MEASURING AND CLEANING SYSTEMS FOR METAL STRIPS

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UVB TECHNIK

Profile and history of the company

UVB TECHNIK s.r.o. has been specialising in the development, manufacturing, installation, training as well as servicing of **measuring and cleaning systems** for metal strip and flat wires **in cold rolling mills and processing lines for 30 years**.

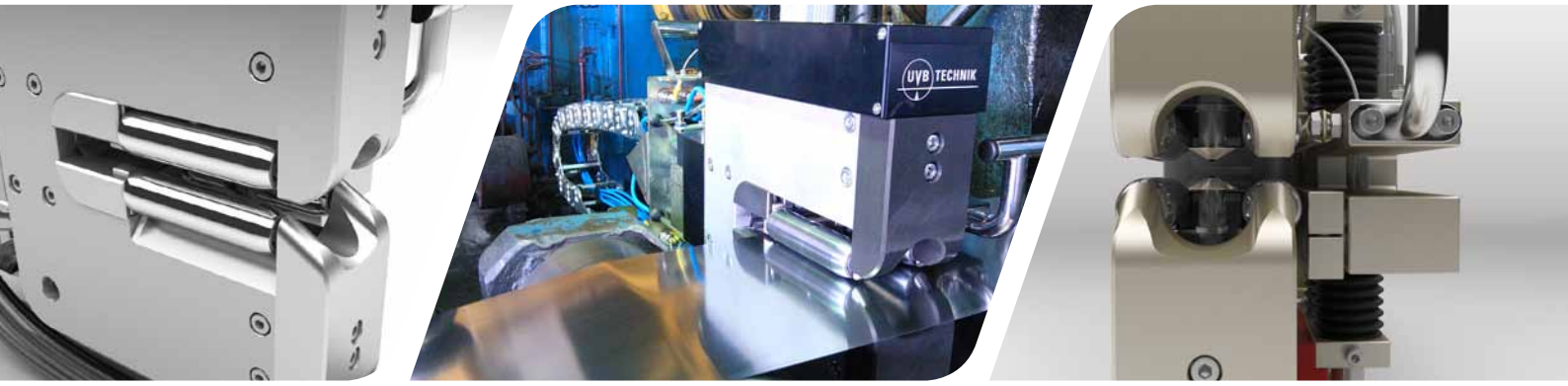
Accurate measuring and cleaning systems are nowadays absolutely necessary to follow continuous and efficient production process, prevent operational issues as well as improve product quality and control.

High quality of products with minimum spare parts and long-term relationship with clients are crucial for the company to strengthen its position worldwide.

- 1991 Establishment of UVB TECHNIK in Ostrava, Czech Republic
- 1991 Development of metal **Strip thickness gauge**
- 1993 Patent for continuous metal strip thickness gauge
- 1994 Continuous strip thickness gauge with accuracy of 1 micron
- 1998 Limited liability company UVB TECHNIK s.r.o.
- 1999 First equipment exported abroad – to Spain
- 2000 Whole company production moved to Hlučín
- 2001 Exponential growth of export activities worldwide
- 2002 Invention of **Wiping equipment**
- 2003 Invention of **Strip profile gauge**
- 2005 New generation of **Scanner for positioning** of coking plant machines
- 2007 New production hall in Hlučín
- 2016 Development of **Shapemeter for flatness measurement**
- 2018 New R&D centre and production hall equipped with CNC machines
- 2020 New generation of **Laser strip thickness gauge**
- 2021 Invention of **Degreasing equipment**

MTP / Continuous strip thickness gauge

Gauge for continuous contact measuring of metal strip thickness



Functional principle

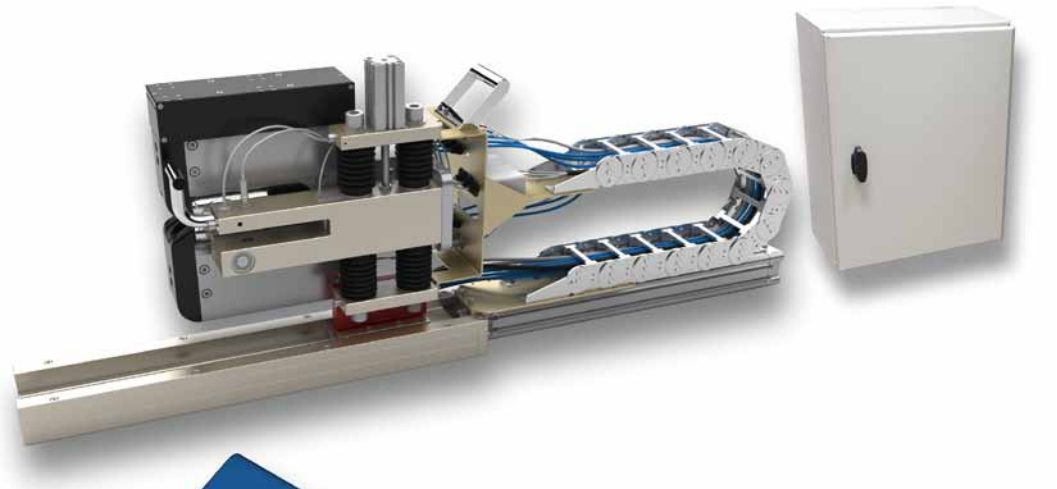
Contact thickness gauge is designed for measuring by means of two opposite sensors with flat sintered diamond contacts in a C-frame floating head to provide accurate measurement regardless material composition or oiled/dirty surface.

Process of measuring

The measurement proceeds when the thickness gauge is lead manually or automatically onto the strip. Then the measured data are displayed on the HMI touch panel display or SPC PP-Visual with outputs for Automatic Gauge Control (AGC) system.

Advantages

- **Accuracy < 0.5 µm or 1 µm** according to the model of the thickness gauge
- **Easy control of value 0.000** on the display after the gauge is out of the line
- **Simple design** for easy maintenance, service, calibration
- **Floating head** follows the pass line and strip waves for precise measurement
- **No mechanical readjustment** to nominal thickness
- **Stable measurement – no need of automatic zeroing** that would hide an error of the gauge
- **Crack-resistant** measuring **contacts** made of sintered diamond – **5-year guarantee**
- **No mark** also on sensitive materials thanks to **flat shape of measuring contacts**
- **Soft thrust** of the contacts can be adjusted by air regulator
- The automatic version is equipped with a **safety system** including sensors to enable fast pull out of the line in cases of any accident, for example strip breakage
- **High resistance** to heavy industry – **no electronic or fragile parts** inside measuring sensors
- **One push button calibration** with standard block once a year
- **Temperature dependence ≤ 2 µm by 250 °C** due to material compensation and internal sensor and diamond tip cooling - **no head heating**



Freestanding touch panel box or

Touch panel mounted to present operator panel

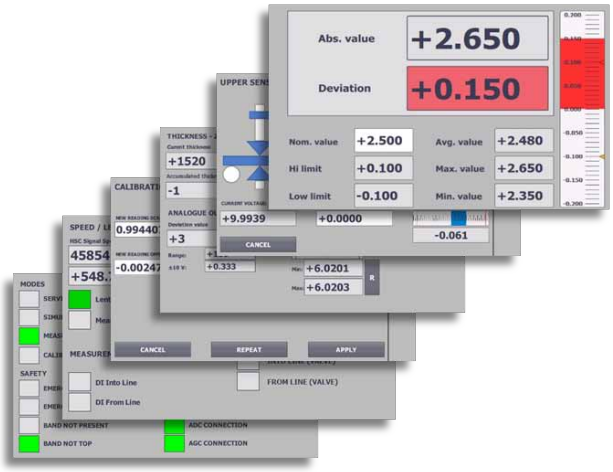
Technical data

Parameter	MTP	MTP-AF
Type	Automatic or manual	Automatic
Resolution	0.001 mm (0.0001")	0.0001 mm (0.00001")
Measuring range	0.005 - 9 mm, max.20 mm 0.0002" - 0.35", max. 0.8"	0.005 - 2 mm 0.0002" – 0.08"
Accuracy	≤ 1 µm; ≤ 2 µm (> 2 mm) ≤ 0.00004"; ≤ 0.00008" (>0.08")	≤ 0.5 µm ≤ 0.00002"
Measuring depth	≤ 130 mm; ≤ 210 mm; ≤ 310 mm ≤ 5.1"; ≤ 8.3"; ≤ 12.2"	
Max. strip speed	900 m/min (3000 ft/min)	
Max. strip temperature	250 °C (482 °F)	
Outputs for AGC	± 20 mA (± 10 V, 0-20 mA, 4-20 mA)	
Data output / Set up	Profinet (Profibus or on request)	

Optional accessories

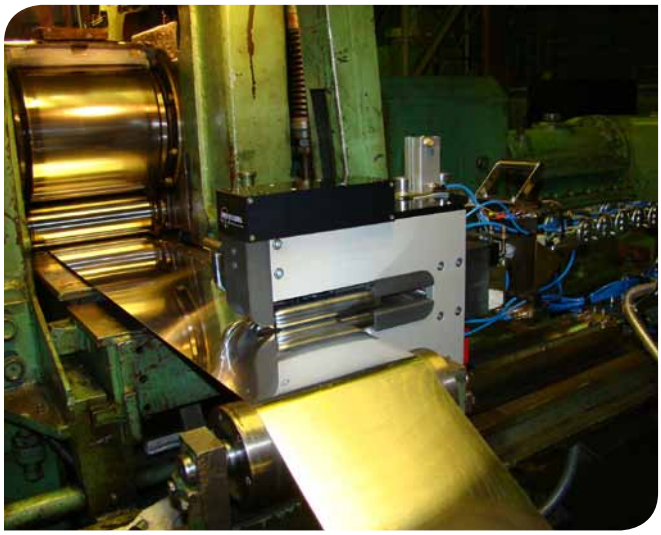
- Industrial PC with SPC PP-VISUAL system

HMI touch panel display



HMI touch panel display

- Digital display of absolute thickness and deviation with bar graph
- Trend graph of last 2 minutes
- Setting the nominal value and limits or choosing from last preset values
- Simple calibration and service menu with diagnostics
- Selectable resolution 1 µm – 0.1 µm – 0.01 mil
- Remote control of the measuring head guidance IN/OUT of the strip
- Clear status information for the maintenance
- Automatic setting transfer to/from SPC system or superior PLC
- Remote access/support via the Internet using an industrial gateway or shared PC



MZSS, Russia, gold 9999, silver 9999, reversing rolling mill

Tenneco, Italy, bimetal, rolling mill - Single line gauge + scanning head

C.D. Waelzholz (werk Wickede), Germany, bimetal, cold rolling mill - Contact thickness gauge used for on-line calibration of X-ray gauge

Enersys, UK, lead, reversing rolling mill

MTP references

- MacSteel Coil Processing (Pty) Ltd., South Africa
- SOTYL S.A., Argentina
- MAHLE Metal Leve S/A, Brasil
- Coining, Inc., USA
- NELCO, Texas, USA
- Chinalco Luoyang Copper Co. Ltd., China
- Jinangsu Yanhan Material Technology, China
- Shanghai Rolling Technologies Co., Ltd., China
- SMS Siemag Technology (Beijing) Co., Ltd., China
- Wenzhou Hongfeng Clading Metal Co.Ltd, China
- Wenzhou Hongyuan Copper Industry Co, Ltd., China
- Gupta Metal Sheets (P) Ltd., India
- IUP Jindal Metals & Alloys Ltd., India
- Jindal Stainless Ltd, India
- KSPG Automotive India Pvt. Ltd., India
- Laser Shaving (India) Pvt. Ltd., India
- Nippon Cross Rolling, Japan
- Osaka Heat Treatment Co., Ltd., Japan
- Tokuriki Honten Co. Ltd., Japan
- WOORI GEC, South Korea
- ArcelorMittal F-M a.s. (GO Steel a.s.), Czech Republic
- KWW, a.s. (Bilstein CEE), Czech Republic
- Copper Povrly Industries, a.s., Czech Republic
- C.D. Wälzholz GmbH (Wickeder Westfalenstahl GmbH), Germany
- Federal-Mogul Powertrain Italy srl (TENNECO), Italy
- FEDERAL-MOGUL BIMET S.A., (TENNECO), Poland
- Walcownia Metali Nieżelaznych "ŁABĘDY" S.A., Poland
- ZM SILESIA SA, Poland
- S.C. GALFINBAND S.A., Romania
- JSC „Metalurgical plant „Elektrostal", Russia
- MZSS JSC, Russia
- U.S. STEEL Smederovo, Serbia
- Amera Slovakia Kremnica, s.r.o. (Mint Kremnica), Slovak Republic
- MAHLE Engine Components Slovakia s.r.o., Slovak Republic
- ALTUNA METAL WORKS, S.L., Spain
- Compañía Valenciana de Aluminio Baux, Spain
- JMA Alejandro Altuna, S.L.U., Spain
- Aurubis Netherlands B.V., The Netherlands
- NedZink BV, The Netherlands
- ŞENSAC Yassı Metal San. Koll. Şti., Turkey
- Enersys Ltd, United Kingdom
- EnviroWales Ltd (James Town Industries), United Kingdom
- And others on request

CIA Valenciana de Aluminio Baux, Spain, aluminium, dividing line

JSC „AZOTSM", Ukraine, copper and alloys, rolling mill KVARTO

MIA / Continuous foil thickness gauge

Gauge for continuous contact measuring of metal foil thickness

Functional principle

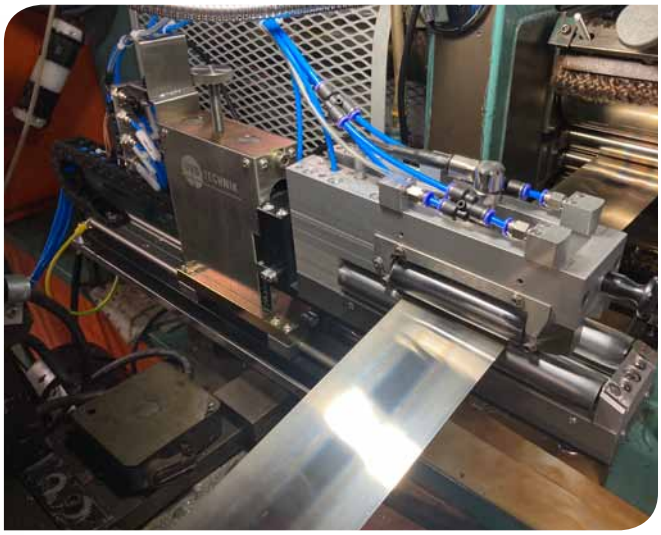
MIA thickness gauge is designed for measuring with flat sintered diamond contacts in a C-frame floating head to provide accurate measurement regardless material composition or oiled/dirty surface.

Process of measuring

The measurement proceeds when the foil thickness gauge is lead manually or automatically onto the strip. Then the measured data are displayed on the HMI touch panel display or SPC PP-Visual with outputs for Automatic Gauge Control (AGC) system.

Advantages

- **Accuracy < 0.5 µm**
- **Easy control of value 0.0000** on the display after the gauge is out of the line
- **Compact design** – pass line from 105 mm
- **Easy maintenance, service, calibration**
- **Floating head** follows the pass line and strip waves for precise measurement
- **No mechanical readjustment** to nominal thickness
- **Stable measurement – no need of automatic zeroing** that would hide an error of the gauge
- **Crack-resistant** measuring contacts made of sintered diamond – **5-year guarantee**
- **No mark** also on sensitive materials thanks to **flat shape of measuring contacts**
- **Soft thrust** of the contacts can be adjusted by air regulator
- **High resistant measuring sensor** – no electronic or fragile parts inside
- **One push button calibration** with standard block once a year



Coining, Inc., USA, silver, 2 Hi mill

Technical data

Parameter	MIA
Type	Automatic or manual
Resolution	0.0001 mm (0.00001")
Measuring range	0.001 - 4 mm (0.00004"- 0.16")
Accuracy	≤ 0.5 µm; ≤ 1 µm (> 2 mm) ≤ 0.00002"; ≤ 0.00004" (>0.08")
Measuring depth	≤ 100 mm (4")
Max. strip speed	600 m/min (2000 ft/min)
Max. strip temperature	250°C (482°F)
Outputs for AGC	± 20 mA (± 10 V, 0-20 mA, 4-20 mA)
Data output / Set up	Profinet (Profibus or on request)

HMI touch panel display

- Digital display of absolute thickness and deviation with bar graph
- Trend graph of last 2 minutes
- Setting the nominal value and limits or choosing from last preset values
- Simple calibration and service menu with diagnostics
- Selectable resolution 1 µm – 0.1 µm – 0.01 mil
- Remote control of the measuring head guidance IN/OUT of the strip
- Clear status information for the maintenance
- Automatic setting transfer to/from SPC system or superior PLC
- Remote access/support via the Internet using an industrial gateway or shared PC

Optional accessories

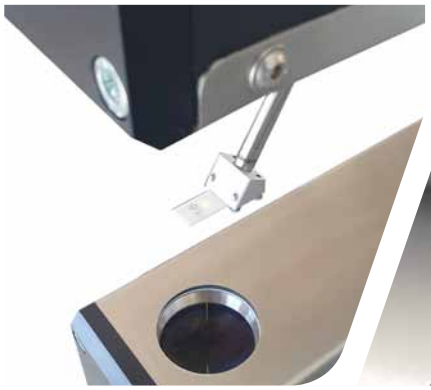
- Industrial PC with SPC PP-VISUAL system

MIA references

- Coining, Inc., USA
- Furukawa Electric Co. Ltd. , Japan
- Tokuriki Honten Co. Ltd., Japan, Au, Pt, Ag and alloys, 4 Hi rolling mill

LMT / Laser strip thickness gauge

Gauge for continuous non-contact measuring of strip thickness



Functional principle

Non-contact measuring using four-point laser distance sensors of a new generation without influence on the reflectivity of the surface and with minimum dependence of accuracy on tilted/wavy strip.

Process of measuring

The measurement proceeds when the thickness gauge is lead automatically onto the strip by linear module with the option of zig zag scanning. Then the measured data are displayed on the HMI touch panel display or SPC PP-Visual with outputs for Automatic Gauge Control (AGC) system.

Advantages

- **New generation 4-point laser sensor**
- **No electronic components** in the sensor head, just lenses => eliminates electrical noise influence and optical axis deviation
- **Optical-axis alignment function** - accurate measurement of even the wavy strip
- **Automatic calibration** using built-in standard
- **Air blow of laser sensors** to resist pollution during measurement
- **Automatic cover** of the laser sensors when the measurement is switched off

PWO Czech Republic a.s., steel, aluminium alloys, stamping line

Technical data

Parameter	LMT-350A-1	LMT-350A-2	LMT-350A-5
Resolution	0.0001 mm 0.00001"	0.0001 mm 0.00001"	0.0001 mm 0.00001"
Distance between sensors	30 mm (1.2")	60 mm (2.4")	140 mm (5.5")
Max. pass line variation during measurement	± 1.3 mm ±0.05"	± 3.7 mm ±0.15"	± 10 mm ±0.4"
Accuracy	≤ 1 µm ≤ 0.04 mil	≤ 2 µm ≤ 0.08 mil	≤ 5 µm ≤ 0.2 mil
Measuring rate	up to 10 kHz		
Max. measurement depth from the strip edge	350 mm (500 mm, 750 mm, 1000 mm) 14" (20", 30", 40")		

HMI touch panel display

- Digital display of absolute thickness and deviation with bar graph
- Trend graph of last 2 minutes
- Setting the nominal value and limits or choosing from last preset values
- Simple calibration and service menu with diagnostics
- Selectable resolution 1 µm – 0.1 µm – 0.01 mil
- Remote control of the measuring head guidance IN/OUT of the strip
- Clear status information for the maintenance
- Automatic setting transfer to/from SPC system or superior PLC
- Remote access/support via the Internet using an industrial gateway or shared PC

Optional accessories

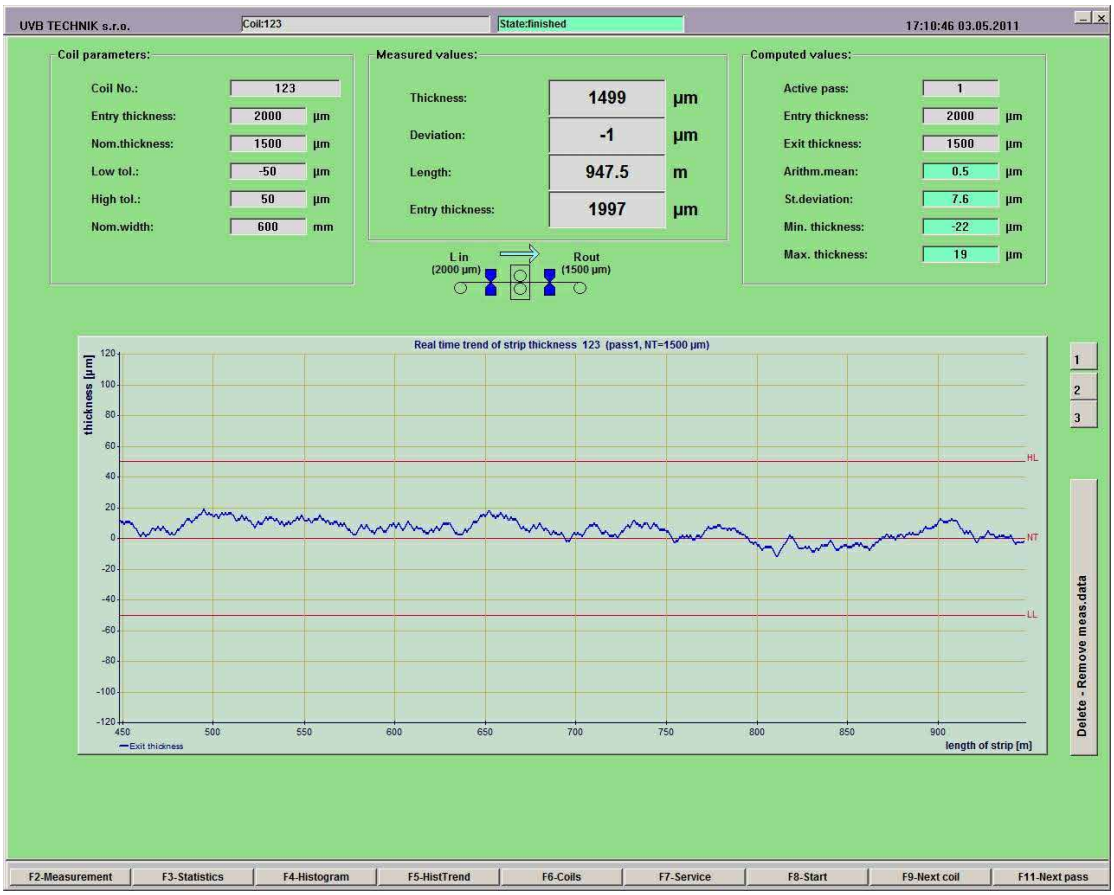
- Industrial PC with SPC PP-VISUAL system

LMT references

- PWO Czech Republic a.s., Czech Republic
- FEDERAL-MOGUL BIMET S.A. (TENNECO), Poland

PP-VISUAL

Statistical Process Control of strip thickness and process values



Functional principle

- PP-Visual system is designed for transfer of measured thickness by one or two gauges.
- The course, measured and statistical values are displayed on the screen in real time.

Features

- Continuous visualisation and evaluation of statistical and measured values
- Printing reports in charts and graphic formats
- Archiving of measured data on the HDD
- Measuring the length if connected to pulse signal or speed data
- Access to computer network
- Option to add further technological values to be measured

Basic components

- Software support with MS WINDOWS
- LCD monitor 19"
- Industrial chassis - PC on the basis of INTEL processor
- HDD of min. 2 TB
- Keyboard and mouse
- Communication interface (Ethernet network)

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