

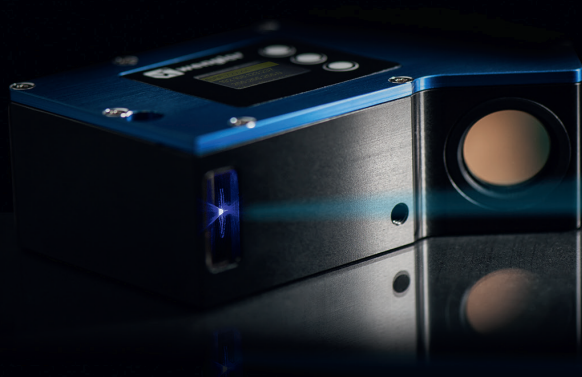


Top Performance in 2D and 3D

weCat3D 2D/3D Profile Sensors and **Shape**Drive 3D Sensors

Table of Contents

weCat3D 2D/3D Profile Sensors	Page 3
weCat3D MLSL1	Page 8
weCat3D MLSL2	Page 12
weCat3D MLWL2	Page 16
weCat3D MLWL1	Page 20
 ShapeDrive 3D Sensors	 Page 24
ShapeDrive MLAS	Page 32
ShapeDrive MLBS	Page 34
 Interfaces and Software	 Page 36
A World Full of Applications	Page 38



Inspired by Nature
weCat3D Sensors

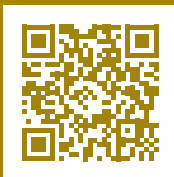


weCat3D.

Dominance in 82 Models

With more than 30 years of experience and over 20,000 installed solutions, wenglorMEL is a pioneer in the field of two and three-dimensional object measurement. The 2D/3D sensors project a laser line onto the object to be measured and then record it by means of an integrated camera. Two and three-dimensional surface and volume profiles can thus be calculated with the help of point clouds – quickly and accurately.

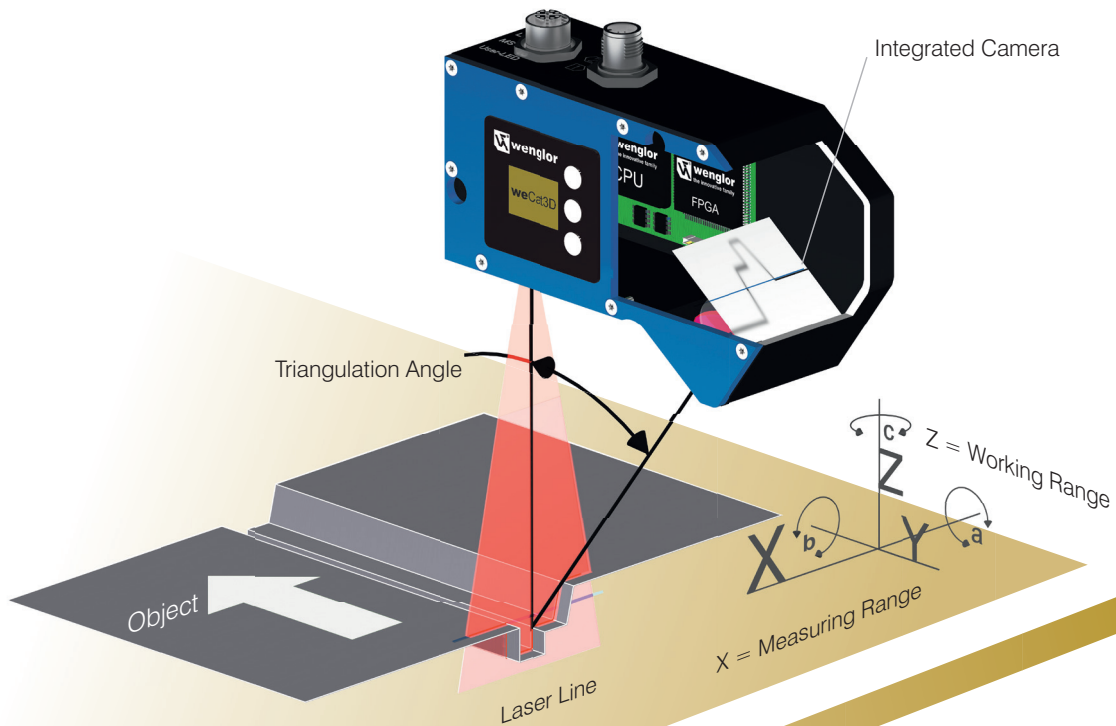
With 82 innovative variants, the weCat3D series offers maximum individualized solutions for your multi-dimensional application. At the same time, all products are available 24 hours a day worldwide – regardless of whether you want to buy or lease them, or if you need global support services.



www.wenglor.com/weCat3D

Laser Line with Triangulation Angle

The Functional Principle



weCat3D: Diversity. Integration. Performance. Solution.



Interfaces & Software

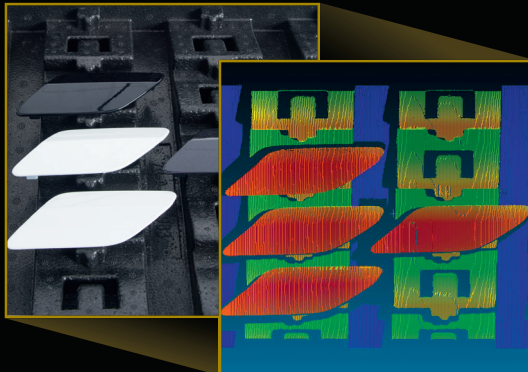
- GigE Vision standard, e.g. for incorporation into HALCON or LabVIEW without controller
- Program library made available for interfacing with external software
- Free, downloadable Software Development Kit (SDK) for all weCat3D sensors (including 32 and 64-bit DLL, description and examples)
- Future-proof thanks to RS-422 TTL encoder and standard HTL encoder
- Ethernet TCP/IP with speeds of 100 Mbit/s up to 1 Gbit/s
- Settings can be changed conveniently thanks to the memory function
- Uniform connection concept throughout the entire weCat3D series



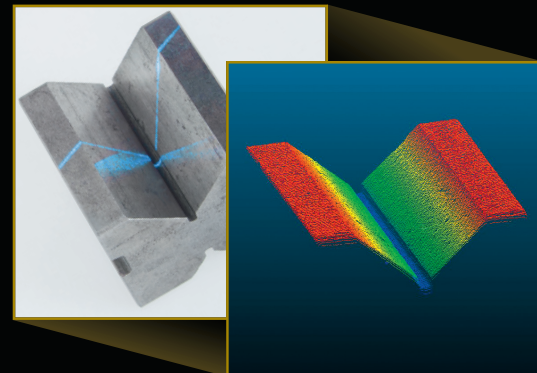
Selection of Models

- More than 82 weCat3D models
- 2 performance classes: MLSL and MLWL
- 16 different measuring ranges
- 4 selectable laser classes (1, 2M, 3R, 3B)
- 3 selectable types of light (red, blue, UV)

Top Performance in Three Dimensions



The innovative weCat3D series offers a **high dynamic range** – regardless of the object's color and brightness.



The 2D/3D profile sensors included in the weCat3D series deliver **reliable measured values for organic, metallic and glossy surfaces**.



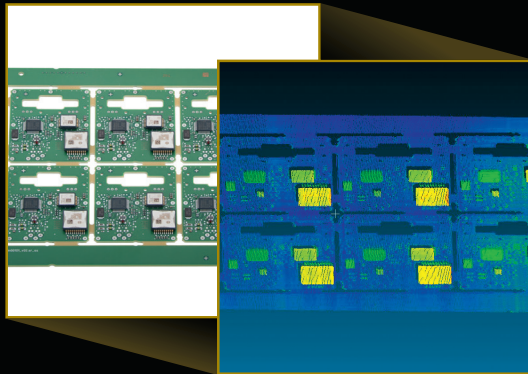
Technology

- Optimized algorithms – for black and glossy surfaces
- 3.6 to 12 million measuring points per second
- Real-time signal processing by means of integrated FPGA technology
- 4 configurable inputs/outputs
- Integrated web server for configuration and analysis
- Highly reliable even with changing colors and extraneous light
- Integrated CPU without additional controller

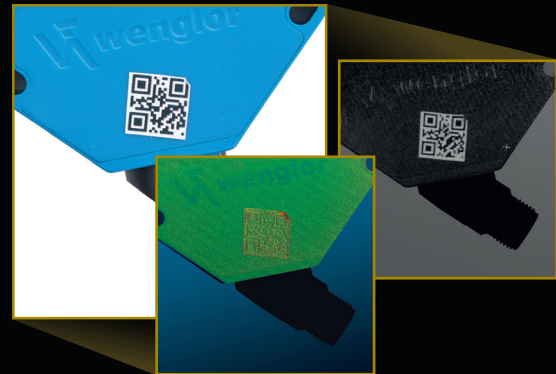


Operation & Support

- Intuitive OLED display
- Multilingual operation
- Highly flexible thanks to adaptable protective discs and cooling units
- Worldwide support
- Leasing option for weCat3D sensors
- Free VisionApp Demo for displaying 3D point clouds



weCat3D sensors **reliably detect even the smallest of components thanks to extremely high resolution** for Z (working range) and X (measuring range).



In addition to the 3D data, simultaneous acquisition of signal strength by weCat3D sensors permits the generation of **high-contrast gray tone images**. These can be used, for example, for the detection of data matrix codes and barcodes or contamination on objects – without any additional hardware.



weCat3D MLSL1

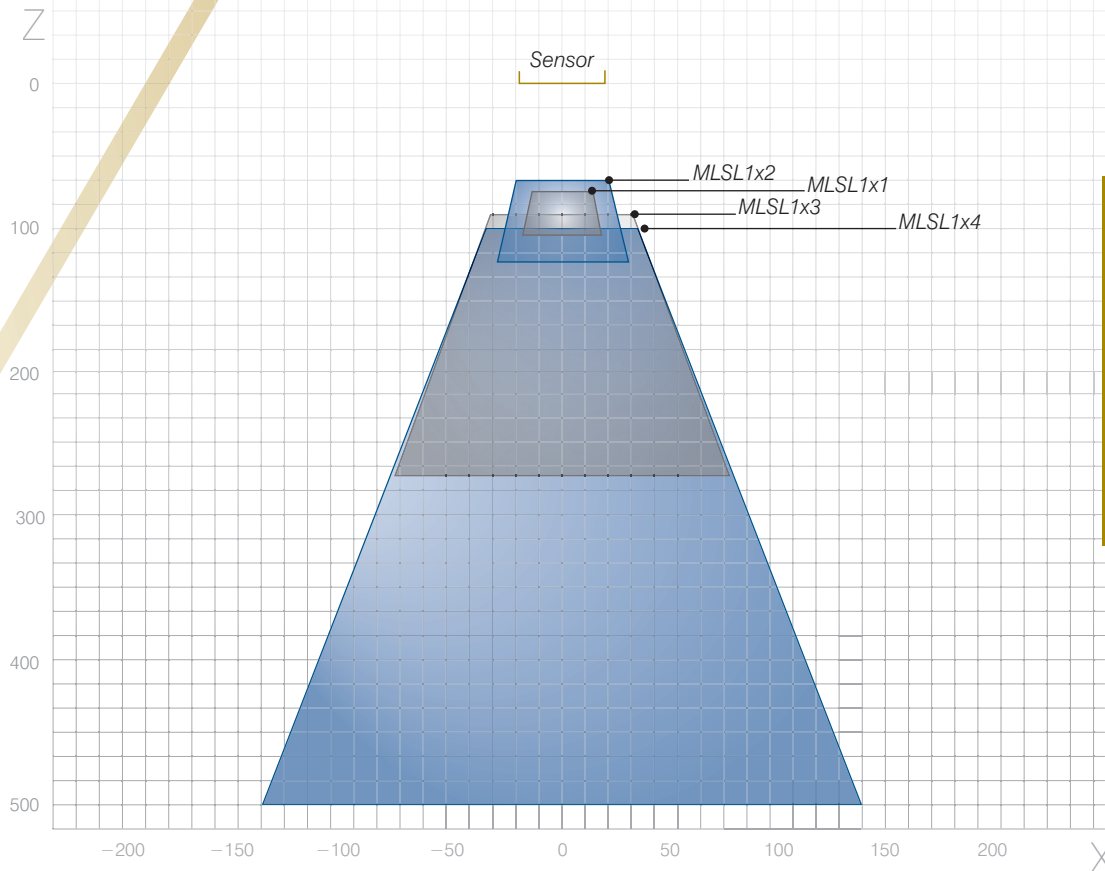
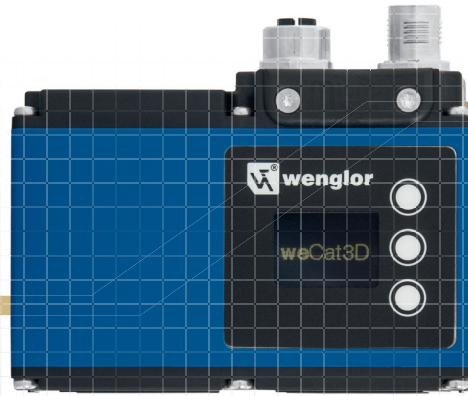
Intelligence in the Tightest of Spaces

weCat3D MLSL1 offers maximized capabilities in the tightest of spaces. The 12 models included in this product series are distinguished by innovative features such as CMOS technology, integrated CPU, high resolution and measuring rate (4000 Hz), intuitive display, excellent measuring accuracy, ultramodern interfaces such as Gigabit Ethernet and much more. A total of 4 measuring ranges are available.

	MLSL1x1	MLSL1x2	MLSL1x3	MLSL1x4
Working range Z	72 ... 108 mm	65 ... 125 mm	90 ... 280 mm	100 ... 500 mm
Measuring range Z	36 mm	60 mm	190 mm	400 mm
Measuring range X	27 ... 34 mm	40 ... 58 mm	62 ... 145 mm	70 ... 280 mm
Resolution Z	3.3 ... 5.2 μ m	4.8 ... 9.6 μ m	9.4 ... 49 μ m	12.4 ... 160 μ m
Resolution X	22 ... 28 μ m	33 ... 47 μ m	54 ... 123 μ m	68 ... 246 μ m
Laser class 1M / ● red light	MLSL101	MLSL102	MLSL103	MLSL104
Laser class 2M / ● red light	MLSL121	MLSL122	MLSL123	MLSL124
Laser class 2M / ● blue light	MLSL131	MLSL132	MLSL133	MLSL134

Measuring Range

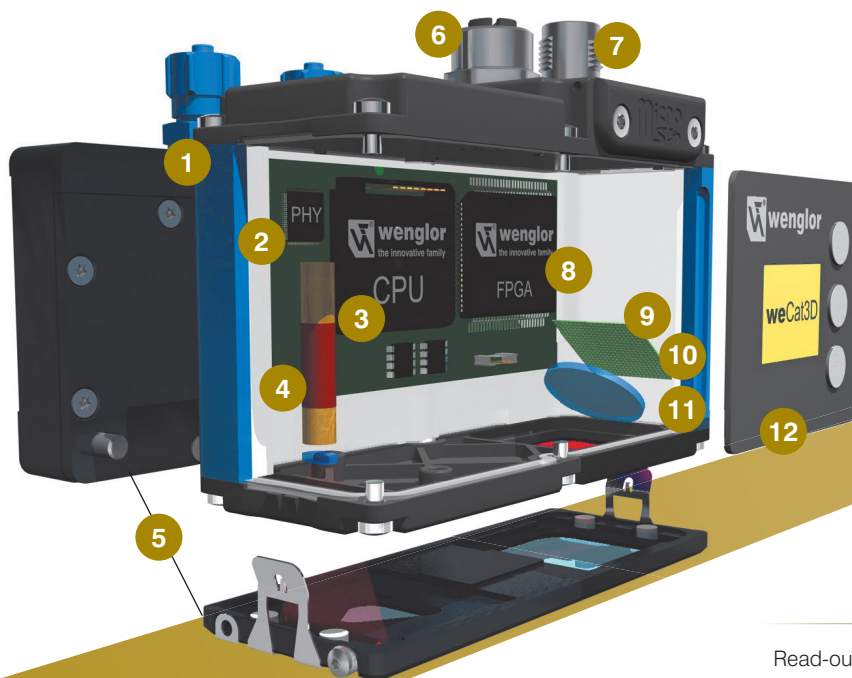
MLSL1



Accessories

- Connection technology
- Mounting system
- Control unit/IPC
- Software
- Cooling unit
- Protective disc retainer
- Protective disc set

weCat3D MSL1



1

Compact, Lightweight Design

(92×36×64 mm / 300 g), also suitable for robot applications as a rugged IP67 variant.

7

Read-out of up to **3.6 million measuring points per second** via M12×1 plug with Ethernet TCP/IP from 100 Mbit/s to 1 Gbit/s.

10

Very **precise resolution** (Z) of down to 3.3 μm thanks to the CMOS camera with noise suppression and high-performance optics.

2

The weCat3D series can be integrated via its **program library** or GigE Vision without an additional controller.

3

Integrated electronic system without additional controller including interference-proof profile evaluating algorithms.

4

Specially developed **laser line modules** with **red or blue light**, ideal for applications involving metals, as well as organic and semitransparent materials.

5

Optional, **adaptable protective discs** and **cooling units** make implementation possible in a diverse range of applications, even in extreme environments.

6

Standard M12×1 plug with 4 configurable I/Os and connection option for HTL or RS-422/TTL encoder.

8

Real-time signal processing by means of integrated FPGA technology.

9

CMOS camera with highly precise resolution for measuring range X with more than 1200 measuring points as a linearized height profile.

11

High-performance optics for measuring range X from 27 to 280 mm.

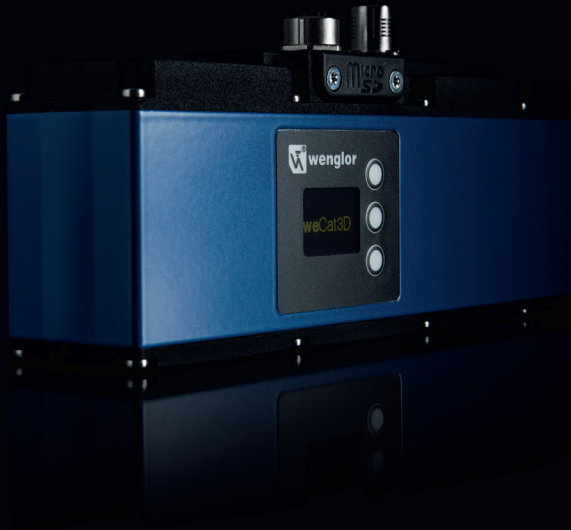
12

Multilingual operating concept with OLED for displaying IP addresses and setting options via an integrated web server.

weCat3D MLSL2

More Diversity, Better Performance

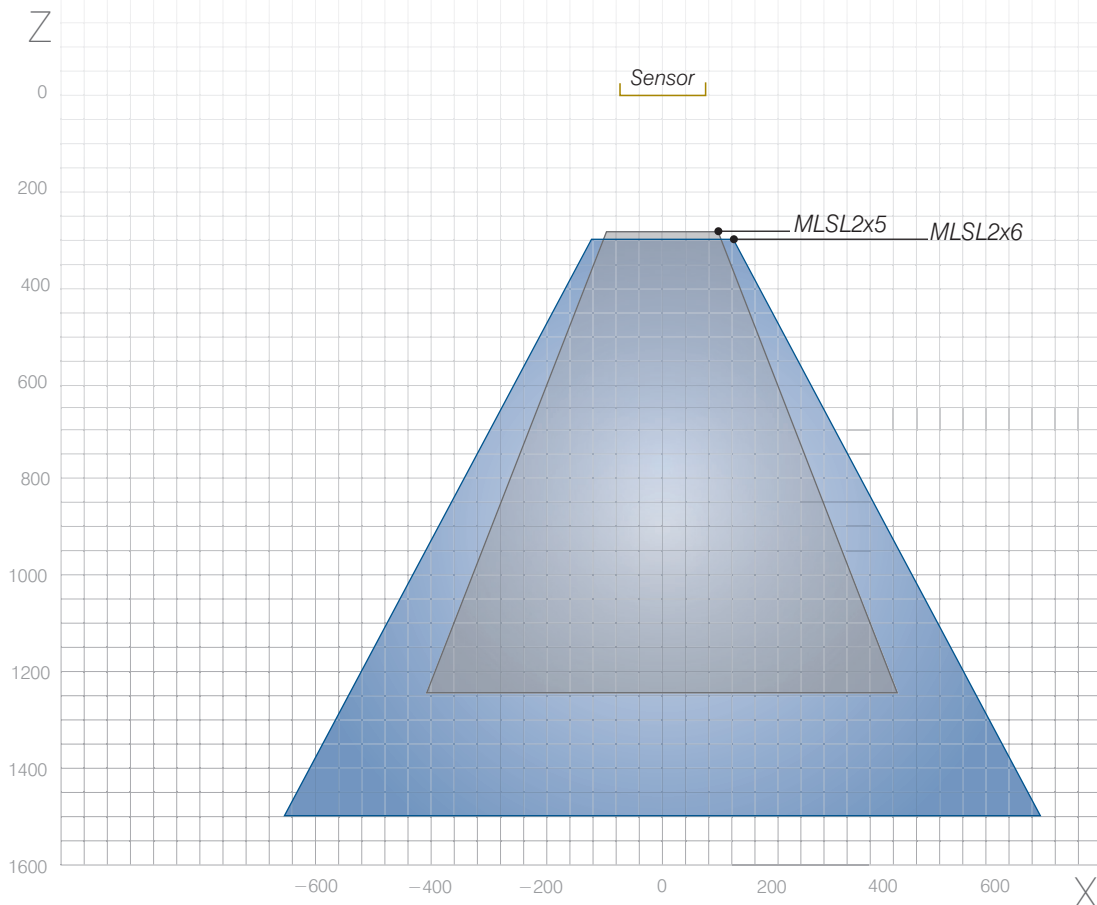
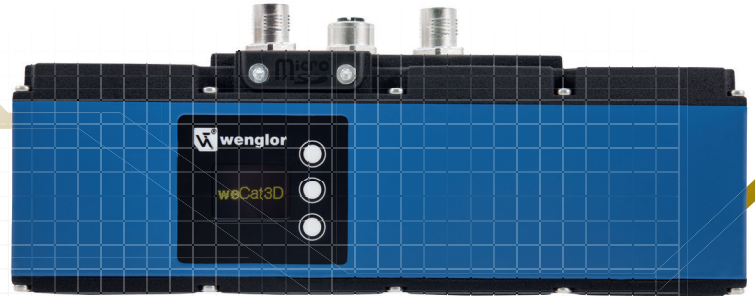
The weCat3D MLSL2 series is distinguished by large measuring ranges of up to 1350 mm in the X direction, increased laser power for quick and robust profile detection and additional, external 24 V laser shutdown for classes 3R and 3B. As is the case with the entire MLSL series, the ten models with two measuring ranges are based on innovative features such as CMOS technology, integrated CPU, a fast measuring rate (4000 Hz), intuitive display, very good measuring accuracy, ultramodern interfaces such as Gigabit Ethernet and much more.



	MLSL2x5	MLSL2x6
Working range Z	280 ... 1280 mm	300 ... 1500 mm
Measuring range Z	1000 mm	1200 mm
Measuring range X	200 ... 850 mm	250 ... 1350 mm
Resolution Z	40 ... 570 μm	60 ... 990 μm
Resolution X	190 ... 760 μm	270 ... 1170 μm
Laser class 2M / ● red light	MLSL225	MLSL226
Laser class 2M / ● blue light	MLSL235	MLSL236
Laser class 3R / ● red light	MLSL245	MLSL246
Laser class 3R / ● blue light	MLSL255	MLSL256
Laser class 3B / ● blue light	MLSL275	MLSL276

Measuring Range

MLSL2



Accessories

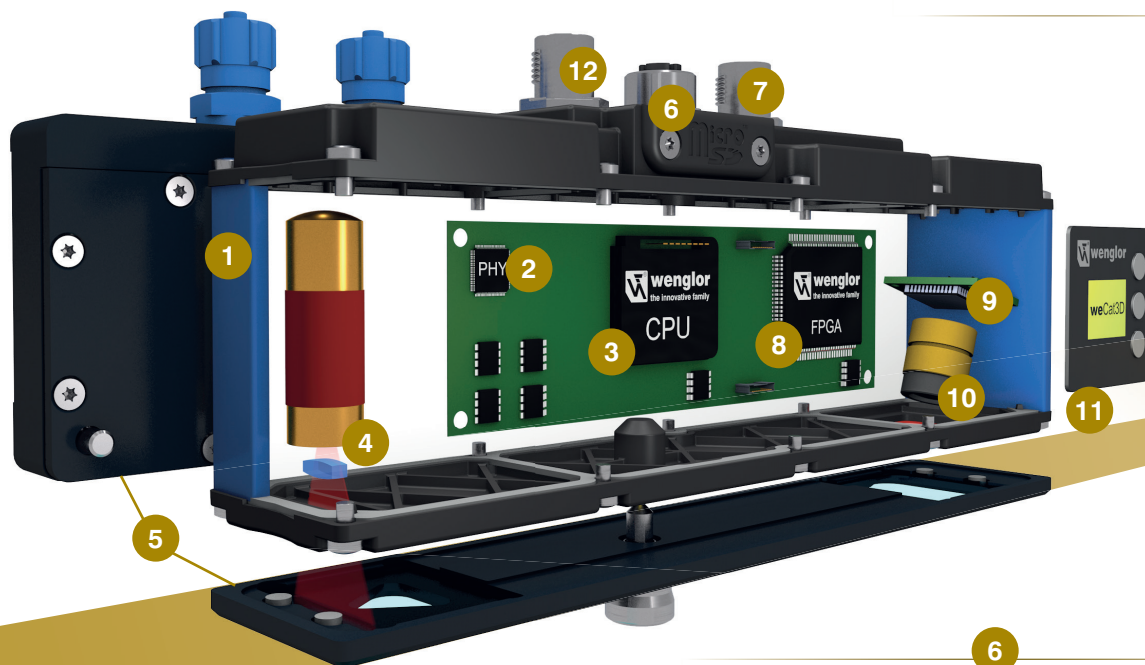
- Connection technology
- Mounting system
- Control unit/IPC
- Software
- Cooling unit
- Protective disc retainer
- Protective disc set

weCat3D MSL2

1

Compact, Lightweight Design

(200×67×38 mm / 550 g), also suitable for robot applications as a rugged IP 67 variant.



6

Standard M12×1 plug with 4 configurable I/Os and connection option for HTL or RS-422/TTL encoder.

9

CMOS camera with highly precise resolution for measuring range X with more than 1200 measuring points as a linearized height profile.

10

High-performance optics for measuring range X from 200 to 1350 mm.

2

The weCat3D series can be integrated via it's **program library** or GigE Vision without an additional controller.

3

Integrated electronic system without additional controller including interference-proof profile evaluating algorithms.

4

Specially developed **laser line modules** with **red or blue light**, ideal for applications involving metals, as well as organic and semitransparent materials.

5

Optional, **adaptable protective discs** and **cooling units** make implementation possible in a diverse range of applications, even in extreme environments.

7

Read-out of up to **3.6 million measuring points per second** via M12×1 plug with Ethernet TCP/IP from 100 Mbit/s to 1 Gbit/s.

8

Real-time signal processing by means of integrated FPGA technology.

12

The laser is switched on or off by means of **external 24 V laser shutdown** via the **third M12×1 plug** (for laser classes 3R and 3B).
An additional signal indicates whether or not the laser has been enabled.

11

Multilingual operating concept with OLED for displaying IP addresses and setting options via an integrated web server.



weCat3D MLWL2

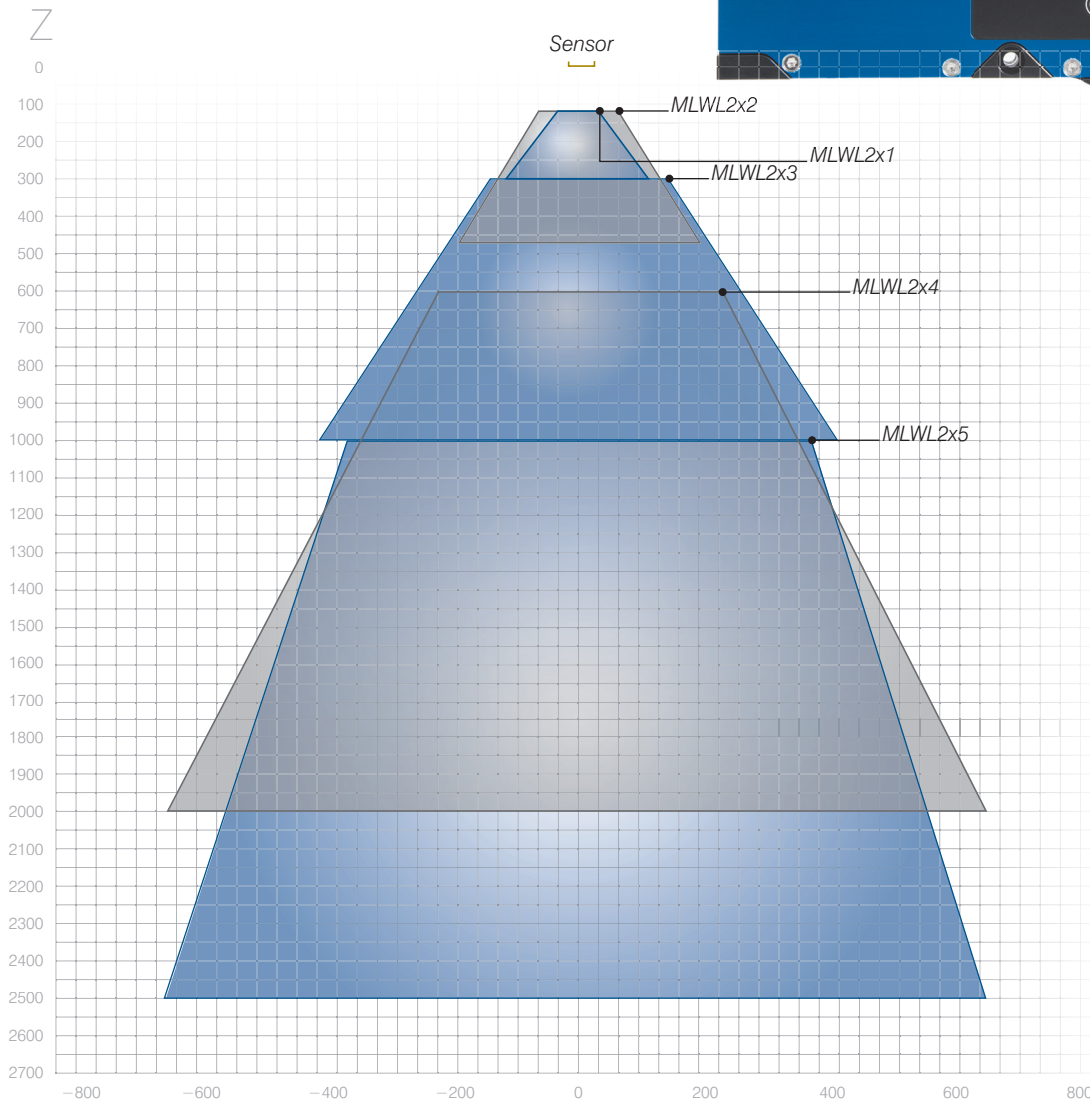
Compact High-Performance

The weCat3D MLWL2 delivers high-performance in every respect. Combined with a compact housing, this product series provides the right mixture of top performance and a space-saving design. Specially developed optics permit an impressive Z working range of up to 2500 mm and measuring ranges in the X direction from 65 to 1300 mm – with up to 12 million measuring points per second.

	MLWL2x1	MLWL2x2	MLWL2x3	MLWL2x4	MLWL2x5
Working range Z	120 ... 300 mm	120 ... 470 mm	300 ... 1000 mm	600 ... 2000 mm	1000 ... 2500 mm
Measuring range Z	180 mm	350 mm	700 mm	1400 mm	1500 mm
Measuring range X	65 ... 145 mm	120 ... 395 mm	280 ... 830 mm	440 ... 1300 mm	850 ... 1300 mm
Resolution Z	5.2 ... 26 μ m	8.9 ... 76 μ m	27 ... 162 μ m	39 ... 289 μ m	92 ... 439 μ m
Resolution X	36 ... 81 μ m	68 ... 198 μ m	181 ... 446 μ m	251 ... 683 μ m	505 ... 1095 μ m
Laser class 1M / ● red light	MLWL201	MLWL202	MLWL203	MLWL204	—
Laser class 2M / ● red light	MLWL221	MLWL222	MLWL223	MLWL224	MLWL225
Laser class 2M / ● blue light	MLWL231	MLWL232	MLWL233	MLWL234	MLWL235
Laser class 3R / ● red light	MLWL241	MLWL242	MLWL243	MLWL244	MLWL245
Laser class 3R / ● blue light	MLWL251	MLWL252	MLWL253	MLWL254	MLWL255
Laser class 3B / ● blue light	MLWL271	MLWL272	MLWL273	MLWL274	MLWL275

Measuring Range

MLWL2

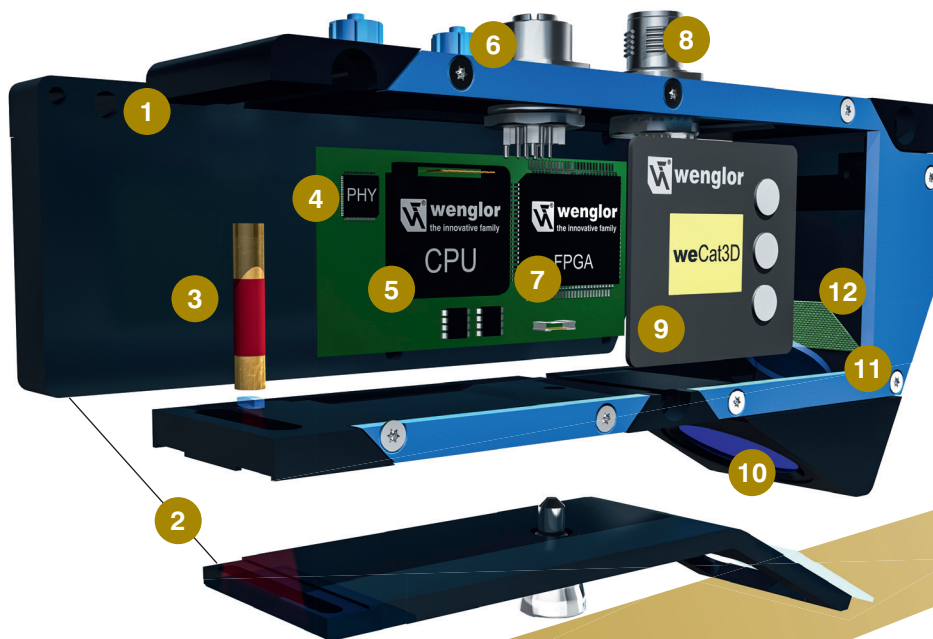


Working Range Z | Measuring Range X

Accessories

- Connection technology
- Mounting system
- Control unit/IPC
- Software
- Cooling unit
- Protective disc retainer
- Protective disc set

weCat3D MLWL2



1

Compact housing with largest possible working ranges and measuring ranges.

7

Real-time signal processing by means of integrated FPGA technology.

8

Read-out of up to **12 million measuring points** per second via an M12×1 plug with Ethernet TCP/IP from 100 Mbit/s to 1 Gbit/s.

2

Optional, **adaptable protective discs and cooling units** make implementation possible in a diverse range of applications, even in extreme environments.

3

Specially developed **laser line modules with red or blue light**, ideal for applications involving metals, as well as organic and semitransparent materials. High-power laser (up to laser class 3B) for increased resistance to extraneous light and high speeds.

4

The weCat3D series can be integrated via it's **program library** or GigE Vision without an additional controller.

5

Integrated electronic system without additional controller including interference-proof profile evaluating algorithms.

6

Standard M12×1 plug with 4 configurable I/Os and connection option for HTL or RS-422/TTL encoder.

11

Optimized profile quality, even with black and glossy objects, by means of HDR function with highly precise resolution (Z) down to 5.2 μm thanks to the CMOS camera with noise suppression and high-performance optics.

9

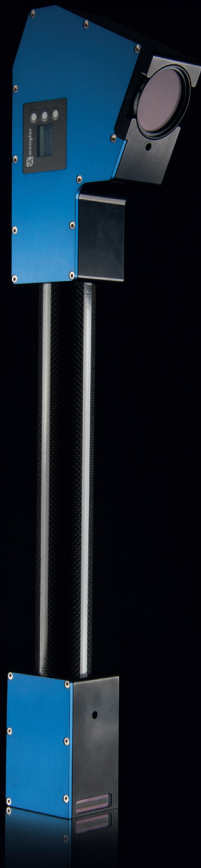
Multilingual operating concept with OLED for displaying IP addresses and setting options via an integrated web server.

10

Special high-performance optics for a Z working range of up to 2500 mm and X measuring ranges from 65 to 1300 mm.

12

CMOS camera with highly precise resolution for measuring range X with more than 2000 measuring points as a linearized height profile.



weCat3D MLWL1

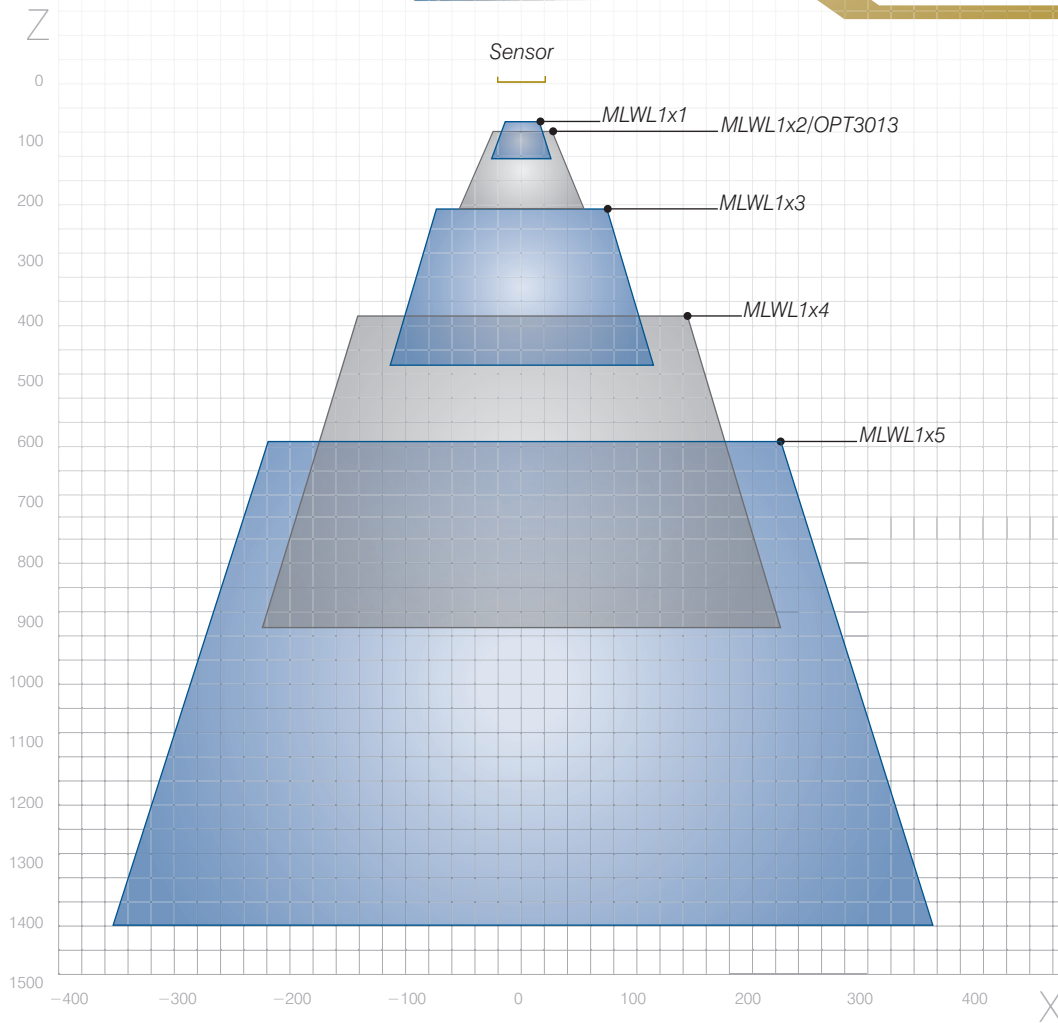
First Class Precision

The weCat3D MLWL1 delivers high-performance in every respect. The breathtaking measuring rate of 6000 Hz, as well as a resolution of 2 μm in working range Z, are both unparalleled on the market. Up to 12 million measuring points per second and an X measuring range of 30 to 720 mm assure a globally unique performance – for all 31 different variants.

	MLWL1x1	MLWL1x2	MLWL1x3	MLWL1x4	MLWL1x5
Working range Z	70 ... 130 mm	83 ... 213 mm	215 ... 475 mm	390 ... 910 mm	600 ... 1400 mm
Measuring range Z	60 mm	130 mm	260 mm	520 mm	800 mm
Measuring range X	30 ... 52 mm	50 ... 110 mm	150 ... 230 mm	285 ... 455 mm	450 ... 720 mm
Resolution Z	2 ... 4.9 μm	3.2 ... 14 μm	9.6 ... 22 μm	17.8 ... 43 μm	28 ... 67 μm
Resolution X	17 ... 26 μm	26 ... 55 μm	79 ... 120 μm	151 ... 238 μm	235 ... 361 μm
Laser class 1M / ● red light	MLWL101	MLWL102	MLWL103	MLWL104	MLWL105
Laser class 2M / ● red light	MLWL121	MLWL122	MLWL123	MLWL124	MLWL125
Laser class 2M / ● blue light	MLWL131	MLWL132	MLWL133	MLWL134	MLWL135
Laser class 2 / ● red light / ● UV light	—	OPT3013	—	—	—
Laser class 3R / ● red light	MLWL141	MLWL142	MLWL143	MLWL144	MLWL145
Laser class 3R / ● blue light	MLWL151	MLWL152	MLWL153	MLWL154	MLWL155
Laser class 3B / ● blue light	MLWL171	MLWL172	MLWL173	MLWL174	MLWL175

Measuring Range

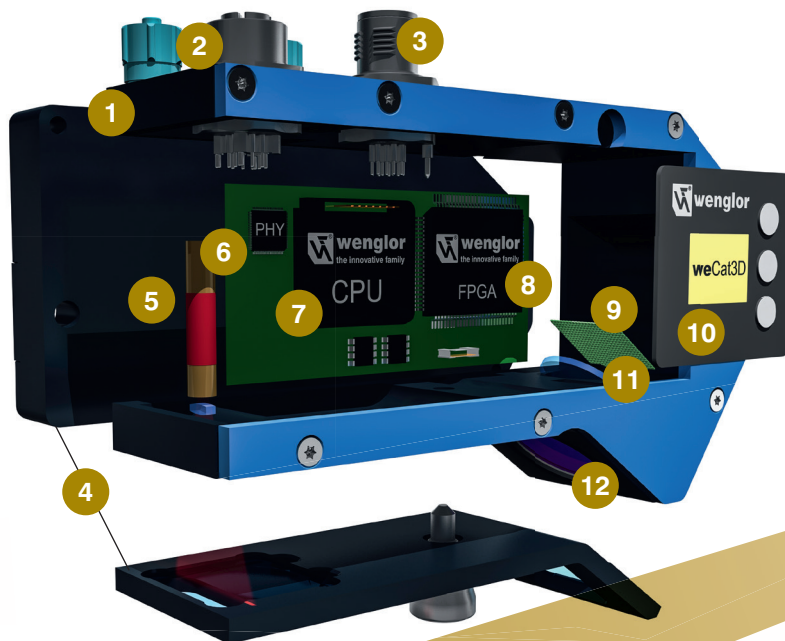
MLWL1



Accessories

- Connection technology
- Mounting system
- Control unit/IPC
- Software
- Cooling unit
- Protective disc retainer
- Protective disc set

weCat3D MLWL1



1

Optimized housing for best possible resolution of $2\text{ }\mu\text{m}$ in working range Z.

10

Multilingual operating concept with OLED for displaying IP addresses and setting options via an integrated web server.

2

Standard M12×1 plug with 4 configurable I/Os and connection option for HTL or RS-422/TTL encoder.

3

Read-out of up to **12 million measuring points** per second via M12×1 plug with Ethernet TCP/IP from 100 Mbit/s to 1 Gbit/s.

4

Optional, **adaptable protective discs and cooling units** make implementation possible in a diverse range of applications, even in extreme environments.

5

Specially developed **laser line modules with red or blue light**, ideal for applications involving metals, as well as organic and semitransparent materials. High-power laser (up to laser class 3B) for increased resistance to extraneous light and high speeds.

6

The weCat3D series can be integrated via it's **program library** or GigE Vision without an additional controller.

7

Integrated electronic system without additional controller including interference-proof profile evaluating algorithms.

9

CMOS camera with highly precise resolution for measuring range X with more than 2000 measuring points as a linearized height profile.

8

Real-time signal processing by means of integrated FPGA technology.

12

High-performance optics for measuring range X from 30 to 720 mm.

11

Optimized profile quality, even with black and glossy objects, by means of HDR function with highly precise resolution (Z) down to 2 μm thanks to the CMOS camera with noise suppression and high-performance optics.

Table of Contents

ShapeDrive 3D Sensors	Page 24
------------------------------	---------

ShapeDrive MLAS	Page 32
------------------------	---------

ShapeDrive MLBS	Page 34
------------------------	---------

Interfaces and Software	Page 36
-------------------------	---------

A World Full of Applications	Page 38
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Excellence in Shape

With Structured Light and Point Cloud
to a Perfect 3D Model



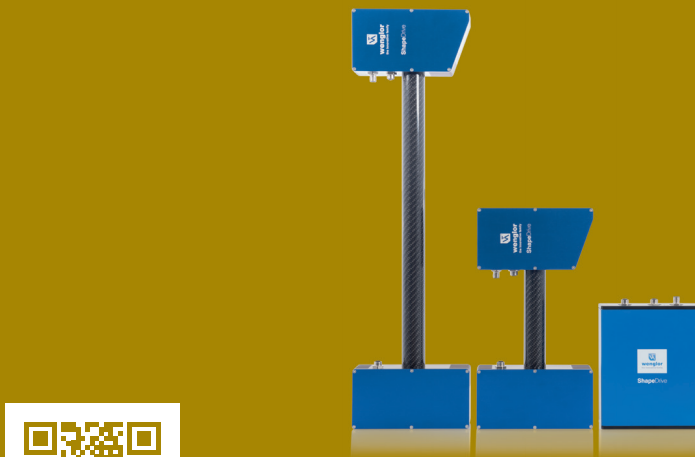
ShapeDrive

Perfection with Light

As a pioneer in the field of three-dimensional object measurement, ShapeDrive is distinguished by well-founded know-how. Where the implementation of industrial 3D applications is concerned, customers profit from more than 10 years of experience with the innovative functional principle of structured light, as well as innumerable previously installed solutions.

The 3D sensors project several patterns onto the object to be measured and then record them by means of a camera. As a result, the object is digitalized as a 3D point cloud. Neither the object nor the 3D sensor is in motion, which means that scanning is conducted quickly and extremely precise.

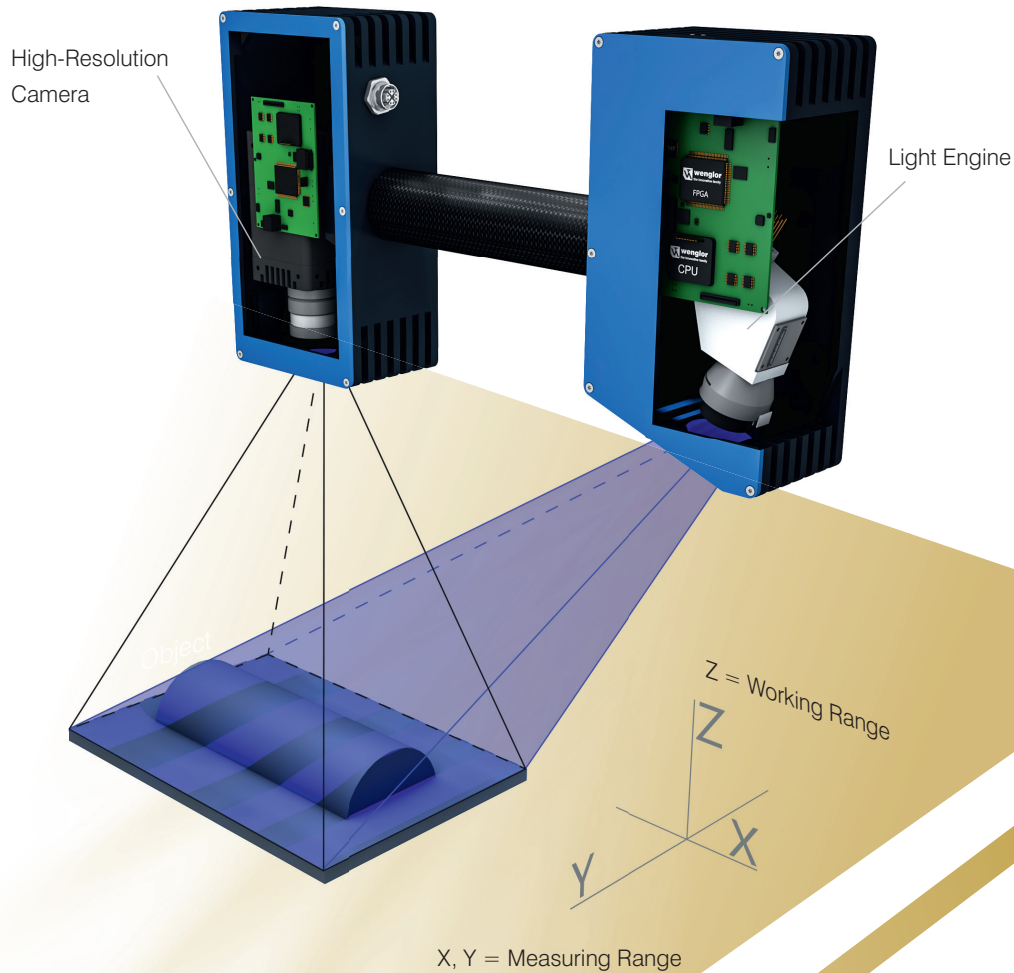
With a total of 16 innovative model variants and 8 measuring ranges, ShapeDrive offers maximum flexibility for scanning the smallest of components on PCBs, or complete production lots on Euro pallets.



www.wenglor.com/ShapeDrive

Structured Light with Triangulation Angle

The Functional Principle



ShapeDrive. An overview.



Interfaces & Software

- Program library made available for interfacing with external software
- GigE Vision standard, e.g. for incorporation into HALCON without controller
- Free, downloadable Software Development Kit (SDK) for all ShapeDrive sensors (including 32 and 64-bit DLL, description and examples).
- 10 Gigabit Ethernet



Technology

- Optimized algorithms – for black and glossy surfaces
- 5 or 12 megapixel camera resolution
- Integrated web server for configuration and status monitoring
- Highly reliable even with changing colors and extraneous light



Selection of Models

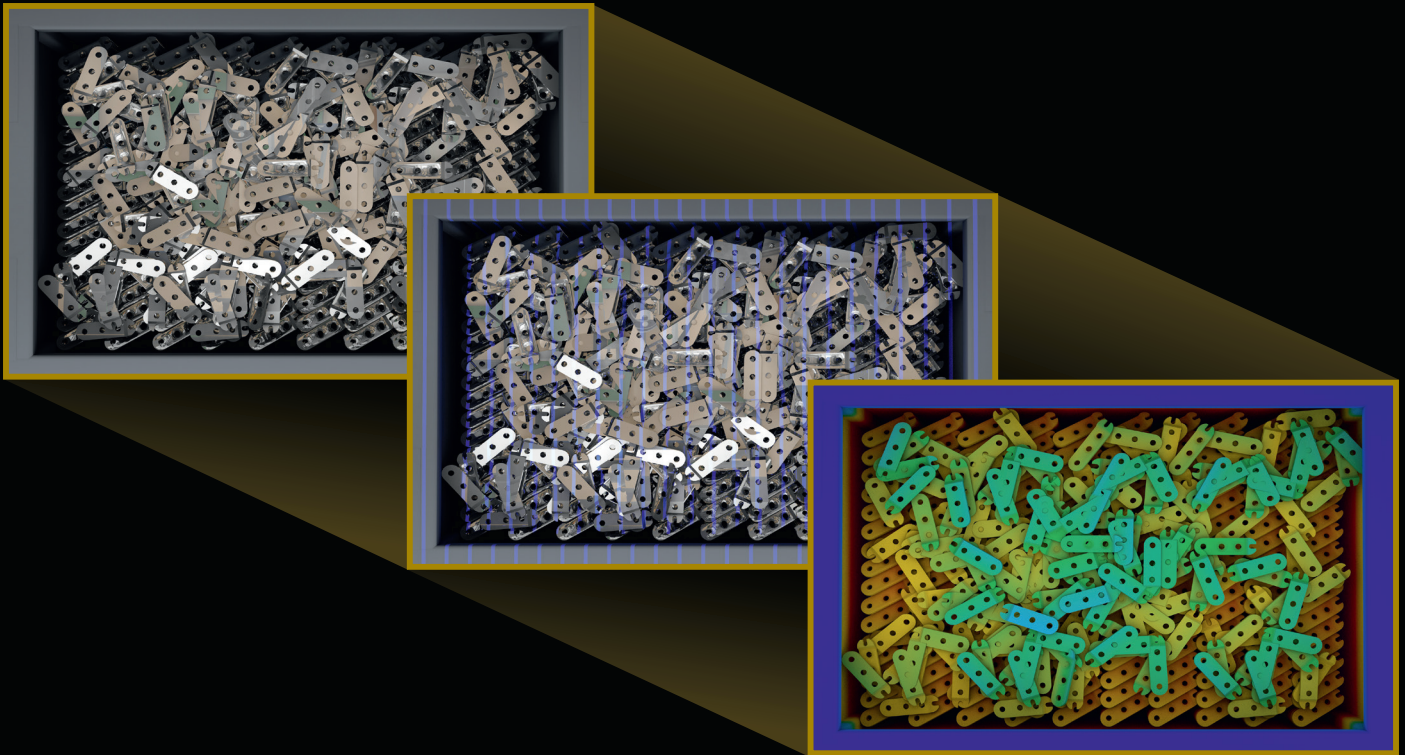
- 16 ShapeDrive models
- 8 different measuring ranges
- 2 performance classes



Operation & Support

- Worldwide support
- Leasing option for ShapeDrive sensors
- Free VisionApp Demo for displaying 3D point clouds

Top Performance in Three Dimensions



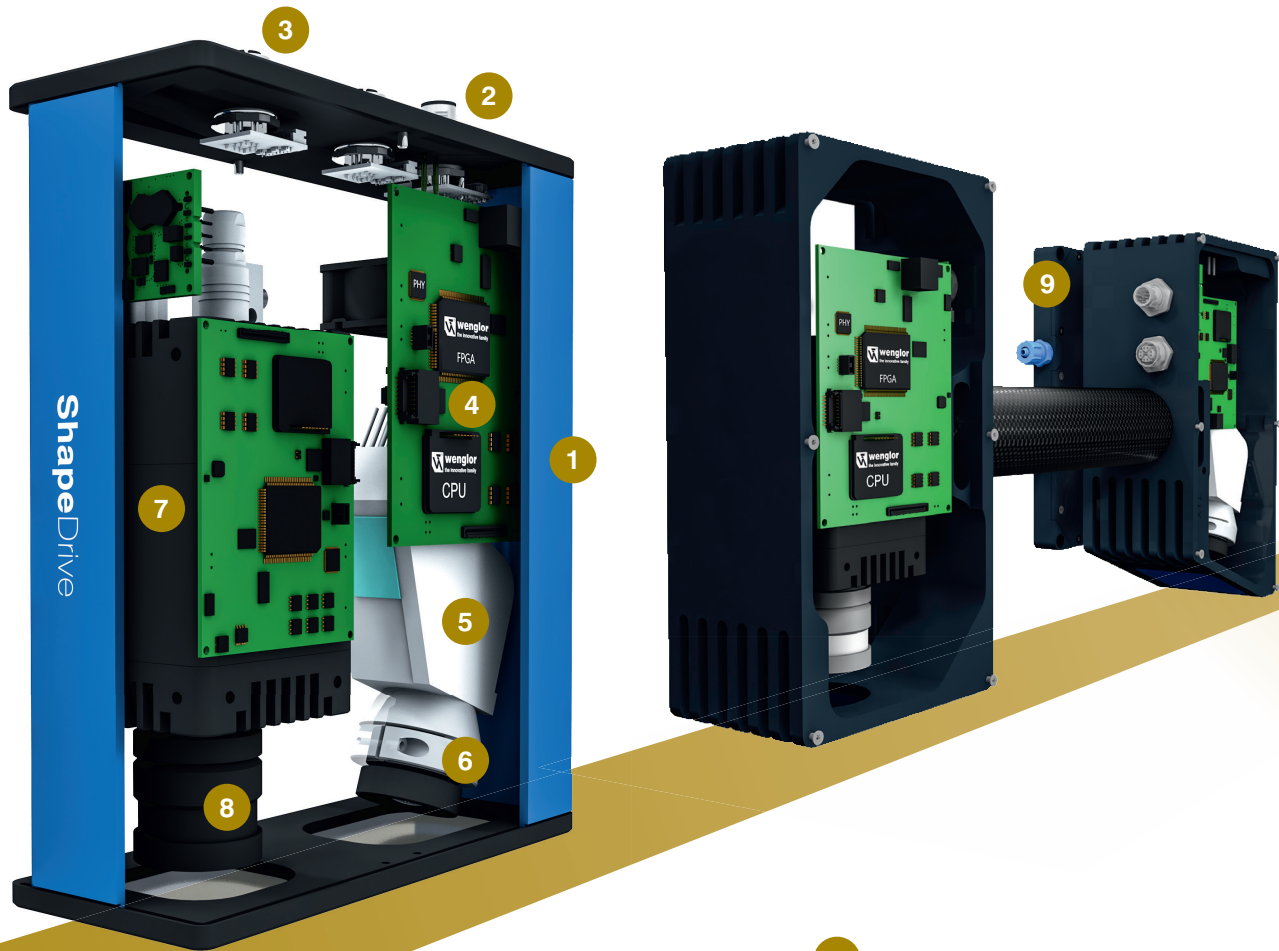
The **3D sensors included in the ShapeDrive series** offer a **high dynamic range** with reference to the object's color and brightness. The sensors deliver reliable results even for **metallic and glossy surfaces**.

ShapeDrive sensors detect even the smallest component features thanks to their **extremely high resolution**, as well as large measuring volumes – for example, the entire content of Euro boxes and Euro pallets can be quickly scanned.

Simultaneous measurement of signal strength makes it possible to generate **high-contrast gray tone images**.

Amongst other things, these can be used for the detection of data matrix codes and barcodes or contamination on objects – without any additional hardware.

ShapeDrive MLAS & MLBS



6

Precision resolution (Z) of down to $3\ \mu\text{m}$ is possible.

7

High-resolution camera
with 5 or 12 megapixels.

1

Compact, **rugged housing design with IP65 protection (MLAS) / IP67 protection (MLBS)** for robot applications in dusty environments subjected to vibration.

2

Standard M12 × 1 plug for supply voltage.

3

Data output with **data rates of up to 7 Gbit per second** via M12 × 1 plug with 10 Gigabit Ethernet interface.

4

Sensors included in the ShapeDrive series can be integrated into customer systems via their **program library** or GigE Vision.

5

Thanks to extraordinary luminous efficiency, imaging quality and field homogeneity, the **specially developed light engine** delivers outstanding results for dark surfaces.

8

High-performance optics for measuring ranges from $30 \times 25 \times 10$ mm to $1300 \times 1000 \times 800$ mm

9

The **optionally available cooling units** for the MLBS series expand the range of applications for continuous operation.



ShapeDrive MLAS

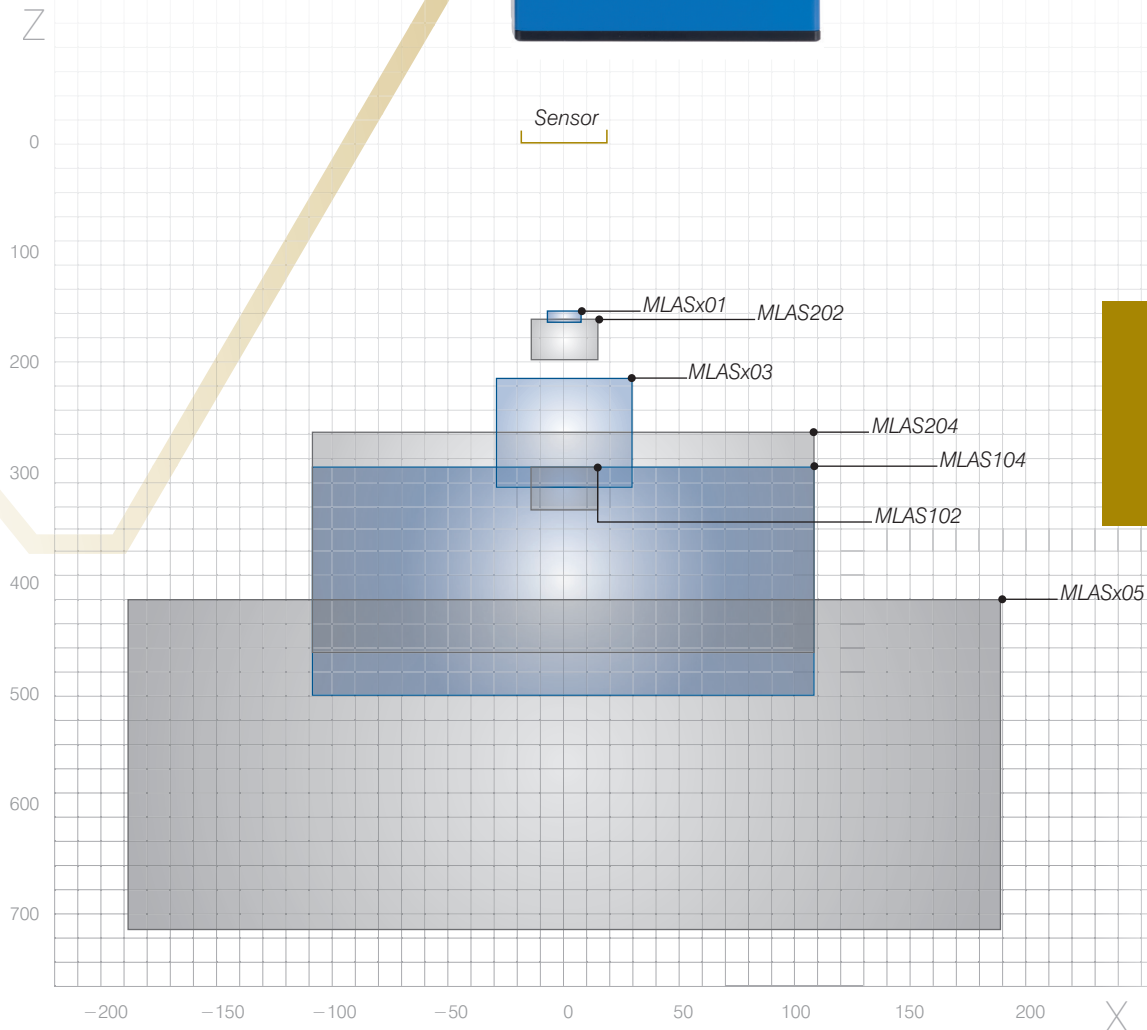
Precision for Small Measuring Volumes

ShapeDrive MLAS 3D sensors are distinguished by high precision for small measuring volumes. The ten variants included in this series are broken down into two performance classes with camera resolutions of 5 and 12 megapixels. Thanks to the rugged IP65 housing, all ShapeDrive MLAS sensors are ideally suited for use in industrial environments. The sensors' data rates of up to 7 Gb per second are reliably handled by the integrated 10-Gigabit Ethernet interface. Depending on configuration, recording time lies within a range of 0.188 to 0.610 seconds. With five measuring ranges in each performance class, the ShapeDrive MLAS is distinguished by strong versatility.

5 MP	MLAS101	MLAS102	MLAS103	MLAS104	MLAS105
Working range Z	160 ... 170 mm	300 ... 340 mm	220 ... 320 mm	390...590 mm	420 ... 720 mm
Measuring range Z	10 mm	40 mm	100 mm	200 mm	300 mm
Measuring range X	30 mm	60 mm	120 mm	240 mm	360 mm
Measuring range Y	25 mm	48 mm	90 mm	200 mm	300 mm
Resolution Z	4 µm	6 µm	10 µm	12 µm	20 µm
Resolution X/Y	18 µm	35 µm	65 µm	142 µm	228 µm
12 MP	MLAS201	MLAS202	MLAS203	MLAS204	MLAS205
Working range Z	160 ... 170 mm	255...295 mm	220 ... 320 mm	270 ... 470 mm	420 ... 720 mm
Measuring range Z	10 mm	40 mm	100 mm	200 mm	300 mm
Measuring range X	30 mm	60 mm	120 mm	240 mm	360 mm
Measuring range Y	22 mm	40 mm	80 mm	160 mm	240 mm
Resolution Z	3 µm	5 µm	9 µm	10 µm	20 µm
Resolution X/Y	9 µm	16 µm	33 µm	63 µm	96 µm

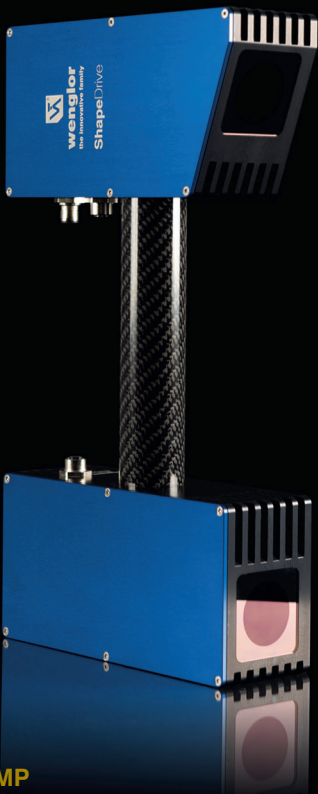
Measuring Volume

MLAS



Accessories

- Connection technology
- Mounting system
- Software



ShapeDrive MLBS

Precision for Large Measuring Volumes

ShapeDrive MLBS 3D sensors are ideally suited for applications with large measuring volumes. The six variants included in this series are broken down into two performance classes with camera resolutions of 5 and 12 megapixels. Thanks to the rugged IP67 housing, all ShapeDrive MLBS sensors are ideally suited for use in industrial environments. The sensors' data rates of up to 7 Gb per second are reliably handled by the integrated 10-Gigabit Ethernet interface. Depending on configuration, recording time lies within a range of 0.188 to 0.610 seconds. With three measuring ranges in each performance class, the ShapeDrive MLBS is distinguished by strong versatility.

5 MP

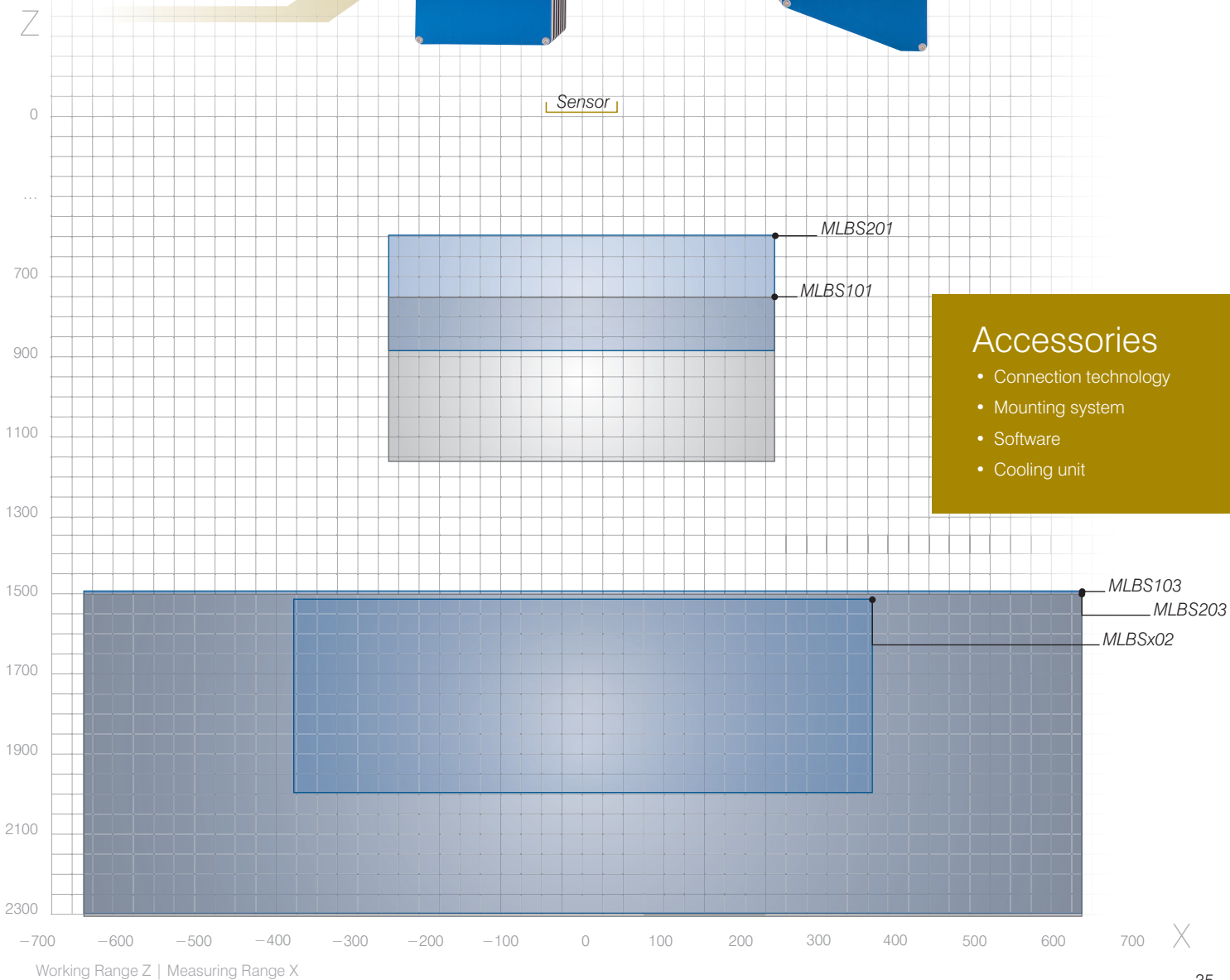
	MLBS101	MLBS102	MLBS103
Working range Z	800 ... 1200 mm	1550 ... 2050 mm	1500 ... 2300 mm
Measuring range Z	400 mm	500 mm	800 mm
Measuring range X	500 mm	750 mm	1300 mm
Measuring range Y	380 mm	560 mm	1000 mm
Resolution Z	40 µm	50 µm	80 µm
Resolution X/Y	281 µm	406 µm	783 µm

12 MP

	MLBS201	MLBS202	MLBS203
Working range Z	590 ... 890 mm	1550 ... 2050 mm	1550 ... 2350 mm
Measuring range Z	300 mm	500 mm	800 mm
Measuring range X	500 mm	750 mm	1300 mm
Measuring range Y	360 mm	540 mm	860 mm
Resolution Z	40 µm	50 µm	70 µm
Resolution X/Y	131 µm	224 µm	339 µm

Measuring Volume

MLBS



Accessories

- Connection technology
- Mounting system
- Software
- Cooling unit

Intelligent Networking

Maximum Freedom

Interfaces and Software



In addition to outstanding features with regard to optics, performance and operation, wenglor's 2D/3D sensors are distinguished in particular by multi-connectivity. This permits further processing of the generated measured values. The GigE Vision interface and the Software Development Kit (SDK) provide users with maximum freedom for incorporating the sensors into external software, and for evaluating point clouds.

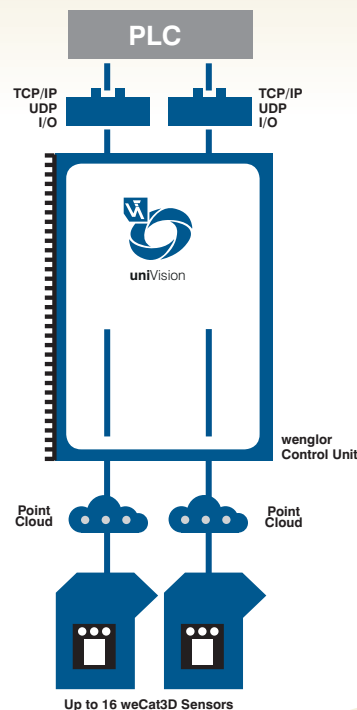
wenglor offers its own uniVision software solution for the evaluation of point clouds generated by individual weCat3D profile sensors. The VisionApp 360 is available for applications with several synchronized sensors and reads out the sensors' measurement data as a combined point cloud.



uniVision for weCat3D 2D/3D Profile Sensors

uniVision is **configurable standard software** for up to 16 weCat3D profile sensors in combination with the wenglor control unit. The intuitive software provides users with a great variety of modules for implementing a broad spectrum of tasks. For example, **individual profile analyses** can be conducted in accordance with the user's own requirements **without programming knowledge**.

The Teach+ functionality which is integrated into uniVision, and which makes it possible to store projects and process them at any location or time, generates additional flexibility. Thanks to the use of various interfaces, uniVision is also capable of communicating directly with multi-axis robots in order to use weCat3D sensors on robot arms, e.g. for seam detection or seam tracking.



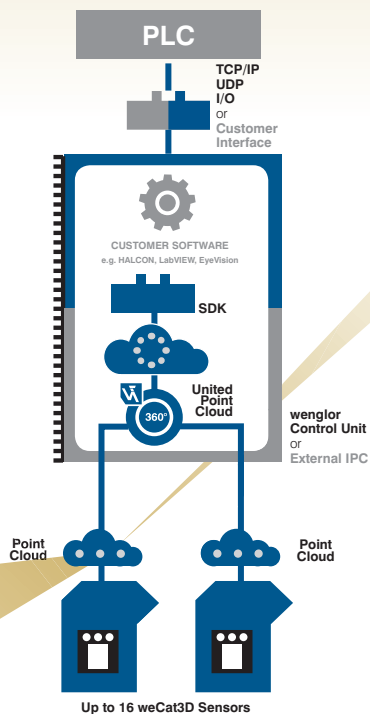


VisionApp 360 for weCat3D 2D/3D Profile Sensors

Reading out measured values from several profile sensors as a combined point cloud involves a great deal of programming work. This effort is eliminated entirely for users who take advantage of VisionApp 360.

VisionApp 360 unites the **measured values from up to 16 weCat3D sensors into a common point cloud** – without the necessity for any programming knowledge. The sensors can be easily synchronized and calibrated via the convenient user interface.

Arrangement of the sensors can be selected as desired: in a circle for 360° profile detection or next to each other for scanning wide surfaces. Point clouds can be transferred to the wenglor control unit or an external IPC by means of the program library.



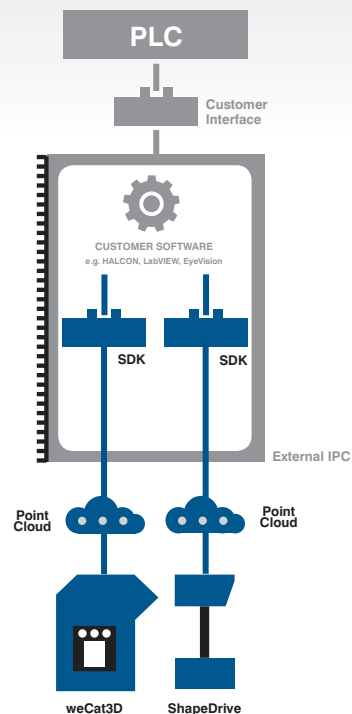
SDK & GigE-Vision for Linking Up to External Software

weCat3D profile sensors and ShapeDrive 3D sensors can be incorporated into existing software environments with the help of their **program library** or a GigE Vision server module.

These make it possible to incorporate the sensors into self-programmed software. A Software Development Kit (SDK) can be downloaded free of charge for this purpose, which assures quick and simple system integration.

Supported software packages:

- HALCON
- LabVIEW
- EyeVision
- Adaptive Vision
- NeuroCheck
- Matrox

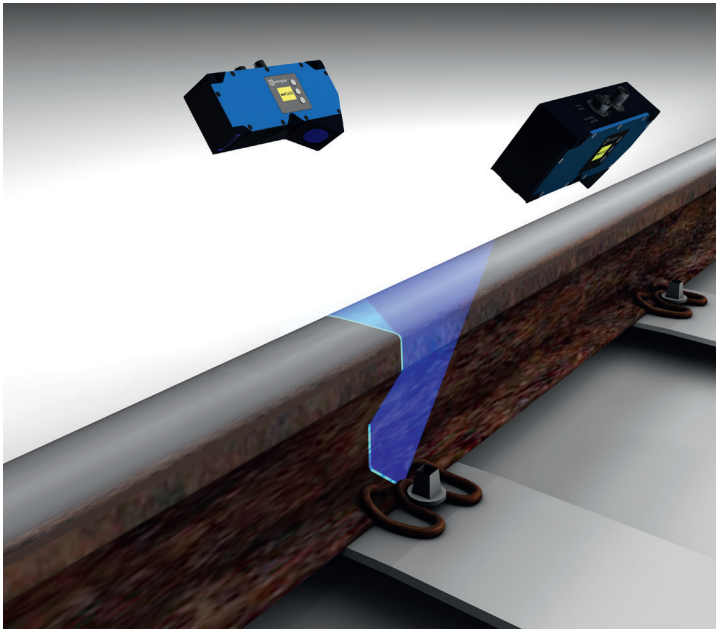


A World Full of Applications

weCat3D and ShapeDrive sensors open up a uniquely diverse range of applications to their users.

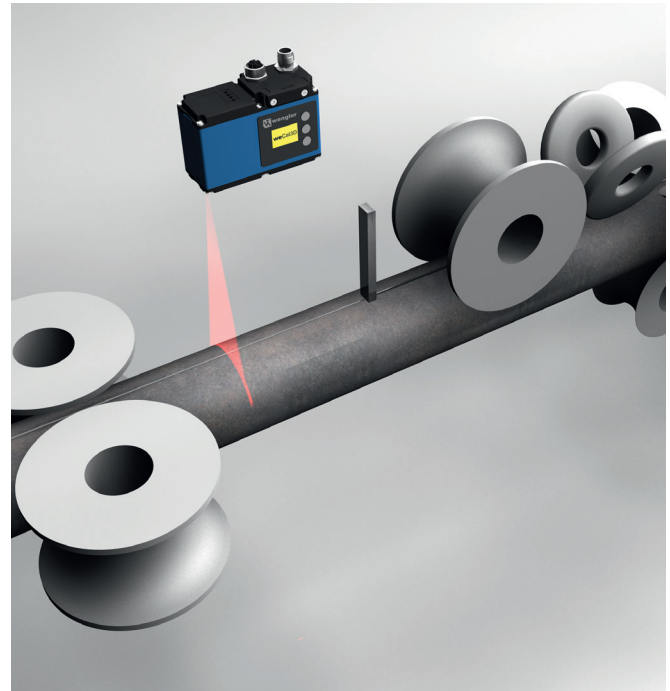
From precision profile detection right on up to three-dimensional or 360° object measurement:

the innovative premium models can be used to implement measuring or testing tasks in all dimensions – with greatest possible speed and accuracy.



◀ Profile Measurement of Rail Heads

The shape of the rail head is measured in order to check for wear and chipping – even at speeds of up to 200 kilometers per hour.

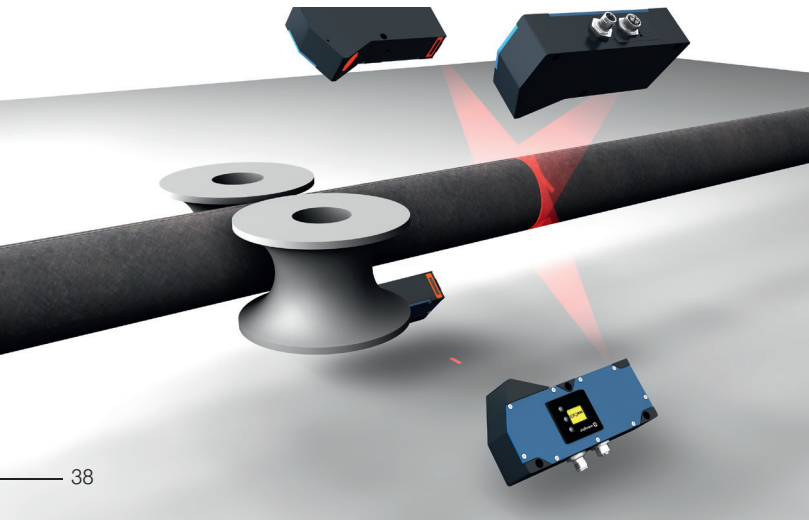


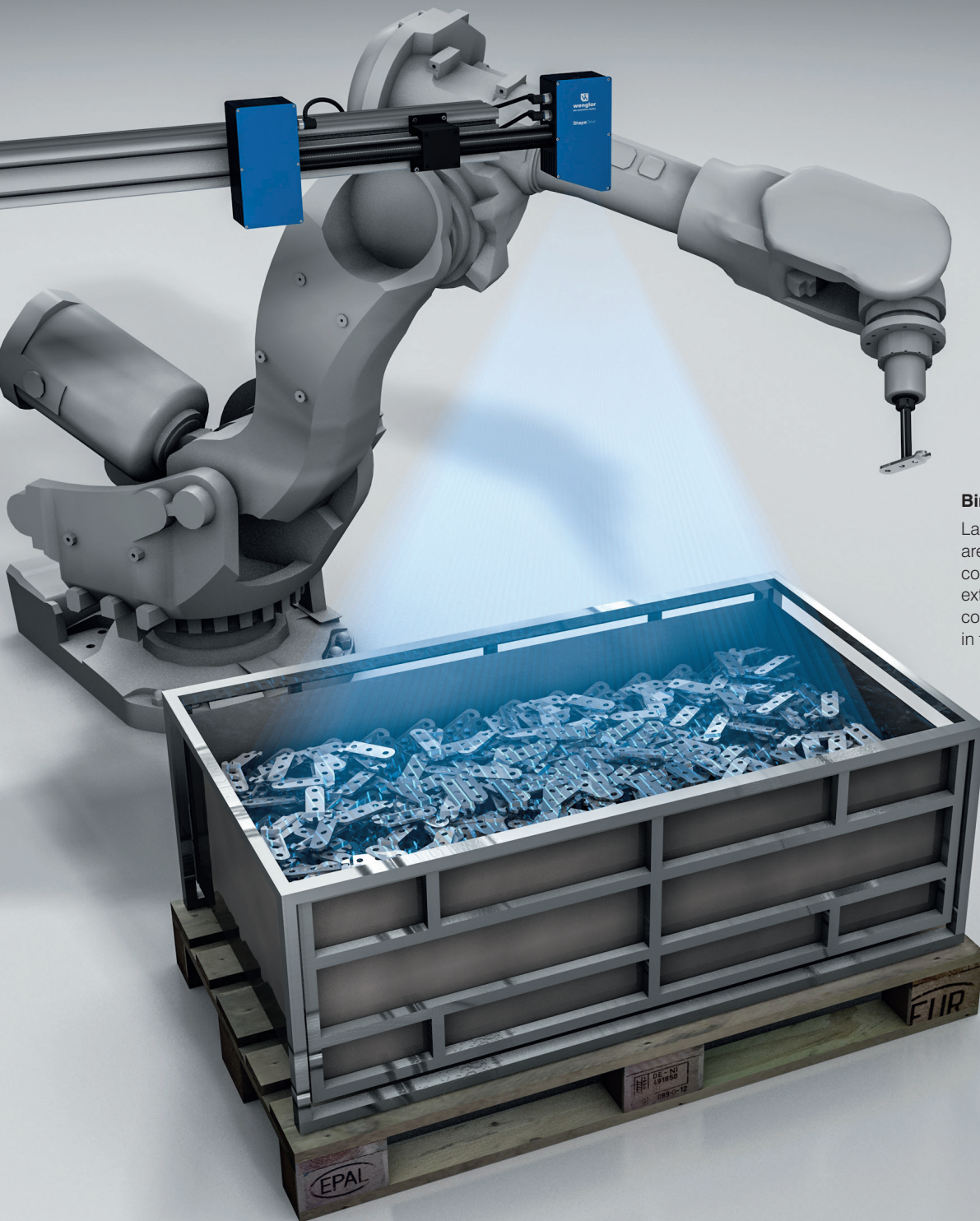
▲ Seam Inspection on Pipe Welding Systems

The pipe's seam is measured.
Bending roller contact pressure is adjusted if any defect is detected due to too much or too little material.

◀ Diameter & Out-of-Roundness

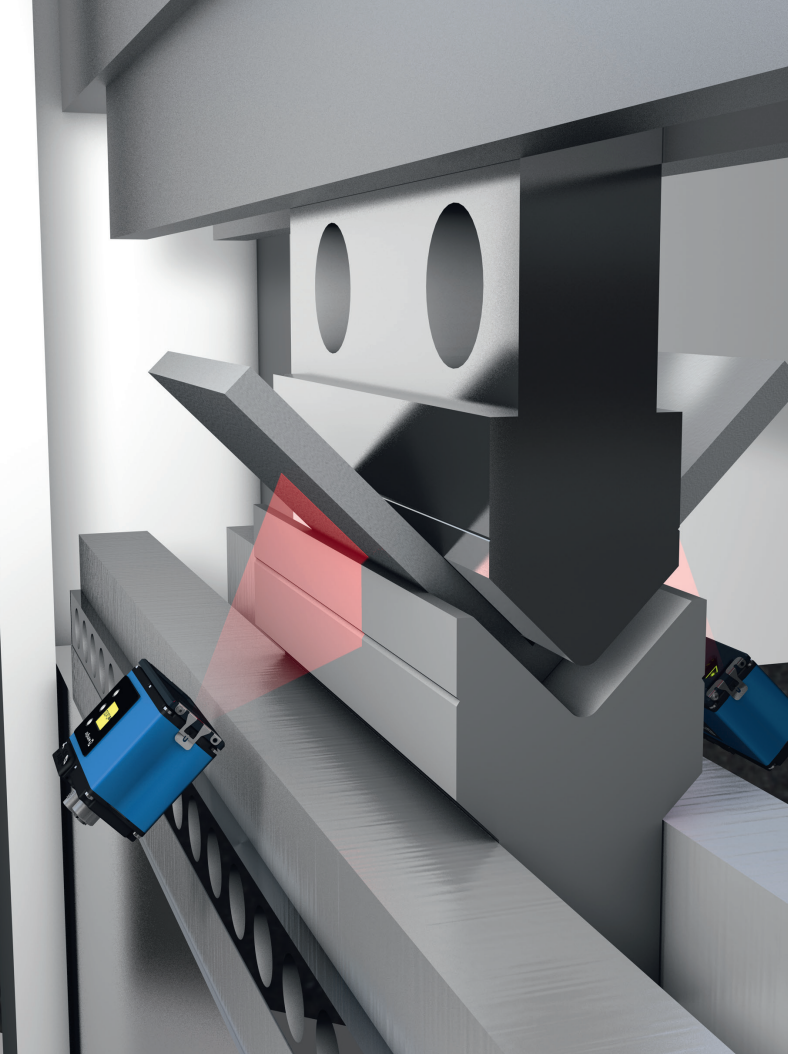
Piping is checked for correct diameter and out-of-roundness while the process is running.





Bin Picking

Large bins such as a Euro pallets are recorded along with their content as a 3D point cloud. Even extremely small objects in large containers can be reliably detected in this way.

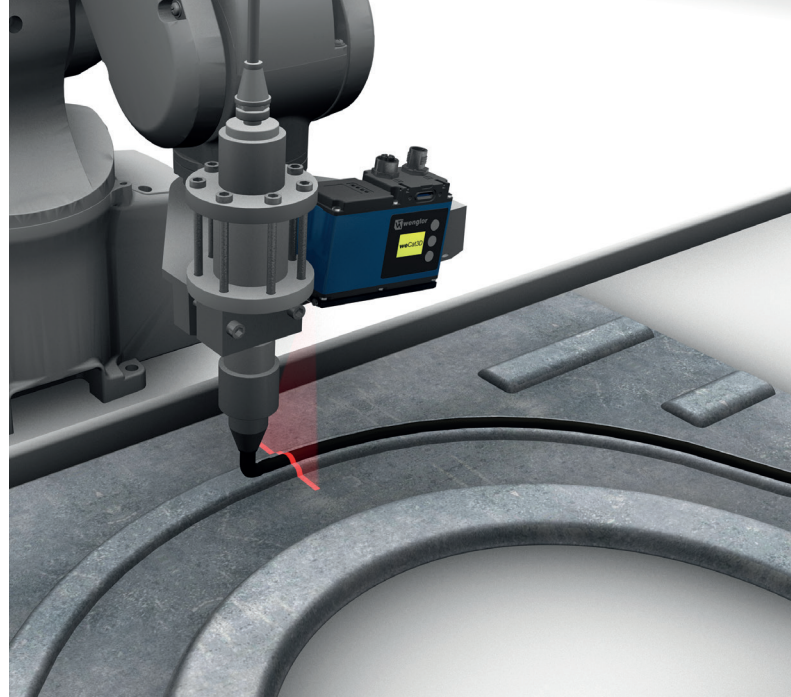


▲ Angle Measurement

Sensors for angular measurement are located at each side of the bending machine in order to regulate the ram's press force. This makes it possible to obtain the desired bending angle after just a single attempt.

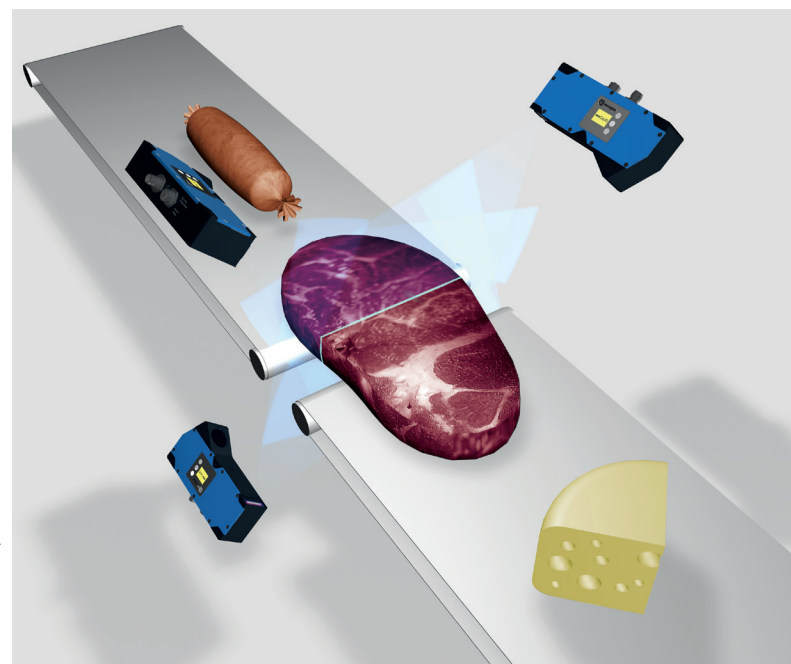
Volumetric Measurement ►

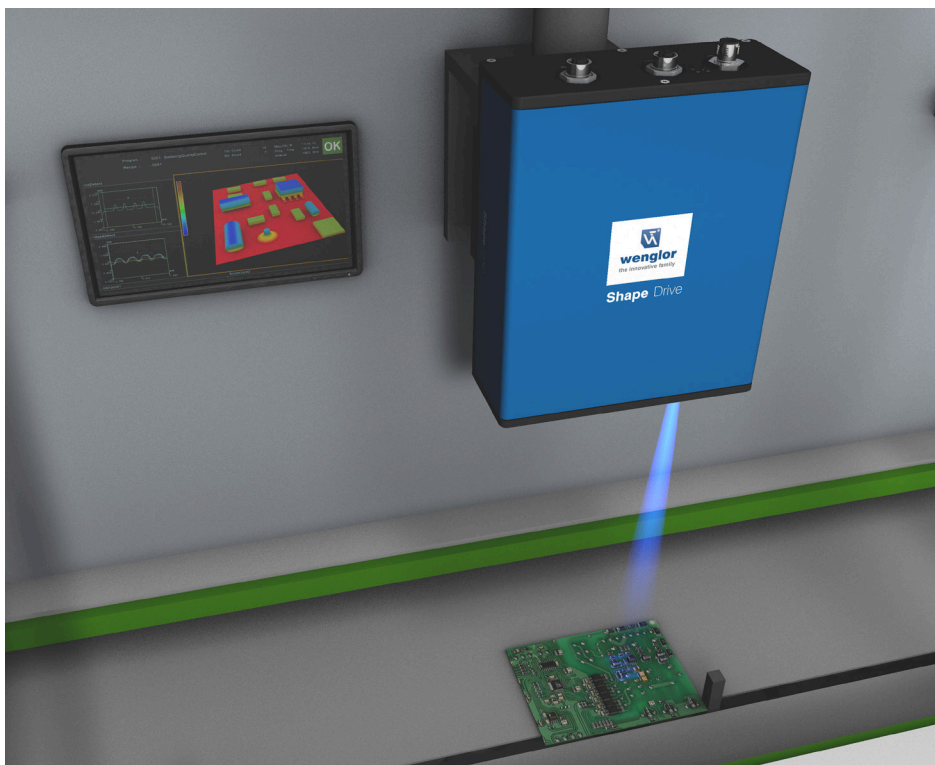
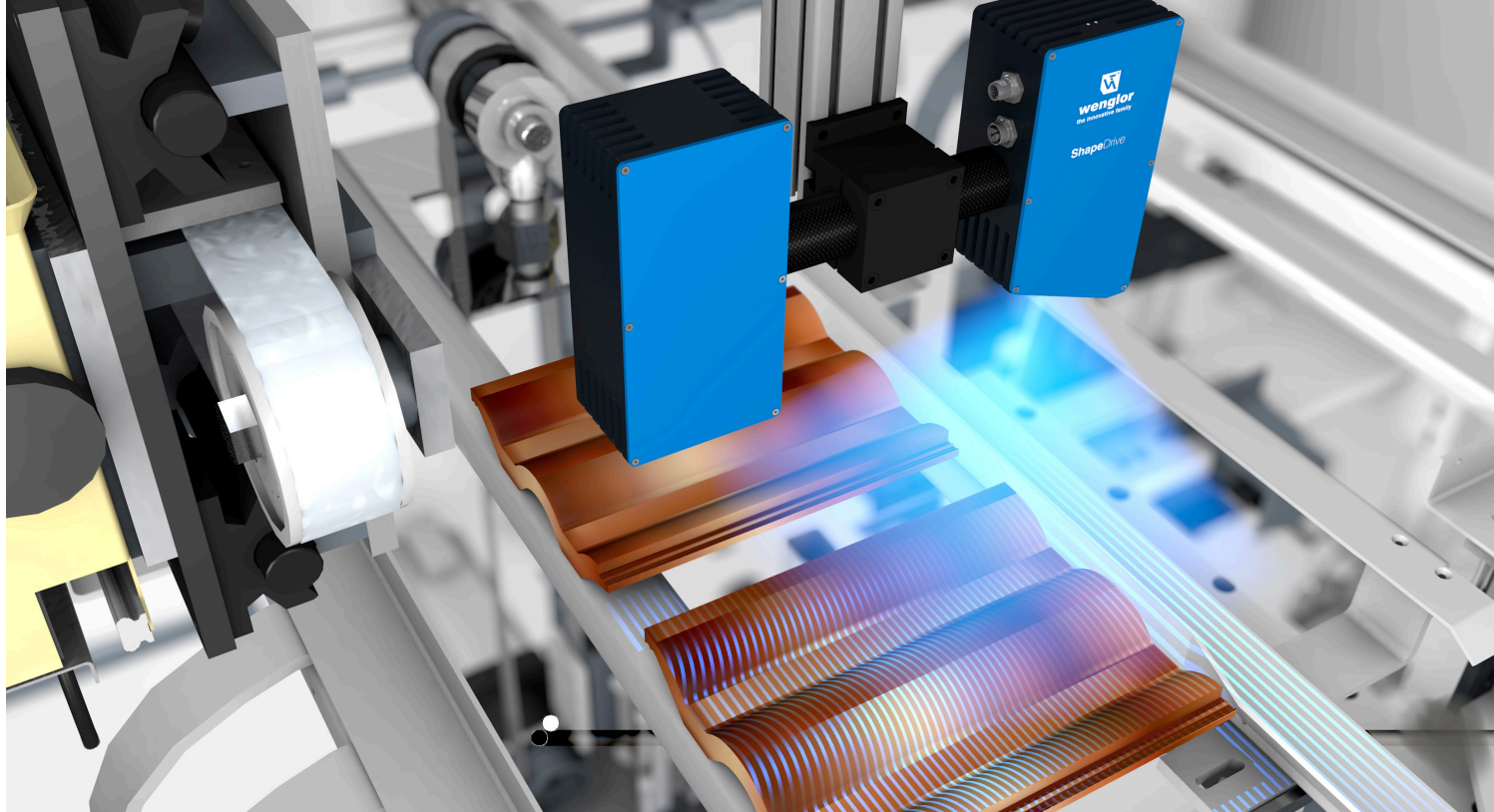
Weight is determined by means of volumetric measurement with 2 or 4 sensors before the slicing process. On the basis of this information, the slicing machine is able to cut the product into ideally dimensioned pieces for further processing.



▲ Sealant Bead Monitoring

Sealant bead monitoring and control at dosing equipment by measuring the bead's position, height and width.





▲ Scanning Roof Tiles

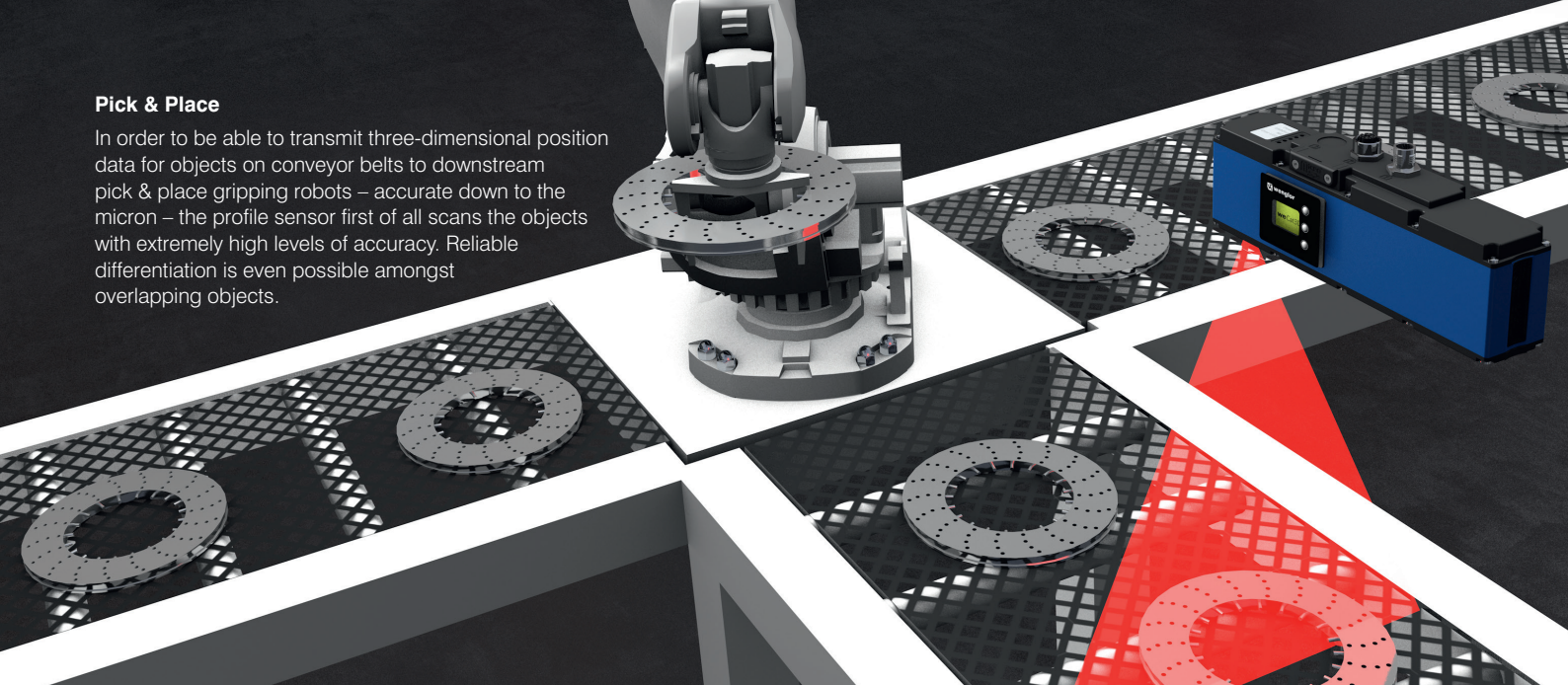
ShapeDrive 3D sensors are used to inspect finished roof tiles for possible damage such as cracks or breakage.

◀ Soldering Inspection

Thanks to high-resolution 3D image recordings, ShapeDrive sensors detect micro-component insertion errors and scan the shapes of individual solder joints.

Pick & Place

In order to be able to transmit three-dimensional position data for objects on conveyor belts to downstream pick & place gripping robots – accurate down to the micron – the profile sensor first of all scans the objects with extremely high levels of accuracy. Reliable differentiation is even possible amongst overlapping objects.



Object Counting ▶

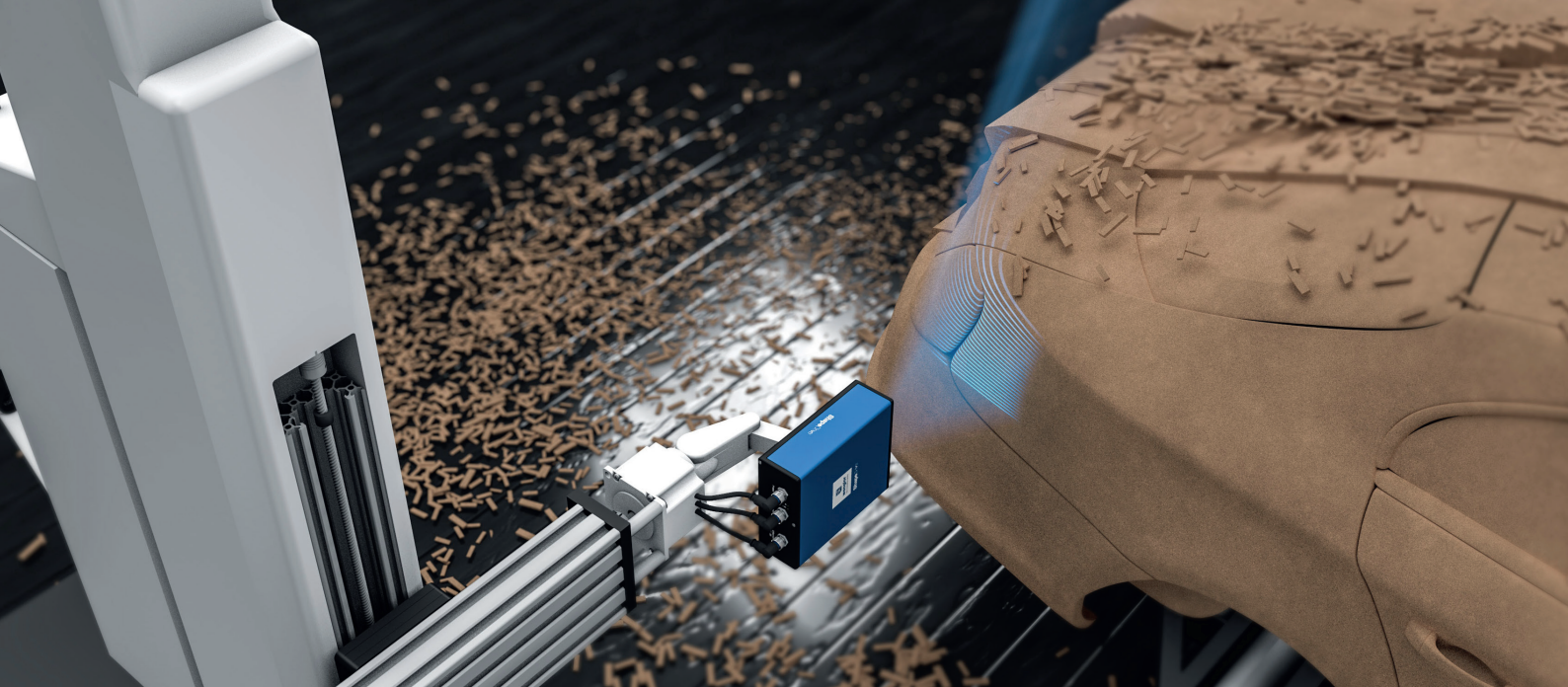
Objects such as baked goods can be unequivocally detected and differentiated by scanning their surfaces – even sideways or upside-down. Evaluation of the measurement data permits reliable object counting as a result.



◀ Gap and Flushness Measurement of Transparent Objects

Gap and flushness accuracy for auto body parts such as doors, tailgates and headlights is an important quality criterion in the automotive industry.

Thanks to the weCat3D model variant with UV light, gap dimensions can be reliably detected for matte and glossy, as well as transparent materials such as metal, glass and plastic.



▲ Digitalization of Shape Changes

Using ShapeDrive sensors reduces time-to-market for new products. Already during the prototype design phase, changes can be immediately digitalized and imported as a data record into 3D design engineering programs such as CAD.

◀ Quality Assurance for PCBs

ShapeDrive 3D sensors are highly effective for inspecting the quality of PCBs because they capture the entire object with just a single image recording. They detect the positions and shapes of the components in order to pinpoint errors and incorrectly positioned parts.

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