

挤出和回收 亚洲

EXTRUSION & RECYCLING ASIA

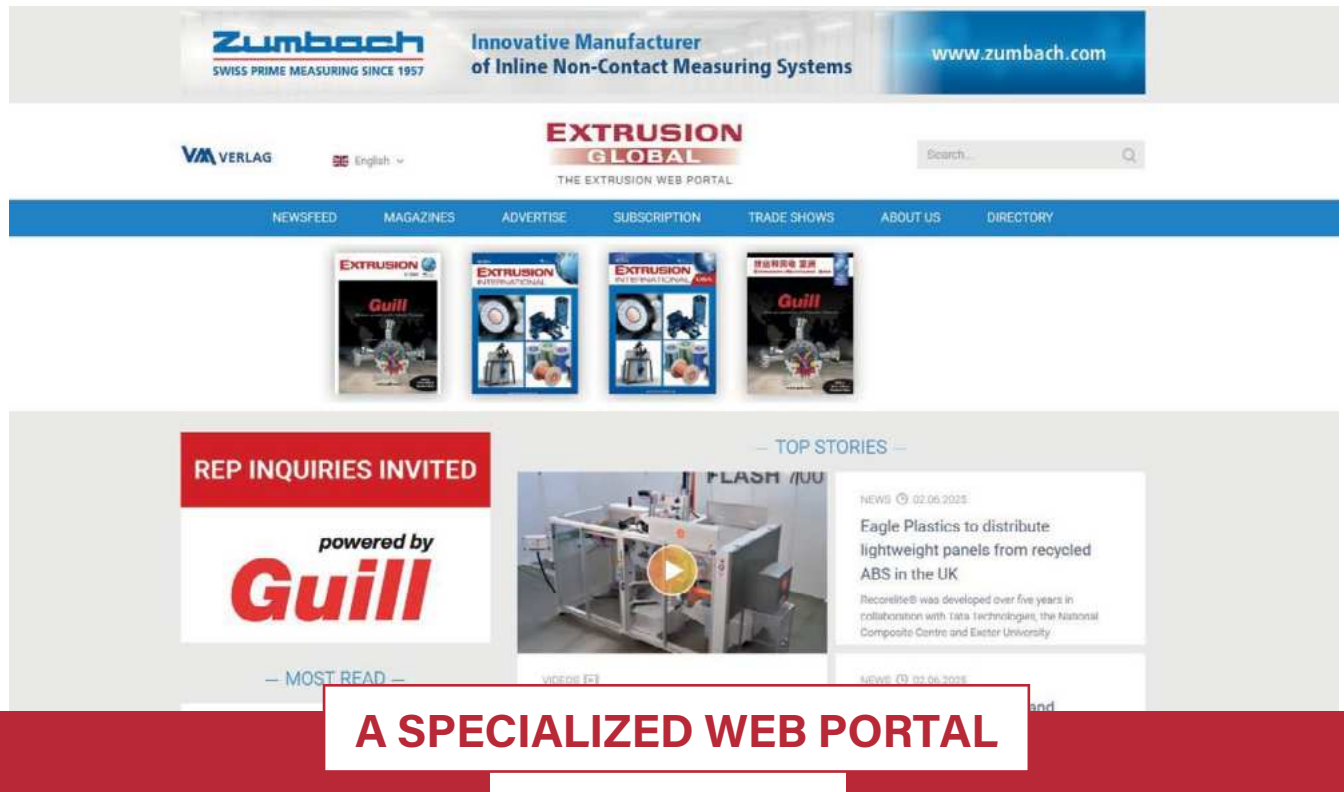


2/2025

VMA VERLAG
Cologne/Germany

EXTRUSION GLOBAL

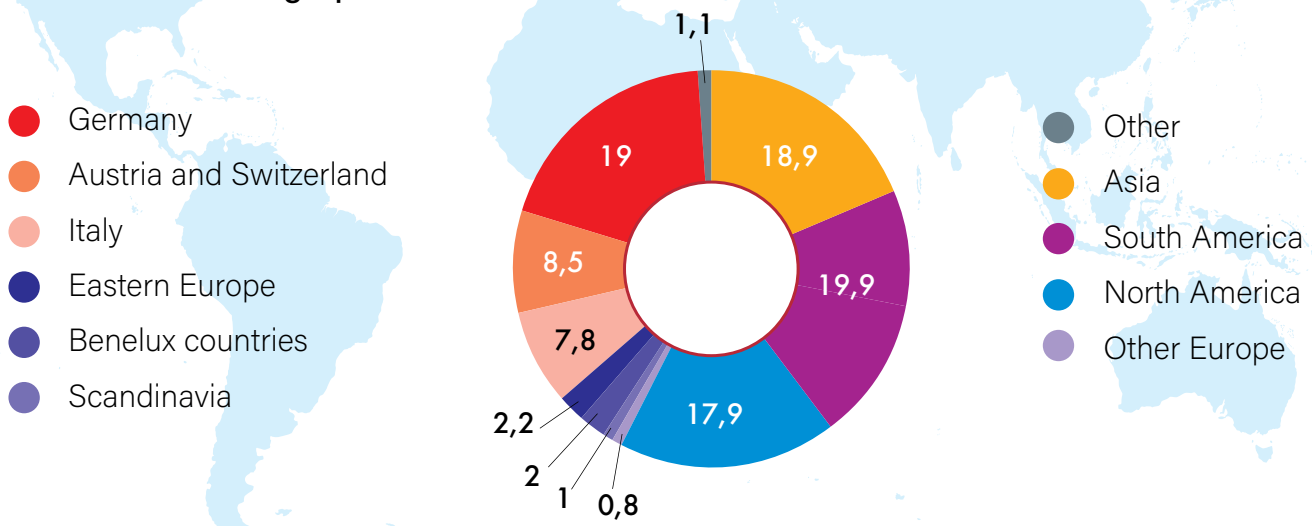
The only website collecting information about smart technologies of extrusion



- ▶ News about relevant products and events
- ▶ Detailed reviews of various smart technologies
- ▶ Case studies from processors
- ▶ English, German, and Chinese
- ▶ Video clips demonstrating smart equipment in live action
- ▶ Latest magazines available for reading and downloading
- ▶ Weekly e-mail newsletters

39 600 + average monthly visits

Geographic distribution of EXTRUSION GLOBAL readers, %



www.extrusion-global.com

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2025 年 10 月 8 日至 15 日，杜塞尔多夫国际塑料及橡胶展览会（K 展）将再次成为全球塑料和橡胶行业的核心商业枢纽。

From 8 to 15 October 2025 K in Düsseldorf will again become the central business hub for the global plastics and rubber industry. It sets clear accents with its motto "The Power of Plastics! Green – Smart – Responsible".



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挤压模具的全球领导者 Guill Tool 最近宣布在各种十字头上提供其 Cam-Lock 设计。

Guill Tool, the global leader in extrusion tooling, recently announced the availability of its Cam- Lock design on various crossheads.



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MAAG集团总部位于瑞士奥贝格拉特，在国际上运营，一直在加强其在中国的本地化战略。

The internationally operating MAAG Group, headquartered in Oberglatt, Switzerland, has been stepping up its localization strategy in China.



29

摩丹 (motan) 集团将在 K 展上展出一系列强大的产品组合，适用于塑料加工的多种应用。

The motan Group will be exhibiting at the K Show with a strong product portfolio for a wide range of applications in plastics processing.



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作为科倍隆(Coperion)旗下的品牌，赫伯特·麦克斯海姆Herbold Meckesheim) 将在 2025 年 K 展上展示其在塑料回收技术方面的最新进展。

Herbold Meckesheim, a brand of Coperion, will showcase its latest advancements in plastics recycling technology at K 2025.





K 2025

08 - 15 October 2025
Düsseldorf / Germany
www.k-online.de

Plast Eurasia Istanbul 2025

3 - 6 December 2025
Istanbul / Turkey
www.plasteurasia.com

Vinyl Week 2025

10 - 12 December 2025
New Orleans, LA / USA
<https://e.plasticsindustry.org/>

Swiss Plastics Expo

20 - 22 January 2026
Luzern / Switzerland
www.swissplastics-expo.ch

interpack 2026

07 - 13 May 2026
Düsseldorf / Germany
www.interpack.de

Interplas 2026

02 - 04 June 2026
Birmingham / United Kingdom
www.interplasuk.com

Equiplast

02 - 05 June 2026
Barcelona / Spain
www.equiplast.com

Fakuma 2026

13 - 17 October 2026
Friedrichshafen / Germany
www.fakuma-messe.de

NPE2027

03 - 07 May 2027
Orlando, FL / USA
<https://e.plasticsindustry.org/>



上海包装世界2025打开了亚洲包装市场的大门

对于那些寻求在亚洲站稳脚跟的人来说，有一个重要的停靠港：上海包装世界（swop）。对于那些希望进入世界上最令人兴奋的经济活动领域之一的人来说，这是理想的汇合点。今年11月，亚洲包装行业的中心枢纽上海包装世界将再次为进入市场、开展业务，为有针对性的交流提供一流的条件。

国际加工和包装行业将于2025年11月25日至27日在上海新国际博览中心举行swop - interpack（上海包装世界-杜塞尔多夫国际包装展）联盟组织的活动。预计将有来自100多个国家的950多家参展商和4万多名专业来宾参展。

展会不仅提供了整个行业供应链的更大图景，还将当前的趋势、技术发展和市场细分集中在一个屋檐下。此外，作为杜塞尔多夫国际包装展联盟的成员，上海包装展受益于全球网络的国际覆盖和优秀的行业代表性-这对所有着眼于亚洲市场的参与者来说都是一个明显的竞争优势。

“国际展馆”为国际参展商提供了特别的附加值，这是杜塞尔多夫国际包装展联盟提供的一种全面的产品，将最好的贸易展览与高知名度结合在一起。更重要的是，展馆内的参展商受益于有针对性的参观路线，将重要的买家直接带到他们感兴趣的展位。

借助于多元化的配套计划，上海包装世界2025再次为中国包装行业的持续发展提供了强大的动力。目前的趋势、技术创新和国际行业对话是重点。除了智能包装区和绿色动力区等已被证明的空间安排外，升级后的“FMCG Infinity（快速消费品区）”尤其将专注于为快速消费品（FMCG）品牌创建一个集成的包装供应链生态系统，激发包装设计的创造力。以广泛的展览为特色-从包装产品和材料到综合解决方案和供应链服务。

今年的一个亮点，再一次是“包装中的女性”论坛。它赞扬妇女在一个正在发生变化的行业中的贡献，创造知名度，并促进关于包装行业的公平、领导和多样性的国际对话。

Shanghai World of Packaging 2025 Opens Doors to the Asian Packaging Market

There is a vital port of call for those seeking to gain a foothold in Asia: the Shanghai World of Packaging (swop). This is the ideal meeting-point for all those looking to make their entry into one of the world's most exciting areas of economic activity. Once again, in November, swop - the central hub of the Asian packaging industry - will provide first-class conditions for market entry, doing business and targeted exchange.

The international processing & packaging industry is set to convene at swop - an event organised by the interpack alliance - in the Shanghai New International Expo Centre between 25 and 27 November 2025. In excess of 950 exhibitors and more than 40,000 visiting professionals from over 100 countries are anticipated.

The trade fair not only provides the bigger picture concerning the industry's entire supply chain, but also brings to-

gether current trends, technological developments and market segments under one roof. In addition, as a member of the interpack alliance, swop benefits from the global network's international coverage and excellent industry representation – which is a clear competitive advantage for all participants with an eye to the Asian market.

Particular added value for international exhibitors is provided by the “International Pavilion” – an all-inclusive offering by the interpack alliance that combines the best possible trade fair presence with high visibility. What's more, exhibitors in the Pavilion benefit from targeted

visitor routes that lead important purchasers straight to their booths.

With a diverse accompanying programme, swop 2025 once again delivers a strong impetus for the packaging industry's ongoing development in China. Current market trends, technological innovations and international industry dialogue are at the focus. Alongside proven formats such as the Smart Packaging Zone and Green Power Zone, the upgraded “FMCG Infinity Zone”, in particular, will focus on creating an integrated packaging supply chain ecosystem for fast-moving consumer goods (FMCG) brands, in-

spiring creativity in packaging design. Featuring a wide range of exhibits—from packaging products and materials to comprehensive solutions and supply chain services.

One highlight this year, once again, is the “Women in Packaging” forum. It pays tribute to women's contribution in an industry undergoing changes, creates visibility and promotes international dialogue on equity, leadership and diversity in the packaging industry.

www.swop-online.com/en

收购顺利完成

MAAG (马格) 集团宣布成功完成对 SIKORA (西科拉) AG 的收购。合作关系的目的是有针对性地利用联合协同效应, 并从长远来看加强两家公司的地位。

随着交易的成功完成, 马格和西科拉现在将结合他们的专业知识, 利用新的技术和地理协同效应, 旨在提供创新的解决方案, 同时为客户提供更广泛的全球支持。

马格集团总裁 Ueli Thuerig 解释说: “我们对这种伙伴关系感到非常高兴。通过结合我们的优势和专业知识, 我们处于理想的位置, 可以为客户创造额外的价值, 有针对性地推动创新, 并促进两家公司的长期增长。”

西科拉首席执行官 Christian Frank 博士评论说: “我们很自豪现在正式成为马格家族的一员。这种伙伴关系远远超出了标准的合作, 它建立在对创新、企业家精神和可持续行动的共同



Christian Frank 博士, SIKORA AG 首席执行官
Dr. Christian Frank, CEO SIKORA AG

承诺的基础上, 这些是长期成功的基础。它标志着我们在共同的未来迈出了重要的一步, 打开了广泛的机会, 并加强了我们的开发创新解决方案的能力。我们期待与马格合作, 以可持续的方式继续我们的成功和增长。”



Ueli Thuerig, MAAG 集团总裁
Ueli Thuerig, President MAAG Group

马格集团
www.MAAG.com

西科拉 AG
www.sikora.net

Acquisition Successfully Completed

MAAG Group announced the successful completion of the SIKORA AG acquisition. The aim of the partnership is to leverage joint synergies in a targeted manner and to strengthen the position of both companies in the long term.

With the successful completion of the transaction, MAAG and SIKORA will now combine their expertise to leverage new technological and geographical synergies, aiming at offering innovative solutions while providing expanded global support to customers.

Ueli Thuerig, President MAAG Group, explains: “We are very pleased

about this partnership. By combining our strengths and expertise, we are ideally positioned to create additional value for our customers, drive innovation in a targeted manner, and promote the long-term growth of both companies.”

Dr. Christian Frank, CEO of SIKORA, comments on the closing: “We are proud to be officially part of the MAAG family now. This partnership goes far beyond standard cooperation – it is based on a shared commitment to innovation, entrepreneurial spirit, and sustainable action, which

form the foundation for long-term success. It marks an important step in our shared future, opens up a wide range of opportunities, and strengthens our ability to develop innovative solutions. We look forward to working with MAAG to continue our success and growth in a sustainable way.”

MAAG Group
www.MAAG.com

SIKORA AG
www.sikora.net

推出全新转舌锁设计

挤压模具的全球领导者 Guill Tool 最近宣布在各种十字头上提供其 Cam-Lock 设计。

Cam-Lock 与 Bullet 上提供的相同，并且在适用的情况下将安装在额外的头上。它允许快速轻松地组装和拆卸横梁，并消除了内六角帽螺钉。通过拆卸和更换内部构件，可以在几分钟内而不是几小时挤出不同的型材。由于凸轮锁每次都会以正确的配置重置内部结构，因此与内六角固定螺钉的组装和错位问题相比，出错的可能性要小得多。凸轮锁提供多种功能，例如：只需转动 1/2 圈即可拆卸和安装

导流板尖端，并且不需要紧固硬件。其他功能包括快速更换工具（模具的螺纹固定环和螺纹尖端固定器）、模具从正面拆卸和尖端从背面移除、用于胶质空间调整的工具固定器、真空连接、简化清洁以及减少停机时间和运营成本。

欲了解更多信息：

Tom Baldock，挤出销售经理
 镰刀工具和工程
 tbaldock@guill.com,
 www.guill.com



New Cam- Lock Design Introduced

Guill Tool, the global leader in extrusion tooling, recently announced the availability of its Cam- Lock design on various crossheads.

The Cam-Lock is the same as supplied on the Bullet and will be supplied on additional heads, where applicable. It allows quick and easy assembly and disassembly of the crosshead and eliminates the socket head caps screws. By removing and replacing the inter-

nals, a different profile can be extruded in minutes rather than hours. Since the cam lock resets the internals in the right configuration every time, there's far less chance of error, compared to the assembly and misalignment issues with socket set screws. The Cam- Lock offers several features such as: it takes only 1/2 turn to remove and install the deflector tip and no fastening hardware is required. Additional features include

fast tool changes (threaded retaining ring for the die and threaded tip retain-er), dies remove from the front and tips from the back, tooling retainers for gum space adjustment, vacuum connections, simplified cleaning and reduced downtime and operating costs.

For more information:

Tom Baldock, Sales Manager, Extrusion
 Guill Tool & Engineering
 tbaldock@guill.com, www.guill.com

K展、国际包装展和德鲁巴展在中东的扩张道路上

业内领先的贸易展览会K展、国际包装展和德鲁巴印刷展正在通过联合进入沙特阿拉伯市场，从而进一步扩大了其国际影响力。迈出这一步是通过杜赛尔多夫展览公司和利雅得展览公司之间扩大合作伙伴关系而实现的。沙特塑料和石油化学和沙特印刷和包装展览将扩大到包括K展，国际包装展interpack和德鲁巴印刷展drupa的地区版本。

当前，沙特展现了中东经济充满活力和多元化的发展态势。5月12日至15日，利雅得展览公司（REC）主办了沙特塑料和石油化工以及沙特印刷和包装贸易展，来自石化、塑料、印刷和包装行业的500多家参展商参加了此次展览。蓬勃发展的贸易四方展览会（trade fair quartet）自2018年以来参展人数增加了70%，为杜赛尔多夫展览公司提供了大量完美的接触机会。利雅得展览公司董事长Saud Turki Al Faisal Bin Abdulaziz王子和杜赛尔多夫展览公司总裁兼首席执行官Wolfram N. Diener签署了一份谅解备忘录，将杜赛尔多夫展览公司世界领先的贸易展览“K展”、“杜赛尔多夫国际包装展联盟”和“德鲁巴全球印刷展”融入未来的沙特塑料和石油化工以及沙特印刷和包装活动中。

几十年来，K、interpack和drupa一直代表着各自行业的创新、国际吸引力和强劲势头。今天，他们继续体现这些价值，因为他们在沙特阿拉伯-一个具有高增长潜力的市场联合起来，利用协同效应，创造附加值。他们在利雅得的新业



务是对杜赛尔多夫展览公司全球业务组合的战略性补充：“K展全球之门”、“杜赛尔多夫国际包装展联盟”和“德鲁巴全球印刷展”代表了塑料和橡胶、加工和包装以及印刷技术的国际影响力。

Messe Düsseldorf GmbH

➡ www.k-online.de

➡ www.interpack.de

➡ www.drupa.de

K, interpack and drupa on Expansion Path in the Middle East

The industry's leading trade fairs, K, interpack and drupa, are further expanding their international reach by jointly entering the Saudi Arabian market. This step is made possible by the expanded partnership between Messe Düsseldorf and the Riyadh Exhibition Company. The Saudi Plastics & Petrochem and Saudi Print & Pack exhibitions will be expanded to include regional editions of K, interpack and drupa.

Saudi Arabia is currently showcasing the dynamic and diverse development of the Middle Eastern economy. From May 12 to 15, the Riyadh Exhibitions Company (REC) hosted the Saudi Plastics & Petrochem and Saudi Print & Pack trade shows, featuring over 500 exhibitors from the petrochemical, plastics, print, and packaging industries. The flourishing trade fair quartet, whose exhibitor numbers have climbed by 70 percent since 2018, offers plenty of perfect touchpoints for Messe Düsseldorf. HRH Prince Saud Turki Al Faisal Bin Abdulaziz, Chairman of REC, and Wolfram N. Diener, President & CEO of Messe Düsseldorf, have signed a Memorandum of

Understanding to integrate Düsseldorf's world-leading trade shows K, interpack and drupa into future Saudi Plastics & Petrochem and Saudi Print & Pack events.

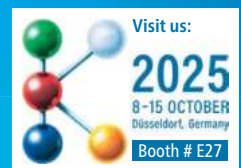
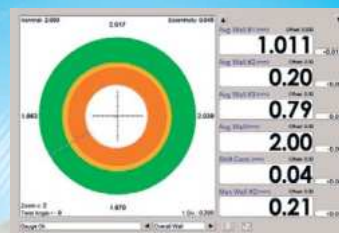
For decades, K, interpack, and drupa have stood for innovation, international appeal, and strong momentum in their respective sectors. Today, they continue to embody these values as they join forces in Saudi Arabia – a market with high growth potential – to harness synergies and create added value. Their new presence in Riyadh is a strategic addition to Messe Düsseldorf's global portfolio: 'K Global Gate', the 'interpack alliance', and 'drupa global' represent international reach across plastics and rubber, processing and packaging, and print technologies.

Messe Düsseldorf GmbH

→ www.k-online.de

→ www.interpack.de

→ www.drupa.de



1 – 8

Measurement points



0.05

Wall thickness (mm)



0.2 ... 350

Object diameter (mm)



up to 8000

Scan rate (scans/s)



2000+

Globally installed systems

UMAC®

Ultrasonic Wall Thickness Measurement Solutions for the Extrusion of Plastic Pipes, Tubes & Hoses



Benefits:

- ✓ Utilizes ultra-sonic technology to accurately measure wall thickness and concentricity of up to 5 layers simultaneously
- ✓ Measurement of ultra-thin wall thickness down to 0.05 mm and of products with sizes from 0.2 mm to 350 mm
- ✓ Allows for continuous in-line measurements and real-time data acquisition during the extrusion process, ensuring consistent quality control
- ✓ Offers reduced setup times, raw material savings, scrap reduction and fully automated control
- ✓ Over 2000 installed systems, successfully used all over the world

换网器显著提高 PVC 回收效率

Renolit 在其位于巴塞罗那地区的工厂生产高质量的软质 PVC 薄膜。得益于 Gneuss 的创新 SFneoss 过滤系统——其过程恒定、连续换网器系列的最新成员，Renolit 现在能够重复使用很大比例的回收材料，而不会影响产品质量或生产效率。

Renolit 制造的柔性 PVC 薄膜涂覆在聚酯上，尽管经过分离过程，但废料仍然含有少量残留的聚酯。这足以给传统的滑板换网器带来问题 - 由于污染负荷而频繁更换会导致生产中断和流动干扰，而使用柔性 PVC 会导致频繁的烧焦。



为Renolit定制的 SFneoss 换网器

Customized SFneoss screen changer for Renolit



SFneoss 过滤系统在 Renolit PVC 薄膜生产线中的应用
SFneoss Filtration System in the production line of PVC film at Renolit

格诺斯公司提供给Renolit的SFneoss换网器经过广泛定制，与双螺杆挤出机完全匹配，具有极短和流线型的流道，在流动模拟软件的帮助下设计。

SFneoss 连续运行且压力稳定，即使在高污染负荷和变化的情况下也是如此。

得益于 SFneoss 的这些独特性能特征，Renolit 能够在不中断生产的情况下处理高比例的含有残留聚酯的回收材料，因此能够在不影响产品质量的情况下显著提高现有挤出生产线的产量和效率。同时，通过使用废料（这种材料通常被认为难以回收），Renolit 节省了宝贵的资源。

在后工业回收应用中，格诺斯的过滤系统可以在释放潜力、提高流程成本效益和促进可持续发展方面发挥决定性作用。

Major Efficiency Improvements in PVC Recycling

At its factory in the Barcelona region, Renolit manufactures high quality flexible PVC films. Thanks to its innovative SFneoss Filtration System from Gneuss – the latest addition to its range of process-constant, continuous screen changers, Renolit is now able to reuse a significant percentage of recycled material without any compromises regarding product quality or production efficiency.

The flexible PVC films made by Renolit are coated on to polyester and in spite of separating processes, the scrap still contains a small amount of residual polyester. This is sufficient to cause problems with conventional slide plate screen changers – the frequent changes due to the contamination load result in production interruptions and flow disturbances which, with flexible PVC lead to frequent burn-ups.

The SFneoss screen changer supplied to Renolit by Gneuss was extensively customised to exactly match the twin screw extruder, with extremely short and streamlined flow paths, designed with the help of flow simulation software.

The SFneoss operates continuously and pressure-stable, even with high and varying contamination loads.

Thanks to these performance characteristics of the SFneoss, Renolit was able to process a high percentage of recycling containing residual polyester without production interruptions and were therefore able to significantly increase the yield and efficiency of their existing extrusion line without compromising their product quality. At the same time, by using waste material (and this material is generally seen as difficult to recycle) Renolit is saving valuable resources.

On post industrial recycling applications, the Filtration Systems from Gneuss can play a decisive role in unlocking potential, making processes more cost-efficient and contributing toward sustainability.

Gneuss Kunststofftechnik GmbH
www.gneuss.com

加强在中国市场的布局

Cellasto®是噪音、振动和噪声 (NVH) 组件领域的全球领导者, 将投资约6000万欧元在中国上海建立第二家工厂。此次产能扩张旨在配合中国蓬勃发展的电动汽车市场。新设施将配备先进的模具线, 产能因而增加近70%, 预计将于2027年开始运营。4月14日举行了开工典礼, 庆祝扩建。

“Cellasto®一直以对质量和效率的同样热情为汽车制造商提供卓越的价值。我相信, 这种投入将确保我们的客户在这个至关重要的汽车市场上继

续取得成功,”巴斯夫高性能材料事业部总裁Jung博士评论道。

“巴斯夫140年前进入中国市场以来, 在中国进行了大量投资。今天的扩张再次证明了巴斯夫贴近当地市场和我们对客户的承诺。作为汽车行业领先的化工产品供应商, 巴斯夫致力于借助我们的本地生产网络、强大的创新能力和深刻的市场洞察力, 加快在中国汽车行业的业务增长,”巴斯夫大中华区总裁兼董事长楼继伟博士补充道。

“四年前, 我们庆祝了Cellasto®成立60周年和我们的上海工厂成立10周

年。今年, 随着第二工厂的增加, 我们树立了另一个重要的里程碑。我们拥有最先进的设备。渴望抓住这个充满活力的市场带来的机会,” Bjoern Kophstahl, Cellasto®副总裁总结道。

巴斯夫

BASF

www.basf.com

BASF的高性能材料事业部

➔ www.performance-materials.basf.com

Presence in Chinese Market Strengthened

Cellasto®, the world leader in Noise, Vibration and Harshness (NVH) components, is investing roughly €60 million to establish a second plant in Shanghai, China. This production expansion aims to capitalize on China's booming electric vehicle market. The new facility will feature advanced mold lines, resulting in a capacity increase of nearly 70%, with operations expected to start in 2027. A commencement ceremony was held on April 14th to celebrate this expansion.

“Cellasto® has always delivered exceptional value to automotive manufacturers with the same passion for quality and efficiency. I am confident that this devotion will en-

sure a continued success with our customers in China in this vital automotive market,” comments Dr. Martin Jung, President of the Performance Materials Division, BASF.

“BASF has made substantial investments in China since entering the Chinese market 140 years ago. Today's expansion is another strong testament to BASF's commitment to staying close to the local market and our customers. As the leading chemical supplier to the automotive industry, BASF strives to accelerate business growth in the automotive sector in China, by leveraging our local production network, strong innovation capabilities and deep market insights,” adds Dr.

Jeffrey Lou, President and Chairman Greater China, BASF.

“Four years ago, we celebrated Cellasto®'s 60th anniversary and the 10th anniversary of our Shanghai plant. This year, with the addition of a second plant, we are achieving another significant milestone. With our state-of-the-art facilities, we are eager to seize the opportunities presented by this dynamic market,” concludes Bjoern Kophstahl, Vice President of Cellasto®.

BASF

➔ www.basf.com

BASF's Performance Materials division

➔ www.performance-materials.basf.com

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www.extrusion-global.com

上海的新办事处开业了

全球领先的聚烯烃行业技术许可和工程服务提供商ECI集团在上海开设了新的办事处。随着ECI集团继续扩大其授权及服务交付能力，该扩展标志着本公司的一个重要里程碑。

ECI集团总裁兼首席执行官Joaquin Flores表示：“我们很高兴在上海开设新的办事处。中国是ECI集团最重要的市场。本周早些时候，我们同意了一项新的许可证，自2021年推出专有技术以来，我们在中国的许可总产能将超过100万吨LDPE、EVA、EnBA和其他高价值共聚物产品。我们在上海的新基地将使我们不仅能够为我们在中国的许可证持有者提供更好的支持，而且还将我们的咨询服务和专业技术服务扩大到该地区的其他运营客户。”

办公室的盛大启动仪式于2025年4月9日举行。来自中国各地石化企业、主要设备供应商和其他合作伙伴的90多名代表出席了开幕式，并发表了演讲和介绍，随后举行了午餐宴会。

来自ECI集团所有权和董事会的代表为新办公室的正式开业剪彩。

ECI集团董事长Bob Armstrong表示：“今天是我们公司的一个重要里程碑，因为我们为新办公室打开了大门。这个空间不仅代表着物理扩张，而且证明了我们的增长、创新和对卓越的承诺。我们很高兴在这个新环境



来自ECI集团所有权和董事会的代表Chris Brock（副总裁兼高压业务部门主任）、Bob Armstrong（主席）、Dennis Radford（首席技术顾问）和Jay Jacobs（首席财务官）为正式开设新办公室剪彩

Representatives from ECI Group's ownership and Board of Directors, Chris Brock (Vice President and Director of High-Pressure Business Unit) Bob Armstrong (Chairman), Dennis Radford (Chief Technology Advisor), and Jay Jacobs (CFO), cut the ribbon to officially open the new office

中促进合作、创造力和成功。我们将一起继续取得伟大的成就，推动我们的愿景向前发展。”

ECI集团的新办事处将为当地客户提供技术和工程支持服务。ECI集团的咨询服务部门也将扩展到上海办事处，为中国聚烯烃行业提供专业咨询服务

务：提供技术支持和工厂优化服务，以帮助运营商实现其安全、盈利和可持续发展目标。

ECI集团

www.ecigrouponline.com

New Office in Shanghai Opened

ECI Group, a world-leading technology licensor and engineering services provider for the polyolefins industry, celebrated the opening of its new office in Shanghai. This expansion marks a significant milestone for the company as ECI Group continues to expand its licensing and service delivery capabilities.

“We are thrilled to open our new office in Shanghai,” said Joaquin Flores, President and CEO of ECI Group. “China is ECI Group’s most important market. Earlier this week, we agreed a new license that takes our total licensed capacity in China to over one million tonnes of LDPE, EVA, EnBA and other high-value copolymer products since we launched our proprietary technology in 2021. Our new base in Shanghai will allow us to not only provide better support to our licensees in

China, but also expand our consultancy services and Professional Technical Services offerings to other operating customers in the region.”

The Grand Launch Ceremony for the office was held on 9th April 2025. Over 90 delegates from petrochemical companies across China, as well as key equipment suppliers and other partners attended the opening event, with speeches and presentations followed by a lunch banquet.

Representatives from ECI Group's ownership and Board of Directors, cut the ribbon to officially open the new office.

“Today marks a significant milestone for our company as we open the doors to our new office,” said Bob Armstrong, Chairman of ECI Group. “This space represents not just a physical expansion, but a testament to our

growth, innovation, and commitment to excellence. We are excited to foster collaboration, creativity, and success in this new environment. Together, we will continue to achieve great things and drive our vision forward.”

ECI Group's new office will provide technology and engineering support services to local customers. ECI Group's Consultancy Services division will also expand into the Shanghai office, providing specialist consultancy services to the polyolefins sector in China: delivering technology support and plant optimization services to help operators achieve their safety, profitability, and sustainability goals.

ECI Group

www.ecigrouponline.com

中国工厂的授予合同

ECI集团 (Engineering & Chemical Innovations Group工程 and 化学创新集团) 宣布从宁波镇海炼化有限公司 (NZRCC) 获得了一份合同, 使用 ECI集团专有的混合反应器技术建造一个20万吨/年的EVA/LDPE装置。该授予合同标志着自2021年ECI集团开始授权其技术以来, 其授权的铭牌产能总计为100万吨。

宁波炼化有限公司是中国石化在浙江省宁波市的重点炼油化工子公司。这个每年20万吨的EVA/LDPE工厂将成为宁波镇海炼化有限公司在宁波镇海区开发的大型乙烯和下游设施的一部分。ECI集团的技术将使该工厂每年能够生产20万吨LDPE、EVA和其他高价值共聚物产品, 并有能力在未来扩大其生产能力。

ECI集团的业务范围包括宁波镇海炼化有限公司高压系统的技术许可、工艺设计包、扩展工艺设计包和详细设计, 以及项目的技术采购服务和安装、启动和性能评估期间的现场技术支持。

ECI集团的混合反应器技术提供了广泛的高压聚乙烯产品, 提供了无与伦比的运营效率、可靠性和灵活性。基于ECI集团在聚合物行业数十年的经验, 他们的技术已经优化, 以使用现代材料、设计技术、标准和行业最佳实践进行施工、操作和维护。在2021年以来的四年里, ECI集团拥有



ECI集团宣布从宁波镇海炼化有限公司 (NZRCC) 获得了一份使用其专有混合反应器技术的每年20万吨 EVA/LDPE工厂的合同

ECI Group announced a contract award from Ningbo Zhenhai Refining & Chemical Company Limited (NZRCC) for a 200kta EVA/LDPE Plant using its proprietary hybrid reactor technology

每年5万吨、每年10万吨、每年15万吨和每年20万吨的许可工厂产能, 均使用ECI集团的标准化设计方法。与宁波镇海炼化有限公司的授权协议表

明了ECI集团混合反应堆技术的声誉和多功能性。

ECI集团

www.ecigrouponline.com

Contract Award for a Plant in China

ECI Group announced a contract award from Ningbo Zhenhai Refining & Chemical Company Limited (NZRCC) for a 200kta EVA/LDPE Plant using ECI Group's proprietary hybrid reactor technology. This award marks a total of 1 million tonnes of nameplate capacity licensed by ECI Group since they began licensing their technology in 2021.

NZRCC is a key refining and chemical subsidiary of Sinopec in Ningbo City, Zhejiang Province. The 200kta EVA/LDPE plant will form part of a large ethylene and downstream facility being developed by NZRCC in Ningbo's Zhenhai District. ECI Group's technology will enable the

plant to produce 200,000 tonnes per year of LDPE, EVA, and other high-value copolymer products, with the ability for future expansion of product capability.

ECI Group's scope covers the technology license, process design package, expanded process design package, and detailed design for the high-pressure system for NZRCC, as well as technical procurement services for the project and on-site technical support during installation, start-up, and performance assessment.

ECI Group's hybrid reactor technology offers a wide range of high-pressure polyethylene products, providing unrivalled operational efficiency, reliability,

and flexibility. Building on ECI Group's decades of experience within the polymer industry, their technology has been optimized to make use of modern materials, design techniques, standards, and industry best practices for construction, operation, and maintenance. In the four years since 2021, ECI Group has licensed plant capacities of 50kta, 100kta, 150kta and 200kta, all using ECI Group's standardised design approach. This licensing agreement with NZRCC demonstrates the reputation and versatility of ECI Group's hybrid reactor technology.

ECI Group

www.ecigrouponline.com

在中国建立的特种有机硅新工厂已投产

瓦克 (WACKER) 通过扩大其张家港工厂的生产能力, 以应对中国对高质量特种硅树脂日益增长的需求。本集团于今年五月举行仪式, 庆祝机械设施落成。未来, 新的生产综合体将生产硅酮流体、硅酮乳液和硅酮弹性体凝胶。设施产量将在未来几个月提高。按照计划, 瓦克在扩建项目上投资了300万欧元。

“我们在张家港的投资表明, 即使在经济充满挑战的时期, 我们也致力于‘在中国为中国’的成功战略,” 执行董事会成员Christian Kirsten在标志着生产基地完工的仪式上说。瓦克在中国已经成功经营了30多年。目前, 该公司37%的销售额来自亚洲, 其中约有一半来自中国。”通过扩大张家港的硅产能, 我们能够加强我们的专业业务。这确保了我們作为中国领先的有机硅制造商的市场地位。”

新设施生产的产品包括高纯度功能性及非功能性有机硅液以及有机硅乳液。选定的生产线将符合GMP (良好生产规范) 的生产, 创造出可用于化妆品行业的产品。张家港的另一项新发展是硅酮弹性体凝胶的生产, 到目前为止, 只在德国和印度生产。中国化妆品和个人护理产品制造商对弹性体凝胶的需求尤其大。

张家港是瓦克最大的全一体化生产基地之一。从这里, 公司向快速增长



瓦克集团在中国张家港完成了一个新的硅酮液、硅酮乳液和硅酮弹性体凝胶的生产综合体 (图片: 瓦克)

The WACKER Group has completed a new production complex for silicone fluids, silicone emulsions and silicone elastomer gels in Zhangjiagang, China (Photo: WACKER)

的亚洲市场提供广泛的下游硅树脂产品, 如密封剂、弹性体和液体。瓦克的硅酮不仅用于传统的应用领域, 如纺织、皮革和纤维工业, 也用于化学过程和涂料。它们还在电动汽车、可再生能源的生产和医疗技术等创新部门发挥关键作用。

Wacker Chemie AG
瓦克化学公司
➡ www.wacker.com

New Plants for Specialty Silicones in China Commissioned

WACKER is responding to rising demand for high-quality specialty silicones in China by expanding its production capacities at its Zhangjiagang site. The Group held a ceremony in May this year to celebrate the mechanical completion of the facilities. Going forward, the new production complex will manufacture silicone fluids, silicone emulsions and silicone elastomer gels. Production is to be ramped up over the coming months. As planned, WACKER has invested a low three-digit million euro amount in the expansion project.

“Our investment here in Zhangjiagang shows that we are committed to our successful ‘in China for China’ strategy, even in economically challenging times”, Executive Board member Christian Kirsten said at the ceremony marking the completion of the produc-

tion complex. WACKER has been operating successfully in China for more than 30 years. It currently generates 37 percent of its sales in Asia, with China accounting for around half of this amount. “By expanding our silicone capacities in Zhangjiagang, we are able to strengthen our specialties business. This secures our market position as a leading manufacturer of silicones in China”, Kirsten pointed out.

The products manufactured in the new facilities include high-purity functional and non-functional silicone fluids as well as silicone emulsions. Selected production lines will comply with GMP (Good Manufacturing Practice) manufacturing, creating products that can be used in the cosmetics industries. Another new development in Zhangjiagang is the production of silicone elastomer gels, up to now only manufactured in

Germany and in India. Elastomer gels are particularly in demand from Chinese manufacturers of cosmetics and personal-care products.

Zhangjiagang is one of WACKER's largest fully integrated production sites. From here the company supplies rapidly growing Asian markets with a wide array of downstream silicone products such as sealants, elastomers and fluids. Silicones from WACKER are used not only in traditional fields of application, such as the textile, leather and fiber industries, as well as for chemical processes and coatings. They also play a key role in particularly innovative sectors, such as electromobility, the generation of renewable energy, and medical technology.

Wacker Chemie AG
➡ www.wacker.com

新特种化学品实验室在上海落成

PETRONAS Chemicals Group Berhad的全资子公司Perstorp和BRB在中国上海成立了新的创新中心。这家先进的实验室于4月17日开业，将通过增加对客户的技术支持来支持该地区的增长，特别是对亚洲市场的支持。新的上海创新中心将为我们的客户提供更快的响应时间，并将技术专长与专注于产品和应用开发以及技术服务结合起来，通过专门的区域支持加强与本地区客户的联系。这是该地区计划的几项举措之一，旨在提高价值链上的创新能力，并加强PCG作为特种化学品领导者的地位。

创新中心将为各种细分市场提供服务，如合成润滑油、热流体管理、个人护理和涂料解决方案，以及现有的硅酮和中间体业务。

PCG 专用化学品的首席运营官Debbie Chiu博士评论说：“这项投资加强了我们和创新与客户共同创造的承诺，并加强了我们的全球影响力。它反映了我们的增长预期、我们强烈的雄心和对进步的承诺。”

“随着更快的响应时间和更短的上市时间，我们有能力预测行业趋势，并提供满足客户需求的定制解决方案。该平台将使大中华区和亚洲市场的客户能够更多地面对面互动，以开发符合市场需求的创新解决方案，”PCG 专用化学品创新主管Axel Tuchlenski博士说。

这是PCG与客户合作创新新解决方案的几个应用和开发中心中的最新一个。2025年4月17日的开业典礼汇集了新实验室未来将服务的不同分部的客户。

Perstorp Holding AB (柏斯托控股公司)
www.perstorp.com



上海新特种化学品实验室落成 (图片来源 : Perstorp)
Inauguration of new specialty chemicals laboratory in Shanghai (Photos: Perstorp)

Inauguration of New Specialty Chemicals Laboratory in Shanghai

Perstorp and BRB, wholly-owned subsidiaries of PETRONAS Chemicals Group Berhad, inaugurated a new innovation hub in Shanghai, China. This advanced laboratory opened on April 17th and will support growth in the region by increasing technical support for customers with a specific focus on the Asian market. The new Shanghai innovation hub will allow faster response time to our customers and combine technical expertise with a strong focus on product and application development as well as technical services, strengthening regional customer relationships with dedicated regional support. It is one of several planned initiatives in the region to enhance innovation capabilities along the value chain and to strengthen PCG's position as a leader within specialty chemicals.

The innovation hub will serve various market segments, such as Synthetic Lubricants, Thermal Management Fluids, Personal Care and Coating Solutions, as well as the existing Silicones and intermediates business.

Dr Debbie Chiu, COO of PCG Specialty Chemicals, comments: "This investment reinforces our commitment

to innovation and co-creation with our customers, as well as strengthening our global presence. It reflects our growth agenda, our strong ambition and commitment to progress."

"With faster response times and reduced time to market, we are equipped to anticipate industry trends and deliver tailored solutions that meet our customers' needs. This platform will enable more face-to-face interactions with customers in the Greater China and Asian market, to develop innovative solutions that align with market demands," said Dr. Axel Tuchlenski, Head of Innovation at PCG Specialty Chemicals.

This is the latest of several application and development centers where PCG collaborates with customers to innovate new solutions. The inauguration on April 17th, 2025 brought together customers from the different segments that the new lab will serve in future.

Perstorp Holding AB
www.perstorp.com

全球化思维，本地化行动

MAAG集团总部位于瑞士奥贝格拉特，在国际上运营，一直在加强其在中国的本地化战略。MAAG中国的业务活动和销售不断增涨。公司在上海嘉定区的总装厂占地面积7500平方米，最近规模翻了一番。MAAG中国拥有100多名积极进取的员工，为客户提供生产、销售和各種服务。

在瑞士或德国设计的产品，适应中国当地的需求，并在上海工厂生产和组装，以节省成本。20多年来，MAAG一直致力于为中国市场实现产品本地化，从零部件到如今复杂的生产系统。MAAG集团总裁Ueli Thürig说道：“在中国，为中国制造’是我们公司近年来一直关注的关键战略之一；在我们上海工厂组装的设备中，90%以上是面向中国市场的。”

MAAG公司已在国内生产GA系列挤出泵、BAOLI拉条料机、ZHULI水下制粒机。C-USG是M-USG水下造粒系统类似的改造版本，正在扩大特定市场的组合。最初的德国设计构成了这个新版本的基础。虽然一些关键零部件来自德国，但大部分零部件来自当地生产。

为了确保技术复杂的机器能够长期在最佳状态下工作，无论产品是在上海MAAG还是在全球任何其他MAAG地点购买的，MAAG中国均由受过培训的专业人员提供一流服务。当地的仓库可以储存一些最需要的零部件，可以确保交货非常快。

在上海（华东）和广州（华南）的本地研磨中心，公司快速、可靠、专业地研磨切割转子、切割刀片和模板，甚至是其他制造商的产品。

从最高效的技术咨询，到调试，再到优质的零配件的快速供应和售后服务，MAAG中国提供“卓越”的全方位服务。

马格集团

www.maag.com, www.maag.cn
Maag K 2025: 位于9号展厅，A02展位



MAAG集团位于中国上海嘉定的生产车间

MAAG Group production shop in Jiading/Shanghai, China



上海嘉定/ MAAG集团员工

MAAG Group employee in Jiading/Shanghai, China

Thinking Globally, Acting Locally

The internationally operating MAAG Group, headquartered in Oberglatt, Switzerland, has been stepping up its localization strategy in China. MAAG China has continuously increased its business activities and sales. Today, the company operates in an area of 7500 sqm, the assembly shop at the site in Jiading, a district of Shanghai, has recently doubled in size. MAAG China offers its customers production, sales and various services with over 100 highly motivated employees.

Products engineered in Switzerland or Germany, adapted to the local needs in China and – cost savingly – manufactured and assembled in our Shanghai factory. MAAG has been localizing products for the Chinese market for more than 20 years starting from components to nowadays complex production systems. 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. The C-USG, a similarly adapted version of the proven M-USG underwater strand pelletizing

system is expanding the market-specific portfolio. The original German design forms the basis for this new version. While some key components are supplied from Germany, the majority of parts come from local production.

To ensure that the technically complex machines work optimally over a long term, MAAG China offers top-class services from trained specialist personnel, whether the product has been purchased at MAAG Shanghai or any other MAAG location worldwide. A local warehouse to store some most-wanted parts can ensure a very quick delivery.

In the local grinding centers in Shanghai (East China) and Guangzhou (South China) the company grinds cutting rotors, cutting blades and die plates quickly, reliably and professionally – even those from other manufacturers.

Starting with consultancy regarding the most efficient technology, through commissioning through to the quick supply of spare parts in original quality and after-sales service, MAAG China offers an all-round service "par excellence".

MAAG Group

www.maag.com, www.maag.cn
Maag at K 2025: Hall 9, Booth A02

促进可持续发展的战略合作

Kistler (奇士乐) 集团是动态测量技术的全球市场领导者，正在加强与KELLER (凯勒) 压力的长期合作，凯勒压力是压阻压力传感器的领先制造商。两家总部都位于温特图尔的公司签署了一项协议，确认了他们继续扩大战略伙伴关系、加强协同效应并采取有针对性的方法来持续发展中国市场的共同意愿。

如今，中国已成为最具活力的工业测量技术市场之一。智能制造的持续扩张、对自动化的要求不断提高，以及汽车、电子和能源等关键行业对精确和可靠测量解决方案的需求日益增加，推动了那里的需求。

对于奇士乐和凯勒压力来说，这个市场为技术进步和可持续发展提供了巨大的潜力。但进入中国市场是复杂的，需要深入了解当地情况，并发展长期客户关系。

双方都在扩大合作的框架内贡献各自的优势。拥有广泛的销售和服务网络；它还保持着多年来的客户关系，并对中国市场有广泛的了解。凯勒压力通过提供高精度压阻压力传感器，补充了奇士乐的产品组合。

压电传感器特别适用于测量高度动态过程；另一方面，压阻式传感器是精确测量长期稳定的静态和逐渐变化的压力的理想选择，例如飞机舱内的气压或水箱和水体的填充水平。这种压电和压阻传感器的组合产生了全面的测量技术解决方案，以满足中国客户的特定要求-从研究和开发的测量技术到工业系列应用。作为合作伙伴关系的另一个好处，在中国的培训和支助活动将得到扩大和推动，为客户提供更好的本地支持。

新协议的签署标志着自2008年以来已经存在的伙伴关系中的一个重要里程碑：最新协议将合作置于新的战略基础上。

Kistler Group奇士乐集团



在温特图尔的签约仪式：奇士乐集团首席执行官Marc Schaad (左) 和凯勒压力首席执行官Tobias Keller (右)，确定了他们在中国市场的战略扩张合作伙伴关系 (来源：Kistler集团)

Signing ceremony in Winterthur: Marc Schaad, CEO of the Kistler Group (left), and Tobias Keller, CEO of KELLER Pressure (right), set the seal on the strategic expansion of their partnership for the Chinese market (Source: Kistler Group)

Strategic Collaboration for Sustainable Growth

The Kistler Group, the global market leader in dynamic measurement technology, is stepping up its long-standing collaboration with KELLER Pressure, the leading manufacturer of piezoresistive pressure sensors. The two companies, both headquartered in Winterthur, have signed an agreement that affirms their shared intention to continue expanding their strategic partnership, to strengthen synergies, and adopt a targeted approach to the ongoing development of the Chinese market.

Nowadays, China numbers among the most dynamic markets for industrial measurement technology. Demand there is being driven by the continuing expansion of intelligent manufacturing, increasing requirements for automation, and the growing need for precise and reliable measurement solutions in key industries such as the automotive, electronics and energy sectors.

For both Kistler and KELLER Pressure, this market offers vast potential for technological progress and sustainable growth. But access to the Chinese market is complex, calling for in-depth local know-how and the development of long-term customer relationships.

Both partners are contributing their respective strengths within the framework of their expanded cooperation. Kistler has a broad-based sales and service network at its dis-

posal; it also maintains customer relationships going back many years, and has extensive knowledge of the market in China. For its part, KELLER Pressure complements Kistler's product portfolio by offering high-precision piezoresistive pressure sensors.

Piezoelectric sensors are particularly suitable for measuring highly dynamic processes; piezoresistive sensors, on the other hand, are ideal for precise measurements of long-term stable static and gradually changeable pressures – examples include air pressure in aircraft cabins or filling levels of tanks and bodies of water. This combination of piezoelectric and piezoresistive sensors yields comprehensive measurement technology solutions to meet the specific requirements of Chinese customers – ranging from measurement technology for research and development through to industrial series applications. As an additional benefit of the partnership, training and support activities in China are to be expanded and driven forward to give customers even better local support.

The signing of the new accord marks a significant milestone in a partnership that has already been in place since 2008: the latest agreement places the collaboration on a new strategic footing.

Kistler Group
www.kistler.com

K 年开始了

杜塞尔多夫为 K 2025 做好了起跑准备

■ 2025 年 10 月 8 日至 15 日，杜塞尔多夫国际塑料及橡胶展览会（K 展）将再次成为全球塑料和橡胶行业的核心商业枢纽。其主题“塑料的力量！绿色 - 智能 - 负责任”凸显了行业当前的价值观和目标，并强调塑料是许多领域不可或缺的组成部分，对创新和进步有着重要贡献。

尤其是在当今充满挑战的时代，K 展再次证明了其作为世界领先贸易展览

会的卓越相关性。这里是整个价值链汇聚一堂展示顶尖成果的地方，也是应对该行业挑战的场所。没有其他活动能像杜塞尔多夫的 K 展那样拥有如此国际化的氛围、非凡的创新力以及丰富多样的产品发布。

K 2025 代表着跨越国界和大陆的创新解决方案和可持续发展的开放对话与交流。来自 61 个国家的参展商将参加在杜塞尔多夫举行的 K 展，预计 18



(Pictures: Messe Düsseldorf GmbH)



个展厅将有超过 3000 家参展商。展览场地再次全部被预订一空。

K 2025 的参展商数据库可在 www.k-online.com/2410 访问。

在 www.k-online.com，K 展 不仅提供 10 月展会的详细信息，还通过其他渠道提供众多机会，让您深入了解行业当前的发展动态，并从全球 K 社区中获益。

➔ www.k-online.de

➔ www.k-online.com/2410

Kick-Off for the K Year – Düsseldorf in the Starting Blocks for K 2025

From 8 to 15 October 2025 K in Düsseldorf will again become the central business hub for the global plastics and rubber industry. It sets clear accents with its motto “The Power of Plastics! Green – Smart – Responsible”. This slogan reflects the industry’s current values and targets and emphasises that plastics are an indispensable component

of many sectors that contribute significantly to innovation and progress.

Especially in today’s challenging times K once again proves its outstanding relevance as a world-leading trade fair. It is the place where the entire value chain unites to present top performances and where the challenges of this industry are ad-

dressed. No other event boasts such international flair, extraordinary innovative power and such a rich variety of product launches as does K in Düsseldorf.

K 2025 stands for the open dialogue and exchange on innovative solutions and sustainable developments that forge connections across national bor-

ders and continents. Exhibitors from 61 countries will take part in K in Düsseldorf and more than 3,000 exhibitors are expected in the 18 exhibition halls. The fairgrounds are fully booked once again.

The exhibitor database of K 2025 can be accessed at www.k-online.com/2410.

At www.k-online.com K not only provides details on the event in October but also offers numerous opportunities via other channels to obtain in-

depth information about the industry's current developments and to benefit from the global K Community.

➔ www.k-online.de
➔ www.k-online.com/2410

挤出效率革新 — 利用熔体过滤和挤出技术在现有工艺中释放新潜能

Revolutionising Extrusion Efficiency – Unlocking New Potential in Existing Processes with Melt Filtration and Extrusion Technology

■ 在全球充满不确定性的时代，挤出加工商面临着既要降低成本又要保证质量和产量日益增长的压力。格诺斯 (Gneuss) 提供了一种强大的解决方案，采用先进的熔体过滤和挤出设备，可集成到现有生产线中，从而实现显著提升效率。这些提升转化为可衡量的成本节约和更强的竞争优势。凭借可靠、灵活且设计为减少停机时间的系统，格诺斯帮助加工商挖掘其当前运营中的潜在价值。

格诺斯的过滤技术

格诺斯的旗舰机型 RSFgenius，即使在加工回收材料时也能确保熔体压力稳定如一，这得益于其高效、自动且集成的自清洁系统。这使其非常适合各种高要求的应用。过滤元件可自动原位清洗多达 400 次，且可使用细至 10 微米 (1200 目) 的过滤元件。

将在 K 展会上展出的 RSFgenius 330L 是 RSFgenius 系列中最畅销 (同时也是最大的) 型号之一。展出的设备具有 2150 平方厘米的过滤面积，适用于 LDPE/LLDPE 薄膜回收，过滤精度为 75 微米。

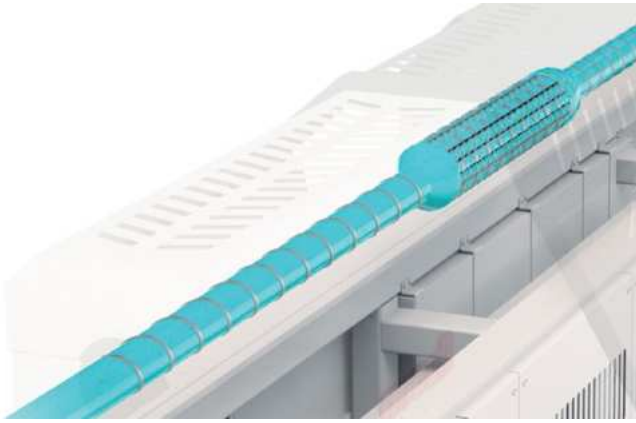
将一台全自动 RSFgenius 改装到现有的挤出生产线上，无论是造粒、片材、纤维还是管材应用，都能使用更多受污染的材料和/或更精细的滤网，而不会中断生产过程或降低产量。每次改装都是量身定制的，通常无需移动任何现有设备。

在 K 展上，格诺斯将展出另外三款滤网更换器系列，分别是 SFXmagnus、SFneos 和 KSF 滤网更换器。SFXmagnus



拥有专利的旋转过滤系统 RSFgenius 330
Patented Rotary Filtration System RSFgenius 330

是一款适用于多种应用的工艺恒定滤网更换器，SFneos 是一款专业滤网更换器，其工艺和压力稳定性极高，与 RSFgenius 相当。通过这种方式，格诺斯能够覆盖广泛的应用领域，其中自清洁并非必要条件。无论是纤维挤出、流延薄膜、吹塑薄膜 (其压力极高)、各种片材挤出，甚至 PVC



创新的 MRS 螺杆
Innovative MRS screw

回收。最后但同样重要的是，KSF 系列滤网更换器工艺恒定，专为极其敏感的聚合物而设计。它主要用于共混，其独特的可定制设计能够实现材料和等级的快速更换，这是其一大优势。格诺斯 的这三款滤网更换器系列的共同特点是压力和时间控制操作、工艺恒定，且在更换滤网时不会干扰工艺流程。

在 K 展上，格诺斯将展出另外三款滤网更换器系列，分别是 SFXmagnus、SFneos 和 KSF 滤网更换器。SFXmagnus 是一款适用于多种应用的工艺恒定滤网更换器，SFneos 是一款专业滤网更换器，其工艺和压力稳定性极高，与 RSFgenius 相当。通过这种方式，格诺斯能够覆盖广泛的应用领域，其中自清洁并非必要条件。无论是纤维挤出、流延薄膜、吹塑薄膜（其压力极高）、各种片材挤出，甚至 PVC 回收。最后但同样重要的是，KSF 系列滤网更换器工艺恒定，专为极其敏感的聚合物而设计。它主要用于共混，其独

特的可定制设计能够实现材料和等级的快速更换，这是其一大优势。Gneuss 的这三款滤网更换器系列的共同特点是压力和时间控制操作、工艺恒定，且在更换滤网时不会干扰工艺流程。

多螺杆挤出机 MRS

MRS 多 螺杆挤出机基于传统的单螺杆技术，但配备了一个用于脱除挥发物的多螺杆段。它能够非常高效且温和地对聚合物熔体进行脱除杂质处理。MRS 螺杆挤出机通过一个简单且坚固的真空系统，无需预干燥即可直接将回收 PET 加工成高质量的最终产品，如包装片材、捆扎带或长丝。这一切都是通过其独特的、获得专利的加工段实现的。多旋转段是一个包含多个卫星单螺杆的鼓，由环形齿轮和小齿轮传动装置驱动。

卫星螺杆的旋转方向与主螺杆相反。这极大地增加了聚合物熔体的表面交换。在真空条件下，有一个大开口用于排气，整个卫星螺杆的长度都暴露在外。这为聚合物熔体提供了极佳且不受限制的通道，卫星螺杆在多螺杆段内的反向旋转以极高的速率不断更新其表面。用于脱挥的表面积以及表面积交换率远大于其他挤出系统。由于对聚合物熔体的热机械应力最小化，用 MRS 挤出机回收处理的材料具有出色的光学和机械性能。

在单一、简单的挤出步骤中，有害污染物被彻底清除，确保最终产品可用于食品接触应用。

奥姆尼回收机器

格诺斯的 MRS 挤出技术是处理受污染材料，如聚酯（PET）、聚苯乙烯（PS）、聚丙烯（PP）或聚乙烯（PE）的一种替代方案。结合格诺斯高效的旋转过滤系统、优化的真空技术、在线粘度计 VIS 以及格诺斯测量技

OMNI 回收机配备 RSFgenius 90 和真空系统，将在 K 展上展出，之后交付阿根廷用于食品级 R-PET 和 PP 片材生产。

OMNI recycling machine with RSFgenius 90 and vacuum system to be shown at K show before delivery to Argentina for food-grade R-PET and PP sheet production



术，可以为特定材料定制回收生产线。作为可选方案，轻质或蓬松材料可通过 3C 旋转给料机送入挤出机。

OMNI 回收生产线获得了北美食品安全机构颁发的多份无异议函（LNO），并通过了欧洲食品安全局（EFSA）的认证以及拉丁美洲的当地审批，这些都证实了该技术的去污效率。由于在 MRS 螺杆挤出机的真空环境中，挥发性污染物被高效去除，而固体污染物则通过旋转过滤系统中的精细过滤得以清除，因此 OMNI 回收生产线能够在一次简单、紧凑且可持续的挤出步骤中实现高质量且符合食品标准的回收。

由于在真空条件下，MRS 螺杆挤出机能非常高效地去除挥发性污染物，而旋转过滤系统又能通过精细过滤去除固体污染物，因此 OMNI 回收生产线能够在一次简单、紧凑且可持续的挤出步骤中实现高质量且符合食品标准的回收。

OMNI 回收机的典型应用包括将 PET 回收料（如瓶、片材废料或纤维废料）加工成高质量的终端产品，例如热成型片材（适用于食品接触）、短纤维、POY、FDY、BCF 或捆扎带。此外，还可以回收 PS、PP、PE 或 PLA 等多种输入材料。OMNI 系列还可用于对消费后废弃物进行去污处理，以生产直接食品接触产品，如 HDPE 瓶盖或牛奶瓶、咖啡盖，以及用于减少 PA、SAN（苯乙烯）或其他聚合物的气味和脱气。

OMNI 110 型消费后 PET 回收机

在 K 展上，格诺斯公司将展示 OMNI 回收机的核心部件——一台 MRS 110 多旋转系统挤出机。展会结束后，整条生产线——包括水环真空系统和全自动 RSFgenius 90 熔

体过滤系统等其他组件——将交付给阿根廷领先的热成型塑料包装制造商 Cotnyl 公司。该系统设计用于处理每小时 600 千克未干燥且未结晶的 PET 或每小时 400 千克的 PP，可生产用于食品包装的高质量热成型片材。该技术已获得阿根廷食品安全机构 Senasa 的食品接触批准。

除了紧凑的设计（所需空间极小，因而能轻松融入现有场所）之外，OMNI 在灵活性方面也表现出色。真空、挤出机、计量、脱气停留时间和过滤器更换的全自动控制确保了最终产品的始终如一的高品质，同时还能使用成本较低的原材料。在原材料市场紧俏且波动不定的情况下，对于原材料具备最大的灵活性变得愈发重要，尤其是在未来原材料质量多变且难以预测的情况下。

紧凑的设计还带来了极低的能耗，显著降低了回收过程中的二氧化碳排放量。

格诺斯开放日

格诺斯公司的总部距离杜塞尔多夫约 200 公里。在 K 展期间，格诺斯技术中心将举办一场开放日活动。

10 月 10 日星期五，位于巴特奥伊嫩豪森的工厂内将有多套系统运行。届时将展示各种应用，重点关注诸如气味减少以及食品接触应用塑料的回收等关键主题。

测量技术

来自格诺斯的可靠传感器解决方案：格诺斯 提供用于挤出工艺中压力和温度测量的坚固耐用且适应性强的传感器技术。

MEDIA DATA 2026
MAGAZINE · WEBSITE · NEWSLETTER

EXTRUSION
EXPERT MEDIA ON PLASTICS EXTRUSION

EXTRUSION INTERNATIONAL
05/2025
Process engineering for efficient extrusion of large PE pipes.

挤出和回收 亚洲
EXTRUSION & RECYCLING ASIA
05/2025

EXTRUSION INTERNATIONAL USA
05/2025

Verlag GmbH Cologne/Germany
www.extrusion-global.com

专为满足最严苛的工业需求而设计，格诺斯传感器能够抵御磨损、腐蚀和极端温度。

得益于灵活的内部生产，格诺斯能够在短时间内交付标准和定制传感器。

安全与质量备受关注：对安全和质量的日益严格要求使得对测量设备的持续监测变得至关重要。对于具有安全功能的压力传感器而言，这一点尤为突出。可靠的 Gneuss CCS 1000 压力传感器测试设备现配备加热传感器支架，可在实际操作条件下进行测试。

得益于其模块化设计，CCS1000 还可加装温度控制压力端口。此外，新开发的传感器支架夹紧装置减少了密封面的磨损，防止测试过程中出现泄漏。

格诺斯可基于 CCS1000 为您提供定制化的测试解决方案。压力端口有多种螺纹类型可供选择，包括 1/2" 和 M18。根据您的需求，还可集成您所使用传感器类型的显示单元。

格诺斯传感器凭借数字 IO-Link 通信和可选的 RFID 芯片识别功能，具备面向未来的特性。

Gneuß Kunststofftechnik GmbH

➔ www.gneuss.de

K 2025: Hall 9, Stand A22 9号馆，
A22号展台

In an era of global uncertainty, extrusion processors face mounting pressure to reduce costs while maintaining quality and output. Gneuss offers a powerful solution in the form of advanced melt filtration and extrusion equipment that can be integrated into existing lines to achieve significant efficiency improvements. These gains translate into measurable cost savings and a stronger competitive position. With reliable, flexible systems designed for minimal downtime, Gneuss helps processors unlock hidden potential within their current operations.

Gneuss Filtration Technology

Gneuss' flagship model, the RSFgenius ensures a rock-steady melt pressure even when processing recycled material, thanks to its highly-efficient, automatic, integrated self-cleaning system. This makes it predestined for a wide range of demanding applications. The filter elements can be automatically cleaned in situ up to 400 times and filter elements as fine as 10 µm (1.200 mesh) can be applied.

The RSFgenius 330L which will be displayed at the K show is one of the best-selling (and at the same time one of the largest) RSFgenius models. The unit on display has an active filtration area of 2.150 cm² and is for LDPE/ LLDPE film recycling with a filtration fineness of 75 µm.

Retrofitting a fully-automatic RSFgenius to an existing extrusion line, whether in a pelletizing, sheet, fiber or pipe application, permits the use of more contaminated material and/or the use of finer screens without disrupting the process or reducing production yield. Every retrofit is tailor-made and usually without the need to move any existing equipment.

Three further Gneuss screen changer ranges will be represented at the K show, the SFXmagnus, SFneos and KSF screen changers. The SFXmagnus is a process-constant screen changer for a wide range of applications, the SFneos is a specialised screen changer which offers an extremely high level of process and pressure-stability, equivalent to that offered by the RSFgenius. This way, Gneuss can cover a huge range of applications, where self-cleaning is not necessarily required. Whether fibre extrusion, cast film, blown film with its high pressures, sheet extrusion of all kinds and even PVC recycling. Last but not least, the KSF range of screen changers is process-constant and

designed with extremely sensitive polymers in mind. It is mostly used in compounding where its uniquely customisable design for unbeatably fast material and grade changes is a major advantage. All three ranges of Gneuss screen changers have in common that they operate pressure and time-controlled, process-constant and that screen changes are made without disturbing the process.

Multiple screw extruder MRS

The MRS extruder is based on conventional single screw technology but is equipped with a multiple screw section for devolatilization. It enables very efficient and gentle decontamination of the polymer melt. The MRS extruder permits the processing of R-PET directly into high quality end products such as packaging sheet, strapping tape or filaments without pre-drying by using a simple and rugged vacuum system. All this is achieved by means of its unique and patented processing section. The Multi Rotation Section is a drum containing multiple satellite single screws, driven by a ring gear and pinion transmission.

The satellite screws rotate in the opposite direction to the main screw. This disproportionately increases the surface exchange of the polymer melt. A large opening for venting, exposing the full length of the satellite screws, is under vacuum. This provides excellent and unrestricted access to the polymer melt, the surface of which is constantly replaced at a very high rate by the counter-rotation of the satellite screws in the multiple screw section. The surface area – and the surface area exchange rate – available for devolatilization are far greater than in other extrusion systems. As the thermal and mechanical stress on the polymer melt is minimized, reclaim processed on the MRS extruder has excellent optical and mechanical properties.

In a single, simple extrusion step, harmful contaminants are thoroughly removed, assuring that the end product is safe for use in food contact applications.

OMNI Recycling Machines

Gneuss' MRS Extrusion Technology is known as an alternative for the reprocessing of contaminated materials like polyester (PET), polystyrene (PS), polypropylene (PP) or polyethylene (PE). In combination with Gneuss' highly effi-

cient Rotary Filtration Systems, optimized vacuum technology, an online viscometer VIS and Gneuss Measurement Technology, customizable recycling lines tailor-made for a specific material can be engineered. As an option, lightweight or fluffy materials can be fed into the extruder via a 3C Rotary Feeder.

OMNI recycling lines offer Several Letters of Non-Objection (LNOs) from a North American food safety authority, EFSA conformity and local approvals in Latin America confirm the decontamination efficiency of the technology.

As volatile contamination is removed very efficiently in the MRS extruder under vacuum and solid contamination is removed by fine filtration in the rotary filtration system, OMNI recycling lines offer high quality and food compliant recycling in one simple, compact and sustainable extrusion step.

Typical applications for OMNI Recycling machines include the processing of PET reclaim, such as bottle, sheet regrind or fiber waste, into high quality end products, such as thermoformed sheet (suitable for food contact), staple fiber, POY, FDY, BCF or strapping tapes. In addition, a wide range of input materials such as PS, PP, PE, or PLA can be recycled. The OMNI series can also be used in the decontamination of post-consumer waste to produce direct food contact products such as HDPE bottle caps or milk bottles, coffee caps and for odor reduction and degassing of PA, SAN or other polymers.

OMNI 110 Recycling Machine for post-consumer PET reclaim

At the K show, Gneuss will present the core of an OMNI Recycling Machine – a Multi Rotation System MRS 110 extruder. After the show, the complete line – including, among other components, a water ring vacuum system and the fully automatic RSFgenius 90 melt filtration system – will be delivered to Cotnyl, a leading Argentinian manufacturer specializing in thermoformed plastic packaging. Designed to process 600 kg/h of undried and uncrySTALLIZED PET or 400 kg/h of PP, the system will produce high-quality thermoforming sheet for food packaging applications. The technology has already been approved for food contact by Argentina's food safety authority Senasa.

In addition to its compact design, which requires very little space and can therefore be easily integrated into existing premises, the OMNI scores highly in terms of flexibility. The fully automated control of vacuum, extruder, dosing, degassing dwell time and filter exchange ensures a consistently high quality of the end product while allowing the use of lower cost input materials. With the tight and varying materials market, it is becoming increasingly important to have maximum flexibility in regard to the input material, es-

pecially in the case of varying and uncertain input qualities in the future.

The compact design also results in very low energy consumption, significantly reducing the CO2 footprint of the recycling process.

Open House at Gneuss

Gneuss' headquarters are located just about 200 kilometers from Düsseldorf. During the K trade fair, an Open House event will take place at the Gneuss Technical Center.

On Friday, October 10, several systems will be running at the facility in Bad Oeynhausen. Various applications will be demonstrated, focusing on key topics such as odor reduction and the recycling of plastics for food contact applications.

Measurement Technology

Reliable Sensor Solutions from Gneuss: Gneuss offers robust and adaptable sensor technology for pressure and temperature measurement in extrusion processes. Designed to meet the harshest industrial demands, Gneuss sensors withstand abrasion, corrosion, and extreme temperatures.

Thanks to flexible in-house production, Gneuss delivers both standard and custom-made sensors with short lead times.

Safety and Quality in Focus: The increasing demands placed on safety and quality make the continuous monitoring of measuring equipment essential. This is particularly true of pressure sensors with a safety function. The reliable Gneuss CCS 1000 pressure sensor testing device is now available with a heated sensor holder, enabling testing under real operating conditions.

Thanks to its modular design, the CCS1000 can also be retrofitted with a temperature-controlled pressure port. Additionally, the newly developed clamping device for the sensor holder reduces wear on the sealing surfaces, preventing leaks during testing.

Gneuss can provide a customised solution for your testing needs based on the CCS1000. Pressure ports are available for various thread types, including ½" and M18. Display units can be integrated for the sensor types you use on request.

Gneuss sensors are future-proof thanks to digital IO-Link communication and optional identification using RFID chips.

Gneuß Kunststofftechnik GmbH
➔ www.gneuss.de

K 2025: Hall 9, Stand A22

重新定义塑料回收

Plastics Recycling Redefined

■塑料回收使用的技术发展得非常快。在过去几年里，我们多次设立了里程碑，并一直是创新的驱动力。在今年的K展上，我们将再次推出多种新的解决方案，旨在保持更多的塑料流通，EREMA（埃瑞玛）集团首席执行官Manfred Hackl在6月初在奥地利林茨附近的安斯费尔登公司总部举行的K预览新闻讲话中说。埃瑞玛提供了该公司将在杜塞尔多夫的K 2025上展示的选定创新的第一个展示。

两种新的机器类型将在K 2025上庆祝初次亮相：

TwinPro是一种高性能的双螺杆技术，其中经过验证的埃瑞玛预处理单元（PCU）直接耦合到双螺杆挤出机。新系统特别适用于低体积密度的复杂薄膜废料的高效均质化，只需一步完成。

•AGGLOREMA技术是特别有吸引力的准备原料的化学回收。这种强大而节能的系统从严重污染的消费后物料中大规模地产生高堆积密度的结块。

亦专注于敏感应用及二次包装中对消费后材料制成的回收球团的需求日益增加。例如，埃瑞玛正在推出更紧凑的INTAREMA®TVEplus®2021，并与Lindner Washtech一起，呈现洗涤系统和挤出机的最佳匹配，以实现整体过程的平衡。在户外区域进行的现场回收示范将展示如何处理不同的废料物流。参观者可以在先进回收中心的产品展览中亲自看到从技术组件到化妆品和食品包装的结果。

数字解决方案在实现循环经济和以可持续的方式处理塑料废物材料方面发挥了决定性作用。在K展，PredictOn家族正在增长，包括人工智能支持的深入数据分析，监测主驱动器，以及塑化单元的新状态监测系统。这两个模块都可以在展会上看到，INTAREMA®TVEplus®DuaFil®Compact配备了最新的智能辅助系统。结果可以在埃瑞玛交易会展位和户外先进回收中心的BluPort®在线平台上实时显示。

“对于塑料行业循环的经济来说，回收必须沿着整个价值链持续整合。先进回收表明，我们正在与客户合作，可持续地增加新产品中使用的回收塑料的比例，”埃瑞玛集团营销主管Gerold Breuer说。为期一年的活动专注于全面的解决方案，从实践验证的技术到创新的新产品，第一个亮点是K 2025。“是的，它确实是这样拼写的，”Gerold Breuer补充说，“因为E代表埃瑞玛。毕竟，先进塑料回收与我们的名字有着千丝万缕的联系。”



先进回收技术的启动：6月初，埃瑞玛集团首席执行官Manfred Hackl（右）和营销主管Gerold Breuer介绍了新的活动，EREMA埃瑞玛专注于全方位的塑料回收（图片：EREMA GmbH）

Kick-off for Advanced Recycling: At the beginning of June, Manfred Hackl, CEO of the EREMA Group (right), and Gerold Breuer, Head of Marketing, presented the new campaign, with which EREMA is focusing on the full range of plastics recycling (Picture: EREMA GmbH)

埃瑞玛集团
EREMA Group
➔ www.erima.com

K 2025: 9号展厅，展位：C09
位于先进回收中心：户外区，CE03

"The technologies used in plastics recycling have evolved very fast. Over the past few years, we have repeatedly set milestones and have been a driver of innovation. At this year's K, we will again be presenting multiple new solutions designed to keep even more plastics in circulation," said Manfred Hackl, CEO of the EREMA Group, in his opening presentation at the K Preview Press Talk, which was held at the beginning of June at the company's headquarters in Ansfelden near Linz in Austria. EREMA provided a first glance of selected innovations that the company will be presenting at K 2025 in Düsseldorf.

Two new machine types will celebrate their début at K 2025:

- TwinPro is a high-performance twin-screw technology in which the proven EREMA Preconditioning Unit (PCU) is coupled directly to a twin-screw extruder. The new system is particularly suitable for the highly efficient homogenisation in just one step of complex film waste with low bulk densities.

- AGGLOREMA technology is particularly interesting for preparing feedstock materials for chemical recycling. This robust and energy-efficient system produces agglomerates with a high bulk density on a large scale from heavily contaminated post consumer material.

The focus is also on the increasing demand for recycled pellets made from post consumer materials in sensitive ap-

plications and secondary packaging. For example, EREMA is launching a more compact INTAREMA® TVEplus® 2021 and, together with Lindner Washtech, is presenting the optimum match of washing system and extruder that achieves a balanced overall process. Live recycling demonstrations in the outdoor area will show how different waste streams are processed. Visitors can see the results for themselves in the exhibition of products at the Edvanced Recycling Centre, which range from technical components to cosmetic products and food packaging.

Digital solutions play a decisive role in achieving the circular economy and handling plastic waste material in a sustainable way. At K, the PredictOn family is growing to include AI-supported in-depth data analysis for monitoring the main drives, and a new Condition Monitoring System for the plasticising unit. Both modules can be seen in action at the show, where an INTAREMA® TVEplus® DuaFil® Compact is equipped with the latest intelligent assistance systems. The results can be seen live on the displays of the BluPort® online platform at the EREMA trade fair stand and at the outdoor Edvanced Recycling Centre.

"For a more circular economy in the plastics industry, recycling has to be consistently integrated along the entire value chain. Edvanced Recycling shows how we are working together with our customers to sustainably increase the proportion of recycled plastics used in new products," says Gerold Breuer, Head of Marketing at the EREMA Group. The year-long campaign focuses on the full range of EREMA solutions, from technologies proven in practice to innovative new products, with a first highlight at K 2025. "And yes, it really is spelt that way," adds Gerold Breuer, "because the E stands for EREMA. After all, advanced plastics recycling is inextricably linked to our name."

EREMA Group
www.erima.com

K 2025: Hall 9, Stand: C09
and at the Edvanced Recycling Centre:
Outdoor area, CE03

全新高性能双螺杆挤出机系统实现全速生产低堆积密度薄膜

■ 在 2025 年 K 展上，埃瑞玛 (EREMA) 扩大了其产品组合，纳入了高性能双螺杆挤出机技术。凭借全新的 TwinPro，这家奥地利塑料回收解决方案供应商将双螺杆挤出机的优势与久经考验的预处理单元 (PCU) 的优势相结合，用于特定的回收应用。

EREMA 花费了两年时间深入研究、测试并进一步开发了在 2022 年 K 展上展示的双螺杆挤出机概念。与客户密切合作，他们开发出了一种系列生产解决方案，特别擅长回收由多层薄膜构成的生产废料。该技术也为薄壁消费后回收料开辟了新的前景。

"TwinPro 让我们首次将一款新产品推向市场，并将我们独特的采用逆流技术的 PCU 直接与双螺杆挤出机相结

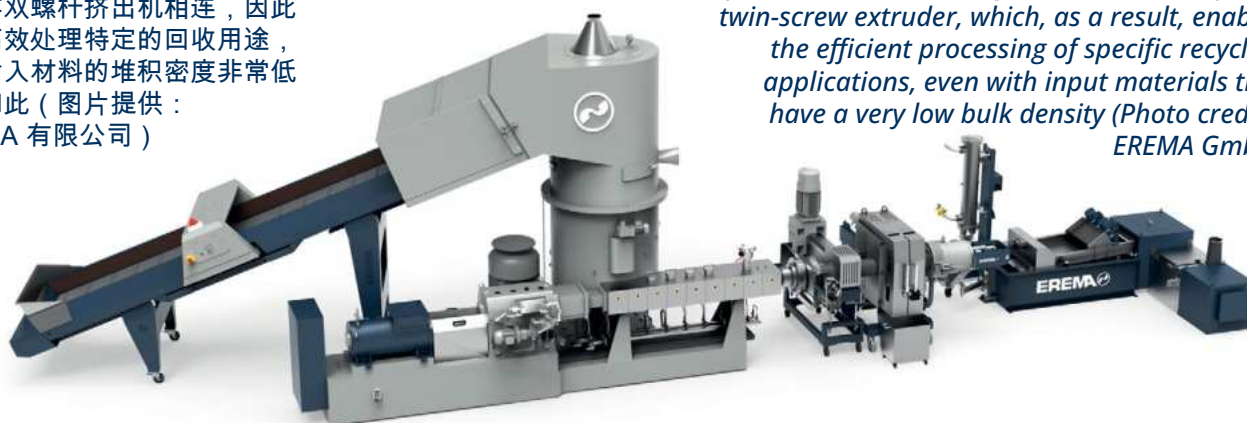
合，"EREMA 公司总经理马库斯·胡贝尔-林丁格 (Markus Huber-Lindinger) 说道，"因此，该系统为特定的回收任务树立了新的标准。在开发过程中，我们特别注重将我们在材料加工方面的优势与双螺杆挤出机的优势相结合。"

在单个工作步骤中高效均质化低堆积密度薄膜以获得最高质量的回收颗粒

使用多层薄膜 (如 PE-PA 或 PE-EVOH 复合材料) 等复杂原料生产高质量的再生颗粒，这对回收过程来说是一项重大挑战。而新型 TwinPro 正是为此而来，其关键特性在于高效均质化。

EREMA 公司的新型 TwinPro 将久经考验的预处理单元 (PCU) 直接与双螺杆挤出机相连，因此能够高效处理特定的回收用途，即使输入材料的堆积密度非常低也能如此 (图片提供：EREMA 有限公司)

The new TwinPro from EREMA couples the proven Preconditioning Unit (PCU) directly to a twin-screw extruder, which, as a result, enables the efficient processing of specific recycling applications, even with input materials that have a very low bulk density (Photo credits: EREMA GmbH)



均质化的第一阶段在预处理单元 (PCU) 中进行, 该单元对输入材料进行粉碎、加热、干燥、压实和缓冲处理。在回收过程的初始阶段就对材料进行优化处理, 为始终如一的高质量最终产品奠定了基础。得益于专利的Counter Current®技术, 与 PCU 直接切线连接的挤出机能够持续不断地填充加热并预压实的材料。即使对于像薄膜废料这样低堆积密度的材料, PCU 也能够实现满负荷运转。PCU 能够处理异常广泛的输入材料, 堆积密度在每升 30 至 800 克的材料都能在单个工作步骤中可靠处理, 无需单独的团聚、称重或填充单元。

T接下来是在双螺杆挤出机中进行的高强度均质化处理, 这对于多层薄膜来说至关重要, 这样不同类型的聚合物才能以最佳方式混合。这会产生具有改进机械性能的再生颗粒, 从而能够重新用于多层薄膜。“我们的 TwinPro 再次证明, EREMA 不仅是单螺杆挤出机领域的领导者, 而且我们还提供高性能的双螺杆解决方案, 凭借我们久经考验的预处理单元在市场上脱颖而出,”马库斯·胡贝尔 - 林丁格说道。

可靠地喂送极薄壁的消费后回收再生材料

最初为处理复杂的薄膜废料而开发的 TwinPro 现在为在 3D 包装回收中使用双螺杆挤出机开辟了新的可能。塑料包装壁厚越来越薄的趋势增加了对挤出技术的要求。其中一个特定的应用是从诸如酸奶盒之类的极薄壁包装中分选并热洗过的 PP 碎片。由于进料材料的堆积密度极低且可能有水分波动, 这也是一项具有挑战性的应用。然而, TwinPro 能够轻松处理这种通常在传统双螺杆系统中因重量轻、体积大而造成进料问题的薄壁包装。此外, PCU 可靠地去除洗涤过程中的残留水分, 并对材料进行除臭。

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<https://advanced.erima.com/>

K 2025: Hall 9, Booth: C09 and
at the Advanced Recycling Centre: Outdoor area, CE03
9号展厅, 展位: C09、以及在先进回收中心: 户外区域, CE03

New TwinPro System for Low Bulk Density Film at Full Throughput

At K 2025, EREMA expands its portfolio to include high-performance twin-screw extruder technology. With the new TwinPro, the Austrian provider of plastics recycling solutions combines the advantages of a twin-screw extruder with the proven strengths of its Preconditioning Unit (PCU) to be used for specific recycling applications.

EREMA spent two years intensively researching, testing, and further developing the twin-screw extruder concept presented at K 2022. Working together closely with customers, they have developed a series production solution that is particularly adept at recycling production waste consisting of demanding multi-layer films. The technology also opens up new perspectives for thin-walled post-consumer regrind material.

"The TwinPro sees us bring a new product to market, and couple our unique PCU featuring Counter Current® technology directly to a twin-screw extruder for the first time," says Markus Huber-Lindinger, Managing Director at EREMA. "As a result, this system sets new standards for specific recycling tasks. During development, we focused especially on combining our strengths in material processing with the advantages of a twin-screw extruder."

Efficient homogenisation of low bulk density film for maximum recycled pellet quality in a single work step

Producing high-quality recycled pellets using complex input materials such as multilayer film consisting of PE-PA or

PE-EVOH is a major challenge for the recycling process. This is where the new TwinPro comes in, with its key feature of highly efficient homogenisation.

The first stage of homogenisation takes place in the preconditioning unit (PCU), which shreds, heats, dries, compacts and buffers the input material. Optimised material preparation right at the start of the recycling process lays the foundation for consistently high-quality end products. Thanks to patented Counter Current® technology, the extruder, which is directly coupled at a tangent to the PCU, is continuously filled with heated and pre-compacted material. Even with low bulk density material like film waste, the PCU is able to deliver full throughput. The PCU covers an exceptionally wide bandwidth of input materials, with bulk densities of 30 to 800 grams per litre reliably processed in a single work step, without the need for separate agglomeration, weighing or a stuffing unit.

This is followed by intensive homogenisation in the twin-screw extruder, which is essential for multilayer films so that the different polymer types are mixed in the best possible way. This produces recycled pellets with the improved mechanical properties needed for reuse in multi-layer films. "Our TwinPro demonstrates once again that EREMA is not only a leader in single-screw extruders, but that we also offer high-performance twin-screw solutions that clearly stand out on the market thanks to our proven preconditioning unit," says Markus Huber-Lindinger.

Reliable feeding of very thin-walled post consumer regrind material

Originally developed for complex film waste, the TwinPro now opens up new capabilities for using twin-screw extruders in the recycling of 3D packaging. The trend towards thinner wall thickness for plastic packaging increases the demands on extrusion technology. One particular application is PP flakes that have been sorted and hot-washed from very thin-walled packaging such as yoghurt tubs. This is also a challenging application due to very low bulk density and possible moisture fluctuations of the input material.

However, the TwinPro can easily process this type of thin-walled packaging that often causes problems in the material feed on conventional twin-screw systems because of its low weight and high volume. What is more, the PCU reliably removes residual moisture from the washing process and also deodorises the material.

EREMA

www.ereima.com

<https://advanced.ereima.com/>

K 2025: Hall 9, Booth: C09 and
at the Advanced Recycling Centre: Outdoor area, CE03

每一尺寸的精准度

■在 K 2025 展会上, ZUMBACH (仲巴赫) 电子公司展示了其用于挤出和生产线的非接触式测量与控制解决方案方面的最新创造成果。ZUMBACH 的前沿技术正在推动效率、精度和质量的提升, 并在众多应用中减少了废料和降低了生产成本。

UMAC® CI 超声波壁厚处理器——成功故事延续不断

凭借 40 年的超声波测量经验和专业知识, Zumbach 公司开发出了 UMAC® CI——一款紧凑型高科技壁厚数据采集系统, 由处理器及相关传感器组成。该系统专为挤出生产线设计, 用于测量和记录壁厚、偏心度及其他相关参数。它采用了最新的测量算法, 便于集成和设置, 并通过嵌入式网络服务器实现测量结果的可视化。



RAYEX® S, X 射线壁厚测量系统——全新 CORE 版本现已推出

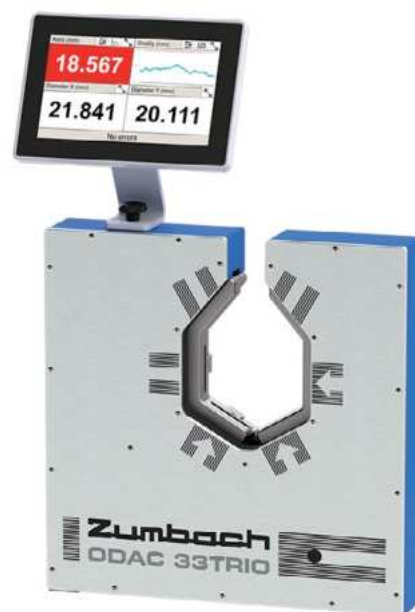
Zumbach 的 RAYEX® S 一体化解决方案可测量壁厚、椭圆度、偏心度和直径, 适用于 4 毫米至 100 毫米尺寸的产品, 壁厚测量精度可达 0.3 毫米。该方案可校准且可认证, 能自动控制生产线速度或挤出机输出量, 并支持轻松创建产品配方。

PROFILEMASTER® PMM 激光三角测量几何形状测量仪 - 新款 PMM 130/160 已上市

PROFILEMASTER® 是一款用于连续生产产品实时监测的非接触式测量系统。它为每次生产运行生成完整的记录, 同时显著缩短启动时间和减少废品。凭借其独特的理念, 几乎任何形状的型材, 无论其位置和/或扭曲程度如何, 都能保证测量的准确性和可靠性。

SIMAC® 表面检测系统——SIMAC 120 型号的推出使该系列更加完善。

SIMAC® 表面检测系统为您提供一种先进的解决方案, 该系统利用图像处理技术来检测和识别在管材和软管生产过程中出现的材料缺陷和异常情况。



况, 否则这些缺陷和异常情况会对盈利能力和产品可靠性产生负面影响。

ODAC® 激光直径和椭圆度测量仪——自身成功的典范

凭借卓越的精度, 过去 60 年间, 超过 10 万个 ODAC® 激光测量头已在全球范围内投入使用。它们为您的塑料管材、管件和软管制造提供最高精度的非接触式直径、椭圆度和位置测量。其出色的性价比优化了生产成本, 同时提升了整体产品质量, 即使在最恶劣的条件下也是如此。

无论您是在生产最小的医疗管、中型管、复杂型材挤出、单丝和多丝, 还是汽车管和软管, Zumbach 公司先进的挤出测量解决方案系列都能确保精度、质量和效率, 不仅贯穿您

的生产流程，还能减少废料、缩短启动时间和降低机器停机时间。

ZUMBACH 电子公司亮相 K 2025 展会

- 展示其最新技术和系统的现场产品演示，重点展示用于挤出和型材应用的实时非接触式测量。
- 关于工艺优化的专业咨询。

• 了解工业 4.0 集成和数据连接，并了解 ZUMBACH 系统如何与智能工厂环境集成，以实现下一代制造。

• 了解 ZUMBACH 凭借数十年的全球专业知识和强大的本地影响力，如何通过世界级创新与个性化服务和支 持为您的运营提供长期价值。

ZUMBACH Electronic AG

➔ www.zumbach.com

K 2025: Hall 10, Stand E27
10 号展厅 E27 展位

Precision in Every Dimension

ZUMBACH Electronic exhibits at K 2025 showcasing their latest innovations in non-contact measurement and control solutions for extrusion and production lines.

ZUMBACH's cutting-edge technologies are driving efficiency, precision, and quality, as well as saving waste materials and production costs across a wide range of applications.

UMAC® CI ultrasonic wall thickness processor – the success story continuous

Zumbach's 40 years of Ultrasonic measuring experience and expertise has led the company to develop the UMAC® CI — a compact, high-tech wall thickness data acquisition system that comprises of a processor and associated sensor. Designed specifically for use in extrusion lines for measuring and logging wall thickness, eccentricity and other relevant parameters. It utilizes the newest measuring algorithms which make for easy integration and setup as well as providing visualisation of the measurements via the embedded Webserver.

RAYEX® S x-ray wall thickness measuring system – the new CORE version is available

Zumbach's all-in-one solution for measuring wall thickness, ovality, eccentricity and diameter, the RAYEX® S can measure product sizes between 4 mm and 100 mm, with wall thickness testing from 0.3 mm. It is a calibratable and certifiable solution that provides automatic control of the line speed or the extruder output capacity, and enables easy product recipe creation.

PROFILEMASTER® PMM laser triangulation geometry form measurement – the new PMM 130 / 160 are available

The PROFILEMASTER® is a non-contact measuring system for real-time monitoring of continuously manufactured products. It generates a complete log for each production run, while significantly reducing start-up times and scrap. Thanks to its unique concept, accurate and reliable measurements can be guaranteed for virtually any profile shape, regardless of the position and/or twist.

SIMAC® surface inspection system – the type family is completed with the SIMAC 120

The SIMAC® surface inspection system provides you with a state-of-the-art solution that utilizes image processing to detect and identify material defects and anomalies in the production of pipes and hoses which would otherwise negatively impact profitability and product reliability.

ODAC® laser diameter and ovality gauges – a success story for its own

Renowned for precision, over 100,000 ODAC® laser measuring heads have been put to use globally in the past 60 years. They provide the highest non-contact measuring accuracy of diameter ovality and position for your plastic tube, pipe and hose manufacturing. Their excellent price-performance ratio optimizes production costs as well as improving overall product quality, even in the harshest conditions.

Whether you are manufacturing the smallest medical tubes, medium-sized tubes, complex profile extrusion, mono and multi-filaments or even automotive tubes and hoses, Zumbach's range of advanced extrusion measurement solutions ensure precision, quality and efficiency, not only through your production processes, but by reducing waste, start-up times and machine downtime.

ZUMBACH Electronic at K 2025

- Live product demonstrations of their latest technologies and systems showcasing real-time, non-contact measurement for extrusion and profile applications.
- Expert consultations on process optimization.
- To gain insight into Industry 4.0 integration and data connectivity and see how ZUMBACH systems integrate with smart factory environments for next-generation manufacturing.
- To understand the long-term value that ZUMBACH can offer your operations with decades of global expertise and a strong local presence, combining world-class innovation with personalized service and support.

ZUMBACH Electronic AG

➔ www.zumbach.com

K 2025: Hall 10, Stand E27

塑料加工中实现最高效率的创新解决方案

Innovative Solutions for Maximum Efficiency in Plastics Processing

■ 摩丹 (motan) 集团将在 K 展上展出一系列强大的产品组合，适用于塑料加工的多种应用。亮点包括经济实惠的 swift 产品系列中的新产品以及用于挤出工艺自动化的智能解决方案。

Swift——对当前市场状况的有力回应

摩丹凭借其全新的 Swift 产品品牌，为物料管理中的辅助设备引入了经济高效的解决方案。这些标准化单元具备摩丹一贯的高品质，并配备了最先进的控制技术。它们是专为那些在面

sCOMPACT – 紧凑型集成输送干燥机、sCOMPACT – 紧凑型集成输送干燥机、

sCOMPACT – Compact dryer with integrated conveying



sDRY 40/80 – 灵活紧凑的节能型小型烘干机

sDRY 40/80 – Flexible and compact energy-efficient small dryer

临日益增长的成本压力时，仍不愿在效率、可靠性和易用性方面做出妥协的公司而开发的。

Swift 系列涵盖了物料处理的整个产品范围，从计量和混合到干燥和输送。展台上的亮点包括：

- sDRY 40/80：一款灵活紧凑的小型除湿空气干燥机系列，可实现多种料仓组合，注重节能。

- sCOMPACT：一款灵活的除湿空气干燥机，集成了输送功能，并可通过其彩色触摸显示屏选配添加剂计量单元的控制。



sCOLOR V – 稳定且精准的母粒计量

sCOLOR V – Consistent and accurate masterbatch dosing





sCONVEY HES –单相颗粒料装载机
sCONVEY HES – Single-phase material loaders for granulate

- sCONVEY HES：一款紧凑型单相颗粒料装载机，具备智能控制功能，可按需供应物料。
- sCOLOR V 添加剂计量与混合单元：适用于母料和回收料的计量应用，提供快速交付和经济高效的性能。

“我们的 swift 系列产品证明，经济实惠的解决方案不必在质量、控制或可持续性方面做出妥协。它们是对市场需求的直接回应，即既要有效率又要有成本效益。”motan 集团首席营销官卡尔·利瑟兰（Carl Litherland）说道。



GRAVICOLOR 110 med - 符合美国食品药品监督管理局（FDA）标准的用于医疗和制药行业塑料颗粒计量与混合的解决方案

GRAVICOLOR 110 med – The FDA-compliant solution for dosing & mixing plastic granulate for the medical and pharmaceutical industry

为了更加方便，众多的迅捷产品在网店均有销售。您可以在 <https://shop.motan.com/> 7天24小时进行订购，价格透明，送货迅速。

针对最严苛要求的精准应用——医疗技术与挤出成型

对于挤出工艺而言，始终如一的高品质和精确的过程控制至关重要。motan



GRAVIFLOW - 可靠且精确的重力流量测量

GRAVIFLOW – Reliable and accurate gravimetric throughput measurement

推出的全新 SPECTROFLOW 智能系统解决方案专为连续挤出工艺的需求量身定制。这些体积式和重量式计量及混合系统适用于满料喂料和失重喂料挤出机。新型 GRAVIFLOW 失重式料斗专为自由流动的散装固体（如颗粒和回收料）的重量式流量测量而设计。它们有多种尺寸可供选择，流量范围从 1 到 1500 千克/小时。GRAVIFLOW 单元在集成到控制系统方面具有很高的灵活性。

摩丹为对可追溯性、精度和卫生有特别高要求的领域，如医疗和制药技术以及挤出领域，提供先进的系统解决方案。

Motan Gruppe

→ www.motan-group.com

K 2025: Hall 10, Stand D02/04 10号展厅
D02/04展台



METRO G med - 符合美国食品药品监督管理局（FDA）标准的塑料颗粒输送解决方案

METRO G med – The FDA-compliant solution for the conveying of plastic granulate

The motan Group will be exhibiting at the K Show with a strong product portfolio for a wide range of applications in plastics processing. Highlights include new offerings from the cost-effective swift product range and intelligent solutions for the automation of extrusion processes.

swift – A powerful response to current market conditions

With its new swift product brand, motan is introducing cost-effective solutions for auxiliary equipment in materials management. The standardized units offer the usual motan quality and are equipped with state-of-the-art control technology. They have been specially developed for companies that do not want to compromise on efficiency, reliability, and ease of use, especially when faced with increasing cost pressure.

The swift series covers the entire product range for materials handling, from dosing and mixing to drying and conveying. Highlights at the booth include:

- sDRY 40/80: A flexible and compact small, dehumidified air dryer range with multiple bin combinations possible, focused on energy efficiency.

- sCOMPACT: A flexible dehumidified air dryer with integrated conveying and optional control of an additive dosing unit via its color touch display.

- sCONVEY HES: A compact single-phase material loader for granulates with intelligent control for demand-based material supply.

- sCOLOR V Additive dosing and mixing unit: Ideal for masterbatch and regrind dosing applications, offering fast delivery and cost-efficient performance.

“Our swift products prove that affordable solutions do not have to compromise on quality, control, or sustainability. They are our direct response to a market environment that demands both efficiency and affordability,” says Carl Litherland, CMO of the motan Group.

For even more convenience, numerous swift products are available in the online shop. They can be ordered 24/7 at <https://shop.motan.com/>, with transparent prices and short delivery times.

Precise applications for the most demanding requirements – medical technology & extrusion

motan provides sophisticated system solutions for areas with particularly high requirements for traceability,

precision, and hygiene, such as medical and pharmaceutical technology and extrusion. The GRAVICOLOR 110 med and METRO G med are specially designed for pharmaceutical and medical plastics processing. They comply with FDA standards and guarantee maximum process reliability for sensitive materials.

Consistently high quality and precise process control are crucial for extrusion. motan offers with the new SPEC-TROFLOW intelligent system solutions that are tailored specifically to the requirements of continuous extrusion processes. These volumetric and gravimetric dosing and mixing systems are intended for both flood-fed and starved extruders. The new GRAVIFLOW loss-in-weight hoppers are designed for gravimetric throughput measurement of free-flowing bulk solids such as granulates and regrinds. They are available in various sizes and cover throughputs from 1 to 1,500 kg/h. The GRAVIFLOW units are characterized by their high flexibility when it comes to integration into control systems.

motan Gruppe

➔ www.motan-group.com

K 2025: Hall 10, Stand D02/04

EXTRUSION GLOBAL

A SPECIALIZED WEB PORTAL

- ▶ News about relevant products and events
- ▶ Detailed reviews of various smart technologies
- ▶ Case studies from processors
- ▶ English, German, Russian and Chinese

- ▶ Video clips demonstrating smart equipment in live action
- ▶ Latest magazines available for reading and downloading
- ▶ Weekly e-mail newsletters

www.extrusion-global.com

推出尖端的回收解决方案

Unveils Cutting-Edge Recycling Solutions

■ 作为科倍隆(Coperion)旗下的品牌，赫伯特·麦克斯海姆 (Herbold Meckesheim) 将在 2025 年 K 展上展示其在塑料回收技术方面的最新进展。凭借在塑料废料的尺寸缩减、清洗、分离、干燥和造粒等模块化系统解决方案方面的长期专业知识，赫伯特·麦克斯海姆为众多工业回收应用提供量身定制的高度自动化工厂。该公司将在 9 号馆 9B34 展位展示一系列机械加工集成系统和解决方案，包括新型大容量机械干燥机 T150-300 和最新款 SMS 造粒机。此外，赫伯特·麦克斯海姆和科倍隆将在开放区 FG/CE07 的回收馆展示水力旋流器分离系统，展示其全面的互锁回收解决方案。此次参展突显了赫伯特·麦克斯海姆和科倍隆致力于提供前沿机械和工艺解决方案，推动塑料经济向更循环的方向发展。

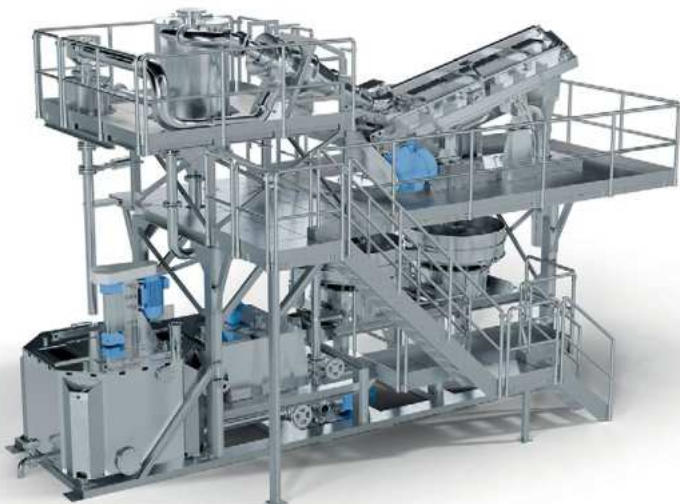
新型干燥机

赫博尔德的最新创新成果——机械式干燥机 T 150-300 将于 2025 年 K 展 9 号馆首次亮相，并推出全新规格。这款大容量机型在大规模干燥应用中树立了新标杆，每小时可处理高达 2.5 吨薄膜或超过 10 吨的 PET 或硬质片材。该干燥机采用了全新设计的结构，包括配备集成喷水喷头的旋转筛篮，可实现全面清洁，以及用于快速除湿的离心干燥室。

水力旋流分离阶段利用离心力和涡轮清洗技术，精确分离和净化塑料材料，提高回收效率和材料质量。

SMS 80-200 剪切机专为苛刻的回收工艺设计，具有高产量、精确的尺寸缩减、极低的细粉率以及快速的刀具更换系统，可实现最高的运行效率。

The Hydrocyclone Separation Stage uses centrifugal forces and turbowasher technology to accurately separate and purify plastic materials, enhancing recycling efficiency and material quality



新型机械干燥机 T 150 - 300 在大规模干燥领域树立了新标杆，其配备的旋转筛篮内置喷水喷头，可实现全面清洗和快速除湿 (图片：德国赫博尔德·梅克塞海姆)

The new Mechanical Dryer T 150-300 sets standards in large-scale drying, featuring a rotating sieve basket with integrated water spray nozzles for comprehensive cleaning and rapid moisture removal (Pictures: Herbold Meckesheim, Germany)

为便于维护，干燥机配备了液压铰链式外壳，便于快速检修，并配有先进的监测系统，支持预测性维护。这款创新干燥机非常适合于要求苛刻的工业流程，尤其是薄膜加工，能确保表面始终洁净，并具有卓越的干燥效率。

TSMS 80 - 200 剪切机专为苛刻的回收工艺设计，具有高产量、精确的尺寸缩减、极低的细粉率以及快速的刀具更换系统，可实现最高的运行效率。

The SMS 80-200 Granulator, designed for demanding recycling processes, delivers high throughput with precise size reduction, minimal fines, and a quick knife change system for maximum operational efficiency



造粒机

赫博尔德的 SMS 系列造粒机以坚固耐用和精准著称，其更大规格的 SMS 80-200 造粒机也将在 9 号展厅展出。这款造粒机专为高要求的应用而设计，集成了节能的双交叉切割动作以及可预先调整的转子和底刀刀片，能够生产出高质量的再生料，且细粉少，粒度分布均匀。其设计注重易于维护，配有铰链式外壳和快速换刀系统，从而减少停机时间和运营成本。

作为该系列中最大的型号，SMS 80-200 造粒机凭借坚固的结构和通过三个水平安装的螺杆实现的强制进料系统，能够处理大量的 PET 和硬质塑料，非常适合大规模的回收作业。

SMS 系列经过优化，适用于多种材料，是回收行业中标准应用以及特殊加工需求的理想选择，例如处理沉重的块状物、坚韧的纤维、薄膜或大量的材料。

在回收馆：水力旋流器阶段——实现精准分离

在开放区域的科倍隆和赫伯特回收馆内，可以看到赫伯特的水力旋流器分离装置，这是通过离心力实现精确材料分离的关键部件，同时还有一台科倍隆 ZSK FilCo 过滤复合机。赫伯特的水力旋流器装置在塑料回收过程中增强了净化效果，延长了设备的使用寿命，并提高了产品质量。

水力旋流器装置具有强大的密度分离功能，能够满足各种应用需求，提供额外的清洗和高效的杂质去除。该装置采用

重介质旋流器技术和高端流清洗，能够分离残留的诸如沙子、玻璃或金属等杂质。此外，该系统还配备了一台摩擦清洗机，能够去除纸张和其他纤维杂质。

PET 回收系统解决方案

水力旋流器系统和 ZSK FilCo 过滤复合机共同展示了赫博尔德和科倍隆集成工艺模块如何生产出高质量的再生料。ZSK FilCo 回收挤出机系统能够在单个生产步骤中完成过滤和复合，与水力旋流器系统协同工作，为消费后回收料（PCR）或任何高度污染的聚合物再加工提供一套完整、高效的系统。这种组合确保了最高水平的纯度和效率，满足了严格的最终产品质量标准。

此外，参观者可以在 14 号展厅 B19 展位看到科倍隆全面的复合解决方案

Herbold Meckesheim GmbH

➡ www.herbold.com

K 2025: Hall 9, Stand B34, 9号展厅 B34 展位
FG/CE07, Open Area FG/CE07, 开放区域
"The Power Of Plastics Forum", 塑料的力量论坛
Hall 14, Stand B19 14号馆, B19号展位

Herbold Meckesheim, a brand of Coperion, will showcase its latest advancements in plastics recycling technology at K 2025. Building on its long-standing expertise in modular system solutions for size reduction, washing, separation, drying, and agglomeration of plastics waste, Herbold Meckesheim offers tailored, highly automated plants for numerous industrial recycling applications. The company will present a range of integrated systems and solutions designed for mechanical processing, including the new high-capacity Mechanical Dryer T150-300 and the latest SMS granulator model. Visitors can explore these innovations firsthand at Hall 9, Booth 9B34. In addition, a Hydrocyclone Separation Stage will be showcased in the Coperion and Herbold Meckesheim Recycling Pavilion in the Open Area FG/CE07, where the companies will demonstrate their comprehensive interlocking recycling solutions. This participation highlights Herbold Meckesheim's and Coperion's ongoing commitment to delivering cutting-edge machinery and process solutions that drive the shift toward a more circular plastics economy.

New Dryer

Herbold's latest innovation, the Mechanical Dryer T 150-300, debuts in a

new size at K 2025 in Hall 9. This high-capacity model sets new standards in large-scale drying applications, reaching throughputs of up to 2.5 tons of film per hour or >10t/h of PET or rigid flakes. The dryer features a fully redesigned construction, including a rotating sieve basket with integrated water spray nozzles for full-coverage cleaning and a centrifugal drying chamber for rapid moisture removal.

Designed for maintenance simplicity, it is equipped with hydraulically hinged housing for quick access and advanced monitoring systems supporting predictive maintenance. This innovative dryer is perfectly suited for demanding industrial workflows, particularly for film processing, ensuring consistent surface cleanliness and superior drying efficiency.

Granulator

The next size of Herbold's SMS Granulators, renowned for its durability and precision, will also be showcased at Hall 9. The SMS 80-200 Granulator is built for demanding applications. It integrates energy-efficient double cross-cutting action and pre-adjustable rotor and bed knives to produce a high-quality regrind with minimal fines and consistent particle size dis-

tribution. Its design emphasizes ease of maintenance, featuring a hinged housing and quick knife change system, ultimately reducing downtime and operational costs.

As the largest model in the series, the SMS 80-200 Granulator's robust construction and forced feeding system – via three horizontally mounted screws – enables a high throughput of PET and rigid plastics, making it ideal for large-scale recycling operations.

The SMS series is optimized for a wide range of materials and ideal for the size reduction of standard applications in the recycling industry, as well as special processing needs – for example, heavy lumps, tough fibers, thin films, or substantial amounts of material.

At the Recycling Pavilion: Hydrocyclone Stage – Integrating Precision Separation

At Coperion and Herbold's Recycling Pavilion in the Open Area a Herbold Hydrocyclone Separation Stage, a key component designed to deliver precise material separation through centrifugal forces, can be seen together with a Coperion ZSK FilCo filtration compounder. Herbold's hydrocyclone stage enhances the purification of plastics

during recycling, extending equipment lifespan and improving product quality.

The Hydrocyclone system, featuring a robust density separation, accommodates various application needs, providing additional washing and efficient impurity removal. The system includes capabilities for separating residual contaminants such as sand, glass, or metals using heavy medium cyclone technology and high-turbulence washing. The system includes also a friction washer which is capable to remove paper and other fiber contaminants.

System Solution for PET Recycling

Together, the Hydrocyclone Stage and the ZSK FilCo filtration compounder are exemplary exhibits that demonstrate how integrated Herbold and Coperion process modules produce high-quality recyclates. The ZSK FilCo recycling extruder system allows filtration and compounding in a single production step, and works in tandem with the Hydrocyclone Stage to deliver a complete, streamlined system for post-consumer recycle (PCR) or any highly contaminated polymer repro-

cessing. This combination ensures the highest levels of purity and efficiency, meeting the stringent end product quality standards.

Additionally, visitors can find Coperion's comprehensive compounding solutions in Hall 14, Booth B19.

Herbold Meckesheim GmbH
www.herbold.com

K 2025: Hall 9, Stand B34,
 FG/CE07, Open Area
 "The Power Of Plastics Forum",
 Hall 14, Stand B19

新闻稿 – 绿色环保与数字 标准数据接口

Green Line & Digital Standard Data Interface – *Key Innovations for Film Stretching Lines*

■ 绿色环保理念节约能源和原材料 –

双向拉伸系统的绿色环保理念旨在实现效率最大化。其核心要素包

- 消费回收再循环的解决方案：经过多年研发项目，以大幅提高 BOPP 薄膜生产过程中再生聚丙烯的使用比例为目标，通过与整个价值链密切合作，在进一步形成BOPP 薄膜循环链闭环方面取得了里程碑式进展。

- 碎片直接计量：通过先进解决方案提升碎片直接投料比例，实现更高的生产/材料效率。新型软件解决方案可在任何时间将尽可能多的生产废料在线投入BO工艺，避免废料再造粒，从而降低能耗。

- 热能回收单元2.0：该解决方案通过比以往更高效地收集和再利用废热，最大化能源效率并显著降低运营成本。高能耗的废气被引入热回收装置，通过特殊传热介质将热能传递给吸入的新鲜空气。

- 集成于BO工艺的一站式废气净化系统：单一来源且协调优化。第一阶段通过洗涤塔净化废气，第二阶段利用静电除尘器从废气中分离气态碳氢化合物。

- 用于改善废热回收的高温热泵：该专利解决方案利用低能量水平被动热回收后的余热，将其提升至可用能级。降低了运营成本，并显著改善了二氧化碳平衡。

- 12米幅宽产线概念：提高生产力和效率，实现最低单位能耗。



Battery separator film production line_Brückner
Maschinenbau

数字化：标准数据接口 (SDI) –

实现布鲁克纳拉伸生产线与客户自有IT系统的即插即用连接。优势包括：

- 数据无缝集成：通过简单高效的连接，实现生产线数据无缝集成至客户仪表盘、生产计划或ERP系统。



Greenline for saving energy and raw materials – The Greenline concept for BO systems aims to maximize efficiency. The core elements are:

- Solutions for PCR use: After years of R&D projects, with the aim of significantly increasing the proportion of recycled polypropylene in the production process for BOPP films, a milestone has been reached in close cooperation with the entire value chain to further close the loop for BOPP films.
- Direct fluff dosing: Higher production/material efficiency with an advanced solution to increase direct fluff dosing. New software solutions now allow the maximum possible amount of production waste to be fed inline into the BO process at any given time. This also reduces energy consumption as this waste does not have to be re-granulated
- Heat recovery unit 2.0: This solution maximizes energy efficiency and significantly reduces operating costs by capturing and reusing waste heat more effectively than ever before. The energy-rich exhaust air is fed into the heat recovery unit, where thermal energy is transferred to the fresh air drawn in via a special heat transfer medium.
- Exhaust air purification system integrated into the BO process from a single source and ideally coordinated. In the first stage, the exhaust air is cleaned using a scrubber; in the second stage, gaseous hydrocarbons are separated from the exhaust air using an electrostatic precipitator.
- High-temperature heat pump to improve waste heat recovery. This patented solution uses waste heat after passive heat recovery at a low energy level and raises it to a usable energy level. This reduces operating costs and significantly improves the CO₂ balance.
- 12m line concept: Increased productivity and efficiency for the lowest specific energy consumption.

Digitalization: Standard Data Interface (SDI) – Plug-and-play connection of Brückner stretching lines to the customer's own IT systems. The benefits:

- Seamless integration of plant data into customer systems such as dashboards, production planning or ERP using a simple and efficient connection.

- 简化IT架构: 仅需单一接口即可获取布鲁克纳膜拉伸生产线的
所有相关数据, 降低复杂性。
- 快速实施: 采用OPC UA标准, 快速实现数据和协议。
- 高可靠性: 通过标准化协议和数据读取, 消除潜在错误源。
- 全世代生产线适配: 布鲁克纳技术服务公司提供旧线简单升级方案。
- 跨品牌兼容性: 该标准同样支持连接其他厂商的生产线。
- 功能型薄膜生产的新解决方案
- 8.7米净膜幅宽的电池隔膜生产线概念: 全球最宽的隔膜生产线, 年产能达5亿平方米, 且薄膜质量稳定。
- 电容器薄膜及集流体薄膜的分步及同步生产线: 宽度可达8.4米, 用于电动汽车领域或能源行业可再生能源应用提供高能量密度薄膜
- 超薄薄膜生产: 厚度薄至2微米。

- Reduced complexity thanks to simplified IT architecture with just a single interface to all relevant data from a Brückner film stretching line.
- Fast implementation of data and protocols by using the OPC UA standard.
- High reliability: Elimination of potential sources of error by standardizing the protocol and the data read out.
- Availability for every stretching line generation: Simple upgrade for older lines by Brückner Servtec.
- The standard also allows the connection of lines from other manufacturers.

New solutions for the production of technical films

- Lines for battery separator films with 8.7 m usable film width: the widest separator film lines in the world with an annual output of up to 500 million m² and with consistent film quality
- Sequential and simultaneous lines for capacitor films and current collector films with a line width of up to 8.4 m for EV applications or films with high energy density for renewable energy applications in the energy industry
- Extremely thin films down to 2 microns

Future. Made by Brückner Group

As part of a world-leading group of companies, Brückner Maschinenbau builds on a strong foundation of shared expertise and innovation. United by a common vision, the Brückner Group aims to shape global markets and the future of plastic and material processing with sustainable solutions – flexible, fast and customer-focused. To make this shared purpose tangible, the Group and its business units will be represented together at a joint stand for the first time. This presence offers customers and stakeholders the opportunity to experience the combined strength of leading global companies in the fields of plastics and alternatives, packaging and technical applications, machinery and production plants, as well as holistic solution providing.

Each business unit contributes cutting-edge technologies for future-oriented markets that embody the Brück-

ner Group's collective commitment to sustainability, digitalization, and technological leadership. From more efficient production technologies and smart automation to new packaging approaches and digital interfaces – these developments reflect the shared drive to lead with purpose.

Together, they stand for collaboration, excellence, and a bold vision: shaping the industry of today and tomorrow.

Brückner Maschinenbau

➔ www.brueckner-maschinenbau.com/en

K 2025: Hall 3, Stand: D90

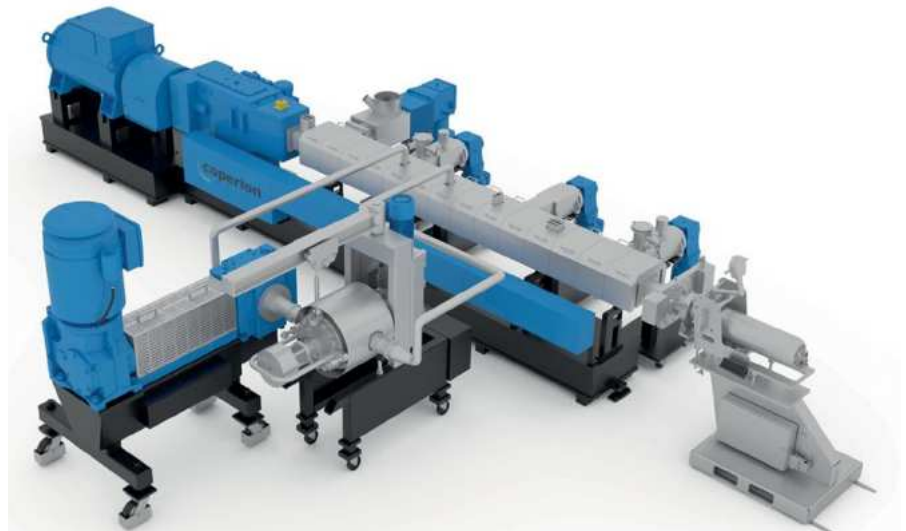
塑料回收技术的创新互动 Innovative Interplay of Plastics Recycling Technologies

■ 科倍隆 (Coperion) 将携手赫伯特·梅克塞海姆 (Herbold Meckesheim) 在本次 K 展上展示其在各类塑料回收应用方面的专业知识。在 9 号馆 9B34



科倍隆 K-TronK3 振动给料机配备了独特的驱动系统，适用于回收材料的高精度给料。

Coperion K-Tron K3 vibratory feeders are equipped with a unique drive system and are suitable for high-accuracy feeding of recycling materials



借助 ZSK Filco 过滤混炼机，过滤和混炼可在单一生产步骤中完成。与 ZS-B MEGAfeed 侧喂料机相结合，ZSK FilCo 的高性能得以充分发挥（所有图片：德国斯图加特科倍隆公司）

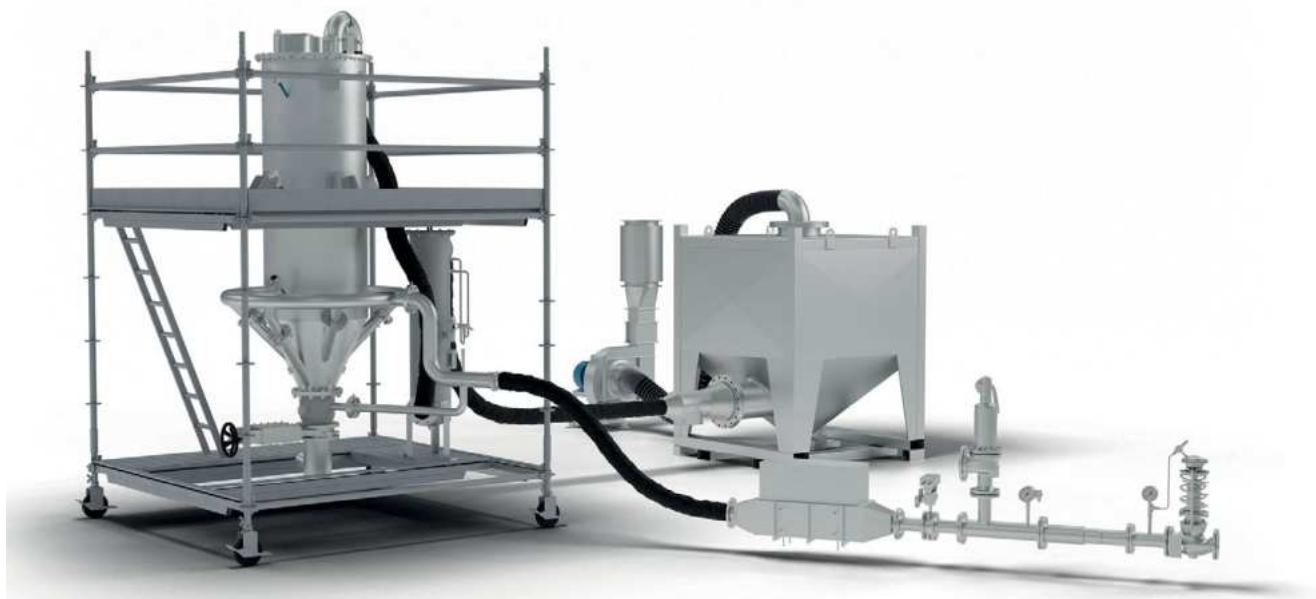
With the ZSK Filco filtration compounder, filtration and compounding take place in a single production step. In combination with the ZS-B MEGAfeed side feeder, the ZSK FilCo's high performance is fully exploited (All photos: Coperion, Stuttgart Germany)

展位，将重点展示赫伯特·梅克塞海姆的塑料废料机械加工技术。届时将展出新型 T 150-300 机械干燥机和 SMS 80-200 切粒机。在 14 号馆 FG/CE07 露天区，参观者可以目睹科倍隆所有回收技术的完美配合。展出的设备包括赫伯特·梅克塞海姆的水力旋流器阶段设备、ZSK FilCo 过滤混炼机、ZS-B MEGA 侧喂料机、科倍隆 K-Tron K3-V200 振动喂料机、S60 单螺杆喂料机以及 MechaTron® 平底喂料机。此外，还将展出一款用于可靠去除来自回收材料中难闻气味的移动式除臭装置。

除了塑料回收，科倍隆还专注于塑料混炼技术。这些核心竞争力将在 14 号馆 14B19 展位进行展示

采用 ZSK FilCo 和 ZS-B MEGAfeed 实现高性能

在开放区 FG/CE07 展位，科倍隆将展出其新型 ZSK FilCo 过滤造粒机，该设备能够在一步操作中完成回收料的过滤和后续造粒。与两步法生产线相比，ZSK FilCo 对产品的处理非常温和，在回收消费后废料和其他高度污



凭借最近在回收创新中心安装的 EcoFresh 硅罐脱除挥发物解决方案，科倍隆能够在作出投资前，在接近实际生产的条件下对客户的产品进行脱除挥发物性能测试。

With the EcoFresh silo devolatilization solution recently installed in the Recycling Innovation Center, Coperion offers the ability to test devolatilization performance on actual customer products under near-production conditions before investing

染的聚合物时，能显著降低能耗，同时提供更高质量的产品。无需预处理的废塑料，如回料、纤维粒料、薄膜碎片或团聚体，被引入 ZSK 双螺杆挤出机中，在这里它们被熔融、均化和脱除挥发物。熔体随后通过过滤器，去除任何杂质。在后续的造粒过程中，在造粒前将添加剂引入熔体中。

要充分发挥 ZSK FilCo 的高性能，必须以恒定速率供应原材料，且无进料限制。虽然可以通过将废塑料或回料造粒或使用压实工艺来实现，但这些工艺非常耗能，会增加资本和运营成本。相比之下，展示在 FG/CE07 展厅的 ZS-B MEGAfeed 侧进料器能够可靠地将堆积密度低至 20 千克/立方米的回收材料送入 ZSK FilCo 和其他 ZSK 挤出机。这使得能够以高产量回收和混合轻质、大体积的纤维和碎片。

散装物料处理与给料技术的无缝衔接 科倍隆在众多进料技术方面堪称专家，这些技术以其高精度和易操作性而著称。在 FG/CE07 馆，科倍隆将展示一款科倍隆 K-Tron K3-V200 振动给料机，该设备在为具有挑战性的材料提供高精度重力给料方面表现出色，例如在将较小的回收料或薄片送

入挤出工艺时。对于轻质蓬松、难以给料的材料，如聚丙烯或 PET 塑料薄膜，科倍隆将展示 MechaTron FB（平底）给料机，这是一种适用于高容量回收操作的理想重力给料机。此外，还将展出科倍隆 K-Tron S60 单螺杆给料机，该给料机同样具有极高的可靠性。

科倍隆专门针对塑料回收工艺开发了 ZRD 旋转阀。结合新的驱动技术，转子与外壳之间新的间隙设计确保了薄片的可靠排出。

整套生产线来自于同一个供应商

在 K 2025 展会上，科倍隆将通过一个全面的 3D 模拟展示其各种技术如何协同工作。参观者将深入了解整个系统的运行情况以及每个单独组件的功能。科倍隆的所有组件和技术都具有高产量、出色的最终产品质量和卓越的效率等特点。例如，科倍隆最近成功地在两家客户的工厂安装了化学塑料回收生产线，每条生产线的处理能力均高达每小时 6000 千克。

即使在回收聚对苯二甲酸乙二醇酯（PET）时，科倍隆在工程设计完整

系统方面的专业知识也能为加工商带来利润，实现极佳的最终产品质量，并提供高产量。由于科倍隆工艺中的有效脱气，无需对 PET 碎片进行预干燥。几周前，科倍隆和赫伯特·梅克塞海姆在印度的 Magpet 聚合物私人有限公司安装了瓶到瓶回收工厂的第一期工程。造粒机和清洗线的成功启动标志着全面启动该工厂的重要一步，该工厂设计处理能力高达每小时 5500 千克。

同样，这种首尾相连的生产线专业知识的优势在有效去除异味方面也是显而易见的。在整个回收过程中，科倍隆提供多种可靠去除消费后塑料异味的解决方案。机械加工中的除臭、双螺杆挤出机中的脱除挥发物质以及科倍隆的 EcoFresh 硅罐脱除挥发物解决方案都可供观察。这些技术的相互作用可靠地确保了所需的产品质量。科倍隆最近在其回收创新中心安装了 EcoFresh 硅罐脱除挥发物装置。在那里，客户可以在接近生产条件的情况下使用实际产品全面测试各种除臭技术，然后再进行投资。这使他们能够确保最终工艺满足所有质量要求。

Coperion
www.coperion.com

Hall 14 Booth 14B19, Hall 9 Booth 9B34,
14 号展厅 14B19 展位, 9 号展厅 9B34 展位
FG/CE07, Open Area "The Power Of Plastics Forum"

FG/CE07, 开放区域“塑料的:

Coperion, together with Herbold Meckesheim, will present their expertise in various plastics recycling applications at this year's K show. At Booth 9B34 in Hall 9, the focus will be on Herbold Meckesheim's technologies for mechanical processing of plastics waste. On display will be the new T 150-300 Mechanical Dryer and the SMS 80-200 Granulator. In the Open Area, Pavilion FG/CE07, visitors can witness the seamless interplay of all Coperion recycling technologies. On view will be a Herbold Meckesheim Hydrocyclone Stage, the ZSK FilCo filtration compounder, the ZS-B MEGAfeed side feeder, a Coperion K-Tron K3-V200 vibratory feeder, an S60 single screw feeder and the MechaTron® flat bottom feeder. Also on display will be a mobile deodorization unit for reliably removing unpleasant odors from recyclates. In addition to plastics recycling, Coperion specializes in plastic compounding technologies. These core competencies will be on display at Booth 14B19 in Hall 14.

High performance using ZSK FilCo with ZS-B MEGAfeed

In the Open Area, Pavilion FG/CE07, Coperion will exhibit its new ZSK FilCo filtration compounder which enables recycle filtering and subsequent compounding in one step. In comparison to two-step production lines, the ZSK FilCo handles the product very gently and provides higher quality at significantly reduced energy consumption when recycling post-consumer waste and other highly contaminated polymers. Waste plastics in the form of regrind, fiber pellets, film flakes or agglomerate with no pre-treatment are introduced into a ZSK twin screw extruder where they are melted, homogenized and devolatilized. The melt is then fed through a filter, removing any contaminants. In the subsequent compounding process additives are introduced into the melt prior to pelletizing the compound.

To fully exploit the ZSK FilCo's high performance, raw materials must be supplied at a constant rate with no

intake limits. While this can be accomplished either by pelletizing the waste plastic or regrind, or by using a compacting process, these are very energy-intensive processes and increase both capital and operating costs. In contrast, the ZS-B MEGAfeed side feeder, on display in Pavilion FG/CE07, reliably feeds recycled materials with a bulk density as low as 20 kg/m³ into the ZSK FilCo and other ZSK extruders. This allows for recycling and compounding of lightweight, high-volume fibers and flakes at high throughputs.

Seamless connection of bulk material handling and feeding technology

Coperion is an expert in numerous feeding technologies that stand out with their high-accuracy and easy handling. Representative of this expertise, in Pavilion FG/CE07 Coperion will display a Coperion K-Tron K3-V200 vibratory feeder that excels in providing high-accuracy gravimetric feeding particularly for challenging materials, for example where smaller recyclates or flakes are being fed into the extrusion process. For light and fluffy, hard-to-feed materials such as polypropylene or PET plastic film, Coperion will showcase the MechaTron FB (flat bottom) feeder, a gravimetric feeder ideal for high-capacity recycling operations. Also on display is the Coperion K-Tron S60 single screw feeder, another feeder that provides very high reliability.

Coperion developed its ZRD rotary valve especially for plastics recycling processes. Together with the new drive technology, the new design of the gap between the rotor and housing ensures reliable discharge of flakes.

Entire lines from a single supplier

At K 2025, Coperion will demonstrate how its various technologies work together through an all-encompassing 3D simulation. Visitors will gain insights into the operation of a complete system as well as the function of each individual component. All

of Coperion's components and technologies are characterized by high throughput, excellent end-product quality, and exceptional efficiency. For example, Coperion recently successfully commissioned chemical plastics recycling lines at two customer facilities, both capable of processing up to 6,000 kg/h.

Even when recycling PET, processors profit from Coperion's expertise in engineering complete systems, achieving very good end product quality, and providing high throughputs. Pre-drying the PET flakes is not necessary thanks to the effective degassing in the Coperion process. A few weeks ago, Coperion and Herbold Meckesheim installed the first stage of a bottle-to-bottle recycling plant at Magpet Polymer Pvt Ltd in India. The successful startup of the granulators and washing line marks an important step toward launching the full plant, which is designed to process up to 5,500 kg/h.

Likewise, the benefit of such end-to-end line expertise is evident in the effective removal of unwanted odors. All along the entire recycling process, Coperion offers various solutions for reliably deodorizing post-consumer plastics. Odor removal in mechanical processing, devolatilization in the twin screw extruder, and Coperion's Eco-Fresh Silo devolatilization solutions are available to observe. The interplay of these technologies reliably ensures the desired product quality. Coperion recently installed the EcoFresh silo devolatilization at its Recycling Innovation Center. There, customers can thoroughly test various odor removal technologies using actual products under near-production conditions before making an investment. This allows them to ensure that the final process meets all quality requirements.

Coperion
 www.coperion.com

Hall 14 Booth 14B19, Hall 9 Booth 9B34,
 FG/CE07, Open Area "The Power
 Of Plastics Forum"

首次携手—— 2025 年 K 展的协同优势 Together for the First Time – Collaborative Strengths at K 2025

■ 在即将举行的 K 展上，戴维斯标准公司 (Davis-Standard Corporation) 旗下所有品牌将首次齐聚一堂，在一个展位上共同展出。该公司拥有包括戴维斯标准 (Davis-Standard)、迈勒费尔 (Maillefer)、巴顿菲尔德辛辛那提 (battenfeld-cincinnati)、埃克利克 (Exelliq) 和戴维斯标准全球服务 (Davis-Standard Global Services) 在内的旗舰产品品牌，以及诸如布兰普顿工程 (Brampton Engineering)、德克罗 (Deacro)、ER-WE-PA、伽马 (Gamma)、西普拉斯 (Simplas) 和 TSL 等专业品牌。戴维斯标准公司的整体品牌组合在全球范围内拥有价值 150 亿美元的已安装设备。

这是戴维斯标准公司首次以一家公司的身份在同一展位参展，汇聚了聚合物加工和转化行业中备受信赖的品牌。这是一个新的开端、新的活力和新的可能性的时代，我们很高兴能在 K 展上展示这一点，”戴维斯标准公司董事长兼首席执行官史蒂夫·安德鲁斯说道。“我们专注于为客户提供最佳解决方案，不论品牌如何。通过整合我们的全球设备平台实现运营卓越至关重要。我们的重点始终是为客户提供尽可能高效运行的设备，并为操作人员提供最大程度的支持。我们的研发团队、工程师和服务专家致力于提供定制化解决方案，以满足市场需求和客户目标，无论他们身处何地或生产何种产品。戴维斯-标准公司的端到端处理解决方案服务于一些最为关键且充满活力的全球市场，包括医

疗管材和卫生薄膜、食品包装、基础设施、汽车以及农业技术等领域。随着其他重要行业领导者的加入，戴维斯-标准公司的旗舰品牌和特色品牌都秉持着对创新、性能和合作的共同承诺。其目标是帮助客户将复杂的挑战转化为能够提升效率、质量并带来长期成功的竞争优势，无论行业如何、跨越何种边界。该展位将展示各品牌强大的设备阵容，突出其功能和新创新成果。还将展示在包装、管材和型材、薄膜、纤维以及医疗领域的专业知识。

Davis-Standard Corporation
www.davis-standard.com

K 2025: Hall 16, Booth: B19
 K 2025 : 16 号展厅，展位：B19

For the first time ever, all Davis-Standard Corporation brands will exhibit under one umbrella at one booth during the upcoming K Show. The corporation comprises its flagship product brands, including Davis-Standard, Maillefer, battenfeld-cincinnati, Exelliq, and Davis-Standard Global Services, as well as specialty brands such as Brampton Engineering, Deacro, ER-WE-PA, Gamma, Simplas, and TSL. Davis-Standard Corporation's collective brand portfolio represents a global installed base of \$15 billion worldwide.

“This is our first time exhibiting as one company in the same booth, encompassing the most trusted brands in the polymer processing and converting industry. This is a time of new beginnings, new energy, and new possibilities, and we're excited to showcase that at K,” said Steve

Andrews, Chairman and CEO of Davis-Standard Corporation. “We're focused on finding the best solutions for our customers, regardless of brand. Achieving operational excellence through the integration of our global equipment platform is essential. The focus here is always on providing our customers with equipment that works as efficiently as possible and gives the operator maximum support. Our R&D teams, engineers, and service experts are committed to customizable solutions that meet market demand and customer objectives, no matter their location or product.”

Davis-Standard Corporation's end-to-end processing solutions support some of the most critical and dynamic global markets, including medical tubing and hygienic films, food packaging, infrastructure, automotive, and

agricultural technology. With the addition of other key industry leaders, Davis-Standard Corporation's flagship and specialty brands have a shared commitment to innovation, performance, and partnership. Helping customers turn complex challenges into competitive advantages that drive efficiency, quality, and long-term success is the goal across industries and borders.

The booth will feature a robust offering of equipment from each brand, highlighting capabilities and new innovations. Expertise across packaging, pipe and profile, film, fiber, and medical sectors will be shown.

Davis-Standard Corporation
www.davis-standard.com

K 2025: Hall 16, Booth: B19

卓越的客户服务与他们行业领先的测量解决方案相辅相成

Exceptional Customer Service Goes Hand-In-Hand with Their Industry-Leading Measuring Solutions

自 1957 年以来，总部位于瑞士的工业非接触式测量和控制解决方案制造商 仲巴赫电子 (Zumbach Electronic) 一直致力于通过其行业领先的产品和解决方案为客户提供卓越的服务。Zumbach 坚信，客户不仅仅是客户，更是其大家庭的一部分。这种理念促使他们致力于提供尽可能高的客户服务水平，确保每一次互动都充满关怀、专注，并以咨询的方式解决特定的工艺和生产问题。

Since 1957, Swiss-based manufacturer of industrial, non-contact measuring and control solutions, Zumbach Electronic, has worked tirelessly at providing exceptional customer service with their industry leading products and solutions. The Zumbach belief is that customers are more than just clients; they are part of their extended family. This philosophy drives their commitment to providing the highest possible levels of customer service, ensuring that every interaction is marked by care, attention, and a consultative approach to solving specific process and production issues.

■ 从客户与仲巴赫电子公司 (Zumbach Electronic) 建立联系的那一刻起，他们便能体验到仲巴赫独特的咨询式服务方式，深知每位客户都有非常具体的需求和挑战。仲巴赫会花时间倾听并全面理解这些要求，其技术专家团队会与客户密切合作，量身定制不仅满足而且超越客户期望的解决方案。这种个性化服务确保仲巴赫的客户能为其独特应用获得最有效和最高效的解决方案。

仲巴赫电子公司第二代所有者兼首席执行官雷纳·仲巴赫表示：“当客户选择仲巴赫电子公司时，他们就成为了我们大家庭的一员。这意味着他们可以期待得到细致周到的持续支持，以及建立在信任和相互尊重基础上的关系。我们致力于培养长期合作关系，我们的客户知道他们可以依靠我们获得持续的支持和指导。无论是定期



沟通、新技术更新，还是主动解决问题，我们始终与客户同在。”

仲巴赫电子公司对客户服务的承诺体现在他们提供的关怀与关注上，其中包括在瑞士奥普恩德的总部以及现场提供全面的培训项目，确保客户能够熟练有效地使用宗巴赫系统。他们

在仲巴赫公司场地或客户工厂进行的培训课程

Training courses at Zumbach's premises or at the customers factory

仲巴赫的服务技术人员为客户提供现场和远程支持。

Zumbach's service technicians provide the customer with support both in person and virtually

的服务技术人员遍布全球，通过现场和远程方式提供支持，从调试、维护到维修和校准，一切事务都能处理，确保客户运营顺畅高效。

凭借过去 60 年来不断加大投入打造的强大的全球支持网络，其服务中心遍布世界各地，不难看出雷纳·宗巴赫及其团队对客户这种独特关注程度的重视。这一网络使仲巴赫电子能够迅速高效地提供帮助，最大限度地减少客户停机时间，提高生产效率。其经验丰富的服务团队随时准备协助解决技术问题、处理备件请求、响应服务呼叫以及进行安装。

在仲巴赫电子公司，客户服务并非只是一个部门，而是贯穿其业务方方面面的核心价值。他们采用咨询式服务方式，向客户传递家一般的温暖，



提供细致入微的关怀与关注，这一切都铸就了其卓越的声誉。公司致力于确保客户享受到最高水平的服务，让客户在仲巴赫电子的体验与众不同。再加上流程效率和质量控制的提升，通过减少废料和机器停机时间实现的成本节约，这样的优势组合越来越难以被超越。

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From the moment a customer engages with Zumbach Electronic, they experience the unique Zumbach consultative approach, understanding that every customer has very specific needs and challenges. They take the time to listen and understand these requirements thoroughly, and their team of technical experts work closely with customers to tailor solutions that not only meet but exceed their expectations. This personalized service ensures Zumbach's customers receive the most effective and efficient solutions for their unique applications.

Rainer Zumbach, second generation owner and CEO of Zumbach Electronic stated "When customers choose Zumbach Electronic, they become part of our extended family. This means they can expect attentive ongoing support and a relationship built on trust and mutual respect. We are dedicated to fostering long-term partnerships, and our customers know they can rely on us for continuous support and guidance. Whether it's through regular check-ins, updates on new technologies, or proac-

tive problem-solving, we are always there for our customers."

Zumbach Electronic's commitment to customer service is evident in the care and attention they provide, which includes an offering of comprehensive training programs, both at their headquarters in Orpund, Switzerland and on-site, ensuring customers are fully equipped to use Zumbach systems effectively. Their service technicians are available worldwide, providing support both in person and virtually, handling everything from commissioning and maintenance, to repairs and calibrations, ensuring their customers' operations run smoothly and efficiently.

Boasting a robust and global support network that has been increasingly invested in over the past 60 years, with service centers strategically located around the world, it's clear to see the value Rainer Zumbach and his team see in providing this unique level of attention to their customers. This network allows Zumbach Electronic to provide quick and efficient assistance, minimizing downtime and maximizing productivity for their customers. Their

experienced service teams are always ready to help with technical problems, spare part requests, service calls, and installations.

At Zumbach Electronic, customer service is not just a department; it's a core value that permeates every aspect of their business. Their consultative approach, the sense of family they extend to their customers, and the meticulous care and attention provided, all contribute to their reputation for excellence. They are committed to ensuring that their customers receive the highest levels of service, making their experience with Zumbach Electronic truly exceptional, and when you combine that with the improvements in process efficiency and quality control, cost savings through reducing waste material and machine downtime, it's a proposition that is increasingly hard to beat.

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埃及首批采用破纪录大直径管道的项目成功实施

First Projects with Record-Breaking Large-Diameter Pipe Lines Successfully Implemented in Egypt

大口径管道的精准度可节省高达 100 万欧元的材料成本

对于直径达 2.7 米的管材，壁厚偏差仅 5 毫米，这得益于巴顿菲尔德 - 辛辛那提的挤出技术。毕竟，全球范围内没有其他机器制造商在大直径管材挤出生产线的设计方面拥有如此丰富的经验，也没有哪家公司像这家德国-奥地利合资企业一样在国际上安装了如此多的生产线。最近，该公司为埃及的两家客户安装了两条创纪录的超大直径聚乙烯管材生产线，管材直径可达 2.7 米，目前运行良好，令客户满意。首批项目已成功实施。

Precision in large-diameter pipes saves up to 1 million euros in material costs

Only 5 mm wall thickness deviation with a pipe diameter of 2.7 m Extrusion technology from battenfeld-cincinnati makes it possible. After all, there is no other machine manufacturer in the world that has so much in the design of complete large-diameter pipe extrusion lines and has installed as many lines internationally as the German-Austrian company. The most recent record-breaking lines for large PE pipes up to 2,7 m in diameter were recently installed at two customers in Egypt and are running to the customer's satisfaction. The first projects have already been implemented.

■ “我们在新产线上从巴顿菲尔德-辛辛那提公司获得的大口径管材的质量和精度都非常出色，”开罗塑料管材及制品公司（PPP）的老板艾哈迈德·

埃尔·马哈拉维称赞了这条新生产线的供应商。埃及管材制造商 PPP 刚刚在阿曼完成了一个大口径管材项目：高品质的管材将海水输送到海水淡化

厂——这是塑料管材的理想应用，因其耐腐蚀性而得分。这也是大口径管材的理想应用，因为可以在最短的时间内高效地输送大量水。

在大直径管材的生产中，通常节省最多成本的是材料成本。“我们技术的重点在于降低壁厚公差。通过系统各组件的众多优化，我们现在能够轻松实现相当于 DIN 标准一半的数值，”battenfeld-cincinnati（巴顿菲尔德 - 辛辛那提）销售总监安德烈亚斯·特克（Andreas Turk）解释道。仅尺寸精度和最小化的壁厚偏差一项，一条生产线每年就能比传统生产线节省超过 100 万欧元的原材料成本。“我们技术的其他优势还包括每小时两吨及以上的高产量、设计使用寿命



为 20 至 25 年的系统以及低能耗。这意味着投资能在很短时间内收回成本，”安德烈亚斯·特克说道。

所描述的优势基于整个系统的工艺工程设计，在该设计中，所有单独的组件都完美协调，现代化且直观的控制系統确保了可靠的输入和配置。在大直径管材的挤出过程中，熔体温度起着重要作用，因为这是导致意外下垂的主要原因。安德烈亚斯·特克解释道：“聚乙烯熔体的温度越低，其黏度就越大，管材的下垂现象就越少。下垂现象越少，管材的质量和壁厚分布就越好。在挤出机本身方面，采用 solEX NG 挤出机，螺旋槽式机筒与匹配的螺杆和带槽衬套的几何形状相结合，能够在较低的螺杆转速下实现较高的特定输出率，从而降低熔体温度。与之前的挤出机相比，熔体温度大约低 10°C。采用 OptiMelt 主动熔体冷却系统，可进一步降低约 10°C 的温度。这种强大的熔体冷却器安装在挤出机和模具之间。此外，由巴顿菲尔德 - 辛辛那提专利的两段式 VSI 管模头，即螺旋芯棒分配器和筛篮的组



合，确保了管材内熔体的均匀分布，从而保证了均匀冷却和极窄的壁厚分布。得益于所有单个组件的精妙设计，高品质的大直径管材能够以节能的方式生产。所有下游设备均针对管材尺寸范围广泛（最大可达 2.7 米）而设计，能够以低能耗和低水耗运行，这也为此做出了贡献。在真空和冷却槽中，管材还可以沿圆周分段单独冷

却。这一选项还能进一步改善壁厚分布并最大程度减少椭圆度。

battenfeld-cincinnati

www.battenfeld-cincinnati.com

Plastics Pipes & Products Co. (PPP)

www.ppp-eg.com

“The quality and precision of the large-diameter pipes we achieve on the new line from battenfeld-cincinnati is excellent,” says Ahmed El Mahalawy, owner of Plastic Pipes & Products Co. (PPP) in Cairo, praising the supplier of the new complete line. The Egyptian pipe manufacturer PPP has just completed a project with large-diameter pipes in Oman: high-quality pipes transport seawater to a desalination plant – an ideal application for plastic pipes, which score points here with their corrosion resistance. It is also an ideal application for large-diameter pipes, as large quantities of water can be transported efficiently in the shortest possible time.

It is usually the material costs that enable the most money to be saved in the production of large-diameter pipes. “The main focus of our technology lies in the reduction of wall thickness tolerances. Thanks to numerous optimizations of the individual components of the system, we can now easily achieve values that correspond to half the DIN standard,” explains Andreas Türk, Sales Director at battenfeld-cincinnati. The dimensional accuracy and minimized wall thickness deviations alone mean that one line can save more than 1 million euros in raw material costs per

year compared to conventional lines and deviations. “Further advantages of our technology are the high output rates of two tons and more per hour, the lifespan of our systems, which are designed for 20 to 25 years, and their low energy consumption. This means that an investment pays for itself within a very short time,” says Andreas Türk.

The benefits described are based on the process engineering design of the overall system, in which all individual components are perfectly coordinated, and a modern and intuitive control system ensures reliable inputs and configurations. The melt temperature plays a major role in the extrusion of large-diameter pipes, as this is the main cause of unwanted sagging. Andreas Türk explains: “The lower the temperature of the PE melt, the more viscous it is, and the less sagging occurs. The less sagging, the better the pipe quality and wall thickness distribution.” In the extruder itself, a solEX NG, the combination of a spiral grooved barrel and matching screw and grooved bushing geometry ensures high specific output rates at low screw speeds and therefore low melt temperatures. Compared to previous extruders, the melt temperature is around 10 °C

lower. A further temperature reduction of around 10 °C is achieved with the OptiMelt active melt cooling system. This powerful melt cooler is installed between the extruder and the mold. Furthermore, the two-stage VSI pipe head, a combination of spiral mandrel distributor and screen basket patented by battenfeld-cincinnati, guarantees uniform melt distribution in the pipe and thus ensures uniform cooling and extremely narrow wall thickness distributions. Thanks to the sophisticated concepts of all individual components, the high-quality large-diameter pipes can be produced in an energy-efficient manner. All downstream units, which are designed for a wide range of pipe not dimensions up to 2.7 m, can manage with low energy and water consumption, contribute to this. In the vacuum and cooling tanks, the pipe can also be cooled individually in sections around the circumference. This option can also further improve the wall thickness distribution and minimize ovality.

battenfeld-cincinnati

www.battenfeld-cincinnati.com

Plastics Pipes & Products Co. (PPP)

www.ppp-eg.com

展出优质挤出模具和解决方案

High Quality Extrusion Tooling and Solutions

美国罗德岛州西沃威克 - 挤出模具领域的全球领军企业 Guill Tool & Engineering 将参加 10 月 8 日至 15 日在德国杜塞尔多夫举行的国际塑料及橡胶博览会 (K 展)，展位设在 1 号展厅的 C90 展台。届时 Guill 展台将展示多种工具、模尖和模具以及最新研发成果。这些成果包括 Cam-Lock、旋转模具设计、单点同心以及 Guill 实验室的全新升级功能。

Guill Tool & Engineering will exhibit at the K Show, Hall 1, Booth C90.

The Guill booth will feature several tools, tips and dies, as well as new developments. These include Cam-Lock, rotary die design, Single-Point Concentricity and the NEW Guill Labs enhancements.

■ Cam-Lock 最初为大众化的 Guill Bullet 工具而开发，这是一种独特的 Guill 挤出头，它采用固定中心设计、多端口螺旋流和胶料间隙调节，无需使用紧固五金件。目前，Guill 多款现有挤出头已采用 Cam Lock。该设计有助于用户快速轻松地拆装十字头，无需使用内六角圆头螺丝。通过移除和更换内部构件，挤出不同型材的时间由长达数小时缩短至短短几分钟。Cam-Lock 每次都能将内部构件复位到正确配置，相比扭矩套筒锁紧螺丝引起的组装和错位问题，Cam-Lock 出错的机会要少得多。它只需半圈即可拆装偏转器尖头，无需任何紧固件。其他特点包括快速更换工具（用于模具的螺纹固定环和螺纹尖端固定器）、从正面拆卸模具和从背面拆卸模尖、用于调整胶料间隙的模



Guill 旋转模具设计
Guill Rotary Die design



Guill Cam-Lock 设计
Guill Cam-Lock design

Guill 单点同心设计

Guill Single Point Concentricity design



具固定器、真空连接、简化清洁以及减少停机时间和运营成本。对于生产多品类产品或需要频繁清洁来处理高难度材料的车间来说，Guill 挤出头所配备的 Cam-Lock 可显著节省时间、人力和成本。

新型旋转头设计可以让模具相对于材料流向旋转，提高了挤出件的壁面强度，能够在减少材料用量的同时实现更薄的壁厚。其优点包括仅旋转模具，通过随机分布方式消除厚度测量带或壁厚差异，在某些情况下还能改善终产品的材料性能。通过这种独特的设计可轻松适配多种尺寸的管材，大幅减少设置和换模时间。旋转挤出头的典型应用领域包括医疗管材、多

腔管材，以及有互锁层或多条纹要求的高端挤出件。

Guill 单点同心挤出十字头使用微调螺丝进行精密的同心度调整，每转范围仅为 0.008 英寸或更小。这种单点同心度调整，是 Guill 为薄壁套管和精密内径/外径管材挤出进行的独家创新。只要一个调节螺栓，就能实现 360° 的全方位调节。其特点包括享有专利、用于快速换模的 Cam-Lock 偏转器（在 0.5 磅/小时的材料流速下，停留时间仅 1 分钟）、适配 1/2 英寸和 3/4 英寸挤出机、最大模具内径为 0.250 英寸。此外，Guill 单点十字头不仅可以兼容真空和微型气动配件，而且还非常适合耐压管和套管应用。含氟聚合物设计可应要求提供。

Guill 实验室提供 Guill 的先进流变学实验室服务（用于材料测试），并新增了一座专注于测试挤出工艺的设施。通过测量塑料和橡胶的流动特



进行流变学研究和挤出测试的 Guill 实验室
Guill Labs for rheology and test extrusion

性，流变学实验室用户可预测材料行为、虚拟优化工具几何结构，并通过 3D CAD 查看项目效果。挤出实验室通过经过验证的 Guill 设计提供单挤出和共挤出能力。该实验室还提供独特的

挤出工艺，如长丝和管状终端产品的旋转模具挤出。其服务项目包括挤出模具、模具清洁、样品检验和成品测试。用户甚至可以在 Guill 测试实验室计算其挤出加工时间。

美国工厂的 Jacob Mancure 和 Peter Leary 将代表 Guill 参展，Guill Tool 欧洲公司的团队将予以协助。Guill 通过全球销售代表网络与领先挤出机制造商合作，将产品售往世界各地。

Originally developed for the popular Guill Bullet tool, a unique Guill extrusion head that eliminates fastening hardware with a fixed center design, multi-port spiral flow and gum space adjustment, Cam-Lock is now available on many of the company's existing extrusion heads. The design allows quick and easy assembly and disassembly of the crosshead and eliminates the need for socket head caps screws. By removing and replacing the internals, a different profile can be extruded in minutes rather than hours. Since the Cam-Lock resets the internals in the right configuration every time, there is far less chance of error, compared to the assembly and misalignment issues with torqued socket set screws. It only takes half a turn to remove and install the deflector tip and no fastening hardware is required. Additional features include fast tool changes (threaded retaining ring for the die and threaded tip retainer), dies remove from the front and tips from the back, tooling retainers for gum space adjustment, vacuum connections, simplified cleaning and reduced downtime and operating costs. For a busy shop with multiple products produced or a shop processing challenging materials that require frequent cleaning, this Cam-Lock feature on Guill heads offers significant time, labor and cost savings.

By rotating the tooling in relation to the material flow, the new rotary head

design increases the wall strength of an extrusion, thereby allowing a thinner wall with less material. Benefits include only rotating the die, randomizing any gauge bands or thickness variations and, in some cases, improving material properties of the end product. Various sizes of tubing can easily be accommodated with this unique design that radically reduces set-up and changeover times. Typical applications for rotary heads include medical and multi-lumen tubing plus various high-end extrusions with interlocking layers or multiple striping requirements.

Guill's Single Point Concentricity extrusion crosshead uses micro-fine adjustment screws for precise concentricity adjustment, reaching 0.008" or finer per revolution. This single point concentricity adjustment is a unique Guill innovation for the extrusion of thin-walled jacketing and precision ID/OD tubing. One adjustment bolt controls 360° of adjustment. Features include the patented Cam-Lock deflector for quick changeovers, with a residence time of one minute at .5 lb/hr material flow, optimized usage with extruders measuring ½" and ¾" and a max die ID of .250." Additionally, the Guill single-point crosshead not only accepts both vacuum and micro-air accessories but is also ideal for pressure and sleeving

applications. Fluoropolymer designs are available upon request.

Guill Labs combines the company's state-of-the-art rheology lab services for materials testing with a new facility focused on test extrusion processes. Measuring the flow characteristics of plastics and rubber allows users of the rheology lab to predict how the material will behave, virtually optimize tool geometry and see their project in 3D CAD. The extrusion lab offers single and co-extrusion capabilities with validated Guill designs. Access to exotic extrusion processes such as rotary die extrusion of filament and tubular end-products is also available. Services include extrusion tooling, die cleaning, sample inspection and end-product testing. Users can actually calculate their extrusion run time in the Guill test lab.

Jacob Mancure and Peter Leary from the factory in America will represent Guill during the show, assisted by the team from Guill Tool Europe. Guill markets its products worldwide through a network of sales representatives and in tandem with leading extruder builders.

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 Tom Baldock, Sales Manager, Extrusion
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在线检测多达三层不同材料的壁厚、偏心和直径

Inline Measurement of Wall Thickness, Eccentricity and Diameter of up to Three Material Layers

无锡华澄线缆有限公司坐落于江阴市，是一家专业的特种耐高温电线电缆制造商。该公司通过使用 SIKORA 的 X-RAY 6000 PRO 确保对电缆生产过程的高效监测与控制，以满足对电缆的高品质要求。自 2018 年起至今，华澄已在七条新能源电缆生产挤出产线分别配备了 7 套 SIKORA 的 X 射线测控设备，有效地达到了在源头对电线电缆结构尺寸的监控。

Wuxi Huacheng Cable Co., Ltd., based in Jiangyin City, is a specialist in manufacturing special high temperature resistant cables. The company relies on SIKORA's X-RAY 6000 PRO to ensure optimal processes and the highest product quality. Since 2018, Huacheng Cable has used 7 sets of SIKORA X-ray technology for quality control in 7 new energy cable extrusion production lines that effectively leads to perfect monitoring and controlling of parameters of cable during the production.

■ 新能源电缆对生产的质量和性能有着极高的要求。所有产品参数（如直径、壁厚与偏心）必须达到技术规范要求。目前，市场上已有几种用于产品质量控制的测量方法。然而，依据测量方法的功能性和实用性，SIKORA 的 X 射线技术无疑成为新能源电缆生产测控的领先技术。

华澄线缆在新能源电缆生产线上配备 SIKORA 的 X-RAY 6000 PRO 进行测量与控制

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



生产线测量数据清晰地显示在 22 英寸立式宽屏显示器 ECOCONTROL 6000 上

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

“通过使用 X-RAY 6000 PRO，我们可以充分优化生产过程，为我们的客户提供优质的产品。”华澄线缆的总经理闵海华先生说道。该系统可以直接安装在挤出生产线上，持续监控多达三层不同材料的壁厚，并将其减少到最小公差范围内；能够可靠地减小安全余量，并通过自动控制功能将产品尺寸控制在规格范围内。

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

“With the X-RAY 6000 PRO we can use the full potential for process optimization and to deliver the highest product quality to our customers”, says Mr. Haihua Min, the general manager at Huacheng Cable. Directly integrated in the extrusion line the system allows to constantly monitor the

将质量控制与材料节省相结合可以显著提高生产率。此外，帮助最终用户生产出高品质的产品在满足客户需求的同时也提升我们的客户满意度。

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www.sikora.net

wall thickness of up to three material layers and to reduce it to the minimum tolerance value. Safety margins can be successively reduced, and the automatic control keeps the dimensions within the specification.

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

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可回收单一材料结构——含 MDO-PE 的软包装日益兴起 Recyclable Mono-Material Structures – Flexible Packaging with MDO-PE on the Rise

随着对可回收性的要求不断提高，人们对单一材料的兴趣迅速增长。机器方向拉伸聚乙烯薄膜——即 MDO-PE 薄膜——在生产易于回收的单一材料结构的软包装方面发挥着关键作用。

With increasing requirements on recyclability, interest in mono-materials is rapidly growing. Machine Direction Oriented Polyethylene film – or MDO-PE film – is playing a key role at the production of easy-to-recycle mono-material structures for flexible packaging.

■挤出生产线制造商 SML 的产品经理埃利亚斯·迈尔霍费尔 (Elias Mayrhofer) 解释道：“由于其特性，MDO-PE 薄膜是替代 PET-PE 复合材料中 PET 的理想选择，而 PET-PE 复合材料此前一直是多种软包装产品的标准材料。”MDO-PE 薄膜的应用范围从用于食品包装的单材料管状袋到侧边插边袋，从密封袋到各种类型的软袋。

直接进一步加工

SML 最新的流延膜生产线配备集成 MDO 单元生产的 MDO-PE 薄膜具有出色的光学、机械和阻隔性能。该薄膜可轻松层压成单一材料结构，例如在 SML 的 FlexPack 生产线上与 CPE 密封薄膜层压。Elias Mayrhofer 表示：“流延

膜 MDO-PE 薄膜具有出色的印刷适性，并已在柔印和凹印系统上成功测试。即使对于超薄的 MDO-PE 薄膜，金属化也不会有任何问题。”

各种各样的不同薄膜特性

流延 MDO 技术能够生产出多种不同类型的 MDO-PE 薄膜：

超薄薄膜薄至 15 微米

SML 的流延薄膜生产线已准备好生产薄至 15 微米的 MDO-PE 薄膜。“毋庸置疑，即便是在最薄的薄膜上，整个



MDO 流延型 MDO阻隔薄膜
Cast MDO Barriere

工艺流程也完全稳定。在性能、功能性和印刷适性方面，我们绝不妥协。”埃利亚斯·迈尔霍费尔说道。SML 与聚合物供应商及长期合作伙伴陶氏包装与特种塑料公司密切合作开发的适用于市场的 15 微米 MDO-PE 薄膜具有以下结构（图 2）：

17 微米厚的薄膜，其 EVOH 阻隔层厚度小于 1 微米

这款超薄阻隔膜由 SML 与陶氏包装与特种塑料公司以及 EVAL 欧洲 N.V.（可乐丽公司旗下）合作开发而成。其层次分布情况如下（图 3）

该薄膜经过了广泛的测试，已准备好投放市场。其在拉伸比为 1:5 时具有以下阻隔性能：

氧气透过率（OTR）：1 - 3 立方厘米/平方米/24 小时*

* 在 23°C、50%相对湿度条件下测定，测试方法：ASTM F1927-07

水蒸气透过率（WVTR）：5 - 8 克/平方米/24 小时*

* 在 38°C、90%相对湿度条件下测定，测试方法：ASTM F1249-06

厚度达 65 微米的 MDO-PE 薄膜，适用于更广泛的应用领域

在最新一代的 SML 流延薄膜生产线上，生产最高质量的超薄 MDO-PE 薄膜绝非唯一可能的应用。全拉伸 MDO-PE 薄膜所能达到的厚度范围可达 65 微米，这为薄膜制造商开辟了多种其他可能性，尤其是在包装需要更高阻隔性能或增强机械性能的商品方面。

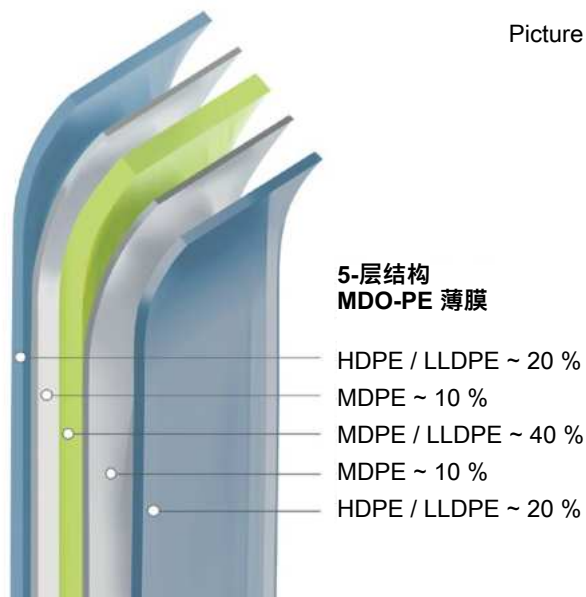
一体化密封层：直接从生产线上下来的即用型薄膜

在流延工艺中制造 MDO-PE 薄膜的另一个功能优势是可以直接整合密封层。这使得能够直接在生产线上生产出完全可直接使用的薄膜，例如用于立式袋等产品。

流延技术成就无与伦比的薄膜品质

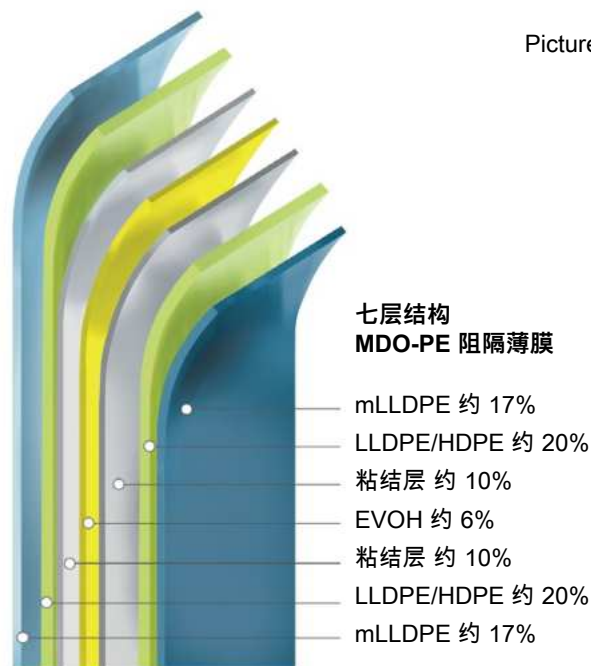
通常，采用流延工艺生产的 MDO-PE 薄膜可达到极高的透明度。通过在生产过程中实现最佳平整度和理想的厚度分布，可获得卓越的薄膜质量。

Picture 2



5 层结构 MDO-PE薄膜
5 layer structure MDO-PE

Picture 3



7 层结构 MDO-PE阻隔薄膜
7 layer structure MDO-PE barrier

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“Due to its properties, MDO-PE film is an ideal solution when it comes to replace PET in PET-PE laminates, which were used for a variety of flexible packaging products as a standard so far”, Elias Mayrhofer, Product Manager at extrusion line manufacturer SML explains. Application areas of MDO-PE film range from mono-material tubular bags for food packaging to side gusset bags, and from sealed bags to different types of pouches.

Straight-forward further processing

MDO-PE film manufactured on SML's latest cast film lines with integrated MDO unit provide excellent optical, mechanical and barrier properties. The film can be easily laminated to mono-material structures, for example with CPE sealant film on a FlexPack line from SML. “Cast MDO-PE films exhibit excellent printability and have been successfully tested on both Flexographic and Rotogravure printing systems. Metallisation is possible without any complications even with ultra-thin MDO-PE films”, Elias Mayrhofer states.

Wide variety of different film properties

The cast MDO technology allows the production of a wide variety of different types of MDO-PE film:

Ultra-thin film down to 15 µm

SML cast film lines are ready to manufacture MDO-PE film as thin as 15 µm. “It goes without saying, that even at the most ultra-thin film the process is completely stable. There are no compromises when it comes to performance, functionality and printability,” Elias Mayrhofer says. A market-ready 15 µm MDO-PE film developed at SML in close cooperation with its polymer supplier and long-term partner Dow Packaging & Specialty Plastics has the following structure (Picture 2):

17 µm film with an EVOH barrier layer of less than 1 µm

This ultra-thin barrier film was developed by SML in collaboration with Dow Packaging & Specialty Plastics and

EVAL Europe N.V. (a Kuraray company). It comes with this layer distribution (Picture 3):

The film has been extensively tested and is ready for the market. It is characterised by the following barrier properties, given a stretching ratio of 1:5:

OTR: 1 – 3 cm³/m²/24hr *

* Oxygen transmission rate at 23 °C; 50 % RH, testing method: ASTM F1927-07

WVTR: 5 – 8 g²/m²/24hr *

* Water vapour transmission rate at 38 °C; 90 % RH, testing method: ASTM F1249-06

Up to 65 µm MDO-PE film for extended application areas

The production of ultra-thin MDO-PE films of the highest quality is by no means the only possible application at the latest generation of SML cast film lines. The achievable thickness range for fully stretched MDO-PE films goes up to 65 µm which opens up a variety of other possibilities for film manufacturers. Especially with regard to packaging goods that require higher barrier functions or enhanced mechanical properties.

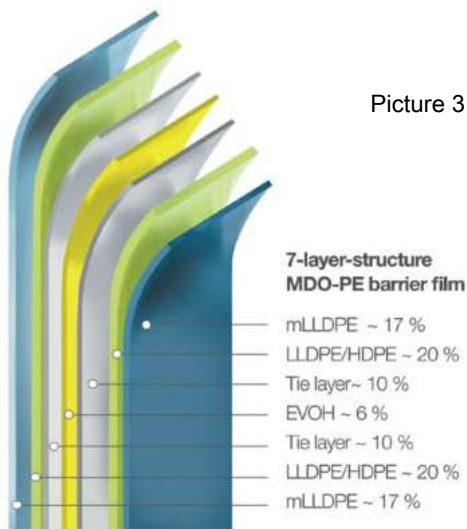
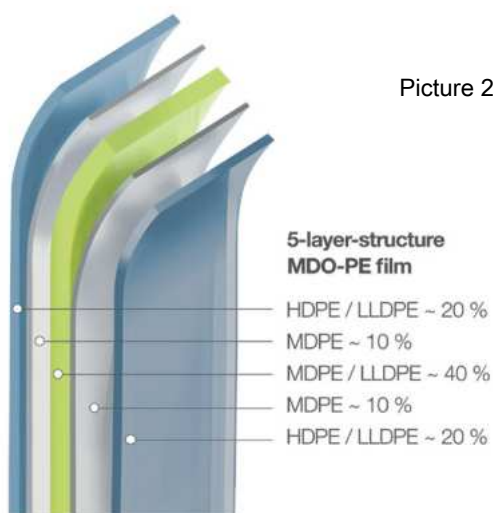
Integrated sealing layer: Ready-to-use film straight from the line

A further functional advantage of manufacturing MDO-PE film in the cast process is the option to directly integrate a sealing layer. This makes it possible to produce a completely ready-to-use film straight off the line, for example for products such as stand-up pouches.

Cast technology for unparalleled film quality

Generally, MDO-PE films produced in a cast process attain an excellent level of transparency. A superior film quality is reached through optimum flatness and the ideal distribution of thickness during production.

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高效塑料生产—— 可持续性与数字化携手并进

Efficient Plastics Production – *Sustainability and Digitalization go Hand-in-Hand*

为了在未来占据有利地位，塑料制造商必须在可持续运营的同时提高产量、质量和效率，推动循环经济并提供有吸引力的工作岗位。他们如何做到这一点？理想的方式是与其他专家交流——这一点目前正通过 Hexpol TPE 与工艺技术供应商 MAAG 之间的合作得以体现。

In order to position themselves for the future, plastics manufacturers have to increase volume, quality and efficiency while operating sustainably, promoting the circular economy and offering attractive jobs all at the same time. How can they do that? The best way is through exchanges with other experts – something currently being demonstrated by the cooperation between Hexpol TPE and the process technology provider, MAAG.

■ 从代表废塑料的“黄色袋子”到汽车仪表盘：得益于高质量的塑料回收，这种循环经济不再是遥不可及的梦想。但要制造出符合汽车业及其他高要求行业期望的高性能化合物，需要高水平的工艺工程专业知识。任何寻求这种专业知识的人都能在利希滕费尔斯的 Hexpol TPE 公司找到。该公司生产热塑性弹性体、软质聚氯乙烯、含 TPS、TPO、TPV 和 TPU 的 TPE 复合材料、添加剂和母料。在其整个产品组合中，高度重视高性能、高品质的化合物，且越来越多地使用消费后回收塑料（PIR 和 PCR）。

位于德国利希滕费尔斯的海普尔热塑性弹性体工厂

Hexpol TPE Plant in Lichtenfels,
Germany

在此背景下，处理受污染和异质的消费后回收材料（PCR）——即由代表废塑料的“黄色袋子”收集的材料——尤其具有挑战性。

更高的质量是一项挑战

不断增长的需求印证了海普尔热塑性弹性体（Hexpol TPE）的发展方向是正确的。为了跟上日益提高的质量期望，该公司近年来购置了几台新机器。

在造粒系统方面，该制造商越来越依赖于 MAAG 的 Pearlo 机器系列。这款水下造粒系统旨在处理各种聚合物和热塑性塑料，承诺以每小时高达 42000 千克的产量实现盈利生产。Hexpol TPE 于 2017 年决定购买其首台 Pearlo 系列造粒系统。在接下来的几年里，又有多台造粒系统被添加到其设备群中。



多米尼克·费恩，海普尔热塑性弹性体公司的工艺工程经理

Dominik Fehn, Process Engineering
Manager at Hexpol TPE



最新购置的一台 Pearlo 160 于 2023 年投入使用，正如预期的那样，在生产中表现出色：这台机器悬挂在生产线上。采用这种顶部安装的配置，所有组件下方的地面都保持畅通无阻且易于接近，因为机器是通过一个悬空的轨道系统悬挂起来的。快换接头只需拧松一颗螺栓，而之前则需要拧松 12 颗螺栓，然后再重新安装。“这在



PEARLO 160 生产线
PEARLO 160 production line

系统组装和清洁过程中节省了大量时间，现在这些工作都能更快地完成。”赫普尔 TPE 位于利希滕费尔斯的工艺工程经理多米尼克·费恩报告说。当一台重达 400 公斤的机器从天花板上悬挂下来，只需一只手就能移动，而无需在轮子上推移时，所需的工作量要少得多。

由于 Hexpol TPE 非常重视减轻员工的工作负担，这套系统是让员工工作更轻松的理想补充。MAAG 提供的两轴机器可以在两个方向上移动。这意味着生产人员可以更快地进行清洁和设置，而且组件无需重新调整。“这在很大程度上减轻了工作负担，能够实现快速且轻松的换模，节省了不必要的精力。”费恩强调道。

自那时以来，新的 Pearlo 在利希滕费尔斯一直发挥着重要作用。“我们决定采取这一步骤，是为了提高生产效率，同时减轻员工的工作负担。”费恩解释道。

From the yellow bag into a dashboard: thanks to high-quality plastics recycling, this circular economy is no longer a pipe dream. But creating compounds with properties that meet the high expectations of companies in the automotive sector and other demanding industries calls for high

自动化以提高效率

尽管如此，仅靠高品质还不足以在国际舞台上保持竞争力——效率也必须跟得上。为了使 Hexpol TPE 能够在质量、效率和可持续性方面同步提升，该公司于 2024 年启动了“零浪费”项目。目标是：大幅减少生产过程中的浪费，提高所有流程的效率，并尽可能实现流程自动化。

多米尼克·费恩 (Dominik Fehn) 也与公司的一些资深合作伙伴探讨了这个问题——并发现马格 (MAAG) 拥有全面的咨询专长：“马格提供的关于这些主题的研讨会和培训课程种类繁多，这让我感到非常惊讶，”费恩说道。

研讨会强调了潜力

在利希滕费尔斯现场举行的为期多天的研讨会上，MAAG 根据既定目标，为生产的所有领域提供支持，以识别优化潜力：机器和生产规划、人员和团队合作以及培训课程。

此次有针对性的研讨会分为不同的流程步骤，来自现场各个小组的员工接受了访谈，并参与了小组工作。首先，通过开放式问题来识别公司特有的总体潜力；然后将结果进行分组和优先排序，并确定优化领域。一旦打破了僵局，就识别出机器改进的潜力，并对由此产生的措施进行优先排序。

因果分析

随后的因果分析对结果进行了描述，并将其纳入结构之中。相关工作成果依照精益原则进行了分组和总结，由此产生的任务也进行了优先级排序。

最后，所有关于解决方案的论据均根据以下标准进行了识别和分类：

可行性与影响、实施难度、实施成本以及确定实施优先级。在确定了“深入研究”的论点之后，包括对所考虑选项的定义，“不可为”的事项当然也被排除出来。

研讨会得出的结果是：与机器直接相关的因素——比如模具板和刀头的选择、优化/预设工艺参数的使用，或者

level of process engineering expertise. Anybody looking for this expertise will find it at Hexpol TPE in Lichtenfels. The company manufactures thermoplastic elastomers, soft PVCs, TPE compounds with TPS, TPO, TPV, and TPU, additives and masterbatches. Across the entire portfolio, great importance is attached to



顶部安装的 PEARLO 水下切粒机，确保地面空间整洁干净

Top Mounted PEARLO Underwater Pelletizer for clear and clean floor space

维护间隔的规划——都有助于优化。然而，更大的潜力在于诸如更好地利用公司内部的人才、加强团队合作、避免等待时间和过度加工，或者仅仅是减少过度生产等方面。实现这一目标的途径在于提高数据的可用性和透明度，以便能够确定必要的步骤。

无论通过自动化还是流程优化，海普尔热塑性弹性体公司 (Hexpol TPE) 都期望数字化能在所有领域带来更高的效率和更优的工作条件。“未来几年，我们将进一步投资于这一发展。”多米尼克·费恩说道。

结论

赫普尔热塑性弹性体公司作为运营商与马格公司作为设备供应商之间的合作表明，高品质、可持续的产品需要可靠、高性能的机器和设备。但数字化和智能系统是塑料生产未来的关键，既能节约资源又能减轻员工负担。

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MAAG Group
➔ <https://MAAG.com>

high-performance compounds with top quality and, increasingly, with a growing proportion of PIR and PCR plastics.

Particularly challenging in this context is the processing of contaminated and heterogeneous post-consumer recycled materials (PCR) – i.e. the materials collected by the dual systems.

Higher quality as a challenge

The rising demand proves that Hexpol TPE is on the right track. In order to keep pace with the growing quality expectations, the company has purchased several new machines in recent years.

When it comes to pelletizing systems, the manufacturer has increasingly relied on the Pearlo machine series from MAAG. The underwater pelletizing system is designed to process a wide range of polymers and thermoplastics, promising profitable production with throughputs of up to 42,000 kilograms per hour. Hexpol TPE decided to buy its first pelletizing system from the Pearlo series in 2017. In the following years, several further pelletizing systems were added to the machine park.

The latest investment, a Pearlo 160, was added in 2023 and is impressing in production just as expected: The machine is suspended above the production line. In this top-mounted configuration, the floor under all the components remains free and accessible because the machine is suspended from an overhead rail system. Quick-disconnect-adapters involve just one bolt, whereas previously twelve had to be loosened and then fitted again. "This offers immense time savings during assembly and cleaning of the system that can now be done much faster," reports Dominik Fehn, Process Engineering Manager at Hexpol TPE in Lichtenfels. Much less effort is required when a machine weighing 400 kilograms is suspended from the ceiling and can be moved with one hand rather than being pushed on wheels.

As Hexpol TPE attaches great importance to reducing the workload on its employees, this system is a perfect addition to make life even easier for the workforce. MAAG offers two-axis machines that can be moved in two directions. This means production staff can clean and set up faster, and components do not have to be readjusted. "This is a huge and important reduction in workload, allows quick and stress-free retooling and saves unnecessary energy," emphasizes Fehn.

The new Pearlo has been proving its worth in Lichtenfels ever since. "We decided to take this step in order to increase production efficiency while reducing the workload," explains Fehn.

Automation for greater efficiency

All the same, high quality alone is not enough to stay competitive on the international stage – the efficiency also has to be right. In order to enable Hexpol TPE to increase quality, efficiency, and sustainability in equal measure, the company launched its "Zero Waste" project in 2024. The goal: To significantly reduce waste from production, increase the efficiency of all processes, and automate the processes wherever possible.

Dominik Fehn also discussed this with well-established partners of the company – and found MAAG to have comprehensive consulting expertise: "I was really surprised by the wide range of workshops and training courses that MAAG offers on these topics," says Fehn.

Workshop highlights potential

In a multi-day workshop on site in Lichtenfels tailored to the defined goals, MAAG provided support in identifying optimization potentials in all areas of production: machines and production planning, personnel and teamwork, as well as training courses.

The targeted workshop was split into different process steps, in which employees from the individual groups at the site were interviewed and involved in group work. First, open questions were used to identify the general potentials specific to the company; the results were then grouped and prioritized, and areas for optimization were identified. Once the ice had been broken, any potential for improving the machines was identified and the resulting measures were prioritized.

Cause-and-effects analysis

The subsequent cause-and-effects analysis characterized the results and put them into a structure. The work results obtained here were grouped,

summarized according to lean principles, and the resulting tasks were prioritized.

Finally, all arguments for solutions were identified and classified according to the following criteria:

feasibility and impact, difficulty of implementation, implementation costs, and determination of the implementation priorities. After identifying the "take a closer look" arguments, including a definition of the options to be considered, the "don'ts" were of course also derived.

The results of the workshop: Factors directly related to the machine – such as the selection of die plates and knife heads, the use of optimized/predefined process settings, or the planning of maintenance intervals – can contribute to optimization. Much greater potential was identified, however, in factors such as the better utilization of talent within the company, more teamwork, the avoidance of waiting times and excessive processing, or simply reducing over-production. The path to achieving this lies in greater data availability and transparency in order to enable the necessary steps to be identified.

Whether through automation or process optimization, Hexpol TPE expects digitalization to result in higher efficiency and better working conditions in all areas. "We will be investing in this further development over the next few years," says Dominik Fehn.

Conclusion

The collaboration between Hexpol TPE as operator and MAAG as plant supplier shows that high-quality, sustainable products need reliable, high-performance machines and plants. But digitalization and smart systems are the key to the future of plastics production that both conserves resources and relieves the burden on the employees.

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