



# ROLAND ELECTRONIC

*Innovation IS OUR LIFE*

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.



## 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.

## 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.

## GLOBAL

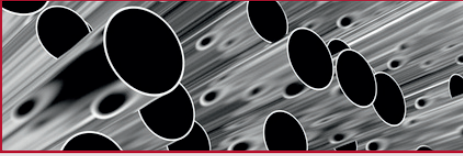
Our global sales and service network ensures that we are where our customers are. We speak their language and give successful advice due to the high competence of our staff and sales partners.

Ralf Wilms

Joachim Manz

Marcus Bartle

## Tube Manufacturing



## Automotive



## Automotive Suppliers



## Home Appliances



## General Sheet Metal Processing



## Battery Market



# OUR MARKETS

## Metal Packaging



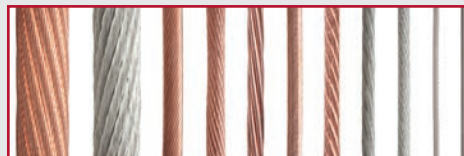
## Tire Industry



## Photovoltaic Industry



## Cable & Wire Industry



## Pharma Industry

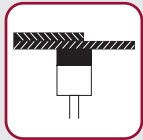
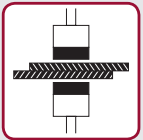
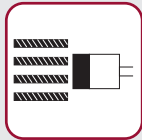
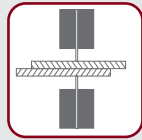


... and many more, such as:  
Metall Fitting Industry,  
Lighting, Cabinet & Furniture,  
Construction Vehicles, etc





# 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
			
Recommended for destacking robots	Recommended for conveyor belts	Recommended for destackers	Recommended for highspeed conveyor belts / very small parts

## 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.

<div>R100</div> <div></div>			<div>R100</div> <div></div>				
A100			I100-S-WI				
Technology		Permanent magnetic		Technology		Inductive transmission process	
Sensor		T04	TN40S	Sensor		WI42GS	
Meas. range	Steel magn. [FE]	0.04 ... 1mm	0.3 ... 3.6mm	Meas. range	Steel magn. [FE]	0.15 ... 0.25 (0.4mm, depending on alloy)	
	Aluminum [NF]	--	--		Aluminum [NF]	0.05 ... 0.4mm	
	Stainl. steel aust [NF]	--	--		Stainl. steel aust [NF]	0.5 ... 3mm	
	Non-metals	--	--		Non-metals	--	
Air gap		0		Air gap		Max. 2mm	
Particularity		Sheet is attracted by the sensor		Particularity		Distance to the sheet up to 2mm possible	
Measuring time		15ms		Measuring time		30ms	



# 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

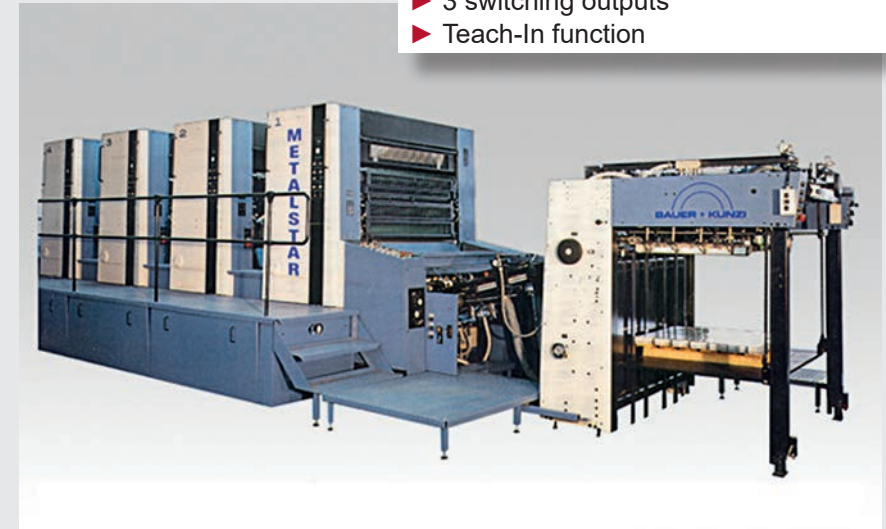
1 Program

3 Outputs / 1 Input

Cable length maximum 20m

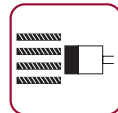
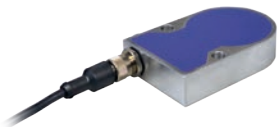
### THE ROLAND PLUS

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

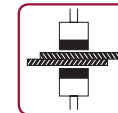


Double sheet detection in a blank destacker of a metal sheet printing press (Source: Bauer + Kunzi)

#### R100



#### R100



#### R100



### XA100 + AA Eagle Eye

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

### 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 ... 6mm	3 ... 5 (15)mm
	Stainl. steel aust [NF]	--	--
	Non-metals	--	--
Air gap		10 ... 40mm	30 ... 60mm
Particularity		Sensor distance up to 80mm	
Measuring time		18 ... 75ms	

### Variants



# 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

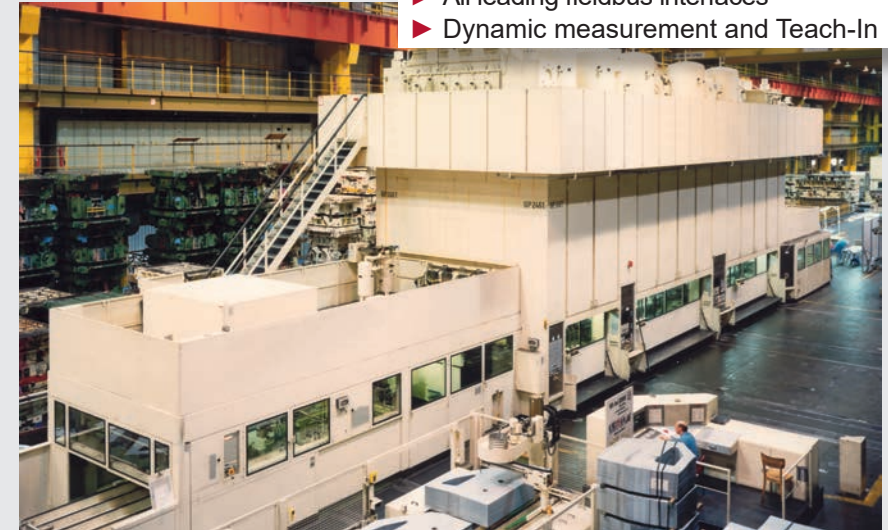
1 to 4 sensor channels

Parallel interface to the PLC, 9 fieldbus systems

Cable length maximum 50m

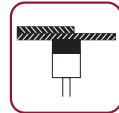
### THE ROLAND PLUS

- ▶ Full control by PLC
- ▶ All leading fieldbus interfaces
- ▶ Dynamic measurement and Teach-In



Jumbo Press Line (Source: Müller Weingarten / Schuler)

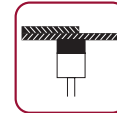
#### R1000



#### E20

Technology		Electro magnetic	
Sensor		P42AGS	P128GPPS
Meas. range	Steel magn. [FE]	0.2... 4mm	1... 12mm
	Aluminum [NF]	--	--
	Stainl. steel aust [NF]	--	--
	Non-metals	--	--
Air gap		0mm	0mm
Particularity		Wall mount enclosure or font panel mounting	
Measuring time		80ms (at 4mm steel)	

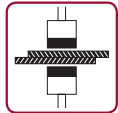
#### R1000



#### UDK20

Technology		Electro magnetic + inductive	
Sensor		PW42AGS	
Meas. range	Steel magn. [FE]	0.2 ... 4mm	
	Aluminum [NF]	0.2 ... 4mm	
	Stainl. steel aust [NF]	0.2 ... 2mm	
	Non-metals	--	
Air gap		0mm	
Particularity		Wall mount enclosure or font panel mounting	
Measuring time		80ms	

#### R1000



#### I20

Technology		Eddy current	
Sensor		IS/IE20-30GS	IS/IE42-30GS
Meas. range	Steel magn. [FE]	0.05 ... 4mm	0.15 ... 8mm
	Aluminum [NF]	0.05 ... 5 (16)mm	0.1 ... 10 (16)mm
	Stainl. steel aust [NF]	0.2 ... 5 (16)mm	0.5 ... 10 (16)mm
	Non-metals	--	--
Air gap		40mm	80mm
Particularity		Wall mount enclosure or font panel mounting	
Measuring time		Starting from 2ms	

# SENSOR BRACKETS

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


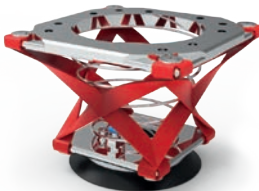



	SHX 42	SHS42GS	SHS42G-FB	SH42GS
For vertical destacker	+	+	+	+
For robot loader and high speed linear destackers	+	o	o	--
For inclined sheet stacks	++	o	+	-
Suction delay time	0.1s	0.1s	0.5s	---
Notes	Highest tilt flexibility, highest spring travel. Rigid during approach For high lateral acceleration (< 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)

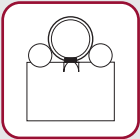
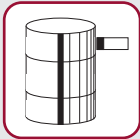
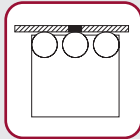
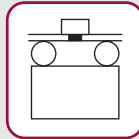
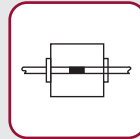
<b>R1000</b>											
<b>L20</b>				<b>SHX42 *SHX42-DL</b>		<b>SHS42GS</b>		<b>SHS42G-FB</b>		<b>SH42GS</b>	
Technology		Laser triangulation		Spring loaded sensor bracket with flat suction cup and lateral clearance. Extreme flexibility.		Spring loaded sensor bracket with flat suction cup		Spring loaded sensor bracket with bellow suction cup		Spring loaded sensor bracket	
Sensor		LAAS40(+)									
Meas. range	Steel magn. [FE]	0.3 ... 15mm		Suited for: P42GS, P42AGS, PW42GS, PW42AGS							
	Aluminum [NF]	0.3 ... 15mm		Sensor mounting: Thread M42 x 1.5							
	Stainl. steel aust [NF]	0.3 ... 15mm		Total height (unloaded)		120mm	141mm	128mm	69mm + sensor		
	Non-metals	0.3 ... 15mm		Spring travel (approx.)		70mm	26mm	37mm	26mm		
Air gap		40mm sensor distance		Weight		0.85kg	1.12kg	1.2kg	0.7kg		
Particularity		ALL non-transparent + non-reflecting materials		Press. force (at 1/2 spring travel)		approx. 25N	approx. 48N	approx. 60N	approx. 48N		
Measuring time		10ms		Ø of suction cup (mm)		115 / *105	110 / 85 (SHS42GS-85)	100 / 80 (SHS42G-FB80)	--		




# 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 ... 12.5mm	Mat. thickness	Depending on material	Wall thickness	0.1mm ...
Diameter	5 ... 1000mm	Material width	Min. 100mm	Diameter	50 ... 1000mm
Rotation speed	1 ... 300U/min or 0.01 ... 10m/s	Velocity	0.01 ... 10m/s	Velocity	0.01 ... 5m/s
Type of Weld Seam	All weld seams	Type of Weld Seam	All weld seams	Type of Weld Seam	All except laser weld seams

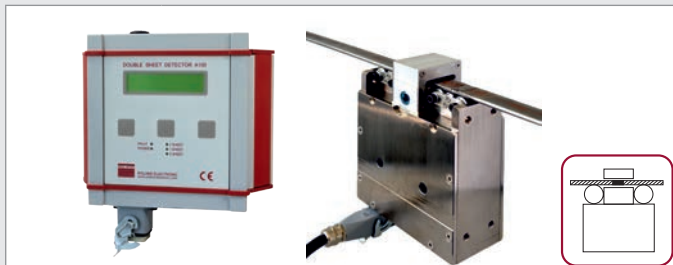


# WELD SEAM DETECTION SYSTEMS

- 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 ...

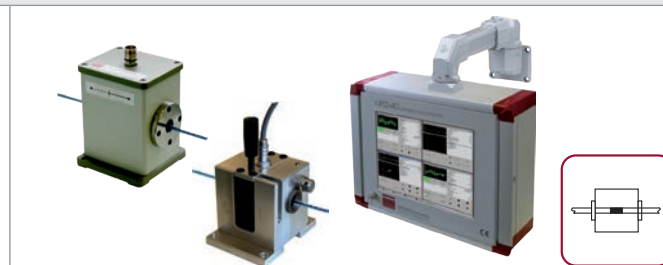


Tube bending machine with automatic loader (Source: Lang Tube Tec)



## XA100 + NS9N-AAD-SC

Technology	Eddy current
Material	All metals (FE and NF)
Mat. thickness	0.5 ... 4mm
Material width	5 ... 30mm
Velocity	Max. 5m/s
Type of Weld Seam	All



## UFD40

Technology	Eddy current
Material	All metals
Wall thickness	Up to solid material
Diameter	1 ... 90mm
Velocity	0.01 ... 10m/s
Type of Weld Seam	All


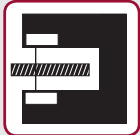
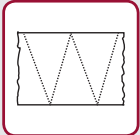


We are also specialized in:

- 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

# LASER 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.



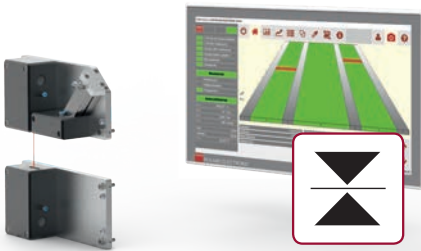

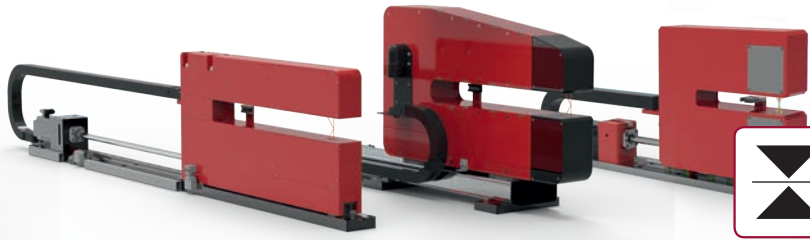


Static measuring / dynamic measuring	C-Frame non-contact	With traversing unit
		

## THE ROLAND PLUS

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



Longitudinal slitting line (Source: Kohler Maschinenbau)

 		 		  	
LTM-ECO		LTM-BASE		LTM-SMART / LTM-MAXI / LTM-ULTRA	
Technology	Laser triangulation (static)	Technology	Laser triangulation (static)	Technology	Lasertriangulation (static & dynamic) + multi color confocal method (LTM-ULTRA)
Material	All metals	Material	All metals	Material	All metals, all materials (LTM-ULTRA)
Measuring range	0.2 ... 15mm	Measuring range	0,05 ... 8mm	Measuring range	0.015 ... 8mm / 0.05 ... 8mm / 0.01 ... 3mm
Resolution	1µm	Resolution	0,1µm	Resolution	0.1µm
Accuracy	+/- 6µm	Accuracy	+/- 1,0µm	Accuracy	+/- 0.5µm resp. +/- 1.0µm (LTM-SMART) , +/- 1.0µm (LTM-MAXI), 0.25µm (LTM-ULTRA)
Traversing area	-- (Static measurement)	Traversing area	-- (Static measurement)	Traversing area	150/300/450mm (LTM-SMART + LTM-ULTRA) 150/300/450/600/800/1000mm (LTM-MAXI)
Integrated guiding	--	Integrated guiding	Integrated	Integrated guiding	No, required by the ambient installation
Autom. inline calibr.	Yes	Autom. inline calibr.	Yes	Autom. inline calibr.	Yes

# NON DESTRUCTIVE MATERIAL TESTING

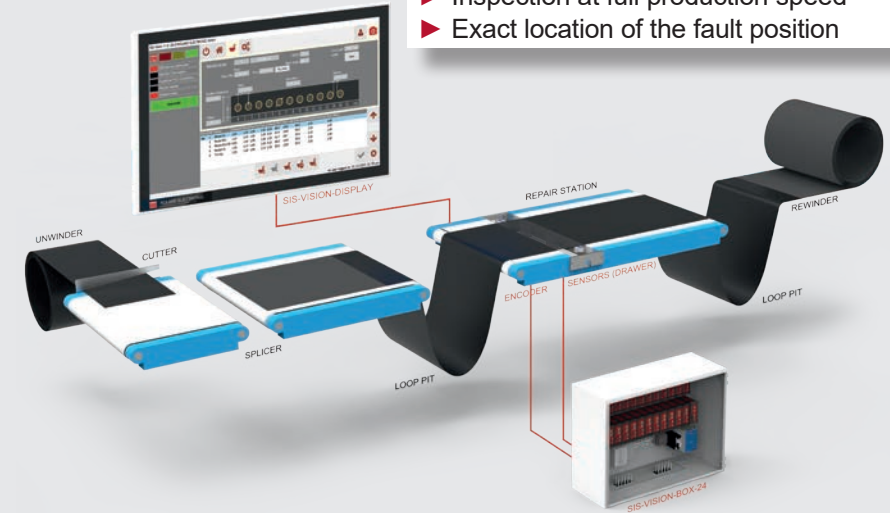
## STEEL CORD INSPECTION

- 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 24 sensors.

SIS VISION – Successor of SIS G3	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>• <b>SIS-VISION-BOX</b> Switch cabinet up to 24 sensor modules</li> <li>• <b>SIS-ACU</b> Angle Control Unit, full automatic adjustable sensor bracket</li> <li>• <b>SIS-Calibrator</b> Functional test</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)

SIS VISION, The Magic Eye			SIS-ACU		SIS-Calibrator	
Technology	Magnet inductive	<p>The SIS VISION system consists of sensors, the corresponding hardware, software and a touch-screen. By selecting the number of sensors and arranging them optimally and simply in the customer's system, the entire cord width can be reliably monitored online and at full production speed.</p> <p>With the new technology, the wire distances as well as the wire position and wire density (EPDM = „Ends Per Decimeter“) are reliably evaluated.</p>	Technology	Magnet inductive	Technology	Mechanical
Width	50 ... 4800mm cord belt (others by request)		<p>Simplified integration of Steel Cord Inspection System in breaker lines. Full automatic adjustable sensor bracket. Intuitive mounting for integrators - no special machinery required.</p> <p>Turn-key solution, configuration and setup via SIS VISION</p>		<p>Function test of the sensors</p> <p>Checking the uniform signal amplification of each sensor</p> <p>A predefined bug is sent to each detected sensor.</p>	
Inspection width	1440mm (at 24 sensors)					
Belt thickness	1 ... 10mm (others by request)					
Wire Ø	0.5 ... 8mm (others by request)		Wide range adjustable ± 75°		Temperature	0° - 50°C (32° - 122°F)
Wire angle	15° ... 90°		Particularity	No PLC necessary	Suited for	Steel Cord Belt, only 90°
Sensors	1 - 24					
Velocity	0.5 ... 100m/min					



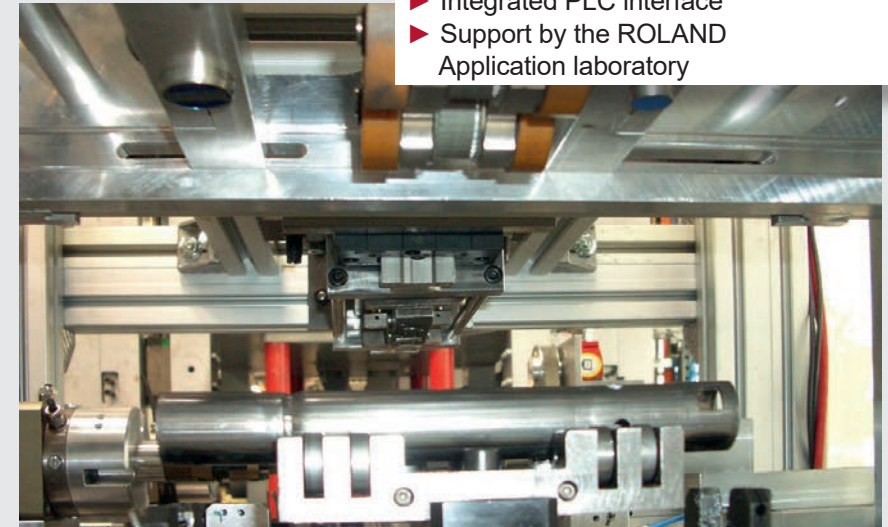
# NON DESTRUCTIVE MATERIAL TESTING

## EDDY CURRENT INSPECTION SYSTEMS


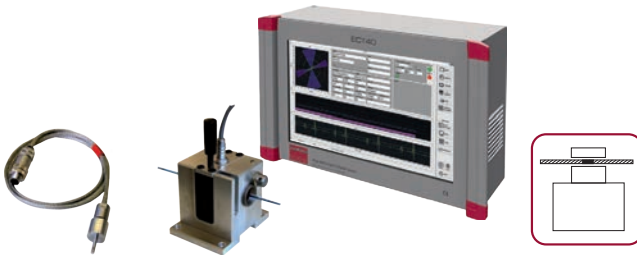

- Detection of defective spots, cracks, holes, notches, interruptions, welding defects, welding points, cable connections, alloy changes, etc. by eddy current.
- For the inspection of semi-finished bars, tubes, wires, cables directly within the production line.

### THE ROLAND PLUS

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



Crack test of automotive components (Source: König Metall)

						
UFD40		ECT40		Sensors		
Technology	Eddy current	Technology	Eddy current	Encircling coil sensors with fixed diameter	Diameter	5 / 13 / 20 / 40 / 60mm
Frequency range	0.8 ... 800kHz in steps	Frequency range	1 ... 2000kHz stepless	Encircling coil sensors with exchange coil	Diameter	1-15mm in steps of 1mm 16-90mm in steps of 2mm
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		In preparation	
Encoder input	No	Encoder input	Yes	Sensor probes	Track width	1.6 ... 16mm
Product velocity	0.6 ... 600m/min	Product velocity	0 ... 600m/min			
Fault classification	No	Fault classification	Yes			
Quality protocolling	No	Quality protocolling	Yes, acc. to SEP 1925/1927, EN 10246-2/-3			



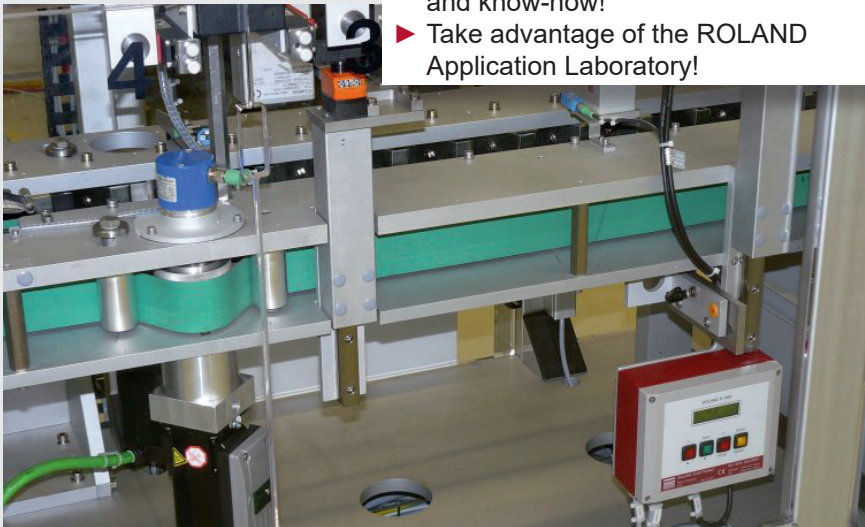
# SPECIAL APPLICATIONS

- The special know-how of ROLAND ELECTRONIC in the field of eddy current, induction, and magnetic flux leakage offers solutions for very special tasks.


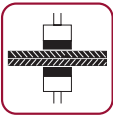
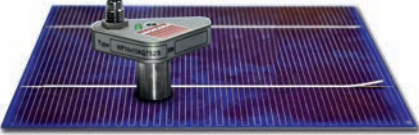
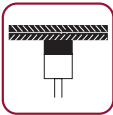

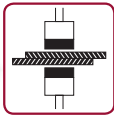
I10KV	WF14	I20
Pharma Blister content verification	Double Layer Detection during production of batteries or solar cells	Hardening Control at metallic small parts
Fast detection of incorrect package filling conditions in the cartoner	Sensors for the direct mounting into the vacuum gripper	Fast sorting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

## THE ROLAND PLUS

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

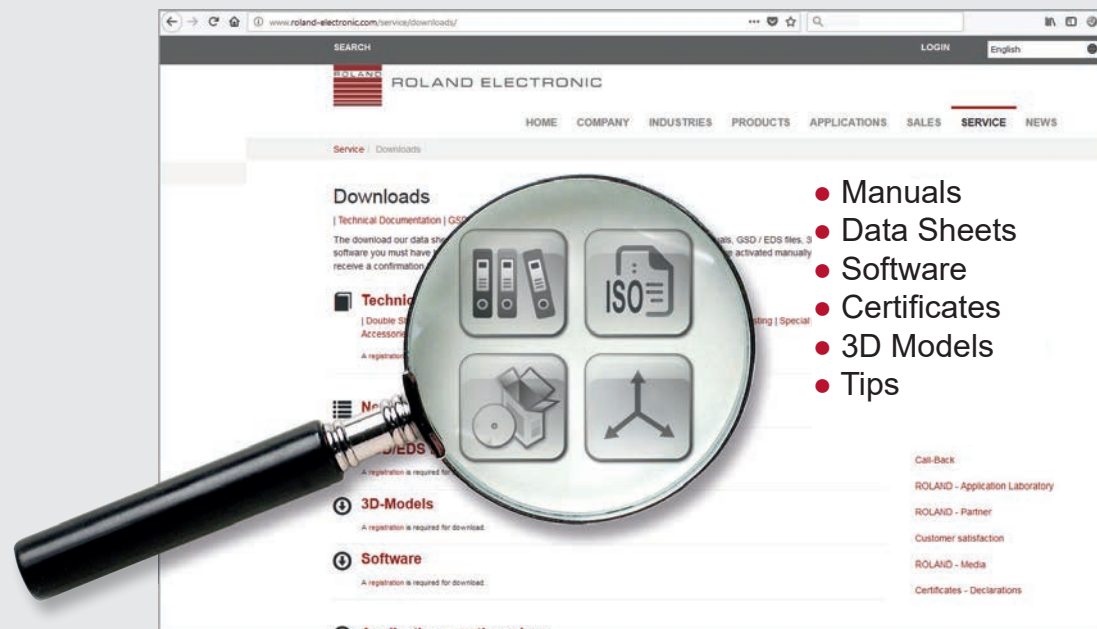


Pharma Blister content verification (Source: IWK)

 			 			 		
I10KV			WF14			I20		
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 ... 300µm or Li-Ion electrodes		Sensor principle	2-sided, non contacting	
	Area	Min. 30 x 60mm 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. 100mm packing height	Air gap	1mm		Measuring time	2 ... 250ms	
	Others	As well as ALU / PVC blister and Alu / Alu blister	Reaction time	28ms		Programs	255	
Programs	255		Output	0 ... 10V / 4 ... 20mA		Teach-In	Yes	
Velocity	500pck/min							

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## REFERENCES





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