

Perspectives

1/2021

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Maillefer stakeholder magazine



MAILLEFER

A Davis-Standard Company

A World in Full Acceleration

Aino Huovio



We are witnessing a number of factors currently driving and accelerating our business. Fortunately, the world awakens with the challenges brought about by this pandemic. The time has come to look ahead. Needed decisions that build on growth in new appearing markets offer opportunity, yet timing is critical.

A reduced demand during the recession has built a pressing need for the coming future. We are only beginning to feel its effects now. Manufacturing resources are a key factor. The capability to use the installed capacity, in a most flexible way, has become essential.

Sustainable values are driving both future growth and new product standards.

The changes in the energy sector towards renewable energy solutions are both increasing cable demand and the corresponding expectations for a higher quality end product. Stricter material regulations and the need for material waste efficiency set new requirements, particularly relating to our manufacturing processes. Last but not least, manufacturing efficiency, capacity reliability, and maximized utilization rates are listed as growing competitive advantages. The common success factors emphasized are **efficiency, reliability, quality, and sustainability**.

Maillefer continues to place a high priority on innovations that boost

manufacturing with your existing lines. We are also making strong progress in developing new technology for online process controls, in increasing the volume of line outputs and that of product quality.

In this issue of Perspectives, we are proud to present several of our recent technological breakthroughs. We hope you enjoy reading this edition and that you will discover those hidden treasures that will accelerate you into a world of tomorrow.

Lars Fagerholm
EVP

About: Perspectives is Maillefer's stakeholder magazine. It is published bi-annually in English, Russian and Chinese. With this magazine, we would like to provide our customers with new perspectives to the Wire & Cable and Pipe & Tube business and production developments.

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Making the issue



Steven Wang
Sales Team Leader

Steven has more than 25 years with Maillefer. Soon after his arrival he was assigned to the power cable department. He has made sales with an appreciation for privileged client contacts a career choice. Steven places the priority on meeting market demands thanks to the solutions made available by his fellow colleagues and technical teams.



Raul Perez
Services Sales Manager

When thinking of coilers for pipe & tube, you think of Raul. He began an apprenticeship with Maillefer 37 years ago and has been with us since. Whether from his desk or out in the field, Raul enjoys working out novel winding configurations and finding solutions for customers in a variety of production environments.

Brown Wu Reports on Trend in Cable Infrastructure

Brown Wu is our General Manager in Shanghai. He is on the forefront of exciting times for Mallefer in China. He reports that in the last year, the company logged 200% more in CV line orders from this region compared to prior years. The upward trend was already noticeable in 2018, when CV line orders began to climb. Then, Mallefer had announced its 500th CV line delivered to the Jiangsu Shangshang Group. Now, as the trend persists, the 600th CV line milestone is in sight. And chances are likely that Mr. Wu and a local customer will soon be at the center of celebrations.

The framework is in place to encourage growth, explains Mr. Wu. “Though the Chinese economy is affected by the pandemic, its economy reports sustained positive growth of 2.3%. The government’s current five-year quinquennial plan is driving further scientific and technological innovations as well as focusing on green economy. The Plan projects a continued increase of the GDP, which is expected to double by 2035.”

“The Ministry of Information Industry and the State Grid has set corresponding targets for 2035,” continues Brown Wu. “My country is investing much in technology, meeting a high level of standards in the industry, improving quality requirements in cable procurement for the power grid, and promoting development of the industry towards a high-end service. The target in terms of domestic energy, is for green energy to exceed conventional sources by a proportion of 25% in 2035. As the government strengthens its procurement activity for green energy cables, we see cable manufactures with corresponding capacity become fully loaded up to 2022.”

Mallefer made its Chinese debut in 1980. As a result, its installed base in the country is significant. It accounts for more than 50% of the imported wire and cable extrusion equipment nationwide. Backed by its R & D center created in 2013, many new technologies have been introduced to the market. Such extrusion innovations include Roundness curing, Smart manufacturing, Topography Scanner, and more. The production efficiency from these new solutions increases by more than 10% and the quality of cable products is largely improved. Confirmation comes from cable concentricity that attains levels of 99.5% or more. It’s nearly perfect. Such quality means a lot of raw material savings for the corresponding support processes and overall improved efficiency.

Our office was established in 1986 to provide services and support to customers locally, says Mr. Wu in closing. “The Shanghai team shows strong experience and a desire for perfection. Most of the staff has been with us more than 10 years, and some nearly 30. So, the ties and relationships with customers are indeed close. They know who to rely on when ordering Mallefer equipment and services. Recently, the health situation brought us challenges, yet our team completed needed commissioning perfectly and quickly thanks in part to the remote support of European colleagues and technology. I firmly believe that Chinese customers place their full trust in us and our products.”

Mallefer’s mission is to maximize the competitiveness of wire & cable and pipe & tube producers worldwide by providing proven value technology solutions and services. Brown Wu expects to participate in the ongoing success, driven largely by the upbeat trend in technology and services for cable infrastructure at home.



Sustainability - A Key Driver Shaping Everything We Do

Renewable Energy or Green Energy is the number one megatrend ahead for the global Wire & Cable industry. Renewables are expected to provide approximately 30% of all electricity in 2024. The world capacity for renewable energies will more than double in the next 10-year period and grow by a factor of four in the next 30 years. It is a change that will drive increasing demand of cable volumes.

As a key technology provider to the industry, we strongly support this industry change and are providing new innovations to make it happen in a most sustainable way. For us, sustainability is driven by several deliverables.

Global use of materials is accelerating. It has more than tripled since 1970. Moreover, only 9% of the global economy is circular. Just 9% of the 92.8 billion tons of material that enters the economy is re-used annually. Modern manufacturing techniques

enable the manufacturing of sustainable Wire & Cable and Pipe & Tube products. So, how can we transform regular goods into green products? There are two ways to do it. One is to focus on the cable materials, and the other is to focus on the manufacturing process of the cables.

Sustainable materials that are used for manufacturing are usually climate-friendly materials. They are biodegradable and modern materials, such as halogen-free jacketing. They are not made up of ingredients labeled as hazardous by authorities towards the environment.

Material utilization

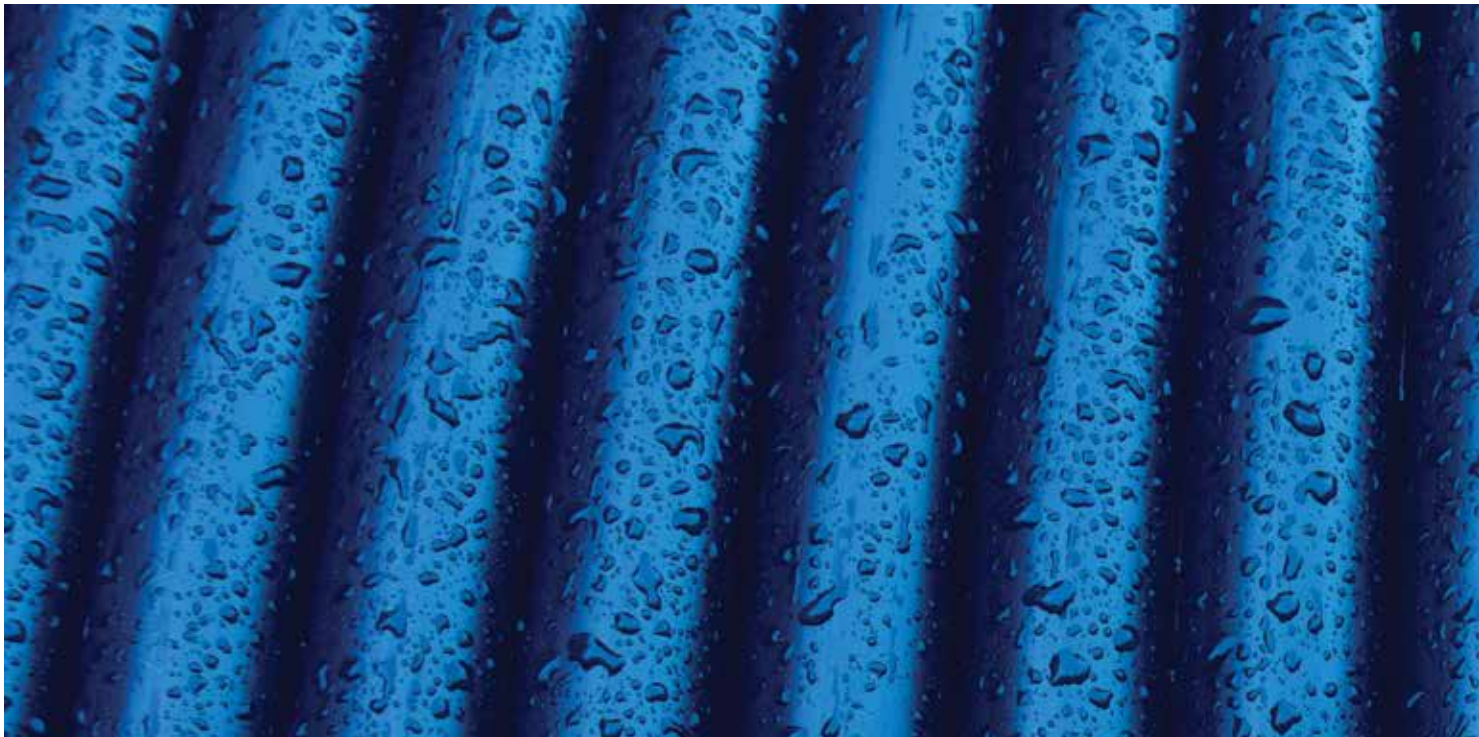
Maillefer has several ways to improve material utilization in the manufacturing processes. Quality ramp-ups and -downs have been the basis for our line control for decades. Depending on the manufacturing process one can

save several percent in raw material consumption, notably when quality production begins immediately once the extrusion line is ready to produce.

Controlling the overuse of plastics creates vast opportunities in raw material utilization. Maillefer's modern extruders open that possibility when minimizing the difference between the nominal and actual product dimensions. Quality product manufactured within tight tolerances requires less plastic.

Manufacturing efficiency

Manufacturing speeds have always been the main target for production line development. Machine utilization rate is the second key efficiency factor. A well-maintained line, of high-quality, guarantees high manufacturing utilization rates. Also, quality production has been of interest. Advanced process and quality controls make sure the quality consistency is maintained.



Once the line efficiency is maximized, then the energy consumption per end-product kilometer is minimized, and as a result, carbon emissions lessened. Maillefer is committed to lead as a technology provider of solutions with the best efficiency rates, best material utilization rates, and minimum energy requirements.

Technological solutions

The productivity of manufacturing can be increased with higher line speeds. Higher speeds call for more precise process control. The manufacturing process contains several parameters that the line operator controls during production. The state of the process can be both estimated and controlled by process parameter adjustments. Maillefer offers a modern artificial intelligence-based control solution that brings value to customers by helping line operation and by optimizing the

process parameters. This improves both the production efficiency and the product end-quality. Maillefer's AI concept also leads to remarkable material savings.

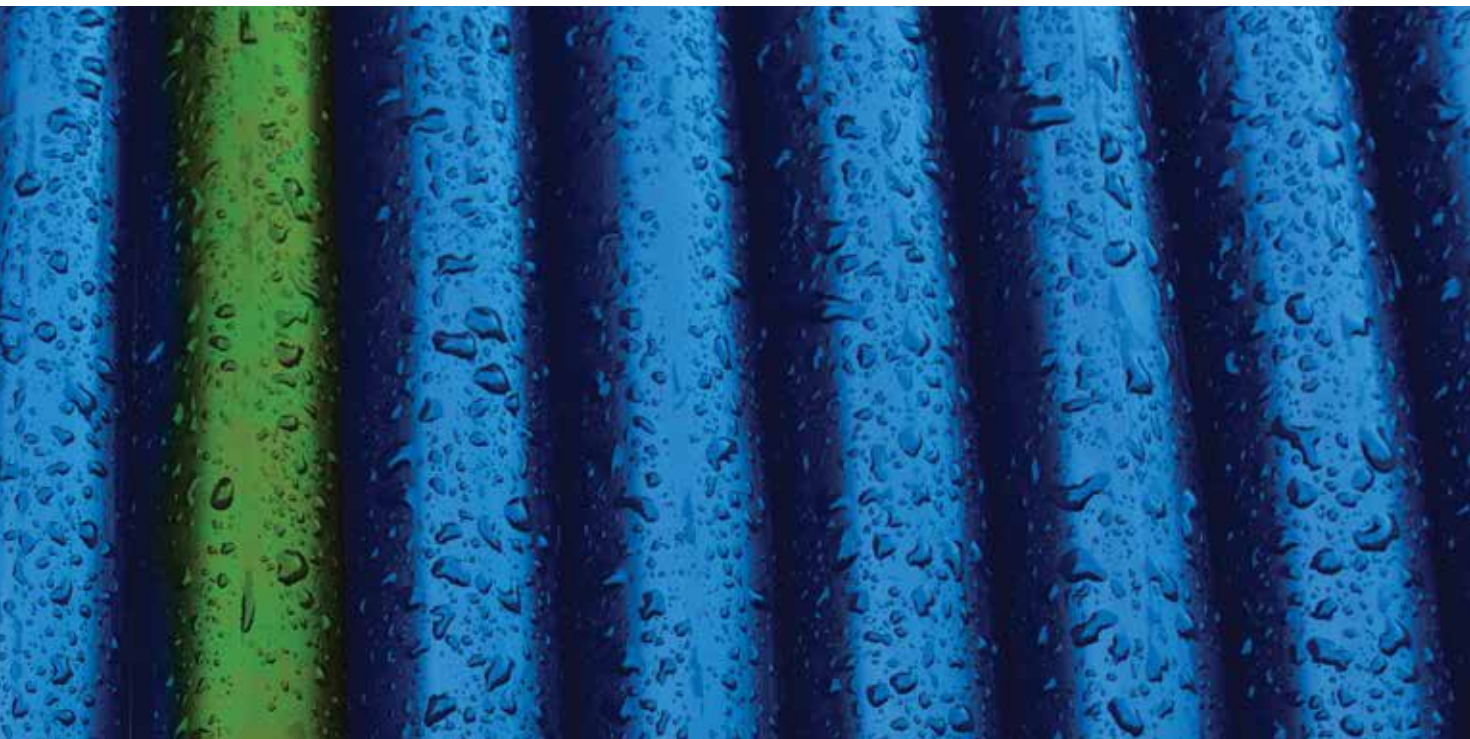
Our technological solutions, on both a component and on a line scale, are based on long-lasting and reliable components. Our machines are designed to last for decades. Therefore, the life cycles of our offerings are extremely long, thus guaranteeing sustainable investments and an optimum carbon footprint.

The capability of working in far-developed virtual environments enables us to create digital twin development platforms, speeding-up the development cycle, and saving extensive material during the innovation process.

Our impact on sustainability

Maillefer offers technologically advanced production lines. This

helps our customers to maximize production efficiency and reduce the scrap in their manufacturing process. Our installed base is huge – several thousand extrusion lines. Annually, from five to seven megatons of plastic material goes through those lines. The latest technology combined with upgrades can decrease the overuse and scrap amount by almost 10%. That corresponds to an annual plastic material savings equivalent to the amount of plastic material used for plastic bags in all of Europe – 550 kilotons. With Maillefer technology you save raw materials in remarkable ways and work towards building a more sustainable future.



iStock

State-Of-The-Art Highlights

/Enter

Enter is a compact quality solution for more sustainable production. It is ideal for those searching for an affordable investment that is easy to start and maintain in different production environments.

New in Pipe Solutions



Maillefer

Single-layer Crosshead for Corrugated Tube

The ECH 3/20 is a single layer head designed for production of corrugated tubes, especially for automotive and technical applications. The head's design and construction ensure long production runs with a high resistance to abrasion. It includes an air injection system.

The extrusion head is mounted directly on a stand for user-friendly handling during cleaning or tool change operations. The assembly allows for compensation with the extruder due to thermal expansion. The extruder connection is delivered with pressure & temperature gauges.

Benefits

- Designed for single-layer corrugated tube
- PA & PE flow optimized
- Ideal for automotive and technical applications
- Easy manual centering
- Maximum die diameter of 20 mm.

//Extend

Extend is a lean and proven production solution for changing market needs. Its good upgradability and versatile product range guarantee a technical fit for the future.

New in Cable Solutions



Maillefer

Dual-layer Crosshead for Tough Building Wire Applications

The new ECH 35/45 DL crosshead is designed especially for building wire applications with demanding polymers. It meets the toughest requirements for a variety of materials, in particular, as specified in the CPR (Construction Product Regulation) requirements.

This crosshead can be used in single- and dual-layer applications with stripe or skin options. Its high performance, excellent concentricity, and user-friendliness are established by the fixed-centered design. The main distributors of this crosshead are conical shaped for quick dismantling and cleaning without special tools. They fit into each other smoothly and make for easy handling. Flow geometries are optimized for PVC, XLPE, HFFR, XL-HFFR, EPDM, EPR, and highly filled materials.

Benefits

- Precise quality to meet the toughest requirements of cable manufacturers
- Optimized material distribution geometry
- User-friendliness
- Wide material selection
- Maximum die diameter of 45 mm
- Entry diameter 35 mm.

///Explore

Explore is the royal road to demanding deliveries with the lowest total cost of ownership. It is a high output solution to explore the market in the front row.

New Version for Automotive Pipe



Maillefer

Six Layers and Striping with New ECH 5/50 ML

The ECH 5/50 ML earns its stripes with this new 7 extruder group version. Indeed, when opting for a 6-layer tube construction with stripe(s) a seventh extruder port makes it all possible. Individual channels offer the flow precision and stability for each functional layer as demanded by today's automotive industry.

This head has the flexibility to switch down from a 6-layer setup to a 5, 4, 3, 2 and even a single layer setup. The distributors fit into each other smoothly and are optimized for easy handling. Not only is the head suited for smooth tube, but it works just as well for corrugated once appropriately fitted.

Benefits

- Optimized for PA, PA6, PA612, PPA, EVOH, adhesive, PVDF, ETFE, EFEP, and HDPE
- Hundreds of layer combinations
- Rapid layer indexing
- Corrugation, smooth tube and striping features available
- Convenient connections to a 7 extruder array
- Ease of use for assembly and cleaning.

Realize a Winning Layout



Maillefer defines its extrusion lines in standard layout configurations. They are useful to qualify and quantify the specifications and related performances. Having a standard layout in hand, starting from extrusion through cooling to final conditioning, is a good first step. It lets you better visualize the organization of your factory.

However, is a standard layout enough? How properly will the planned installation fit your current constraints and future ones? Being able to consider alternative layouts may make all the difference. Maillefer's experienced sales team backed by product, project and engineering specialists is at your service to find the most suitable layout for your needs.

When building size limits performance

A common case cited is the request to increase speed and extrusion output. The topic of cooling length immediately arises, followed by concerns of product quality. Do you have room downstream to sufficiently cool the product before pulleys, sheaves, dancers, belts, etc. come in contact with the product? Within limited floor space, what are the maximum achievable speeds for given product? Solutions exist to work with non-standard line configurations. Maillefer can help optimize a line's output performance considering space restrictions and the product mix.

Two lines combined into one

Imagine moving an array of seven extruders and one crosshead from one line position to another whenever you want to go change product type? This is the scenario that one pipe producer envisioned. He wasn't ready to invest in a second complete extrusion group to avoid such a move whenever changing product. And moving cooling, testing and winding equipment was out of the question too. In other words, he realized that there was enough production capacity needs to share the same extrusion group with two different downstream lines.

The customer brought his request to Maillefer. Within a short time, the technical staff had the solution in hand. A mobile platform to which were solidly fixed the 6-layer extrusion group, an additional striping extruder, and the versatile Maillefer co-extrusion head, was taking shape on the drawing board. Soon the customer saw what he wanted – a quick way to move his multiple extruders from one line to another, only three meters apart. No timely dismantling or error-prone alignment issues; just a smooth transfer from one product set-up to another with minimum down time.

Realize a winning layout

A standard layout may be fine in an ideal world, but oftentimes real-world constraints get in the way. Sit down with us to discuss your plans and the space limitations you do have. Many can be overcome by integrating a winning layout that fits your situation.

High Speed Curing with Round Value Package Premium

During 2020, we have successfully commissioned several of the fastest and technologically most advanced high-voltage VCV lines to date. These lines are equipped with a groundbreaking curing technology, Round Value Package Premium, which enables high-speed curing without the problems normally found with increased line speed.

Challenges to overcome

The insulation process for high-voltage submarine cables is, in many ways, a very complicated process. It requires balancing between many limiting factors such as, production length, production time and production speed. Higher speeds are of course beneficial to achieve longer lengths in shorter time.

Production speed, on the other hand, is limited by cable core geometry, curing power and extruder performance. With typical technology, cable core ovality starts to increase dramatically when increasing speed and the related curing power. Technological innovations designed into Round curing remove these challenges.

Thanks to a special heat impulse, the curing process begins by forming a crosslinked layer on the outside of the core in a very efficient manner. This outer crosslinked layer maintains a very round cable core during heat expansion and shrinking, specifically at the curing and cooling sections of the CV line.

Thanks to Round technology, it is now possible to also increase the curing power of the CV tube without any issues. In other words, we can now start the curing very efficiently, while increasing the total curing power without any negative side effects. More curing power naturally leads to higher production speed. Typical speeds for a standard VCV line and a VCV line with Round are shown in the graph below. Our CV lines are now producing multiple submarine cable campaigns at a record-breaking speed of 1.55 m/min for a 220 kV 400 mm² copper conductor cable core.



**Premium
Curing Tube**

Maillefer

Curing and extrusion go hand in hand

High-speed alone is nothing without exceptional quality as well. Round technology provides the best results in terms of cable core ovality. Typically, thick insulation layers with small conductor are demanding constructions when trying for perfection. The Round technology enables production of cores with 0.995 roundness and at record speeds.

Continuous improvement on the extrusion screw design and crossheads are also pivotal to success. Our screw development aims towards higher extrusion outputs without any areas of low flow or stagnation points. Streamlined designs are very successful in realizing long production campaigns necessary for submarine cable production.

The addition of Round technology has also made it possible to utilize the full output available from our insulation extruder. Now that constraints based on curing power and cable core roundness have been lifted, we are able use higher screw speed and further reduce the residence time of insulation material inside the extruder and crosshead.

Long deliveries, even longer in the horizon

Thanks to the speed increase of Round technology, long campaigns can be realized in shorter time. Projects consisting of 120 tons of insulation material are realized in less than 12 days. Examination of breaker plate and fine mesh filters after such long campaign have shown absolutely no signs of XLPE material stagnation or scorch. Several very successful production campaigns confirm that we are nowhere near to reaching the maximum lengths possible with this technology. The new VCV lines are unique chances to showcase how all of our recent developments and innovations have come together and enabled us to push the boundaries of cable insulation technology one step further, together.

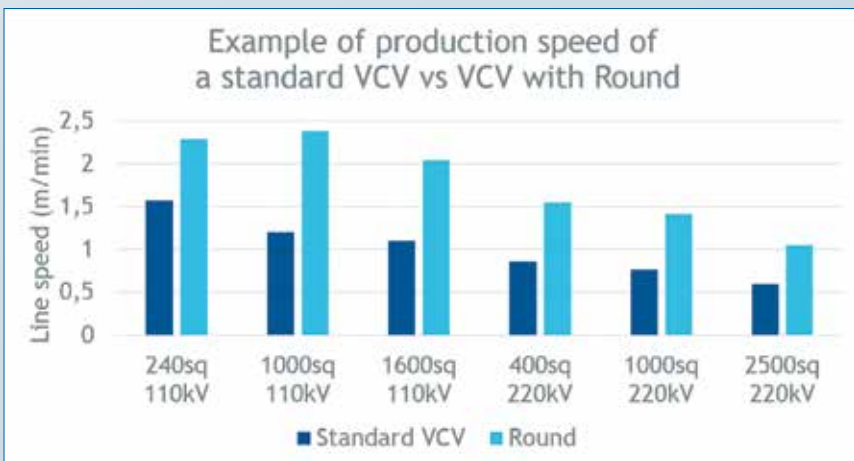
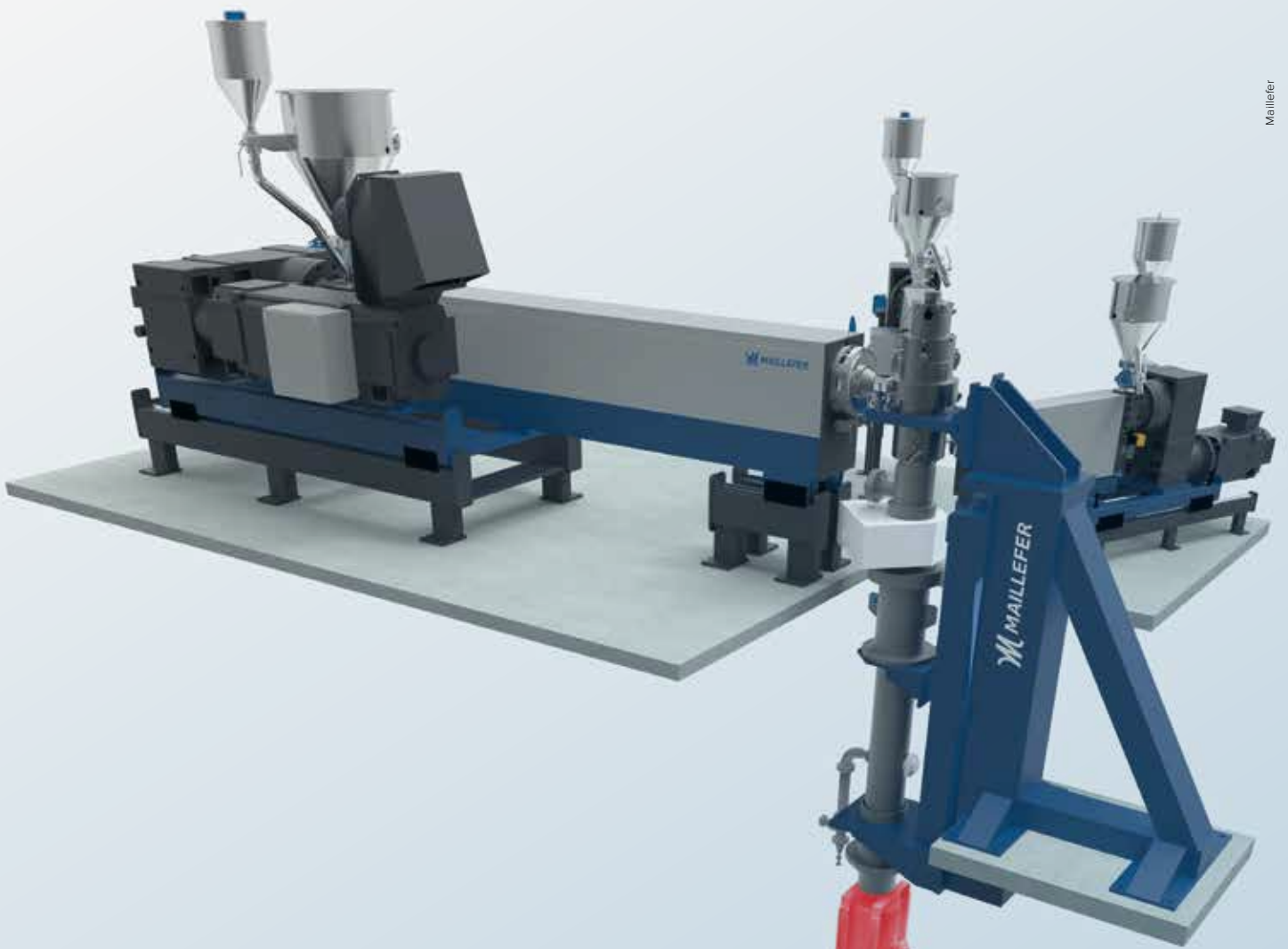


Figure 1. Typical production speed for HV cables on a VCV line with Round technology in comparison to a standard VCV line of the same length. Cable constructions are based on Chinese standards. Actual speeds will vary depending on the actual VCV line layout.

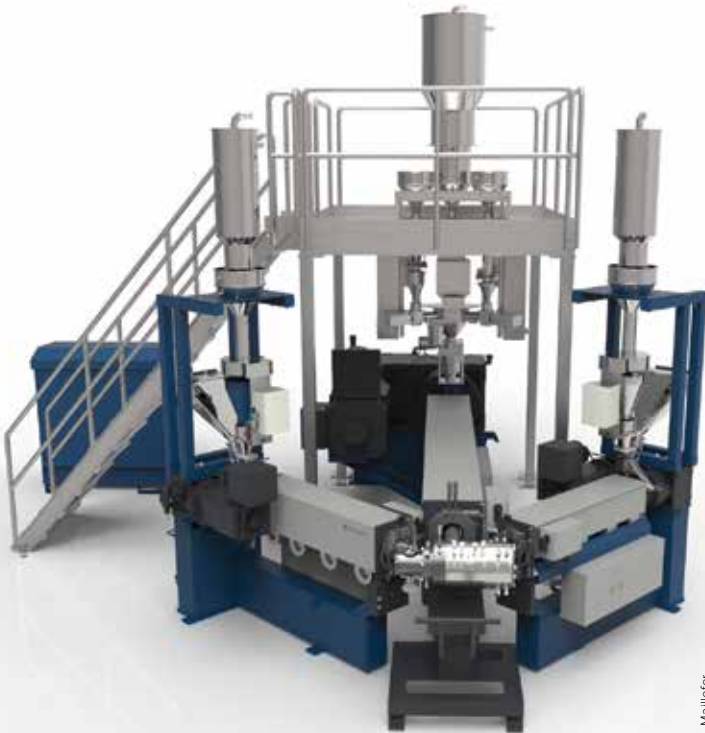
XLPE / PP Duality Offers Peace of Mind to Investors

We want our customers feel confident about investing in our cable production lines, to minimize any risk related to their investment; and to provide peace of mind about their production abilities. Maillefer's latest steps towards meeting those goals are our multipurpose medium voltage lines, capable of extruding standard XLPE materials as well as alternative polymers such as polypropylene-based thermoplastics.

Decades of experience with XLPE cables have proven that our extrusion solutions remain a trustworthy and reliable choice. There is no doubt that XLPE will dominate extruded power cable segment for many years to come. However, for the entrepreneur looking to further the limits, our solutions open the doors for both classic XLPE extrusion and the emerging technologies.

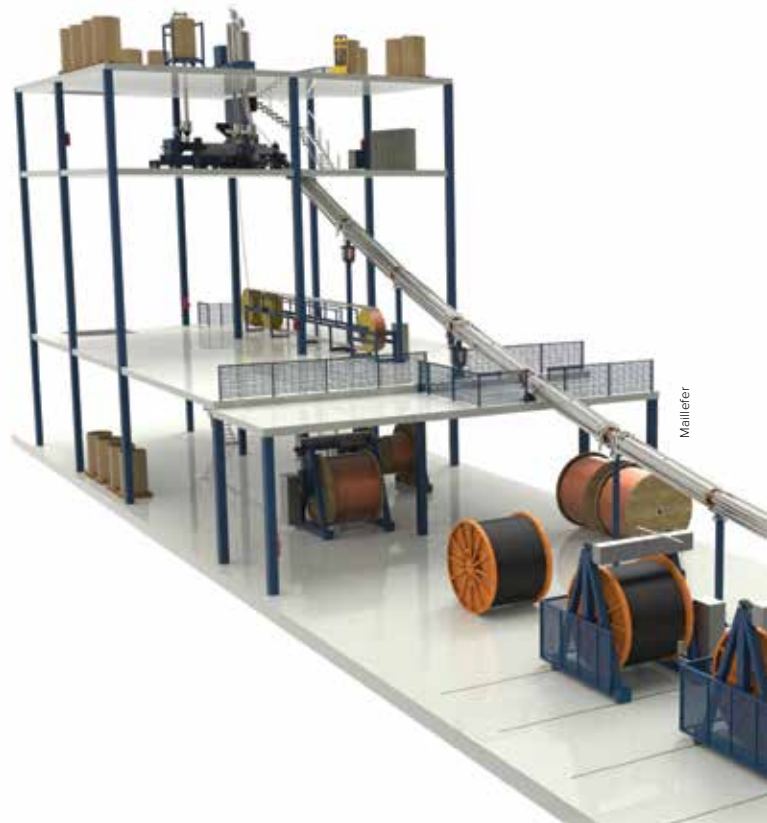
Standard CCV lines dedicated to medium voltage production are transformable into PP-ready production lines with few key modifications. Novel solutions to extruder groups and extrusion technology have been developed and tested with good results. Optimization of new screw designs for higher processing temperatures as well as hybrid heating solutions for crossheads allows us to switch from XLPE to PP production effortlessly.

Traditional CV tubes can be equipped to accommodate the changes needed in the cooling system for PP without interfering with standard XLPE use. By combining the modifications to a CV line with our process know-how, we are able to deliver a highly versatile production line. As a result, the line will have the duality of a normal CV line with one designed for development work in thermoplastics. Maillefer multipurpose lines offer certainty during these less than certain times of transition.



Maillefer

Horizontal multipurpose extrusion group for LV & HV (XLPE, PP & low voltage)



Maillefer

CV multipurpose line for XLPE, PP and EPR for MV & HV

Pipe Reeler Boosted for Longer Micro-duct Lengths



istock



Maillefer

Extrusion line performance and micro-duct tube lengths for blown fiber bundles continue to be the subject of improvements and innovative design. The KWD dualer reeler for micro-duct, previously limited to a 1000 mm reel, is no exception. We've given a boost of nearly 2/3 more in product length capacity with a 1250 mm version. And if you're ready for even longer lengths, an alternative employing barrels instead of a reeler offers a considerable jump more.

Long runs become worthwhile

The KWD 1250 fully automatic dual reeler integrates to the end of our Micro-duct Pipe Extrusion Line, PUL 032//Extend, where it conditions micro-duct ranging in diameter from 3.5 to 16 mm. The larger machine can handle full reels from 650 to 1250 mm and weighing up to 300 kg. A 67% potential increase in volume leaves more lay room for product. Finished reels with longer lengths become an advantage in the next operation - assembly & sheathing.

The PUL 063//Extend brings individual micro-ducts together to be banded and jacketed into a principal duct. A bundle can count up to 24 micro-ducts and measure a total outer diameter of up to 63 mm max. By

having longer micro-ducts available from each reel that feeds assembly and sheathing, a longer bundle can be produced in one go before requiring a new joint or junction.

Need more?

Maillefer has the answer with an automatic barrel packer particularly suited for getting more length at high speeds into octagon barrels. Several cost related advantages come to light. The overall time to produce bundles is shortened thanks to less interruptions in micro-duct lengths. Tube lengths that are contained in high-capacity barrels are considerably longer than those on a reel. Plus, by laying the tube down in a loose fashion, the micro-duct integrity is retained in a relaxed form. Octagon

barrels are easy to stack and store before being used in the subsequent assembly operation. Unwinding from octagon barrels is quite simple.

Going the distance

Maillefer's micro-duct extrusion lines are complete, fully integrated solutions that are available from one source. Shorter time to produce, longer lengths, handling ease and resulting lower costs are possible with the new high-capacity version of the KWD reeler or with our barrel packing alternative. Our lines offer manufacturers the solutions that help them meet the growing demands for fiber optic deployment – solutions that help you go the distance.

Innovate in the R&D Center

Maillefer has deployed a unique set-up for you to create innovations. During the last years, we have participated in many exciting R&D projects with our customers and material suppliers. Our main goal is to create a development platform where together we explore the manufacturing limits in a real production environment.

Pilot lines and components

Pilot lines are available for high- and low-voltage as well as fiber optic cables in our R&D Center. The world's unique vertical pilot line lets customers develop the cable production process as a whole. Under normal production conditions, testing the process limits is quite difficult. But in our world, it becomes easy and possible to go beyond. The fastest autonomous buffering is ideal for studying the fiber optic cable manufacturing process. Trials are applicable for dry- or gel-filled cable constructions. Tests are also possible with the new longitudinal taping technology in our new jacketing lines for low voltage applications.

Components are available for trials too. Pure extrusion studies can be made with several different sizes of extruders that are equipped with the latest technology and instrumentation.

A quick spiral to success

We continue to invest heavily in our laboratory facilities. Users get the advantage of testing the production limits and immediately analyzing the results with the experts. The R&D cycle is drastically reduced.

Process studies are linked with measurements which allow adjustment of process conditions and evaluation the next day. This cycle of tests and measurements creates a spiral to success for innovation. We are motivated to cooperate even more on projects with customers and material suppliers in our R&D center. Here we can introduce innovations directly to production processes and explore the interaction between end-product quality and process conditions.

Innovations together

When combining experts from cable making, machine-building, and material science, it is possible to open new doors for smart manufacturing. In Maillefer's R&D Center we can push the limits even further by combining our latest artificial intelligence solutions and drastically decrease material overconsumption and increase the production efficiency.

Maillefer Customer Arena

Last year has provided us with novel ways to meet with our customers and stakeholders. Having more time at home, meant intensifying our research and development work. The Maillefer name is a long-known reference in the global wire and cable industry. Several of our innovations and patents launched over the decades have become industry standards. We repeatedly affirm the role of technical leader by finding new ways of further increasing productivity and profitability for the global wire and cable industry. The time has come to communicate, more than ever, about recent developments by organizing a virtual venue for our customers.

The Arena launch

To fulfill the mission of continuous know-how transfer, we introduce Maillefer Customer Arena. It is a webinar platform that presents the most recent technological innovations in our industry. This new forum offers a lively alternative to face-to-face meetings.

The first session of Maillefer Customer Arena took place on April 27, 2021 and focused on high- and medium-voltage cable technologies. A second session on fiber optic technology followed the next day, on April 28, 2021. A third broadcast on LV technology was held on May 11, 2021.

We see the interest generated by our customers during the three Arena sessions, and are getting feedback on how to best develop the Maillefer Customer Arena broadcasts in the near future. We look forward to see you to sign-in for the experience!



Stay in the Game with a H&P Value Package



You may feel satisfied with your existing capacity to manufacture Heating & Plumbing pipe. But how truly secure is your existing business situation when operating in a mature industry that faces multiple challenges? What opportunities lie just beyond your reach? Whether you make single layer PEX or multi-layer composite pipes, Maillefer offers value packages designed to ensure that you and your production equipment stay in the game.

Increasing competition, eroding margins, evolving material formulations, changing requirements, more demanding quality and accountability are some of the factors which may test a pipe producer's ability to be successful. Within our portfolio of extrusion lines, we include a series of improvements introduced throughout a long history of supplying customers. What were first special options have become standard on newer lines. The following selection highlights a couple features available and includes a table with an overview of over a dozen value packages, listed by line type.

Low energy pipe dryer³

Eliminate the need for compressed air to dry the pipe. Save up to 80% of energy costs for drying through an enhanced low energy alternative. With no compressed air, there is no risk of inherent water present in the air used for drying. Special 3D printed heated sleeves placed throughout a section of trough result in a completely dry pipe, for speeds up to 60 m/min.

Inline adhesion monitoring⁹

On the PCL model lines, we've improved bonding quality between the PE polymer and the Aluminum layer, independent of line speed. A temperature sensor is placed inline at an ideal location to best control the power of the high-frequency induction heater. A regulation loop added to the package offers ease of use through automation.

Value package	Full plastic pipe lines						Composite pipe lines		
	PXL32-1M Extend	PXL63-1M Extend	PXL32-1S Extend	PXL63-1S Extend	PXL32-3T Extend	PXL63-3S Extend	PCL32-5T Extend	PCL63-5T Extend	PCL32-5T Enter
1 Reduced die drool / deposits	x	x	x	x	x	x	x	x	x
2 PERT extrusion	x	x	included	included	included	included	included	included	included
3 Low energy consumption pipe dryer	x	x	x	x	x	x	x	x	x
4 Enhanced calibration process	x	x	x	x	x	x	x	x	x
5 Bar reception system	x	included	x	included	x	x	included	included	included
6 Automatic coil unloading system	x	x	x	x	x	x	x	x	
7 Chipless cutter	x	x	x	x	x	x	x	x	
8 Upgrade to 5 layer extrusion	x	x	x	x	x	included			
9 Inline pipe adhesion monitoring							x	x	x
10 Fast head cleaning	x	x	x	x	x	x	x	x	x
11 Lump & hole detection							x	x	x
12 Quick compression station change							x	x	x
13 Widened processing window	x	x							

Overview of features available for Heating & Plumbing extrusion lines

The listed upgrades and value packages are available as improvements to your existing equipment. Whether making single- or multi-layer, PEX or PE-RT, full plastic or composite pipe, Maillefer provides you with modern sub-systems and assemblies that help retain your role as a notable player in today's Heating & Plumbing industry.

Choice from a Palette of Pipe Coilers

Each pipe or tube application has its specificities matched to an ideal winding system. Dual winding, safe fully automated transfers, and ergonomic handling all play their roles in ensuring the quality of finished product. Maillefer proposes a palette of different of coilers / reelers best suited for the job.

KWA integrity for medical tube

The KWA series is designed especially for coiling medical tube, where maintaining product integrity is an important measure of final quality. Line speed in relation to rotational speed is synchronized with traversing and switchback in order to result in perfect lays. It achieves the required quality for smooth and clean finished coils, without gaps, overlaps and tube deformation.

Achieving long lengths with a KWD

For blown fiber micro-duct and similar technical tubes with diameters ranging from 3.5 to 16 mm, you can chose the KWD in a 1000 or 1250 version. The larger one accepts reels having a diameter of 1250 mm and a full weight of up to 300 kg, perfect when trying to get long lengths for limited micro-duct joints or junctions out in the field.

KWI's micro-drip versatility

The KWI is tailored for conditioning micro-drip irrigation laterals onto carboard reels. Plus, there are varying constraints, such as short lengths, cutting and transfers, heavy or thin walls, flat, etc. The KWI models are versatile and well suited for conditioning product that is directly bound for irrigation specialists or the week-end gardener.

Full TCA features and options

The TCA model is the most versatile of our coilers. It covers several applications and offers the most features and options. We apply several cutting and clamping technics to minimize transfer cycle times. Dancers are available for adapting to production speeds and to optimize winding tension. The high-capacity TCA 1300 has turrets for large coils of up to 800 mm wide, an overall diameter of 1300 mm and weighing up to 150 kg.

With the help of an accumulator, intermediate coil strapping with the TCA is possible. It essentially allows you to bind an inner coil within a larger one, which may be an efficient solution for downstream processes. Here, the line continues to run at full speed during the strapping cycle while the accumulator acts as a buffer. The TCA has an option for easy adjustment of coil widths and diameters either manually or through a power drive.

The TCA responds well to various unloading concepts, from a classic hydraulic lift for one line to tailor-made robot handling for a group of lines integrated into a production management system. Together with our partner, BMGroup, we have solutions for ensuring smooth and efficient flow of product between processes and towards delivery.

A right coiler / reeler for the job

Dual winding, safe fully automated transfers, and ergonomic handling all play their roles in ensuring the quality of finished coils or reels. Maillefer's coilers and reelers for tube & pipe applications are available as individual components ready to upgrade into an existing extrusion line or come fully integrated into complete production systems.

Winding Solutions by Pipe & Tube Type

	KWA	KWD	KWI	TCA
Blown Fiber Microduct		★		
Automotive		★		★
Heating & Plumbing				★
Micro-drip Irrigation			★	★
Infrastructure / Pressure Pipes				★
Medical	★			
Special / Technical				★

KWA Features

- Medical tube on coils
- Tube diameter from 1 to 13 mm.

KWD Features

- Microduct or automotive tubes on reels
- Tube diameter from 3.5 to 16 mm
- Reel weights up to 300 kg.

KWI Features

- Flat thin-wall micro-drip laterals on reels
- Tube diameter from 12 to 25 mm
- Tube thickness from 0.1 to 0.9 mm.

TCA Features

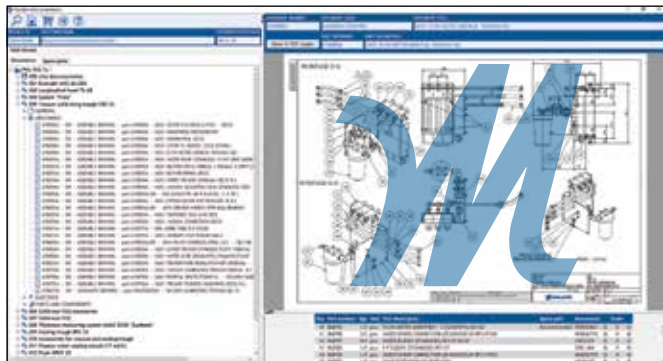
- Multiple pipe & tube types on coils
- Tube diameter from 6 to 40 mm
- Coil weights up to 150 kg
- Strapping and handling options.

Find It in MED 3.0

The latest version of the Maillefer documentation software is being launched, MED 3.0. The web-enabled documentation utility makes finding assemblies and related instructions easy for users of Maillefer equipment. Internet access and a key are all that is needed. With each and every customer project comes a specific set of technical descriptions and illustrations. The weighty paper binders have long been replaced with a more sustainable collection compiled into the versatile Maillefer E-Documentation. Ease in navigation, searching, and connecting to related information are possible within MED.

Interact with content

The application is web-enabled, screen responsive and multi-platform, which is fit for hand-held devices as well as desktop and laptop computers. We focused on having complete, accurate and user-friendly documentation available in a most convenient fashion. Users get to interact with the documentation in an “intelligent” manner. MED documents are text searchable and contain cross references, bookmarks and other navigational aids.



Tree structure pointing to a technical document

Two modes – one package

MED serves various user interests, such as installation and maintenance servicing, equipment operation, training staff, as well as for on-call visits. Customers receive an introduction to MED when participating in our education programs in order to use the tool to its fullest.

The package operates in two modes. A Documentation mode that covers all the technical descriptions and drawings related to the project, and a Spare Parts mode that offers access to individual parts for easy identification. Users can move between modes using the specific information at hand (e.g. a part found in a drawing shown can be directly added to the spare parts request.)

An easy reach to needed components

A customer installation is represented hierarchically in MED. Its tree structure provides a synopsis of supply with branches leading to individual components in the line. Each machine typically has four categories of documents associated with it: general information (instruction manuals); mechanical drawings; electrical schematics; and original documentation for various integrated parts and components coming from OEMs (e.g. motors, gear boxes, drives, etc.)

Requests for the right parts

The Spare Parts mode lets the client see all the spare parts identified by Maillefer for each machine. There is a distinction between recommended parts, safety parts and wear parts. The search tool is used to display the specified part on the corresponding engineering drawing. A parts table associated with the drawing allows you to collect items into a basket, from where you can directly e-mail Maillefer Services to request a quotation.



Basket containing selected parts ready for quote

When customers opt for MED to facilitate transmission of a parts request, Maillefer Services treats the request as a priority, meaning that the ordering process is shortened. Furthermore, the request process inherently assures that you order exactly the parts that you need.

An invitation towards efficiency

Turning to MED means experiencing the efficiency gains of quickly accessing the technical know-how and specifying the right parts for your Maillefer installation. With version 3.0 and its web-enabled access, it becomes easier than ever.

Master Your Potential

Upcoming Wire & Cable and Pipe & Tube Exhibitions

Date	Exhibition	Location	Type
2021			
June 8 th - 11 th	Wire Russia	Moscow	W&C
September 22 nd - 24 th	Wire Southeast Asia	Bangkok	W&C
October 5 th - 6 th	AMI Medical Tubing	Cologne	P&T
October 26 th - 27 th	Interwire	Atlanta	W&C
October 31 st - Nov 3 rd	IWCS	Orlando	W&C
December 6 th - 10 th	Irrigation Show	San Diego	P&T

Due to the COVID-19 pandemic, exhibition organizers may decide to postpone or cancel their event. Please refer to their respective websites for the most up-to-date information and check our events schedule at www.maillefer.net.

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