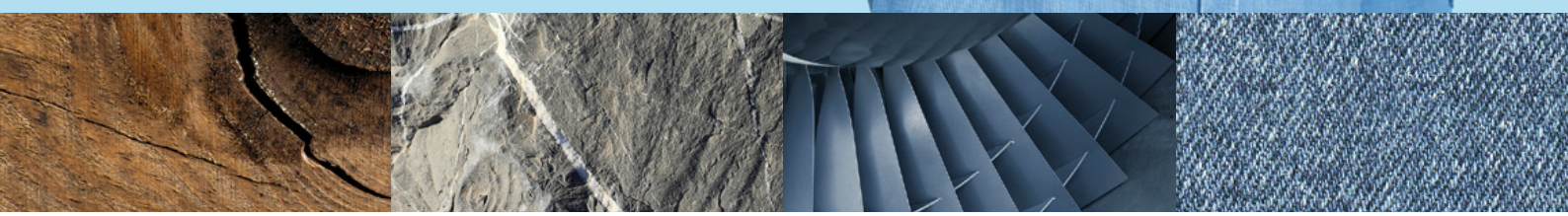
LASER

POINT-, CROSS- AND LINE LASER CATALOGUE

EN



FIXED AND MOVABLE LASER SYSTEMS FOR ALIGNMENT AND POSITIONING IN INDUSTRY AND CRAFTS

ultra line®

drop line

LAP LASER

PRECISION WORK AND LESS CROP DUE TO PRECISE ALIGNMENT AND POSITIONING USING LASERS

Point, crosshair or linelasers are used to align or to position objects in industry and crafts. They replace rulers, stops, measuring aids or templates. Lasers may show the working points of machines, e.g. the aiming point of drills or needles, or cutting lines of saws. They assist the operator in placing the workpiece at the right position, avoiding crop. Laser lines and spots don't move when touched, and you can use both hands for working.

LAP lasers are robust tools, that simplify and speed up your work.

SIMPLER PROCEDURES
Save yourself the cumbersome handling of templates or rulers and the intricate use of measuring aids

FASTER TO THE FINISH LINE
Switch on laser. Align workpiece.Work on it. It's as simple as that!

PROTECTING SURFACES
Lasers don't leave marks, colour residues or other tracks on sensitive surfaces. They don't disperse dirt or humidity.

COST-EFFECTIVE
LAP lasers will proof themself a profitable investment soon by saving setup time, working time and material.

Wood
Wind Energy
Stone
Textile Industry
Plastics
Sawmills
Fabrics
Prefabrication
Leather
Veneer
Composites
Food Industry
Concrete
Metrology
Paper
Metal Construction
Gluelam Trusses
Automotive
Assembly
Masonry
Tin
Healthcare

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THE RIGHT SOLUTION FOR EVERY APPLICATION

The field of application for lasers is as manifold as the use of rulers, templates or measuring tools. You have a wide variety of attributes to choose from: point, cross or line; red or green; long or short; fixed or movable laser; fixed focus or focusable; optimised for cameras or for the human eye - LAP offers a wide range of lasers to solve all common tasks. And if you have a special demand, we will find a solution, as we manufacture LAP lasers inhouse, using our own know-how.

ALIGNMENT OF SINGLE OBJECTS

ALIGNMENT OF MULTIPLE OBJECTS

VISUALISATION OF CUTTING LINE

VISUALISATION OF WORKING POINTE

POSITIONING

INSPECTION

MEASUREMENT

WOOD INDUSTRY

LAP lasers accompany the whole processing in the wood industry. They help aligning the tree trunks at the frame saw and the planks in front of the edger. They show the cutting line of rip saws, sliding table saws, miter saws, band saws and veneer clippers. For more complex tasks and wood processing centers LAP offers the laser projection system WOOD PRO. Contact us for details!

AUTOMOTIVE INDUSTRY AND SUPPLIERS

During production of vehicles and accessories you often encounter alignment tasks, that can easily be taken care of by lasers. You may position seats, align displays, place parts, adjust headlights or check assembly. You need to place parts with organic shape? Ask for our laser projection systems. Where point, cross or line lasers are not sufficient, laser projectors will visualize any outline generated from CAD data on 3D surfaces.

STONE MASONRY

LAP lasers assist during production and processing of natural stone slabs and objects. Line lasers show the cutting line of bridge saws or crosscut saws to use material with as little crop as possible. For complex cutting and milling at processing centers LAP offers the laser projection system STONE PRO. Please contact us for details!

TIRE INDUSTRY

LAP SERVOLASER are standard equipment in the tire industry. The systems with fixed and movable line lasers have been designed based on requirements and requests of tire manufacturers and providers of tire building machines. SERVOLASER display center line and edges of the next layer on tire building machines – symmetrically or asymmetrically, controlled by the machines PLC.

YOUR INDUSTRY

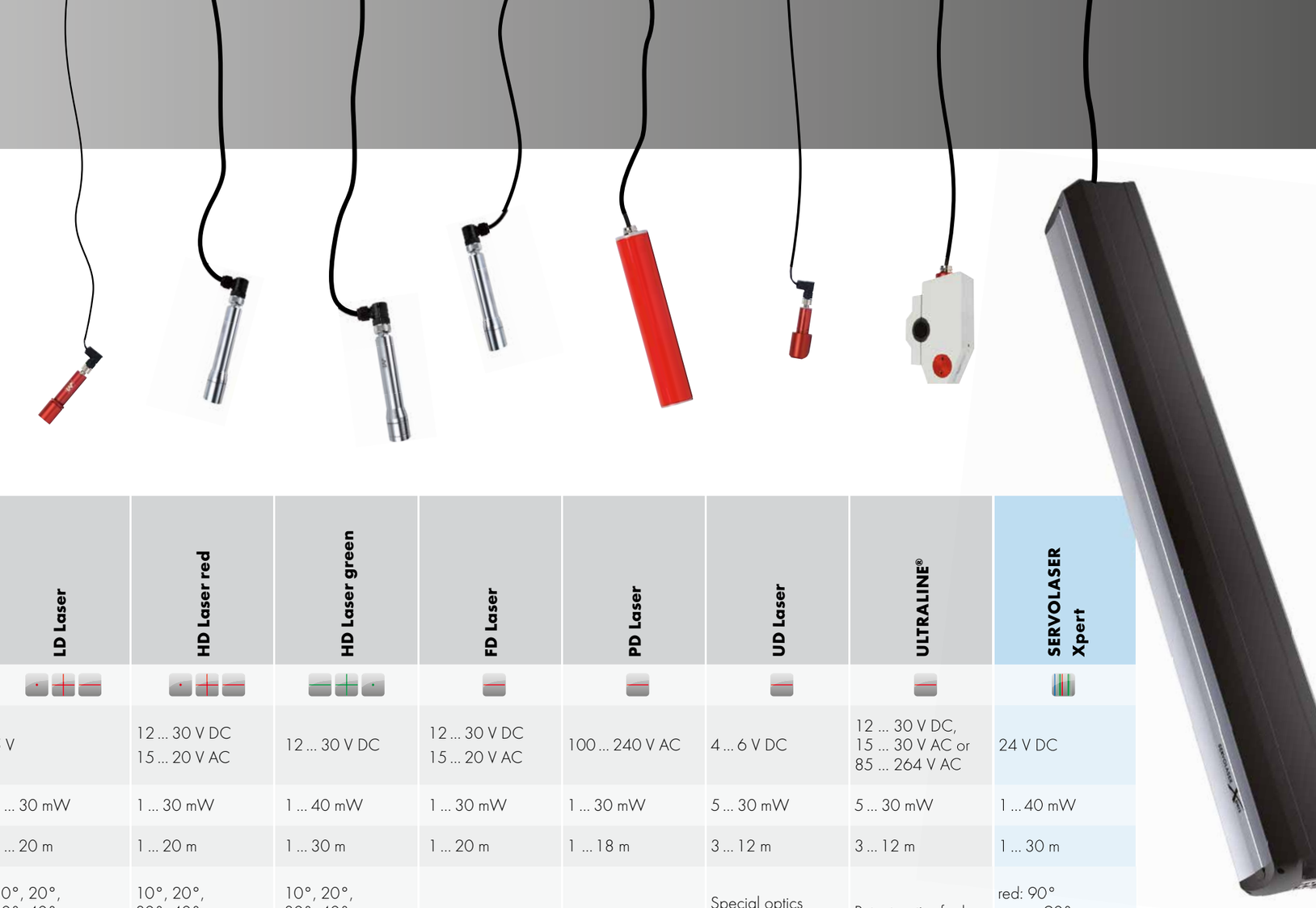
LAP lasers can also be used for alignment and positioning in industries and crafts not mentioned here, from the small workshop to the large scale industrial production.

You may use LAP lasers to position textiles at sewing machines, to align paper coils, to show cut-outs in prefabs, to mark assembly positions, to project reference lines for cameras and much more.

Your application is not mentioned here?

Contact us, we will certainly have a solution for your task - or we will design it for you!

LAP LASERS AT A GLANCE



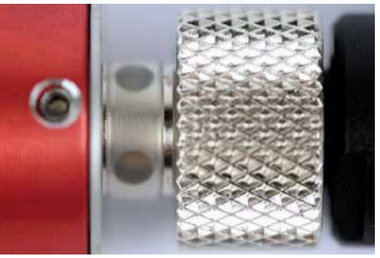
WHICH LASER FOR WHICH INDUSTRY?

	LD Laser	HD Laser red	HD Laser green	FD Laser	PD Laser	UD Laser	ULTRALINE®	SERVOLASER Xpert
Sawmills/Machines	+	++	++	+	+	–	+	+
Veneer production	–	–	o	–	–	++	+	–
Automotive	+	++	++	+	o	o	o	o
Tire building	–	+	++	+	–	–	–	++
Stone masonry	–	+	++	+	+	–	+	o
Textiles	++	+	+	o	–	+	+	o
Paper industry	–	+	+	o	o	o	+	o
Concrete prefabs	–	+	++	+	o	–	o	–
Assembly	+	+	++	+	o	o	o	o
Plastics	–	+	++	+	o	o	o	o
Metal construction	–	+	++	+	o	–	++	o
Food industry	–	+	++	+	o	–	–	–
Imaging	+	++	++	–	–	–	–	–
Medical applications	please ask for information on our systems for patient alignment							

++ optimal o suitable
+ excellent – unsuitable

	LD Laser	HD Laser red	HD Laser green	FD Laser	PD Laser	UD Laser	ULTRALINE®	SERVOLASER Xpert
Laser								
Power supply	5 V	12 ... 30 V DC 15 ... 20 V AC	12 ... 30 V DC	12 ... 30 V DC 15 ... 20 V AC	100 ... 240 V AC	4 ... 6 V DC	12 ... 30 V DC, 15 ... 30 V AC or 85 ... 264 V AC	24 V DC
Laser power	1 ... 30 mW	1 ... 30 mW	1 ... 40 mW	1 ... 30 mW	1 ... 30 mW	5 ... 30 mW	5 ... 30 mW	1 ... 40 mW
Line length*	1 ... 20 m	1 ... 20 m	1 ... 30 m	1 ... 20 m	1 ... 18 m	3 ... 12 m	3 ... 12 m	1 ... 30 m
Optics**	10°, 20°, 30°, 40°, 80° (standard), manually focusable	10°, 20°, 30°, 40°, 80° (standard), manually focusable	10°, 20°, 30°, 40°, 80° (standard), manually focusable	80°	80°	Special optics for low mounting position	Patent optics for low mounting position	red: 90° green: 90° blue: 70° (other on request)
Enclosure rating	IP 42	IP 67	IP 67	IP 67	IP 54	IP 42	IP 54	IP 54
Special features	Smallest housing	Stainless steel housing, for roughest industrial environment	Stainless steel housing, for roughest industrial environment	Stainless steel housing, for roughest industrial environment	International standard diameter 40 mm	Uniform distribution of brightness along laser line, smallest housing	Uniform distribution of brightness along laser line, integrated ball head mount	Closed housing, 1 or 2 movable lasers, 1 fixed laser optional
Page	11	13	15	17	19	21	23	25***

*depending on ambient light, mounting position and angle
**line length depends on opening angle
***see SERVOLASER Xpert borchure for more information



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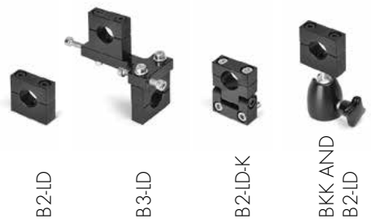
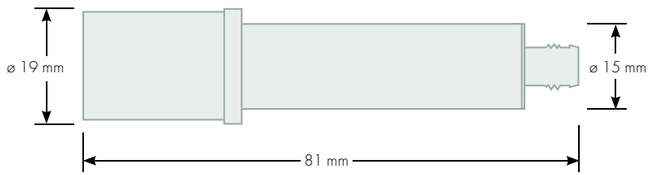


POWER SUPPLY:

CONNECTOR CABLE:

DRAWING (1:1):



LD LASER
1 ... 30 mW

SMALL AND VERSATILE:

Due to manual focussing from 30 mm to ∞, you may achive an extremely fine laserline at any working distance. This makes the LD laser the right choice for applications with changing working distances and projection positions. Flexibility is supported by the small housing, allowing to easily fix the laser on working place machines or rails.

FEATURES:

- Manually focusable
- Point, Line, Cross
- Smallest housing
- Reverse polarity protected
- Available opening angles line: 10°, 20°, 30°, 40°, 80° (standard)
- Available opening angles cross: 38°, 62°(standard)

Technical data	
Laser type, Wavelength	Diode, 635 nm, red (optional: 670 nm)
Power supply	4 ... 6 V DC
Application conditions	-10 ... +40 C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 42
Divergence	0,5 mrad
MTTF	> 30.000 h at 25°C (635 ... 670 nm)
Dimensions	Length 81 mm, Ø 19 mm (front) / 15 mm (back)
Connector	M8, 3-pol.

LINE LASERS

Laser power	Product	Laser class*	Line length*
1 mW	LAP 1 LDL	1	up to 1 m
3 mW	LAP 3 LDL	1	up to 2 m
5 mW	LAP 5 LDL	1	up to 4 m
10 mW	LAP 10 LDL	1	up to 6 m
15 mW	LAP 15 LDL	2	up to 10 m
30 mW	LAP 30 LDL	2M	up to 20 m

CROSS LASERS

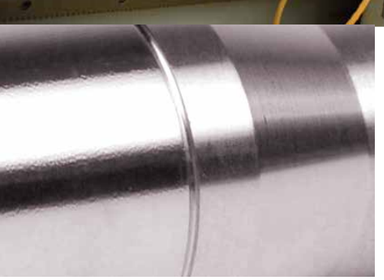
Laser power	Product	Laser class*	Line length at 1 m distance
1 mW	LAP 1 LDX	1	60 cm/90 cm
3 mW	LAP 3 LDX	1	60 cm/90 cm
5 mW	LAP 5 LDX	2	60 cm/90 cm
10 mW	LAP 10 LDX	2M	60 cm/90 cm
15 mW	LAP 15 LDX	2M	60 cm/90 cm
30 mW	LAP 30 LDX	2M	60 cm/90 cm

POINT LASERS

Laser power	Product	Laser class
1 mW	LAP 1 LDP	2
3 mW	LAP 3 LDP	3R
5 mW	LAP 5 LDP	3R
10 mW	LAP 10 LDP	3B
15 mW	LAP 15 LDP	3B
30 mW	LAP 30 LDP	3B

*Standard opening angle 80° line / 62° cross, line length depends on ambient light, mounting position and angle

LAP LD lasers are a perfect match for nearly every gap and like to change their working place



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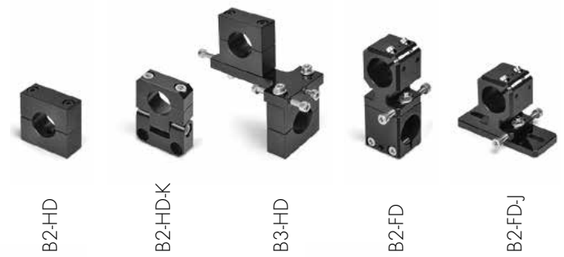


POWER SUPPLY:

CONNECTOR:

DRAWING (1:1):

HD LASER RED
1 ... 30 mW

ROBUST AND FLEXIBLE:

Diode lasers of HD series are designed to withstand the day to day use in harsh industrial environment. The water-proof stainless steel housing protects laser diode, electronic circuitry and precision optics.

The laser diode is galvanically seperated from the power supply, which makes the laser extremely resistant to voltage peaks or current variations. The wide range input capacity enables the HD lasers to be used with all typical low voltage power nets.

The optics may be focused without tools. Spot size or line width can be adjusted. The line position doesn't change during focusing.

FEATURES:

- Manually focusable
- Point, Line, Cross
- „Heavy Duty", extremely robust
- Protected from voltage variations
- Reverse polarity protected
- Available opening angles line: 10°, 20°, 30°, 40°, 80° (standard)
- Available opening angles cross: 38°, 62°(standard)

LAP HD lasers don't resent being treated harshly or being pelted with any kind of chips.

Technical data	
Laser type, Wavelength	Diode, 635 nm, red
Power supply	12 ... 30 V DC, 15 ... 20 V AC
Application conditions	-10 ... +40 C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 67
Divergence	0,5 mrad
MTTF	> 30.000 h at 25°C (635 ... 670 nm)
Dimensions	Length 140 mm, Ø 25 mm (front) /20 mm (back)
Connector	M12, 4-pol.

LINE LASERS

Laser power	Product	Laser class*	Line length*
1 mW	LAP 1 HDL	1	up to 1 m
3 mW	LAP 3 HDL	1	up to 2 m
5 mW	LAP 5 HDL	1	up to 4 m
10 mW	LAP 10 HDL	2	up to 6 m
15 mW	LAP 15 HDL	2	up to 10 m
30 mW	LAP 30 HDL	2M	up to 20 m

CROSS LASERS

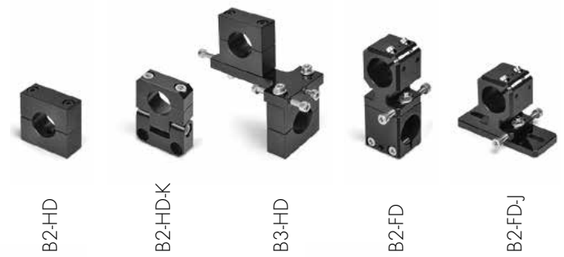
Laser power	Product	Laser class*	Line length at 1 m distance
1 mW	LAP 1 HDX	1	60 cm/90 cm
3 mW	LAP 3 HDX	1	60 cm/90 cm
5 mW	LAP 5 HDX	2	60 cm/90 cm
10 mW	LAP 10 HDX	2M	60 cm/90 cm
15 mW	LAP 15 HDX	2M	60 cm/90 cm
30 mW	LAP 30 HDX	2M	60 cm/90 cm

POINT LASERS

Laser power	Product	Laser class
1 mW	LAP 1 HDP	2
3 mW	LAP 3 HDP	3R
5 mW	LAP 5 HDP	3R
10 mW	LAP 10 HDP	3B
15 mW	LAP 15 HDP	3B
30 mW	LAP 30 HDP	3B

*Standard opening angle 80° line /62° cross, line length depends on ambient light, mounting position and angle

BRACKETS:



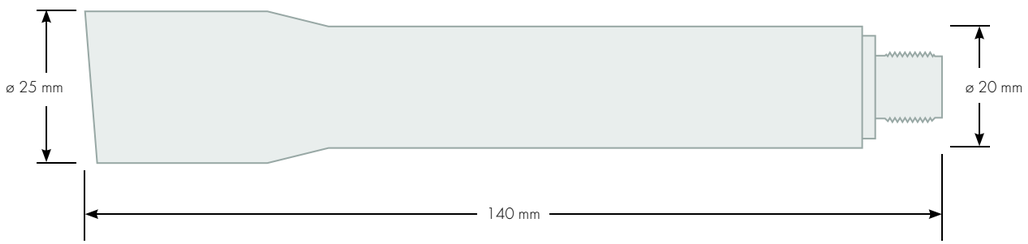
POWER SUPPLY:

CONNECTOR:

HEATSINK:

Cooling Element optional

DRAWING (1:1):



HD LASER GREEN
1 ... 40 mW

ultra line®

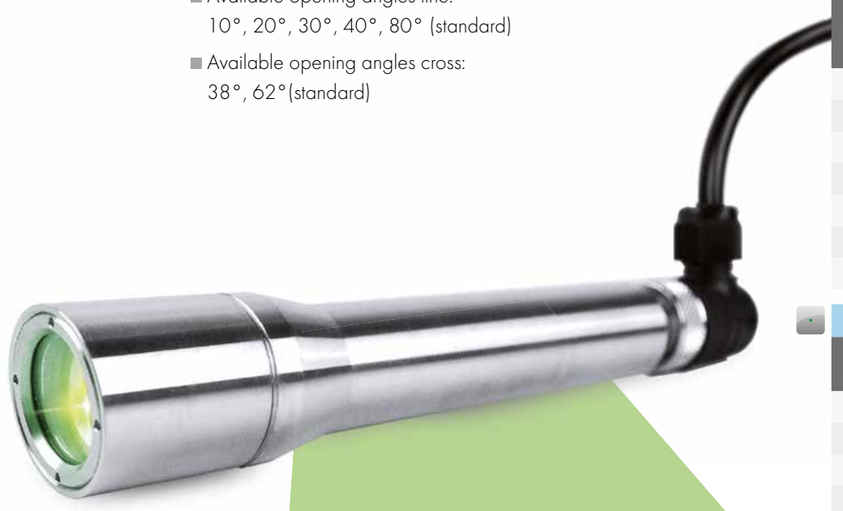
GREEN, BRIGHT, ROBUST:

Lasers of HD series with green laser beam are used, when visibility of red lasers is no longer sufficient. This may occur on adverse surfaces (e.g. red or black, wet stone) or bright ambient illumination (sunlight). Green light has a visibility about five times higher compared to red light, because human eyes have their maximum sensitivity in this wavelength area.

The robust housing made of stainless steel protects laser, electronic circuitry and precision optics. Thanks to a compact design and reduced weight the laser can be used just about anywhere.

FEATURES:

- Improved longevity due to diode laser source
- Manually focusable
- Optimal visibility of green beam
- „Heavy Duty“, extremly robust
- Available opening angles line: 10°, 20°, 30°, 40°, 80° (standard)
- Available opening angles cross: 38°, 62°(standard)



Get the green light for your production.

Technical data	
Laser type, Wavelength	**Diode**, 520 nm, green
Power supply	12 ... 30 V DC
Application conditions	-10 ... +40 C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 67
Divergence	0,5 mrad
MTTF	> 20.000 h at 25°C
Dimensions	Length 140 mm, Ø 25 mm (front) /20 mm (back)
Connector	M12, 4-pol.

LINE LASERS

Laser power	Product	Laser class*	Line length*
1 mW	LAP 1 HYL	1	up to 1 m
3 mW	LAP 3 HYL	1	up to 2 m
5 mW	LAP 5 HYL	1	up to 4 m
10 mW	LAP 10 HYL	2	up to 6 m
15 mW**	LAP 15 HYL	2	up to 10 m
30 mW**	LAP 30 HYL	2M	up to 20 m
40 mW**	LAP 40 HYL	3R	up to 30 m

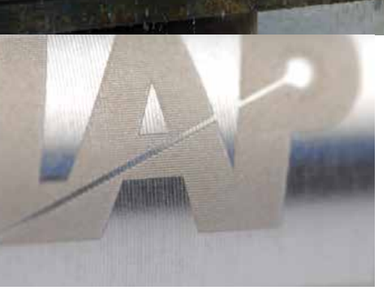
CROSS LASERS

Laser power	Product	Laser class*	Line length at 1 m distance
1 mW	LAP 1 HYX	1	60 cm/90 cm
3 mW	LAP 3 HYX	1	60 cm/90 cm
5 mW	LAP 5 HYX	2	60 cm/90 cm
10 mW	LAP 10 HYX	2	60 cm/90 cm
15 mW**	LAP 15 HYX	2	60 cm/90 cm
30 mW**	LAP 30 HYX	2M	60 cm/90 cm
40 mW**	LAP 40 HYX	2M	60 cm/90 cm

POINT LASERS

Laser power	Product	Laser class
1 mW	LAP 1 HYP	2
3 mW	LAP 3 HYP	3R
5 mW	LAP 5 HYP	3R
10 mW	LAP 10 HYP	3B
15 mW**	LAP 15 HYP	3B
30 mW**	LAP 30 HYP	3B
40 mW**	LAP 40 HYP	3B

*line length depends on ambient light, mounting position and angle
*Standard opening angle 80° line /62° cross, line length
**LAP bracket or heatsink required



FD LASER
1 ... 30 mW

BRACKETS:

B2-HD, B2-HD-K, B3-HD, B2-FD, B2-FD-J, BKK AND B2-HD

POWER SUPPLY:

CONNECTOR:

DRAWING (1:1):

SAFE AND WATERPROOF:

FD diode lasers are designed for use in rough industrial environment. A waterproof housing protects laser diode, electronic circuitry and precision optics.

FEATURES:

- Fixed focus
- Small, robust stainless steel housing
- IP 67

Technical data	
Laser type, Wavelength	Diode, 635 nm, red
Power supply	12 ... 30 V DC, 15 ... 20 V AC
Application conditions	-10 ... +40 C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 67
Divergence	0,5 mrad
MTTF	> 30.000 h at 25°C
Dimensions	Length 131 mm, Ø 25 mm (front) /20 mm (back)
Connector	M12, 4-pol.

LINE LASERS

Laser power	Product	Laser class*	Line length*
1 mW	LAP 1 FDL	1	up to 1 m
3 mW	LAP 3 FDL	1	up to 2 m
5 mW	LAP 5 FDL	1	up to 4 m
10 mW	LAP 10 FDL	2	up to 6 m
15 mW	LAP 15 FDL	2	up to 10 m
30 mW	LAP 30 FDL	2	up to 20 m

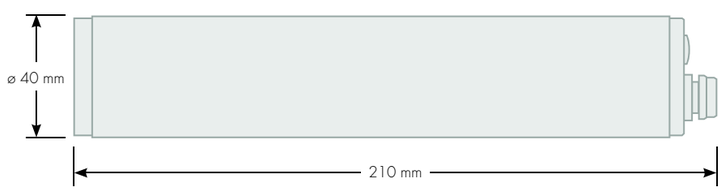
*Standard opening angle 80°, line length depends on ambient light, mounting position and angle

LAP FD lasers can't be harmed easily. Waterproof and peak protected they are always in line with their tasks.

BRACKETS:

B2-PD B2-PD-J

DRAWING (1:2):



PD LASER
1 ... 30 mW

ultra line®

PRECISE ALLROUNDER:

LAP PD series line lasers are designed for heavy duty industrial applications, where a clear, precise line is desired for alignment purposes.

The cylindrical aluminium housing with Ø 40 mm fits the brackets commonly used on machines worldwide. It incorporates the wide range power supply, control electronics, laser diode and multiple element precision glass optics. PD laser withstand even the hardest conditions in areas where dirt and contamination are a normal part of the environment.

The wide range power supply operates on all mains worldwide and tolerates massive surges and power fluctuations.

FEATURES:

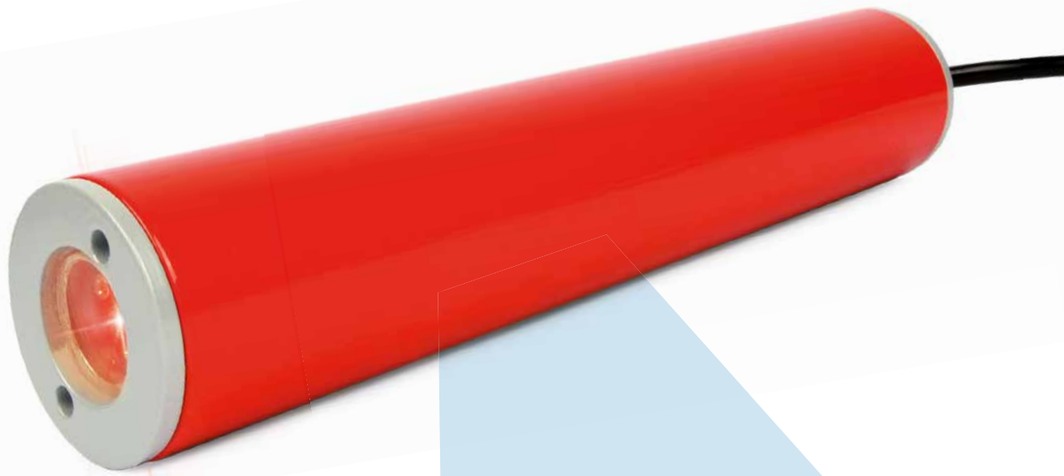
- Diameter 40 mm, international compatible
- Wide range power supply 100 ... 240 V AC
- Virtually immune against power line spikes and surges

Technical data	
Laser type, Wavelength	Diode, 635 nm, red
Power supply	100 ... 240 V AC
Application conditions	-10 ... +40°C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 54
Divergence	0,5 mrad
Power consumption	< 200 mA
MTTF	> 30.000 h at 25°C
Dimensions	Length 210 mm, Ø 40 mm
with cap:	Length 365 mm , cap Ø 45 mm

LINE LASERS

Laser power	Product	Laser class*	Line length*
1 mW	LAP 1 PDL	1	up to 1 m
3 mW	LAP 3 PDL	1	up to 2 m
5 mW	LAP 5 PDL	1	up to 4 m
10 mW	LAP 10 PDL	2	up to 7 m
15 mW	LAP 15 PDL	2	up to 12 m
30 mW	LAP 30 PDL	2M	up to 18 m

*Standard opening angle 80°, line length depends on ambient light, mounting position and angle



Wherever the LAP PD Laser lays his cap, is his home – making friends with many standard brackets available worldwide.

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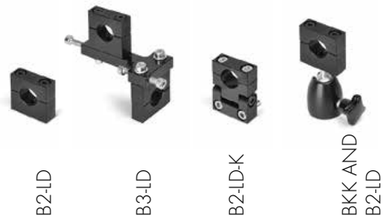
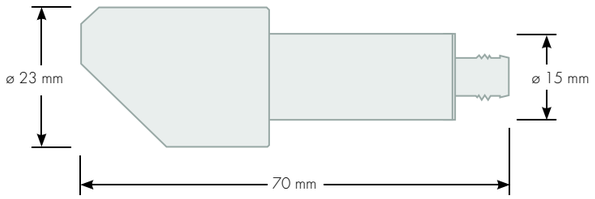


POWER SUPPLY:

CONNECTOR CABLE:

DRAWING (1:1):



UD LASER
5 ... 30 mW

drop line

LOW MOUNTING SPECIALIST:

Diode lasers of LAP UD Series are designed for installation low above the working surface.

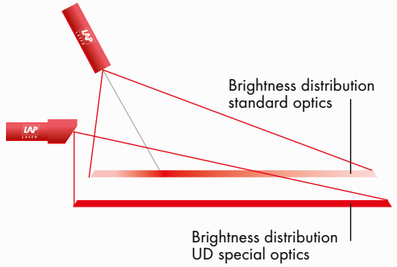
The UD series was the answer on customers requests for a laser with small housing like LD series, line length and quality of ULTRALINE to be built in low above working level. The main target for UD lasers are veneer- or sheet metal shears, as well as any place where you have little headroom but you need a long line, starting directly below the laser.

You need a 4 m line, you only have 50 cm of height and the laser must be installed on one side of the opening?

Then you need a UD laser!

FEATURES:

- Small housing
- Extremely low mounting position
- Special optics for laser line with homogeneous brightness distribution



Technical data	
Laser type, Wavelength	Diode, 635 nm, red
Power supply	4 ... 6 V DC
Application conditions	-10 ... +40°C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 42
Divergence	0,5 mrad
MTTF	> 30.000 h at 25°C
Dimensions	Length 70 mm, Ø 23 mm (front) /15 mm (back)
Connector	M8, 3-pol.

LINE LASERS

Laser power	Product	Laser class	Line length*
5 mW	LAP UD-PL	1	up to 3 m
10 mW	LAP UD-XL	2	up to 6 m
15 mW	LAP UD-XXL	2	up to 9 m
30 mW	LAP UD-XXXL	2M	up to 12 m

*Line length depends on ambient light, mounting position and angle

The LAP UD Laser best performs near your workpiece.

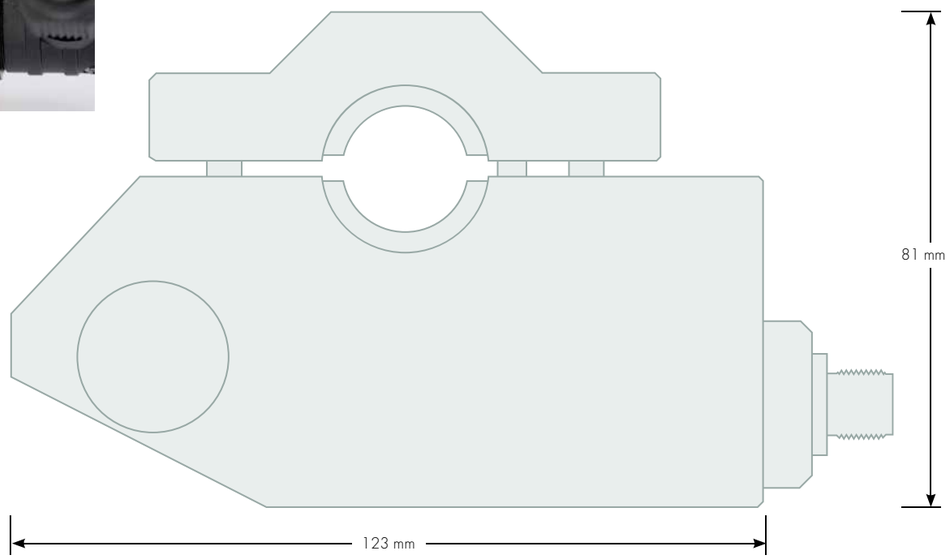
BRACKETS:

BHWZ

POWER SUPPLY:

CONNECTOR:

DRAWING (1:1):



ULTRALINE®
5 ... 30 mW

drop line

BRIGHT AND VERSATILE:

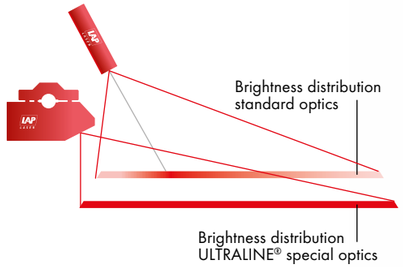
Diode lasers of LAP ULTRALINE® series are designed for installation low above the working surface. With innovative design of patented optics ULTRALINE® laser solve two problems:

First, you get a higher and more constant brightness of the laser line. The line starts directly below the housing and remains constant in brightness over nearly the whole line length. The luminosity at the end of the line is twice as high compared to a laser of same power with normal optics !

Second, the shape and size of the housing enable low mounting at the side with the line starting directly below the laser.

FEATURES:

- Low mounting position
- Integrated ball head mount
- Patented optics for homogeneous brightness along the line

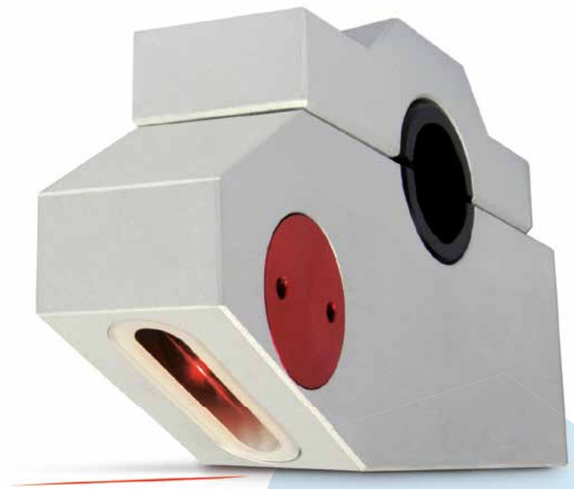


Technical data	
Laser type, Wavelength	Diode, 635 nm, red
Power supply	12 ... 30 V DC, 15 ... 30 V AC or 85 ... 264 V AC
Application conditions	–10 ... +40°C, 35 ... 90 % rel. humidity, non-condensing
Enclosure rating	IP 54
Divergence	0,5 mrad
MTTF	> 30.000 h at 25°C
Dimensions (230 V)	186 mm × 35 mm × 81 mm
Dimensions (24 V)	123 mm × 30 mm × 81 mm
Connector (24 V)	M12, 4-pol.

LINE LASERS

Laser power	Product	Laser class	Line length*
5 mW	LAP UL-PL	2	up to 3 m
10 mW	LAP UL-XL	2	up to 6 m
15 mW	LAP UL-XXL	2M	up to 9 m
30 mW	LAP UL-XXXL	2M	up to 12 m

*Line length depends on ambient light, mounting position and angle



Der LAP ULTRALINE®-ball head and brains with patented optics

FEATURES:

- **More color**
  Free combination of red, blue and green modules
- **More power**
  Modules with up to 40 mW laser power improve visibility especially on matte or black surfaces
- **Higher precision**
  Projection accuracy from ± 0.2 mm
- **Higher speed**
  Modules move with up to 1000 mm/s
- **Better communication**
  EtherNet/IP™ (further interfaces on request)
- **More configurations**
  Moving ranges up to 2600 mm, combination of two rails with up to 4 moving laser modules

Brochure SERVOLASER Xpet ist available separately.

SERVOLASER XPERT
1 ... 40 mW

CONTROLLED MOVEMENT:

The LAP SERVOLASER Xpert is a flexible laser positioning system with fixed and movable line laser modules.

In most applications, SERVOLASER Xpert project two parallel lines in varying positions, controlled by product specifications.

Depending on configuration you get different moving ranges:

- Full range (F): one laser module moves the whole range
- Max range (M): two laser modules move the whole range independently. At both ends, the range of the second module is reduced by the width of the first module.
- Symmetrical (S): two laser modules move synchronously in relation to the middle of the range

Technical Data	
Number of modules	1 or 2 movable lasers in one housing. 2, 3 or 4 movable lasers in one system. Fixed center laser optional.
Wavelengths*	635 nm (red), 520 nm (green), 450 nm (blue)
Laser power	1 ... 40 mW (dimmable)
Laser classes	1, 2, 2M, 3R depending on laser power and opening angle
Standard-opening angle of laser modules	red, green: 90°; blue: 70°; other opening angles on request
Moving range	up to 2600 mm
Positioning speed	up to 1000 mm/s
Projection accuracy	from ± 0.2 mm **
Line width	from 0.5 mm (FWHM)
Protection class	IP 54
Operating temperature	0 ... 40°C
Power supply	24 V ± 20 %
Interface	EtherNet/IP™ (further interfaces on request)

* free selection and combination
** depending on rail length and projection distance

Model	Range of Movement [mm]	Dimensions L × W × H [mm]
XS	600	1004 × 177 × 192
S	1000	1424 × 177 × 192
M	1200	1604 × 177 × 192
L	1600	2024 × 177 × 192
XL	1900	2324 × 177 × 192
XXL	2100	2504 × 177 × 192
XXXL	2600	2984 × 177 × 192

BRACKETS

ADJUSTMENT

VERNIER

LD/UD Laser

B2-LD | B2-LD-K | BKK AND B2-LD | B3-LD

FD/FY/HD Laser

B2-HD | B2-HD-K | B2-FD-J | BKK AND B2-HD | B2-FD | B3-HD | B5-HD-F | B5-HD

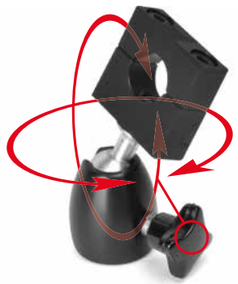
PD Laser

B2-PD-J | B2-PD

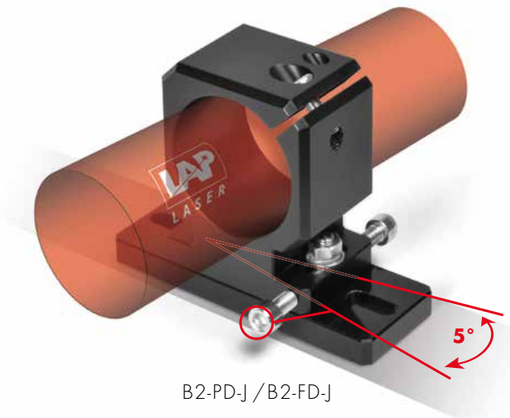
ULTRALINE®

BHWZ

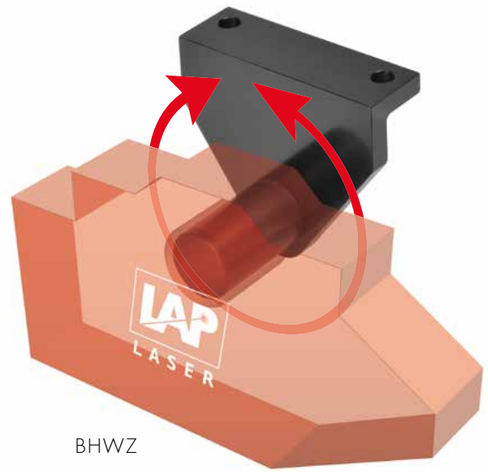
B2-LD-K / B2-HD-K



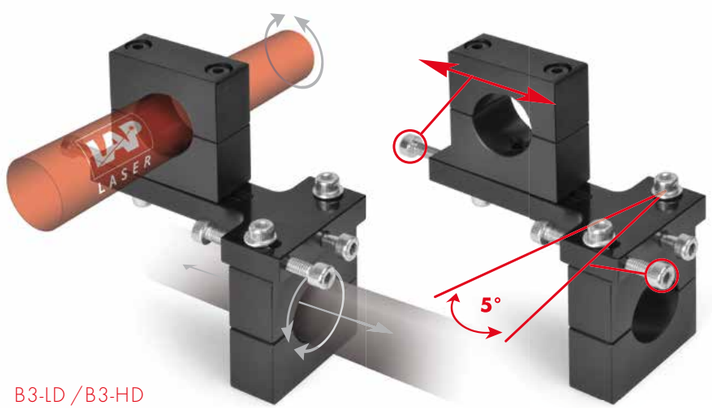
BKK AND B2-LD /
BKK AND B2-HD



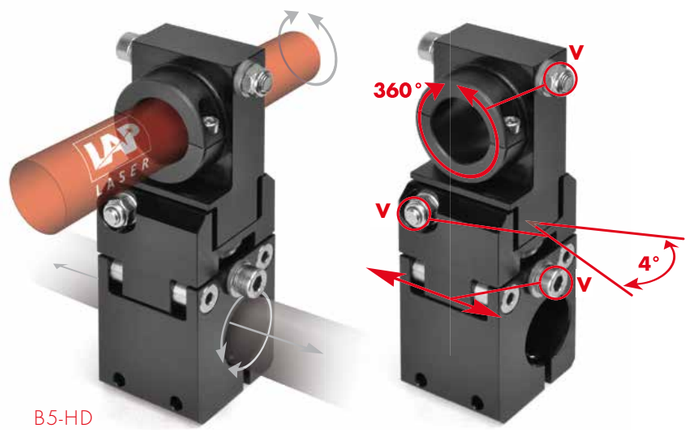
B2-PD-J / B2-FD-J



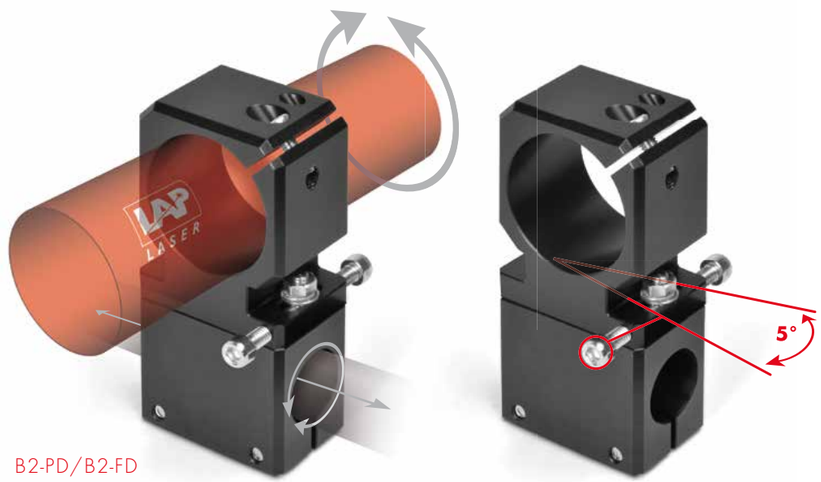
BHWZ



B3-LD / B3-HD

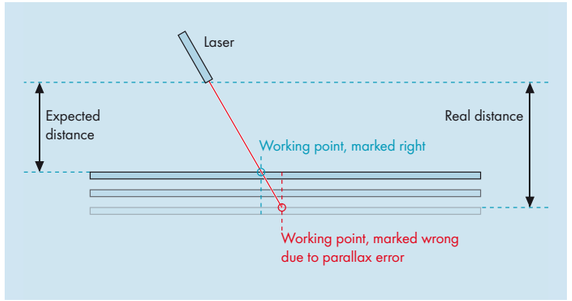


B5-HD



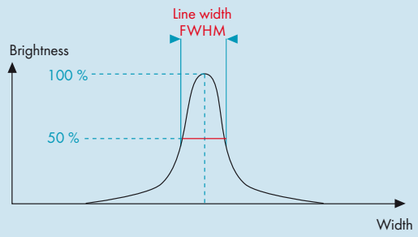
B2-PD / B2-FD

DID YOU KNOW?



PARALLAX ERROR

Parallax errors occur, where the laser is not adjusted exactly perpendicular to the working or object surface. By changing the distance between laser and surface, the laser point/cross/line changes its position.



LINE WIDTH

To give a reliable, comparable scientific criterion for line width, LAP uses FWHM (Full Width at Half Maximum). The width of the line is given, where brightness decreases to half the maximum. As brightness distribution in most cases is similar to a Gaussian curve, this relates to the visual impression.

LASER CLASS

LASER CLASS 1

Laser is safe under all conditions of normal use.

LASER CLASS 2

Lasers that emit visible radiation (400 ... 700 nm).
Eye protection is normally granted by aversion responses. Don't look into the beam directly on purpose for longer or for several times.

LASER CLASS 2M

Lasers that emit visible radiation (400 ... 700 nm).
Eye protection is normally granted by aversion responses. However, looking into the beam may be more hazardous if the user employs optics within the beam. Don't look into the beam using optical instruments (lenses, magnifiers ...)

LASER CLASS 3R

Lasers that emit in the wavelength range from 302.5 nm to 10^6 nm where direct intrabeam viewing is potentially hazardous. The accessible emission limit is within five times the AEL of Class 2 in the wavelength range from 400 nm to 700 nm.

LASER CLASS 3B

Direct exposure to these lasers is hazardous for eyes and in certain circumstances also for skin. Don't expose yourself to the laser beam! Viewing diffuse reflections is safe, if viewing distance is larger than 13 cm and exposure time is below 10 s.

ultra line²

LAP UltraLine® is the result of the advanced mechanical systems and the unique optoelectronics used to generate and align laser lines for medical and industrial applications.

drop line

LAP DropLine lasers start the laser line directly below the horizontally mounted housing. The line brightness remains virtually constant to the far end.

THE SERVICE

LAP supports you before, during and after the installation of an LAP system. Tens of years of international experience with installation and maintenance of laser systems across virtually all industries make LAP a reliable and competent partner.

Before you decide, we offer intense consulting. We show you the advantages of our technology as well as its limits. We give advice during site planning and install the system on site. After commissioning, we accompany your first steps until you reach full performance.

Every customer has different requirements concerning maintenance intervals, response time and protection against downtime. Consequently, LAP offers every customer an individually tailored package, which may exceed normal performance by far.

You need on-site replacement? 24/7 emergency service? 24h-hotline? Or is replacement within 24 hours, working day service and periodical training of your employees enough? Tell us your wishes – we will find a solution that is sufficient for your needs.

Customizing

- Support during site planning
- Supply of additional equipment (Mounting accessories, rails, beams ...)
- Software customizing and add-ons (connection to customer network, barcode handling ...)

Installation and commissioning

Training

Maintenance

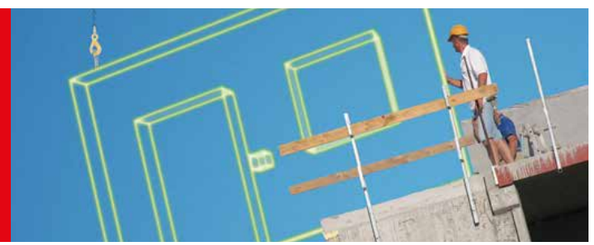
- Substitution units for provisional use during maintenance
- Exchange of parts subject to regular wear and tear
- Cleaning
- Adjustment

Updates for software and firmware

Repairs

BRING COLOUR TO YOUR LIFE. LAP ALSO PROJECTS OUTLINES AND TEMPLATES. MULTICOLOURED.

www.LAP-LASER.com



THERE'S EVEN MORE. LAP ENABLES YOU TO MEASURE GEOMETRICAL FEATURES WITHOUT CONTACT

www.LAP-LASER.com

HIGH-TECH QUALITY LASERS BY LAP

For more than 30 years, LAP has been developing, manufacturing and distributing laser measurement systems, line lasers and laser template projectors for industrial and medical applications. LAP products are high-precision devices *Made in Germany*.

Using LAP laser systems, our customers improve performance and increase the quality of their products as well as the effectiveness of their processes.

As a result of continuous product innovation, LAP has become a world leader in lasers for projection and measurement. LAP products are setting the standards in a wide range of markets from manufacturing to heavy industrial environments and medical applications.

Environmental protection is important to us. We use solar panels, green electricity, roofs planted with grass and rain water. Our production is planned by standards of sustainability.

Quality has always been part of our commitment. We are content if you are. We know your high demands. To meet your requirements, the quality management of LAP is certified by DIN EN ISO 9001:2008 for industrial products and by DIN EN ISO 13485:2010 for medical engineering products.

www.lap-laser.com/LINELASER

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ISO 9001
ISO 13485

made in Germany

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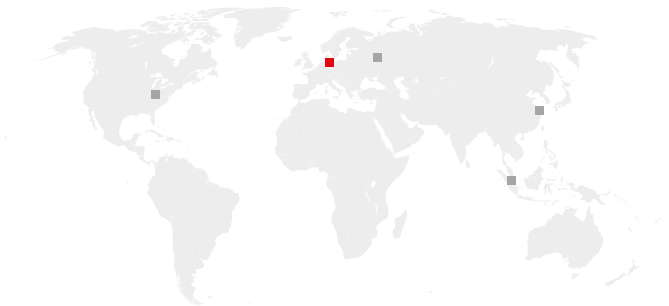

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