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EXTRUSION

ASIA EDITION

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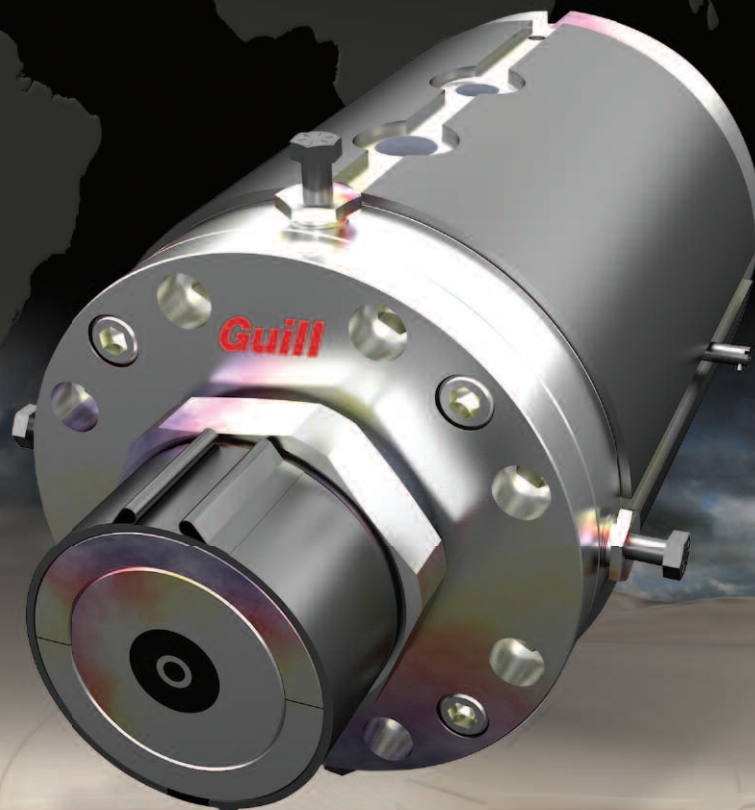
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VA Verlag GmbH Cologne/Germany



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**VM 出版社有限公司 / VM Verlag GmbH:**

Krummer Büchel 12, D-50676 Köln, Cologne, Germany

VM 出版社有限公司 / 编辑+出版**VM Verlag GmbH – Editorial Office + Layout:**

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第27出版年 – 出版次数：每年2期

27. Volume – Frequency: 2 issues a year

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30 高分子材料挤出是一个能源密集型的过 程。在过去的几十年里，许多努力都是为了提高SML挤出生产线的能源效率。
Polymer extrusion is an energy-intensive process. In the last decades, many efforts have been directed towards improving the energy efficiency of SML extrusion lines.



28 巴登费尔德-辛辛那提公司 (battenfeld-cincinnati) 和德国泰普公司(Templet Deutschland) 20多年来一直在制定复杂塑料-金属复合管的生产标准。
battenfeld-cincinnati and Templet Deutschland have been setting standards in the production of complex plastic-metal composite pipes for over 20 years.



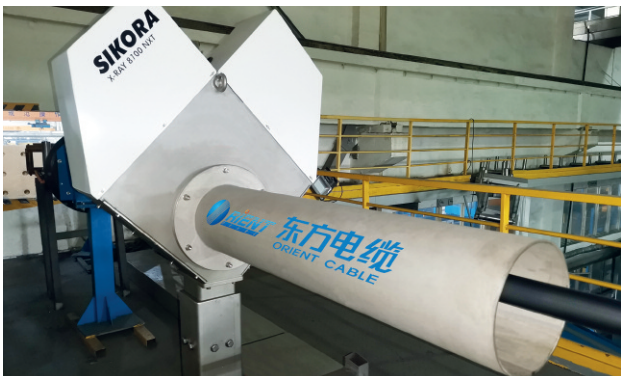
36 STOP项目及其合作伙伴成功地树立了重大里程碑，展示了一种扩展价格实惠的废料管理和回收解决方案的模式，以帮助应对印度尼西亚的塑料废料挑战。
Project STOP and its partners reached significant milestones in demonstrating a model for expanding affordable waste management and recycling solutions to help address the plastic waste challenge in Indonesia.



43 是什么影响了塑料薄膜的碳足迹？Brückner Maschinenbau 和 envistra 在一项研究中探讨了这一问题。
What influences the carbon footprint of a plastic film and where is the greatest potential for reduction? Brückner Maschinenbau and envistra investigated this question in a study.

SIKORA 的 X RAY 8000 产品系列为电缆生产中持续可靠的质量控制设定了标准。
44 *For continuous and reliable quality control in the production of cables, SIKORA's X RAY 8000 product family has set standards.*

PIXARGUS , ProfilControl 7 DX 木塑复合材料在线检测系统，确保在连续的在线检测过程中100%检查整个板材的轮廓。
The PIXARGUS inline system, ProfilControl 7 DX WoodPlasticComposites, ensures 100% inspection of the entire board profile in a continuous, inline process. **40**





Plastivision

07 - 11 December 2023

Mumbai / India

孟买 / 印度

➔ www.plastivision.org

Vinyl Sustainability Summit

04 - 06 December 2023

Austin, Texas / USA

奥斯汀, 得克萨斯州 / 美利坚合众国

➔ <https://vantagevinyl.com/>

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➔ www.plastivision.org

pacprocess MEA

12 - 14 December 2023

Cairo / Egypt

凯罗 / 埃及

➔ www.pacprocess-mea.com

ARABPLAST

13 - 15 December 2023

Dubai / United Arab Emirates

迪拜 / 阿联酋

➔ <https://arabplast.info/>

PLASTEX

09 - 12 January 2024

Cairo / Egypt

凯罗 / 埃及

➔ www.plastexegypt.com

ICE USA

09 - 11 January 2024

Orlando, Florida / USA

佛罗里达州, 奥兰多 / 美利坚合众国

➔ www.ice-x.com

CHINAPLAS 2024

23 - 26 April 2024

Shanghai / PR China

山海关 / 中国

➔ www.ChinaplasOnline.com

NPE2024

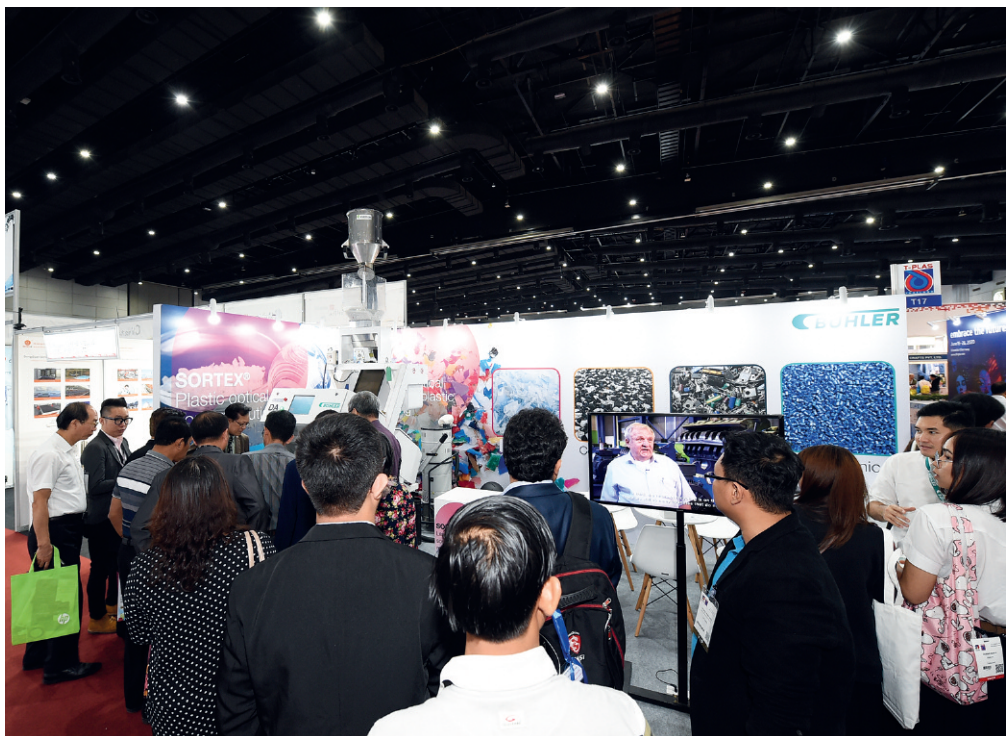
06 - 10 May 2024

Orlando, Florida / USA

佛罗里达州, 奥兰多 / 美利坚合众国

➔ <https://npe.org/>

加强合作



■ 杜塞尔多夫亚洲展览公司(Messe Düsseldorf Asia)和英富曼市场 (Informa Markets) 是该地区两家领先的国际展览组织者, 他们宣布了一项具有里程碑意义的合作伙伴关系, 将巩固他们在东南亚的塑料和橡胶贸易展览。

从2024年开始, 双方将共同组织塑料和橡胶系列展览, 并将于2024年5月15日至18日在曼谷国际贸易展览中心 (BITEC) 举行的泰国塑料和橡胶展拉开序幕。

杜塞尔多夫亚洲展览公司和英富曼市场对塑料和橡胶产品组合的战略调整将使他们各自在该地区的塑料和橡胶展览精简为三个主要活动。从2024年开始, 除了自2008年以来长期合作的越南塑料和橡胶展外, 合作伙伴还将共同组织泰国塑料和橡胶展以及印度尼西亚塑料和橡胶展。

为了利用双方合作伙伴的集体能力和专业知识, 为行业提供更好的业务体验, 杜塞尔多夫亚洲展览公司董事总经理Gernot Ringling表示:“我们与英富曼市场的联盟建立在该地区长期成功合作的基础上。从2024年开始, 通过整合塑料和橡胶贸易展览, 现在包括泰国和印度尼西亚, 我们准备在当地和国际上增强我们的客户体验, 为业务增长提供更大的价值, 特别是在行业可持续性和循环目标的背景下。这一最新举措扩大了我们的区域影响力, 并进一步简化了我们为有效服务东南亚市场所做的努力。继

我们与胡志明市和河内的越南塑料和橡胶公司、泰国塑料和橡胶公司以及印度尼西亚塑料和橡胶公司的成功合作之后, 我们正在为东南亚最具活力的市场中的国际企业提供绝对最好的本地和区域平台铺平道路。”这一协同效应将充分利用英富曼市场深厚的区域洞察力和联系, 以及杜塞尔多夫亚洲展览公司在塑料和橡胶领域广泛的全球专业知识和多部门能力, 包括他们与杜塞尔多夫亚洲展览公司举办的世界领先塑料贸易展览会K展的联系。

泰国、印度尼西亚和越南的塑料和橡胶工业在全球市场上发挥着关键作用。泰国已成为塑料和橡胶产品的主要制造商和出口国, 服务于中国、日本、印度和东盟地区等主要市场。同样, 印度尼西亚和越南是该领域的关键参与者, 为区域和全球供应链做出了重大贡献。

Cooperation Strengthened

■ Messe Düsseldorf Asia and Informa Markets, two of the region's leading international exhibition organisers, have announced a landmark partnership that will see the consolidation of their plastics and rubber trade exhibitions in Southeast Asia.

From 2024, the new alliance will see the two parties jointly organise the Plastics and Rubber series of exhibitions, kick starting with Plastics and Rubber Thailand which is scheduled to take place from 15 to 18 May 2024 at BITEC, Bangkok.

The strategic alignment of the plastics and rubber portfolio by Messe Düsseldorf Asia and Informa Markets will see them streamline their respective plastics and rubber exhibitions in the region into three anchor events. Starting in 2024, the partners will jointly organise Plastics and Rubber Thailand, and Plastics and Rubber Indonesia, in addition to Plastics and Rubber Vietnam which has been a long-established collaboration since 2008.


Aimed at harnessing collective capabilities and expertise of both partners to deliver an enhanced business experience for the industry, Gernot Ringling, Managing Director, Messe Düsseldorf Asia, said: "Our alliance with Informa Markets builds upon a long history of successful partnerships in the region. By consolidating the plastics and rubber trade exhibitions to now include Thailand and Indonesia starting in 2024, we are poised to enhance our customer experience both locally and internationally, delivering even greater value for business growth, especially against the backdrop of industry sustainability and circularity goals. This latest endeavour amplifies our regional presence and further streamlines both our efforts to serve the Southeast Asian markets effectively. Following in the successful footsteps of our joint partnership with Plastics and Rubber Vietnam in Ho Chi Minh City and Hanoi, with Plastics and Rubber Thailand and Plastics and Rubber Indonesia, we are paving the way for the absolute best local and regional platforms for international businesses in the most dynamic markets in Southeast Asia within the ever-evolving plastics and rubber landscape." The synergy will capitalise on Informa Markets' deep regional insights and connections, complemented by Messe Düsseldorf Asia's extensive global expertise in plastics and rubber and multi-sectorial competence, including their connection with K, the world's leading plastics trade fair organised by Messe Düsseldorf.

The plastics and rubber industries in Thailand, Indonesia, and Vietnam play pivotal roles in the global market. Thailand has emerged as a leading manufacturer and exporter of plastic and rubber products,




...serving key markets such as China, Japan, India, and the ASEAN region. Similarly, Indonesia and Vietnam are crucial players in this sector, contributing significantly to the regional and global supply chains.

- **Plastics and Rubber Thailand**
www.plasticsrubberthailand.com/
- **Messe Düsseldorf Asia**
www.mda.messe-duesseldorf.com
- **Informa Markets**
www.informamarkets.com

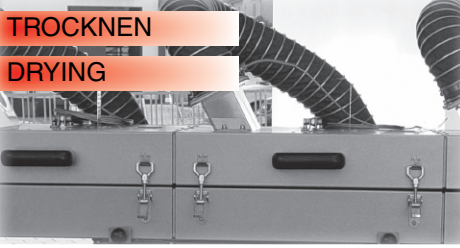


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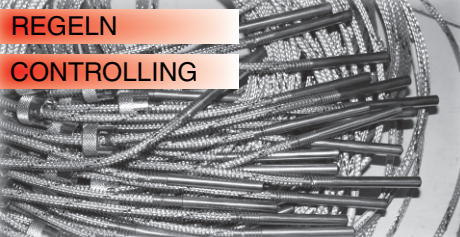
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30年追求卓越和创新

■ CPM公司庆祝瑞亚挤出成立30周年。庆祝活动于10月22日在中国南京的工厂举行。当天的活动包括特别嘉宾演讲、参观工厂和招待会。

CPM总经理查尔斯·斯皮尔林(Charles Spearing)说：“我们真的以瑞亚的历史和成就为荣，感谢我们的忠实客户，他们帮助我们取得了这一成就。”

瑞亚从1993年开始就为亚洲市场生产双螺杆挤出机。CPM于2007年收购了瑞亚，从那时起，这家美国拥有的品牌已经成为拥有尖端技术、工艺工程和全生命周期支持的完整挤出加工系统的全球供应商。

CPM工程材料副总裁肖恩·多兰(Sean Doran)表示：“瑞亚已经成长为行业领先的品牌。”我们在德国劳芬的实验室设施中有瑞亚设备。这使我们能够在客户的早期阶段为客户找到最佳的成本效益解决方案。”

瑞亚能满足客户从入门级到高端规格的各种需求。其挤出机包括RX/RXT和TSE系列，并因可靠性高，质量高和维护方便而得到普遍认可。

随着瑞亚进入行业的第三个十年，创新和可持续的解决方案将继续摆在优先位置。

30 Years of Innovation and Excellence

■ CPM celebrated the 30th anniversary of Ruiya Extrusion's founding. The celebration took place October 22 at the facility in Nanjing, China. The day included special guest speakers, a tour of the facility and a reception.

亚大厦 / Ruiya Building



车间 / Shop Floor

“We really want to honor Ruiya's history and success, and thank our loyal customers that have helped make this happen,” said CPM General Manager Charles Spearing.

Ruiya began in 1993 manufacturing twin screw extruders for the Asian market. CPM acquired Ruiya in 2007 and since then the American-owned brand has become a global provider of complete extrusion process systems with cutting-edge technology, process engineering and full lifecycle support.

“Ruiya has grown into a leading brand in the industry,” CPM Vice President of Engineered Materials Sean Doran said. “We have Ruiya equipment onsite at our lab facility in Lauffen, Germany. This allows us to find the optimal cost-benefit solution at an early stage for our customers.” Ruiya caters to a diverse range of needs, from entry-level to high-end specifications. Its extruders – including the RX/RXT and TSE series – are reliable and universally recognized for their high quality and low maintenance.

As Ruiya begins its third decade in the industry, innovations and sustainable solutions will continue to be at the forefront.

► CPM Holdings, Inc
OneCPM.com

polypPlant在中国的奠基仪式

■ 巴斯夫在其位于中国湛江的联合基地的聚乙烯(PE)工厂破土动工。新工厂的年产能为50万吨聚乙烯，将满足中国快速增长的需求。该工厂计划于2025年投产。

巴斯夫亚太区石化业务高级副总裁Bir Darbar Mehta表示：“中国对聚乙烯的需求经历了快速增长，并将超过世界其他地区。”“随着奠基仪式的举行，巴斯夫将通过其位于湛江的完全一体化生产基地的具有竞争力的生产足迹进入中国PE市场，以满足我们在消费品、包装、建筑和运输行业的客户。”

巴斯夫亚太区石化事业部基础业务管理和中国销售管理副总裁Bejoy Chandran表示：“湛江一体化生产基地地理位置优越，靠近我们的客户，全面整合，为他们提供高质量和可靠的PE产品，用于广泛的耐用应用，包括管道，特种薄膜和吹塑件，用于家用和工业化学品容器，特别是在华南市场。”

聚乙烯是一种由乙烯制成的质轻而多功能的热塑性聚合物。它被广泛应用于从重型储罐和管道到软包装以及薄膜行业。

Groundbreaking Ceremony for PolyPplant in China

■ BASF has broken ground on a polyethylene (PE) plant at its Verbund site in Zhanjiang, China. The new plant with a capacity of 500,000 metric tons of PE annually will serve the fast-growing demand in China. The plant is scheduled to start up in 2025.

"China's demand for PE has experienced rapid growth and is going to outpace the rest of the world," said Bir Darbar Mehta, Senior Vice President of Petrochemicals

Asia Pacific at BASF. "With the groundbreaking ceremony, BASF will enter the PE market in China via a competitive production footprint in its fully integrated production site in Zhanjiang, catering to our customers in the consumer goods, packaging, construction and transportation industries."

"Strategically located close to our customers, the Zhanjiang Verbund site is fully backward integrated to provide them with high quality and reliable PE products for a wide range of durable applications, including pipes, specialty films and blow

molded parts for household and industrial chemical containers, especially in the South China market," said Bejoy Chandran, Vice President of Basic Business Management & China Sales Management, Petrochemicals Asia Pacific at BASF.

Polyethylene is a light, versatile thermoplastic polymer produced from ethylene. It is used in a wide range of applications from heavy-duty storage tanks and pipelines to flexible packaging and films.

➔ **BASF**
www.basf.com
www.petrochemikalien.basf.com

Zumbach

SWISS PRIME MEASURING SINCE 1957



min

2

Min. object diameter (mm)

max

100

Max. object diameter (mm)



up to 20

Scan rate (scans/s)

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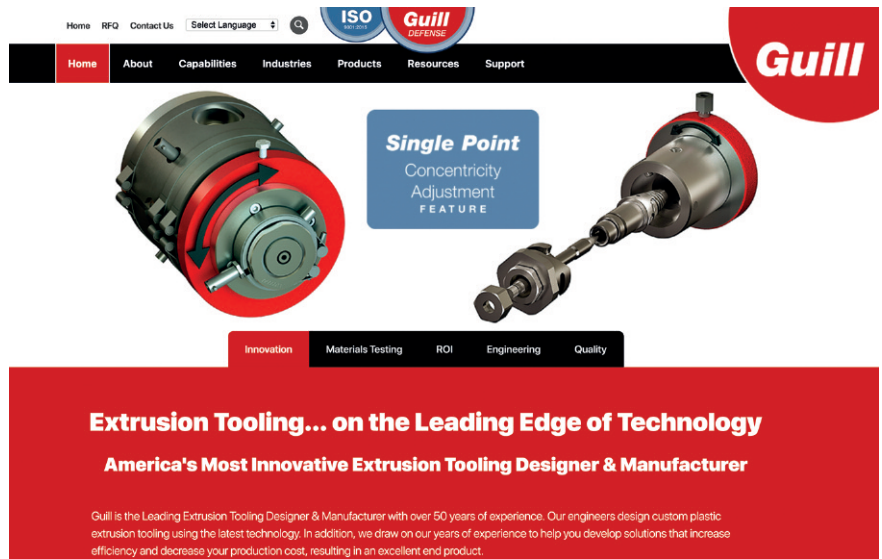
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推出新设计的，信息丰富的网站

■ 吉尔工具与工程公司刚刚推出了一个新网站。新网站详细介绍了公司的整个产品线，提供了广泛的标准和定制设计的挤出工具，包括十字模头、同轴模头、旋转模头以及挤出机模芯和模头。该网站包括所有产品和规格的完整清单，以及计算工具，以计算冗长的同心圆调整和十字模头更换分析的年度成本，以及计算压降、每分钟英尺和每小时磅的计算器。该网站包括带有详细数据的图表和表格，以及按行业组织的可下载文献的完整资料库。Guill在全球范围内销售其产品，目前正在选定国家寻找新的代表。

Guill网站对手机是友好的，并提供方便，允许用户在线请求报价。

这个新网站已经获得了美国平面设计协会颁发的2018年美国网页设计奖。



Newly Designed, Information-packed Website Released

■ Guill Tool & Engineering just rolled out a new website. The new site offers a detailed look at the company's entire product line, which offers a wide-range of standard and custom designed extrusion tooling, including crossheads, in-line heads, rotary heads and extrusion tips & dies.

The site includes a full listing of all product and specifications with calculation tools to compute annual cost of lengthy concentricity adjustments and crosshead replacement analysis, plus calculators to compute draw-down, feet per minute and pounds per hour. The website includes charts and tables with detailed data and a full library of downloadable literature organized by industry. Guill markets its equipment worldwide and is currently

seeking new representatives in select countries.

The Guill website is mobile phone friendly and offers the convenience of allowing users to request a quote online.

The new website has already been awarded the 2018 American Web Design Award from Graphic Design USA.

➡ **Guill Tool & Engineering**
www.guill.com

宣布新加坡分公司开业

■ Conventus Polymers是一家领先的高性能工程热塑性塑料分销商，在新加坡成立了一家子公司Conventus Polymers Singapore Pte. Ltd.，该公司将为整个东南亚的加工商和最终用户提供公司广泛的产品组合。向新加坡的扩张是该公司在关键地理区域发展的整体业务战略的一部分。

成立法人实体加强了公司在东南亚市场的地位，并使公司能够提供世界级的本地服务和支持。向当地客户(塑料加工商)和目前支持的美国原始设备制造商提供服务。新加坡是东南亚的主要商业中心，业务范围包括马来西亚、越南、泰国、菲律宾和印度尼西亚。

Conventus Polymers总裁 John Jorgensen表示：“我们的业务增长迅速，凭借我们广泛的特种工程塑料产品组合，我们坚定地定位为战略供应商。”“此次进入新加坡的重要举措标志着我们对当地企业以及主要跨国原始设备制造商的进一步承诺。”

Conventus选择新加坡是基于几个因素，包括地理位置、做生意的便利性和税法。Jorgensen表示，许多美国的原始设备制造商正在重新评估与供应链相关的风险，导致越南、马来西亚和泰国的模塑量增加。虽然该地区显示出强劲的有机增长，但它一直是中美地缘政治紧张局势的主要受益者之一。Jorgensen说，以前在中国完成的大量模塑已经转移到东南亚等地，比如回流到美国，或者近岸到墨西哥或哥斯达黎加。

Jorgensen说，新加坡的计划将把Conventus的触角扩展到现有的战略市场，如电气/电子、建筑和建造、水管理、消费品、能源和医疗保健。凭借在新加坡的合法经营实体，Conventus可以为其国际客户提供进出口能力，当地库存和仓储，当地货币交易和完税交货(国际贸易术语通则DDP)。Conventus将负责所有出口、进口、保险、清关、关税费用以及从港口到仓库到客户的运费。

为了服务新加坡市场，Conventus将建立一个仓库，以支持其东南亚客户。新加坡业务目前由中国区总经理哈利·施(Harley Shi)管理。

Conventus在新加坡销售同样的全球产品组合，包括特种尼龙、聚砜、热塑性硫化橡胶(TPVs)和定制化化合物。

Opening of Singapore Subsidiary Announced

■ Conventus Polymers, a leading distributor of high-performance engineering thermoplastics, has established a subsidiary in Singapore, Conventus Polymers Singapore Pte. Ltd., which will offer the company's broad portfolio of products to processors and end users throughout Southeast Asia. The expansion into Singapore is part of the company's overall business strategy to grow into key geographic regions.

Establishing a legal entity strengthens its position in the Southeast Asian market and allows the company to offer world-class local service and support to both local customers (plastic converters) and U.S.-based OEMs that it currently supports. Singapore is the main business hub for Southeast Asia, which includes Malaysia, Vietnam, Thailand, Philippines, and Indonesia.

"Our business is growing quickly and with our extensive product portfolio of

specialty engineering plastics, we are firmly positioned as a strategic supplier," said John Jorgensen, president of Conventus Polymers. "This important move into Singapore signals our further commitment to local players along with key multinational OEMs."

Conventus chose Singapore based on several factors including geographic location, ease of doing business, and tax laws. Jorgensen said many U.S.-based OEMs are re-assessing risks associated with supply chains, resulting in an increase in molding done in Vietnam, Malaysia, and Thailand. While the region was showing strong organic growth, it has been one of the main beneficiaries of the geopolitical tension between the U.S. and China. Considerable molding previously done in China has moved to Southeast Asia among other places like reshoring to the United States or near-shoring to Mexico or Costa Rica, said Jorgensen.

The Singapore initiative will expand Conventus' reach into existing strategic markets such as electrical/electronics, building

and construction, water management, consumer goods, energy, and healthcare, according to Jorgensen. With a legal operating entity in Singapore, Conventus can offer its international customers import and export capabilities, local inventory and warehousing, local currency transactions, and Delivered Duty Paid (DDP) Incoterms. Conventus will handle all exporting, importing, insurance, customs clearance, duty costs, and freight from port to warehouse to the customer.

To service the Singapore market, Conventus will establish a warehouse location which will support its Southeast Asian customers. The Singapore operation is currently being managed by China General Manager Harley Shi.

Conventus is selling the same global portfolio of products in Singapore including specialty nylons, polysulfones, thermoplastic vulcanizates (TPVs), and custom compounds.

► **Conventus Polymers LLC**
Conventus Polymers Singapore Pte. Ltd.
www.conventuspolymers.com

管道专家在泰国水博览会

■ 2023泰国水博览会于8月30日至9月1日在曼谷诗丽吉王后国家会议中心(QSNCC)举行，molecular (SEA) Sdn bhd将展示最广泛的PVC-O解决方案，用于创建水管网络。TOM®管道的新直径，ecoFITTOM®PVC-O配件系列，geoTOM®应用程序对管网进行地理定位等等。

泰国水博览会是该国供水和卫生管理部门的参考活动。这是一个独特的机会，可以发现正在改变配水行业的最新创新，并帮助实现更可持续和更高效的未来。

在此次展会上，molecular展示的众多产品包括：

最大范围的PVC-O管材(TOM®)是唯一的拉伸管材，公称直径从90到1200毫米，ecoFITTOM®是第一个完全由拉伸PVC生产的管件，将材料的优势应用于供水管网的更多部分。

此外，geoTOM®是一款以简单直观的方式对水管工程进行数字化和地理

定位的应用程序，也在展会上进行了演示。该软件独家开发的分子允许用户快速获取所有Molecor的每个部件的技术信息，并输入任何其他部件的数据，无论制造商和产品材料，有效地管理网络。它还允许用户添加评论、照片、管理事件等等。

Pipe Specialist at Thai Water Expo

■ Thai Water Expo 2023 took place from the 30th of August to the 1st of September at the Queen Sirikit National Convention Center (QSNCC) in Bangkok and Molecor (SEA) Sdn Bhd will presented the widest range of PVC-O solutions for the creation of water piping networks. New diameters for TOM®pipes, the ecoFIT-TOM®range of PVC-O fittings, the geoTOM®application to geolocate pipe networks and much more.

Thai Water Expo is the reference event for the water supply and sanitation management sector in the country. A unique opportunity to discover the latest inno-

vations that are changing the water distribution sector and helping to achieve a more sustainable and efficient future.

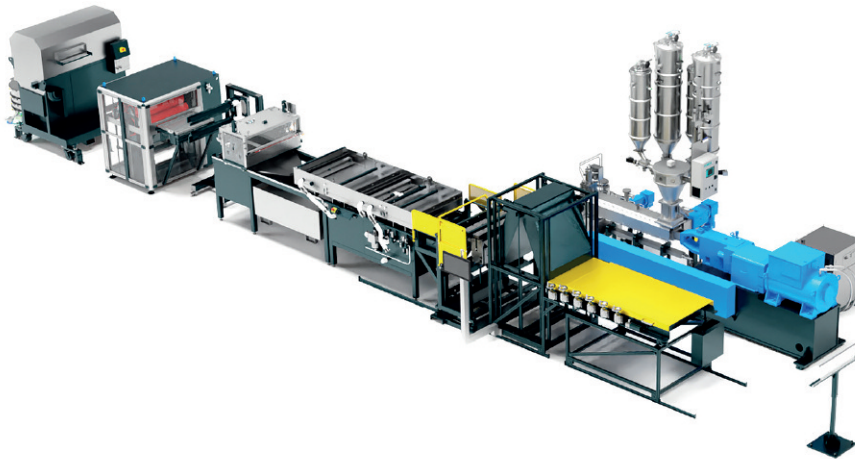
Among the wide range of products that Molecor showcased at the show:

The largest range of PVC-O pipes (TOM®) the only oriented pipes manufactured in nominal diameters from 90 to 1200 mm and ecoFITTOM®, the first fittings produced entirely from oriented PVC to apply the advantages of the material to more parts of the water pipe network.

In addition, geoTOM®, an application for digitalizing and geopositioning water piping projects in a simple and intuitive way, was available for demonstration at the fair. The software developed exclusively by Molecor allows users to quickly obtain all the technical information of each of Molecor's parts and enter the data of any other part, regardless of the manufacturer and product material, to manage networks efficiently.

► **Molecor**
www.molecorsea.com

投资于前景看好的业务领域



长纤维增强热塑性塑料 (LFT) 拉挤成型机

LFT pultrusion machine



LFT-Pultrusion



■ Bekum Maschinenfabriken于2023年4月1日接管了普勒特高分子技术有限公司 (ProTec Polymer Processing GmbH) 的拉挤成型部门。通过这种多元化, Bekum正在投资于一个充满希望的纤维增强塑料未来市场, 并为进一步增长奠定了基础。位于德国本斯海姆 (Bensheim) 的Bekum 服务有限公司是为新的业务部门而成立的, 该部门可以接管此前普勒特的技术总经理以及普勒特公司在破产时设计、销售和服务领域经验丰富的优秀员工。新拉挤生产线的组装在Bekum位于奥地利Traismauer的工厂进行。Bekum Maschinenfabriken还收购了普勒特高分子技术 (上海) 有限公司, 后者近年来已经能够成功地向中国市场销售了长纤维增强热塑性塑料 (LFT) 系统。上海工厂将继续并进一步扩大在中国和亚洲国家的销售和当地服务。

拉挤成型, 也被称为股拉伸, 是一种高效地生产颗粒状长纤维增强热塑性塑料的工艺, 在汽车和电动汽车领域的轻质部件制造中有着令人振奋的应用。Bekum可提供全套8股LFT实验室生产线, 32股LFT生产线和64股LFT生产线。

除了LFT新机器业务外, Bekum还将继续为市场上现有的生产线提供维护和维修、备件、安装和调试服务。

未来, Bekum还将开发用于UD胶带 (单向胶带) 和连续纤维增强热塑性塑料型材领域的LFT生产线。

Investment in Promising Business Area

■ Bekum Maschinenfabriken has taken over the pultrusion division of ProTec Polymer Processing GmbH (ProTec) on 1 April 2023. With this diversification, Bekum is investing in a promising future market for fibre-reinforced plastics and setting the course for further growth. Bekum Services GmbH, located in Bensheim, was founded for the new business division, which was able to take over both the previous technical managing director of ProTec as well as experienced and leading employees from the areas of design, sales and service from ProTec, which was in insolvency. The assembly of new pultrusion lines is integrated at Bekum's site in Traismauer, Austria. Bekum Maschinenfabriken is also acquiring ProTec Polymer Processing Shanghai, which has already been able to successfully sell LFT systems to the Chinese market in recent years. The Shanghai site will continue and further expand sales and local service in China and Asian countries.

Pultrusion, also known as strand drawing, is a highly efficient process for the production of long-fibre-reinforced thermoplastics in granulate form, among other things, which has exciting applications in the manufacture of lightweight components in the automotive and electromo-

bility sectors. Bekum offers complete production lines in the sizes 8-strand LFT lab line, 32-strand LFT production line and 64-strand LFT production line.

In addition to the LFT new machine business, Bekum will also continue the service business for the existing lines in the market with maintenance & repair, spare parts, installation and commissioning worldwide.

In the future, Bekum will also develop the LFT lines for applications in the areas of UD tapes and continuous-fibre reinforced.

► Bekum Maschinenfabriken GmbH
www.bekum.com, o.theobald@bekum.com

塑料回收的新基准

■ 同一个愿景 - 同一个目标 - 同一家公司。未来在于塑料再生, 埃瑞玛集团和林德纳控股的所有者同意这一点。双方共同成立的控股公司BLUEONE Solutions旨在利用两家公司的专业知识, 共同开展研究项目, 以制定塑料再生的行业标准。

从废物到再生颗粒, 潜在的新原料要经过几个不同的再生过程。这些工艺

的范围从分类、粉碎、洗涤和干燥到挤压，包括过滤、复合和气味优化。该行业面临的挑战恰恰在于对这些单独的再生步骤进行微调，特别是要实现能源效率和高回收质量的时候。BLUEONE Solutions公司的成立就是一个起点，该公司由埃瑞玛集团和林德纳控股持有50:50的股份，林德纳 Washtech的股份也被贡献给了BLUEONE Solutions公司。林德纳 Washtech的专业知识和经验将与挤出机制造商埃瑞玛相结合。他们的目标是通过调整和优化流程以及开展联合研究项目，大幅提高附加值，并制定行业标准。自从两家公司的经验证明了这一点以来，在所有熟悉的新领域开辟了新的道路：埃瑞玛集团在塑料回收领域活跃了40年，被认为是挤出市场的领导者。在过去的75年里，林德纳是一家为废物管理行业提供粉碎机和回收设施的优质制造商，在过去的10年里，林德纳 Washtech品牌作为洗涤设施专家在全球范围内建立了业务。联合研究项目使两家公司在几年前就进行了密切的技术交流。

很长一段时间以来，这两家公司一直团结在一起，共同的愿景是专业地推动塑料再生。塑料再生市场日益严峻的挑战最终促成了BLUEONE Solutions的成立。创立BLUEONE Solutions明确将重点放在塑料再生的进一步发展上。在未来，知识和新研究项目的交流不仅可以发挥协同作用，而且最重要的是，它将优化整个周期。

New Benchmark in Plastics Recycling

■ One Vision – One Goal – One Company. The future is plastics recycling, the

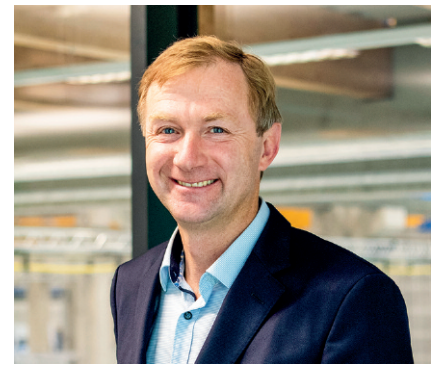


埃瑞玛集团首席执行官曼弗雷德·哈克：“一个正常运转的再生行业需要关注从废物收集和处理到再生再到最终塑料制品的整个过程和价值链。”
(版权所有：埃瑞玛集团)

Manfred Hackl, CEO of EREMA Group: "A functioning recycling industry demands a focus on the entire process and value chain from waste collection and processing to recycling and the final plastic product."
(Copyright: Erema Group)

林德纳董事总经理迈克尔·拉克纳：“随着两家公司的合并，我们希望彻底改变塑料再生，最重要的是，在质量、数量和效率方面树立新的标准。”
(版权所有：林德纳 Recyclingtech)

Michael Lackner, Managing Director of Lindner: "With the merging of the companies, we want to revolutionize plastics recycling and, above all, set new standards in terms of quality, quantity and efficiency."
(Copyright: Lindner Recyclingtech)



owners of Erema Group and Lindner Holding agree. The jointly founded holding company BLUEONE Solutions aims to leverage both companies' expertise and jointly execute research projects to create industry standards in plastics recycling.

From waste to recycled granulate, potential new raw materials pass through several different recycling processes. These range from sorting, shredding, washing, and drying to extrusion, including filtration, compounding, and odour optimisation. The challenge for the industry lies precisely in fine tuning these individual recycling steps – in particular when energy efficiency and high recycle qualities are to be achieved. The founding of BLUEONE Solutions, a company which is owned 50:50 by the Erema Group and Lindner Holding and to which shares of Lindner Washtech were contributed, is that very starting point. The know-how and experience of Lindner Washtech will be combined with that of the extruder manufacturer Erema. They aim to significantly increase the added value and set

industry standards by adjusting and optimising processes and conducting joint research projects. New paths on all too new familiar terrain since the experience of the two companies speaks for itself: the Erema Group has been active in plastics recycling for 40 years and is considered the extrusion market leader. Lindner, a quality manufacturer of shredders and recycling facilities for the waste management industry for the past 75 years, has established a world-wide presence with the Lindner Washtech brand as a washing facilities specialist in the past 10 years. Joint research projects allowed the companies to enter into a close technical exchange years ago.

For a long time now, the two companies have been united by their common vision of expertly driving forward plastics recycling. The ever-increasing challenges in the plastics recycling market ultimately led to the founding of BLUEONE Solutions. Founding BLUEONE Solutions clearly puts the focus on the further development of plastics recycling. In the future, the exchange of knowledge and new research projects will not only enable synergies to be exploited, but above all, it will optimise the overall cycle.

► Lindner (林德纳)
www.lindner.com

► EREMA Group (埃瑞玛集团)
www.erima-group.com

进一步扩大在中国的业务范围

■ 马格集团进一步扩大在华业务规模，为在中国市场的后续发展奠定坚实基础。当前战略重点是进一步扩大产能，并针对中国市场需求推出新系统。

国际知名企业马格集团总部位于瑞士上格拉特。自 2022 年以来，该集团不断强化其在中国的本土化战略，目前有 103 名员工在中国就职。最近，其上海嘉定区生产基地的装配区域面积增加了一倍。

马格集团总裁（主席）宇利·图立希 (Ueli Thuerig) 解释说：“通过这次扩张，马格集团为进一步扩大其在中国的本土化业务活动做好了准备。“中国制造，为中国服务”是我们公司近年来重点关注的关键战略之一；在我们上海工厂组装的设备有 90% 以上进入了中国市场。”

目前，马格集团在中国生产 GA 系列挤压泵、BAOLI 造粒机和 ZHULI 水下造粒机。现在，我们还为成熟可靠的 M-USG 水下拉条造粒系统推出了经过针对性调整的版本，命名为 C-USG，从而扩大了针对特定市场需求的产品组合。该系统依然以最初的德国设计为基础。一些关键部件将由德国工厂提供，其余部件则在本地生产。首批 C-USG 系统将于 2023 年底交付给客户。

此外，我们还将利用新增的厂房空间设立一处新的 Maag/Ettlinger 回收过滤器服务中心，以便更加快捷地服务当地客户、更好地应对亚洲区域连续熔体过滤器数量的进一步增加。

马格集团在上海嘉定生产基地的员工

*MAAG Group employees
in Jiading/Shanghai, China*



马格集团位于上海嘉定区的生产车间

Presence in China Expanded

■ The MAAG Group is further expanding its presence in China creating the prerequisites for continued growth in the People's Republic. Particular focus is being placed on creating incremental production capacity and on the introduction of new products specifically for the Chinese market.

The internationally operating MAAG Group, headquartered in Oberglatt, Switzerland, has been stepping up its localization strategy in China since 2022 and currently has 103 employees. One recent example: the assembly shop at the site in Jiading, a district of Shanghai, has recently doubled in size.

"With this expansion, MAAG is now well positioned for the further expansion of its

*MAAG Group production shop
in Jiading/Shanghai, China*

localization activities in China," explains Ueli Thürig, President of the MAAG Group. "'Made in China for China' is one of the key strategies our company has been focusing on in recent years; more than 90 percent of the equipment assembled in our Shanghai plant is intended for the Chinese market."

MAAG has already been producing GA series extrusion pumps, BAOLI strand pelletizers, and ZHULI underwater pelletizers in China. A similarly adapted version of the proven M-USG underwater strand pelletizing system will now expand the market-specific portfolio as the C-USG. The original German design will form the basis for this new version. While some key components will be supplied from Germany, the majority of parts will come from local production. The first C-USG systems will be delivered to customers at the end of 2023.

In addition, the added space will accommodate a new service center for the Maag/Ettlinger recycling filter to enable MAAG to serve local customers more quickly. MAAG is responding to the increased number of continuous melt filters installed across Asia.

► MAAG Group
www.maag.com

中国过氧化氢大型工厂的技术许可

■ 全球领先的特种化工品供应商索尔维与广西华谊氯碱化工有限公司[1]（以下简称“广西氯碱”）正式签订许可协议。凭借索尔维授予的技术许可，广西氯碱将在广西壮族自治区钦州市建设并运营一家过氧化氢大型工厂，用于支持其年产30万吨的环氧丙烷 (PO) 生产项目与其他现场装置。

根据协议约定，索尔维将为广西氯碱提供其专有的过氧化氢超大规模高生产率工艺技术，包括专用的一整套工艺设计方案、操作技术指导 and 一系列配套服务，从而确保这家全新的大型生产工厂实现流程的全面优化与运行的安全可靠。此外，索尔维还将为广西氯碱提供专有的 2-戊基蒽醌 (AQ)。在索尔维双氧水大型工厂技术的化工工艺中，这项关键化学品有助于提升生产效率、改进环保性能。

此外，协议还进一步商定，索尔维将在这家大型工厂投产后进行过氧化氢承购。这一举措将进一步推动索尔维过氧化氢业务在中国——尤其是在华南地区的战略发展。

“我们非常高兴广西氯碱在钦州的这个重要大型工厂项目中，选择采用索尔维领先的过氧化氢技术。”索尔维过氧化物全球事业部总裁 Peter Browning 表示。“我们的整套工艺设计方案基于50多年的行业经验，是一项高效、高可靠性、高性价比的解决方案，能够助力客户满足多种市场需求。”

“我们深感荣幸能够与索尔维在这项重要的大型项目中开展合作。未来，这家全新的过氧化氢大型工厂将以更低能耗、更少排放的形式进行运作。除了已经实践验证的安全性、可靠性和成本竞争力，索尔维的高产率过氧化氢技术具有的可持续性优势，也有助于我们在钦州基地部署该技术。”上海氯碱化工股份有限公司总经理张伟民评论道。

环氧丙烷是一种多功能化学中间体，适用于多个工业和商业细分市场中的各种材料，包括聚氨酯、丙二醇醚和丙氧基化有机特种化合物。

[1] 广西华谊氯碱化工有限公司（“广西氯碱”）是上海华谊控股集团与上海氯碱化工股份有限公司成立的合资企业。

Technology License for Hydrogen Peroxide Mega-Plant in China

■ Solvay has signed a license agreement with Guangxi Chlor-Alkali Chemical



索尔维为中国过氧化氢大型工厂提供技术许可 (图片来源: Solvay)

Solvay to supply technology license for hydrogen peroxide mega-plant in China (Photo: Solvay)

(GHCAC)¹ which will enable the Chinese partner to build and operate a hydrogen peroxide megaplant at Qinzhou (Guangxi Zhuang Autonomous Region) designed to support its 300 kilotons propylene oxide (PO) production and other units on site.

Under this license, Solvay will provide its proprietary hydrogen peroxide megascale, high productivity process technology to GHCAC, including a dedicated process design package, operating expertise and a range of services to ensure the optimized and reliable production of the new megaplant. In addition, the company will also supply GHCAC with proprietary 2-amylnthraquinone (AQ), the key chemical contributing to the high productivity and environmentally-friendly chemical processes of Solvay's megaplant technology.

It has been further agreed that Solvay will have a hydrogen peroxide offtake after the megaplant starts up. This will support the strategic growth of Solvay's hydrogen peroxide business in China, in particular in the southern area.

"We are very pleased that GHCAC has chosen our advanced hydrogen peroxide technology for this important megaplant project in Qinzhou," says Peter Browning, President of Solvay's Peroxides global business unit. "This will allow the customer to meet market needs with a process

design package backed by more than 50 years of experience, which provides an energy efficient and cost competitive solution with an excellent safety track record."

Weimin Zhang, General Manager of Shanghai Chlor-Alkali Chemical, commented: "We are honored to work with Solvay in this ambitious venture, which will enable us to run the new hydrogen peroxide megaplant at lower energy consumption and less CO₂ emissions than competitors. Next to the proven safety, reliability and cost effectiveness of Solvay's high-productivity hydrogen peroxide technology, its sustainability benefits were instrumental to deploying it at our Qinzhou site."

The propylene oxide is a versatile chemical intermediate for a wide range of materials in many industrial and commercial market segments, including polyurethanes, propylene glycol ethers and propoxylated organic specialty compounds.

¹ Guangxi Chlor-Alkali Chemical Co., Ltd. is a joint venture between Shanghai Chlor-Alkali Chemical Co., Ltd. and their parent corporation, Shanghai Huayi Group Co., Ltd.

国家塑料行动联盟(NPAP)的塑料会谈

■ 陶朗 (TOMRA) 被邀请参加在越南河内举行的国家塑料行动联盟(NPAP)会谈。该公司首席执行官兼总裁Tove Andersen与行业代表一起,参加了联合国全球塑料条约的专家咨询组讨论。

每年有数百万吨塑料从回收系统中缺失。越南也不例外。根据国际金融公司(IFC)和世界银行的一份新报告,由于缺乏废物管理基础设施,东南亚国家每年浪费价值近30亿美元的可回收塑料。在越南生产的390万吨PET和聚烯烃(PO)中,只有33%被回收利用。随着全球变暖日益明显,塑料生产和污染迅速增加,越南将采取行动应对塑料污染,减缓气候变化。该国制定了雄心勃勃的目标,包括到2025年将流入海洋的塑料垃圾减少50%,引入扩大生产者责任(EPR)的政策,并使非正规的废料管理部门正规化。为了响应越南对这一事业的承诺,越南被邀请成为高目标联盟(HAC)的成员,以支持《巴黎协定》的实现。

为了实现该国的雄心壮志,并与行业专家一起审查《联合国全球塑料条约》,国家塑料行动联盟与联合国开发计划署(UNDP)共同呼吁于8月28日在越南河内举行国家塑料行动联盟会谈。国家塑料行动联盟是一个平台,汇集各国政府和其他重要利益关联方,针对塑料废料和污染采取行动。这个联合行动被认为是越南在对抗塑料污染方面采取的措施之一。该会议由联合国开发计划署和国家联合行动联盟主办,探讨了“企业如何为《全球塑料条约》做出贡献”。

陶朗是《全球塑料条约》商业联盟的创始成员之一,也是该行业的有影响力的领导者,已被邀请参加塑料会谈,分享其对该条约的观点、专业知识和建议。在国家塑料行动联盟 (NPAP) 会谈期间,陶朗亚洲公共事务副总裁Annupa Ahi发表了题为“亚洲和越南企业在联合国《全球塑料条约》中的作用”的演讲。此外,陶朗首席执行官Tove Andersen与艾伦·麦克阿瑟基金会、挪威大使馆、自然资源和环境部(MONRE)、陶朗和越南塑料协会的代表一起参加了最后的小组讨论。

越南正在采取的解决塑料污染的部分行动包括在2024年引入企业资源计划(EPR),以及减少温室气体排放以实现净零目标。越南是东南亚第一个在2022年实施EPR计划的国家。安德森特别强调了陶朗如何在条约谈判和企业方面为越南提供支持,并指出陶朗与挪威大使馆、商业联盟和自然资源与环境部NPAP的密切合作,加上其先进的收集和废物分类技术,将使越南释放机会,



国家塑料行动联盟塑料讲座的参加者

Participants of NPAP Plastic Talks

收集可回收物,并将其分类和回收为高质量的二次材料。

在参加了陶朗在中国厦门的新办事处开幕式,并成功参加了在河内举行的国家塑料行动联盟会谈之后,Tove Andersen会见了自然资源和环境部部长。双方强调,陶朗将继续与挪威大使馆合作,支持越南实施环境责任体系,帮助越南向循环经济转型,实现越南在联合国气候变化缔约方会议(COP26)上承诺的净零目标。

National Plastic Action Partnership (NPAP) Plastic Talks

■ TOMRA was invited to the National Plastic Action Partnership (NPAP) Plastic Talks in Ha Noi, Vietnam. The company's CEO and President, Tove Andersen, took part in a panel discussion with industry representatives to discuss the UN's Global Plastic Treaty.

Millions of tons of plastic exit the recycling system every year. Vietnam is no exception. According to a new report by the International Finance Corporation (IFC) and World Bank, the country in Southeast Asia wastes nearly 3 billion U.S. dollars' worth of recyclable plastics annually due to the lack of waste management infrastructure. Of the 3.9 million tons of PET and polyolefins (PO) produced in Vietnam, only 33% are collected for recycling. With global warming becoming more evident and plastic production and pollution increasing at a rapid pace, Vietnam is set to take action against plastic pollution and mitigate climate change. The country set ambitious targets, including a 50% reduction of plastic litter leakage into the ocean by 2025, the

introduction of Extended Producer Responsibility (EPR) policies and formalizing the informal waste sector. In response to Vietnam's commitment to the cause, it has been invited to become a member of the High Ambition Coalition (HAC) to support the realization of the Paris Agreement.

To reach the country's ambitions and examine the UN Global Plastic Treaty with industry experts, the National Plastic Action Partnership (NPAP), together with the United Nations Development Program (UNDP), called for the NPAP Plastic Talk on August 28, in Ha Noi, Vietnam. The NPAP is a platform that brings together governments and other important stakeholders to act on plastic waste and pollution. The hybrid event is considered one of the measures Vietnam is taking to move forward in its fight against plastic pollution. Hosted by the UNDP and NPAP, the conference explored "How can business contribute to a Global Plastics Treaty."

TOMRA, one of the founding members of the Business Coalition for the Global Plastic Treaty and an impact leader in the industry, has been invited to join the plastic talks to share its point of view on the treaty, its expertise, and recommendations. During NPAP, Annupa Ahi, Vice President of Public Affairs at TOMRA Asia, held a presentation on "The role of Asian and Vietnamese Enterprises in the UN Plastic Treaty." Additionally, TOMRA CEO Tove Andersen joined the concluding panel discussion with representatives from the Ellen MacArthur Foundation, the Norwegian Embassy, the Ministry of Natural Resources and Environment (MONRE), TOMRA, and the Viet Nam

Plastics Association.

Part of the actions Vietnam is taking to tackle plastic pollution include the introduction of an EPR scheme in 2024 and the reduction of greenhouse gas emissions to reach its net zero goals. Vietnam was the first country in Southeast Asia to enact an EPR scheme in 2022. Andersen paid particular attention to how TOMRA supports Vietnam in negotiating the treaty and businesses, pointing out that TOMRA's close collaborations with the

Norwegian Embassy, the Business Coalition, and the NPAP, combined with its advanced technologies for collection and waste sorting, will enable Vietnam to unleash opportunities, collect recyclables, and sort and recycle them into high-quality secondary materials.

After joining the new office opening of TOMRA in Xiamen, China, and the successful participation at the National Plastic Action Partnership (NPAP) Plastic Talks in Ha Noi, Tove Andersen met the

Minister of MONRE. It has been emphasized that TOMRA will continue to collaborate with the Norwegian Embassy to support Vietnam in implementing the EPR system, to help in its transition to a circular economy, and to achieve the NetZero goals Vietnam committed at the UN Climate Change Conference of the Parties (COP26).

➔ **TOMRA Sorting GmbH**
tomra.com

薄膜和胶带解决方案

■ 随着2023国际全触与显示展，全球著名的显示和触摸屏产品展览会进入日程：10月11日至13日的三天里，创新材料和技术一直是深圳世界会展中心专家们关注的焦点。Mahlo在展台上向他们展示了借助质量测量改进生产工艺的解决方案。

有了，德国Mahlo中国区首席代表费维强(Frank Fei)先生向业内推荐Qualiscan QMS质量管理体系，可以帮助每个显示器和触摸屏薄膜制造商持续改进产品制造工艺和质量。这是因为扫描式质量测控系统，在线测量、记录并自动调节卷材的重要参数，如定量、厚度或涂布量。通过测量被测层参数的波动，快速纠正目标偏差。这不仅能提高产品质量，而且减少原材料消耗，保护环境。

德国Mahlo的产品组合中还有一个独门技术，应对光学薄膜制造的挑战 - 光学薄膜是LCD屏幕不可或缺的一部分。Optoscope WLI白光干涉传感器可测量薄膜的分层厚度和总厚度，尤其是非常薄的薄膜。无论薄膜是透明或不透明的，都能获得极其精确的测量结果。

“过去几年，中国对光学薄膜的需求急剧增加，”费先生说：“几乎所有消费电子行业，从电视到笔记本电脑再到汽车导航系统。我们期待通过我们的技术，帮助行业实现高质量和高效的生产。”

Solutions for Film and Tape

■ With the C-Touch & Display Expo, one of the best-known exhibitions for display and touch screen production is on the trade fair calendar: For three days from



11 to 13 October, innovative materials and technologies have been the focus of interest for experts at the Shenzhen World Convention and Exhibition Center. Mahlo presented them solutions for improved production processes with the help of quality measurement at the booth.

With the Qualiscan QMS, Mahlo's China representative Frank Fei has a tool in his luggage that helps every manufacturer of display and touch screen films to sustainably improve his product. This is because the traversing quality control system records and regulates important parameters such as basis weight, thickness or coating weight on the running web. This makes it possible, for example, to detect fluctuations in the applied layers and quickly rectify any faults. This not only improves product quality, but also protects the environment by reducing raw material consumption.

Mahlo also has a specialist in its portfolio to meet the challenges of manufacturing optical films – an integral part of LCD screens. The Optoscope WLI white-light interference sensor measures film thickness and layer thickness even with very thin films. It produces precise measurement results even with transparent or opaque films.

"The demand for optical films has increased sharply in China during the past few years," Fei knows. "Almost all consumer electronics industry sectors from televisions to laptops to navigation systems in cars. We look forward to helping these industries achieve high-quality and efficient production with our systems."

➔ **Mahlo GmbH + Co. KG**
www.mahlo.com

盛大开幕

■ 科莱恩宣布其位于浙江省嘉兴市的CATOFIN新工厂隆重开业。对CATOFIN等创新产品的投资是科莱恩最新企业宗旨——“创新化学成就天人和諧”所引领的战略之核心要素。此外，在现有位于附近的上海金山催化剂工厂及其位于上海科莱恩一体化园区内的催化剂研发中心基础上，该新工厂进一步扩大了业已深耕中国的科莱恩发展足迹。

科莱恩催化剂业务和亚太区总裁严坤泽 (Jens Cuntze) 表示：“该投资是我们在强劲增长的细分市场中，通过领先的催化剂技术强化区域足迹并提升中国本地化生产供应战略的一部分。”

CATOFIN 是一种基于丙烷脱氢 (PDH) 工艺的催化剂，可用于生产丙烯等烯烃产品。凭借其极高的可靠性和生产效率，CATOFIN 为丙烯生产商带来卓越的年产量，从而提高装置的整体盈利能力。此外，科莱恩还开发了特殊的发热材料 (HGM)，可将 CATOFIN 工艺的能耗降低三分之一，使这种极为可靠的高产催化剂方案的优势进一步得到凸显。

科莱恩催化剂业务单元丙烯业务部全球副总裁王建基表示：“该 CATOFIN 工厂的成功竣工推动了我们的增长轨迹。在需求迅速增长的市场中，该工厂可显著提升这一广受欢迎的高价值催化剂的产能，使我们能够很好地满足该区域的需求，同时确保更加贴近具有战略意义的客户群。”

该生产基地投资额为 8000 万瑞士法郎，从 2020 年 9 月破土动工到去年全面投产仅用了 18 个月。新工厂采用了一流的数字化运营技术，其对于确保高质量催化剂的持续生产，同时提高生产率至关重要。

Grand Opening

■ Clariant announced the grand opening of its new CATOFIN catalyst production site in Jiaxing, Zhejiang Province, China. Investing in innovations such as CATOFIN is a core element of Clariant's new purpose-led strategy, as expressed in the statement 'Greater chemistry – between people and planet.' Beyond that, the site serves to increase the already expanding footprint in China, adding on to the existing nearby catalyst plants in Jinshan and catalyst R&D center within the One Clariant Campus in Shanghai.

"This investment is part of our strategy to



科莱恩宣布中国 CATOFIN 催化剂新工厂隆重开业

Clariant announces grand opening of its new CATOFIN catalyst plant in China

strengthen our regional footprint and increase the share of local production in China with leading catalysts technology in a strongly growing segment," said Jens Cuntze, President of Clariant Catalysts & Asia Pacific.

CATOFIN is a catalyst for propane dehydrogenation (PDH), which is used in the production of olefins such as propylene. Thanks to its excellent reliability and productivity, CATOFIN delivers superior annual production output, resulting in increased overall profitability for propylene producers. Additionally, Clariant developed a specialty material called Heat Generating Material (HGM), which reduces the energy consumption of the CATOFIN technology by up to one-third, further highlighting the advantages of this exceptionally reliable, high-yield catalyst solution.

"The successful completion of the CATOFIN plant pushes us forward on our growth trajectory. It offers significantly more production capacity for the popular, high-value catalyst in a market that's seeing rapidly increasing demand. The increased production capabilities of the plant ideally position us to meet the demands of the region while simultaneously ensuring more proximity to a strategically important customer base," said Jace Wang, Head of Propylene at Clariant Catalysts.

Representing an investment of CHF 80 million, the site was completed within only 18 months from ground-breaking in September 2020, becoming fully operational last year. It is a state-of-the-art plant with digitalized operations which

are essential to be able continue making high quality catalyst while boosting productivity rates.

► Clariant

www.clariant.com, www.clariant.com/catalysts

雷孚斯在中国的混料技术中心搬迁并增加产能

■ 由于雷孚斯 (LEHVOSS) 在中国和韩国的混料业务 (CPM) 快速增长，比最初预期的要快，2016 年才启用的原有生产设施和雷孚斯新材料 (昆山) 有限公司的相关技术中心已经显得太小了，所以现在已经转移到了昆山的德国工业园新的和更大的场地。2023 年 8 月 30 日，在 100 多位来自中国和海外的嘉宾包括客户、商业伙伴和当地政府以及昆山德国工业园的代表们见证下，新工厂举行了开业典礼。

新工厂和技术中心的总面积增加了一倍，达到 5000 平方米。相关产能的显著提高使雷孚斯集团能够继续与现有客户共同增长，并进一步提升其在充满活力的中国市场上的地位。目前，市场上对于 LUVOCOM® 高性能混合料、LUVOTECH® 技术混合料、特别是 LUVOTECH® 生态经济混合料，以及 luvoobatch® 色母粒的需求仍然很高。随着研究和技术中心的大手笔扩张，雷孚斯集团确保以尽可能快的方式满足当地客户的需求和材料要求。中国快速发

展的高科技产业需要更好、更高效的材料。雷孚斯集团在材料开发和混料方面拥有50年的经验。持续的进一步发展经常推动热塑性材料的应用向极限发展。雷孚斯同时在追求为亚洲客户创造出真正有附加价值的目标。

雷孚斯(上海)化工有限公司董事总经理兼雷孚斯中国总裁张雪松女士说道：“我们很自豪：在短短几年内中国业务取得了非常强劲的拓展和显著的增长。通过这次的搬迁扩展，我们为下一步的增长和迎接新的挑战做好了充分的准备。我们将继续为客户提供优质的服务和领先的产品。”

Lehmann & Voss & Co的个人责任合伙人及塑料业务负责人Thomas Oehmichen博士在雷孚斯位于昆山的新工厂开业典礼上讲话说：“亚洲，特别是中国，已经成为我们非常重要的支柱。我们的同事以极大的奉献精神 and 出色的能力与德国母公司密切合作，在这里的工作非常成功。同时，我们不仅服务于欧洲客户的当地分支机构，也赢得了众多亚洲客户的认可，他们也认可雷孚斯产品的附加价值。卓越的性能、质量和研发和交付的高速度是我们成功的关键因素。”

Relocation and Capacity Expansion of the Compounding and Technology Center in China

■ The production facility, which was only opened in 2016, and the associated technology center of LEHVOSS New Material (Kunshan) Co. Ltd. has become too small due to the very dynamic growth of the LEHVOSS compound activities (CPM) in China and Korea – faster than originally expected – and is moving to new and significantly larger premises in the Kunshan German Industrial Park. On August 30, 2023, the opening ceremony of the new plant took place in the presence of more than 100 guests from China and



新的雷孚斯新材料(昆山)工厂在中国昆山隆重开业(©雷孚斯)

Grand opening of the new LEHVOSS New Material (Kunshan) plant in Kunshan, China (©LEHVOSS)

overseas – customers, business partners and representatives of the local government and the Kunshan German Industrial Park.

The total area of the new plant and the technology center doubles to a total of 5,000 m². The associated significant increase in production capacity allows the LEHVOSS Group to continue to grow with existing customers and to further expand its market position in the dynamic Chinese market. The demand for LUVOCOM® high-performance compounds, LUVOTECH® technical compounds – especially the LUVOTECH® eco compounds – and LUVOBATCH® masterbatches remains high.

With the generous expansion of the research and technology center, the LEHVOSS Group ensures that local customer needs and material requirements are met quickly and in the best possible way. The rapidly growing high-tech industries in China require ever better and more efficient materials. The LEHVOSS Group can serve this with its 50 years of experience

in material development and compounding. Continuous further development regularly pushes the limits of what is possible for thermoplastic materials. LEHVOSS is also pursuing the goal of creating real added value for its customers in Asia. “We are proud to have achieved a very strong presence and significant growth in China in just a few years. With this move, we are well prepared for further growth and new challenges. We can continue to offer our customers excellent service and leading products,” said Ms. Xuesong Zhang, Managing Director of LEHVOSS (Shanghai) Chemical Co. Ltd and President of LEHVOSS China.

“Asia and especially China has become a very important mainstay for us. Our colleagues have worked very successfully here in close cooperation with the German parent company with great commitment and great competence. In the meantime, we not only serve the local branches of our European customers here, but we have also been able to win numerous Asian customers who have recognized the added value of LEHVOSS products for themselves. Exceptional performance, quality and high speed in development and delivery are the key success factors for us,” said Dr. Thomas Oehmichen, personally liable partner of Lehmann&Voss&Co. and head of the plastics business in his speech at the opening of the new LEHVOSS plant in Kunshan.



更大的场地和更大的生产能力:中国昆山的雷孚斯新材料(昆山)(©雷孚斯)

**Larger premises and more capacity:
LEHVOSS New Material (Kunshan) in Kunshan, China (©LEHVOSS)**

► Lehmann&Voss&Co. KG
www.lehvooss.de

难以回收的塑料废物通过化学回收制成新的塑料管道

■ Neste, Borealis, Uponor和Wastewise已经成功地生产出了交联聚乙烯(PEX)制成的管道, 该管道采用了从PEX管道生产中通过化学回收获得的工业后废塑料原料, 使用国际可持续性碳认证 (ISCC PLUS) 的质量平衡方法。合作公司认为, 该项目是PEX化学回收的首批实施项目之一。

由于其坚固性、耐高温性和使用寿命, PEX管道是节能供暖和安全管道的重要贡献者, 但相互连接的高分子材料链使其几乎不可能通过传统的回收技术进行回收。该项目表明, 化学回收可以闭合难以回收的废塑料的循环, 将其转化为高质量的高分子材料原料, 并使连续生产的产品具有与以前相同的质量和性能。

在此次合作中, Wastewise利用其新型的基于热解的化学回收技术, 将欧博诺 (Uponor) 的PEX管道生产中的工业废料液化, 将高分子材料分解成它们的组成部分, 从而产生一种类似油的可回收中间体。这种液体随后在Neste位于芬兰Porvoo的炼油厂进行协同加工, 并升级为可回收的Neste RETM, 这是一种用于生产新高分子材料的高质量直接原料。Borealis正在将这种原料放入他们的蒸汽裂解装置中, 然后将其聚合成聚乙烯, 这是该公司Borcycle™ C化学回收组合的一部分。最后, 欧博诺正在使用聚乙烯制造新的PEX管道系统, 然后可以再次用于建筑部门的加热、管道和冷却目的-甚至适用于高要求的敏感应用, 例如用于饮用水系统的应用。整个价值链通过ISCC PLUS认证的质量平衡可追溯。

由于参与各方致力于推动高分子材料的循环解决方案和解决方案的嵌入式特性, 合作伙伴能够在相当短的时间内建立价值链。从项目开始到第一批用化学回收的PEX废料制成的管道投入生产, 只花了6个多月的时间。

该合作伙伴关系具有进一步合作的潜力, 可以解决生产浪费问题: 欧博诺生产的PEX管道已经从资源效率的角度进行了优化, 减少了管壁厚度, 延长了使用寿命。在它们漫长的使用寿命结束时, 机械回收是迄今为止的第一回收选择, 但它也意味着对材料进行降级回收, 例如转化为其他建筑材料或物品。然而, 通过化学回收, PEX废料管道可以再次变成功能齐全的PEX管道。展望未来, 双方将评估进一步的合作机会。除了扩大废物池外, 这可能还包括增加回收量。

该合作伙伴关系具有进一步合作的



欧博诺的PEX管道生产。来源:欧博诺(图片来源:©欧博诺)

PEX pipe production at Uponor. Source: Uponor (Photo: © Uponor)

潜力, 可以解决生产浪费问题: 欧博诺生产的PEX管道已经从资源效率的角度进行了优化, 减少了管壁厚度, 延长了使用寿命。在它们漫长的使用寿命结束时, 机械回收是迄今为止的第一回收选择, 但它也意味着对材料进行降级回收, 例如转化为其他建筑材料或物品。然而, 通过化学回收, PEX废料管道可以再次变成功能齐全的PEX管道。展望未来, 双方将评估进一步的合作机会。除了扩大废料范围外, 这种合作可能还包括增加回收量。

Chemical Recycling of Hard-to-Recycle Plastic Waste into New Plastic Pipes

■ Neste, Borealis, Uponor and Wastewise have successfully produced pipes made of cross-linked polyethylene (PEX) which was based on feedstock gained from chemically recycled post-industrial waste plastic from PEX pipe production, using an ISCC PLUS certified mass-balancing approach. The partner companies believe this project is among the first implementations of chemical recycling of PEX.

PEX pipes are an important contributor to energy efficient heating and safe plumbing due to their robustness, temperature resistance and longevity, yet the interconnected polymer chains make them nearly

impossible to recycle with conventional recycling technologies. The project shows that chemical recycling can close the circularity loop for hard-to-recycle waste plastic, turning it into high-quality polymers feedstock and enabling the consecutive manufacturing of products with quality and properties identical to those in their previous life.

The cooperation sees Wastewise use their novel pyrolysis-based chemical recycling technology to liquefy industrial waste from Uponor's PEX pipe production, breaking the polymers down back into their building blocks, which creates an oil-like recycled intermediate. This liquid is then co-processed in Neste's oil refinery in Porvoo, Finland and upgraded into recycled Neste RETM, a high-quality drop-in feedstock for the production of new polymers. Borealis is feeding this raw material into their steam cracker and consequently polymerizing it into polyethylene as part of the company's Borcycle™ C, chemical recycling portfolio. Finally, Uponor is using the polyethylene to create new PEX pipe systems, which can then be used in the construction sector for heating, plumbing and cooling purposes once more – eligible even for sensitive applications with high requirements, for example those used for drinking water systems. The whole value chain is trace-

able via ISCC PLUS certified mass-balancing.

Due to the involved parties' commitment to pushing circular solutions for polymers and the solution's drop-in character, the partners were able to establish the value chain in a rather short period of time. Little more than six months passed between the start of the project and the production of the first pipes made with chemically recycled PEX waste. The partnership holds potential for fur-

ther cooperation beyond production waste: The PEX pipes made by Uponor have already been optimized from a resource efficiency point of view by reducing their wall thickness and increasing lifetime. At the end of their long life, mechanical recycling is so far the first recycling option, but it also means downcycling the materials, e.g. into other construction materials or items. With chemical recycling, though, the PEX waste pipes can be turned into fully functional

PEX pipes again. Moving forward, the partners will evaluate further opportunities for cooperation. Aside from broadening the waste material pool, this may also include higher recycled volumes.

- ➔ **Borealis AG**
www.borealisgroup.com
- ➔ **Neste**
neste.de
- ➔ **Uponor GmbH**
www.uponorgroup.com
- ➔ **WasteWise Group Oy**
www.wastewise.fi

荣获 "碳足迹奖"

■ 上海汤臣倍健荣获 "责任关怀®倡议奖"下的 "碳足迹奖"。该奖项于今年5月在重庆举行的第六届AICM责任关怀®颁奖典礼上颁发，以表彰公司在可持续发展方面的卓越表现和去碳化承诺。这是上海汤臣倍健首次获此殊荣，以表彰其在可持续发展方面所取得的成就。比亚迪上海运营经理马亮先生代表公司接受了奖杯。

此次获奖的项目是位于汤臣倍健上海综合厂区内的2000平方米太阳能发电厂。该电站每年可为基地提供约400兆瓦时的电力，相当于每年减少200吨的碳排放。2023年，上海比亚迪将通过购买补充绿色电力持续降低能耗。这将意味着总的二氧化碳排放量将减少75%。



"Carbon Footprint Award" Received

■ BYK Shanghai has received the "Carbon Footprint Award" commissioned under "Responsible Care® Initiative Award". The prize was handed over at the sixth AICM Responsible Care® Award Ceremony in Chongqing in May in recognition of the company's excellence in sustainability and its decarbonization

commitments. This is the first such prize that BYK Shanghai has received honoring its successful sustainability achievements. Mr. Liang Ma, BYK Shanghai Operations Manager, accepted the trophy on behalf of the company. The project that earned the award is the 2,000-square-meter solar plant located on the BYK Shanghai integrated site. The plant is capable of providing approxima-

tely 400 MWh of electricity for use on the site, representing a 200-ton reduction in carbon emissions per year. In 2023, BYK Shanghai will continuously reduce energy consumption by purchasing supplementary green power. This will mean a 75 percent reduction of CO₂ emissions in total.

- ➔ **BYK-Chemie GmbH**
www.byk.com

成功的网络研讨会系列进入第三轮

■ 在过去的两年中，SIGMA技术会谈已经证明了自己。但即使在今天，仍然需要以一种省时的方式免费学习。因此，今年春天有一个新的网络研讨会系列，其中包括来自SIGMASOFT®世界各地的新主题和当前主题。

自2月底以来，SIGMA工程公司再次组织每周的网络研讨会。它们每个时长约60分钟，展示有关SIGMASOFT®的有趣细节和新闻。各个重点领域与该模拟套件的应用程序一样多样化。

网络研讨会“DoE”演示和讨论了系统的虚拟实验计划及其自动化执行和评估。“虚拟热塑性塑料”涵盖了如何通过实际改进材料规律来获得更准确的模拟结果。“弹性体”会议重点讨论了硫化对部件力学的精确影响，提出了一种新的方法。在同名的网络研讨会中提供了对MIM(金属注射成型)的进一步见解。所有的网络研讨会都是现场活动，参与者通过提问来参与。

SIGMA首席技术官Timo Gebauer表示：“过去几年的良好反馈鼓励我们重新为专业人士推出这一系列网络研讨会。”“今年，我们将在较短的活动中展示我们软件的各个部分和新的可能性。像我们一样，我们的客户在过去两年中已经意识到，长途旅行通常可以被网络会议有效地取代。因此，SIGMA技术会谈将继续是与我们就技术和创新进行交流的机会。”

所有有兴趣的人士均可免费参加。安排的日期以德语和/或英语进行。其他语言的活动已经在日历上了。”
登记请联系

Successful Webinar Series goes into the Third Round

■ The SIGMA Technical Talks have proven themselves well over the past two years. But even today, there is still a need to learn for free and in a time-efficient manner. Therefore, there is a new edition of the webinar series in this spring with new and current topics from the world around SIGMASOFT®.

SIGMA Engineering is organizing weekly webinars again since late February. They are each about 60 minutes long and showcase interesting details and news about SIGMASOFT®. The individual areas of focus are as diverse as the applications of this simulation suite.

The webinar "DoE" demonstrates and



discusses systematic virtual experiment planning and its automated execution and evaluation. "Virtual Thermoplastics" covers how more accurate simulation results can be achieved through practical improvement of material laws. The event "Elastomer" focuses on the precise impact of vulcanization on component mechanics, presenting a novel approach. Further insights into MIM (Metal Injection Molding) are provided in the webinar of the same name. All webinars are live events and participants participate with questions.

"The good feedback of the last years has encouraged us to relaunch this series of webinars for professionals," says Timo

Gebauer, CTO of SIGMA. "This year, in shorter events, we are presenting individual parts and new possibilities of our software. Our customers – like us – have realized in the last two years that long trips can often be efficiently replaced by a web meeting. Therefore, the SIGMA Technical Talks will continue to be an offer for exchanging with us on technology and innovation."

Participation is free of charge for all interested parties. The dates take place in German and/or English. Events in other languages are already in the calendar."

Registration at

➔ SIGMA Engineering GmbH
www.sigmasoft.de

管理层的变更

■ Hermann Adrigan在公司工作了近40年，其中19年担任公司三个部门的首席销售官，于2023年3月31日退休。2023年4月1日，哈拉尔德·诺伊米勒 (Harald Neumüller) 接替他，他从



2013年开始在斯塔林格销售部门工作。

Hermann Adrigan 在公司工作近40年，这其中有19年担任了公司三个部门的销售经理，于2023年3月31日光荣退休。2023年4月1日，将由41岁的Harald Neumüller接任，其自2013年以来，一直在Starlinger从事销售工作。

“感谢 Hermann Adrigan 为我们公司的服务贡献。在过去二十年的商业成就中，他发挥了关键作用，”Starlinger 所有人兼管理合伙人 Angelika Huemer 对其表示赞赏。“Harald Neumüller等下

从2023年4月起，Harald Neumüller成为Starlinger & Co Gesellschaft m.b.H.的新CSO (©Starlinger)

As of April 2023, Harald Neumüller is the new CSO of Starlinger & Co Gesellschaft m.b.H. (©Starlinger)

一代正在接班。他将迎接目前的挑战，并带来新的想法。”

“近年来，Starlinger 着力推广的一个关键主题是可持续塑料包装和相关的循环经济解决方案。行百里者半九十”，Harald Neumüller谈到了他的其中一个目标。“在许多领域，塑料即是最好的解决方案。遗憾的是，妥善操作处置目前仍进展缓慢。我们将在塑料回收方面的长期经验深度融入到包装解决方案的开发中，以使其可持续且易于回收。”

我们的客户深知，他们不仅仅是从Starlinger 购买机器，同时也是投资欧洲技术、概念和整体解决方案，以实现未来资源节约型生产。”

Change in the Management

■ After almost 40 years with the company, 19 of them as chief sales officer for the company's three divisions, Hermann Adrigan took his retirement on March 31, 2023. He is succeeded, on April 1, 2023, by Harald Neumüller, who has been working in the Starlinger sales department since 2013.

"We would like to thank Hermann Adrigan for his services to our company. He played a key role in the success of our business in the last two decades," says Starlinger owner and Managing Partner Angelika Huemer, expressing her appreciation for him. "With Harald Neumüller, the next generation takes over now. He will take on the current challenges and bring in new ideas."

"A key topic that Starlinger has taken up and promoted in the last years is sustainable plastic packaging and the corresponding recycling solutions for a functioning circular economy. I would like to push this even further," said Harald Neumüller, specifying one of his goals. "In many areas, plastics are simply the best solution. Unfortunately, what is only slowly gaining momentum is the responsible usage of plastics. We incorporate our long-standing experience in plastics recycling into the development of our packaging solutions to make them sustainable and easy to recycle. Our customers know that they are not just buying a Starlinger machine – they are investing in European technology, concepts and overall solutions for resource-saving production in the future."

马格集团宣布其美国和中国的领导层换届

■ MAAG集团宣布任命前MAAG亚太区副总裁Paul Merich为马格美洲区副总裁/总经理。马格集团总裁Ueli Thuerig表示：“Paul在马格中国的进一步发展发挥了关键作用。有了Paul，我们就找到了与美国业务完美匹配的人。”Paul Merich评论道：“我很感激能有这个机会，也很兴奋能和马格美国团队一起踏上这段历程。”

马格中国总经理Aaron Kong将接替Paul Merich。“我们很高兴Aaron能接受这个职位，”Ueli Thuerig说。“他一年前开始在马格集团担任销售总监，并带来了丰富的经验，他之前曾在塑料机械行业的知名市场领先企业工作过。”

马格集团正在进一步扩大其在中国的业务，为在中国的持续增长创造先决条件。目前的重点是增加生产能力，并专门为中国市场推出新产品。

总部位于瑞士奥贝格莱特的马格集团自2022年以来一直在加强其在中国的本地化战略，目前已拥有103名员工。最近的一个例子是：位于上海嘉定区的装配厂最近规模扩大了一倍。

Leadership Change in America and China Announced

■ MAAG Group announced the appointment of **Paul Merich**, former Vice President MAAG APAC, as incoming VP/GM for MAAG Americas. Ueli Thuerig, President of MAAG Group: “Paul has played a

Aaron Kong, 马格中国的总经理

Aaron Kong,
GM for MAAG China



Paul Merich, 马格美洲副总裁/总经理

Paul Merich,
VP/IGM for MAAG Americas

key role in further development of MAAG China. With Paul we found the perfect match for our American business.” Paul Merich commented: “I am grateful for the opportunity and excited to embark on this journey with the MAAG America team.”

Aaron Kong, GM MAAG China, now succeeds Paul Merich. “We are happy to have Aaron accepting this position,” says Ueli Thuerig. “He started at MAAG Group one year ago as Sales Director and brings a wealth of experience with him having worked previously at renowned market leaders in the plastics machinery industry.”

The MAAG Group is further expanding its presence in China creating the prerequisites for continued growth in the People's Republic. Particular focus is being placed on creating incremental production capacity and on the introduction of new products specifically for the Chinese market. The internationally operating MAAG Group, headquartered in Oberglatt, Switzerland, has been stepping up its localization strategy in China since 2022 and currently has 103 employees. One recent example: The assembly shop at the site in Jiading, a district of Shanghai, has recently doubled in size.

阻燃剂工厂落成

■ 科莱恩在惠州大亚湾新建的最先进的无卤阻燃剂生产厂正式投产，标志着科莱恩中国战略的又一里程碑。

该工厂第一条生产线投资6000万瑞士法郎，将为本地客户提供创新、可持续的Exolit OP阻燃剂和相关专业技术知识，以支持电动汽车和电子电气领域工程塑料应用的显著增长。该工厂的第二条生产线也在建设中，预计将于2024年投产，科莱恩为此进一步投资了4000万瑞士法郎。

科莱恩吸附剂和添加剂业务单元以及欧洲、中东和非洲地区总裁安凯薇 (Angela Cackovich) 表示：“通过这座世界一流的生产工厂，我们加强了在创新和可持续防火安全解决方案方面的领先地位和全球供应能力。我们依托创新平台、设备和系统，为中国和整个亚太地区的客户提供更好的服务，推动电动汽车、基础设施、5G通信、能源运输等领域的技术发展。本土化的生产意味着我们可以加强合作，根据客户的发展需求量身定制解决方案，并显著缩短交货周期。”

新工厂将生产科莱恩全球范围内受专利保护的有机磷阻燃剂，并补充科莱恩位于德国Knapsack的两家Exolit OP工厂的产能。位于上海的科莱恩一体化园区的团队将支持客户进行阻燃解决方案的联合开发和应用测试。

安凯薇继续说道：“品牌和设备制造商正在转向使用无卤阻燃剂，以应对电动汽车和电子领域不断提高的安全性、可持续性和技术性能要求的挑战。对于工程塑料，我们的Exolit OP解决方案可以帮助满足应用安全改进以及在产品生命周期和回收后保持机械、电气和阻燃性能的可靠性需求。重要的是，客户还会考虑第三方验证的环境和健康属性。随着应用的要求越来越严苛，通过跨价值链的合作，我们可以深入了解客户尚未被满足的需求，更快地共同创新，并确保提供最佳解决方案，以满足不断变化的法规监管和物理特性以及加工要求。”

尽管面临设备交付延误、旅行限制和不可预测的供应链中断等挑战，科莱恩中国和欧洲团队、石化区当地政府以及外部合作伙伴齐心协力，确保了项目在18个月内按照计划、符合预算地完成，并且自施工开始以来的120万工时中没有发生任何事故。

新的阻燃剂工厂位于广东省惠州大亚湾经济技术开发区（大亚湾石化区）内，运营团队由100名当地员工组成。科莱恩大亚湾工厂采用绿色电力，可显



科莱恩大亚湾Exolit OP阻燃剂工厂正式投产 (照片: Clariant)

Clariant successfully inaugurates Daya Bay Exolit OP flame retardant plant (Copyright Clariant)

著减少范围2的二氧化碳排放。该基地同时也是科莱恩护理化学品乙氧基化工厂的所在地，该工厂目前正在进行投资8000万瑞士法郎的扩建。

Exolit®为科莱恩商标，已在多国注册。

Flame Retardant Plant Inaugurated

■ Clariant marks another milestone in its China Strategy with the official opening of its new state-of-the-art production facility for halogen-free flame retardants in Daya Bay, Huizhou.

The CHF 60 million investment into the plant's first production line will provide local customers with access to innovative and sustainable Exolit OP flame retardants and related technical expertise to support

科莱恩吸附剂和添加剂业务单元以及欧洲、中东和非洲地区总裁安凯薇 (Angela Cackovich) 表示：“通过这座世界一流的生产工厂，我们加强了在创新和可持续防火安全解决方案方面的领先地位和全球供应能力。” (照片: Clariant)

Angela Cackovich, Business President Adsorbents & Additives and Clariant EMEA Member of the Executive Steering Committee: "With this world-class manufacturing plant, we strengthen our leading position and global competence in innovative and sustainable fire safety solutions." (Copyright Clariant)

the significant growth of engineering plastics applications in E-mobility and electrical & electronic segments. A second line is under construction and expected to be onstream during 2024, representing a further CHF 40 million investment.

“With this world-class manufacturing plant, we strengthen our leading position and global competence in innovative and sustainable fire safety solutions. We have the proximity to better service customers in China and across the Asia Pacific region behind the innovative components, devices and systems advancing technological developments in e-mobility, infrastructure, 5G communications, energy delivery and more. Local production means we can improve cooperation and design tailored solutions to their developing needs as well as significantly reduce delivery lead times,” comments Angela Cackovich,



President of BU Adsorbents & Additives, and Clariant EMEA Region.

The new plant will produce Clariant's global range of patent-protected organophosphorus flame retardants and supplements the capacity of Clariant's two Exolit OP plants in Knapsack, Germany. The team at the One Clariant Campus in Shanghai will support customers in the joint development and in-application testing of flame retarded solutions.

Angela Cackovich continues: "Brands and equipment manufacturers are switching to non-halogenated flame retardants to address the challenges of increasing safety, sustainability and technical performance requirements in E-mobility and Electronics. For engineering plastics, our Exolit OP solutions can help fulfil needs for application safety impro-

vements and the reliability of maintaining mechanical, electrical and fire retardancy performance properties over a product life cycle and after recycling.

Importantly, they also offer environmental and health profiles verified by third parties. By collaborating across value chains we can capture unmet needs as applications become more demanding, innovate faster together, and ensure the optimum solution to meet evolving regulatory and physical property as well as processing requirements."

Despite the challenges posed by delays in equipment delivery, travel restrictions, and unpredictable supply chain interruptions, the teams from Clariant China and Europe, local authorities in the chemical park, and external partners pulled together to ensure the project was accomplish-

ed within 18 months, on schedule and on budget. All 1.2 million man hours worked since construction began were accident free.

The new flame retardant plant is operated by a 100-strong team of local employees and is located within the Huizhou Daya Bay Economic and Technological Development Zone (Daya Bay Chem Park) in Guangdong Province. Clariant's Daya Bay site utilizes green electricity, enabling a significant reduction in Scope 2 (CO₂) emissions, and is also home to its Care Chemicals Ethoxylation plant, which is currently undergoing a CHF 80 million expansion.

► **Clariant**
www.clariant.com

中国的太阳能屋顶解决方案

■ 巴斯夫与中国领先的热塑性聚烯烃 (TPO) 屋顶膜生产商东方雨虹正在合作开发用于建筑的太阳能屋顶膜。新开发项目旨在满足中国对屋顶太阳能电池板快速增长的需求。

随着中国太阳能光伏装机容量达到创纪录的51千兆瓦，屋顶占2022年装机容量的三分之一以上(来源:中国光伏工业协会(CPIA))，TPO屋顶膜的质量，包括其防水性能，已经变得至关重要。

巴斯夫优化的光稳定剂配方 Tinuvin®和Chimassorb®，保护TPO膜免受降解和变色，同时提供耐风化性和长期强度，增加屋顶膜的寿命。它们的寿命延长了，既节省了资源，又减少了维护和维修期间的浪费。

此外，巴斯夫与东方雨虹的合作解决了屋顶上安装的光伏电池板数量不断增加所带来的挑战。由于面板吸收大量阳光，其温度可达70°C，加快了TPO屋顶膜的老化过程。

亚太地区全球商业管理塑料添加剂副总裁 Hazel Sprafke说：“我们的新Tinuvin®和Chimassorb®配方以及技术支持提高了东方雨虹TPO膜的耐久性，从而使屋顶即使采用太阳能电池板也能持续更长时间。更重要的是，这将帮助东方雨虹达到中国最近更新的GB55030标准，该标准要求屋顶材料至少使用20年。”

由于政府最近的县级试验可能会增

加屋顶太阳能发电，分布式太阳能光伏市场预计将在2023年获得进一步的推动，为中国的零排放气候目标做出贡献。

Solar Rooftop Solutions in China

■ BASF and Oriental Yuhong, a leading Thermoplastic Polyolefin (TPO) roofing membrane producer in China, are teaming up to develop solar roofing membranes used in buildings. The new development aims to meet China's rapidly growing demand for rooftop solar panels. As the country's solar PV installations reached a record high of 51 gigawatts, with rooftops accounting for more than one-third of the installed capacity in 2022 (Source: China Photovoltaic Industry Association (CPIA)), the quality of TPO roofing membranes, including their waterproofing performance, has become critical.

BASF's optimized light stabilizer formulations, Tinuvin® and Chimassorb®, protect TPO membranes from degradation and discoloration while providing weathering resistance and long-term strength, increasing the lifetime of roofing membranes. Their increased lifespan both con-

serves resources and reduces waste during maintenance and repair.

In addition, BASF's collaboration with Oriental Yuhong addresses the challenges caused by the increasing number of PV panels installed on roofs. As the panels absorb high amounts of sunlight, their temperatures can reach up to 70°C, accelerating the aging process of TPO roofing membranes.

"Our new Tinuvin® and Chimassorb® formulations together with technical support have improved the durability of Oriental Yuhong's TPO membranes, resulting in roofs that last longer even with solar panels," said Hazel Sprafke, Vice President, Global Business Management Plastic Additives, Asia Pacific. "More importantly, this will help Oriental Yuhong meet China's newly updated GB55030 standards, which require roofing materials to last a minimum of 20 years."

Due to the government's recent county-level trials that could increase rooftop solar power generation, the distributed solar PV market is expected to gain further momentum in 2023, contributing to China's net-zero climate goals.

► **BASF Plastic Additives** 巴斯夫塑料助剂
www.plasticadditives.basf.com

应对管材挤出市场态势

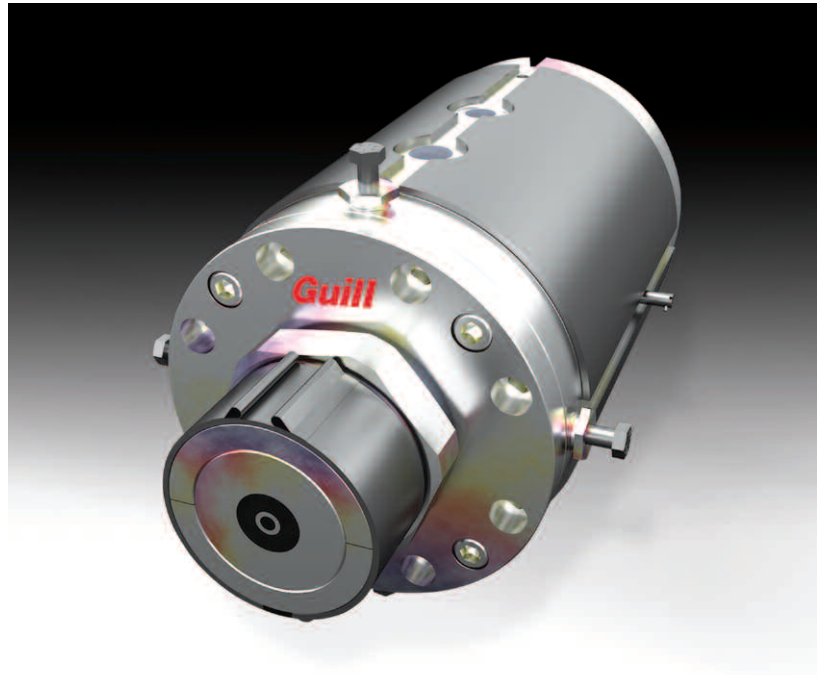
Extrusion Tooling: Responding to Market Conditions in Pipe Extrusion

作者：Rich Guillemette, Guill Tool & Engineering 首席执行官

Guill 分析最新市场需求，力求结合自身在挤出模具设计领域的专长为客户提供解决方案。Guill 的新型无径向臂管模可以替代传统篮式模具，它的优点是利用精密加工来节约材料。

By Rich Guillemette, CEO, Guill Tool & Engineering

Guill is analyzing the latest market demands, combined with its extrusion die design expertise, to deliver solutions to its customers. Guill's new Spiderless Pipe Die is an alternative solution, utilizing precision tooling to provide material savings vs conventional Basket Dies.



公司首席执行官 Rich Guillemette 表示，Guill 的无径向臂管模的设计别具一格，能够提高管道生产效率。

The Guill Spiderless Pipe Die incorporates unique design features to produce pipe more efficiently, according to company CEO Rich Guillemette

从全球来看，灌溉系统、污水处理系统和工业应用领域的管道市场在未来几年预计会出现增长。根据市场研究机构 MarketsandMarkets™ 的报告，2025 年全球管道市场规模将达到 235 亿美元，2020 年到 2025 年的复合年增长率为 6.1%。

管道需求的增长动力来自供水和废水基础设施需求的日益增长，以及工业化和城市化水平的提高。在这些因素的推动下，预计中国、印度和巴西等新兴经济体以及美国和欧洲等发达市场对管道的需求将持续增长。为了更新美国老旧的基础设施，美国政府公布了多项基础设施完善计划，其中就包括供水和废水处理系统。

2021 年 3 月，拜登总统提出了一项价值 2 万亿美元的基础设施计划——美国就业计划，其中包括为水基础设施现代化等一系列基础设施项目提供资金。该计划拟投资 1110 亿美元用于改善饮用水基础设施，其中 450 亿美元用于减少饮用水中的铅含量，560 亿美元用于对供水基础设施进行现代化改造，包括污水处理厂和雨水管理系统等。

Guill 的无径向臂管模的设计与篮式模具的不同之处在于，Guill 专注于精密加工，并且在医用管道、流量分析等领

域积累了数十年的经验。另外，Guill 还通过了 ISO 9001 和 AS9100 (航空航天) 质量体系认证。在材料节约方面，Guill 的无径向臂管模的重要性不言而喻。

通常，聚合物原材料的成本在聚合物管道生产总成本中的占比在 50% 至 70% 之间。另外，添加剂、填料和增强材料等其他材料的成本以及能源、劳动力、设备和管理费用也会对生产总成本产生影响。

有时，能源成本（特别是电力和天然气成本）可能是生产总成本中的大头，对于大型生产设施更是如此。而在劳动力成本较高的地区，劳动力成本也会显著影响生产成本。还有一个因素，聚合物原材料的成本可能受油价波动的影响，因为油价决定聚合物生产所使用的石化产品的成本。另外，成本还可能受到供需因素和全球贸易形势的影响。

客户在生产外径为 2 英寸至 15 英寸的管道时，即使将所

有上述因素考虑在内，Guill 的无径向臂管模仍能满足他们的需求，帮助他们保持竞争力。该产品的构思、设计、工程、制造和 CFD 测试全部在 Guill 位于罗德岛州的西沃里克工厂完成。

The global market for pipes used in irrigation systems, sewage systems and industrial applications is expected to grow in the coming years. According to a report by MarketsandMarkets™, the global market for pipes is projected to reach USD 23.5 billion by 2025, growing at a CAGR of 6.1% from 2020 to 2025. The demand for pipes is driven by the increasing need for water and wastewater infrastructure, as well as the growth in industrialization and urbanization. These factors are expected to drive demand for pipes in emerging economies such as China, India and Brazil, as well as in developed markets such as the United States and Europe. The U.S. government has announced several infrastructure improvement plans aimed at revitalizing the country's aging infrastructure, including its water and wastewater systems.

In March 2021, President Biden proposed the American Jobs Plan, a \$2 trillion infrastructure plan that includes funding for a wide range of infrastructure projects, including the modernization of water infrastructure. The plan proposes to invest \$111 billion in drinking water infrastructure, \$45 billion in reducing lead exposure in drinking water and \$56 billion in modernizing water infrastructure, including wastewater treatment plants and stormwater management systems.

What differentiates Guill's Spiderless Pipe Die design over a basket die is Guill's focus on precision tooling, developed from decades of experience in medical tubing, flow analysis and Guill's ISO 9001 and AS9100 (Aerospace) quality systems. The significance of Guill's Spiderless Pipe Die becomes clear when one considers material savings.

In general, the cost of the polymer raw material can range from 50% to 70% of the total cost of producing polymer pipes. The cost of other materials such as additives, fillers and reinforcements, as well as the cost of energy, labor, equipment and overhead also contribute to the total production cost.

In some cases, the cost of energy, particularly electricity and natural gas, can be a significant part of the total cost of production, especially for large-scale production facilities. In other cases, labor costs in regions with high labor costs, can significantly impact the cost of production. Also a factor is that the cost of the raw polymer can be affected by market fluctuations in the price of oil, impacting the cost of petrochemicals used in the production of polymers. Additionally, the cost can also be influenced by supply and demand factors and global trade dynamics.

Guill's Spiderless Pipe Die is now available to meet the needs of its customers, as they consider all these factors required to be competitive in the production of pipes from 2" to 15" OD. This product was entirely conceived, designed, engineered, manufactured and CFD tested at the Guill factory in West Warwick, Rhode Island.

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提高塑料-金属复合管生产新标准 持续不断提升技术合作和客户服务

Pipe Extrusion: New Standards in the Production of Plastic-Metal Composite Pipes – Technological Cooperation and Customer Service are Continuously Expanded



巴登费尔德-辛辛那提公司 (battenfeld-cincinnati) 和德国泰普公司(Templet Deutschland) 20多年来一直在制定复杂塑料-金属复合管的生产标准。通过密切合作和专业知识，两家公司已经确立了自己在挤出和铝复合套管技术方面的领先的市场供应商和创新的驱动者。

battenfeld-cincinnati and Templet Deutschland have been setting standards in the production of complex plastic-metal composite pipes for over 20 years. Through their close cooperation and the know-how, both companies have established themselves as leading market players and innovation drivers in extrusion and aluminum jacket technology.

由于具有许多优点，塑料-金属复合管在冷热水安装、饮用水供应、燃气供应等领域越来越重要。这些管道通常有五层结构，带有铝制成的防扩散氧屏障，其生产需要塑料挤出和金属夹套系统之间的高精度协调。

两家技术领导者正是为此目的为全球要求严格的客户提供量身定制的解决方案。由于模块化生产系统，即使是高度个性化的需求也可以灵活地实现。与此同时，能源和生产成本降低，工厂可用性增加。通过巧妙的细节解决方案，有效避免了以前必要的生产过程中的人工干预以及工作中的操作错误和事故。

成功：自2001年以来，已成功安装了多条铝塑复合管生产线。特别是采用激光焊接技术的先进生产线越来越受欢迎，目前约占交付生产线的80%。

德国Templet公司的系统技术，其决定性优势在于全自动带材导向系统，保证了铝带材在焊接过程中的最佳定位，无需人工干预。不再需要侧导辊，也不再有任何损坏的切边。除了故障控制系统 (FCS系统) 等其他创新解决方案外，与市场上

其他可用系统相比，这种智能技术额外提供了决定性的附加价值。此外，德国Templet公司的激光焊接系统具有精确的焊接效果和高的工艺可靠性。

为了保证铝带在高速下的加工可靠性，不仅成形和焊接过程本身非常重要，而且铝带的送料和制备过程也非常重要。德国Templet公司最新研发的全自动激光横缝焊接系统也为这一领域树立了新的标准。高精度的直线机器人将新型铝带引导到生产水平面，并在没有操作人员干预的情况下进行焊接。因此，永远消除了操作员人为造成的错误。

而巴登费尔德-辛辛那提公司最近在塑料加工领域推出了一项重大创新，最新一代挤出机技术“NG”和“XNG”系列。与早期型号相比，高度先进的工艺可节省高达15%的能源。此外，它们降低了轴向压力曲线，从而降低了整个系统的负载。

巴登费尔德-辛辛那提公司获得专利的VSI模头设计在铝塑复合管生产中提供了额外的优势，特别是在加工PE-RT材料时。helix II VSI模具系列在最终产品质量、产量和处理方面设立了新的标准。复杂而巧妙的三级分布系统确保了优秀的熔体均匀性、出色的层分布，并因此获得了几乎完美的管道表面。紧凑，轻量化和模块化设计使快速颜色变化和冲洗时间成为可能，以及短的加热时间。这确保了大量的材料和能源成本的节省，并大大减少了维护和安装时间。

所有与生产相关的数据都可以实时记录和归档，以控制和持续监测管道质量。因此，单个工业4.0解决方案可以以盈利的产品成本实现。

在研发方面的持续投资也将确保未来机器的最高可用性和工艺可靠性。巴登费尔德-辛辛那提和德国Templet公司也为客户提供超过保修期的全面客户服务:通过这种方式，已经运行的机器继续保持在最新的技术水平。这两家公司的全球服务网络为客户提供全天候服务-通过电话和视频聊天，当然，直接在机器上进行。

Thanks to many advantages, plastic-metal composite pipes are becoming increasingly important in the fields of hot and cold-water installation, drinking water supply and gas supply, among others. The production of these pipes, which usually have a five-layer structure with a diffusion-tight oxygen barrier made of aluminum, requires high-precision coordination between the plastic extrusion and metal jacket system.

The two technology leaders offer demanding customers worldwide tailor-made solutions for precisely this purpose. Thanks to modular production systems, even highly individual requirements can be fulfilled flexibly. At the same time, energy and production costs are reduced and plant availability is increased. Manual interventions in the production process which were previously necessary as well as operating errors and accidents at work are effectively avoided thanks to clever detail solutions.

With success: Since 2001, numerous production lines for aluminum composite pipes have been successfully established. Advanced lines with laser welding technology in particular are becoming increasingly popular and now account for around 80% of the lines delivered.

A decisive advantage of the system technology from Templet Deutschland lies in the fully automatic strip guiding system, which ensures optimum positioning of the aluminum strip du-

ring the welding process without manual intervention. Side guide rollers are no longer necessary, and there is also no longer any damage to the strip edges. In addition to other innovative solutions such as the Fault Control System "FCS", this intelligent technology in particular offers decisive added value in contrast to other available systems in the market. In addition, the laser welding systems from Templet Deutschland convince with their precise welding results and high process reliability.

To ensure process reliability even at high speeds, not only the forming and welding process itself is enormously important, but also the feeding and preparation of the aluminum strip. With the newly developed and fully automatic laser transverse seam welding system, Templet Deutschland sets new standards in this area as well. High-precision linear robots guide the new aluminum strip into the production level and weld it without operator intervention. Thus, operator errors caused by humans are eliminated for all time.

battenfeld-cincinnati, in turn, has just recently introduced a significant innovation in the field of plastics processing with its latest generation of extruder technology, the "NG" and "XNG" series. The highly advanced processes provide energy savings of up to 15% compared to earlier models. In addition, they reduce the axial pressure curve and thus the load on the overall system. The patented VSI die head design from battenfeld-cincinnati offers additional advantages in aluminum composite pipe production, especially when processing PE-RT materials. The helix II VSI die series sets new standards in terms of end product quality, throughput and handling. The sophisticated three-stage distribution system ensures excellent melt homogeneity, outstanding layer distribution and, as a result, creates almost perfect pipe surfaces. The compact, lightweight and modular design makes fast color changes and rinsing times possible, as well as short heat-up times. This ensures considerable savings in material and energy costs as well as significantly reduced maintenance and setup times.

All production-relevant data can be recorded and documented in real time for the control and constant monitoring of pipe quality. Individual Industry 4.0 solutions can thus be realized at profitable product costs.

Continuous investments in research and development will ensure the highest availability and process reliability of the machines in the future as well. battenfeld-cincinnati and Templet Deutschland also offer their customers comprehensive customer service far beyond the warranty period: In this way, machines already in operation continue to be kept at the latest technical level. The worldwide service network of the two companies is available to customers around the clock for this purpose – on the phone as well as via video chat and, of course, directly at the machine.

► **battenfeld-cincinnati**
www.battenfeld-cincinnati.com

► **Templet Deutschland GmbH**
www.templet.de

节能挤出- 我们怎样才能降低能源成本？

Extrusion Technology: Energy-Efficient Extrusion – How Can We Lower Energy Costs?

高分子材料挤出是一个能源密集型加工过程。在过去的几十年里，SML为提高挤出生产线的能效做出了很多努力。特别是在能源价格不断上涨和环保意识不断增强的情况下，节约能源的话题比以往任何时候都更受关注。

Polymer extrusion is an energy-intensive process. In the last decades, many efforts have been directed towards improving the energy efficiency of SML extrusion lines. Especially in times of rising energy prices and a growing environmental awareness, the topic of saving energy is now attracting more attention than ever.

挤出机配置

“在配置挤出生产线时，可以为节约能源做出重大贡献。在塑化高分子材料的挤出过程中消耗了大部分能量，因此挤出机规格和设计的选择是至关重要的。” SML的研究与开发主管 Hans-Jürgen Luger 澄清道。挤出机通常在使用理想的驱动和螺杆配置时效率很高。这尤其适用于SML公司直径为75mm和90mm的高速挤出机，其设计可为加工PP、LDPE、LLDPE和PS原料时提供高达1200公斤/小时的挤出量。与直径更大的挤出机相比，在相同的挤出量下，HSE需要的加热功率可减少80%。另一个例子是SML的HO-LT挤出机，用于EVOH或粘合材料等敏感高分子材料，它可以在低熔体温度下实现高产量。通过使用35 mm HO-LT挤出机代替75 mm标准挤出机，对EVOH和粘合剂等敏感物料具有相同的最大产量，额定能量输入(SEI)从250 Wh/kg降低到200 Wh/kg。

工厂:高效冷却水处理

除了高分子材料的加热和熔化，冷却过程也是值得考虑的。首先，冷却回路中的水质是实现高冷却效率和工艺可靠性的关键。由于沉积物和冷却回路污染，导热性能恶化，促使冷却水温度必须降低，以达到相同的冷却能力。一般情况下，冷却水所需的温度水平不应根据需要降低。其次，冷却水制冷系统为节能提供了机会。例如，SML在Redlham总部的建筑物内使用了先进的水井系统、地热泵(也可以使用太阳能)和屋顶冷水机。此外，运行中的挤出生产线散发的热量可用于在冬季为建筑供暖。



(iStock)

生产线配置:有效减少切边料

另一个关键话题是破碎后再喂入到加工过程和再熔融的边料数量。原则上，添加回收料的比例随着挤出生产线膜宽的增加而减少。因此，宽幅挤出生产线与较大的膜宽可以被认为是更有效。SML的MiniCast拉伸膜生产线(净宽度为1500 mm)与SML在K'2022展会上展示的PowerCast XL线(净宽度为4500 mm)进行了比较，切边回收料的比例从27%下降到17%。这意味着，PowerCast XL生产线每公斤/小时切边回收料的额定能量输入为50 Wh/kg，而相比起来MiniCast为90 Wh/kg。

减少热量损失

隔绝热表面由于辐射而损失的热量，是一种非常有效和廉价的降低能源成本方法。此外，绝热层，例如熔体适配器的隔热层，可以很容易地改造。测量表明，为了保持适配器的设定温度，每1米长度的功耗可以从没有任何隔热的8千瓦时降低到有隔热的6千瓦时(-25%)。SML还对挤出机筒体的加热/冷却单元进行了改进，以减少加热模式下高达30%的辐射损失。

检测外围设备的隐藏能耗

无论生产线的速度和产量如何，泵驱动或鼓风机经常全速运行。通过安装变频器和修改对设备的控制，驱动速度和所需的功率可以在不影响生产线产量的情况下根据需求进行调整。下一步是使用SML的数据生成和分析工具bitWise来优化机器参数，以充分发挥节能的潜力。

Extruder configuration

"A major contribution towards energy savings can be made when configuring an extrusion line. Most of the energy is consumed in the extrusion process when melting the polymer and so the choice of the extruder size and the design is crucial", Hans-Jürgen Luger, Head of Research & Development at SML, clarifies. Extruders are generally efficient when operating with ideal drive and screw configurations. This applies in particular to SML's High Speed Extruders with diameters of 75 mm and 90 mm, which are designed to deliver up to 1,200 kg/h for PP, LDPE, LLDPE and PS. Compared to extruders with a larger diameter, a HSE requires up to 80 % less heating power with the same throughput. Another example is SML's HO-LT extruder for sensitive polymers like EVOH or tie materials, which enables high output rates with low melt temperatures. By using a 35 mm HO-LT extruder instead of a 75 mm standard extruder for EVOH with the same maximum throughput, the specific energy input (SEI) is reduced from 250 Wh/kg to 200 Wh/kg.

Factory: efficient cooling water treatment

Apart from the heating and melting of the polymer, the cooling process is also something which deserves consideration. Firstly, the water quality in the cooling circuits is crucial to achieve a high cooling efficiency and process reliability. The heat transfer deteriorates as a result of deposits and cooling circuit contamination and, thus, the cooling water temperature has to be lowered to achieve the same cooling capacity. In general, the temperature level required for the cooling water should not be lower as necessary. Secondly, the system for cooling water generation offers the opportunity to save energy. For example, SML uses an advanced system of water wells on the premises, geothermal pumps (which can also be solar-powered) and a rooftop chiller in the headquarters in Redlham. Additionally, heat dissipated from the extrusion lines in operation is used to heat the building in winter.

Line configuration: efficient reduction of edge trims

Another key-topic is the amount of edge trims ground, refeed into the process and re-melted. In principle, the portion of re-feeding decreases as the film width of an extrusion line increases. Thus, wide extrusion lines with a larger film width can be assumed to be more efficient. Comparing SML's MiniCast stretch film line (1,500 mm net width) with SML's PowerCast XL line (4,500 mm net width) as exhibited at K'2022, the portion of edge trim is decreased from 27 % to 17 %. This means, that the additional power consumption due to refeeding per kg/h net output of the line is 50 Wh/kg for the PowerCast XL line compared to 90 Wh/kg for the MiniCast.

Decreasing heat emissions

Insulating hot surfaces, which are subject to heat loss due to radiation, is a very effective and inexpensive method to cut energy costs. Furthermore, insulation, for example on melt adapters, can be easily retrofitted. Measurements have shown that the power consumption per 1 m length to maintain the set temperature of an adapter can be decreased from 8 kWh without any insulation to 6 kWh with insulation (- 25 %). SML has also modified the heating/cooling-unit for the extruder barrel in order to reduce radiation losses in the heating mode by up to 30 %.

Detecting hidden energy consumption in peripheral equipment

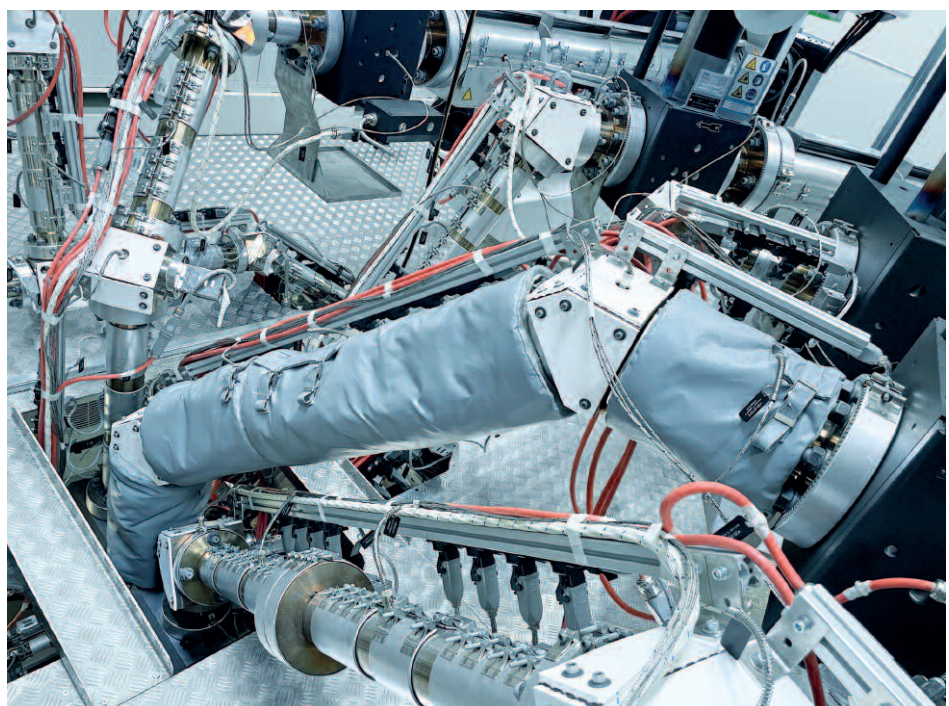
Pump drives or blowers frequently operate at full speed, regardless of the line speed and output. By installing frequency converters and modifying the machine control, the drive speeds and, thus, the power required can be adjusted to demand without affecting the output of the line. A further step is to use bit-Wise, SML's data generation and analysing tool to optimise the

► SML Maschinengesellschaft mbH

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熔体适配器的保温:一种非常有效的
减少热损失的方法

*Insulation on melt adapter: a
very effective method to cut
heat loss*



挤压技术新发展

Extrusion Tooling: Extrusion Takes Some New Turns



Guill Tool 公司位于美国罗德岛州西沃里克市，多年来一直是医用管材和其他产品挤压模具领域的全球领导者，并在多层共挤模具领域取得了诸多成就。

A longtime global leader in extrusion tooling for medical tubing and other products, Guill Tool has achieved a series of successes in the areas of multi-layer dies and, most recently, a reciprocal tubing die for wound draining that reconfigures the internal chambers of the tubing to accommodate drainage.

最近，该公司又推出了一款往复式伤口引流管模具，此款模具可以重新配置管材的内腔，以适应引流的需要。引流管可用于预防性插入，以防止或清除伤口积液，也可用于治疗性插入，以排出伤口内现有积液。排出积液是为了治疗或预防感染，促进伤口愈合，并提升病人舒适度。引流管还可用于诊断术后并发症，如吻合口瘘或出血。Guill 的模具设计具有独特的功能，无需以焊接等方式连接不同型材的截面。

“我们的自动挤压工艺可在生产中显著改变挤压型材，无需连接内部型材的不同截面。” – Tom Baldock, Guill Tool 销售经理。

Guill 设计的这款新型往复式管材模具具有多种独特功能。传统的头端和模具组件由线性往复式组件代替，该组件在给定

长度内改变管材的外形。此过程在挤出全程不间断地重复进行。切割能力外加挤出速度将成品切割成一定的长度。

可降低成本和减少价值流活动，同时提升质量。一次挤压即可产出成品，无需多次挤压、更换模具，以及通过声波焊接等连接方法手工组装不同形状的管材。Guill 的新型往复式挤压头完全消除了装配操作。它还消除了在制品库存。因此，无需储存装配、订单履单和成品补给所需的各种形状的管材和接头。

此外，往复式挤压头消除了连接件，允许准时生产和按订单生产产品。最后，它还缩短了从接收订单到发货的总运行时间。

在 Guill Tool 多年来优先关注的多层共挤领域，该公司还

推出了最新款 Series 800，这是一款 2 至 6 层挤出模具，旨在生产面向医疗和外科应用的 1/8" 至 6" 外径管材，具有出色的质量和材料效率。经过重新设计的 Series 800 可实现含氟聚合物和其他材料的无缝平滑挤出和分层，适用于所有多层、多腔医用管材。Guill 的设计进一步允许聚合物和粘合剂的薄层（0.02 毫米以下）组合。

Guill 提供各种十字头和内联管路模具，具有固定或可调节中心，适用于单挤压或共挤压应用。该模具旨在用于加工所有化合物，具有公司享有专利的精密 Feather Touch 同心度调节器，即 Seal Right 系统，该系统与 Feather Touch 系统相结合，消除了聚合物泄漏。Guill 还提供独特的螺旋流量分配系统。

所有 Guill 模具的生产都利用计算流体动力学 (CFD) 程序进行了严格的流道计算机模拟，从而优化均匀流动，而且没有接合线。

最后，Guill Tool 全新推出的 Series 900 内联管路模具实行标准定价，并提供更好的挤出性能和定制能力。

这个新系列适用于直径从 0.005 英寸（0.127 毫米）到 8.0 英寸（635 毫米）的软管或管材挤出，以及各类聚合物或橡胶 OEM、食品服务、汽车、工业、电信和医疗应用。

Series 900 技术具有以下主要优点：

- 实现同心度或“产品圆度”，与其他类型的挤出模具相比，可显著降低材料用量
- 无十字线内联设计挤压头不会产生十字线，从而允许更多空气进入，无需可能限制产品产量的冷却支架
- 可同时运行 1-5 层
- 专为多种应用而设计，包括特殊的含氟聚合物应用

Guill Tool Series 900 的一个主要技术亮点是正在申请专利的 FeatherTouch™ 模座调节装置，以及无需松开固定螺钉即可进行调节的筒式滚珠组件。Series 900 的其他独特优势

还包括 Guill 的 Seal Right Systems，该系统带来良好的密封性，可消除导流板之间的泄漏，而且易于自动对准，可减少装配过程中的操作错误，并适应各种特定的挤出机布局配置。

“这个系列提供面向挤压头的标准平台设计，以及针对具体应用的独特功能，且不会增加模具成本。因而，企业能以标准价格获得可定制的精密切具，这是一项卓越优势。这无疑可帮助我们的客户提升利润。”Guill 销售经理 Tom Baldock 表示。

Guill Tool 还使用最先进的计算机数控机床和 EDM 设备制造喷嘴、模具和断流板。此外，该公司还提供工程服务，使用最新的 CAD 系统来定制设计挤压模具产品，如十字头、喷嘴、夹具、法兰、成型辊、无十字网内联模具、模具、摆门、断流板、专用设备和定径模具。

Guill Tool 于 1995 年获得 ISO 认证。作为首家达到国际标准的大型挤出模具公司，Guill Tool 长期以来一直被公认为是定制挤出模具的领先设计商和制造商之一，其产品应用领域包括电线、电缆、光纤、医用管材、木质复合材料、汽车管、塑料复合、定制应用、橡胶、型材、工业管材、软管/管材、吹塑以及食品和包装等。

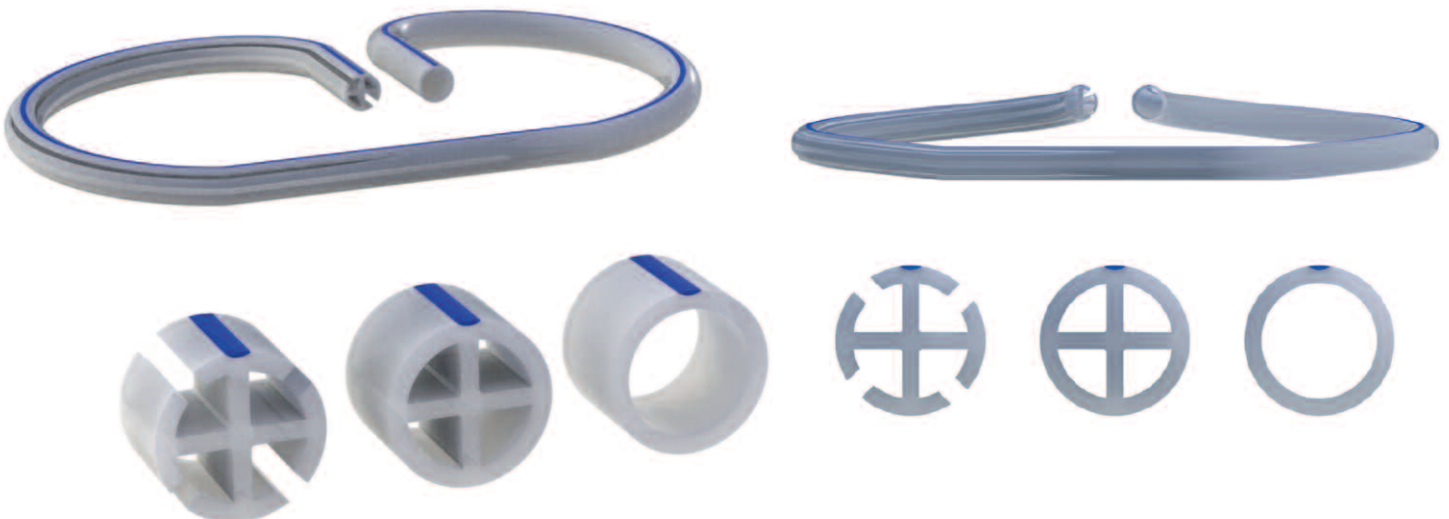
Guill Tool 还鼓励并为挤出行业提供教育和培训，包括塑料和铝制模型挤压头、图文并茂的分步组装和拆卸操作手册、培训视频以及挤出模具的维护和清洁课程。

Guill Tool 成立于 1962 年，由 A. Roger Guillemette 在罗德岛创立，最初是为新英格兰地区的电线、电缆或电线电缆、塑料和橡胶行业提供喷嘴、模具、十字头和替换部件的加工厂。后来，Guill Tool 逐步成为整个美国和加拿大的供应商，并迈入全球市场。

医疗领域的技术不断发展，通常需要各种材料和厚度的医疗级管材。Guill 专注于与客户合作设计和制造定制挤压工具，以生产业内最高质量的医用管材。该公司的 Micro Medical 模具可挤出比头发丝更细的管材，每转 0.008 英寸或更细，从而尽可能实现微创手术。其他型号可用于生产喂食管用管，包括鼻胃管和空肠管。

各种伤口引流管和手术管设计的内部配置无需再分别挤出和截面连接。Guill 的往复式挤压头设计可连续生产管材内的各种型材

Internal configurations of different designs used on wound drain and surgical tubing no longer require separate sections to be extruded, then joined. The Guill reciprocating head design produces various profiles within the tubing in a constant production run



Drain tubes can be inserted prophylactically to prevent or remove the accumulation of fluid in a wound. Alternatively, such tubing can also be therapeutically inserted to evacuate an existing collection of fluid in a wound. Fluid is removed in order to treat or prevent infection and promote wound healing and patient comfort. Drain tubes can also be used to diagnose post-operative complications such as an anastomotic leak or hemorrhage. The Guill design has unique features that eliminate the need to weld or otherwise join sections with different profiles together.

"Our automated extrusion process drastically changes the extruded profile in production, with no need to join separate sections of internal profiles," comments Tom Baldock, Sales Manager, Guill Tool

Guill has engineered this new reciprocal tubing die with various features, unique to the product. The traditional tip and die assembly is replaced with a linear reciprocating assembly that changes the tube's profile within a given length. This process is repeated throughout a single extrusion run without interruption. Cutting capability, in association with the extrusion speed, cuts the finished product to length.

While cost and value stream activities are reduced, quality is actually improved. Only one extrusion run is needed to produce a finished product, as opposed to multiple extrusion runs with tooling changes along with a manual assembly operation to connect different tubing shapes via sonic welds or other methods of joining. Guill's new reciprocating head eliminates this entire assembly operation. It also eliminates in-process inventory. Thus, there is no need for storage of various tubing shapes and connectors needed for assembly, fulfillment of orders and replenishment of finished goods.

Furthermore, the reciprocating head eliminates a connecting piece, allows JIT production and products made-to-order. Lastly, it reduces total run time from receiving the order to shipping product.

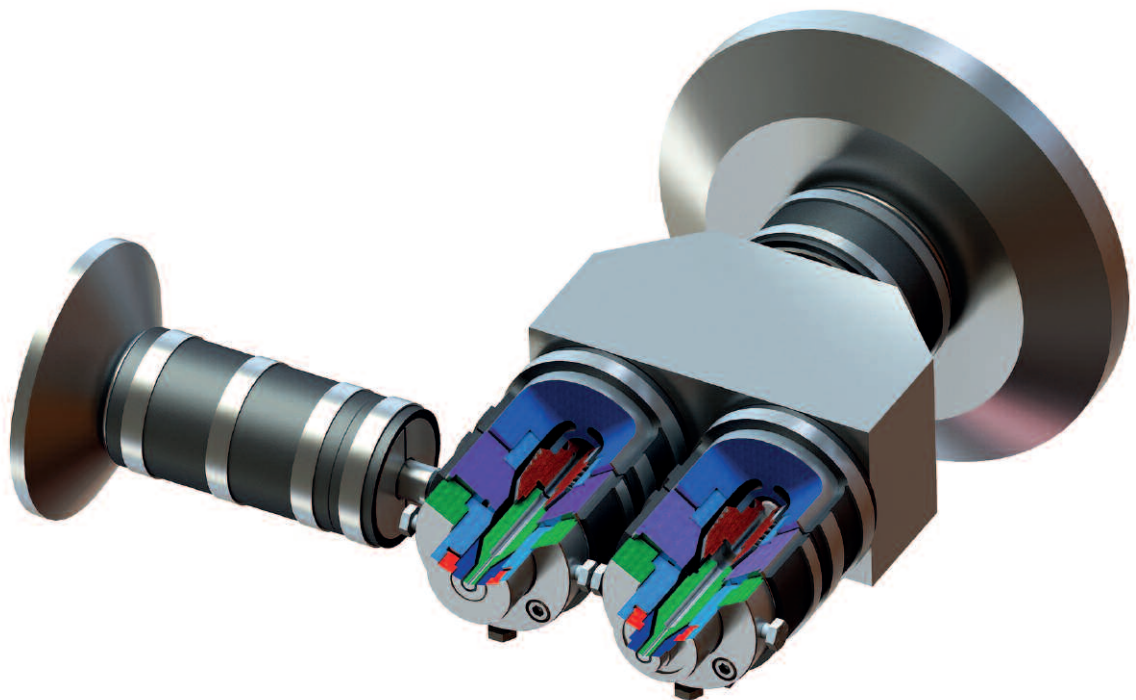
In the multi-layer extrusion arena, a primary focus of Guill Tool over the years, the company has also introduced the latest generation of its Series 800, the 2-to-6 layer extrusion tooling designed to produce the highest quality, highest material-efficient 1/8" to 6" OD tubing for medical and surgical applications. The redesigned Series 800 produces flawlessly smooth extrusion and layer definition of Fluoropolymer and other materials for all multi-layer, multi-lumen medical tubing. The Guill design further allows thin layer combinations of polymers and adhesives to 0.02mm or less.

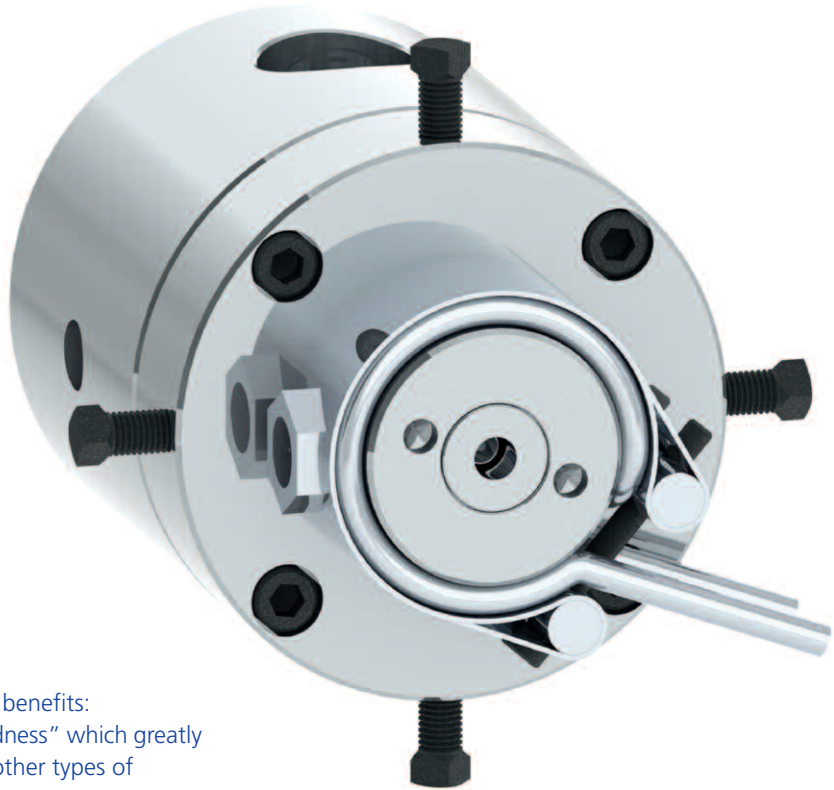
Guill offers its extensive line of crossheads and inline tubing dies in fixed and adjustable center, for single or co-extrusion applications. The tooling is designed to process all compounds and features the company's patented, precision Feather Touch Concentricity adjustment, the Seal Right System, which combines with the Feather Touch system to eliminate polymer leaking. Guill also offers its unique spiral flow distribution system.

All Guill tooling is produced with rigorous computer simulation of the flow channels using Computational Fluid Dynamics (CFD) programs, resulting in optimum uniform flow with no weld lines. Finally, the new Series 900 of inline tubing dies from Guill Tool offers improved extrusion performance and capabilities to customize at standard, off-the-shelf prices.

The new series is applicable to extrusion of hose or pipe ranging from 0.005" (0.127mm) to 8.0" (635mm) in diameter for all types of OEM, food service, automotive, industrial, telecom and medical applications in polymer or rubber.

Guill Series 800



Guill Series 900

The Series 900 technology offers these key benefits:

- Achieves concentricity or “product roundness” which greatly reduces material usage compared with other types of extrusion tooling
- Spiderless inline-designed heads results in no spider lines and allows room for more air – thus eliminating cold legs, which can inhibit product output
- Runs 1 to 5 layers simultaneously
- Engineered for a multitude of applications – including special fluoropolymer applications

A key Guill Tool technical highlight of the Series 900 is a patent-pending FeatherTouch™ adjustment in the die holder and a cartridge-style ball assembly that does not require the loosening of retaining screws to make adjustments. Additional unique benefits of the Series 900 include Guill’s Seal Right Systems, a positive seal, which eliminates leakage between deflectors, along with easy self-alignment that reduces operator error during assembly and is adaptable to a variety of specific extruder layout configurations.

“This series offers a standard platform design of the head with specific characteristics that are unique to individual applications included at no additional charge in the cost of the tooling. This is a tremendous benefit to a company that requires precision tooling with custom benefits at a standard off-the-shelf price. That certainly helps our customers’ bottom line,” says Tom Baldock, Guill Sales Manager.

Guill Tool also manufactures tips, dies, and breaker plates using state-of-the-art computerized CNC machining and EDM equipment. As well, engineering services using the latest CAD systems are available for custom-designing extrusion tooling product such as crossheads, tips, clamps, flanges, forming rolls, spiderless inline dies, dies, swing gates, breaker plates, special equipment and sizing dies.

Guill Tool received ISO certification in 1995. The first major extrusion tooling company to meet international standards, Guill Tool has long been recognized as one of the leading established designers and manufacturers of custom extrusion tooling for ap-

plications including wire, cable, fiber optics, medical tubing, wood composites, automotive tube, plastic compounding, custom applications, rubber, profile, industrial pipe, hose/tube, blow molding, plus food and packaging.

Guill Tool also encourages and provides education and training for the extrusion industry with plastic and aluminum model heads, fully illustrated operating manuals for step-by-step assembly and disassembly, training videos, and classes on the care and cleaning of extrusion tooling.

Founded in Rhode Island in 1962 by A. Roger Guillemette, Guill Tool was established as a job shop supplying tips, dies, cross-heads and replacement parts to the wire, cable or wire and cable, plastic and rubber industries in New England. Later, Guill Tool became a supplier for the entire United States and Canada, and today enjoys a worldwide market presence.

Technology in the Medical field is constantly evolving, and often requires an extensive array of Medical grade tubing in a variety of materials and thicknesses. Guill specializes in working with clients to design and manufacture Custom Extrusion Tooling to produce an unparalleled range of the highest quality Medical tubing in the industry. The company’s Micro Medical tooling can extrude tube thinner than a human hair, 0.008” or finer per revolution, and can be used to keep procedures as non-invasive as possible. Other models are used to produce tubing for feeding applications, including nasogastric and jejunal tubes.

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STOP项目：开拓型理念，扩大价格实惠的废料管理和回收解决方案

Circular Economy: Project STOP – Pioneering Concept to Expand Affordable Waste Management and Recycling Solutions

STOP项目及其合作伙伴成功地树立了重大里程碑，展示了一种扩展价格实惠的废料管理和回收解决方案的模式，以帮助应对印度尼西亚的塑料废料挑战。到2022年底，该项目已为印度尼西亚三个城市的30多万人提供了废料管理服务，其中大多数人是第一次获得废料管理服务，建成了5个废料处理设施，并收集了4万多吨废料(包括5000多吨塑料)。

Project STOP and its partners reached significant milestones and successes in demonstrating a model for expanding affordable waste management and recycling solutions to help address the plastic waste challenge in Indonesia. By the end of 2022, the programme has provided access to waste management services to over 300,000 people across three cities in Indonesia – to most for the first time –, built five waste processing facilities and enabled the collection of more than 40,000 tons of waste (including more than 5,000 tons of plastics).



项目 STOP 清理海滩 Jembrana (版权: Project STOP)

Project STOP Beach cleanup Jembrana (Copyright: Project STOP)

STOP项目由北欧化工 (Borealis) 和Systemiq共同资助，他们有着共同的愿景：通过支持建立低成本的废料管理解决方案，永久阻止废料泄漏到环境中，并通过实地行动产生真正的影响。该方案的主要目标包括：

- 通过向所有公民提供价格实惠、可靠和正规的废料收集服务，减少泄漏到环境中的废料；
- 促进资源效率和循环，将废料转化为可回收的原料；
- 实现可持续性经济；
- 通过改善公共卫生和在废料和材料分类部门创造永久性就业机会，使社区受益。

该计划的首个城市合作伙伴关系于2017年在印度尼西亚东爪哇省Banyuwangi摄政政府的沿海渔业社区Muncar启动。STOP项目对城市废料管理系统的积极支持于2022年2月结束，迄今为止，当地政府当局仍在继续成功运营该系统。对东爪哇Pasuruan县废料管理系统的积极支持于2023年2月结束。该项目继续在巴厘岛的Jembrana摄政政府开展业务，并开始扩展到东爪哇的Banyuwangi摄政政府，建设了一个新的材料回收设施(MRF)。

北欧化工首席执行官Thomas Gangl表示：“STOP项目在充满挑战的时期取得了令人印象深刻的成果，使我们能够展示大规模改进废料管理解决方案的重要作用，以避免塑料废料对环境的负面影响。这对北欧化工通过推动减少、再利用和回收设计来实现塑料循环系统方法的努力是一个补充。我们很自豪能与我们所有的合作伙伴一起取得这些成果，并感谢我们所有的地方、国家和国际支持者和项目合作伙伴的承诺！”

Systemiq亚洲海洋塑料业务总监Jason Hale表示：“2022年，我们在第二个和第三个STOP项目城市中大幅增加了服务的家庭和捕获的吨数。目前有超过30万人参与了我们的废料处理服务，并向更多的人提供了服务。更重要的是，我们与这些城市的当地合作伙伴一起完成了能力建设，使这些项目走上了长期可持续性和增长的道路。此外，我们在Banyuwangi摄政政府建立了一个坚实的基础，我们将在更大范围内扩大我们的影响，同时为其他摄政政府制定路线图。我们欢迎更多的资助者来支持这一2023 - 26年的扩张计划，并为与强大的地方和国家政府机构以及我们的资助者和顾问合作提供STOP项目而感到自豪。”

在印度尼西亚，扩大废料管理和回收解决方案是一项挑战，因为建立和运营废料管理系统需要资金，而且需要大规模的社区行为改变和废料系统运营商的技能发展。有机废料和某些类型的塑料废料(特别是由多种塑料制成的多层塑料)的回收或堆肥价值非常低。到目前为止，该项目的参与率根据地点的不同，从50%到87%不等，平均略高于30%的非有机可回收材料被送往所有合作社区进行回收。

STOP项目之所以能够产生影响，是因为印度尼西亚国家和地方政府机构提供了宝贵的支持，这些机构包括环境和林业部、海洋事务协调部、国家发展规划部/国家发展规划局、公共工程和公共住房部、班尤万吉政府、帕苏鲁安政府和珍布拉纳政府。除了其创始人北欧化工和Systemiq之外，Project STOP还与来自国际机构、学术界和私营部门的领先组织建立了战略合作伙伴关系:挪威外交部、雀巢、博禄公司、终结塑料废料联盟、Siegwerk、Schwarz、惠普、P4G、埃森哲和双鱼。



项目 STOP 塑料垃圾分类(版权: Project STOP)

Project STOP Plastic waste sortation (Copyright: Project STOP)

Project STOP is co-funded by Borealis and Systemiq, who share the same vision: to permanently stop waste leaking into the environment by supporting the establishment of low-cost waste management solutions, creating real impact through action on the ground. The key objectives of the programme include:

- Reducing waste leakage into the environment by providing affordable, reliable and formal waste collection to all citizens;
- Promoting resource efficiency and circularity that transform waste into feedstock for recycling;
- Achieving economic sustainability;
- Benefitting the communities through improved public health and creating permanent job opportunities in waste and material sorting sectors.

The programme's first city partnership started in 2017 in Muncar, a coastal fishing community in Banyuwangi Regency, East Java, Indonesia. Active support from Project STOP for the Muncar waste management system ended in February 2022 and to date, the local government authorities are continuing to operate the system successfully. Active support for the waste management system in Pasuruan Regency, East Java, ended in February 2023. The project continues to operate in the Jembrana Regency in Bali, and has started its expansion into the Banyuwangi Regency, East Java, with the construction of a new material recovery facility (MRF).

Thomas Gangl, CEO, Borealis, said: "Project STOP's impressive results generated during challenging times enable us to demonstrate the important role of improved waste management solutions at scale, to avoid negative environmental impacts of plastic waste. This well complements Borealis' endeavours towards a circular system approach for plastics by driving reduction, reuse and design for recycling. We are proud to have achieved these results together with all our partners and thank all our local, national and international supporters and project partners for their commitment!"

Jason Hale, Director of Operations, Ocean Plastics Asia, Systemiq, said: "In 2022, we materially increased households served and tons captured in our second and third Project STOP cities. Over 300,000 people are now participating in our waste services, and it has been offered to many more. More impor-

tantly, we completed capacity building with our local partners in these cities, setting these programs on course for long-term sustainability and growth. Moreover, we created a strong foundation in the Banyuwangi Regency from which we will grow our impacts at a larger scale, while building a roadmap for other Regencies to follow. We welcome additional funders to support this planned expansion for 2023-26, and remain proud to deliver Project STOP in partnership with strong local and national government agencies, as well as our funders and advisors."

Scaling up waste management and recycling solutions is challenging in Indonesia because of the financing required to build and operate waste management systems, and the need for large-scale community behaviour changes and skills development amongst waste system operators. Organic waste and some types of plastic waste (particularly multi-layer plastics made from multiple types of plastics) have very low value for recycling or composting. So far, the project has achieved participation rates ranging from 50% to 87% depending on the location, and on average slightly more than 30% of non-organic recyclable materials are sent for recycling across all partner communities.

Project STOP's impact was made possible through the invaluable support from Indonesia's national and local government agencies, including the Ministry of Environment and Forestry, the Coordinating Ministry for Maritime Affairs, the Ministry of National Development Planning/National Development Planning Agency, the Ministry of Public Works and Public Housing, the Banyuwangi Government, the Pasuruan Government and the Jembrana Government. In addition to its founders Borealis and Systemiq, Project STOP is grateful to its strategic partnerships with leading organizations from international institutions, academia and private sectors: the Norwegian Ministry of Foreign Affairs, Nestlé, Borouge, the Alliance to End Plastic Waste, Siegwerk, Schwarz, HP, P4G, Accenture, and Pisces.

► **Borealis Group**
www.borealisgroup.com

► **Systemiq**
www.systemiq.earth

► **Project STOP**
www.stopoceanplastics.com

印度首个 100% rPET 饮料瓶采用回收 PET 材料

Recycling: Recycled PET for India's first 100 % rPET Beverage Bottle



位于特伦甘纳的Srichakra的史太林格 recoSTAR PET 165 iV+PET瓶到瓶回收线为可口可乐的1升Kinley水瓶生产rPET (©Starlinger)

The Starlinger recoSTAR PET 165 iV+ PET bottle-to-bottle recycling line at Srichakra's production facility in Telangana produces the rPET for Coca-Cola's 1l Kinley water bottles (©Starlinger)

可口可乐印度公司最近推出了新的100%rPET水瓶，这是一个重要的里程碑，因为这是印度首次将100%回收塑料制成的包装用于食品或饮料。新瓶子的食品级rPET由Srichakra Polyplast (印度) 私人有限公司在史太林格PET瓶对瓶回收线上生产。

Coca-Cola India recently launched its new 100 % rPET bottle for water – a significant milestone as it is the first time that a packaging made of 100 % recycled plastic is used for food or beverages in India. The food-grade rPET for the new bottles is produced by Srichakra Polyplast (India) Pvt Ltd on a Starlinger PET bottle-to-bottle recycling line.

Srichakra Polyplast董事总经理Ravindra PV表示：“我们很自豪能为印度第一个由100%rPET制成的饮料瓶提供回收PET料。史太林格的PET回收工艺得到了EFSA（欧洲食品药品监督管理局）的积极意见和FSSAI（印度食品安全标准局）的批准，我们确保在回收过程中对PET进行彻底净化，并生产用于PET瓶预件生产和其他类型食品包装的食品安全rPET颗粒。”

可口可乐印度公司为其包装饮用水品牌Kinley使用新的rPET瓶，该品牌目前以一升瓶装销售。在印度食品安全标准局（FSSAI）对食品安全材料进行彻底审查并遵守其指南后，批准在食品包装中使用回收PET，使rPET瓶的推出成为可能。可口可乐印度和西南亚技术与创新副总裁Enrique Ackermann在一份新闻声明中表示；“与我们创建一个没有浪费的世界的愿景相一致，我们一直在寻找减少环境碳足迹的方法，并为创建循环经济做出贡献。我们很自豪成为印度第一家通过推出由100%回收PET制成的Kinley瓶子为消费者提供可持续包装选择的饮料公司。我们用食品级rPET制成的新瓶子的价值超过了最初的使用，因为它们是完全可回收的，可以重新用作新瓶子。这也是我们努力补充印度政府的‘Swachh Bharat Mission’（翻译为‘清洁印度使命’）倡议。”

位于特伦甘纳州海得拉巴的Srichakra使用的史太林格recoSTAR PET 165 iV+PET瓶对瓶回收线已于2021年投入生产，是史太林格在印度安装的第一条瓶到瓶回收线。它采用了加工消费后PET瓶的技术，并获得了欧洲食品安全局（EFSA）的积极科学意见和FSSAI的批准。生产的rPET颗粒适用于食品接触，可用于食品和饮料包装，如水瓶和碳酸软饮料、食品托盘等。使用回收塑料有助于显著减少对原始塑料的需求，并避免塑料垃圾进入垃圾填埋场或污染环境。

Srichakra已经订购了另外两条史太林格PET瓶对瓶回收线，将于2024年初交付。

Coca-Cola India uses the new rPET bottle for its packaged drinking water brand Kinley, which is currently sold in one-litre bottles. The launch of the rPET bottle became possible after the Food Safety Standards Authority of India (FSSAI) approved the use of recycled PET in food packaging, following a thorough review of the material regarding food safety and compliance with its guidelines. In a press statement, Enrique Ackermann, Vice President Technical and Innovation Coca-Cola India and Southwest Asia, said, “Aligned with our vision of creating a World Without Waste, we are constantly looking for ways to reduce our environmental footprint and contribute towards creating a circular economy. We are proud to be the first beverage company in India to offer our consumers a sustainable choice of packaging by launching Kinley bottles made from 100% recycled PET. Our new bottles made with food-grade rPET have value beyond their initial use, as they are fully recyclable and can be repurposed into new bottles. This is also an endeavour on our part to complement the Government of India’s ‘Swachh Bharat Mission’ (translated: Clean India Mission) initiative.”

The Starlinger recoSTAR PET 165 iV+ PET bottle-to-bottle recycling line at Srichakra’s production facility in Hyderabad, Telangana State, has taken up production in 2021 and was the first bottle-to-bottle recycling line Starlinger installed in India. It features technology for processing post-consumer PET bottles and has positive scientific opinions from the European Food Safety Authority (EFSA) and approvals from FSSAI. The produced rPET pellets are suitable for food-contact and can be used for food and beverage packaging like bottles for water and carbonated soft drinks, food trays, etc. The use of recycled plastics helps to reduce the need for virgin plastics significantly and avoids plastic waste going to landfills or polluting the environment.

Srichakra has already ordered another two Starlinger PET bottle-to-bottle recycling lines which will be delivered beginning of 2024.

“We are proud to supply the recycled PET Resin for India’s first beverage bottle that is made from 100 % rPET,” said Ravindra PV, Managing Director at Srichakra Polyplast. “With Starlinger’s PET recycling process, which has received positive opinions from EFSA and approvals from FSSAI, we ensure thorough decontamination of the PET in the recycling process and produce food-safe rPET pellets for PET bottle preform production and other types of food packaging.”

► **Starlinger recycling technology**
Furtherstrasse 47a, 2564 Weissenbach, Austria
www.recycling.starlinger.com

► **Srichakra Polyplast**
www.srichakra.in

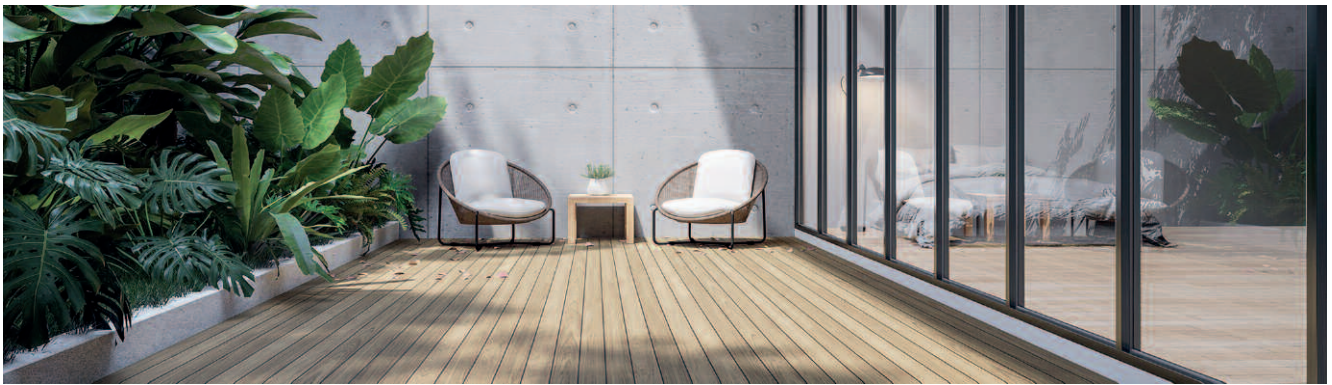
www.smart-extrusion.com

木塑复合台面板完美的形状

Measurement and Inspection Technology – WPC Deck Boards Perfectly in Shape

Profilcontrol 7 dx 木塑复合材料检测系统提供100%木塑复合台面板的尺寸测量

ProfilControl 7 DX WoodPlasticComposites provides 100% dimension measurement of WPC deck boards

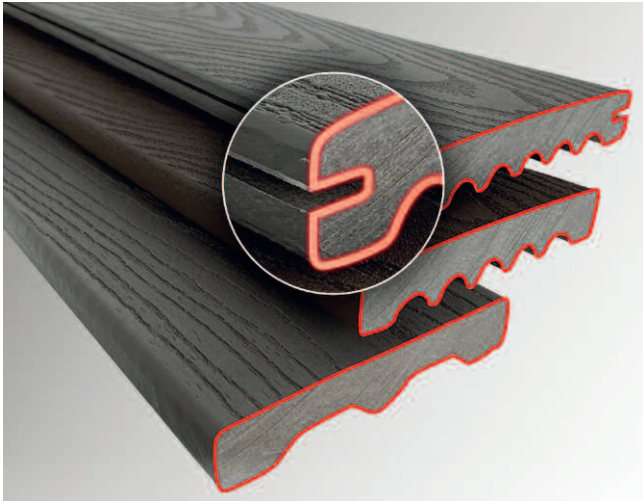


耐褪色，设计持久，易于维护和安全:PIXARGUS新的ProfilControl 7 DX木塑复合材料在线测量系统确保木塑复合材料制成的平面板和包覆层具有完美的形状

Resistant to fading, designed to last, easy to maintain, and safe: The new ProfilControl 7 DX WPC inline measurement system from PIXARGUS ensures that decking and cladding made of wood-plastic composites are of perfect shape

美国一家领先的木塑复合材料(WPC)可持续地板产品制造商使用德国制造的测量技术进行质量控制。PIXARGUS，ProfilControl 7 DX 木塑复合材料在线检测系统，确保在连续的在线检测过程中100%检查整个板材的轮廓。作为首推，该系统以最高的精度检查非常关键的特征，例如板的凹槽边缘，并且以最小的处理工作量，从快速调试和设置到从一种产品变换到另一种产品的自动切换。

A leading US manufacturer of sustainable decking products made of wood-plastic composites (WPC) uses measuring technology made in Germany for its quality control. The PIXARGUS inline system, ProfilControl 7 DX WoodPlasticComposites, ensures 100% inspection of the entire board profile in a continuous, inline process. As a premiere, the system inspects even highly critical features, such as the grooved edges of the boards, with the highest accuracy – and with minimum handling effort, from quick commissioning and set-up through to automated switch-over from one product variant to another.



在寻找没有任何瑕疵的装饰材料吗? 台面设计持久, 耐褪色, 具有自然的外观, 对儿童和宠物都是安全的, 因为它抗炸裂和防滑? 你可以从复合台面铺装中得到所有这些。传统木台面是由外来硬木制成的, 木塑复合台面是其可持续替代品。

对这些创新的木塑产品进行彻底的质量检查也是必不可少的。PIXARGUS的新型在线检测系统ProfilControl 7 DX 用于在线检测木塑复合材料, 现在可以确保所有离开生产线的台面都具有完美的形状。该系统设计紧凑, 基于PIXARGUS成熟且成功的PC7检测技术。其中一套这样的系统现已成功地在一家领先的平面板和包覆层板制造商的工厂中使用。

OPC-UA接口是实现全自动制造的途径

这家著名的美国台面生产商最近在自动化生产过程中取得了巨大的进步。到2022年, 所有工艺步骤、机器和设备都已联网, 并与上位控制系统相连。该公司现在使用德国测量专家PIXARGUS的新型智能检测系统, 使其挤出台面板的质量控制成为全自动过程。

PIXARGUS的基于摄像头的ProfilControl 7 DX木塑复合材料数字在线检测系统配备了一个OPC-UA接口, 使其能够顺利地集成到制造商的工艺链中, 并实时与各种控制单元和下游工艺进行通信。

得益于其OPC-UA接口, ProfilControl 7 DX 木塑复合材料在线测量系统可以轻松无缝地集成到生产线和工艺链中。测量系统为下游工序提供质量数据, 并在产品切换时自动适应

Thanks to its OPC-UA interface, ProfilControl 7 DX WPC can be easily and seamlessly integrated into manufacturing lines and process chains. The measuring system provides quality data for downstream processes and adapts automatically when production switches

PIXARGUS的ProfilControl 7 DX 木塑复合材料在线测量系统确保在连续的在线过程中100%检查整个平面板的轮廓。作为首演, 该系统甚至以高精度检查关键特征, 例如平面板的凹槽边缘

ProfilControl 7 DX WPC from PIXARGUS ensures 100% inspection of the entire board profile in a continuous, inline process. As a premiere, the system inspects even critical features, such as the grooved edges of the boards, with high accuracy

产品自动分级和堆叠

除了在连续过程中提供100%的台面板检查外, 测量系统的智能软件还有助于对产品进行全自动分级。被分级为无缺陷的板材被自动堆叠, 等待发货。

产品自动切换

PIXARGUS系统与制造商的上位控制系统之间的连接还可以实现从一种产品变换到另一种产品形态的自动切换。在生产线控制系统接收到信号后, ProfilControl 7 DX 木塑复合材料检测系统在运行生产过程中自动调整到新产品的检测参数。

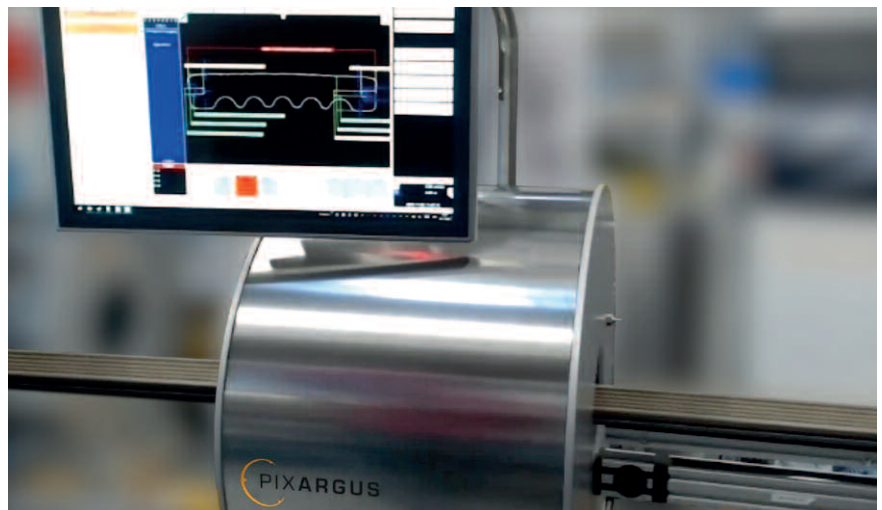
质量控制的第一要务:100%检查, 即使是关键的特征, 例如深槽

在台面板切割成一定长度后, ProfilControl 7 DX 系统的8个高分辨率摄像头可以在线捕捉台面板的轮廓, 检查所有的半径、角度、距离、长度、高度和宽度。对于美国台面制造商的应用为例, PIXARGUS已经将相机定位在这样一种方式, 即可以测量台面板的整个凹槽边缘。这些凹槽稍后将容纳紧固件安装台面。

虽然美国客户过去使用的标准测量系统只能测量凹槽的高度或深度, 但ProfilControl 7 DX 木塑复合测量系统使用了一个特殊的传感器头, 只需一次测量即可同时测量极具挑战性的凹槽几何形状的两个参数(高度和深度)。

交钥匙解决方案, 旨在应对最具挑战性的生产条件

ProfilControl 7 DX 木塑复合材料测量系统提供工厂校准。工艺可靠性和测量精度符合1型和3型机械特征分析。这意味着该系统甚至可以满足最严格的内部质量管理要求。它专



为宽度达250毫米的产品而设计，并在最具挑战性的生产环境下稳定运行。传感器单元由外壳保护。这使得测量设备具有很强的抗污染能力。新的PIXARGUS系统已经在美国客户的操作中被证明是非常成功的。

Looking for decking that leaves nothing to be desired? Decking that is designed to last, be resistant to fading, has a natural look, and is safe for children and pets, as it resists splintering and is non-slippery? You can get all this from composite decking. Wood-plastic composite decks are the sustainable alternative to traditional wood decks made from exotic hardwoods. Thorough quality inspection is also essential for these innovative WPC products. A new inline inspection system from PIXARGUS – ProfilControl 7 DX WoodPlasticComposites – is now available to ensure that all of the deck boards leaving a manufacturing line are of perfect shape. The system is of compact design and based on PIXARGUS' proven and successful PC7 inspection technology. One such system is now successfully in use at a leading decking and cladding boards manufacturer in the USA.

OPC-UA interface is the pathway to fully automatic manufacturing

This renowned US deck board producer has recently made great strides in automating its production processes. In 2022, all process steps, machines and equipment were networked and linked with the higher-level control systems. The company now uses the new smart inspection system from German measuring specialists PIXARGUS to make quality control of its extruded deck boards a fully automatic process.

The camera-based digital inline inspection system ProfilControl 7 DX WPC from PIXARGUS comes with an OPC-UA interface that allows it to smoothly and seamlessly integrate with the manufacturer's process chain and communicate with the various control units and downstream processes in real time.

Automatic product grading and stacking

In addition to providing 100% inspection of the deck boards in a continuous process, the measuring system's smart software is

also instrumental in grading the products fully automatically. Boards graded as defect-free are automatically stacked ready for dispatch.

Automated product switching

The link between the PIXARGUS system and the manufacturer's higher-level control systems also enables automatic switching from one product variant to another. Upon a signal received from the line control system, ProfilControl 7 DX WPC automatically adjusts to the inspection parameters of the new product – during running production.

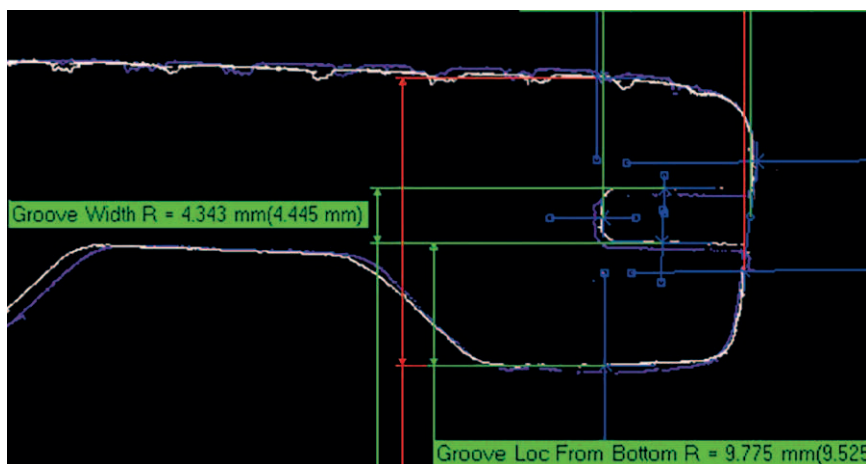
A first in quality control: 100% inspection even of critical features such as deep grooves

After the deck boards have been cut to length, the eight high-resolution cameras of the ProfilControl 7 DX WPC system capture the contours of the boards in an inline process, checking all radii, angles, distances, lengths, heights and widths. For the use case at the US deck board manufacturer, PIXARGUS has positioned the cameras in such a way that also the entire grooved edges of the deck boards can be measured. These grooves will later accommodate the fasteners to install the decking.

While the standard measuring systems the US customer had used in the past were only able to measure either the height or the depth of the groove, ProfilControl 7 DX WPC uses a specially adapted sensor head to measure both parameters of the highly challenging groove geometry simultaneously with just one measurement (see image below).

Turnkey solution designed to cope with the most challenging production conditions

ProfilControl 7 DX WPC is supplied calibrated ex works. The process reliability and measuring accuracy are in compliance with MSA type-1 and type-3 studies. This means the system fulfills even the most exacting internal QM requirements. It is designed for up to 250 mm wide products and stable operation under the most challenging production environments. The sensor unit is protected by an enclosure. This makes the measuring equipment highly resilient to contamination. The new PIXARGUS system has already proved highly successful at the US customer's operations.



专门调整的摄像机甚至可以检查非常深和狭窄的凹槽

Specifically adjusted cameras can inspect even very deep and narrow grooves

► Pixargus GmbH
Industriepark Aachener Kreuz, Monnetstr. 2,
52146 Würselen, Germany
www.pixargus.de

使用回收物料最大限度地减少了薄膜的碳足迹

Film Extrusion: The Use of Recyclates Reduces the Carbon Footprint of Films the Most

什么会影响塑料薄膜的碳足迹？，哪里有很大的减少潜力？薄膜拉伸线供应商布鲁克纳机械制造有限公司（Brückner）和能源咨询公司envistra在一项研究中调查了这个问题。来自东欧一家正在运行的薄膜生产工厂的数据，记录了该工厂的能源消耗和排放，以及原材料生产和运输中的具体排放。

What influences the carbon footprint of a plastic film and where is the greatest potential for reduction? Brückner Maschinenbau, supplier of film stretching lines, and the energy consulting company envistra investigated this question in a study. Based on the data from a running film production plant in Eastern Europe, the energy consumption and emissions of the plant as well as the specific emissions from the production and transport of the raw materials were recorded.

结果:每生产一平方米双向拉伸聚丙烯薄膜(BOPP)，生产工厂的能源相关二氧化碳排放比例约为12%，而原材料制造的二氧化碳排放比例略低于72%。剩下的16%来自包装、运输，在这个例子中，是热能回收。这清楚地表明，减少二氧化碳排放的重要手段在于使用的原材料。

通过使用30%的回收料，也有可能将总二氧化碳排放量减少20%，从生产每公斤的薄膜排放2.744公斤二氧化碳减少到排放2.193公斤。如果你考虑到现代布鲁克纳薄膜拉伸系统每小时生产薄膜约8000公斤，使用回收料时减少的二氧化碳排放甚至更惊人，即每小时生产可减少二氧化碳排放4.4吨。

布鲁克纳机械制造有限公司的总经理/首席技术官Michael Baumeister说：“对我们来说，不断减少石化原材料的使用和降低薄膜生产中的能源消耗是拉伸技术进一步发展的传统目标。多年来，我们一直致力于在研究和开发增加回收料的利用。在实际生产条件下的研究现在是另一个重要的步骤。”

布鲁克纳机械制造有限公司的工艺工程师Steffen Kuhnigk已经积极参与了几项合作和倡议，并希望通过目前的研究结果说服新的合作伙伴：“含有回收物料的薄膜，其回收料的质量、可用性和新的应用领域必须共同发展。要做到这一点，我们需要价值链上的所有成员共同参与，包括从回收商、原材料制造商到品牌公司和零售商。政治和立法也必须参与进来。”



Result: Per square meter of biaxially oriented polypropylene film (BOPP) produced, the proportion of energy-related CO₂ emissions from the production plant is around 12%, while the CO₂ emissions from the manufacture of the raw materials are just under 72%. The remaining 16% is accounted for by packaging, transport and, in this example, thermal recycling. This clearly showed that the greater lever for reducing CO₂ emissions lies in the raw materials used.

By using 30% recyclate, it was also possible to reduce the total CO₂ emissions by 20%, from 2.744 kg to 2.193 kg per kilogram of film produced. If you consider that modern Brückner film stretching systems produce around 8,000 kg per hour, the reduction in CO₂ emissions when using recyclate is even more striking, namely with 4.4 tons fewer emissions per hour of production.

Michael Baumeister, Managing Director/CTO of Brückner Maschinenbau: "For us, a continuously declining use of fossil raw materials and ever lower energy consumption in film production are traditional goals in the further development of stretching technology. We have also devoted ourselves to the increased use of recyclates in research and development for years. The study under real production conditions is now another important step."

Steffen Kuhnigk, process engineer at Brückner Maschinenbau, is already active in several cooperations and initiatives and hopes to convince new partners with the results of the current study: "Recyclate quality, availability and new areas of application for films containing recyclate must be developed together. To do this, we need all members of the value chain, from recyclers and raw material manufacturers to branded companies and retailers. And politics and legislation must also be on board."

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CV 生产线末端的高效品质控制

Quality Control – Case Study: Efficient Quality Control at the End of the CV Line



宁波东方
Ningbo East

X-RAY 8700 NXT : 交联生产线冷端的高效品质控制

在交联生产线的中压、高压、超高压及海底电缆的生产过程中，SIKORA 的 X-RAY 8000 系列产品可进行持续可靠的质量控制，现已成为行业标杆，在全球销售超过1,700台。这些检测系统以其对多达三层电缆的同心度、壁厚、直径和椭圆度进行精确可靠的检测而为用户所信赖。

For a continuous and reliable quality control at the production of medium, high and extra-high voltage cables as well submarine cables in CV lines, SIKORA's X-RAY 8000 product family has set standards with more than 1,700 devices sold worldwide. The systems convince by precise and reliable measurements of concentricity, wall thickness, diameter and ovality as well as by controlling cables with up to three layers.

许多知名电缆制造商，如中国的宁波东方电缆股份有限公司、青岛汉缆股份有限公司、中天科技股份有限公司等*都配备了SIKORA的X射线检测设备对交联电缆生产线进行热端及冷端的质量控制，在交联生产线冷端使用SIKORA的X-RAY 8700 NXT对成品的品质进行最终控制，确保了交付给其客户的电缆具有最高品质。（*以上公司次序按英文首字母排序。）

配备 SIKORA 冷端测偏仪X-RAY 8700 NXT 以确保精确的交联生产线冷端测量数值

- X-RAY 8000 NXT/ADVANCED 提供了帮助挤出机头快速对中和对生产线进行自动控制所需要的数据。
- X-RAY 8700 NXT 在生产线末端测量最终产品尺寸（直径、壁厚、偏心率）。

X-RAY 8000 系列产品适用于单层、双层或三层绝缘的单芯、绞合电缆以及分割导体电缆。X-RAY 8700 NXT 还可适用于对绝缘材料采用聚丙烯为基材（高性能热塑性弹性体 - HPTE）的产品进行可靠的质量控制。生产线前端的 X-RAY 8000 NXT/ADVANCED 与末端的 X-RAY 8700 NXT 的组合，提供了对电缆外屏蔽层、绝缘层、内屏蔽层三个收缩率的精确测定，这确保了对电缆生产过程进行最佳的优化控制。



青岛汉缆
Qingdao Han Cable

Many well-known cable manufacturers, such as the Chinese companies Ningbo Orient Wires & Cables Co., Ltd., Qingdao Hanhe Cable Co., Ltd., Zhongtian Technology Co., Ltd. etc.* rely on X-ray devices from SIKORA for quality control in CV lines at both hot and cold positions. In addition, the producers benefit from the final quality control with X-RAY 8700 NXT as it en-

ures the highest quality of the cable delivered to their customers. (*The above companies are in alphabetical order.)



Using SIKORA's X-RAY 8700 NXT to ensure accurate cold measuring values

The X-RAY 8000 NXT or ADVANCED models provide information for an immediate centering of the crosshead and an automatic control.

The X-RAY 8700 NXT is also available. It measures the final product dimensions (diameter, wall thickness, concentricity) at the end of the CV line.

While the X-RAY 8000 series are applicable for cables with solid and stranded as well as Milliken conductors with single, double or triple layer insulation. The X-RAY 8700 NXT is also suitable for the reliable quality control of insulation material based on polypropylene (High Performance Thermoplastic Elastomer – HPTE). The combination of the X-RAY 8000 NXT/ADVANCED at the beginning with the X-RAY 8700 NXT at the end of the line offers a precise determination of the shrinkage values for all three insulation layers. This assures an optimum process control for a perfect final cable.

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提升塑料再生料的质量

Recycling: Promoting Quality in Plastic Recycling

塑料回收市场正刮起一阵清新的风。这是由于采购服务提供商和平台运营商plastship与气体测量技术专家3S GmbH之间的新合作成果。这种销售合作使3S的气味评估技术更直接地接触到更广泛的塑料回收商和加工者群体，标志着向提高行业质量保证标准迈出了重要一步。

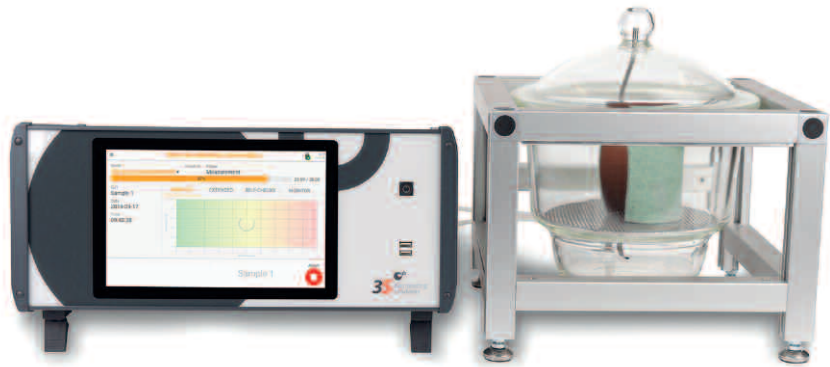
合作的核心是3S公司的气味检测点(OCS)，这是一种为满足塑料和回收行业的需求量身定制的气味评估测试设备。OCS允许对回收物的材料质量进行客观和可重复的评估，以满足行业不断增长的质量需求。这项技术已经成功地应用于汽车行业。

3S气味检测点的灵活性和人工智能(AI)的使用允许对各种材料进行有效的气味评估。例如，在不同的工艺步骤中，对回收物的气味进行评估成为可能——要么是为了持续验证工艺质量，要么是为了优化工艺。与传统的气味面板相比，OCS提供了更高的测量结果重现性。这是一个显著的优势，特别是在与VDA 270的要求密切一致的情况下。此外，与气味面板和分析解决方案相比，OCS评估显著降低了投资和运营成本。其人性化设计易于操作，从而有助于提高成本效率。

“在plastship平台上引入3S技术为塑料回收的质量控制开辟了新的途径，”plastship董事总经理安德烈亚斯·巴斯蒂安(Andreas Bastian)表示。“气味检测OCS可进行快速和可靠的气味评估，这是制定和接受质量保证标准的关键步骤。”

3S GmbH董事总经理Thorsten Conrad补充说：“这种合作将塑料回收的质量保证提升到了一个新的水平，提高了回收产品生产的效率和可靠性。”

A fresh wind is blowing through the plastic recycle market. Thanks to a new collaboration between plastship,



3S的OdorCheckerSpot (OCS)是一款满足塑料和回收行业需求而量身定制的气味评估测试仪(©plastship)

The OdorCheckerSpot (OCS) from 3S is an odour assessment tester tailored to the needs of the plastics and recycling industry (© plastship)

the procurement service provider and platform operator, and 3S GmbH, a specialist in gas measurement technology. This sales cooperation makes 3S's odour assessment technology more directly accessible to a broader group of plastic recyclers and processors, marking an important step towards improved quality assurance standards in the industry.

At the heart of the collaboration is the OdorCheckerSpot (OCS) from 3S, a test device for odour assessment tailored to the needs of the plastics and recycling industry. The OCS allows for an objective and reproducible assessment of the material quality of recyclates to meet the industry's rising quality demands. The technology is already being used successfully in the automotive sector.

The flexibility of the 3S OdorCheckerSpot and the use of Artificial Intelligence (AI) allow for efficient odour assessment of various materials. For example, odour assessment of recyclates at different process steps becomes possible – either for continuous verification of process quality or for process optimization. Compared to conventional odour panels, the OCS of-

fers higher reproducibility of measurement results. This is a significant advantage, especially in close alignment with the requirements of VDA 270. Moreover, the OCS scores with significantly lower investment and operating costs compared to sensory panels and analytical solutions. Its user-friendly design encourages easy handling, thus contributing to cost efficiency.

"The introduction of 3S technology on the plastship platform opens up new avenues for quality control in plastic recycling," says Andreas Bastian, Managing Director at plastship. "The OCS allows for a quick and reliable odour assessment, a crucial step for the development and acceptance of quality assurance standards." Thorsten Conrad, Managing Director at 3S GmbH, adds: "This cooperation elevates quality assurance in plastic recycling to a new level, increasing efficiency and reliability in the production of recyclates."

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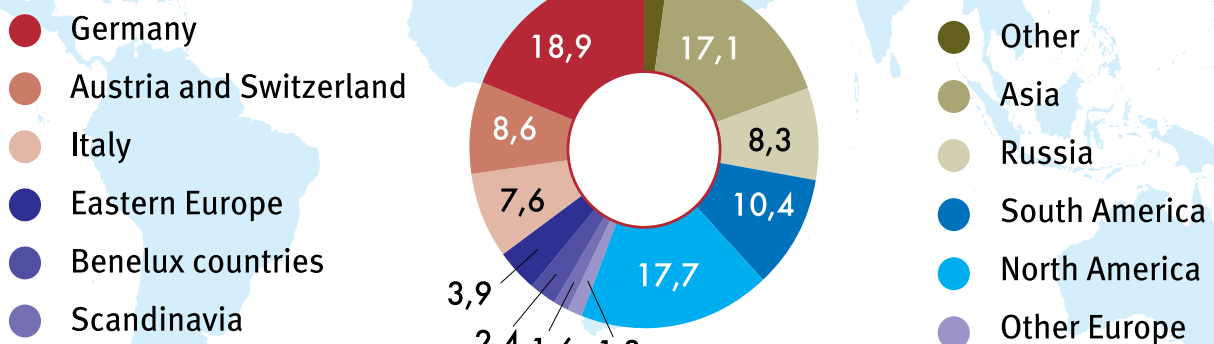
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