



**50** 1965 - 2015

YEARS · JAHRE

**ROLAND ELECTRONIC**

JUBILÄUMSAUSGABE · ANNIVERSARY ISSUE

HIGHLY SPECIALIZED SYSTEMS  
FOR FACTORY AUTOMATION AND QUALITY CONTROL

**PRODUCT CATALOG**



DOUBLE SHEET CONTROL • WELD SEAM DETECTION • THICKNESS MEASURING • NON-DESTRUCTIVE MATERIAL TESTING



## ABOUT US

We develop, produce and distribute highly specialized systems for factory automation and quality control since 1965.

Our sensors and controllers solve tasks that are not solvable with standard sensors.

## COMPETENCY

Our customers appreciate the decades of experience in the "Magnetic Technologies" that have made us an indispensable partner for the metal processing industry.

## INNOVATIONS

Innovations with high customer value are our strength. Our own developments are always focused on our core competencies.

We use the latest sensor and communication Technologies.

Our investments are above average for the development, so that new improved products come into being.

## QUALITY

Our heart beats for quality "Made in Germany". Since 1995, our company is certified to ISO 9001.

As owner of a flexible, modern company, we provide our customers with the certainty that they can count on our expertise and our presence in the future.



Reg.Nr. 005151 QM08

## CUSTOMER FOCUS

Our sales and service is on site at our customers day by day.

ROLAND Application Laboratory determines the most secure and safest solution for your new application.

## GLOBAL

Our global sales and service network ensures that we are where our customers are. We speak their language and give successful advice due to the high competence of our staff and sales partners.

## TECHNOLOGIES

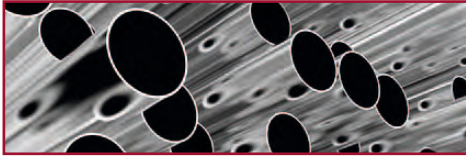
Our core competencies are: Magnetic Flux, Eddy Current and Induction. With these Technologies, we build sensors for very special detection tasks.

We apply latest laser technology where the advantages of optical technology are required.

Ralf Wilms

Joachim Manz

## Tube Manufacturing



## Automotive



## Automotive Suppliers



## Home Appliances



## General Sheet Metal Processing



## Battery Market

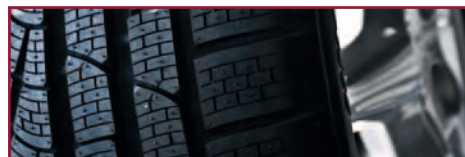


# O U R M A R K E T S

## Metal Packaging



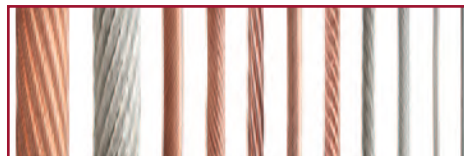
## Tire Industry



## Photovoltaic Industry



## Cable & Wire Industry



## Pharma Industry

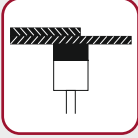
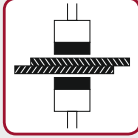
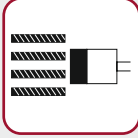
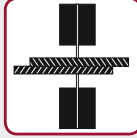



... and many more, such as:  
Metall Fitting Industry,  
Lighting, Cabinet & Furniture,  
Construction Vehicles, etc





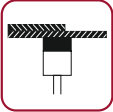
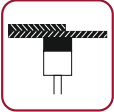
# DOUBLE SHEET DETECTION SYSTEMS

- ▶ Inspection of Sheet Thickness and output of a warning signal when detecting Double Sheet.
- ▶ Protects your machinery from expensive tool damage and loss of production.

Single Side contacting sensors	Dual Head non-contacting sensors	Edge Detection non-contacting sensors	Dual Head Optical non-contacting sensors	C-Frame non-contacting sensors
				
Recommended for destacking robots	Recommended for conveyor belts	Recommended for destackers	Recommended for highspeed conveyor belts / very small parts	Recommended for centering stations at bending machines

## For better understanding:

- ▶ Measuring range refers to 1 sheet.
- ▶ Steel also applies to magnetic stainless steel.
- ▶ Measuring ranges für many other metals are listed in the manuals.
- ▶ Many other sensors with their measuring ranges are described in our manuals.
- ▶ The measuring time may change depending on material thickness and operation mode; see our manuals for further details.

R100			R100		
					
					
A100			I100-S-WI		
Technology	Permanent magnetic		Technology	Inductive transmission process	
Sensor	T04	TN40S	Sensor	WI42GS	
Meas. range	Steel magn. [FE]	0.04 ... 1 mm	0.3 ... 4 mm	Steel magn. [FE]	0.15 ... 0.4 mm
	Aluminum [NF]	--	--	Aluminum [NF]	0.5 ... 3 mm
	Stainl. steel aust [NF]	--	--	Stainl. steel aust [NF]	0.5 ... 3 mm
	Non-metals	--	--	Non-metals	--
Air gap	0		Air gap	Max. 2 mm	
Particularity	Sheet is attracted by the sensor		Particularity	Distance to the sheet up to 2 mm possible	
Measuring time	15 ms		Measuring time	30 ms	

# DOUBLE SHEET DETECTION SYSTEMS

## COMPACT UNITS R100

- ▶ Cost-effective solutions for many industries.
- ▶ One side contacting or Double-sided non-contacting measurement.
- ▶ Fast reaction.

### Compact Units R100

1 Sensor channel

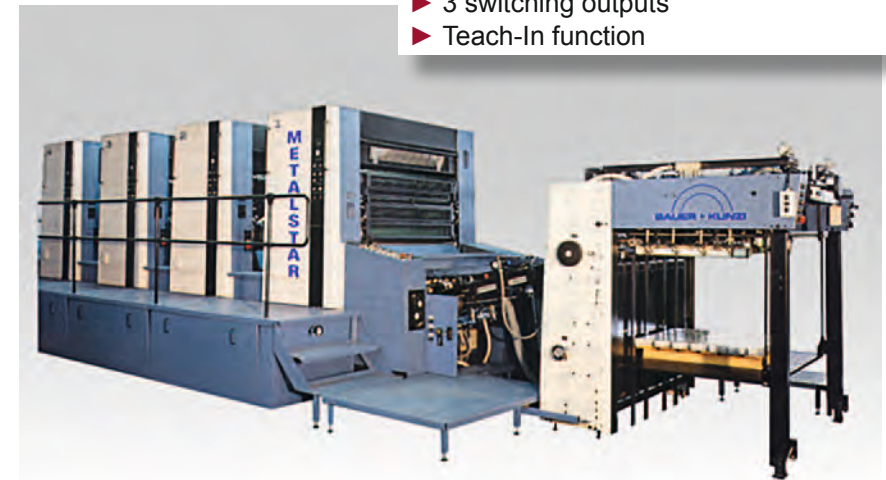
1 Program

3 Outputs / 1 Input

Cable length maximum 20 m

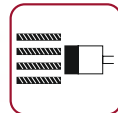
### THE ROLAND PLUS

- ▶ Alpha numeric display
- ▶ 3 switching outputs
- ▶ Teach-In function

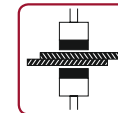


Double sheet detection in a blank destacker of a metal sheet printing press (Source: Bauer + Kunzi)

#### R100



#### R100



#### R100



### XA100 + AA Eagle Eye

Technology		Eddy Current	
Sensor		AA90X60-453F2S	AA150X100-902F8S
Meas. range	Steel magn. [FE]	0.2 ... 4 mm	0.4 ... 8 mm
	Aluminum [NF]	0.2 ... 4 mm	0.4 ... 8 mm
	Stainl. steel aust [NF]	0.2 ... 4 mm	0.2 ... 8 mm
	Non-metals	--	--
Air gap		5 mm	15 mm
Particularity		Sensor with 20 mA analog output	
Measuring time		< 20 ms	

### I100

Technology		Inductive transmission process	
Sensor		S/E34	S/E75
Meas. range	Steel magn. [FE]	0.05 ... 1 (1.5) mm	0.1 ... 3 (4) mm
	Aluminum [NF]	0.2 ... 6 mm	3 ... 5 (15) mm
	Stainl. steel aust [NF]	--	--
	Non-metals	--	--
Air gap		10 ... 40 mm	30 ... 60 mm
Particularity		Sensor Distance up to 80 mm	
Measuring time		18 ... 75 ms	

### C100

Technology		Capacitive	
Sensor		C100-10S	C100-20S
Meas. range	Steel magn. [FE]	0.2 ... 3.5 mm	0.4 ... 7 mm
	Aluminum [NF]	0.2 ... 3.5 mm	0.4 ... 7 mm
	Stainl. steel aust [NF]	0.2 ... 3.5 mm	0.4 ... 7 mm
	Non-metals	--	--
Air gap		10 mm	20 mm
Particularity		Double Sheet Detection and Thickness Meas.	
Measuring time		500 ms	

# DOUBLE SHEET DETECTION SYSTEMS

## MODULAR UNITS R1000

- ▶ R1000 Systems are optimized in all their components to achieve highest security and reliability.
- ▶ Perfect for Press Lines with fast cycle times.
- ▶ 9 of the 10 of the world's largest automotive manufacturers use R1000.

### Modular Units R1000

255 Programs

1 to 4 Sensor channels

Parallel interface to the PLC, 9 Fieldbus Systems

Cable length maximum 50 m

### THE ROLAND PLUS

- ▶ Full control by PLC
- ▶ All leading Fieldbus Interfaces
- ▶ Dynamic Measurement and Teach-In



Jumbo Press Line (Source: Müller Weingarten / Schuler)

R1000			R1000			R1000					
E20			UDK20			I20					
Technology		Electro magnetic		Technology		Electro magnetic + Inductive		Technology		Eddy Current	
Sensor		P42AGS	P128GPPS	Sensor		PW42AGS		Sensor		IS/IE20-30GS	IS/IE42-30GS
Meas. range	Steel magn. [FE]	0.2... 4 mm	1... 12 mm	Meas. range	Steel magn. [FE]	0.2 ... 4 mm	Meas. range	Steel magn. [FE]	0.05 ... 4 mm	0.15 ... 8 mm	
	Aluminum [NF]	--	--		Aluminum [NF]	0.2 ... 4 mm		Aluminum [NF]	0.05 ... 5 (16) mm	0.1 ... 10 (16) mm	
	Stainl. steel aust [NF]	--	--		Stainl. steel aust [NF]	0.2 ... 2 mm		Stainl. steel aust [NF]	0.2 ... 5 (16) mm	0.4 ... 10 (16) mm	
	Non-metals	--	--		Non-metals	--		Non-metals	--	--	
Air gap		0 mm	0 mm	Air gap		0 mm		Air gap		40 mm	80 mm
Particularity		Wall mount enclosure or font panel mounting		Particularity		Wall mount enclosure or font panel mounting		Particularity		Wall mount enclosure or font panel mounting	
Measuring time		80 ms (at 4 mm Steel)		Measuring time		80 ms		Measuring time		Starting from 2 ms	

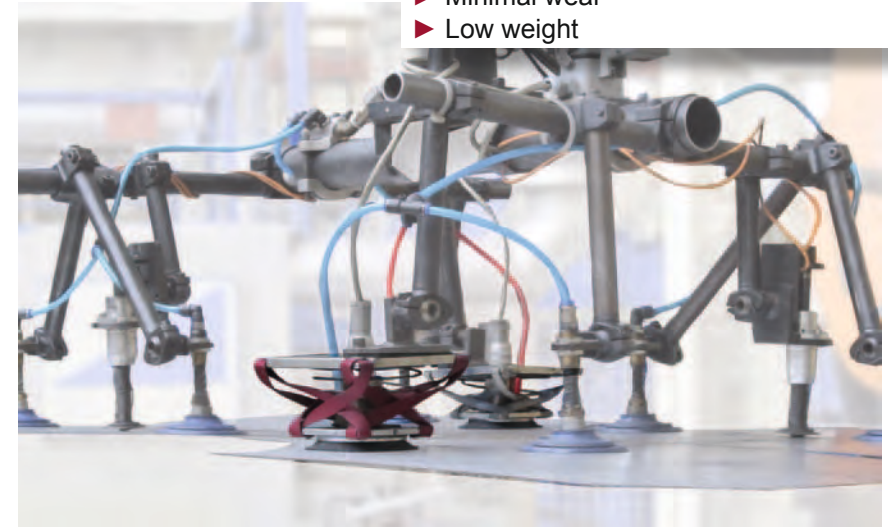
# SENSOR BRACKETS

- ▶ Spring loaded sensor brackets for various applications. The following overview indicates the advantages of each sensor bracket.

	SHX 42	SHS42GS	SHS42G-FB	SH42GS
For vertical destacker	+	+	+	+
For robot loader and high speed linear destackers	+	o	+	--
For inclined sheet stacks	++	o	+	-
Suction delay time	0.1 s	0.1 s	0.5 s	---
Notes	Highest tilt flexibility, highest spring travel. Rigid during approach For high lateral acceleration (< 2g)	Strong hold on even sheets due to suction cup	Suited for utmost sensor contact on inclined or undulated sheet stacks	For narrow sheets and applications where weight is critical

## THE ROLAND PLUS

- ▶ High Flexibility
- ▶ Minimal wear
- ▶ Low weight



Sensor bracket SHX42 (Source: Automotive)

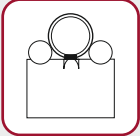

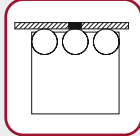
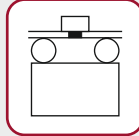
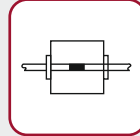
R1000		SHX42		SHS42GS		SHS42G-FB		SH42GS	
Technology		Laser triangulation		Spring loaded sensor bracket with flat suction cup and lateral clearance. Extreme flexibility.		Spring loaded sensor bracket with flat suction cup		Spring loaded sensor bracket with bellows suction cup	
Sensor		LAAS40(+)		Suited for: P42GS, P42AGS, PW42GS, PW42AGS					
Meas. range	Steel magn. [FE]	0.3 ... 15 mm		Sensor mounting: Thread M42 x 1.5					
	Aluminum [NF]	0.3 ... 15 mm		Total height (unloaded)	120 mm	114 mm	128 mm	69 mm + Sensor	
	Stainl. steel aust [NF]	0.3 ... 15 mm		Spring travel (approx.)	70 mm	26 mm	37 mm	26 mm	
	Non-metals	0.3 ... 15 mm		Weight	0.85 kg	1.2 kg	1.2 kg	0.7 kg	
Air gap		40 mm Sensor distance		Press. force (at 1/2 spring travel)	approx. 25 N	approx. 48 N	approx. 60 N	approx 48 N	
Particularity		ALL non-transparent + non-reflecting materials		Ø of suction cup	110 mm	110 mm / 85 mm (SHS42GS-85)	100 mm / 80 mm (SHS42G-FB80)	--	
Measuring time		10 ms							


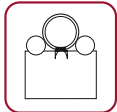

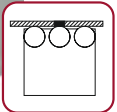


# WELD SEAM DETECTION SYSTEMS

- ▶ Detection of the Position of a Weld Seam by Flux Leakage or by Eddy Current.
- ▶ For all tube processing machinery that require a precise weld seam position.
- ▶ For all punching and cut to length facilities working with welded coils.

## THE ROLAND PLUS

- ▶ Detection of invisible Weld Seams
- ▶ Highest reliability against wrong positioning
- ▶ Easy adaptation to different tubes

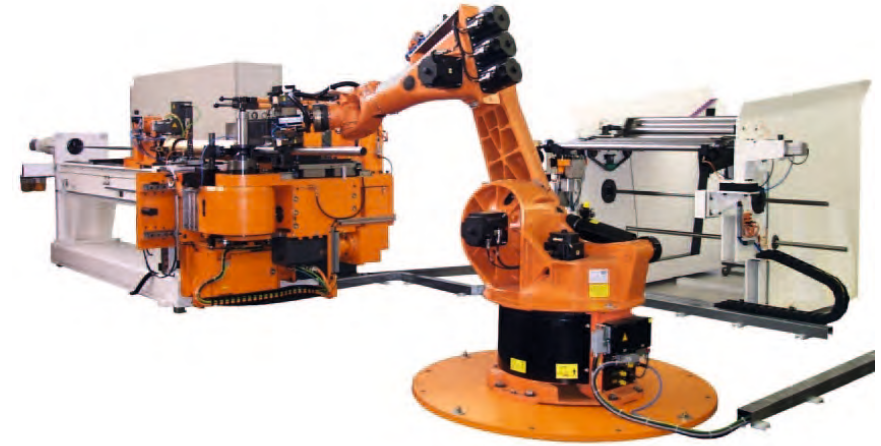
Longitudinal Weld Seam detection at tubes	Longitudinal Weld Seam detection at drums	Cross Weld Seam detection at coils	Cross Weld Seam detection of narrow strips	Butt Weld Seam and Butt Joint detection at Tubes
				
Recommended for Automotive Industry	Recommended for Metal Packaging Industry	Recommended for Steel Service Centers	Recommended for Stamped Parts Manufacturers	Recommended for Tube and Pipe Coating Plants

 		 		 	
<b>SND40 for Tubes</b>		<b>SND40 for Coils</b>		<b>SND8S + NS11</b>	
Technology	Flux Leakage and Eddy Current	Technology	Flux Leakage and Eddy Current	Technology	Magnetic flux leakage
Material	All metals [FE and NF]	Material	All metals [FE and NF]	Material	Steel, tinplate
Wall thickness	0.1 ... 12.5 mm	Mat. thickness	Depending on material	Wall thickness	0.1 ...
Diameter	5 ... 1000 mm	Material width	Min. 100 mm	Diameter	50 ... 1000 mm
Rotation speed	1 ... 300 U/min or 0.01 ... 10 m/s	Velocity	0.01 ... 10 m/s	Velocity	0.01 ... 5 m/s
Type of Weld Seam	All weld seams	Type of Weld Seam	All weld seams	Type of Weld Seam	All except laser weld seams

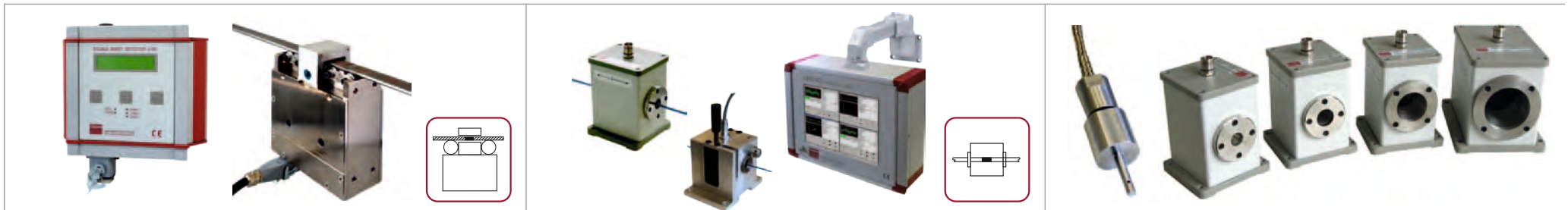


# WELD SEAM DETECTION SYSTEMS

- ▶ Send your sample to the ROLAND Application Laboratory and you will receive a report about which device combination will fit best tasks.
- ▶ Wide range of applications for our systems:  
Automotive / Metal packing / Construction vehicles / Steel Service Center / Steel Furniture / Lighting ...




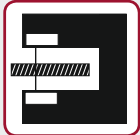
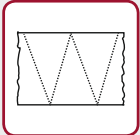
Tube bending machine with automatic loader (Source: Lang Tube Tec)



XA100 + NS9N-AAD-SC		UFD40		We are also specialized in:  Butt Weld Seam and Butt Joint detection at sheets ▶ Recommendation for equipment of surface finishing and coating Cable connections at strands and cables ▶ Recommendation for cable production
Technology	Eddy Current	Technology	Eddy Current	
Material	All metals (FE and NF)	Material	All metals	
Mat. thickness	0.5 ... 4 mm	Wall thickness	Up to solid material	
Material width	5 ... 30 mm	Diameter	1 ... 90 mm	
Velocity	Max. 5 m/s	Velocity	0.01 ... 10 m/s	
Type of Weld Seam	All	Type of Weld Seam	All	

# SHEET THICKNESS MEASURING SYSTEMS

- ▶ Continuous measurement of thickness of ferrous and non-ferrous metals by proven technologies.
- ▶ For blanking presses, slitting lines, cut-to-length lines, scroll shears and other coil processing machinery.
- ▶ Non-contacting sensors, laser based.




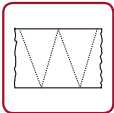
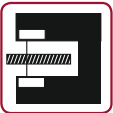
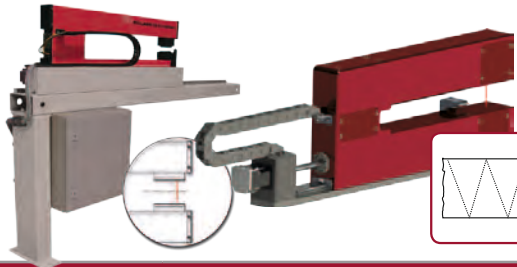
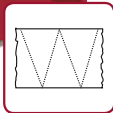
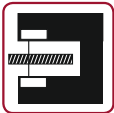
Single Side Measuring sensors	C-Frame non-contact	With Traversing Unit
		

## THE ROLAND PLUS

- ▶ Traversing thickness gauging
- ▶ Integrated guiding
- ▶ Full automatic calibration (nulling)



Longitudinal slitting line (Source: Kohler Maschinenbau)

 		  		  	
<b>MDM60</b>		<b>i!mensio Compact</b>		<b>i!mensio Mono/Smart</b>	
Technology	Magnet Inductive	Technology	Laser Triangulation	Technology	Laser Triangulation
Material	Steel, magnetic [FE]	Material	All metals	Material	All metals
Measuring range	0.05 ... 1.5 mm	Measuring range	0.2 ... 20 mm	Measuring range	0.2 ... 20 mm
Resolution	1 µm	Resolution	0.1 µm	Resolution	0.1 µm
Accuracy	1% v. MW	Accuracy	+/- 3 µm (Linearity)	Accuracy	+/- 4 µm (Linearity)
Traversing area	--	Traversing area	150/300/450 mm	Traversing area	150/300/450 mm / up to 1100 mm
Integrated guiding	--	Integrated guiding	Integrated	Integrated guiding	No, required by the ambient installation
Autom. inline calibr.	No	Autom. inline calibr.	Yes	Autom. inline calibr.	Yes

# NON DESTRUCTIVE MATERIAL TESTING

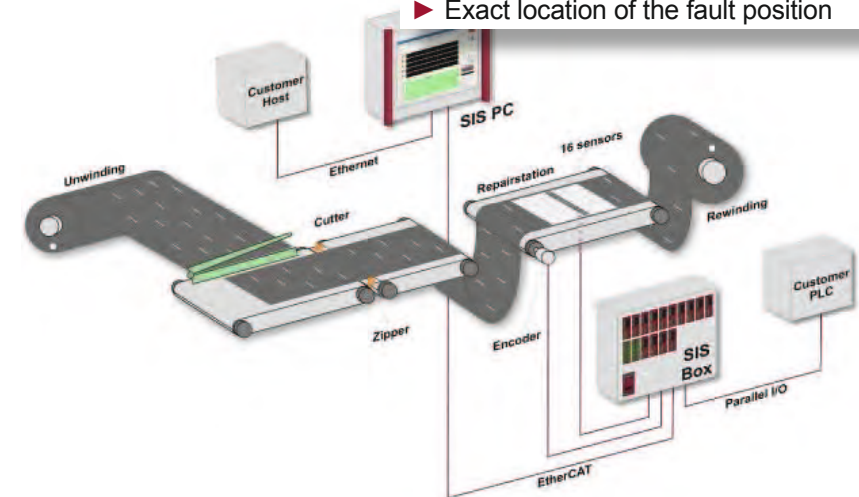
## STEEL CORD INSPECTION

- ▶ Spacing control in steel cord cutting and splicing facilities during production of tires. Detects faults and quality defects.
- ▶ Coverage up to 100% of steel cord width by an array of up to 16 sensors.

SIS XP	Additional components
<ul style="list-style-type: none"> <li>• Non destructive testing of Steel Cord Belts in real time</li> <li>• For LTR, TBR, PCR and dump truck tires</li> <li>• Exact fault position</li> </ul>	<ul style="list-style-type: none"> <li>• SIS XP Optical Splice Kit:</li> <li>• SIS XP Field concentrator</li> <li>• SIS XP Calibrator</li> </ul>

### THE ROLAND PLUS

- ▶ Easy integration into cutting line
- ▶ Inspection at full production speed
- ▶ Exact location of the fault position



Steel Cord Inspection System (Source: ROLAND ELECTRONIC)

<b>SIS XP</b>		<b>SIS XP Optical Splice Kit</b>		<b>SIS XP Field concentrator</b>		<b>SCS20</b>	
Technology	Magnet Inductive	Technology	Optical	Technology	Mechanical	Technology	Mechanical + Inductive
Width	150 ... 1600 mm cord belt (others by request)	Camera based Splice marking and Splice detection in cutting and splicing facilities for steel cord. Full mobility over the whole cord width.		Mechanic construction, has a magnetic effect upon the sensors.		SCS20 has 2 operation modes: Measuring of the EPI value on tension free cord material + Counting of wires while uncoiling the material.	
Inspection width	1120 mm (at 16 Sensors)	Allows reduction of the sensitivity of the SIS XP sensors directly to the splice to eliminate the error message of overlapping splice.		Signal improvement expected: 80%			
Belt thickness	1 ... 4 mm (others by request)			<b>SIS XP Calibrator</b>		EPI range	30 ... 80
Wire Ø	0.2 ... 2 mm (others by request)					Velocity	1 ... 25 m/min (Cord)
Wire angle	17° ... 90°	Camera	Vision Sensor, high speed.	Technology	Mechanical	Target deviation	± 1 of 1000 Cords
Sensors	1 - 16	Marking	Stamping unit, target	Calibration of sensors		Distance	3 ... 6 mm (Cord - Sensor)
Velocity	0.5 ... 60 m/min						

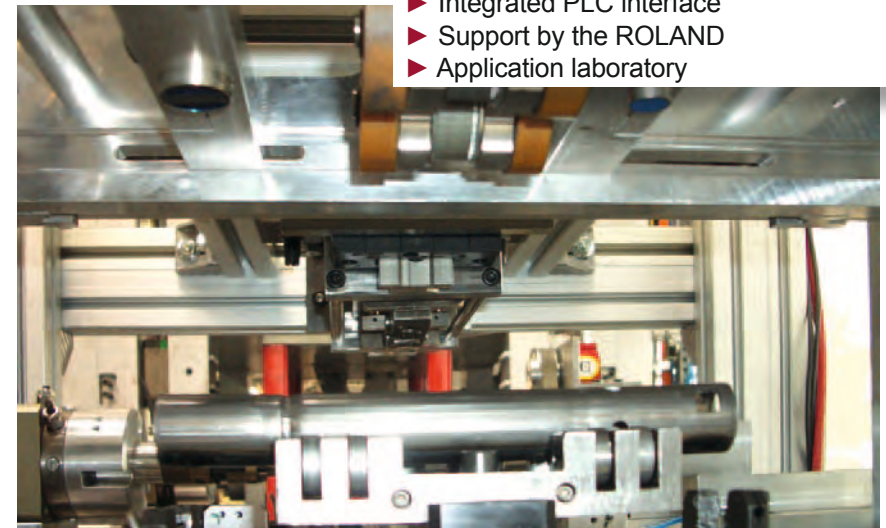
# NON DESTRUCTIVE MATERIAL TESTING

## EDDY CURRENT INSPECTION SYSTEMS

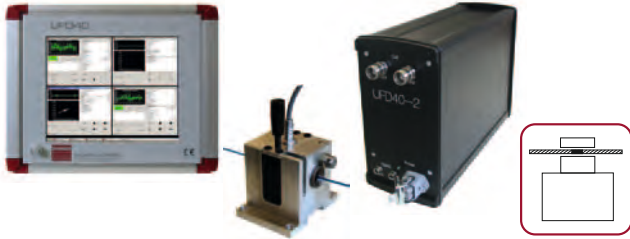
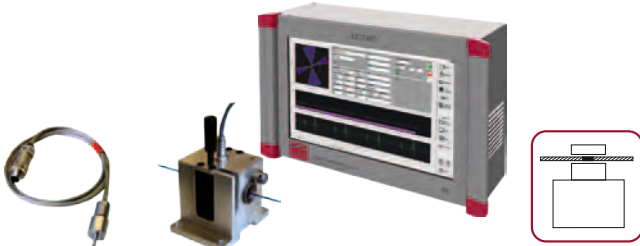

- ▶ Detection of defective spots, cracks, holes, notches, interruptions, welding defects, welding points, cable connections, alloy changes, etc. by Eddy Current.
- ▶ For the inspection of semi-finished bars, tubes, wires, cables directly within the production line.

### THE ROLAND PLUS

- ▶ Fully graphical user interface
- ▶ Integrated PLC interface
- ▶ Support by the ROLAND
- ▶ Application laboratory



Crack test of automotive Components (Source: König Metall)

						
<b>UFD40</b>		<b>ECT40</b>		<b>Sensors</b>		
Technology	Eddy Current	Technology	Eddy Current	Encircling coil sensors with fixed diameter	Diameter	5 / 13 / 20 / 40 / 60 mm
Frequency range	0.8 ... 800 kHz in steps	Frequency range	1 ... 2000 kHz stepless	Encircling coil sensors with exchange coil	Diameter	1-15 mm in steps of 1 mm 16-90 mm in steps of 2 mm
Measuring channels	1 diff. or 2 diff.	Measuring channels	2 diff. or 1 diff + 1 absolute	Segment coils	Option	Premagnetization
Operating unit	External PC	Operating unit	Integrated PC 21" or external PC	Sensor probes	Track width	1.6 ... 16 mm
Encoder input	No	Encoder input	Yes			
Product velocity	0.6 ... 600 m/min	Product velocity	0 ... 600 m/min			
Fault classification	No	Fault classification	Yes			
Quality protocolling	No	Quality protocolling	Yes, acc. to SEP 1925/1927, EN 10246-2/-3			

# NON DESTRUCTIVE MATERIAL TESTING

## WELD SEAM GEOMETRY INSPECTION

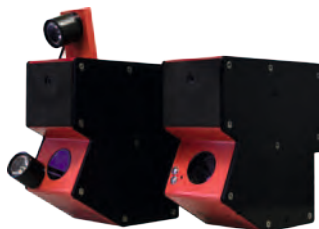
- ▶ Inspection of mechanical weld seams for pores, craters, cracks and geometrical irregularities.
- ▶ Inspection performed by 3D laser sensors, which are transported over the finished weld seam and therefore scan the surface and the geometry from one or both sides.
- ▶ The comprehensive TIVIS® software package logs and evaluates the recorded 3D data regarding faults and other deviations.

### THE ROLAND PLUS

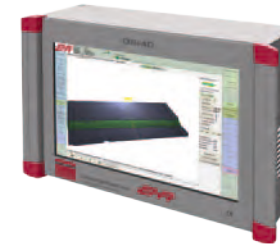
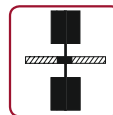
- ▶ Double-Sided 3D scanning
- ▶ Maintenance free and flexible
- ▶ Secure quality control



Weld Seam Geometry Inspection at automotive Components (Source: EHR®)



**EHR**  
EHR® GmbH & Co. KG



### EHR® AluCheck

Technology	Laser triangulation
Application	Mechanical weld seams on Aluminum or Steel
Sensor types	2D, 2D/3D, 3D, transmitted light, incident light
Sensor channels	2x Cameralink, 1x GigE
Visualization	Touchscreen PC
Robot connection	Fieldbus
Working ares	137.5 mm, working distance, +/- 10 mm

### OSI40

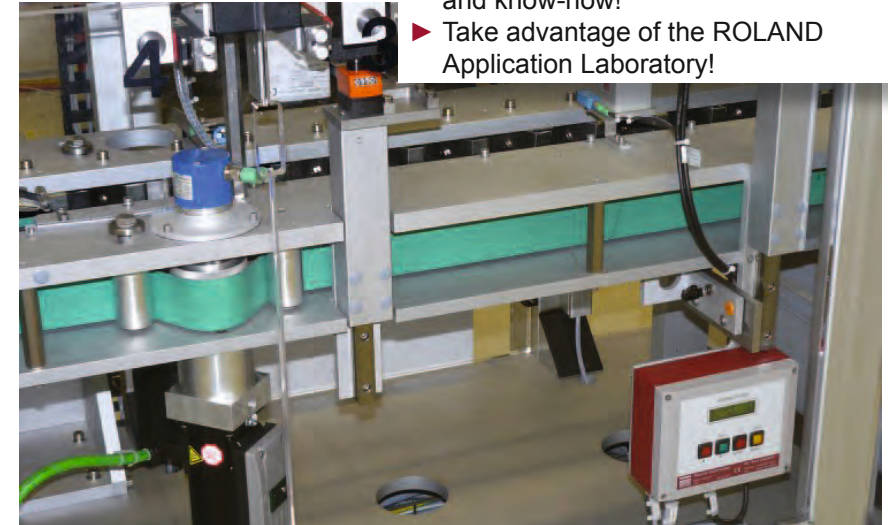
Technology	Laser triangulation
Application	PC based system for surface inspection with TIVIS® software
Display	21" Full HD
Operation	Touchscreen, mouse, keyboard
Sensor channels	GiGE to EHR® AluCheck
PLC connection	Fieldbus
Host connection	Ethernet Gigabit
I/O channel	Nanotec, Linear axis

# SPECIAL APPLICATIONS

- The special know-how of Roland in the field of Eddy Current, Induction, and Magnetic Flux Leakage offers solutions for very special tasks.

## THE ROLAND PLUS

- Take advantage of our knowledge and know-how!
- Take advantage of the ROLAND Application Laboratory!



Pharma Blister Content Verification (Source: IWK)

I10KV	WF14	I20
<b>Pharma Blister Content Verification</b>	<b>Double Layer Detection during production of batteries or solar cells</b>	<b>Hardening control at metallic small parts</b>
Fast detection of incorrect package filling conditions in the cartoner	Sensors for the direct mounting into the vacuum gripper	Fast sorting of parts depending on condition: hardened / not hardened

I10KV		WF14		I20		
Technology	Eddy Current	Technology	Eddy Current	Technology	Eddy Current	
Blister pack	Number	Up to 10 Aluminum blister per pack	Sensor variants available for	Solar cells, mono/multi crystalline, 100 ... 300 µm or Li-Ion Electrodes	Sensor principle	2-sided, non contacting
	Area	Min. 30 x 60 mm Blister area	Sensor principle	Single side, contacting	Suited for	Small parts made of steel such as. screws, nuts, washers, balls, stamped parts etc.
	Height	Max. 100 mm packing height	Air gap	1 mm	Measuring time	2 ... 250 ms
	Others	As well as Alu / PVC Blister and Alu / Alu Blister	Reaction time	28 ms	Programs	255
Programs	255	Output	0 ... 10 V / 4 ... 20 mA	Teach-In	Yes	
Velocity	500 pck/min					

# OUR CUSTOMERS (EXCERPT)



# REFERENCES





# ROLAND ELECTRONIC

## SUPPORT ANY TIME

- ▶ Take advantage of our website for detailed information around the clock.
- ▶ Send us details of your specific tasks and we will offer you a tailor made solution.



Offer technical consultancy



Application questionnaires




Register for download




- Manuals
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- Certificates
- 3D Models
- Tips

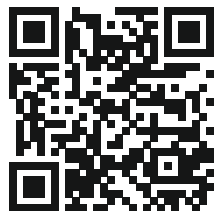
Roland Partners



**EHR**<sup>®</sup> GmbH & Co. KG



**KURSCHAT**  
Kurschat GmbH



## ROLAND ELECTRONIC GMBH

Otto-Maurer-Strasse 17      75210 Keltern / Germany  
 Phone: +49(0)7236-9392-0      Fax: +49(0)7236-9392-33  
 info@roland-electronic.com      www.roland-electronic.com

Your local representative: