



Vision Industry
LWIV

Industrial Lasers

Laser competence for your success

Applications

Tool and mold construction

Sensor production

Precision mechanics

Medical technology

Thin sheet metal processing

Jewelry industry

Electrical technology

Mechanical engineering

www.vision-lasertechnik.de



Vision Lasertechnik

Innovative products giving you a competitive edge.



Expertise has a name - VISION

Many of our customers choose Vision because we have signified innovative products of the highest quality for over 25 years. This is only one good reason - there is considerably more in it for you:



>> **Quality „Engineered and Made“ in Germany**

We have put our trust in Germany as a production location and are passing on the advantages to you:

- Production and development are both under one roof, which enables short decision-making processes and quick reaction times.
- The on-site production guarantees that our high quality requirements are met. The majority of our products are manufactured under cleanroom conditions and all products have successfully passed all of our quality management tests.
- Investment in the future: In order to ensure our innovative strength in the future, we do not only consistently invest in our research - we also invest in future talent by employing trainees.

>> **Innovative product concepts designed for flexibility and stability:**

You can change both your area of application and your laser:

- Our lasers have a modular structure and are extendable and adjustable. This means that they can be used flexibly and provide you with the highest investment security possible.

High-quality and innovative components for a long lifespan

- Quality is always our top priority. This means that our lasers have a long lifespan, are easy to maintain and reduce downtime.

>> **Our experienced employees whose expertise and passion are at your disposal - around the world**

- We come to you - your personal service team provides, among others, individual guidance, technical support and Vision Academy laser training.

Table of contents

Overview of our products



LWI V Small Chamber Type – The compact manual work station

The LWI V Small Chamber Type provides you with a powerful, compact and unified manual work station with the latest generation of laser. All of our lasers come from our own development. Our experiences from our many years of close cooperation with our customers are also incorporated in this device.

We use our experience to guarantee your success!

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LWI V FLEXX – The all-rounder

The LWI V Flexx series sets global standards in all areas of application for manual and joystick-guided micro-laser welding. With a medium output of either 120 watt, 2000 watt or 300 watt, the Flexx has the right laser capacity for every application.

Optimal power for your success!

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Workstation T-Base V2 – Stationary, for work pieces up to 150kg.

The Workstation T-Base V2 expands your FLEXX, turning it into a compact, open welding station with a digitally-controlled three-axis work table and a separate height-adjustable laser head.

With a unique control concept, you can extend manual welding via a precise motion control with sophisticated automatic and program functions.

Your benefit: increased productivity and replicable welding quality!

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Workstation UNIXX III – Stationary all-rounder

*Developed for those users who want to be prepared for everything. The highest precision, whether for repairing molds which weigh several tons, processing small tools or welding large sheet metal housings. When combined with a FLEXX laser welding device, the UNIXX III Workstation is ready for every welding task. **Always productive and precise!***

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LWI IV Ultra FLEXX – Precise laser welding on the spot

Whether three meters high or in the center of a 5 x 5 m mold- with the Ultra-FLEXX extension arm, you can reach every welding joint. The compact operating head, flexibly mounted on a numerically controlled extension arm with four axis, enables an integrated device concept with sophisticated automatic functions - ready for action for the customer on the spot.

Expand your business's range!

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LWI IV MAXX – With 400 liter chamber volume

The MAXX combines the excellent properties of a LW14 laser welding device with all the advantages of a digitally-controlled three axis workstation. The unified class 1 laser system allows for operations directly within the manufacturing environment.

The integrated CAN-Step control's sophisticated automatic functions increase your productivity.

Safe, productive and precise!

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LMI Laser Marking System – High end product for the highest requirements

The objective of the development of LMI was high long-term stability and availability as well as outstanding properties concerning beam quality and performance. Selected high-quality components integrated into a one-of-a-kind hardware concept in combination with efficient software set new standards in industrial labeling.

Advance technology for your success!

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Technical Data – All details at a glance

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LWI V Small Chamber Type

The compact manual work station



The LWI V Small Chamber Type provides you with a powerful, compact and unified manual work station with the latest generation of laser.

All of our lasers come from our own development. Our experiences from our many years of close cooperation with our customers are also incorporated in this device.

We use our experience to guarantee your success!



Technical Data	LWI V SCT 60 W	LWI V SCT 120 W
Laser Safety Class	class 1, internal and type „Open“ class 4	
Beam Source	Nd:YAG, flashlamp pumped, pulsed	
Wavelength	1064 nm	
max. Pulse Energy	70 Joule	
max. Peak Power	17 kW	
max. Average Power	60 W	120W
Duty Cycle	100 %	
Energy Adjustment Mode	Voltage or PWM Mode	
Voltage	160 – 500 V	
Pulse Width	0.1 – 20 ms	
Pulse Frequency	Single pulse up to 20 Hz	
Pulse Fill	10 – 100 %	
PWM Mode	1 – 100 %	
Focal Length	120 mm	
Beam Diameter	200 µm – 2 mm, motorized beam-expander	
Microscope	Leica binocular, oculars magnification 20x	
Illumination of Workplace	Dual LED-Cold Light, switchable	

Parameter Settings Memory	50 settings, individual named
Energy Measurement System	integrated
Controller	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages interface: RS232, CAN-Bus
Welding Chamber:	closed, window with laser safety filter glass, removable bottom plate,
Dimensions inside: Doors: Opening dimensions:	max. 270Wx400Lx230H mm ³ two, safety controlled max. 210Wx170H mm ²
Shielding gas supply	dual, on beam axis and selectable flexible nozzle, adjustable gas delay
Cooling-System	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan
Electrical Supply	230 V / 50 Hz 1,5 kW 400 V / 50 Hz 4 kW

Applications

Tool and mold construction	Sensor production
Precision mechanics	Medical technology
Thin sheet metal processing	Dental technology
Electrical technology	Jewelry industry

Note: Technical information is partially dependent on the design and features of the device. We are continuously improving our products. We reserve the right to make changes to the same without prior announcement. Errors excepted.

HIGHLIGHTS



Suitable for laboratories

The high-quality, smooth and pore-free surface is not only an element of the device's design - it also means that it is ideal for laboratory areas and is easy to clean.



Large display with backlighting

The large backlit display provides the user with a direct view of all the important operating parameters. Adjustment limits are visualized.

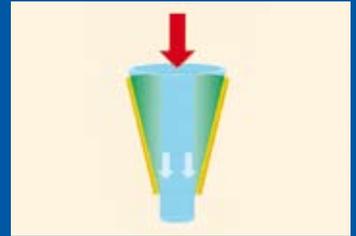
The adjustment of the parameters themselves takes place via the work chamber's control elements.



High Power LED cold-light illumination

Hot working environments and the resulting moist hands are a thing of the past with this modern illumination. The sharp, white light beam gives you the highest color fidelity when you look through the microscope.

Plus: it has a particularly long lifespan of over 100,000 hours.



On-axis shielding gas supply

A reliable on-axis shielding gas supply enables perfect welding even with highly-sensitive materials, such as titanium, for example.

The welded joint is always flooded with shielding gas under 90 degrees. This prevents the sort of shadow effects and swirling which occurs when a lateral gas supply is used.



Service, diagnosis and upgrade

With the integrated self-diagnostic system, you have the opportunity to detect faults in ongoing operations and to display this as plain text in a message.

Even the laser's own software undergoes constant further development: you can bring your device up to date with a firmware upgrade.



Multi-function pedal

With the aid of the practical multi-function pedal, both the pulse trigger as well as all important parameters can be changed at any time - without even having to take your hand off your work piece.

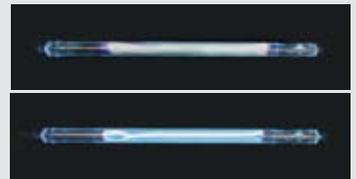
Large selection of additional options:



On-axis illumination

This allows you to see into deep crevices or holes which would be in darkness if lateral illumination were used.

The illumination comes alongside the optical beam and always illuminates accurately from above.



Beam Tuning Set

The innovative Beam Tuning Set combined with booster technology guarantees a stable output even with very low pulse energies. This is particularly beneficial when it comes to welding extremely small parts. The spot size can be reduced to 50 µm.

This feature is available as either a fixed installation or a manually connectable option.

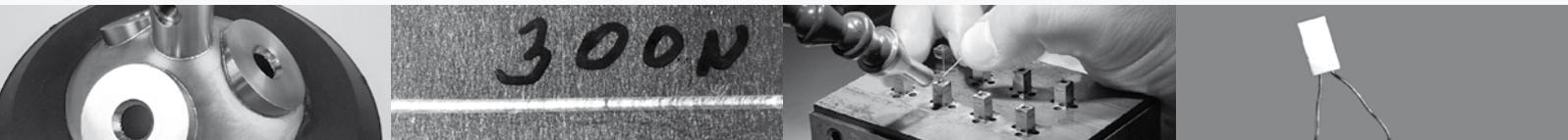
LWI V FLEXX

The all-rounder

The LWI V Flexx series sets global standards in all areas of application for manual and joystick-guided micro-laser welding.

With a medium output of either 120 watt, 180 watt or 300 watt, the Flexx has the right laser capacity for every application.

Optimal power for your success!



Technical Data LWI V Flexx	120 W	200 W	300 W
Laser Safety Class	4		
Beam Source	Nd: YAG, Flashlamp pumped, pulsed		
Wavelength	1064 nm		
max. Pulse Energy	70 Joule	60 Joule	70 Joule
max. Peak Power	17 kW	17 kW	30 kW
max. Average Power	120 W	200 W	300 W
Energy Adjustment Mode	Voltage or PWM Mode		
Voltage	160 – 500 V	160 – 500 V	200 – 800 V
Pulse Width	1 – 20 ms	1 – 20 ms	0.1 – 30 ms
Pulse Frequency up to	20 Hz	20 Hz	30 Hz
Pulse Fill	10 – 100 %		
PWM Mode	1 – 100 %		
Focal Length	190 mm		
Beam Diameter	200 µm – 2 mm, motorized Beam-Expander		
Microscope	Leica binocular, oculars magnification 20x		
Illumination of Workplace	Dual Halogen		
Parameter Settings Memory	50 settings, individual named		
Energy Measurement System	Integrated		

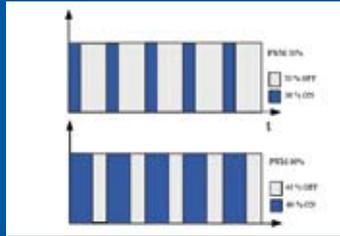
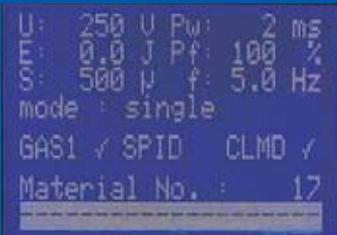
Controller	Multi-controller-system, self diagnostic system, plain text for Maintenance and Status messages		
Interface	RS232, CAN-Bus		
Shielding Gas Supply	flexible Nozzle, adjustable gas delay		
Cooling-System	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan		
Cooling-Option	External Cooler provided, integrated Bypass-Controller		
Electrical Supply	3 Phases, 400 V / 50 Hz		
Power Consumption	4 kW	9 kW	14 kW
Dimensions (WxHxL)			
Laser head: ca. 120 x 120	x 880 mm	x 925 mm	x 880 mm
Supply Unit: ca. 450 x 915	x 770 mm	x 880 mm	x 950 mm
Weight	ca. 115 kg	ca. 125 kg	ca. 140 kg

Applications

Tool and mold construction	Sensor production
Precision mechanics	Medical technology
Thin sheet metal processing	Jewelry industry
Electrical technology	Mechanical engineering

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HIGHLIGHTS



Display, operating, integrated energy measuring

The ergonomically arranged display and terminal located closely behind the microscope give you a direct view of all the important operating parameters.

The integrated energy measuring system indicates the emitted energy after every laser pulse and therefore enables the monitoring of the welding process as well as the precise adjustment of the pulse energy.

Programmable shielding gas post-flooding

In order to eliminate the oxidation of the welded joint directly after it has been welded, the times during which the shielding gas is still conducted on the welded joint following the welding can be individually set.

PWM mode

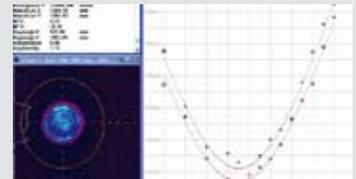
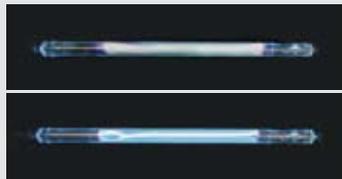
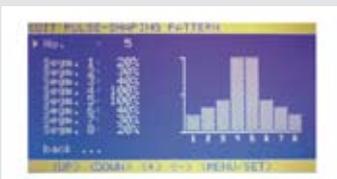
In the lower power range, which depends upon high stability, traditional lasers are inclined toward a low „pulse to pulse stability“ and thus to a non-uniform welding result. The **Pulse Width Modulation (PWM)** gives a vastly more fine and stable coordination, as the internal energy supply here works in the area of the optimal output.

Service, diagnosis and upgrade

With the integrated self-diagnostic system, you have the opportunity to detect faults in ongoing operations and to display this as plain text in a message.

Even the laser's own software undergoes constant further development: you can bring your device up to date with a firmware upgrade.

Large selection of additional options:



Pulse shaping

Free pulse shaping enables the setting and saving of all possible variations in the pulse process.

Materials with different thermal coefficients of expansion thus show a clearly better welding behaviour - your laser's area of application thus expands.

Booster technology for long lamp lifespan and heightened pulse stability

The booster enables you to further raise the „pulse to pulse stability“ and to lengthen the lifespan of the flash lamp. Shortly before the shoot, the simmer power is automatically increased, thus stabilizing the plasma in the lamp and increasing the electrode temperature. This leads to a substantially more stable energy output of the laser, especially with low energy.

Large selection of lenses of different focal distances

A large selection of lenses of different focal lengths gives you the optimal ratio of magnification with the smallest accessible spot sizes as well as the largest possible focal length for your application.

The change from a normal lens to extension or swivel optics only takes a few seconds, without the need for any additional tools.

Beam Tuning Set

The innovative Beam Tuning Set combined with booster technology guarantees a stable output even with very low pulse energies. This is particularly beneficial when it comes to welding extremely small parts. The spot size can be reduced to 50 μm.

This feature is available as either a fixed installation or a manually connectable option.

Workstation T-Base V2

Stationary, for work pieces up to 150kg.



The Workstation T-Base V2 expands your FLEXX, turning it into a compact, open welding station with a digitally-controlled three-axis work table and a separate height-adjustable laser head.

With a unique control concept, you can extend manual welding via a precise motion control with sophisticated automatic and program functions.

Your benefit: increased productivity and replicable welding quality!



Technical Data	LWI V Workstation T-Base V2	
Configuration	Assembly of Aluminum profile • XY-cross-table and lifting column • Additional lifting column to adjust height of Laser head	
Electro-mechanical Drive	XY, Z-Axis	Spindle-Drive, Stepper Motor, integrated
	Laser Head-Axis	Pinion-Drive, DC-Gear-Motor, integrated
Travel Path	XY, Z-Axis	ca. 360 x 320 x 250 mm
	Laser Head-Axis	515 mm
Speed-Control	XY, Z-Axis	Dynamic Joystick control
	Laser Head-Axis	Slow- and Fast motion
Work Bench	Aluminum plate with fixation nuts PT25, face milled • Dimensions approx. 800 x 300 mm • max. Load: 150kg centered	
Controller	VISION CAN-Step Stepper Motor-Control-System, integrated Hardware (Supply Unit)	
User-Terminals	Joystick-Terminal	Graphic-Display, backlight and 3-Axis-Joystick
	External-Terminal:	Backlight Touch-Screen Display incl. Emergency-Stop Switch
Dimensions (HxWxL)	ca. 1290 x 710 x 820 mm	
Weight	ca. 100 kg	

Applications

Tool and mold construction

Electrical technology

Precision mechanics

Sensor production

Thin sheet metal processing

Medical technology

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HIGHLIGHTS



Precise work table

The XY cross table, with its stable precision linear slide, screw drive and high-resolution stepper motor, provides the basis for exact positioning and high repeat accuracy.

Your work piece can be accurately and flexibly set on the plain-milled aluminium slot profile slab.



Comfort: Adjustable laser head

For ergonomic and flexible working: The microscope's eyepoint height can be individually adjusted to the size of the operator thanks to the motorized adjustable laser head. This enables fatigue-proof work with an alternating healthy posture. In addition, you also have the option to expand the workspace under the laser head if required.



Stable stamp axis

Thanks to its elaborate linear slide on four large stainless steel shafts and precision cylinder sleeve, the precise steering of high loads is guaranteed.

The high-resolution screw drive with its powerful stepper motor provides both exact positioning and high processing speeds.



CAN-Step: The intelligent axis control

Precisely controls axis movements. This extends manual welding by its sophisticated automatic and programmable functions.

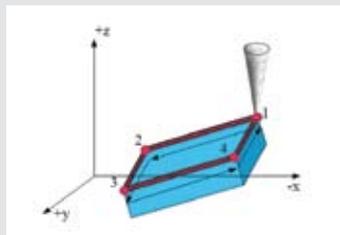
Touchscreen and Joystick terminals directly in your workspace provide a unique, simple control concept. Thanks to the completely integrated hardware, a separate computer is not needed.



PDS – Pulse Distance Synchronization

Provides a constant pulse overlapping through the dynamic synchronization of the pulse trigger with the axis movement.

PDS ensures replicable welding results with different speeds and consistent, homogenous weld joints in all movement situations. Therefore, a higher operating speed can be reached.



„Teach in“ programming

Enables the handling of complicated geometries in four axis without complex programming. A small number of support points are hit once on the contour of the work piece in advance.

The user can subsequently move the programmed welding line forward and backward using the joystick and can also shift its position by offsetting the start point.



PCD – 3 Point Cycle Definition

You can process circular type contours by using the PCD function with the XY axis. The circular path is precisely defined through the teaching of only three support points. You do not need to know the center or the diameter; the position on the work piece is optional.

You can move along the programmed course either forward or backward by using the joystick.



Can be combined with a rotating device

Specially developed turning units increase the user value of your workstation. They incorporate all functions of CAN-Step control, available at the touch of a button, including pulse synchronization and „Teach in“ programming.

Additional features:

- Swivel-mounted
- Free implementation up to Ø40 mm
- different chuck types, chucking range up to Ø 160 mm.

Workstation UNIXX III

Stationary all-rounder

Developed for those users who want to be prepared for everything.

The highest precision, whether for repairing molds which weigh several tons, processing small tools or welding large sheet metal housings. When combined with a FLEXX laser welding device, the UNIXX III Workstation is ready for every welding task.

Always productive and precise!



Technical Data	LWI V Workstation UNIXX III	
Configuration	<ul style="list-style-type: none"> • 3-Axis extension arm • manual inclination of FLEXX-Laser head 	
Electro-mechanical Drive	Spindle-Drive, Stepper Motor, integrated	
Travel Path X Y, Z-Axis	750 x 390 x 655 mm	
Speed-Control	Dynamic 3-Axis-Joystick Control	
Work Bench	<ul style="list-style-type: none"> • removable • Aluminum plate with lock nuts, Ø ca. 370 mm • turntable • lead-through Ø ca. 40 mm • max. Load 200 kg centered 	
Controller	VISION CAN-Step Stepper Motor-Control-System, integrated Hardware (Supply Unit)	
User-Terminals	Joystick-Terminal	Graphic-Display, backlighted and 3-Axis-Joystick
	External Terminal:	Backlighted Touch-Screen Display incl. Emergency-Stop Switch
Dimensions (HxWxL)	ca. 1700 x 1300 x 1800 mm	
Weight	ca. 500 kg	

Applications

Tool and mold construction

Thin sheet metal processing

Electrical technology

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HIGHLIGHTS



CAN-Step: The intelligent axis control

Precisely controls axis movements. This extends manual welding by its sophisticated automatic and programable functions.

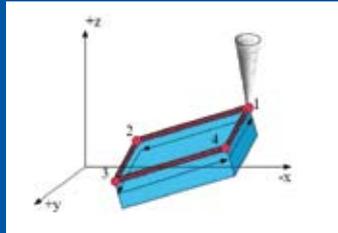
Touchscreen and Joystick terminals directly in your workspace provide a unique, simple control concept. Thanks to the completely integrated hardware, a separate computer is not needed.



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Provides a constant pulse overlapping through the dynamic synchronization of the pulse trigger with the axis movement.

PDS ensures replicable welding results with different speeds and consistent, homogenous weld joints in all movement situations. Therefore, a higher operating speed can be reached.



„Teach in“ programming

Enables the handling of complicated geometries in four axis without complex programming. A small number of support points are hit once on the contour of the work piece in advance.

The user can subsequently move the programmed welding line forward and backward using the joystick and can also shift its position by offsetting the start point.



PCD – 3 Point Cycle Definition

You can process circular type contours by using the PCD function with the XY axis. The circular path is precisely defined through the teaching of only three support points. You do not need to know the center or the diameter; the position on the work piece is optional.

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Can be combined with a rotating device

Specially developed turning units increase the user value of your workstation. They incorporate all functions of CAN-Step control, available at the touch of a button, including pulse synchronization and „Teach in“ programming.

Additional features:

- Swivel-mounted
- Free implementation up to Ø40 mm
- different chuck types, chucking range up to Ø 160 mm.



Integrated work table with aperture

The useful high load capacity work table can be revolved under the laser head.

The plain-milled slot profile worktop can be rotated and is locked.

Supports and worktops provide free lead through. This allows you to weld long work pieces smoothly.



Concept: Flexible use

The enormous traverse paths of the extension arm enable the processing of long welding lines and large surfaces without repeat clamping of the work piece, while the laser head stays flexible and can also be manually tilted.

Suitable for the processing of small to very large work pieces.



Operating comfort

For an ergonomic and flexible workspace:

Leg space and a manually adjustable head tilt provide the optimal conditions for the user.

All operating elements are ergonomically attached closely to the working head. You have a direct view of all parameter settings.

LWI IV Ultra-FLEXX

Precise laser welding on the spot

Whether three meters high or in the center of a 5 x 5 m mold - with the Ultra-FLEXX extension arm, you can reach every welding joint.

The compact operating head, flexibly mounted on a numerically controlled extension arm with four axis, enables an integrated device concept with sophisticated automatic functions - ready for action for the customer on the spot.

Expand your business's range!



Technical Data	LWI V Ultra-FLEXX
Laser Safety Class	1
Beam Source	Nd: YAG, Flash lamp pumped, pulsed
Wavelength	1064 nm
max. Pulse Energy	70 Joule
max. Peak Power	17 kW
max. Average Power	120 W
Energy Adjustment Mode	Voltage or PWM Mode
Voltage	160 – 500 V
Pulse Width	1- 20 ms
Pulse Frequency	Single Pulse up to 20 Hz
Pulse Fill	10 – 100 %
PWM Mode	1 – 100 %
Focal Length	120 mm
Beam Diameter	600 µm – 2,5 mm, motorized Beam-Expander
Laser-Controller	<ul style="list-style-type: none"> Multi-controller-system self diagnostic system plain text for Maintenance and Status messages
Interface:	RS232, CAN-Bus
Cooling-System	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan

Laser head	<ul style="list-style-type: none"> Leica binocular, oculars 20x, turnable 360° Dual LED-Cold Light Shielding gas supply, flexible nozzle manual inclination and rotation 360° 						
Extension Arm	<ul style="list-style-type: none"> motorized movement XY-Axis, Arm-Length and Inclination Z-Axis by Inclination incl. radius correction manual turnable, electro-magnetic brake manual adjustable crank 						
Travel path	<table border="1"> <tr> <td>Arm Length</td> <td>1.110 mm</td> </tr> <tr> <td>X-/Y-Axis</td> <td>130 x 130 mm</td> </tr> <tr> <td>Z-Axis</td> <td>0 – 3.000 mm</td> </tr> </table>	Arm Length	1.110 mm	X-/Y-Axis	130 x 130 mm	Z-Axis	0 – 3.000 mm
Arm Length	1.110 mm						
X-/Y-Axis	130 x 130 mm						
Z-Axis	0 – 3.000 mm						
Motor-Driver	VISION CAN-Step Stepper Motor-Control-System, integrated						
User-Terminals	Joystick-Terminal, Touch-Screen-Terminal						
Electrical Supply	3-Phases 400 V / 50 Hz 4,5 kW						
Dimensions	ca. W 790 x L 900 x H 1400 mm ³ (main unit)						
Weight	ca. 250 kg						

Applications

Tool and mold construction

Thin sheet metal processing

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HIGHLIGHTS



Compact operating head

You can comfortably work in narrow machine access with the extraordinarily compact microscope operating head.

Shielding gas supply and high-brightness LED illumination are already integrated, as are the electronic spot adjustment, high-speed anti-glare and laser shield filter. This eliminates the unnecessary tangling of cables.



Swivelling and inclinable

The microscope operating head can be completely swiveled and rotated by 360 degrees. The microscope itself can equally be independently rotated by 360 degrees. This guarantees ergonomic workspaces in practically every situation.

The software automatically corrects the orientation and alignment of the movement axis to the joystick axis at the touch of a button.



Lockable arm joint

The extension arm can be cranked by the lockable joint. Machine edges, which obstruct the access to the weld joint with a straight arm, are thus overcome.

This shows the unmatched flexibility of the Ultra-FLEXX, whose welding head can reach every angle.



Fast pre-positioning

You can conduct fast pre-positioning through the extension of the extension arm in rapid traverse. In addition, this can be freely rotated over the tower axis. At the push of a button an electromagnetic brake locks the arm. The software corrects the angle offset between the arm position and the axis of the integrated cross table. The operator thus retains the usual orientation.



Precise movement

Precise head movement in XY direction provides a stable cross table underneath the tower combined with the high-resolution, stepper motor-driven screw drive.

The adjustment in the Z axis is accomplished via the tilt of the arm. The software corrects any deviations due to the real movement of the head on a radius by changing the arm length.



CAN-Step: The intelligent axis control

Precisely and dynamically controls axis movements. This extends manual welding by its sophisticated automatic and programming functions.

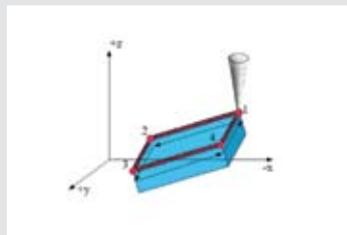
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Enables the handling of complicated geometries in four axis without complex programming. A small number of support points are hit once on the contour of the work piece in advance.

The user can subsequently move the programmed welding line forward and backward using the joystick and can also shift its position by offsetting the start point.

LWI IV MAXX

With 400 litre chamber volume

The MAXX combines the excellent properties of a LW14 laser welding device with all the advantages of a digitally-controlled three axis workstation. The unified class 1 laser system allows for operations directly within the manufacturing environment.

The integrated CAN-Step control's sophisticated automatic functions increase your productivity.

Safe, productive and precise!



Technical Data	LWI V MAXX 120 W
Laser Safety Class	1, internal and open chamber mode class 4
Beam Source	• Nd: YAG • Flash lamp pumped • pulsed
Wavelength	1064 nm
max. Peak Power	70 Joule
max. Impulsleistung	17 kW
max. Average Power	120 W
Energy Adjustment Mode	Voltage or PWM Mode
Voltage	160 – 500 V
Pulse Width	1- 20 ms
Pulse Frequency	Single pulse up to 20 Hz
Pulse Fill	10 – 100 %
PWM Mode	1 – 100 %
Focal Length	120 mm
Beam Diameter	200 µm – 2 mm, motorized Beam-Expander
Microscope	Stereo microscope, oculars magnification 20x
Cooling-System	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan

Welding Chamber:	<ul style="list-style-type: none"> • Closed, two removable doors, safety controlled • Two arm inlets, Window with Laser protection glass • Dual LED-Cold Light • Shielding gas supply, flexible nozzle • Dimensions inside max. 270 W x 400 L x 230 H mm³
Working platform	Numeric controlled movement
<ul style="list-style-type: none"> • Dimensions • Travel path (XxYxZ) • Speed Control • max. Load 	600 x 690 mm ² , stainless steel 250 x 250 x 350 mm ² Dynamic 3-Axis-Joystick Control 400 kg centered
Laser-Controller	Multi-controller-system, self diagnostic system, plain text for Maintenance and Status messages
Interface:	RS232, CAN-Bus
Motor-Driver	VISION CAN-Step Stepper Motor-Control-System, integrated
User-Terminals	Joystick-Terminal, two backlighted Displays
Electrical Supply	3-Phases, 400 V / 50 Hz 4,5 kW
Dimensions	ca. W 1100 x L 1050 x H 1730 mm
Weight	ca. 350 kg

Applications

Tool and mold construction

Note: Technical information is partially dependent on the design and features of the device. We are continuously improving our products. We reserve the right to make changes to the same without prior announcement. Errors excepted.

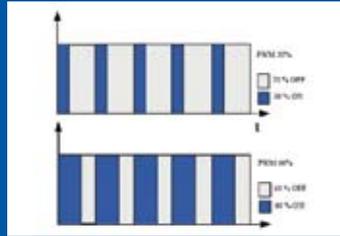
HIGHLIGHTS



Display, operating, integrated energy measuring

The ergonomically arranged notification and operating units directly behind the microscope give you an immediate view of all the important operating parameters.

The integrated energy measuring system indicates the emitted energy after every laser pulse and therefore enables the monitoring of the welding process as well as the precise adjustment of the pulse energy.



PWM mode

In the lower power range, which depends upon high stability, traditional lasers are inclined toward a low „pulse to pulse stability“ and thus to a non-uniform welding result. The **Pulse Width Modulation (PWM)** gives a vastly more fine and stable coordination, as the internal energy supply here works in the area of the optimal output.



CAN-Step die intelligente Achssteuerung CAN-Step: The intelligent axis control

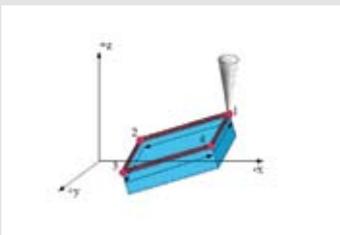
Precisely and dynamically controls axis movements. This extends manual welding by its sophisticated automatic and programming functions. The Joystick terminal directly in your workspace provide a unique, simple control concept. Thanks to the completely integrated hardware, a separate computer is not needed.



PDS – Pulse Distance Synchronization

Provides a constant pulse overlapping through the dynamic synchronization of the pulse trigger with the axis movement.

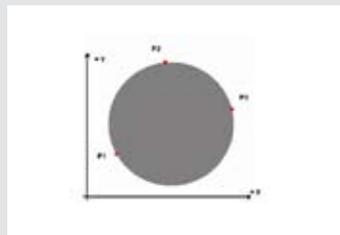
PDS ensures replicable welding results with different speeds and consistent, homogenous weld joints in all movement situations. Therefore, a high operating speed is also reached.



„Teach in“ programming

Enables the handling of complicated geometries in four axis without complex programming. A small number of support points are hit once on the contour of the work piece in advance.

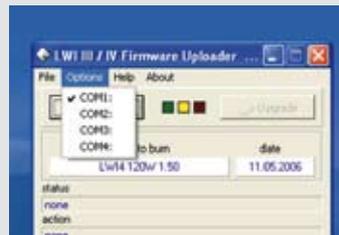
The user can subsequently move the programmed welding line forwards and backwards using the joystick and can also shift its position by offsetting the start point.



PCD – 3 Point Cycle Definition

You can process circular type contours by using the PCD function with the XY axis. The circular path is precisely defined through the teaching of only three support points. You do not need to know the center or the diameter; the position on the work piece is optional.

You can move along the programmed course either forward or backward by using the joystick.



Service, diagnosis and upgrade

With the integrated self-diagnostic system, you have the opportunity to detect faults in ongoing operations and to display this as plain text in a message.

Even the laser's own software undergoes constant further development: you can bring your device up to date with a firmware upgrade.



Versatile fixtures

Additional device options expand the MAXX's area of application and increase the user value:

- Pulse shaping
- Booster technology for longer lamp lifespan and increased pulse stability
- Lenses of different focal distances, extensions and deflection units
- Beam tuning – the switchable fine welding option
- Rotation units of the RT series

LMI Laser Marking System

High end product for the highest requirements

The objective of the development of LMI was high long-term stability and availability as well as outstanding properties concerning beam quality and performance.

Selected high-quality components integrated into a one-of-a-kind hardware concept in combination with efficient software set new standards in industrial labeling.

Advance technology for your success!



Technical Data	LMI Laser Marking System
Laser Safety Class	4
Beam Source	Ytterbium Fiber Laser diode pumped with MOPA-Architecture
Wavelength	1.055 – 1.075 nm
max. Average Power	20 W
Beam Quality	$M^2 < 2$
Pulse Frequency	1 - 25 kHz, modulated: 25 – 500 kHz, cw
Pulse Width	variable 9 – 200 ns, 25 Waveform-Presets
max. Peak Power	14 kW
max. Pulse Energy	0,8 mJ
max. Scanning speed	6 m /s
Focusing optics F-Theta	160
Marking Field Size	110 x 110 mm ²
Beam Diameter	35 µm
Resolution	725 dpi
Pilot laser	3 per 650 nm / 1mW
Marking Software	WinLase® LAN
Operating System	Windows XP®, Vista®, Windows 7®
License	USB-Hardware Dongle

Languages	D, GB, I, F, E, KOR, JAP und CN
Software Features	<ul style="list-style-type: none"> • Editing of all objects • Setting of all Laser specific Parameters • linear and 2D-Barcodes • Graphic-Import: DXF, DWG, PLT, EMF, WMF, EX2 MCL, BMP, JPG, GIF, PCX • Automation Objects
Interfaces Hardware	<ul style="list-style-type: none"> • Ethernet, • Start-Mark, Ready, Busy, Interlock, 4 Digital I/Os • Stepper-Motor-Axis Driver (option)
Interfaces Software	<ul style="list-style-type: none"> • COM Automation Server • Host Interface Control TCP/IP
Electrical Supply	230 V / 50 Hz 650 W
Dimensions	19"- Rack device, 5 HE, Length 500 mm
Weight	ca. 45 kg

Applications

Tool and mold construction

Sensor production

Precision mechanics

Medical technology

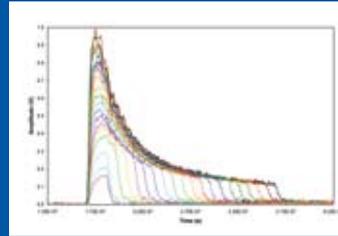
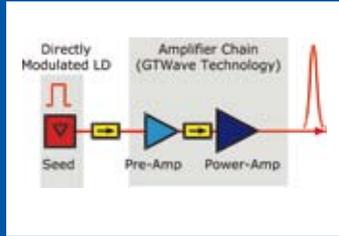
Thin sheet metal processing

Jewelry industry

Electrical technology

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HIGHLIGHTS



Fiber laser

Fiber lasers clearly have advantages compared to traditional laser technologies. They combine high output with the best beam quality.

The pump diodes have a lifespan ten times longer than that of traditional diode-pumped systems. Elaborate to aligning and maintenance-intensive optical components in the resonator are completely eliminated.

MOPA architecture

A direct modular seed laser for the effective control of the pulse parameter of a fiber laser is used for the first time in MOPA architecture. In addition, you have benefit from the control of the pulse shape and duration (Pulse tune function).

In comparison to traditional modulations, higher pulse peaks up to 14 kW and higher pulse frequencies up to 500 kHz are possible.

Pulse tune function

Gives you the unique opportunity to reduce pulse energy over the pulse width when working with somewhat sensitive materials. And at the same time having maximum output. This means a higher working speed as a result.

The LMI has 25 pre-defined waveform presets for the setting of the pulse width from 9 ns to 200 ns.

Scanner control with DSP

In order to be able to use the very high pulse repetition rates in a useful way, the LMI is equipped with a high-speed scanner system.

The control and dynamic alignment of the scanner takes place thanks to a digital signal processor. Every time it is started, the scanner is recalibrated - completely automatically. Outdated manual alignment and maintenance are eliminated.



- COM-Automation Server
- TCP/IP-Host Control-Interface

Integrated system monitoring

All status signals, input and output signals as well as faults are detected by the hardware, independent of the control software, and are clearly shown on the backlit display.

This makes maintenance easier and also help to quickly locate and repair sources of error. A power measurement system is integrated.

Integrated axis control

Up to four stepper motor drivers for the control of linear or rotating axis can be optionally integrated into the hardware. A further 12 can be connected via an interface.

The control software provides comprehensive functions to move the axis either manually or via a program. So it is possible to give each marking object its own axis position.

Functional marking software

With the following features:

- Intuitive user interface in numerous languages
- Simple processing of the object in the work area
- Supports Windows fonts, linear and 2D barcodes
- Import of graphics e.g. DXF, WMF, BMP, JPG, GIF
- Easy serialization of text and barcode objects
- Mark on the fly possible

With software interfaces

- Communication with your ERP/PPS system
- Integrated COM automation server for access to the WinLaseLAN function library for programmers
- Host Control Interface for access to host programs for the distant control and monitoring of TCP/IP interfaces

Technical Data

All details at a glance

	LWI V Small Chamber Type 60 W	LWI V Small Chamber Type 120 W	LWI V FLEXX 120 W
Laser Safety Class	class 1, internal and type „Open“ class 4	class 1, internal and type „Open“ class 4	4
Beam Source	Nd:YAG, flashlamp pumped, pulsed	Nd:YAG, flashlamp pumped, pulsed	Nd: YAG, Flashlamp pumped, pulsed
Wavelength	1064 nm	1064 nm	1064 nm
max. Pulse Energy	70 Joule	70 Joule	70 Joule
max. Peak Power	17 kW	17 kW	17k W
max. Average Power	60 W	120 W	120 W
Duty Cycle	100 %	100 %	
Energy Adjustment Mode	Voltage or PWM Mode	Voltage or PWM Mode	Voltage or PWM Mode
Voltage	160 – 500 V	160 – 500 V	160 – 500 V
Pulse Width	0.1 – 20 ms	0.1 – 20 ms	1 – 20 ms
Pulse Frequency	Single pulse up to 20 Hz	Single pulse up to 20 Hz	up to 20 Hz
Pulse Fill	10 – 100 %	10 – 100 %	10 – 100 %
PWM Mode	1 – 100 %	1 – 100 %	1 – 100 %
Focal Length	120 mm	120 mm	190 mm
Beam Diameter	200 µm – 2 mm, motorized beam-expander	200 µm – 2 mm, motorized beam-expander	200 µm – 2 mm, motorized beam-expander
Microscope	Leica binocular, oculars magnification 20x	Leica binocular, oculars magnification 20x	Leica binocular, oculars magnification 20x
Illumination of Workplace	Dual LED-Cold Light, switchable	Dual LED-Cold Light, switchable	Dual Halogen
Parameter Settings Memory	50 settings, individual named	50 settings, individual named	50 settings, individual named
Energy Measurement System	integrated	integrated	integrated
Controller	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages
Interface	RS232, CAN-Bus	RS232, CAN-Bus	RS232, CAN-Bus
Welding Chamber	closed, window with laser safety filter glass, removable bottom plate	closed, window with laser safety filter glass, removable bottom plate	
Dimensions inside Doors Opening dimensions	max. 270Wx400Lx230H mm ³ two, safety controlled max. 210Wx170H mm ²	max. 270Wx400Lx230H mm ³ two, safety controlled max. 210Wx170H mm ²	
Shielding gas supply	dual, on beam axis and selectable flexible nozzle adjustable gas delay	dual, on beam axis and selectable flexible nozzle, adjustable gas delay	flexible Nozzle, adjustable gas delay
Cooling-System	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan
Motor-Drive			
Electrical Supply	230 V / 50 Hz	3-Phases 400 V / 50 Hz	3-Phases 400 V / 50 Hz
max. Average Power Consumption	1,5 kW	4 kW	4 kW
Dimensions	ca. 620 W x 1140 L x 1060 H mm ³	ca. 620 W x 1140 L x 1060 H mm ³	Laser head: ca.120x 120 x 880 mm Supply unit: ca. 450 x 915 x 770 mm ³
Weight	ca. 80 kg	ca. 80 kg	ca.115 kg

	LWI V FLEXX 200 W	LWI V FLEXX 300 W	LWI V Ultra-FLEXX	LWI V MAXX 120 W
	4	4	1	1, internal and open chamber mode class 4
	Nd: YAG, Flashlamp pumped, pulsed	Nd: YAG, Flashlamp pumped, pulsed	Nd: YAG, Flash lamp pumped, pulsed	Nd: YAG, Flash lamp pumped, pulsed
	1064 nm	1064 nm	1064 nm	1064 nm
	60 Joule	70 Joule	70 Joule	70 Joule
	17 kW	30 kW	17 kW	17 kW
	200 W	300 W	120 W	120 W
	Voltage or PWM Mode	Voltage or PWM Mode	Voltage or PWM Mode	Voltage or PWM Mode
	160 – 500 V	200 – 800 V	160 – 500 V	160 – 500 V
	1 – 20 ms	0.1 – 30 ms	1- 20 ms	1- 20 ms
	up to 20 Hz	up to 30 Hz	Single pulse up to 20 Hz	Single pulse up to 20 Hz
	10 – 100 %	10 – 100 %	10 – 100 %	10 – 100 %
	1 – 100 %	1 – 100 %	1 – 100 %	1 – 100 %
	190 mm	190 mm	120 mm	120 mm
	200 µm – 2 mm, motorized beam-expander	200 µm – 2 mm, motorized beam-expander	600 µm – 2 mm, motorized beam-expander	200 µm – 2 mm, motorized beam-expander
	Leica binocular, oculars magnification 20x	Leica binocular, oculars magnification 20x		Stereo microscope, oculars magnification 20x
	Dual Halogen	Dual Halogen	Dual LED-Cold Light	Dual LED-Cold Light, switchable
	50 settings, individual named	50 settings, individual named	50 settings, individual named	50 settings, individual named
	integrated	integrated	integrated	integrated
	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages	Multi-controller-system, self diagnostic system, plaintext for maintenance and status messages
	RS232, CAN-Bus	RS232, CAN-Bus	RS232, CAN-Bus	RS232, CAN-Bus
				Closed, two removable doors, safety controlled, Two arm inlets, Window with Laser protection glass, Dual LED-Cold Light, Shielding gas supply, flexible nozzle, Dimensions inside max. 270 W x 400 L x 230 H mm ³
	flexible Nozzle, adjustable gas delay	flexible Nozzle, adjustable gas delay	flexible Nozzle, adjustable gas delay	flexible Nozzle, adjustable gas delay
	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan	integrated, closed, Water/Air-Heat Exchanger temperature controlled fan
			VISION CAN-Step Stepper Motor-Control-System, integrated	VISION CAN-Step Stepper Motor-Control-System, integrated
	3-Phases 400 V / 50 Hz	3-Phases 400 V / 50 Hz	3-Phases 400 V / 50 Hz	3-Phases 400 V / 50 Hz
	9 kW	14 kW	4,5 kW	4,5 kW
	Laser head: ca.120 x 120 x 950 mm Supply unit: ca. 450 x 915 x 880 mm ³	Laser head: ca.120 x 120 x 880 mm ² Supply unit: ca. 450 x 915 x 950 mm ³	ca. W 790 x L 900 x H 1400 mm ³ (main unit)	ca. W 1100 x L 1050 x H 1730 mm ³
	ca. 125 kg	ca. 140 kg	ca. 250 kg	ca. 350 kg

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Our guarantee

Expertise has a name - Vision



- >> Certified**

All Vision lasers come with the most modern and highest manufacturing standards as a matter of course. Alongside extensive quality management according to DIN EN ISO 9001:2000 and EN 13485, we produce the majority of our products in special clean rooms. The result: precise technology for the highest of requirements - a guarantor for your success.
- >> Extensive**

With Vision, you get development, sales and production all under one roof. All of our lasers are specially built by our constructors according to your needs. In addition to this, we also produce complete devices. As a result, you receive extensive laser expertise with Vision.
- >> Individual**

The innovative Vision laser technology provides flexible solutions for individual applications. Customer-specific adjustments from spot diameter to focus length, pulse modulation or handling systems are possible at all times.
- >> Tried and tested**

Vision lasers are in action around the world. And we are constantly welcoming new customers. Comprehensive references and delighted customers are our best advertisement. We are happy to provide you with contacts from your industry if you so wish.
- >> Reliable**

Vision laser itself can be integrated in already existing product lines on your interface. This means: even in the expansion of your application field, you will retain the highest investment security possible.



Vision Lasertechnik

Innovative products giving you a competitive edge.





Industry



Optics/
Mechanics



Medicine

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