Optic accessories

The wide range of ALPHA LASER's optics accessories enables you to carry out the most specialized laser welding tasks and to adapt the laser welding to your specific requirements.

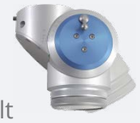
In the following pages you will find everything you need to process particularly small, large, or difficult-to-access work pieces, to weld around corners, or to carry out circular welding tasks.

You will also find a wide selection of focusing lenses and oculars.

The overview on the last page lets you see at a glance which accessories are available for which ALPHA LASER devices.

1

Turn and tilt objective



Our unique turn and tilt objective enables you to work freely, even in the most difficult work piece positions.

It is possible, within the entire 360° turning range of the objective, to steer the laser beam continuously from the vertical up to 40°. This enables you to reach even difficult-to-access spots effortlessly, while remaining in a comfortable and ergonomic working position.

The LED ring light integrated in the objective provides optimum, even and flicker-free illumination with daylight quality.

- Tilt angle 0-40°
- Pivoting angle 0-360°
- Includes:
  - Focusing lens
  - LED ring light
  - Protection glass

Available in 2 variants:

- With focusing lens f=150 mm
  Item number 600-0351D.U
- With focusing lens f=120 mm
  Item number 600-0354B.U
  (= HP-Recommended > 300 W-Laser)

2

Perpendicular objective with LED ring light

The LED ring light integrated in the objective provides optimum, even and flicker-free illumination in daylight quality.

Includes:

- LED ring light
- Focusing lens
- Protection glass

Available in 2 variants:

- With focusing lens f=150 mm
  Item number 600-0381B.U
- With focusing lens f=120 mm
  Item number 600-0355A.U
  (= HP – Recommended > 300 W)

3

Perpendicular objective for halogen illumination

Includes:

- Focusing lens
- Protection glass (38 mm Ø)

Available in 2 variants:

- With focusing lens f=150 mm
  Item number 600-0385A
- With focusing lens f=120 mm
  Item number 600-0388A
  (= HP - Recommended > 300 W-Laser)

4

Perpendicular objective for coaxial illumination

Perfect objective for processing particularly small work pieces, e.g. thermal elements.

The light from the external cold light source reaches the work piece at the same angle as the laser beam, providing optimum daylight quality illumination.

A LED ring light is also integrated in the objective.

Includes:

- LED ring light
- Protection glass

Available in 2 variants:

- With focusing lens f=90 mm
  Item number 600-0384B.U
- With focusing lens f=120 mm
  Item number 600-0355A.U

5

Focusing objective with LED ring light

This objective enables the focal point of the objective to be continuously moved by a total of 20 mm. This is particularly useful for small work pieces.

The LED ring light integrated in the objective provides optimum, even and flicker-free illumination with daylight quality.

Includes:

- Focusing lens f=150 mm

Item number 600-0400A

6

Rotating welding objective

The objective for circular weld seams.

The laser beam rotates at an angle of 45° around a defined midpoint. The shielding gas is delivered at the same time.

- Radius adjustment range: 0-12 mm
- Working distance 35-55 mm
- Rotation speed: 0.5-15 U/min
- A motor control for the rotary axis is also required unless already provided in the laser processing table AL-T

Item number 600-0500A

7

Cone-shaped nozzle

The cone-shaped nozzle feeds the shielding gas directly from above to the weld.

It is therefore not necessary to direct the shielding gas nozzle onto the work piece. This is particularly useful if the welding direction changes frequently, e.g. for

- Welding end faces
- Welding pipes to molds
- Circular welding

For installation on the perpendicular objective with LED ring light.

Item number 600-0392A

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8

Turn and tilt objective *System 52*

This modular objective system offers countless individual combination possibilities.

The laser beam can for example be deflected twice around 90°. The extension may be mounted at any point.

- Total of 7 components
- For mounting on the flange for inter-changeable objectives

Item number 600-0580A

9

90° beam deflection

For welding on a vertical working plane.

Deflects the perpendicular laser beam around 90° into a horizontal beam.

All interchangeable objectives can be mounted on the 90° beam deflector, e.g. the perpendicular objective with LED ring.

Item number 600-0450A

10

Objective extension

Moves the objective 100 mm closer to the work piece.

This is particularly useful for difficult-to-access welding spots.

Up to two objective extensions can be mounted one behind the other.

Can be screwed onto the protection glass holder or the dovetail adapter.

The following are also required:

- Lens holder (601-0143A)
- Protection glass holder (601-0116A)
- Dovetail adapter if required (601-0587A)

Item number 600-0301B

11

Lens holder

Holder for focusing lens (38 mm Ø).

Focusing lens not included.

Item number 600-0143A

12

Protection glass holder

Holder for protection glass (38 mm Ø).

Protection glass not included.

Item number 601-0116A

13

Dovetail adapter for lens holder

Adapter for connecting the objective extension to the flange 600-0352C.

Item number 601-0587A

14

Focusing lens (38 mm Ø)

Choose the appropriate focusing lens depending on the required working distance (focal distance f) from the work piece:

- Focusing lens f=90 mm (optimized) Item number 601-0792A
- Focusing lens f=120 mm Item number 601-0750A
- Focusing lens f=120 mm (optimized) Item number 601-0612A
- Focusing lens f=150 mm Item number 601-0747A
- Focusing lens f=160 mm (optimized) Item number 601-0673A
- Focusing lens f=200 mm Item number 601-0748A
- Focusing lens f=300 mm Item number 601-0752A

Item number 600-0301B

15

Cross-hair synchro adapter

Synchronizes the cross hair of the microscope attachment with the welding point of the laser.

Particularly useful for small work pieces and when working outside the area of focus.

Item number 600-0558A

16

Ocular

Lens system for looking into the microscope attachment.

The retractable glare shield over the ocular enables it to be used with or without spectacles.

Our oculars are available with different enlargement factors. A cross hair may also be ordered if required.

- Ocular (piece, without cross hair):
  - Ocular 10x (=standard) Item number 701-0152A
  - Ocular 16x Item number 701-171A
  - Ocular 25x Item number 701-150A
  - Ocular 40x Item number 701-0924A
- Cross hair Item number 701-0960A

17

Camera system ALFT-HDMI

For displaying the welding process on an external monitor.

This camera system is specially adapted to the ALPHA LASER devices.

- For installation under the microscope attachment of the laser
- Delivers HD signals to the monitor, with integrated cross-hair
- Incl. power supply, HDMI cable, laser cable

Item number 600-1560A

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18

Modular HD camera system for binocular

For displaying the welding process on an external monitor.

This camera system is connected via the HD-F lens barrel to the standard microscope attachment (binocular).

The integrated cross hair can be adjusted with the optional remote control.

Individual components:

- Camera
  incl. power supply and HDMI cable
  Item number 701-3181A
- HD-F lens barrel
  Item number 701-0189A
- Video objective
  Item number 701-0161A
- Remote control for cross-hair
  Item number 701-3182A

19

Modular HD camera system for trinocular

For displaying the welding process on an external monitor.

For installation on a Leica trinocular (Item number 701-0159A or 701-0159B).

The integrated cross hair can be adjusted with the optional remote control.

Individual components:

- Camera
  incl. power supply and HDMI cable
  Item number 701-3181A
- Video objective
  Item number 701-0161A
- Remote control for cross-hair
  Item number 701-3182A

20

Trinocular

In addition to the standard microscope attachment binocular), the trinocular has a connection for an external CCD camera system with 42mm screw thread.

Item number 701-0159B

21

Zoom Adapter M60

For enlarged display of the work piece.

The Leica Zoom Adapter M60 lets you switch between three enlargement factors without taking your eye from the lens.

Three enlargement factors:

1.6 / 2.5 / 4.0

Item number 701-0965A

22

Ergo Wedge

For an ergonomic working position.

The Leica Ergo Wedge enables you to adjust the microscope attachment perfectly to your own particular viewing height.

Tilt angle 5°-25°

Item number 701-0148A

23

Ergo Tube

For an ergonomic working position.

The Leica ergo tube enables you to adjust the microscope attachment perfectly to your own particular viewing height.

With its wide tilt angle, it is particularly useful if the ALPHA LASER device is used by a number of people.

Tilt angle: 10°-50°

Item number 701-0970A

24

Cross-hair generator

For superimposing a cross hair on the welding process display on an external monitor.

The generated cross hair can be freely positioned on the monitor using the rotary knob.

A BNC-BNC-cable can also be ordered if required (Item number 201-0081A).

Item number 701-0923A

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Optics accessories – Overview

			VL	ALS	ALV	ALmicro	AL	AL500	ALM	ALFlak	ALW	AL-SWS
1	Turn and tilt objective		–	–	–	✓	✓	✓	✓	✓	✓	✓
2	Perpendicular objective with LED ring light		–	–	–	✓	✓	✓	✓	*incl.*	*incl.*	✓
3	Perpendicular objective for halogen illumination		–	–	–	✓	✓	✓	*incl.*	✓	✓	✓
4	Perpendicular objective for coaxial illumination		–	–	✓	✓	–	–	✓	✓	✓	✓
5	Focusing objective with LED ring light		–	–	✓	✓	✓	–	–	✓	✓	✓
6	Rotating welding objective		–	–	✓	✓	✓	–	–	✓	✓	✓
7	Cone-shaped nozzle		–	–	✓	✓	✓	–	✓	✓	✓	✓
8	Turn-and-tilt objective System 52		–	–	✓	–	✓	–	✓	✓	✓	✓
9	90° beam deflection		–	–	–	✓	✓	–	✓	✓	✓	✓
10	Objective extension		–	–	✓	–		✓	✓	✓	✓	–
11	Lens holder		✓	✓	✓	✓	✓	–	✓	✓	✓	✓
12	Protection glass holder		✓	✓	✓	✓	✓	–	✓	✓	✓	✓
13	Dovetail adapter for lens holder		–	–	–	✓	✓	✓	–	✓	✓	✓
14	Focusing lens		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Cross-hair synchro adapter		✓	✓	✓	✓	✓	–	–	✓	✓	✓
16	Eyepiece		✓	✓	✓	✓	✓	–	✓	✓	✓	✓
17	Camera system ALFT-HDMI		✓	✓	✓	✓	✓	–	✓	✓	–	✓
18	Modular camera system, binocular		✓	✓	✓	✓	✓	–	✓	✓	–	✓
19	Modular camera system, trinocular		–	–	–	–	–	–	–	–	✓	–
20	Trinocular		–	–	✓	✓	✓	✓	✓	✓	✓	✓
21	Zoom adapter M60		–	–	✓	✓	✓	–	–	✓	✓	✓
22	Ergo wedge		✓	✓		✓	✓	✓	✓	✓	✓	✓
23	Ergo tube		–	–	✓	✓	–	–	✓	✓	*incl.*	✓
24	Cross-hair generator		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available

incl. = supplied with the laser system

– = not avalaible