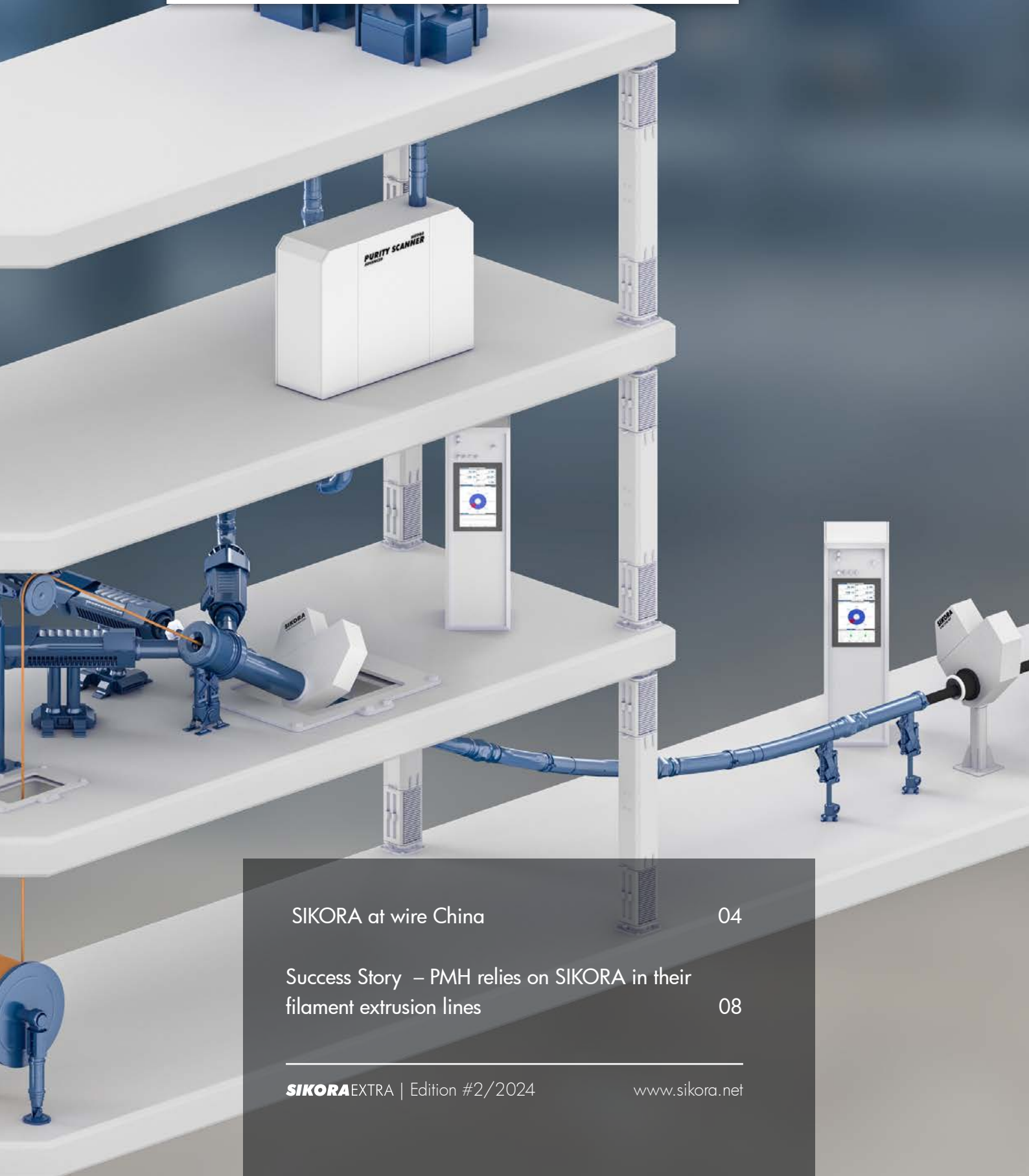


SIKORA EXTRA

Your magazine for Wire & Cable | Optical Fiber



SIKORA at wire China

04

Success Story – PMH relies on SIKORA in their filament extrusion lines

08



Dear readers,

2024 is drawing to a close. In our last issue of the year, we will once again provide you with news from the world of quality control and process optimization in the wire and cable industry.

At wire China, we presented ourselves with a new type of exhibition booth concept. In this edition, we review the exhibition. Furthermore, you can read why PMH relies on SIKORA's measuring technology for the extrusion of its filaments for 3D printing and how Wuxi Huacheng Cable, manufacturer of high-temperature resistant cables, uses the X-RAY 6000 PRO for quality control.

Dr. Christian Frank
CEO SIKORA AG



Furthermore, we report on how the quality in CV lines is ensured by the interaction of our measuring technologies. You can also find out about recent developments in our services.

We wish you a pleasant end of year season and all the best for the coming year.

Enjoy reading!

Sincerely,

Holger Lieder
Executive Board SIKORA AG

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SIKORA AT WIRE CHINA 2024

SIKORA presented itself with many new products and an innovative exhibition booth at wire China

At wire China 2024, which took place from September 25 to 28 in Shanghai, SIKORA, a manufacturer of innovative measuring, control and sorting technologies, presented its portfolio of new and proven systems for quality control and cost optimization in the wire and cable industry as well as in material production and processing. Visitors were pleased to see product premieres and a new booth concept.

Premiere of the CENTERVIEW PRO: Eccentricity measurement on a new level

With the new CENTERVIEW PRO, SIKORA continues its more than 50-year tradition of measuring the eccentricity of the conductor in the cable insulation on a new level. With the CENTERVIEW 10 and CENTERVIEW 25, SIKORA presented two innovative models for product dimensions from 0.1 to 25 mm (.0039" to .984"). By means of a combined inductive and optical measuring method, the diameter and ovality of cables are reliably measured in addition to the eccentricity. With 5,000 highly precise measuring values per second per measuring axis, combined with an extremely short exposure time of less than 1/1,000,000 seconds, the CENTERVIEW PRO enables accurate measurements, even at high line speeds and vibrations of the product. Each single measuring value achieves an extraordinarily high single value precision.

Premiere of the LASER PRO: New standards in diameter measurement

With the new LASER PRO, SIKORA sets new standards in the area of diameter measurement of cables. Designed on the basis of the proven LASER Series, which is used in numerous extrusion lines worldwide, the new model family presents itself with enhanced advantages for the user. The LASER PRO includes three innovative models for product dimensions from 0.1 to 51 mm (.0039" to 2.0079"). Diffraction analysis combined with pulse-controlled laser diodes results in an impressive 500,000 measurement points per second per measurement axis in the entire measurement field. These are summarized in 5,000 high-precision measurement values per second per measurement axis. This ensures that the values supplied are both accurate and repeatable. Thanks to the extremely short exposure time of less than 1/1,000,000 seconds, the individual precise measurement values per second per axis are captured with the highest image sharpness. This ensures absolute measurement accuracy, even at high line speeds and when the product is vibrating. Each individual measurement value achieves an extraordinarily high individual value accuracy.



Premiere of the LM SMART: Smart length measurement of wires and cables

With the LM SMART, SIKORA is expanding its product range with an innovative length measuring device. The system measures lengths contact-free and with an extraordinary accuracy of 0.05 %. Compared to conventional contact-based solutions, there is no slippage or wear. After a one-time setup of the device, no calibration or re-parameterization is required. The LM SMART measures permanently, accurately and reliably.

X-RAY 8000 ADVANCED/NXT: Remarkably efficient in CV lines

For more than 30 years, the X-RAY 8000 has provided precise measuring values and the highest reliability in the field of energy cable production. These are features that ensure the quality of the cables during production and lead to material and cost savings. At wire China, SIKORA presented the third generation of the measuring system based on X-ray technology, the X-RAY 8000 ADVANCED, which measures the wall thickness, eccentricity and diameter of cables in CV lines directly after the cross-head. Thus, it provides measurement values for centering and control without delay.



Another highlight was the X-RAY 8700 NXT, which measures the final product dimensions at the end of CV lines, in both horizontal and vertical alignment. By using SIKORA measuring systems at the beginning and at the end of the production, shrinkage values for all three insulation

layers of the cable are determined and thus, an optimal process control is ensured – for maximum efficiency.

PURITY SCANNER ADVANCED: pure plastic pellets for the insulation of energy cables

In the production of high-voltage and submarine cables in particular, it is essential that no production-related contamination finds its way into the insulation of power cables. The PURITY SCANNER ADVANCED uses X-ray technology and optical cameras to detect contaminants such as metal in the pellets from a size of 50 µm and sorts out impurities automatically. This ensures that only pure material is processed, rejects are minimized, the quality of the cable is ensured and follow-up costs are reduced. The function and advantages of the system were vividly demonstrated at wire China by means of a hybrid exhibit.



SIKORA presented itself at wire China with a new booth concept and thus emphasized its claim to perfection. "Our customers were not only able to experience new products live, but also our new booth concept, which invited them to linger and exchange ideas with our experts. We wanted our customers to feel completely comfortable at our booth," said Wanbin Chen, President of SIKORA China.



LUMPS AND NECKDOWNS HAVE NO PLACE IN THE FILAMENT

PMH GmbH uses measuring and control technology from SIKORA in its filament extrusion lines

PMH GmbH based in Königswinter, Germany, knows from many years of experience how important the production of high-quality filaments is for the 3D printing industry. For more than 30 years, the company has been developing customized extrusion lines and equipping its lines with state-of-the-art measuring and control technology from SIKORA to ensure the highest product quality for its customers.

Especially in the production of filaments for 3D printing in medical technology, quality assurance is increasingly becoming the focus of manufacturers. Flawless filaments ensure an optimal material flow during printing. This prevents feeding errors, clogging of the extruder and damage to the print head and nozzle.

In addition to devices for diameter measurement, PMH's extrusion lines also use LASER LUMP 2000 systems for quality control. The LASER LUMP 2000 is a real all-rounder: it precisely measures the diameter using laser technology and simultaneously detects lumps and neckdowns on the filament surface. SIKORA technology is thus doubly efficient in ensuring that the filament produced meets the highest quality standards and reliability requirements.



PMH GmbH uses the LASER LUMP 2000 from SIKORA for diameter measurement and detection of lumps and neckdowns.



from Left: Michael Kinnart, Technical Manager at PMH GmbH, with Aginaldo Ramalho, Head of Sales - Wire & Cable, at the filament line with the integrated diameter measuring gauge and lump detector LASER LUMP 2000 from SIKORA

WUXI HUACHENG CABLE IS USING SIKORA'S X-RAY 6000 PRO FOR QUALITY CONTROL OF NEW ENERGY CABLE LINES

Inline measurement of wall thickness, eccentricity and diameter of up to three material layers

Wuxi Huacheng Cable Co., Ltd., based in Jiangyin City, is a specialist in manufacturing special high temperature resistant cables. The company relies on SIKORA's X-RAY 6000 PRO to ensure optimal processes and the highest product quality. Since 2018, Huacheng Cable has used seven sets of SIKORA X-ray technology for quality control in seven new energy cable extrusion production lines that effectively leads to perfect monitoring and controlling of parameters of cable during the production.

Quality and performance requirements for new energy cable are extremely high. All parameters, such as diameter, wall thickness and eccentricity must comply with specifications. Several measuring methods for quality control are available on the market. Due to its functionality, however, SIKORA X-ray technology has proven itself as a leading method for measuring new energy cable.

"With the X-RAY 6000 PRO we can use the full potential for process optimization and to deliver the highest product quality to our customers", says Mr. Haihua Min, General Manager at Huacheng Cable. Directly integrated in the extrusion line the system allows to constantly monitor the wall thickness of up to three material layers and to reduce it to the minimum tolerance value. Safety margins can be successively reduced, and the automatic control keeps the dimensions within the specification.

Quality control in combination with material savings leads to a significant increase in productivity. In addition, by providing highest product quality, customer demands can be fulfilled, and customer satisfaction is achieved.



Wuxi Huacheng Cable uses SIKORA's X-RAY 6000 PRO for measuring and control during new energy cable production



The production data is clearly displayed at the vertical, 22" wide-screen monitor of the ECOCONTROL 6000

SIKORA INSPECTION AND MEASURING SYSTEMS ENSURE THE HIGHEST QUALITY FOR HV AND EHV CABLES

Reliable quality control along the entire CV line using the latest technology

HV and EHV cables place the highest demands on their function and their production. As submarine and underground cables, they ensure that electricity is reliably transported to where it is needed. A recent report identifies cable failures as one of the biggest challenges for offshore wind power in the future and predicts about 3,600 cable failures between 2024 and 2035, which could potentially cause costs of around 61.5 billion euros¹. This makes it even more important to ensure the quality of these cable types at the highest level.

For this reason, cable manufacturers rely on the latest inspection and measuring technologies from SIKORA, which monitor the plastic material for the insulation as well as the cable dimensions at crucial positions in the CV lines.

The purer the XLPE material used, the lower the risk of cable breakdown and the higher the life expectancy of the cable. In particular, when manufacturing long cable lengths, manufacturers aim at using as few cable connectors (joints) as possible, which is why material purity plays a crucial role. In addition to using melt screens after the extruder, the testing and sorting of the pellets before extrusion is of central importance.

The PURITY SCANNER ADVANCED ensures seamless inspection: it inspects 100 % of the material for purity already before extrusion and automatically removes contaminated pellets, for example those with metallic impurities from 50 µm. This ensures that only high-quality, pure material enters the extruder.

Another crucial factor is the melt temperature of the XLPE material during extrusion. The correct temperature ensures a homogeneous polymer melt and prevents premature cross-linking. This is where the ULTRATEMP 6000, which is used in the flow channel between the extruder and crosshead, plays a central role. It continuously measures the melt temperature, thus ensuring an optimum temperature and enabling an optimization in extruder output of up to 15 %. In addition, a CV line has to be stopped after a certain production time to clean the extruder, screens and extrusion tools. Due to the optimized output of the ULTRATEMP 6000, the production length can be increased by up to 15 % before cleaning is necessary. This not only leads to higher efficiency, but also reduces the number of cable joints – which optimizes both cable quality and costs.

Directly after the crosshead, another SIKORA system is used: the X-RAY 8000 ADVANCED X-ray measuring system precisely records the dimensions of the cable, including wall thickness, eccentricity, diameter and ovality, directly in the CV tube. Visualized in real time, the measured values enable quick centering of the extrusion tools and distortion-free control to the nominal dimension. At the end of the CV line, the X-RAY 8700 NXT measuring system also ensures precise measurement of the "cold values" of the cable. In

combination with the X-RAY 8000 ADVANCED at the beginning of the line, the shrinkage values for all three insulation layers of the cable can be precisely determined. Furthermore, the operator is shown whether the eccentricities of the individual layers and the ovality between the hot and cold measuring points have changed, which is an important information during the cross-linking process in the CV tube.

Finally, the non-contact IM SMART length measurement system at the end of the CV line ensures that the required cable length is precisely maintained – a further contribution to quality assurance and resource conservation.

The intelligent integration of inspection and measuring systems along the entire CV line ensures the continuous quality of HV and EHV cables. From material purity and optimum melt temperature to precise monitoring of cable dimensions: A comprehensive quality approach ensures maximum reliability, safety and cost efficiency – all of which are indispensable for modern energy infrastructures.



The intelligent integration of SIKORA inspection and measuring systems along the entire CV line ensures continuous quality of HV and EHV cables.

¹<https://www.4coffshore.com/news/new-report-highlights-cable-failure-as-a-major-future-challenge-in-offshore-wind-nid30070.html>, 08.10.2024.

SIKORA SERVICE: FURTHER DEVELOPMENT FOR OUR CUSTOMERS

New concepts – consistently high quality

SIKORA devices and services have always stood for quality and reliability. Increasing technical requirements and a growing global team constantly pose new challenges. In order to offer all customers the best advice, the best service and consistent quality, SIKORA is continuously developing.

In the course of a comprehensive restructuring of the SIKORA service, many of the established services have been scrutinized in recent weeks and months. The aim of this measure is to proactively respond to increasing demands and to anticipate fluctuations in the world market. Specifically, this means, among other things, further expanding supply chains in order to counteract possible bottlenecks at an early stage. Intensive knowledge transfer in the handling of SIKORA devices – both in our own worldwide service network and with our customers. Modernized workflows as well as the optimization of our offer preparation in order to shorten reaction and lead times.

Challenges and solutions in the supply chain

Natural forces, political conflicts, lack of raw materials and many other reasons influence supply chains worldwide every day. SIKORA prevents limited availability of some (spare) parts with a complex stocking and purchasing strategy. Spare and wear parts are thus quickly available for all customers.

Expansion of the worldwide service network

The strong expansion of the worldwide SIKORA service network requires an intensive exchange of knowledge. Customers can continue to rely on the excellent training of all SIKORA service engineers and their access to the broad expertise of all international colleagues. The transfer of knowledge in the daily handling of SIKORA devices in the production facilities has been modernized. Customers can look forward to a wide range of training opportunities – read more about this in the upcoming SIKORA EXTRA edition.

Introduction of the SIKORA flat-rate repair

With the introduction of the SIKORA flat-rate repair, the processing time could be significantly reduced. Customers who want to send a device for repair, now receive an offer in only 1-2 days and can quickly and informed decide whether a repair or a new device is more suitable. This provides fast availability and planning security.

Outlook

Of course, all services will continue to be regularly reviewed and new areas developed. Our customers can be sure that their needs will remain our focus in the future and that they can rely on the highest quality.

RAFFLE



X-RAY 8000

1 _____
 2 _____
 3 _____



PURITY SCANNER ADVANCED

1 _____
 2 _____
 3 _____

At SIKORA's production

Match these terms and components with the corresponding SIKORA devices:

- XLL X-ray tube
- Vibratory feeder
- Clean room
- Diameter measurement
- 8-point-display
- Purity

Send us your solution by January 31, 2025, to: extra@sikora.net

Win one of three daylight alarm clocks/bedside lamps with inductive charging station.



Your contact details will not be passed on to third parties. Every entry will be entered into the prize draw. Unfortunately, SIKORA employees and their relatives may not take part. Each person can only enter once. We will evaluate the first e-mail, all subsequent e-mails will be considered invalid. Legal recourse is excluded.

GOOD LUCK!

NEXT EVENTS

 **Wire Tech Poland** • Wire Tech Poland | Jan 14-16 | Warsaw, Poland

 **wire Mexico** • wire & Tube Mexico | Feb 11-13 | Monterrey, Mexico

 **INTERWIRE TRADE EXPOSITION** • Interwire | May 13-15 | Atlanta, GA, USA

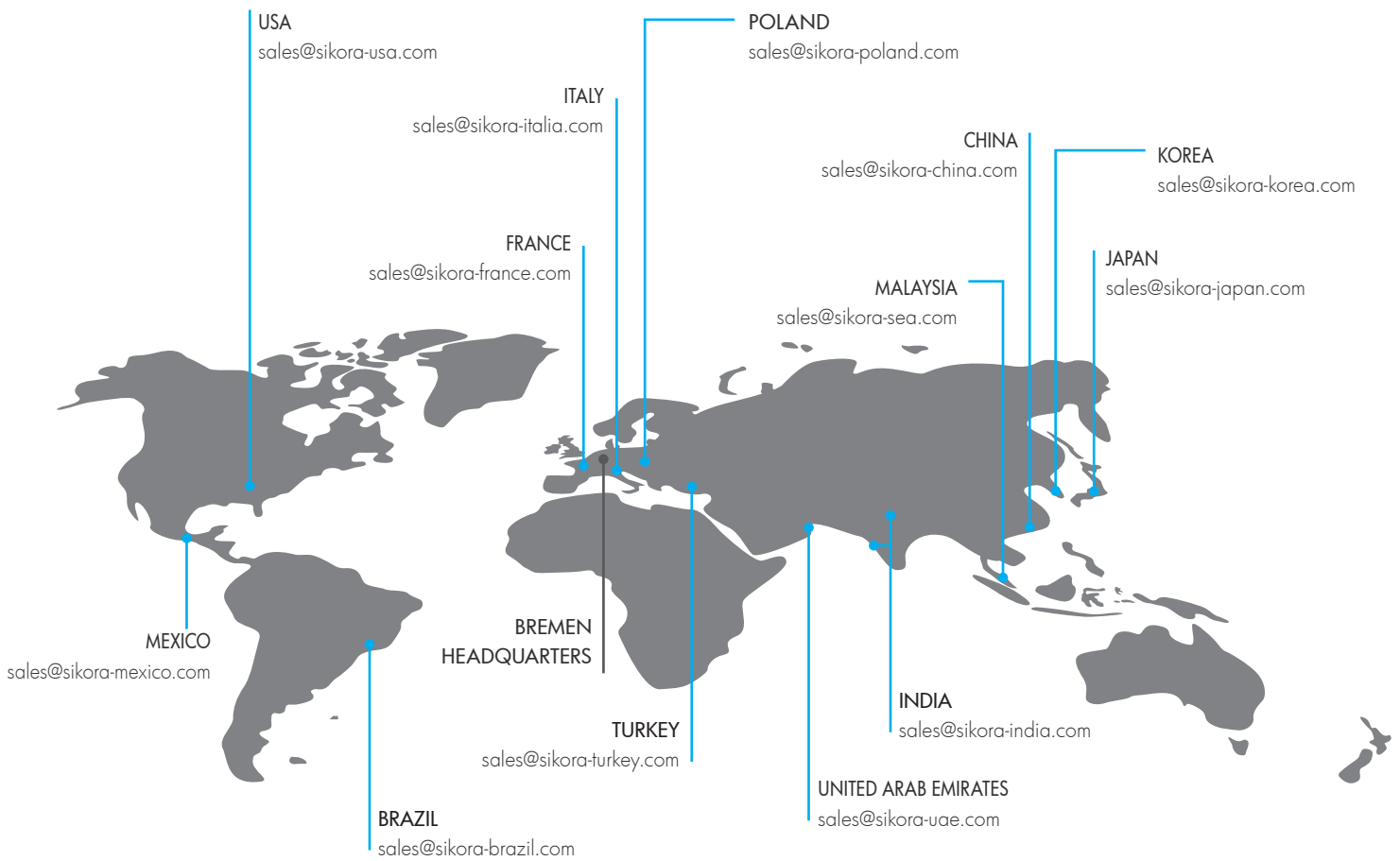
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