

Status: 02/2020



cab product overview  
Laser marking

Made in Germany

## Key points first

Laser is economic when it comes to marking small components or even large workpieces precisely and permanent. There are several benefits:

- **Focus on smallest spaces,**  
as laser beams allow strong bundling
- **Flexibility,** as both metals and plastics can be marked  
– even on spots that are difficult to access
- **High speeds of operation,**  
as strongly bundled light must not overcome mechanical resistance
- **No mechanical force** exerted on components,  
as heat energy is brought in without direct contact
- **Highly resistant,** as laser marking is insensitive  
to acids or bases, UV radiation, heat and wear

cab marking lasers have been designed to solve a wide range of applications. It is possible to mark stagnant products of metal or plastics in a wide range of industries:

- **Medtech** – machine-readable encoding of medical or surgical instruments, compliant with the guidelines on Unique Device Identification
- **Aerospace** – DataMatrix encoding of strategic components such as turbines
- **Electronics** – permanent encoding and alphanumeric data assure quality assurance of PCB, clamps or switch gears
- **Automotive** – laser encoding to track and trace automotive components and units; markings include, for example, manufacturing data, dates, part, series and batch numbers

Scopes of delivery, design and technical specifications correspond to the date of the printing. Subject to change. The data provided in the catalog do not represent any warranty or guarantee.



For current data see also the Internet:  
[www.cab.de/en/laser](http://www.cab.de/en/laser)

# Sample applications

cab marking lasers mainly work with metals and plastics.  
Depending from the requirement and material, different methods are known:



Traceable QR encoding



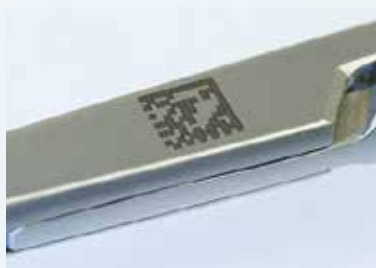
Markings on cast parts

## Engraving

Evaporation with high energy density removes the material.  
An indentation with a sharp outline occurs.



Medical instruments



Traceable sterilization

## Annealing

finds application mainly on highly alloyed stainless steel  
or titanium.



Aluminum rating plates



Automotive components

## Ablating

uncovers material underneath the top layer.  
Examples include anodized or painted layers.



Consumption metering



Medical size allocation

## Coloring

finds application on plastics. The degree of color change  
depends from the chemical composition of the material as  
well as from ingredients and fillers.

## Marking lasers XENO 4

The performance and quality of markings mainly depend from the output power and the laser beam focus.

cab XENO 4 marking lasers are diode-pumped and air-cooled. They have high beam quality and high pulse peak powers. Beam sources are provided with 20, 30 and 50 Watt.

Different plano-spherical lenses enable marking in fields from 69 x 69 mm to 290 x 290 mm.

## 20, 30, 50 Watt

Marking is possible on plastics, metals and painted surfaces.

XENO 4 marking lasers consist of two units: A control unit with an integral beam source and a scan head that is connected with the beam source via a fiber. It can be assembled in any orientation.

The integrated focus finder simplifies workpiece positioning.

### XENO 4 represents

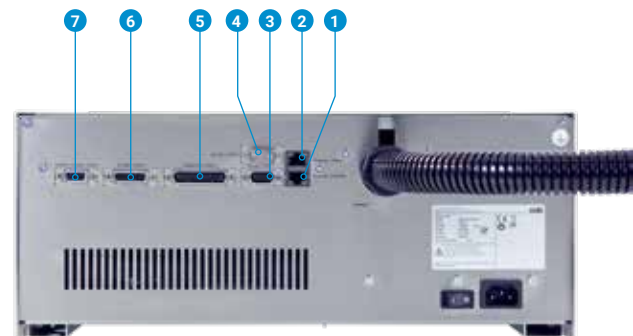
- a compact scan head,
- high operation speeds,
- integrated focus finding,
- shifting the marking plane quickly,
- shifting the focus throughout height differences up to 140 mm,
- Industry 4.0,
- TCP/IP control and monitoring

The control unit and the beam source are incorporated in a 19" rack.



## Interfaces providing process control and monitoring

- 1 **Ethernet 10/100 Mbit/s** to connect a PC. As delivered, the device has been configured with an IP address or in DHCP mode.
- 2 **Ethernet 10/100 Mbit/s** to connect peripheral devices. Bidirectional data transfer from and to end devices
- 3 + 4 **2 x RS232 C** to connect peripheral devices. Bidirectional data transfer from and to end devices
- 5 **Digital I/O interface** control and monitoring. Provided are 8 inputs and outputs, freely programmable. Circuit protected according to IEC 61131-2
- 6 **Remote** laser switch-on and control
- 7 **Interlock / E-stop** to integrate to external safety circuits and connect an external E-stop

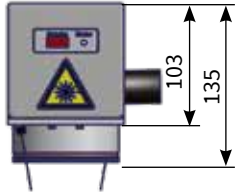




# Technical data

		1.1 - 1.12		
<b>Marking laser</b>		<b>XENO 4 / 20</b>	<b>XENO 4 / 30</b>	<b>XENO 4 / 50</b>
Beam source		Ytterbium fiber laser, pulsed, air-cooled		
cw output power	up to W	20	30	50
Pulse energy	mJ	1		
Wave length	nm	1,064		
Beam quality M <sup>2</sup>		<1.8		
Pulse width	ns	<120		
Pulse repetition frequency	kHz	20 - 60	30 - 60	50 - 100
Connection cable	m	2.5		
<b>Plano-spherical lens</b>		<b>XENO 4</b>		
Lens	Type	100.2	160.2	254.2
Operation distance	mm	141 ± 4	210 ± 8	310 ± 8
Marking field	mm	69 x 69	112 x 112	180 x 180
Spot diameter	µm	~25	~35	~50
= Resolution	dpi	1,000	725	500
Scan head				
Assembly		horizontal / vertical		
Marking speed	mm/s	~5,000		
Pilot laser				
Wave length	nm	650		
cw output power	mW	<1		
Electronics				
Processor 32 bit clock rate	MHz	600		
Main memory (RAM)	MB	256		
Data memory (Flash)	MB	512		
Extension (Flash)		USB memory stick		
<b>Dimensions and weights</b>		<b>Rack 4 height units 19“</b>		
Control unit W x H x D	mm	420 x 178 x 420		
Weight	kg	16		
Scan head W x H x D	mm	99 x 135 x 205		
Weight	kg	3		
<b>Operation panel</b>				
Key switch		Beam source ON/OFF		
Buttons	Pilot laser / focus finder	ON/OFF		
	Shutter open	open / close		
Display	Emission	Beam source in operation		
	Laser error	Beam source error		
	Ready	Beam source ready		
	Power	Power supply ON		
	Pilot laser / focus finder	ON		
	Shutter open	Safety lock open		
Connections Service		USB mini		
Data memory		USB		
<b>Operating data</b>				
Power supply		100-240 VAC, 50/60 Hz		
Power switch		ON/OFF		
Power consumption	Standby W	65		
	up to W	200	200	350
Temperature / humidity	Operation	+5-35 °C / 10-85 %, not condensing		
	Stock	0-60 °C / 20-80 %, not condensing		
	Transport	-25-60 °C / 20-80 %, not condensing		
Approvals		CE, FCC Class A		
Laser protection class EN60825-1				
	Beam source	Class 4		
	Pilot laser	Class 2		

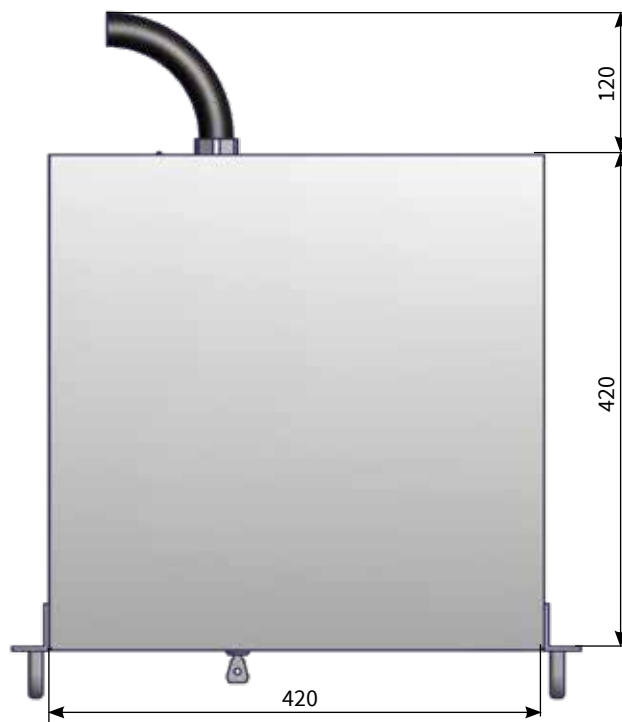
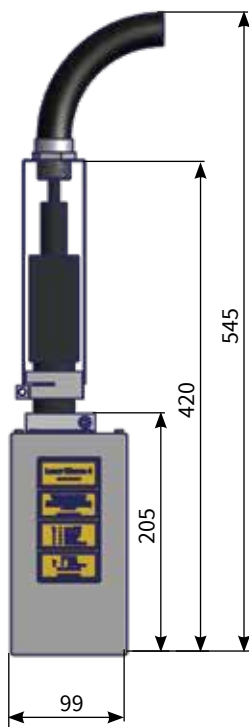
# Dimensional drawing



XENO 4 scan head



XENO 4 control unit



# Laser marking system XENO 1



XENO 1 is a compact desktop system, demanding little footprint and offering a large work area.

XENO 1 fits with marking on metals or plastics.

XENO 1 completes the range of cab laser marking systems in the lower price segment. Processing the system complies with high industrial standards.

The marking plane is adjustable in heights up to 200 mm with the motor-driven moveable Z-axis and easily and quickly with the focus finder. In case of different height levels at the workpiece, the scan head can be automatically adjusted to the right focus distance by the integrated numeric Z-axis.

Depending from the lens, the size of the marking field is 112 x 112 or 180 x 180 mm. It can be moved from the center to the right margin.

The marking can be simulated with the pilot laser.

Interior LED lighting allows observation of the workpiece when the operation door is closed.

The workpiece holder is mounted on the groove plate.

A rotary axis is available for cylindrical objects.

The automatic operation door opens or closes within seconds. Material can be inserted manually or by a handling system from three sides.

With the comprehensive cabLase marking software layouts are graphically designed, markings controlled and processes monitored.

Legal environmental regulations RoHS and REACH are observed.

		2.1	2.2	2.3	2.4
<b>Laser marking system XENO 1</b>					
Beam source		Ytterbium fiber laser, pulsed			
cw output power	up to W	20		30	
Pulse energy	mJ	1			
Wave length	nm	1,064			
Beam quality M <sup>2</sup>		<1.8			
Pulse width	ns	<120			
Pulse repetition frequency	kHz	20 - 60		30 - 60	
Pilot laser / focus finder					
Wave length	nm	650			
cw output power	mW	<0,4			
Lens	Type	160.2	254.2	160.2	254.2
Operation distance	mm	210 ± 8	310 ± 8	210 ± 8	310 ± 8
Marking field	mm	112 x 112	180 x 180	112 x 112	180 x 180
Work area height	mm	200	100	200	100
Groove plate W x H x D x pitch	mm	500 x 20 x 375 x 25			
Z-axis stroke, motor-driven	mm	210			
Position accuracy	mm	± 0,1			
Repetitive accuracy	mm	± 0,1			
Traversing speed	mm/s	20			
Interior lighting		LED			
Operation door		motor-driven opening / closing			
Workpiece weight	up to kg	30			
<b>Dimensions and weight</b>					
Device	W x H x D	mm 580 x 660 x 700			
	Weight approx.	kg 65			
Laser protection window W x H		mm 100 x 200			
Extraction					
	Nozzle flexible hose	DN mm 38			
	Suction pipe	DN mm 50			
<b>Operating data</b>					
Power supply		100-240 VAC, 50/60 Hz			
Power consumption		Standby <35 W / typical 150 W / up to 200 W			
Temperature / humidity	Operation	+5-35 °C / 10-85 %, not condensing			
	Stock	0-60 °C / 20-85 %, not condensing			
	Transport	-25-60 °C / 20-85 %, not condensing			
Approvals		CE, FCC Class A			
Laser protection class EN60825-1		Class 1			
<b>Operation panel</b>					
LED displays	Power, Ready, Emission, Error, Marking				
Buttons, illuminated	Control ON/OFF	Start			
	Focus finder ON/OFF	Z-axis up / down			
	Extraction ON/OFF	Rotary axis left / right			
	LED ON/OFF	Operation door open / closed			
Switch	E-stop				
Key switch	automatic / manual				
<b>Monitoring</b>					
Safety circuits	closed				
Collective error	Marking laser	Extraction system			
<b>Interfaces</b>					
Operation room	Rotary axis	Digital I/O interface			
Back of the device	2 x Ethernet TCP/IP	Extraction and filter system AF5			
	24 V for digital I/O interface	External start, external E-stop			

## Accessory

### 6.7 Extraction and filter system AF5



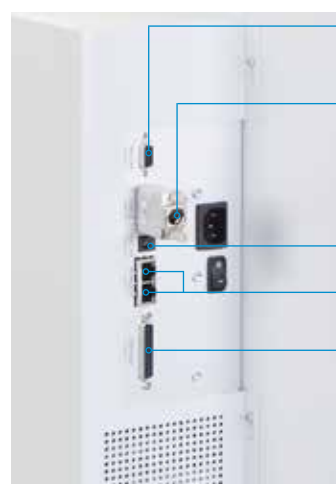
## Details

XENO 1 is a fully equipped laser marking system offering high operating comfort for marking single components and series.



- 1 **Fiber laser** 20 or 30 W
- 2 Motor-driven **operation door**
- 3 **Scan head**, providing motor-driven height setting and a pilot laser to preview the marking
- 4 **Focus finder** to set the marking plane
- 5 **Interior LED lighting**
- 6 **Rotary axis** with a 3-jaw chuck for markings on cylindrical items
- 7 **Digital I/O interface** control and monitoring, provided are 8 inputs and outputs, freely programmable
- 8 **Plug** to connect the rotary axis
- 9 **Operation panel** providing buttons and status display
- 10 **Groove plate** to clamp workpiece carriers
- 11 **Z-axis**, moveable along the groove plate
- 12 **Suction hose**

## Interfaces



- 13 **External start signal**
- 14 **E-stop** to integrate into external safety circuits
- 15 **External 24 V** for additional operations
- 16 **2 x Ethernet 10/100 Mbit/s**  
As delivered, the device has been configured with an IP address or in DHCP mode.
- 17 **Port to connect an extraction and filter system**

# Laser marking system XENO 3



XENO 3 provides an integrated laser system to mark metal and plastic plates permanently.

Fiber laser beam source, control unit and operation room are incorporated in a joint laser safety housing according to protection class 1. Due to its compact design and small footprint, XENO 3 fits with desktop operations.

Markings applied by a XENO 3 remain clearly legible even in the long term in rough surroundings.

Hydraulic cylinders, engines, pumps, gears, vehicle chassis or system components are typical items to be marked with a XENO 3.

Replace magazines enable to process different plate sizes. Plates to be processed are 40 x 20 to 120 x 100 mm in size, resp. 0,5 to 1 mm in thickness.

Plate stacking is possible to heights of 50 mm.

The marking can be observed through the protection window and with the help of the lit interior.

Fold-out carry handles simplify the installation of the system.

With the comprehensive cabLase marking software layouts are graphically designed, markings controlled and processes monitored.

The system might be remote controlled or monitored in networks in which machines interact with other machines or human beings.

In the case of metal engravings and ablation of top layers we advise you on the selection of filters.

		3.1	3.2
<b>Laser marking system XENO 3</b>			
Beam source		Ytterbium fiber laser, pulsed	
cw output power	up to W	20	30
Pulse energy	mJ	1	
Wave length	nm	1,064	
Beam quality M <sup>2</sup>		<1.8	
Pulse width	ns	<120	
Pulse repetition frequency	kHz	20 - 60	30 - 60
<b>Pilot laser</b>			
Wave length	nm	650	
cw output power	mW	<0.4	
Lens	Type	160.2	
Operation distance	mm	210 ± 8	
Marking field	mm	112 x 112	
Interior lighting		LED	
<b>Material</b>			
<b>Plates</b>			
Width x Height	from mm	40 x 20	
	up to mm	120 x 100	
Plate tolerance according		ISO 2768-mk	
Position accuracy	mm	±0.2	
Plates 0.5 mm	quantity	100	
Plate thickness	mm	0.5 - 1.0	
<b>Dimensions and weight</b>			
Device	W x H x D mm	420 x 480 x 480	
	Weight approx. kg	< 35	
Laser protection window	W x H mm	100 x 200	
<b>Extraction</b>			
Nozzle flexible hose	NW mm	38	
Suction pipe	NW mm	50	
<b>Interfaces</b>			
Back of the device		2 x Ethernet TCP/IP, Extraction and filter system AF5, external start, external E-stop	
<b>Operating data</b>			
Power supply		100-240 VAC, 50/60 Hz	
Power consumption		Standby < 35 W / typical 150 W / up to 200 W	
Temperature / humidity	Operation	+5-35 °C / 10-85 %, not condensing	
	Stock	0-60 °C / 20-85 %, not condensing	
	Transport	-25-60 °C / 20-85 %, not condensing	
Approvals		CE, FCC Class A	
Laser protection class	EN60825-1	Class 1	
Performance level		d	
<b>Operation panel</b>			
LED displays		Power, Ready, Emission, Error, Marking	
Switch		E-stop	
<b>Monitoring</b>			
Operation door		open / closed	
Collective error		Marking laser Extraction system	
<b>Software</b>			
Marking software		cabLase Editor 5 cabLase automation	
Software operation		Start Pilot laser ON/OFF Extraction ON/OFF LED ON/OFF	

## Accessories

3.3 Magazine, customer-specific

6.7 Extraction and filter system AF5

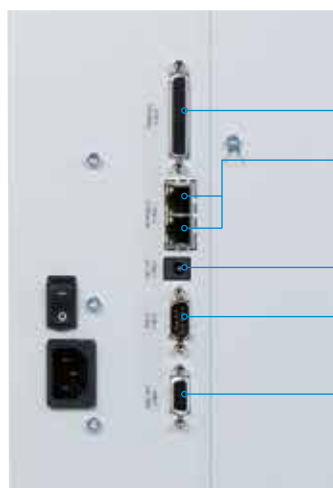
## Details

XENO 3 is a fully equipped laser marking system offering high operating comfort for marking single plates and series.



- 1 **Fiber laser** 20 or 30 W
- 2 **Setup door**
- 3 **Operation panel**  
providing buttons and status display
- 4 **Scan head**, providing manual height setting  
and a pilot laser to preview the marking
- 5 **Interior LED lighting**
- 6 **Extraction**, integrated
- 7 **Typeplate handling module**
- 8 **Replace magazine**
- 9 **Output magazine**
- 10 **Carry handles**

## Interfaces



- 11 **Port to connect an extraction and filter system**
- 12 **2 x Ethernet 10/100 Mbit/s**  
As delivered, the device has been configured  
with an IP address or in DHCP mode.
- 13 **External 24 V** for additional operations
- 14 **E-stop** to integrate into external safety circuits
- 15 **External start signal**

# Laser safety housing LSG+100E

4.1 - 4.2



The laser safety housing LSG+100E offers an industrial solution for marking component series with a marking laser XENO 4. The rugged metal design besides a large work area provides enough space to integrate both the beam source and an industrial PC in a 19" assembly frame.

A keyboard and a monitor are assembled ergonomically to a pivot arm. The operation door opens and closes electrically.

	4.1	4.2		
Laser safety housing	LSG+100E 230 V	LSG+100E 120 V		
Operation room W x H x D mm	980 x 460 x 980			
Grooved plate, T-slot, W x D mm	550 x 375			
Pitch mm	25			
Z-axis stroke mm	440			
Position accuracy mm	0.02			
Repetitive accuracy mm	± 0.02			
Traversing speed up to m/s	60			
Interior lighting	Low energy light bulb			
Operation door	electrical opening / closing			
Time to open / close s	<2			
Lens Type	100.1	160.1	254.1	420.1
Marking field mm	69 x 69	112 x 112	180 x 180	290 x 290
Operation distance mm	141 ± 4	202 ± 8	302 ± 8	541 ± 20
Workpiece height up to mm	60 - 490	430	330	90
Workpiece height up to kg	50			
<b>Dimensions and weight</b>				
W x H x D mm	1,000 x 2,280 x 1,120			
Laser prot. window W x H mm	200 x 100			
Machine stands Ø mm	80			
Suction pipe Ø mm	50			
Frame to assemble XENO 4 and a PC	4 height units 19"			
Weight kg	395			

<b>Operating data</b>			
Power supply	220-240 VAC, 50 Hz	100-140 VAC, 60 Hz	
Power switch	ON/OFF		
Temperature / humidity	Operation	5-40 °C / 10-85 %, not condensing	
	Stock	0-60 °C / 20-80 %, not condensing	
	Transport	-25-60 °C / 20-80 %, not condensing	
Laser protection class EN60825-1	Class 1		
Approval	CE		
<b>Operation panel</b>			
LED display	Power Ready	Emission Error	Marking
Buttons, illuminated	Control ON/OFF Focus finder ON/OFF Extraction ON/OFF Lighting ON/OFF Start Z-axis up / down X-axis left / right Rotary axis left / right Operation door open / close Reserve		
Switch	E-stop		
Key switch	automatic / manual		
<b>Monitoring</b>			
Safety circuits	closed		
Collective error	Marking laser Extraction system		
<b>Interfaces</b>			
Interlock / E-stop	XENO 4		
Remote	XENO 4		
Digital I/O interface	XENO 4		
Stepper motor	Z-axis, X-axis, rotary axis		
Extraction and filter system	AF1.1		

## Details



### Setup door

A large setup door allows to access LSG+100E easily. Jigs may be assembled comfortably to the grooved plate in the well-lit operation room.

### Linear axis Z400

It provides precise and fast focus setting. For setup, the axis is traversed with the help of buttons integrated to the operation panel.

## Accessories

- 4.3 **PC in a 4 height units 19" rack**
- 4.4 **Monitor 19"**
- 4.5 **Standard keyboard, optical mouse**
- 4.6 **Keyboard with trackball**
- 6.1 **Extraction and filter system AF1.1**
- 8.1 on request: **Rotary table module RTM650**
- 8.6 **Linear axis X400**
- 8.7 **Rotary axis D30**
- 8.8 **3-jaw chuck D30**
- 8.12 **Axis controller 2S**

# Laser label marker LM+

5.1 - 5.2



	5.1	5.2
<b>Laser label marker</b>	<b>LM+160.1</b>	<b>LM+254.1</b>
Operation room W x H x D mm	160 x 5 x 190	
Position accuracy mm	0.2	
Transport speed mm/s	200	
Interior lighting	LED	
Material	Label or continuous materials	
Thickness mm	0.055 - 0.3	
Weight up to g/m <sup>2</sup>	500	
Width mm	25 - 120	
Label height up to mm	180	
Roll		
Outside diameter up to mm	300	
Core diameter mm	76	
Winding	outside or inside	
Lens Type	160.1	254.1
Marking field mm	112 x 112	120 x 180
Operation distance mm	202 ± 8	302 ± 8
<b>Dimensions and weight</b>		
W x H x D mm	440 x 520 x 802	
Laser prot. window W x H mm	100 x 50	
Machine stands Ø mm	50	
Suction pipe Ø mm	50	
Weight kg	22	
<b>Operating data</b>		
Power supply	100-240 VAC, 50/60 Hz	
Power switch	ON/OFF	
Temperature / humidity	Operation	5-40 °C / 10-85 %, not condensing
	Stock	0-60 °C / 20-80 %, not condensing
	Transport	-25-60 °C / 20-80 %, not condensing
Laser protection class EN60825-1	Class 1	
Approval	CE	

The laser label marker allows marking labels of different sizes straight from the roll precisely and cutting them out without the need of additional tools.

After the marking, labels made of laser markable foil can be cut or externally rewound.

## Accessories

- 4.3 **PC in a 4 height units 19" rack**
- 4.4 **Monitor 19"**
- 4.5 **Standard keyboard, optical mouse**
- 4.6 **Keyboard with trackball**
- 5.3 **External rewinder**
- 5.4 **Hose set**
- 5.5 **Mobile cart**
- 5.6 **Console**
- 5.7 **Monitor column**
- 6.1 **Extraction and filter system AF1.1**

### Operation panel

LED display	Continuous material Labels
Buttons	Material feed Material backfeed Cut
Switches	automatic / manual E-stop

### Monitoring

Safety circuits	closed
Wipe-down roller	locked
Material	in marking position / no material

### Interfaces

Interlock / E-Stop XENO 4	
Serial RS232C	XENO 4 CON5
External E-stop	
Cutter	



**Laser label marker LM+**  
on a mobile cart, providing an external rewinder on the console, a monitor column and an extraction and filter system AF1.1

# cabLase marking software

## cabLase Editor 5 features

- graphic layout design,
- marking control,
- process monitoring



## cabLase at a glance

Software		
Software	cabLase Editor 5	
Fonts		
Font types	All TrueType fonts included in Windows, filled or outline; laser typical single, double, triple line fonts. All font types can be freely scaled and "wobbled".	
Alignment	Any alignment and direction of rotation, circular ark marking	
Character spacing	compress and stretch	
Graphics		
Graphic elements	Lines, circles, rectangles, polygons; hatching of all closed surface elements	
Graphic formats	PLT, DXF, BMP, JPG, PCX, WMF, EPS, TIF; All graphic elements can be scaled, moved, rotated, grouped or mirrored. Special tools are available to align the objects.	
Barcodes		
Linear	Interleaved 2/5 Code 39, Code 93 Code 128	Codabar EAN UPC
2D	DataMatrix, ECC200, QR code	
	All codes are variable in height, modular width, ratio; check digit or inverted code output are options	
Further features		
Serial numbers, time, date		
Variable fields		
Add graphic data of Windows programs		
Program laser parameters		
Memory process data and parameters		
Control digital inputs and outputs		
Control and monitor additional axes, e.g. stroke, rotary and linear		
Recommended system requirements PC		
Operation system	Windows 7 Pro SP1 or Windows 10 (32/64 bit)	
Processor	Min. Intel Core i5-6400, recommended i7-6700 or higher	
Main storage	Minimum 8 GB, recommended 16 GB or higher	
Hard disc	Memory requirements software 1 GB	
Interfaces	Network card 10/100 Mbit for laser connection USB 2.0 connection for dongle	

## Stand-alone operation

cabLase supports marking without the need of a PC. Marking layouts and related fonts are downloaded by the software to the laser control unit and managed. Digital signals provide process control and monitoring.

## Remote host operation

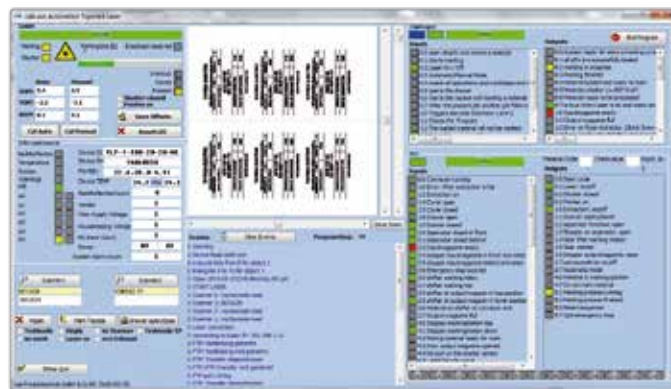
cabLase allows remote control by a master control unit such as a PC or PLC serially, via Ethernet or ProfiBus. Programming commands are provided to select a layout, change marking data, control and monitor processes.

## Remote API interface

if lasers are integrated in complex production processes. Objects and parameters, layouts and variable data can be set, administrated and processed externally via a PC or PLC.

## COM automation server

for customer-specific marking applications. A library of commands provides all the functions of the cabLase marking software.



## Integration in ERP and MES systems

cabLase provides program modules to integrate a marking system in MES and ERP platforms. As cab is a member of the SAP Printer Vendor Program, marking applications may be for example connected to the SAP data stream.

## Industry 4.0

Industry 4.0 and the IoT represent smart production. Usable software and connectivity are implementation keys. Future-proof cab marking lasers provide all the interfaces necessary for programming and data transfer.

**We gladly advise you in your application!**

9.1 - 9.2



At delivery, all marking laser systems include a cabLase Editor 5 USB software dongle.

# Extraction and filter system AF1.1 for LSG+100E and LM+

Processing materials with a laser produces poisonous dusts and gas pollutants. Extraction protects the operator's health and prevents the laser room and lens from contamination. It also ensures that laser power maintains. Air is extracted from the working room with the help of a highly performant turbine through a flexible hose.

Pollutants and dusts are emitted in the pre-filter and a filter particularly provided for suspended particles. Gas pollutants are absorbed by the active carbon filter. Clean air is returned to the environment.

The system has a modular design. Filters are easy to replace.



Extraction and filter system		6.1	
Extraction and filter system		AF1.1	
Suction power	up to m <sup>3</sup> /h	320	
Vacuum	bis Pa	12,500	
Filter equipment		Filter class	
Pre-filter mat	M5	■	
Filter for susp. part.	H13	■	
Active carbon filter		■	
Dimensions and weights			
Device	Width	mm	355
	Height	mm	682
	Depth	mm	355
	Weight approx. kg		35
Suction pipe	NW	mm	50
Operating data			
Power supply	240 VAC, 50/60 Hz		
Power consumption	Standby	W	<40
	typical	W	400
	up to	W	1,200
Temperature / humidity	Operation	5-40 °C / 10-85 %, not condensing	
	Stock	0-60 °C / 20-85 %, not condensing	
	Transport	-25-60 °C / 20-85 %, not condensing	
Approval	CE		

## Consumables



6.4 Pre-filter mat

6.5 Filter for suspended particles

6.6 Active carbon / BAC filter

## Accessories



6.2 Suction hose 2.5 m

6.3 Crevice nozzle to clean the operation room

Operation panel	
Display	LED Filter saturation Extraction ON/OFF Reset
Button 1	Run / Standby
Button 2	Reset
Control knob	Suction power
Interface	
	Digital I/O interface
Monitoring	Run / Standby Trouble-free system operation Collective errors: - Temperature error - Turbine error - Filter saturated - Pre-filter error
Control	Run / Standby

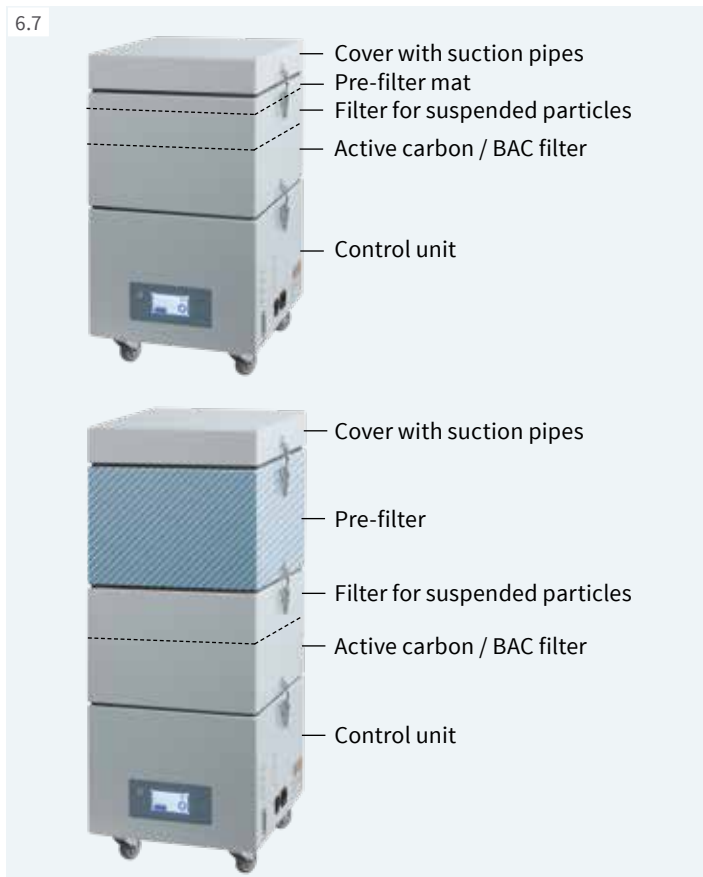


# Extraction and filter system AF5 for XENO systems

Processing materials with a laser produces poisonous dusts and gas pollutants. Extraction protects the operator's health and prevents the laser room and lens from contamination. It also ensures that laser power maintains. Air is extracted from the working room with the help of a highly performant turbine through a flexible hose.

Pollutants and dusts are emitted in the pre-filter and a filter particularly provided for suspended particles. Gas pollutants are absorbed by the active carbon filter. Clean air is returned to the environment.

The system has a modular design. Filters are easy to replace.



## Consumables



- 6.10 **Pre-filter mat**
- 6.11 **Pre-filter**  
to absorb about 10 times more pollutants and dusts compared to the mat
- 6.12 **Filter for suspended particles**

## Accessories



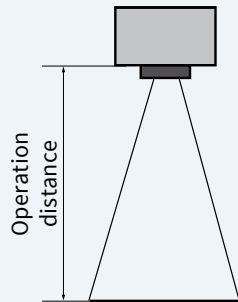
- 6.8 **Pre-filter module**  
for retrofitting
- 6.9 **Suction hose 2.5 m**  
included in the scope of delivery
- 6.3 **Crevice nozzle**  
included in the scope of delivery to clean the operation room

Extraction and filter system		6.7	6.8	
		AF5	AF5 with a pre-filter module	
Suction power	up to m <sup>3</sup> /h		230	
Vacuum	up to Pa		11,000	
Filter equipment		Filter class		
Pre-filter mat	F5	■	-	
Pre-filter	F7	-	■	
Filter for susp. part.	H13	■	■	
Active carbon / BAC filter		■	■	
Dimensions and weights				
Device	Width	mm	350	350
	Height	mm	647	880
	Depth	mm	350	350
	Weight approx.	kg	40	55
Suction pipe	NW	mm	50	50
Operating data				
Power supply		100-240 VAC, 50/60 Hz		
Power consumption	Standby	W	<40	
	typical	W	400	
	up to	W	1,100	

Temperature / humidity	Operation	+5-40 °C / 10-85 %, not condensing	
	Stock	-25-55 °C / 20-85 %, not condensing	
	Transport	-25-55 °C / 20-85 %, not condensing	
Approvals	CE, FCC, cETLus, W3, CAN ICES-3		
Operation panel			
Display	Colored LCD display		
	Filter saturation	Error message	
	Filter state	Turbine / temperature	
	Suction power	System error	
Button 1	Run / standby		
Button 2	Suction power		
Interface			
Monitoring	Serial RS232C		
	Run / standby	Filter 1/2 vacuum	
	Suction power	Rotational speed	
	Temperature error	Temperature	
	Turbine error	Operating hours Run	
	Filter saturated	Operating hours Standby	
Control	Filter pre-warning (75 %)		
	Run / standby		
	Suction power ±	Reset	

# Accessories

7.1 - 7.4



## Plano-spherical lenses F-Theta XENO 4

Lenses are provided to cover different marking fields. The smaller the marking field, the higher the resolution.

Plano-spherical lens		100.2	160.2	254.2	420.2
To be used with		XENO 4	XENO 1 XENO 3 XENO 4	XENO 1 XENO 4	XENO 4
Operation distance	mm	141 ± 4	210 ± 8	310 ± 8	541 ± 20
Marking field	mm	69 x 69	112 x 112	180 x 180	290 x 290
Spot diameter	µm	~25	~35	~50	~85
Δ Resolution	dpi	1.000	725	500	300

7.5



## Protective glass for F-Theta

The glass is assembled to the plano-spherical lens F-Theta. It can be replaced in the case of damage.

Protective glass		100	160	254	420
Outside diameter	mm	80	75	75	114

8.1

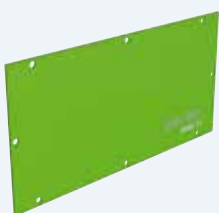


## Rotary table module RTM650 for LSG+100E

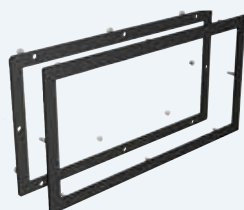
to assemble two jigs for a single or more workpieces. 180° rotation is released by two-hand operation.

Rotary table module		RTM650		
Rotary table diameter	mm	650		
Plano-spherical lens	Type	100.1	160.1	254.1
Workpiece height	up to mm	360	300	150
Workpiece weight	up to kg	20 (incl. workpiece carrier)		
Switch accuracy		± 0.1 mm at = 600 mm		
Cycle time, rotating		2,5 s / 180°		

8.2



8.3



## Laser protection window and assembly frame for LSG+100E

to be assembled in housings or doors to observe the marking process. The window may be assembled directly or with the help of the black anodized front panel and the back side frame behind the wall of the housing.

Laser protection window		100 x 200	
Assembly frame		100 x 200	
Diemsnions	Width mm	228	228
	Height mm	128	128
	Thickness mm	3	2

## Accessories

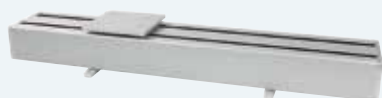
8.4, 8.5



**Linear axes Z400, Z200** for XENO 4  
to position the scan head precisely.

Linear axis		Z400	Z200
Traversing distance	mm	440	200
Position accuracy	mm	0.05	0.05
Repetitive accuracy	mm	± 0.05	± 0.05
Traversing speed	up to mm/s	60	20
Dimensions W x H x D	mm	110 x 840 x 220	110 x 510 x 220
Load capacity	kg	10	7
Weight	kg	16	9

8.6



**Linear axis X400** for LSG+100E  
to position customer-specific workpiece or pallet carriers  
(maximum weight 50 kg) precisely.

Linear axis		X400
Traversing distance	mm	440
Position accuracy	mm	0,05
Repetitive accuracy	mm	± 0.05
Traversing speed	up to mm/s	60
Dimensions W x H x D	mm	835 x 110 x 200
Load capacity	kg	50
Weight	kg	16

8.7 - 8.9



**Rotary axis D30** for LSG+100E  
**Rotary axis D30.1** for XENO 1  
for markings on the circumference of cylindrical workpieces.  
Workpiece clamping in the 3-jaw chuck

Rotary axis		D30 / D30.1
Rotational speed	U/min	0 - 40
Operating torque	Nm	12
Increment	at least [arcmin]	2,5
Holding torque	Nm	2,0
Through bore	Ø mm	15
Workpiece	Ø up to mm	160
Distance to the grooved plate	mm	84
Dimensions W x H x D	mm	125 x 105 x 128
Weight	kg	3
3-jaw chuck		D30
Clamping range	Ø inside mm	23 - 76
	Ø outside mm	3 - 76
Cable to connect a rotary axis		D30
Length	mm	1,000

8.12 - 8.13



**Axis controller 2S** for LSG+100E and XENO 4  
to position the linear and rotary axes  
with the help of a RS232 or the digital I/O interface.

Axis controller		2S
Dimensions W x H x D	mm	150 x 110 x 25
Interfaces for	Z-axis, rotary axis	for manual operation for automatic operation
	digital I/O RS232	
Voltage		24 VDC
Cable to connect the axis controller		2S
Length	mm	3.000

# Delivery program

Pos.	Part no.	Devices
1.1	<b>5528560</b>	Marking laser XENO 4 20 W / 100.2 v.E.
1.2	<b>5528430</b>	Marking laser XENO 4 20 W / 160.2 v.E.
1.3	<b>5528435</b>	Marking laser XENO 4 20 W / 254.2 v.E.
1.4	<b>5528570</b>	Marking laser XENO 4 20 W / 420.2 v.E.
1.5	<b>5528565</b>	Marking laser XENO 4 30 W / 100.2 v.E.
1.6	<b>5528440</b>	Marking laser XENO 4 30 W / 160.2 v.E.
1.7	<b>5528445</b>	Marking laser XENO 4 30 W / 254.2 v.E.
1.8	<b>5528575</b>	Marking laser XENO 4 30 W / 420.2 v.E.
1.9	<b>5528580</b>	Marking laser XENO 4 50 W / 100.2 v.E.
1.10	<b>5528585</b>	Marking laser XENO 4 50 W / 160.2 v.E.
1.11	<b>5528590</b>	Marking laser XENO 4 50 W / 254.2 v.E.
1.12	<b>5528595</b>	Marking laser XENO 4 50 W / 420.2 v.E.
	Scope of delivery	Marking laser XENO 4 incl. lens USB software dongle Software cabLase Editor 5 Power cable Type E+F, 1.8 m Patch cable CAT 5e, 3 m E-stop dongle Assembly instructions DE / EN
Pos.	Part no.	Accessories
1.19	<b>5528441</b>	Adapter plate XENO 4/FL+



Pos.	Part no.	Devices
2.1	<b>5528130</b>	Laser marking system XENO 1 20 W / 160.2 incl. lens
2.2	<b>5528140</b>	Laser marking system XENO 1 20 W / 254.2 incl. lens
2.3	<b>5528150</b>	Laser marking system XENO 1 30 W / 160.2 incl. lens
2.4	<b>5528160</b>	Laser marking system XENO 1 30 W / 254.2 incl. lens
	Scope of delivery	Laser marking system XENO 1 incl. lens USB software dongle cabLase Editor 5 Power cable Type E+F, 1.8 m Patch cable CAT 5e, 3 m E-stop dongle Operator's manual DE / EN
Pos.	Part no.	Devices
3.1	<b>5528610</b>	Laser marking system XENO 3 20 W / 160.2 incl. lens
3.2	<b>5528615</b>	Laser marking system XENO 3 30 W / 160.2 incl. lens
	Scope of delivery	Laser marking system XENO 3 incl. lens USB software dongle cabLase Editor 5 Power cable Type E+F, 1.8 m Patch cable CAT 5e, 3 m E-stop dongle Instructions DE / EN
Pos.	Part no.	Accessory
3.3	<b>5528xxx</b>	Magazine, customer-specific





# Delivery program

Pos.	Part no.	Devices
4.1		<b>5528650</b> Laser safety housing LSG+100E for XENO 4 - 230 V
4.2		<b>5528655</b> Laser safety housing LSG+100E for XENO 4 - 120 V
	Scope of delivery	Laser safety housing LSG+100E Power cable Type E+F, 1.8 m Conn. cable, 9/9 pins, 3 m, for Interlock / E-Stop Conn. cable, 9/9 pins, 3 m, for Remote Conn. cable, 25/25 pins, 3 m, for I/O interface Conn. cable, 15/15 pins, 3 m, for extraction Pivot arm to assemble a monitor/keyboard tray Assembly instructions DE / EN
Pos.	Part no.	Accessories
4.3		<b>5570125</b> PC in 19" housing 4 height units, DE
		<b>5570135</b> PC in 19" housing 4 height units, EN
4.4		<b>5570130</b> Monitor 19"
4.5		<b>5901626</b> Standard keyboard USB, DE
		<b>5901677</b> Standard keyboard USB, EN
		<b>5901658</b> Optical mouse
4.6		<b>5901621</b> USB keyboard with trackball, DE
		<b>5901651</b> USB keyboard with trackball, EN
Pos.	Part no.	Devices
5.1		<b>5528670</b> Laser label marker LM+160.2 for XENO 4
5.2		<b>5528675</b> Laser label marker LM+254.2 for XENO 4
	Scope of delivery	Laser label marker LM+ Power cable Type E+F, 1.8 m Conn. cable, 9/9 pins, 3 m, for Interlock / E-Stop Conn. cable, 9/9 pins, 3 m, for Remote Conn. cable, 25/15 pins, 3 m, for extraction Funnel to include scan head Guide 1 mm for foil intake Führung 2 mm for foil intake Cutter Extraction closure Throttle-valved hinge for extraction Assembly instructions DE / EN
Pos.	Part no.	Accessories
5.3		<b>5525355</b> External rewinder ER 4/300 LM
5.4		<b>5527655</b> Hose set LM+
5.5		<b>5527585</b> Mobile cart
5.6		<b>5527675</b> Console R/L
5.7		<b>5527705</b> Monitor column

Pos.	Part no.	Extraction and filter system AF1.1	
6.1		<b>5907275</b> Extraction and filter system AF1.1 incl. filter set and a power cable Type E+F, 2.5 m integrated	
	Scope of delivery	Extraction and filter system AF1.1 incl. filter set Instructions DE	
Pos.	Part no.	Accessories	
6.2		<b>5905818</b> Suction hose, 2.5 m	
6.3		<b>5907174.001</b> Crevice nozzle	
Pos.	Part no.	Consumables	Pack unit
6.4		<b>5906617.001</b> Pre-filter mat	10
6.5		<b>5906618.001</b> Filter for suspended particles	1
6.6		<b>5906619.001</b> Active carbon filter	1

Pos.	Part no.	Extraction and filter system AF5	
6.7		<b>5907550</b> Extraction and filter system AF5 incl. filter set	
	Scope of delivery	Extraction and filter system AF5 incl. filter set Suction hose Crevice nozzle Power cable Type E+F, 2 m Cable SUB-D25 male/male, 3 m Instructions DE / EN	
Pos.	Part no.	Accessories	
6.3		<b>5907174.001</b> Crevice nozzle	
6.8		<b>5907570</b> Pre-filter module incl. pre-filter	
6.9		<b>5907537.001</b> Suction hose, 2.5 m	
Pos.	Part no.	Consumables	Pack unit
6.10		<b>5906555.001</b> Pre-filter mat	10
6.11		<b>5907575.001</b> Pre-filter	1
6.12		<b>5906569.001</b> Filter for suspended particles	1
6.13		<b>5906570.001</b> Active carbon / BAC filter	1

# Delivery program

Pos.		Part no.	Spare parts
7.1		<b>5527846.001</b>	Plano-spherical lens F-Theta 100.2 69 x 69 mm
7.2		<b>5527847.001</b>	Plano-spherical lens F-Theta 160.2 112 x 112 mm
7.3		<b>5527848.001</b>	Plano-spherical lens F-Theta 254.2 180 x 180 mm
7.4		<b>5527849.001</b>	Plano-spherical lens F-Theta 420.2 290 x 290 mm
7.5		<b>5528305.001</b>	Protective glass for F-Theta 100
		<b>5528310.001</b>	Protective glass for F-Theta 160 and 254
		<b>5528315.001</b>	Protective glass for F-Theta 420

Pos.		Part no.	Accessories
8.1		<b>on request</b>	Rotary table module RTM650
8.2		<b>5907189</b>	Laser protection window 100 x 200 mm
8.3		<b>5527416</b>	Assembly frame 100 x 200 mm
8.4		<b>5527695</b>	Linear axis Z400
8.5		<b>on request</b>	Linear axis Z200
8.6		<b>5527690</b>	Linear axis X400
8.7		<b>5905933</b>	Rotary axis D30
		<b>5906350</b>	Rotary axis D30.1 incl. connecting cable and axis controller
8.8		<b>5905978</b>	3-jaw chuck D30
8.9		<b>5526156</b>	Connecting cable D30
8.10		<b>5528250.001</b>	E-stop dongle
8.11		<b>5528368</b>	Foot switch
8.12		<b>5527685</b>	Axis controller 2S
8.13		<b>5527665</b>	Connecting cable 2S
8.14		<b>5527478</b>	Adapter cable set FL-PCI
8.15		<b>5527479</b>	Adapter cable set FL-TCP
Pos.		Part no.	Software
9.1		<b>5526096.001</b>	USB software dongle cabLase Editor 5
9.2		<b>5526094</b>	USB software dongle cabLase Editor 5, Save Only

# cab product overview

Label printers  
**MACH1, MACH2**



Label printers  
**EOS 2**



Label printers  
**EOS 5**



Label printers  
**MACH 4S**



Label printers  
**SQUIX 2**



Label printers  
**SQUIX 4**



Label printers  
**SQUIX 6.3**



Label printer  
**A8+**



Label printer  
**XD4T**



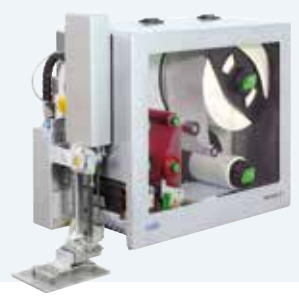
Label printers  
**XC**



Print and apply systems  
**HERMES Q**



Print and apply systems  
**Hermes C**



Tube labeling systems  
**AXON**



Print modules  
**PX Q**



Labels and ribbons



Label software  
**cablabel S3**



Label dispensers  
**HS, VS**



Labeling heads  
**IXOR**



Marking lasers  
**XENO 4**



Laser marking systems



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**cab Produkttechnik GmbH & Co KG**  
Karlsruhe  
Phone +49 721 6626 0  
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France  
**cab Technologies S.à.r.l.**  
Niedermodern  
Phone +33 388 722501  
[www.cab.de/fr](http://www.cab.de/fr)

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Phone +1 978 250 8321  
[www.cab.de/us](http://www.cab.de/us)

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Phone +52 656 682 4301  
[www.cab.de/es](http://www.cab.de/es)

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