



# SOANA<sup>®</sup> - Speed Optical Analyzer

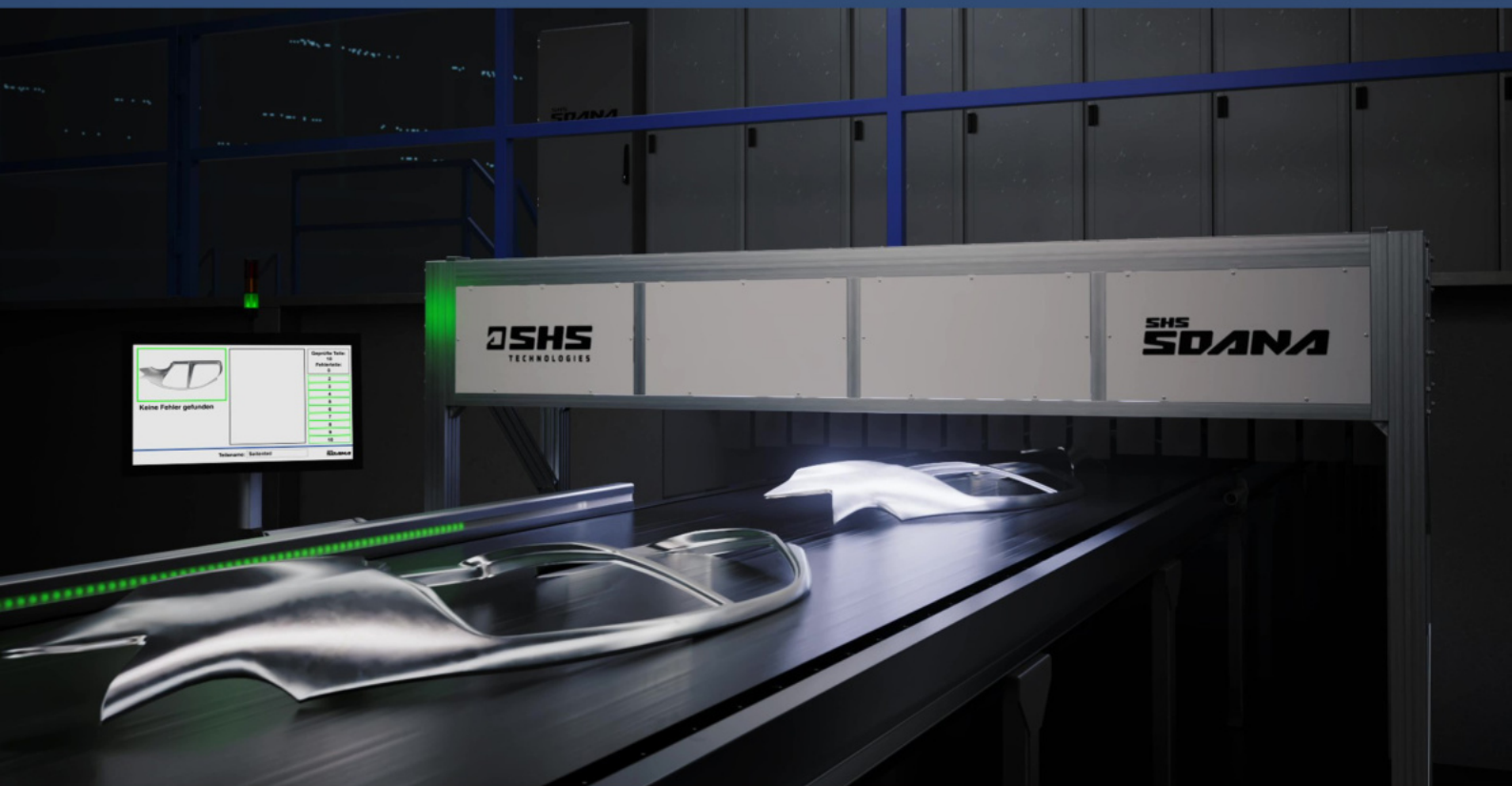
## Product overview

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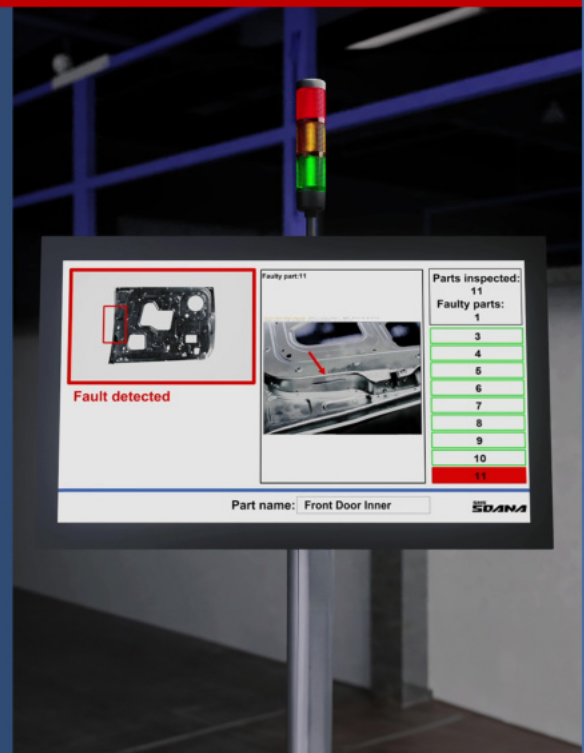
# What is SOANA®?

- An automated, contactless and non-destructive high-speed inspection system
- Component inspection using the inline method
- Precise fault detection under stamping plant conditions
- Immediate signalling/visualisation of faulty parts



# What can SOANA® do?

- Automated testing of all components in a production facility
- Inspection for a wide range of sizes and materials
- Signalling of identified faults via audio/light signals and via a monitor
- Additional signalling of faulty parts with a simultaneous LED signal



- SOANA® enables immediate detection of faulty components without interruption production
- Integration into the customer's specific production process without disrupting the existing manufacturing sequences
- Provision of comprehensive production reports directly after each pressing

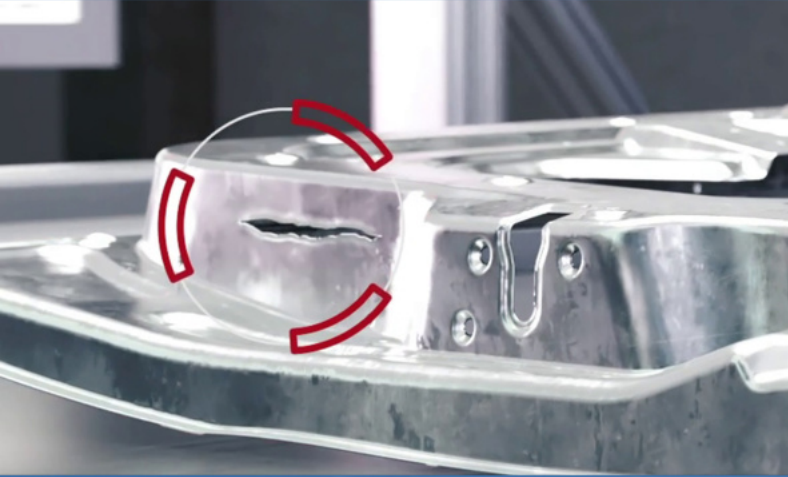
# What can SOANA® do?

- SOANA® is resistant to stamping plant conditions such as: Vibrations, oil mist, dust, etc.
- Throughput speed of up to 3 m/s
- Timed and/or continuous operation of the output conveyor

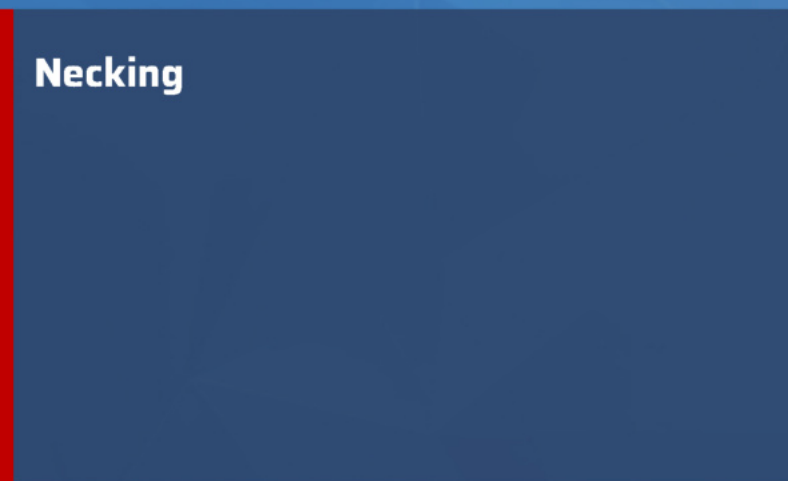


- Fixing the parts in place is not necessary
- Resistant to external light influences
- Illumination of components using lighting module developed in-house
- No external triggering of parts required

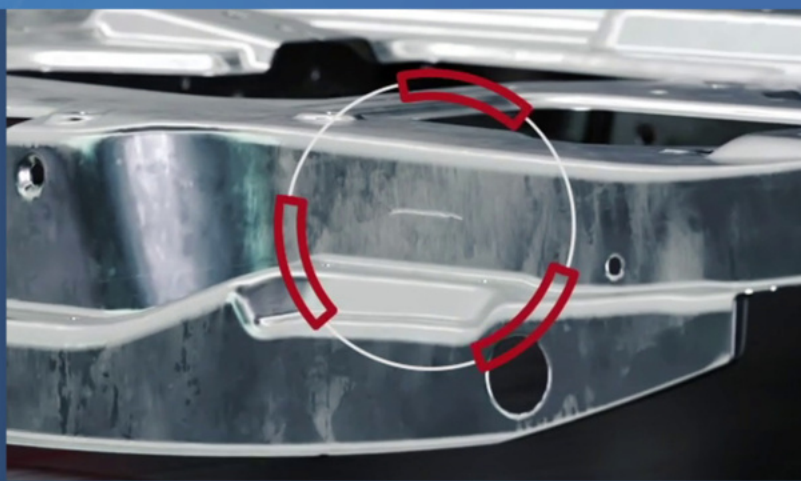
# What types of faults can SOANA® detect?



**Cracks**

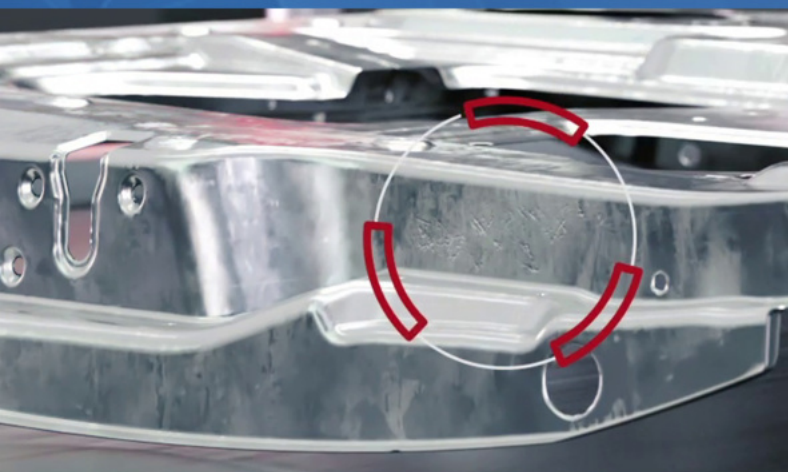


**Necking**



**Surface faults**

scratches, contamination, deposits



# What else can SOANA® do?



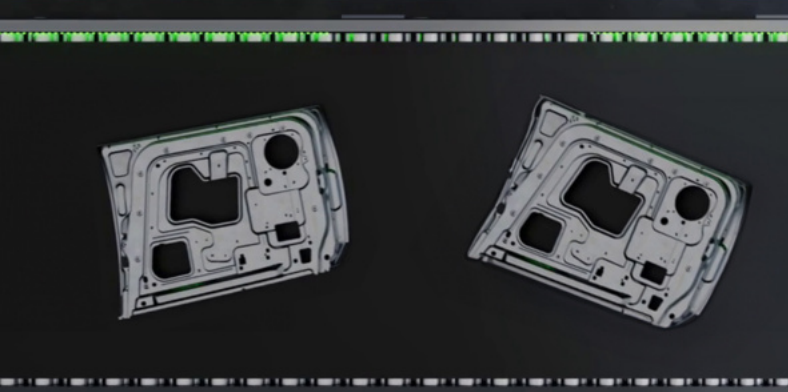
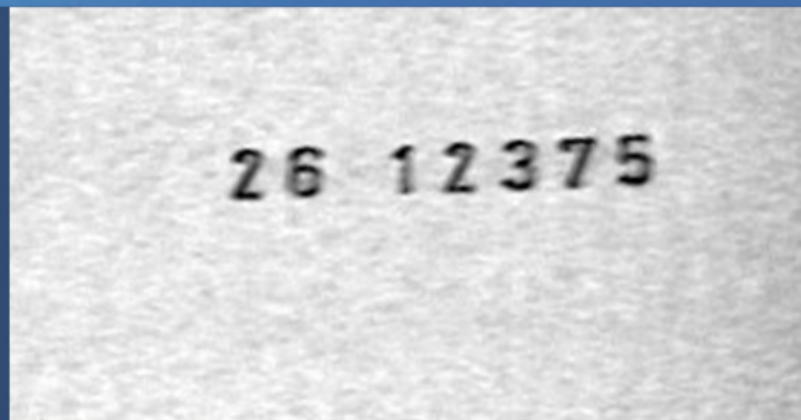
## Measurements

Measurement of distances within an image

e.g. impact lines, hole spacing and diameters

## Serial numbers and parts numbers

Recording of embossed parts numbers or serial stamps using OCR



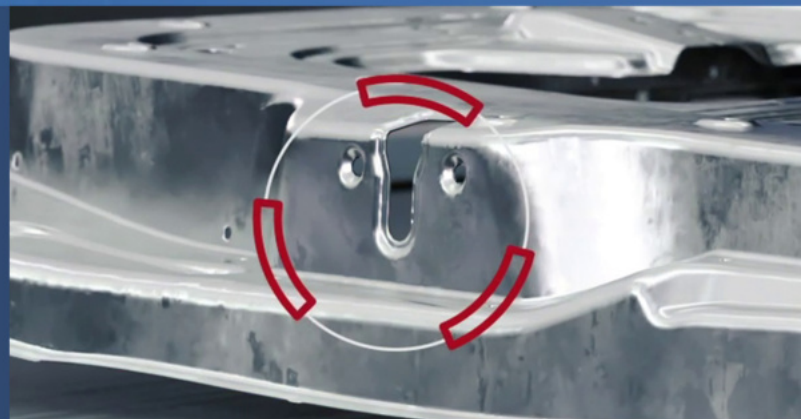
## Position detection

Detection of part situation on output conveyor, such as position and rotation

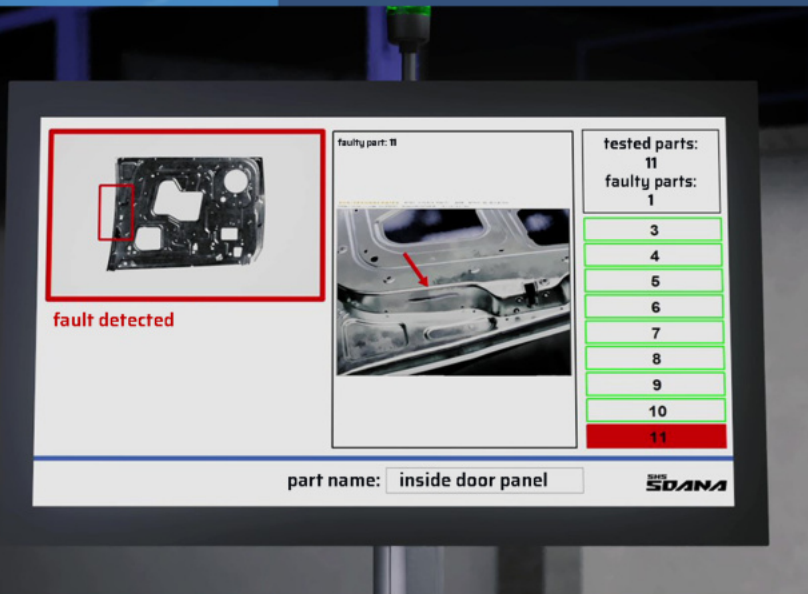
## Hole/press-fit components (counts)

Inspection of holes, hole groups and press-fit components

Check for correct press fit and size



# How can SOANA® visualise faults?



## Monitor

- Display of inspection results
- Visualisation of fault areas



## LED belt visualisation

- Fault signalling along the entire length of the output conveyor
- Simultaneous light signals for unambiguous identification of faulty parts
- Precision position display of existing faults

Other signalling options include signal towers, warning lights or horns.

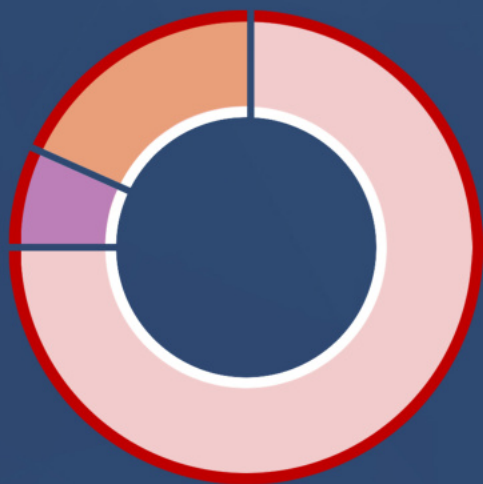
# What data does SOANA® deliver?

## Reporting

SOANA® delivers comprehensive reporting with AI-based analysis that is tailored individually to your requirements.

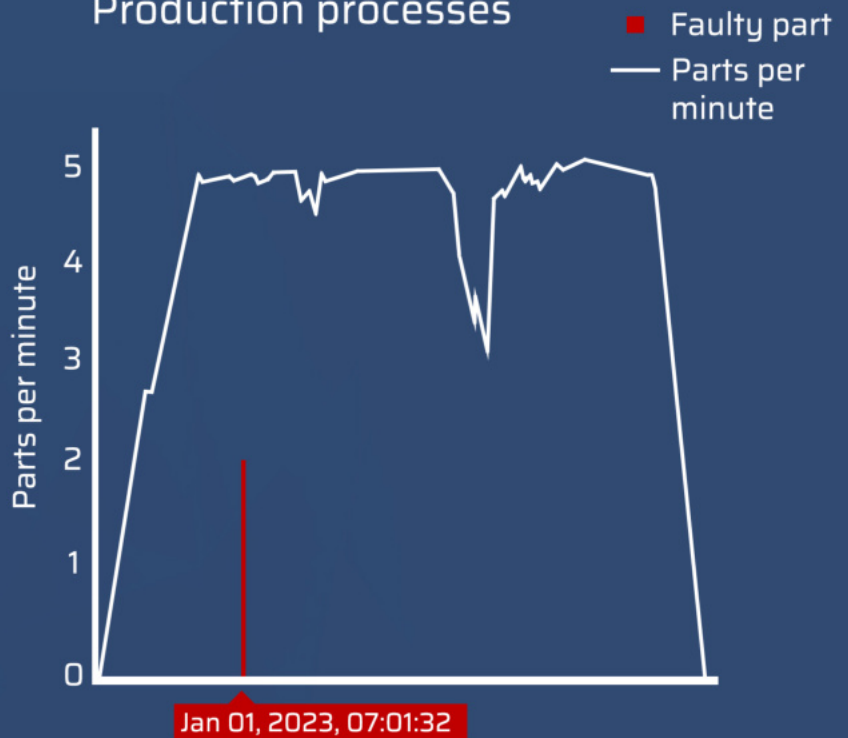
CW	start of production	end of production	ID	item number	parts	faults	total	cracks	necking	actual faults	pseudo faults
12	2023-03-22 07:39	2023-03-22 10:13	1022	111-102 X.10_inside_door_panel_L	1604	5	0,31%	4		4	0,06%
12	2023-03-22 07:39	2023-03-22 10:13	1023	111-103 X.10_inside_door_panel_R	1604	0	0,00%			0	0,00%
12	2023-03-22 10:25	2023-03-22 13:47	1024	105-033 X.15_outer_door_skin_L	1730	6	0,35%	4		4	0,23%
12	2023-03-22 10:25	2023-03-22 13:47	1025	105-034 X.15_outer_door_skin_R	1730	15	0,87%	8	2	10	0,58%
12	2023-03-22 13:50	2023-03-22 16:23	1026	215-450-R X.10_outer_roof_skin	759	2	0,26%			0	0,00%
12	2023-03-22 13:50	2023-03-22 16:24	1027	215-450-L X.10_outer_roof_skin	781	1	0,13%			0	0,00%
12	2023-03-22 16:26	2023-03-22 19:19	1028	312-022-R X.10_side_frame_L	562	11	1,96%	8		8	1,42%
12	2023-03-22 16:26	2023-03-22 19:20	1029	312-022-L X.10_side_frame_L	563	5	0,89%	4	1	5	0,89%
12	2023-03-22 19:22	2023-03-22 22:23	1030	306-177-R X.15_side_frame_L	550	6	1,09%	4		4	0,73%
12	2023-03-22 19:22	2023-03-22 22:23	1031	306-177-L X.15_side_frame_L	551	2	0,36%	1		1	0,18%
12	2023-03-22 22:25	2022-03-23 02:16	1032	401-721-R X.15_inside_front_flap	1423	11	0,77%	5	2	7	0,49%
12	2023-03-22 22:25	2022-03-23 02:17	1033	401-721-L X.15_inside_front_flap	1371	4	0,29%	3		3	0,22%
13	2023-03-23 03:06	2023-03-23 06:39	1034	128-525 Y.10_outer_door_skin_L	1750	11	0,63%	8	1	9	0,51%
13	2023-03-23 03:06	2023-03-23 06:39	1035	128-526 Y.10_outer_door_skin_R	1751	5	0,29%	4	1	5	0,29%
13	2023-03-23 06:45	2023-03-23 10:56	1036	326-822 Y.10_outer_skin	630	1	0,16%	0		0	0,00%
13	2023-03-23 06:45	2023-03-23 10:56	1037	326-822 Y.10_outer_skin	635	4	0,63%	4		4	0,63%
13	2023-03-23 11:03	2023-03-23 13:28	1032	401-721 722-R Y.10_inside_panel	472	8	1,69%	4	0	4	0,85%
13	2023-03-23 11:04	2023-03-23 13:30	1033	401-721 722-L Y.10_inside_panel	451	5	1,11%	3	1	4	0,89%

### Fault categorisation



75% Cracks  
17% Contamination  
8% Press-fit components

### Production processes





# What data does SOANA® deliver?

## Customer terminal

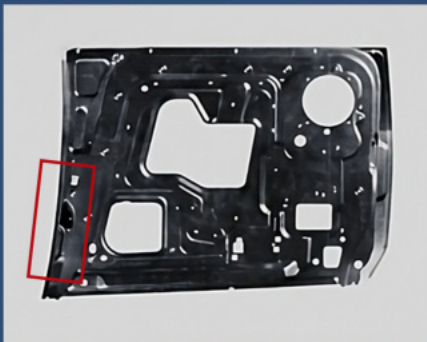
- Provision of information and inspection results for the test parts and production facilities
- Data storage for several months

Type	Designation	Part number	Part -Name	Output Conveyor
X.10	111-102	111-102-R	X.10_inside_door_panel_L	right
X.10	111-103	111-103-L	X.10_inside_door_panel_R	left
X.15	105-033	105-033-L	X.15_outer_door_skin_L	left
X.15	105-034	105-034-R	X.15_outer_door_skin_R	right

Start date   time	ID	Designation
22.03.2023   07:39	1022	111-102
22.03.2023   07:39	1023	111-103
22.03.2023   13:50	1026	215-450-R
22.03.2023   13:50	1027	215-450-L

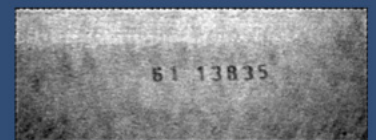
Number	Time	Embossed number	Fault
1	07:40:39	53395	no
2	07:40:48	54234	no
3	07:40:56	32172	yes
4	07:41:04	49424	no

- Selection of individual inspection areas as well as view and export of inspection images



previous image

next image



- Export options for data and image material

# What services are provided along with SOANA®?



Service hotline and on-site appointments within 24 hours



Customer terminal: Direct access to production data/images with export function



Creation of detailed reports (daily, weekly and monthly reports) including fault classification



Connection with customer-specific quality systems



AI-based analysis and interfaces for use of external AI solutions



Comprehensive employee training

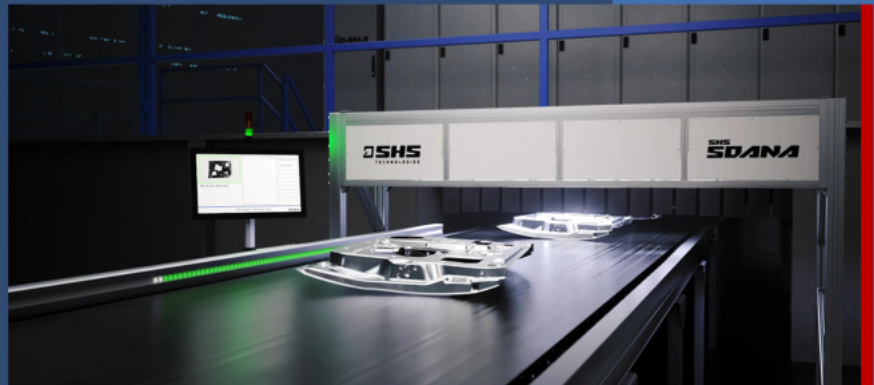


Maintenance by specialist staff according to individual arrangement

# How is SOANA® integrated?

## Inspection from above

portal design over  
single or double  
output conveyors



## Inspection from below



## Standalone solution “SOANA® Pocket”



Don't see the right solution for you? SOANA® can be adjusted individually to the location and customer requirements.

# What does SOANA® require?

## CAD data

Teaching which components need to be inspected using CAD models



## Connection to stamping press control

Signal exchanged between stamping press and SOANA®



## Current production

Two or three stamping processes for the components which require inspection to teach the inspection system



## Constant deposit of parts

Controlled deposit using transfer system



# Technical data

Dimensions of unit	<ul style="list-style-type: none"><li>• Individual according to customer requirements</li><li>• Example dimensions: for an output conveyor with a width of 1800 mm, SOANA® measures 2000 mm x 800 mm x 800 mm excluding mount</li></ul>
Requirements for the transport system	<ul style="list-style-type: none"><li>• Conveyor belt with a speed of up to 3 m/s</li><li>• Timed or continuous</li><li>• Fault detection while the parts pass through, without interrupting production</li><li>• Belt surface preferably matt and dark</li><li>• Cycle rate of up to 30 strokes/min for conventional motor vehicle sheet metal part, faster also possible for smaller components</li></ul>
Lighting system	<ul style="list-style-type: none"><li>• LED lighting system with extraneous light compensation</li><li>• Incident light system - based on reflection off the measured object</li></ul>
Camera system	<ul style="list-style-type: none"><li>• up to 40 area scan cameras</li><li>• Resolution 2 MPx to 5 MPx per camera</li></ul>
System interfaces	<ul style="list-style-type: none"><li>• kundenspezifische Integration</li></ul>
Network technology	<ul style="list-style-type: none"><li>• PoE network technology with 10 Gbit connection for the image processing computer</li><li>• Powerful computing technology</li></ul>

# Technical data

Type of inspection	<ul style="list-style-type: none"><li>• Fully automated high-speed real-time inspection system</li><li>• 100 % in-line</li><li>• Non-destructive and contactless</li><li>• No additional triggering required from outside</li></ul>
Analysis algorithm	<ul style="list-style-type: none"><li>• Proprietary development by SOANA®</li><li>• Data processing up to 10 Gbit/s</li></ul>
Expansions	<ul style="list-style-type: none"><li>• Already existing parts can be expanded to include additional measurements</li><li>• New and existing components can be subsequently integrated into the program using CAD model</li></ul>
Materials eligible for inspection	<ul style="list-style-type: none"><li>• Metallic and non-metallic materials</li></ul>
Fault types eligible for inspection	<ul style="list-style-type: none"><li>• Cracks: starting from 2 mm, detection of smaller cracks is also possible if there are known focal points for cracks</li><li>• Necking: Detection depending on position and manifestation</li><li>• Surface faults: Scratches, contamination, deposits</li><li>• Holes and press-fit components: Check for existence, size and/or correct press fit</li></ul>