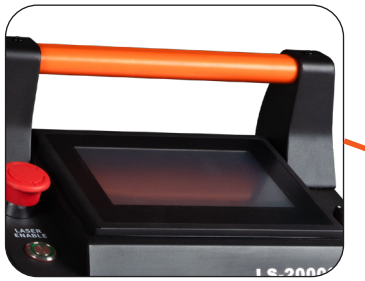
4 Roller Wire Feeders

Single Wire Feeder

- Robust and durable frame structure
- Digital display panel with high visibility
- 4 roller wire feeder delivers smooth and stable feeding

Dual Wire Feeder

- Colour LCD touch screen control panel
- 4 roller wire feeder delivers smooth and stable feeding
- Dual wire feeding for higher deposition rate



Improved user interface enhances user experience

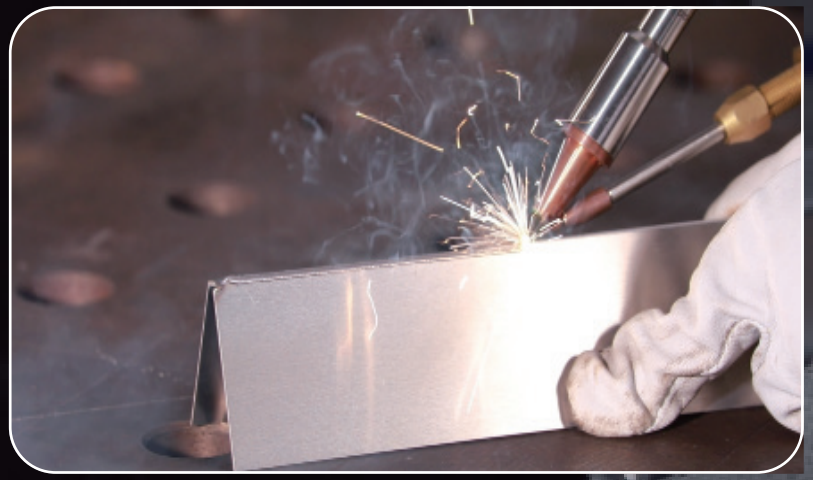
Handle design makes it easier to carry and transport

Easy access front door slot for storing accessories

Large self-locking castors for greater mobility

Handheld Fibre Laser Machine

A turnkey solution for fast sheet metal fabrication. On top of its versatiity, this system also possesses characteristics in efficiency and in ease of use



Welding

Rapid and consistent weld seam formation, limited training and little post-weld cleaning needed.

Cleaning

Easily switch to cleaning mode by simply changing the operation mode on the interface and replacing the nozzle on the torch for contact weld seam cleaning up to 10mm.

Safety

Hand Held Fibre Laser Welding Safety Guidance

Lasers are classified into several classes depending on the level of hazard they present and the risk to the operator and others within the surrounding area, with the highest Class 4 representing the most hazardous lasers available. EN-60825-1 outlines the classification and safety guidance of laser products.

Handheld fibre laser welding machines are classified as hazardous, Class 4 laser products, but with the required PPE to protect the operator and a purpose built Kyrus Automation Class 4 laser welding enclosure, this technology is safe to use. Users can enjoy the many benefits that handheld fibre laser welding offers over traditional welding methods.

The difference between laser welding and traditional arc welding processes is that laser energy is used instead of an electrical arc to form the weld pool. As such, additional/process specific safety measures must be considered when operating this equipment.

It is mandatory that businesses with class 4 laser appliances on site have carried out a suitable and sufficient risk assessment and have appointed a competent person to undertake these tests. It is advised that the company has a Laser Safety Officer (LSO) or a Laser Protection Advisor (LPA).

Laser Radiation

Exposure to laser light can inflict severe retina and/or cornea injuries leading to permanent eye damage and may cause skin damage. Some laser light is invisible. Safety protocols must be followed to prevent accidental exposure to invisible, direct and reflected beams. The system must only be operated in a Laser Controlled Area.

Personal Protection

Appropriately certified eyewear must be worn which is suitable for the laser output wavelength, by both the operator and anyone within the enclosed working environment. The standards for such protection are governed by EN-207:2017.

The key aspects of eye and face protection when using a class 4 laser are the LB and OD ratings. The Laser Barrier (LB) rating is reference to the level of protection the face shield or glasses can provide against a direct hit from a laser beam. There will always be a letter stated before the LB reference, which in the case of hand held laser welders should be 'D' (Continuous Wave). The Optical Density (OD) rating is reference to the level of protection the filter of the glasses/lens can provide and the level of light able to pass through the filter and reach your eyes.

EN 207 encompasses the full protection of the helmet or glasses, including the face shield or frame. All Jasic laser welders are supplied with glasses certified to EN 207 D LB6 OD8. The Kapio laser helmet offers full face protection to EN 207 D LB 6 OD6 with the ADF offering protection to D LB 7 OD7. The Kapio laser helmet is also available as a personal air powered respirator system (PAPR) to offer full protection for the operator.

Exposure to infrared (IR) and UV light radiation can cause serious injury to the skin. Operators and all personnel working within the Laser Controlled Area must wear protective clothing including laser-resistant and heat resistant gloves, caps, leather apron and other laser-resistant and heat-resistant clothing.

Fume Hazards

As with all welding processes, there is a fume hazard present. The appropriate measures should be taken to ensure safety, with the most effective method being an extraction hood coupled with a personal air powered respirator system for the operator. It is important that any filtration is matched to the welding process/material.

Wilkinson Star Limited offer an extensive range of extraction and PPE under the F-Tech and Weltek brands. Further information is available at **www.wilkinsonstar247.com**

Class 4 Enclosures by Kyrus Automation

The required safety and personal protection measures must not be overlooked whilst capitalising on the productivity gains that hand held fibre laser welding offers. When using a Class 4 laser welder it is imperative that you use a suitable Class 4 enclosure.

Wilkinson Star Limited together with our integrator Kyrus Automation offer full Class 4 laser welding enclosure solutions to offer protection to all workers within the workspace.

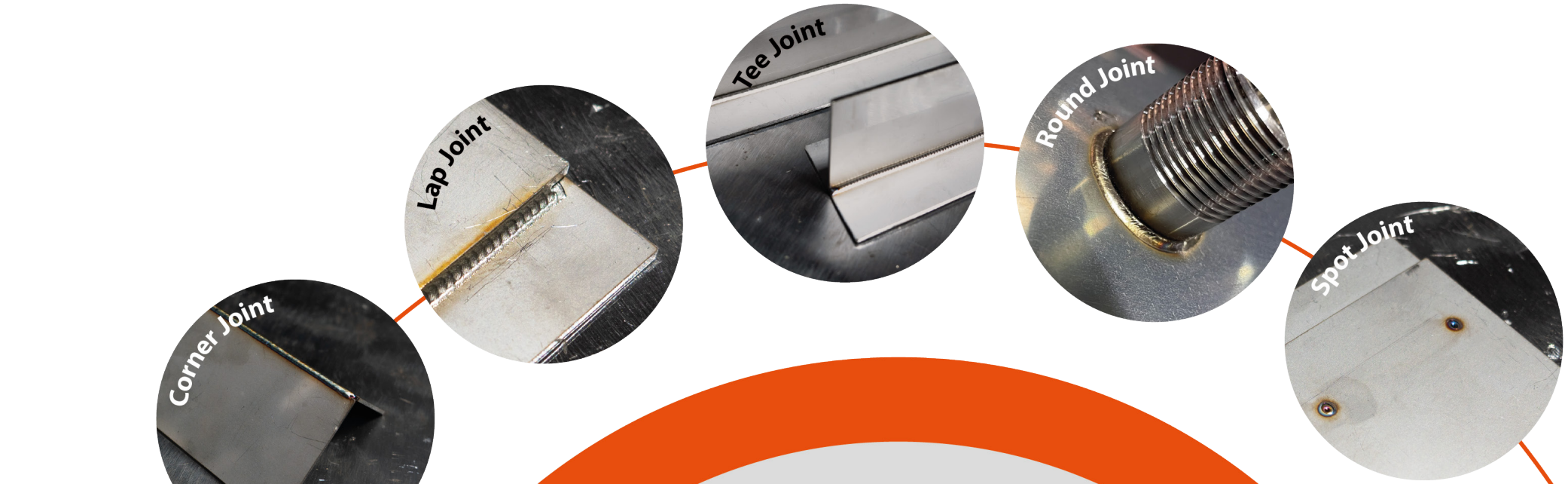
A Kyrus Laser Welding Enclosure helps mitigate the dangers of hand held laser welders by providing a safe and contained working environment.

Kyrus have designed a standard "plug and play" range that provides this safe working environment.

Please see page 15 for more information.

Exceptional Welding Results

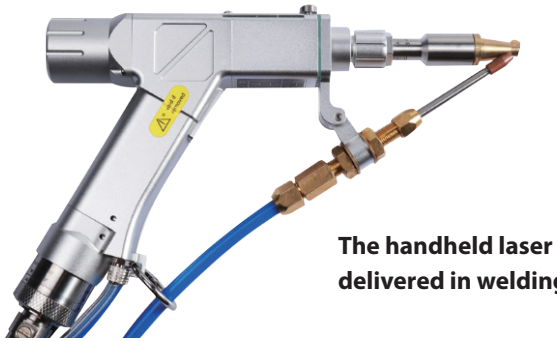
Continuous wave laser beam delivers high quality weld seams with minimal distortion, undercut or burn-through thanks to very limited heat affected zone (HAZ). As a result, very little post weld processing is needed - less labour, shorter delivery time.



Fast And Quality Welding Of Different Weld Joint Types

Model		LS-15000F (G4J8)	LS-20000F (G4J9)
Input power supply		1P AC230V (-10% - +15%) 50Hz	1P AC230V (-10% - +15%) 50Hz
Input power		5.8 kW	7.8 kW
Centre wave length		1080 ± 10nm	1080 ± 10nm
Electro-optical conversion efficiency		≥40%	≥40%
Laser power		1500 W	2000 W
Fibre cable length		6m	12m
Cooling method		Water cooled	Water cooled
Single wire welding and self fusion welding	Scan width	0~6mm	0~6mm
	Welding wire diameter	0.8/1.0/1.2/1.6mm	0.8/1.0/1.2/1.6mm
	Shielding gas	Argon/nitrogen (≥3 bar)	Argon/nitrogen (≥3 bar)
	Welding thickness	0.5 - 5mm	0.5 - 6mm
	Penetration	0.5 - 3mm	0.5 - 4.5mm
	Welding gap range	≤ Welding wire diameter	≤ Welding wire diameter
Double wire welding	Scan width	Not recommended	0 - 6mm
	Welding wire diameter		1.2/1.6mm
	Shielding gas		Argon/nitrogen (≥3 bar)
	Welding thickness		3 - 6mm
	Penetration		3 - 5mm
	Welding gap range		≤ Welding wire diameter
Water tank capacity		8L	8L
Operating temperature		-10°C - 40°C; antifreeze needed when ≤5°C	-10°C - 40°C; antifreeze needed when ≤5°C
Operating humidity		≤ 70% at 40°C; ≤ 90% at 20°C	≤ 70% at 40°C; ≤ 90% at 20°C
Power source weight		85 Kg	92 Kg
Packed weight		103 Kg	110 Kg
Packed weight of wire feeder and accessories		17.5 Kg	17.5 Kg
Power source dimensions		773 x 410 x 737mm	773 x 410 x 737mm
Package dimensions		865 x 475 x 1035mm	865 x 475 x 1035mm
Package dimensions of wire feeder and accessories		890 x 320 x 430mm	890 x 320 x 430mm

Simple Lens Change Method



The handheld laser gun is by default delivered in welding mode

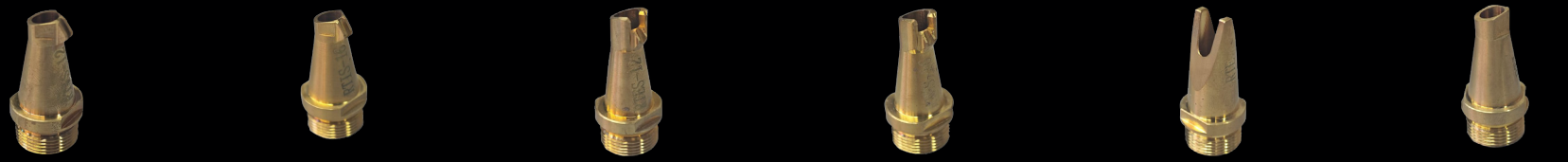
1. Replace protective lens

Single Wire Feeder Packing List

Category	Name	Description	Qty.	Unit	Placement Location
Main Power Source	Laser welding machine	Handheld laser welding machine: LS-15000F/LS-20000F	1	Set	Main packaging
	Earth clamp and wire	Earth clamp + 8m cable + 2 pin female connector	1	PC	On top of machine
Wire Feeder	Wire feeder	Wire feeder is equipped with 2 pcs 0.8-1.0 V type rollers	1	Set	Wire feeder packaging
	Accessory box	Divided into three layers	1	Box	
	Liner	φ1.6 red 5m	1	PC	Wire feeder accessories kit
	Liner	φ1.0 blue 3m	1	PC	
	Liner	Soft φ1.6 3m	1	PC	
	Power cable	Total length of 5 meters, with 7 core aviation plugs (hole type) at both ends	1	PC	
	Confirmation form	JASIC Handheld Laser Welding Installation and Debugging Training Confirmation Form-A0	3	PCS	Top layer of accessory box
	Protective lens	D18T2 lens	10	PC	Middle layer of accessory box
	Gas tube	φ6 transparent 5m	1	PC	
	Gas tube	φ10 blue 0.2m	1	PC	
	Gas connector	φ10 to φ6	1	PC	
	QBH shielding sleeve	Black sleeve	1	PC	
	Cotton swab		1	Bag	
	Clean cloth		1	Bag	
	Operation guide	Brief guide to laser operation	1	PC	
	U Key		1	PC	Bottom layer of accessory box
	Roll	1.2/1.6U	2	PC	
	Roll	1.2/1.6V	2	PC	
	Serial port line	USB to 232 serial port, in the pink box	1	Box	
	Tool packet	Including liners, 12/14 wrench, 14/17 wrench, tips φ0.8/φ1.0/1.2/φ1.6 large Allen wrench, small Allen wrench	1	Box	
	Copper tips	1 box including AS-12 *2, BS-16, CS-12, ES-12, FS-16, tip C, cutting tip M8 1.5 and graded tube	1	Box	

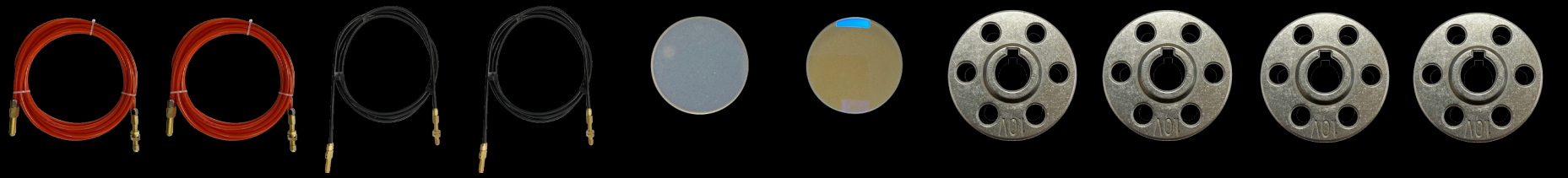
Single Wire Feeder Accessory List

Part No.	10094629	10094740	10094648	10094964	10094650	10104723
Code	AS12	BS16	ES12	FS16	C	
Wire Diameter (mm)	0.8/1.0/1.2	1.2/1.6	0.8/1.0/1.2	1.2/1.6	Without Wire	Without Wire
Joint Type	All Positions	All Positions	Outside Corner	Outside Corner	All Positions	T-Fillet



Part No.	10094647	10103739	10103746	10094637	10094635	10094633	10094631	10094961	10101105	10094654	10103741
Code	M8 1.5										
Wire Diameter (mm)				0.8mm	1.0mm	1.2mm	1.6mm	2.0mm			
Description	For Cutting Only	Extension tube	Cleaning Only	Wire Guide	Wire Guide	Wire Guide	Wire Guide	Wire Guide	Straight wire guide 60mm	Straight wire guide 100mm	Circle Buckle

Part No.	10094957	10094741	10094660	10094946	10094651	10103734	10094667	10094663	10094668	10094670
Code					D18T2	D20-3K				
Wire Diameter (mm)	Steel	Steel	Aluminium	Aluminium						
Description	Solid Wire Liner 1.2mm 5M Red	Solid Wire Liner 1.6mm 5M Red	Soft Wire Liner 1.6mm 3M Black	Soft Wire Liner 1.6mm 5M Black	Protective Lens	Focus Lens	Wire Feed Roller 'V' Groove 0.8mm/1.0mm	Wire Feed Roller 'V' Groove 1.2mm/1.6mm	Wire Feed Roller 'V' Groove 0.8mm/1.0mm	Wire Feed Roller 'U' Groove 1.2m/1.6mm

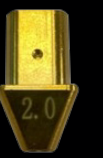


Dual Wire Feeder Packing List

Category	Name	Description	Qty.	Unit	Placement Location
Main Power Source	Laser welding machine	Handheld laser welding machine: LS-20000F dual wire	1	Set	Main packaging
	Earth clamp and wire	Earth clamp + 8m cable + 2_pin female connector.	1	PC	On top of machine
Wire Feeder	Wire feeder	Wire feeder is equipped with 4 pcs 1.2-1.6 V type rollers	1	Set	Wire feeder packaging
	Wire feeder and accessories	Liners+power cable+communication cable	1	Bag	Cabinet of wire feeder
	Machine bottom universal wheel	2 per row	2	Row	Inside wire feeder
	Accessory box	Divided into three layers	1	Box	Wire feeder packaging
	Single wire liner	φ1.6 red 5m single head	1	PC	In the wire feeder accessory package
	Double wire liner	φ2.0 black 3m single head	2	PC	
	Power cable	Total length of meters, with 3core aviation plugs (hole type) at both ends	1	PC	
	Signal line	Total length is 10 meters, with one end being a seven core aviation plug (hole type) and the other end being a two core aviation plug (hole type)"	1	PC	
	Double wire adjustment connection block	Dual wire feeding arm	1	PC	
	Guide wire straight tube		1	PC	
	Double wire guide nozzle	1.2/1.6	1	PC	
	Double wire copper nozzle	AS-16D, AS-12D, AS-20D	2	PCS	
	Confirmation form	Jasic Handheld Laser Welding Installation and Debugging Training Confirmation Form	1	PC	Top layer of accessory box
	Protective lens	D18T2 lens	10	PCS	Middle layer of accessory box
	Gas tube	φ6 transparent 5m	1	PC	
	Gas tube	φ10 blue 0.2m	1	PC	
	Gas connector	φ10 to φ6	1	PC	
	QBH shielding sleeve	Black sleeve	1	PC	
	Cotton swab		1	Bag	
	Clean cloth		1	Bag	
	Operation guide	Brief guide to laser operation.	1	PC	

Category	Name	Description	Qty.	Unit	Placement Location
Wire Feeder	Ukey		1	PC	Bottom layer of accessory box
	Roll	1.2/1.6V	2	PC	
	Roll	0.8/1.0V	2	PC	
	Serial port line	USB to 232 serial port, in the pink box	1	Box	
	Tool packet	Including liners, 12/14 wrench, 14/17 wrench, tips φ0.8/φ1.0/1.2/φ1.6, large Allen wrench, small Allen wrench	1	Box	
	Copper tips	1 box including AS-12 *2, BS-16, CS-12, ES-12, FS-16, tip C, cutting tip M8 1.5 and graded tube	1	Box	

Dual Wire Feeder Accessory List

Part No.	10103749	10103751	10103753	10103748	10103750	10103752	10103754	10103755	10107242
Code	120W50888A	120W50889A	120W50890A						
Wire Diameter (mm)	2 x 1.2mm	2 x 1.6mm	2 x 2 mm	1.2mm	1.6mm	2.0mm		Steel 3m	Graphite 5m
Joint Type	All Positions	All Positions	All Positions						
Description				Dual Wire Guide	Dual Wire Guide	Dual Wire Guide	Dual Feeding Arm	Dual Wire Liner	Dual Wire Liner
									

Enclosures KYRUS

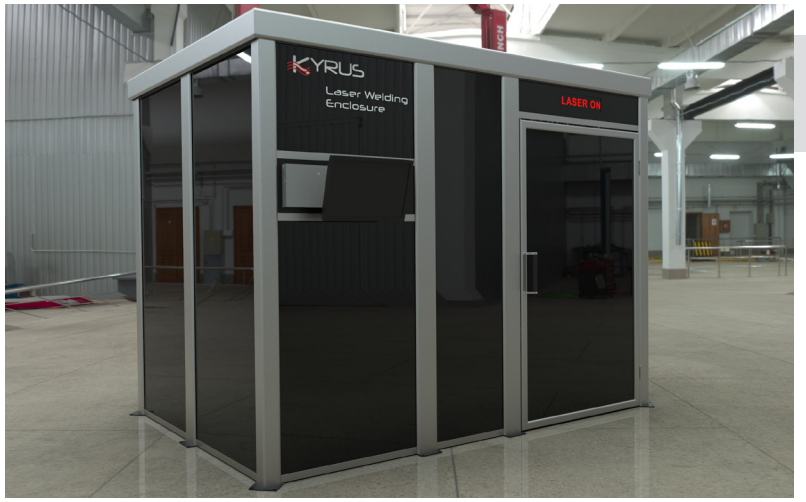
The required safety and personal protection measures must not be overlooked whilst capitalising on the productivity gains that hand held fibre laser welding offers. When using a Class 4 laser welder it is imperative that you use a suitable Class 4 enclosure. Wilkinson Star Limited supply Class 4 laser welding enclosure solutions to offer protection to all workers within the workspace.

A Kyrus Laser Welding Enclosure helps mitigate the dangers of hand held laser welders by providing a safe and contained working environment. Kyrus have designed a standard "plug and play" range that provides this safe working environment.

Key Features

- Specifically designed for use with the new generation of hand held laser welders, and comply to IEC 60825-4 standards
- Integrates with the built in safety systems of your laser welding equipment
- Fully integrated "plug and play" electronics including door interlock, power distribution, cable trunking and LED lighting
- Modular design, allowing for interchangeable positions and future expansion capabilities
- Supplied as flat pack and can be easily installed (or for peace of mind we offer installation as a service)
- Floor seals to prevent visible reflections
- Illuminated laser warning signage
- Available with three external viewing options: CCTV with live screen (recommended), 4K CCTV with live screen (recommended for demonstration areas) or optical viewing window
- Light-tight services connection
- Enclosed roof option
- Sliding and hinged door options
- Bespoke enclosure packages/sizes available on request

Enclosures



Hand Held Laser Welding Enclosure - 3m x 2m

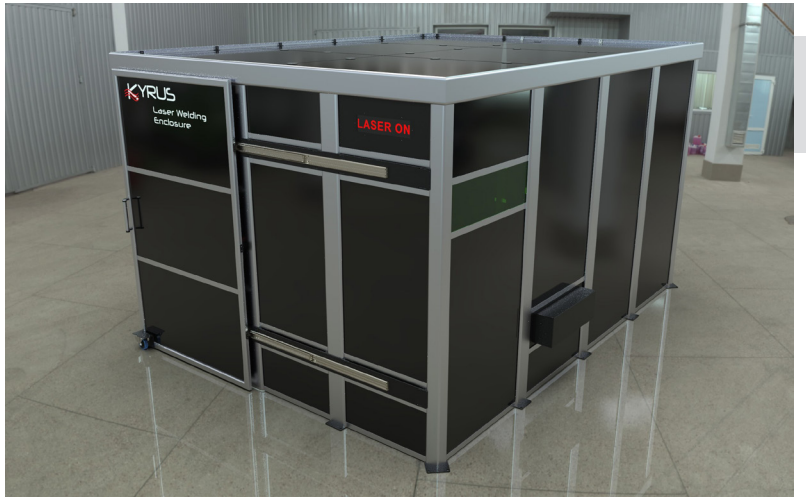
Order Code	*Description*
KY-LENC-001	3m x 2m Enclosure, with 1.2m Hinge Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-001A	3m x 2m Enclosure, with 1.3m Sliding Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-3020H12	3m x 2m Enclosure, with 1.2m Hinge Door c/w safety interlock and laser on signage only
KY-LENC-3020S13	3m x 2m Enclosure, with 1.3m Sliding Door c/w safety interlock and laser on signage only
ASM-000137	Option: Roofing Module
ASM-000136	Option: CCTV Module (recommended)
OS-000030	Option: Optical Viewing Window

Hand Held Laser Welding Enclosure - 3m x 3m

Order Code	*Description*
KY-LENC-002	3m x 3m Enclosure, with 1.2m Hinge Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-003	3m x 3m Enclosure, with 1.3m Sliding Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-3030H12	3m x 3m Enclosure, with 1.2m Hinge Door c/w safety interlock and laser on signage only
KY-LENC-3030S13	3m x 3m Enclosure, with 1.3m Sliding Door c/w safety interlock and laser on signage only
ASM-000138	Option: Roofing Module
ASM-000136	Option: CCTV Module (recommended)
OS-000030	Option: Optical Viewing Window

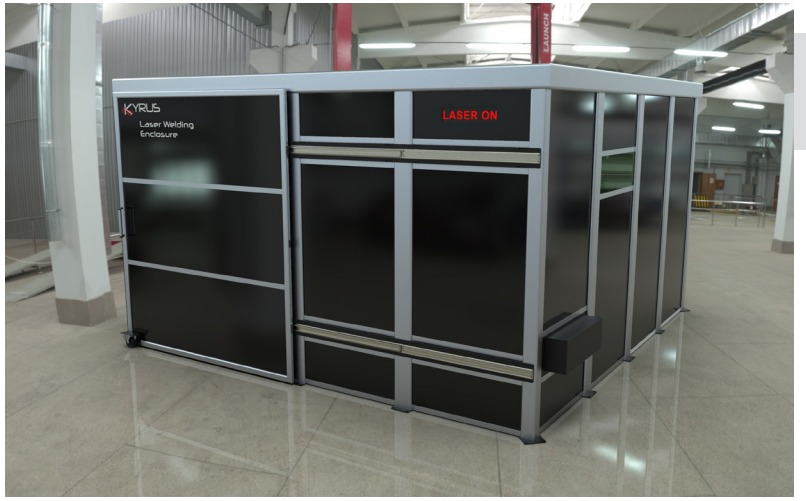
CE UK CA

Enclosures



Hand Held Laser Welding Enclosure - 4m x 3m

Order Code	*Description*
KY-LENC-004	4m x 3m Enclosure, with 1.3m Hinge Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-3040S13	4m x 3m Enclosure, with 1.3m Sliding Door c/w safety interlock and laser on signage only
ASM-000140	Option: Roofing Module
ASM-000136	Option: CCTV Module (recommended)
OS-000030	Option: Optical Viewing Window



Hand Held Laser Welding Enclosure - 4m x 4m

Order Code	*Description*
KY-LENC-005	4m x 4m Enclosure, with 2m Sliding Door c/w power distribution, lighting, safety interlock & laser on signage
KY-LENC-4040S20	4m x 4m Enclosure, with 2m Sliding Door c/w safety interlock and laser on signage only
ASM-000139	Option: Roofing Module
ASM-000136	Option: CCTV Module (recommended)
OS-000030	Option: Optical Viewing Window

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General After Sales Policies

As a welding manufacturer with comprehensive quality assurance, we provide the following warranties for our handheld fibre laser welding machines:

- 24 months warranty on the whole machine
- 24 months warranty on the laser generator
- 24 months warranty on the water cooler
- 24 months warranty on the laser welding gun

Please note: the following items/situations are not covered by the warranty.

- Wearing parts and optical lenses are excluded from the warranty
- Product damage or quality issues caused by improper operation or mishandling are excluded from the warranty
- Product damage or quality issues caused by unauthorised repairs using third party parts are excluded from the warranty
- Damage caused by operation outside the scope of the product's technical requirements
- Damage to the laser caused indirectly by faults due to the customers' software or interface
- Damage cause by incorrect installation, maintenance/repair or operational use not specified in the user manual
- Damage caused by human factors during use, especially due to failure to take the necessary antifreeze measures when needed
- Damage caused by failure to comply with relevant requirements on water cooler's maintenance specified in the user manual


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