

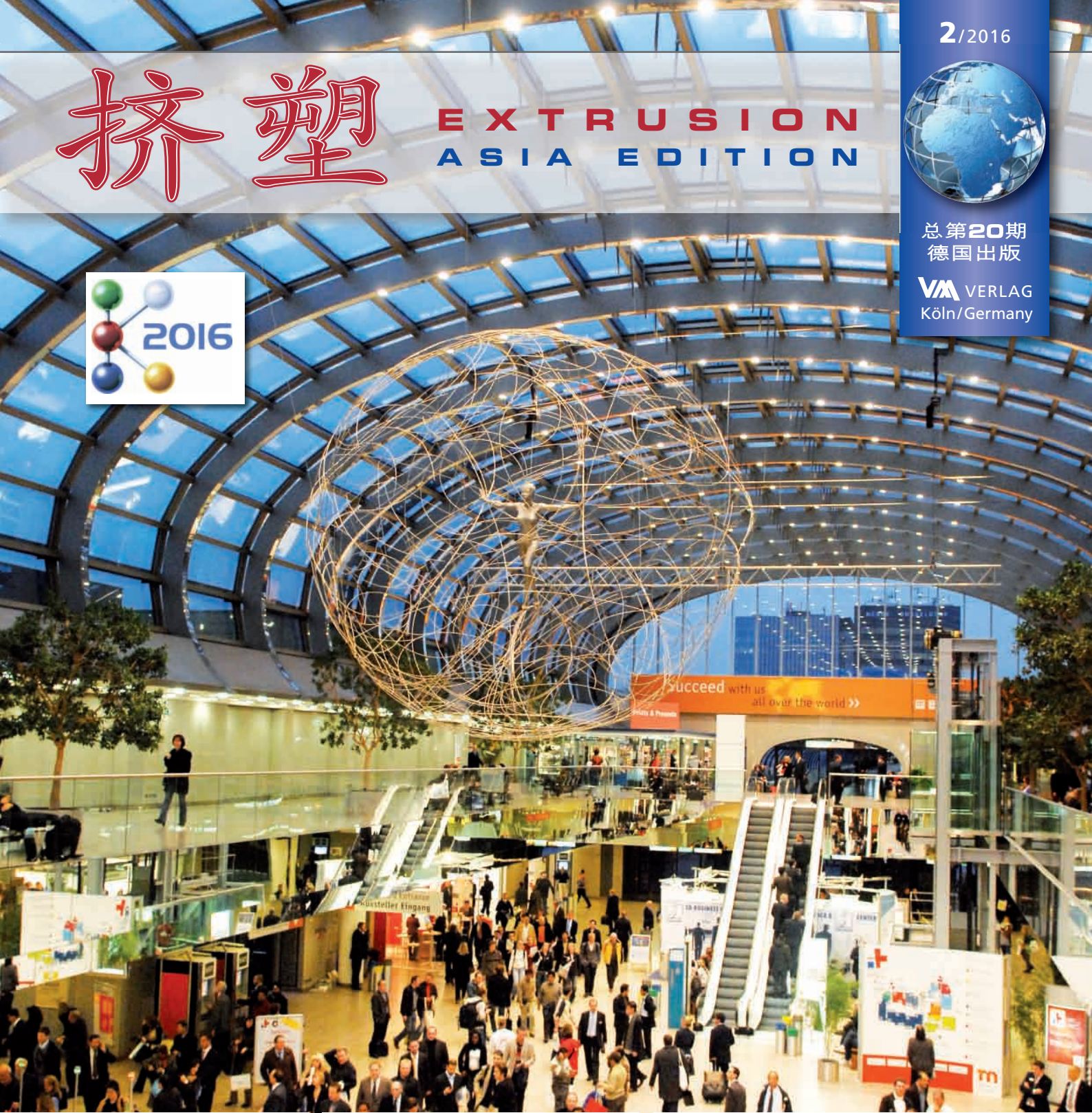


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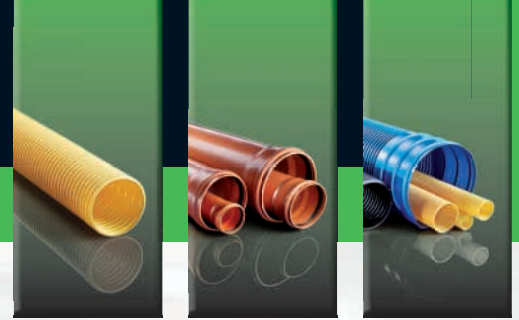
EXTRUSION ASIA EDITION

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Pipe extrusion



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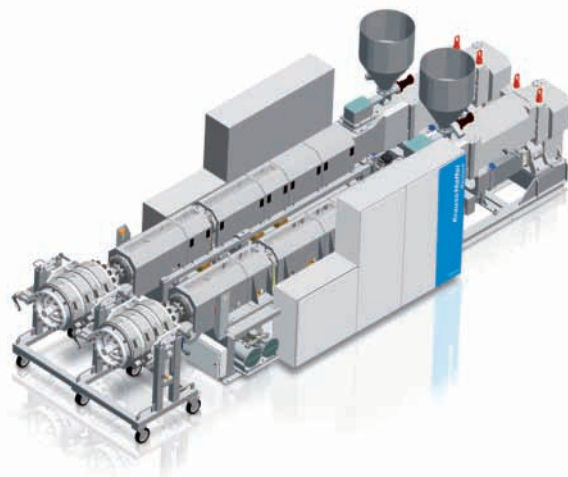


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在2016年杜塞尔多夫K展期间，克劳斯玛菲贝尔斯多夫公司将推出特殊定制的设备：长径比为36的双螺杆挤出机，这台高性能设备用于挤出硬质PVC管材，所需占地面积最小。

The K 2016 trade show will feature KraussMaffei Berstorff's custom solution for 36D twin-screw extruders, which is designed for high-performance extrusion of U-PVC pipes with minimum space requirements.

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Friul Filiere SpA 已经为一家欧洲的客户完成了以八条并挤方式生产热隔断挤出型材的交钥匙项目。就这种物料的特殊性能而言，这是非常出色的结果。

Friul Filiere SpA has realized for a European customer a Turn-Key project for the extrusion of thermal break profiles in eight strands. An excellent result considering the particular characteristics of this material.

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VM 出版社有限公司 / VM Verlag GmbH:
Antoniterstraße 17, D-50667 Köln, Germany

CHINA Office:

Henry Xiao 肖晨
Matchexpo Co., Ltd.
Tel.: 0512-57696725
Mobilephone: 18915759645
email: marketing@matchexpo.com

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P.O. BOX 410907, D-50869 Köln
Bettina Jopp-Witt M.A.
(Chief Editor EXTRUSION, Extrusion Asia Edition)
Tel.: +49 221 546 15 39, Fax: +49 221 168 60 13
email: redaktion@vm-verlag.com,
b.jopp-witt@vm-verlag.com
Dr. Yury Kravets (Chief Editor Extrusion Russia Edition/PlastCourier),
Tel.: +49 2233 979 29 76, e-mail: y.kravets@vm-verlag.com
Dipl.-Ing. Alla Kravets (Project Manager Extrusion International),
Tel.: +49 2233 390 9090, e-mail: a.kravets@vm-verlag.com

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Postfach 1260, D-76339 Eggenstein-Leopoldsh.
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主编 / Head: Inge Böhle,
Tel.: +49 721 700 626, Fax: +49 721 62 71 02 66
e-mail: i.boehle@vm-verlag.com
Elena Beckmann
e-mail: e.beckmann@vm-verlag.com
Martina Lerner,
Tel.: +49 6226 97 15 15, e-mail: lerner-media@t-online.de

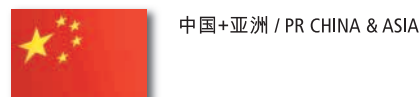
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Thermoforming – Junior Specialist

21. - 24. 11. 2016
Kuala Lumpur / Malaysia
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注资推动发展和创新

■ 2016年6月22日，巴顿菲尔辛辛那提集团与投资方 Industrie Holding Nimbus签订了所有股权转让合同。这交易，巴顿菲尔辛辛那提集团将获得更多的资金注入，并将以可持续的方式实现资产的增值。双方同意不披露有关收购价格的细节。

“继我们去年进行公司组织架构重组之后，在Nimbus的支持下，我们能够更加专注于产品的开发和投资，加强和扩大我们的市场领导地位。”巴顿菲尔辛辛那提CEO，Gerold Schley评论说。“我们非常高兴能够拥有来自Nimbus的投资，这有利于巴顿菲尔辛辛那提集团未来的发展。”

来自Nimbus的合伙人，Ed van Dijk非常期待这合作。“Nimbus投资拥有健康核心的企业。巴顿菲尔辛辛那提的核心是其专业技术和团队，无论在欧洲、亚洲还是美国，”Ed van Dijk充满信心说：“我们相信，我们从一开始就期待合作。”

巴顿菲尔辛辛那提将在2016杜塞尔多夫K展，16号馆，B19展台上展示新的管材、型材和热成型型材挤出技术。

■ *Solid investments for growth and Innovation* On 22 June 2016 the contract confirming the transfer of all shares of the battenfeld-cincinnati group to Industrie Holding Nimbus was signed. With the take-over, the battenfeld-

cincinnati group will receive new financial resources and equity capital will be strengthened in a sustainable manner. The parties have agreed not to disclose details of the purchase price.

„After our successful organizational restructuring in the middle of last year, we can now focus on further product developments and investments that will strengthen and expand our market leadership with Nimbus’ support,” says Gerold Schley, CEO of the battenfeld-cincinnati group. “We are delighted to have a new investor in Nimbus that will actively support and advance the new developments and growth plans of the battenfeld-cincinnati group.”

Ed van Dijk, Nimbus, is also looking forward to the cooperation, “Nimbus invests in companies that have a healthy core. At battenfeld-cincinnati this core is the technical know-how and the quality of the team – whether we are in Europe, Asia or America.”

battenfeld-cincinnati will already present some new developments in the area of pipe, profile and thermoforming sheet extrusion at the *K show in Dusseldorf in October in hall 16, booth B19.*

► **battenfeld-cincinnati**
www.battenfeld-cincinnati.com
► **Nimbus**, www.nimbus.com

增强在东南亚的服务活动

■ 马格公司宣布：位于马格公司泰国销售和服务中心的新建旋转切粒机车间开始运营。新型旋转切粒机可用于拉条造粒机，将增强马格公司在东南亚的服务活动。对于塑料制造和加工行业，东南亚是全世界增长最快速的地区。这是马格公司第七家旋转切粒机车间，除了在巴西、中国、德国、马来西亚、台湾和美国的车间之外，这家公司的能力又有了扩充。

马格公司售后和服务中心商务发展副总裁Thomas Willemsen说道：“总的来说，这家新的切粒中心对我们在泰国和东南亚的全部努力是有力支持。这一扩展将使我们的客户服务水平提升到新的层次。与我们已有的位于马来西亚的造粒中心一起，现在我们可以向更为广

阔的客户群提供高质量的切粒服务。”

新的切粒车间位于泰国春武里省的Gala工业区，于5月1日开始运营。- Gala工业区从2008年起就已投入使用。马格的销售和服务中心拥有展厅，展示公司完整的产品生产线，拥有演示中心，配备了全套为特殊用途所制造的水下造粒机系统，用于对客户的培训，还有另外的房间用于零部件和仓库，以及销售和设备的设备。泰国销售和服务中心有约12名员工。

泰国是亚洲主要的商业中心，这是因为其具有强大的基础设施，庞大的石油化学和塑料市场，以及广阔的全汽车基地。

按照计划，六月底举办了工厂开放日。马格同时还宣布，未来的三个月中

将会推出另一项面向东南亚客户的服务举措。

■ **Service Footprint in Southeast Asia expanded:** Maag has announced the opening of a new rotor sharpening workshop at its Gala Industries sales and service center in Thailand. The new rotor sharpening service for strand pelletizers will expand Maag's service footprint in Southeast Asia, which is one of the world's fastest-growing regions for plastics manufacturing and processing. It is the seventh rotor sharpening workshop for Maag, expanding the company's capabilities beyond Brazil, China, Germany, Malaysia, Taiwan, and the U.S.

"This new sharpening center bolsters our overall effort in Thailand and Southeast Asia in general," said Thomas Willemsen, vice president of business development for After Sales and Service Centers. "This expansion will take us to another level in terms of customer ser-

vice. Combined with our already existing sharpening center in Malaysia we are now able to offer our high quality sharpening service to a much wider customer base."

The new sharpening center, which opened May 1, is located at Gala Industries Thailand's Chonburi Province site, which has been in operation since 2008. The sales and service center houses a showroom for Maag's complete line of products, a demonstration center which includes a complete purpose-built underwater pelletizing system for customer trials, and additional room for spare parts and inventory, and equipment sales and service. The Thailand sales and service center employs about 12 people.

Thailand is a key Asian business hub because of its strong infrastructure, large



马格公司的泰国办公室/Gala Thailand office of Maag/Gala

petrochemical and plastics market, and broad global automotive base. Plans call for an open house to be scheduled in late June. Maag also announced that additional customer service offerings in Southeast Asia will be launched over the next three months.

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中国增长的市场

■ 仅仅在三年以前，刘娴女士在中国城市安徽省安庆市创建了安徽精良美瑞塑料薄膜技术有限公司。那时，刘女士既没有任何塑料薄膜的生产经验，也没有必要的设备的经验。她的目标是成为中国领先的薄膜生产商。如今，在开始生产两年以后，公司已经进入了实现这一目标的良性轨道。安徽精良美瑞是最早开始在中国生产高质量青贮饲料缠绕薄膜的厂家之一。

安徽精良美瑞并没有选择那些虽然有着巨大潜力但是已经挤满了许多优秀供应商的市场，例如食品包装行业，而是选择了在中国仍然处于非常早期发展阶段的成长型市场：农用缠绕薄膜。实际上，生产这种产品需要许多在中国尚属空白的专有技术，不过这些并没有成为公司创建者的障碍。

刘娴副总裁的观点是：专有技术可以获得。获得成功更为重要的是良好的市场潜力，对生产线的正确决心以及与那些不限于单单提供设备的供应商的合作。“对于我们来说，很清楚的一点是：要想获得成功，只有和这样的伙伴合作：不仅拥有极为出色的设备系统技术，同时能给我们带来生产最终产品所需要的专有技术。我们取得成功重要的因素是灵活而可靠的莱芬豪舍三层挤出吹膜生产线以及我们选择的莱芬豪舍团队。”

除了莱芬豪舍提供的开机支持外，来自澳大利亚的专家也加入了安徽精良美瑞，专家们已经有了生产农用薄膜的经验。

投资已经见到了成效：当前，产品范围已经包括了农用缠绕膜和包装膜。到目前为止，公司在薄膜质量方面已经在中国占有着领先地位，这对于未来在这个强劲增长的市场取得成功来说，是重要的先决条件。

2014年，中国农用薄膜的生产增长了14个百分点。在随后的几年里，国家预计生产能力将进一步持续增长。客户将是不会缺少的：根据大视角研究的分析，由于人口的持续增加，中国被认为是农用薄膜增长最快的市场。

■ **Chinese Growth Markets:** It is only three years since Liu Xian established Anhui Excellent Plastic Film Tech Co. Ltd. in the Chinese city of Anqing, Anhui Province. At that time, Mrs. Liu had neither any experience in the production of plastic films nor did she dispose of the neces-



从左至右：刘娴女士（安徽精良股东，副总裁兼总经理） Jerry Yuan先生（安徽精良副总经理，技术主管） Sheng Cheng Lin先生（董事长，股东） Fanny Fan女士（苏州莱芬豪舍塑料机械有限公司销售经理）

F.l.t.r.: Mrs. Liu Xian (Share Holder, Vice-president, General Manager of Anhui Excellent), Mr. Jerry Yuan (Vice-general Manager, Technical Director of Anhui Excellent), Mr. Sheng Cheng Lin (President, Share Holder), Mrs. Fanny Fan (Sales Manager at Reifenhäuser Plastic Machinery Co. Ltd., Suzhou)

sary equipment. Her target was to become a leading film producer in China. Today, only two years after starting production, the company is on the right track to achieve this target. Anhui Excellent is one of the first producers of high-quality silage stretch film in China.

Instead of choosing a market like food packaging which has great potential, but is already crowded with many good producers, Anhui Excellent opted for a growth market that is still at a very early stage of development in China: Agricultural stretch film. The fact that this

product needed a lot of know-how that did not yet exist in China, was no obstacle for the foundress of the company. Know-how can be acquired, is the opinion of Vice-president Liu Xian. Much more important for success is good market potential, the right decision for a line and cooperation with suppliers who are more than only providers of technology. "It was clear to us that we could only be successful with excellent system technology and a partner who brings us the know-how needed for operation and production of the end products. Crucial

factors for our success are the flexibility and reliability of the Reifenhäuser 3-layer blown film extrusion line and the Reifenhäuser team we opted for."

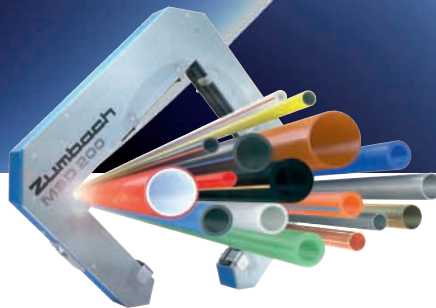
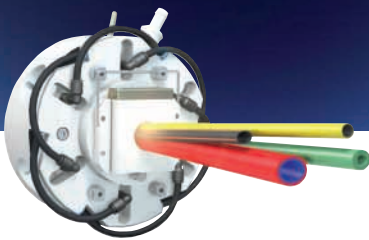
In addition to Reifenhäuser's start-up support, Anhui Excellent has taken experts from Australia on board who are already experienced in the production of agricultural film. The investment has paid off: Today, the product range includes agricultural stretch film and packaging film. By now, the company has a leading position in terms of film quality in China – an important prerequisite for

future success in a strongly growing market. In 2014, the production of agricultural film in China rose by 14 percent. Over the next years, the country anticipates a further continuous increase of the production capacities. There should be no lack of consumers: Due to a constantly growing population, China is considered to be the fastest growing market for agricultural film, according to an analysis of Grand View Research.

➔ **Reifenhäuser Blown Film GmbH**
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位于印度的物料测试培训中心开业

■ 六月底，测试设备制造商Zwick Roell，与援助组织Don Bosco Mondo e.V.合作，在印度的金奈开设了Zwick Roell 培训学校。处于弱势地位的年轻人将会在这里接受为期一年的培训教程，从而成为测试设备的操作人员，这样，他们较为容易开启职业之途并且可为他们更好的未来提供机会。Zwick Roell 培训学校位于Don Bosco 科技校园区，处在金奈贫困区域之一的中央区域，从2016年夏天开始，学校将培训处于弱势地位的年轻人，使其成为测试设备的操作人员。Zwick Roell 在这里租用了一处空闲的大厅并进行整修，还配置了具有当代最新技术水平的物料测试设备。测试设备的范围从各种各样的静态测试设备直到硬度测试装置、摆锤冲击试验机和熔融指数测试仪。有两名教师负责培训课程，每年将使六到十二名年轻人成为合格的物料测试设备操作员。培训重点将是金属和塑料的测试。此外，Zwick Roell 也将使用实验室向客户作演示以及按照合同进行测试。



由Zwick Roell公司的CEO Jan Stefan Roell博士主持培训中心开业：“我们在金奈的项目预计将帮助那些一般来说没有机会接受能够获得良好职位的正规教育并由此建立对自己生活的控制的年轻人。印度是一个迷人的国家，我们获益于我们的印度客户，因此我们愿意通过这一项目作出贡献，以推进印度的培训和教育。”

■ Training Center for Materials Testing in India opened:

Testing machine manufacturer Zwick Roell, in collaboration with the aid organization Don Bosco Mondo e.V., opened the Zwick Roell Training Academy in Chennai, India, at the end of June. Disadvantaged youths will take part in a one-year training program here to become testing machine operators, easing their entry into working life and thereby giving them an opportunity for a better future.

Beginning in the summer of 2016, the Zwick Roell Training Academy at the Don Bosco Tech Campus, located in the heart of one of Chennai's poorest districts, will train disadvantaged youths to become testing machine

Opening Training Academy by Dr. Jan Stefan Roell, CEO of Zwick Roell AG: "Our project in Chennai is designed to help young people who normally do not have access to a decent education to learn an appealing occupation and, by building on this, to take control of their own lives. India is a fascinating country – we benefit from our Indian customers, so we would like to make a contribution, by means of this project, to improve training and education in India."

operators. Zwick Roell leased an empty hall here, which it then renovated and equipped with state-of-the-art materials testing machines. The equipment ranges from various static testing machines to hardness testing devices, a pendulum impact tester and a melt index testing instrument. Two instructors employed for the training program will qualify six to twelve young people to

become materials testing machine operators each year. One training focus will be on testing metals and plastics. Zwick Roell will additionally use the laboratory for customer demonstrations and contract testing.

➔ Zwick GmbH & Co. KG
www.zwick.de

导管生产线已出售给中国的创业者

■ 聚合物的市场以及抗肿瘤药物体内输液市场持续增长，因此采用 PLLA (聚左旋乳酸) 制造的微孔导管市场也同样在持续增长。戴维斯标准公司 (Davis-Standard) 不久前已向中国天津的医学界创业者出售了一条 PLLA 导管生产线。去年安装的这条生产线，成功地生产出了外径 1.7mm 到 2.0mm 的产品，公差 $\pm 20\mu$ ，超出了客户的期望。

戴维斯标准公司高级销售工程师 Glenn Beasley 解释说：“PLLA 是生物可吸收的树脂，当需要聚合物在可控的时间段内存留在体内，然后安全地在人体内降解并被吸收时，采用这种材料是理想的。由于树脂成本高，并且很难获得质量合格的最终产品，因此只有为数极少的公司在生产这种物料。”

Beasley 工程师继续说道：“为了保证迅速获得成功，客户依靠我们来满足他们的需求：就是在加工 PLLA 时，严格的内外径公差，以及要求导管表面光滑无晶点。这种物料的成本很高，所以要求生产线快速开机，并且加工过程中不容许错误，以便将成本控制在合理的范围内。”

生产线可以生产出采用 PLA (聚乳酸) 和 PLLA 以及其他不同的热塑树脂材料所制成的导管，生产速度达到每分钟 50 米 (164 英尺/分)。戴维斯标准提供全套生产线，包括溢流冷却罐。Beasley 工程师提醒道，在过去生产 PLLA 采用这种冷却方式会带来问题。但是，当前在配方方面的发展，允许在有限制的停留时间内采用水冷却而不对导管的表面产生影响。

对于戴维斯标准而言，在中国，医用导管领域继续是强劲的市场。这家公司在苏州开设有子公司，那里有实验生产线，可以演示 PLLA 技术以及其它技术。根据不同的用途，戴维斯标准可以提供不同的交钥匙医用导管系统，挤出机产量可高达 700 磅/小时 (315 千克/小时)，生产线速度高达 800 英尺/分 (每分钟 240 米)。加工物料的范围包括 PLA (聚乳酸)、PEEK (聚醚醚

酮)、FPVC (软质聚氯乙烯)、聚氨酯、尼龙、PEBAX (尼龙弹性体) 以及 FEP (氟化乙丙烯)。根据工艺和用途的不同，可对挤出机进行选择，并且公司已作出了相应安排，保证了迅速交货，价格也具有竞争力。其它特点还包括：生产线控制以及数据采集，精密的真空定型，内径和外

径的闭环控制，超声波测量，牵引和切断系统等等。

■ *Tubing Line to start-up in China sold:*

As the market for polymeric and anti-neoplastic devices for internal drug



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delivery continues to grow, so does manufacturing of micro-bore tubing made from PLLA (Poly-L-Lactide). Davis-Standard recently sold a PLLA tubing line to a medical start-up in Tianjin, China. The line, installed last year, has exceeded customer expectations by successfully producing products ranging from 1.7mm to 2.0mm OD with a tolerance of +/-20µ.

“PLLA is a bio-absorbable resin ideal for applications that require a polymer to reside in the body for a controlled length of time before safely degrading and being absorbed internally,” explained Glenn Beasley, Senior Sales Engineer for Davis-Standard. “Very few companies process this material due to the high resin cost and difficulty in achieving a quality end result.”

Beasley continued, “To ensure immediate success, the customer relied on

us to address their requirement of tight OD/ID tolerances and a smooth, gel-free tube surface when processing PLLA. The high cost of this material requires a fast start-up and no room for error during processing to keep costs reasonable.”

The line is capable of processing tubing from PLA and PLLA as well as a variety of other thermoplastic resins at rates up to 50 meters per minute (164 fpm). Davis-Standard supplied the entire line, including a flood cooling tank. Beasley noted this type of cooling has traditionally been problematic for PLLA. However, recent developments in formulations permit water cooling for a limited residence time without compromising the tube surface.

The medical tubing sector continues to be a strong market for Davis-Standard

in China. The company has a subsidiary in Suzhou with a lab line capable of demonstrating PLLA technology among other processes. Depending on application, Davis-Standard’s turn-key medical tubing systems can support extruder outputs up to 700 pounds per hour (315kg/hr) and line speeds up to 800 feet per minute (240 mpm). The material range includes PLA, PEEK, FPVC, polyurethane, nylon, PEBAX and FEP. Extruder options are available depending on process and application and engineered for a fast delivery and competitive pricing. Advantages include line control with data acquisition, precision vacuum sizing, closed loop ID/OD control, ultrasonic gauging, puller/cutter systems and more.

➔ **Davis-Standard, LLC**
www.davis-standard.com

大中华区战略框架以五大本土化战略为重点

■ 全球领先的特种化学品公司科莱恩在2016年国际橡塑展的新闻发布会上重点介绍了其全新的大中华区战略框架。该框架主要涵盖五大本土化战略，即本土洞察力、本土竞争力、本土决策力、本土创新力和本土合作力，以促进科莱恩成为真正的中国市场局内人。

科莱恩的“五大本土化”战略框架旨在体现对科莱恩大中华区的重视。科莱恩正在果断采取一系列措施，用新方式管理这一市场。例如，作为增强本地决策力的举措之一，科莱恩将于2016年5月1日将执行委员会委员顾培楠 (Christian Kohlpaintner) 派遣至中国，以加强本土管理。

科莱恩执委会委员顾培楠表示：“中国是科莱恩的决定性市场。我们希望每年能在中国的特种化学品市场实现7%的增长。随着消费需求不断增加，企业向创新产品和提供服务转型，中国的市场发展更趋消费导向型增长。我们相信，科莱恩更了解中国市场，而成为中国市场的局内人对其赢得这一关键市场至关重要。这其中也包括将更多决策权转移至中国，并加强我们的研发能力。”

科莱恩大中华区总裁严凯鹏 (



位于上海的科莱恩一体化园区
One Clariant Campus in Shanghai, China

Jan Kreibaum) 详细介绍了“五大本土化战略”中的一些最新亮点，展示了科莱恩将中国市场作为其全球发展战略重点而做出的努力。

• “科莱恩一体化园区”是一项旨在提高本土创新力的重要工程。该一体

化园区选址上海，包括科莱恩大中华区新总部和新的区域创新中心。新园区有助于促进公司内部沟通并加强与客户的互动合作，尤其是在研发方面。新园区将于2016年年底破土动工。

• 为提高本土竞争力，科莱恩计划加强在中国的投资力度，预计2017年在中国的投资额将达到该年度科莱恩全球投资总额的40%。

■ **Strategic framework for Greater China with focus on five local components:**

Clariant has emphasized the new strategy for Greater China during the Chinaplas press conference. The strategic frame work focuses on five local components – Local Insight, Competitiveness, Empowerment, Innovation and Partnerships – to progress Clariant’s commitment to becoming a true China Insider.

Clariant’s “5 Locals” (5Ls) strategic framework aims to bring the Greater China region of Clariant into more focus. Clariant is taking decisive measures to manage this market differently, including the relocation of Christian Kohlpaintner, Member of the Clariant Executive Committee, to China from May 1, 2016 as part of its steps to strengthen decision authority locally.

Christian Kohlpaintner commented: “China is a decisive market for Clariant. When we look at the specialty chemicals market in China, we expect growth of about 7 % per year. There is a clear trend for more consumption driven growth, with increasing consumer demands and a shift towards innovative products and service offerings. We are convinced that it is of utmost importance to understand China better and to become a China Insider in order to succeed in this important market. That includes shifting more decision authority to China and to strengthen also our R&D capabilities.”

Jan Kreibaum, Regional Head for Clariant in Greater China, demonstrated Clariant’s efforts to put China into the focus of its global development with details of further current highlights from “5 Locals”:

• One Clariant Campus is a key project intended to step up local innovation. The One Clariant Campus is a new integrated facility planned for Shanghai that will feature Clariant’s new Greater China Regional Headquarters and a new regional Innovation Center. It will facilitate internal communication and strengthen customer interaction and cooperation, particularly from a R&D perspective. The

ground-breaking of the new facility is scheduled to take place for the end of 2016.

• To enhance its local competitiveness, Clariant intends to invest even more aggressively in China with 40 % of Clariant’s global investments in 2017 set to happen in China.

➔ **Clariant**
www.clariant.com



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Hall 16
Stand 16A59



庆祝巴顿菲尔辛辛那提 (中国) 成立20周年暨第20次参加Chinaplas

■ 巴顿菲尔辛辛那提为中国市场提供量身定制的本地化制造战略取得空前成功。佛山巴顿菲尔辛辛那提塑料设备有限公司 (巴顿菲尔辛辛那提中国) 庆祝成立20周年。“这个生日具有历史性意义-体现在技术的领头羊地位和在中国市场认可度。”巴顿菲尔辛辛那提集团首席执行官, Gerold Schley先生很高兴地宣布。为管材和型材生产提供高品质的挤出设备, 以及高效的现场服务, 巴顿菲尔辛辛那提在过去二十年里赢得了越来越多客户的支持。过去20年来, 巴顿菲尔辛辛那提一直参加国内最大型的行业展览会, 中国国际橡塑展, 并一如既往地展示其创新的解决方案。

“在中国, 我们的工程师可以设计出满足本地需求的定制化设备, 是因为一方面得到集团强有力的支持, 另一方面则得到来自我们欧洲和美国生产基地挤出技术精华的分享。”巴顿菲尔辛辛那提 (中国) CEO, Toni Bernards先生, 在介绍中国的成功经验如是说。自1996年成立以来, 巴顿菲尔辛辛那提 (中国) 发展令人满意, 仅去年一年, 销售额增长了20%。如今, 公司拥有员工130人, 占集团销售总额约25%。公司创业初期专注于国内市场销售, 很快销售格局发生变化, 现在的年出口率达到45%, 主要出口越南、印度尼西亚、马来西亚和泰国。在中国, 巴顿菲尔辛辛那提有着广泛的客户群。约90%的客户是本土中小型企业, 旨在通过先进的挤出技术获得最大竞争优势。此外约10%的客户则来自国际大公司, 已经是非常熟悉和认可巴顿菲尔辛辛那提品牌, 要在他们亚洲工厂使用久经考验的技术投入生产。



中国市场和出口部分地区的管材和型材生产线, 在中国工厂进行组装和制造

Pipe and profile lines for the Chinese and regional export markets are made in China

■ **Machine manufacturer celebrates 20th company anniversary in China and 20th participation at Chinaplas:** The concept of producing locally in China for the Chinese market has worked out perfectly for battenfeld-cincinnati. battenfeld-cincinnati (Foshan) Extrusion Systems Ltd. (battenfeld-cincinnati Chi-



2016年, 巴顿菲尔辛辛那提全球团队第20次参加中国国际橡塑展

The international battenfeld-cincinnati team attended Chinaplas for the 20th time in 2016

na) in Foshan/Shunde is celebrating its 20th anniversary this year. “This birthday is a milestone in our history – it shows both our technology leadership and our market acceptance in China,” Gerold Schley, CEO of the battenfeld-cincinnati group, is pleased to announce. With high-quality extrusion equipment for the production of pipe and profile and local service, the company has steadily won over more and more processors in the past twenty years. Of course, the machine manufacturer also presents its in-

novative solutions at the largest trade fair in China and has been a regular exhibitor at Chinaplas for 20 years, including this year.

“On the one hand, our engineers here in China benefit from strong group backing and on the other hand from the concentrated extrusion competence of our faci-

lities in Europe as well as in the USA. Thanks to this, they can design customized equipment for local needs”, Toni Bernards, CEO of battenfeld-cincinnati China, explains the company’s success. Since its foundation in 1996, the company has developed very positively – last year alone, sales increased by 20%. Today, battenfeld-cincinnati China has 130 employees and contributes about 25% to the group’s sales. In the beginning, the machine manufacturer focused only on the Chinese market, but that has long since changed. Now, annual export rates of 45% are achieved, with the main export markets being Vietnam, Indonesia, Malaysia and Thailand. In China, battenfeld-cincinnati China serves a very broad customer base. About 90% of customers are small, local processors that gain a competitive advantage from the advanced extrusion technology. 10% of customers are companies operating on a global scale that are often already familiar with the battenfeld-cincinnati brand and want to use the tried and tested technology at their facilities in Asia.

► **battenfeld-cincinnati (Foshan) Extrusion Systems Ltd.**
www.battenfeld-cincinnati.com/china

威格斯亚洲十年

■ 今年六月，自威格斯 (Victrex) 开设其位于上海的亚洲创新和技术中心 (AITC) 以来已经满十周年了。当年的这一举措，给威格斯公司及其客户带来的是在产品开发方面更为密切的合作。AITC 取得成功的方式包括与客户合作开发快速原型以及实现设计和加工的最佳化。威格斯集中力量开发以 PAEK (聚芳醚酮) 为基础的解决方案，如 VICTREX™ PEEK 聚合物，APTIV™ 薄膜以及 VICOTE™ 涂覆，支持客户以快速的步伐创造出未来的绩效。

上海 AITC 技术服务主管 Raymond Cai 指出：“上海 AITC 团队里的每一个成员平均都有着十年以上的塑料行业服务经验，凭借着一流的专业人才，我们已经向客户提供了产品性能方面的优势。AITC 利用威格斯的全球资源，向客户提供了一系列本地培育的并具有本地特色的解决方案。”

威格斯是一家在高性能聚合物解决方案领域里勇于创新的世界领先企业，第一个将 PEEK (聚醚醚酮) 商业化。除了在中国的 AITC 以外，威格斯还有两家技术中心，一家在英国，另一家在日本。与另外两家技术中心一起，利用公司在高性能 PAEK 聚合物方面 35 年以上的经验，在为数众多的工业领域里与客户携手合作。

■ **10 Years at Asia:** This June marks 10 years since Victrex opened its Asia Innovation and Technology Centre (AITC) in Shanghai, a move that has brought the company and its customers together in



威格斯上海 AITC 10 周年纪念，从左至右：Eastward Yu, Raymond Cai, Tim Cooper, Larry Pentz, ST Namgoong

10th anniversary of Victrex's AITC in Shanghai (left to right): Eastward Yu, Raymond Cai, Tim Cooper, Larry Pentz, ST Namgoong © Victrex, 2016

close collaboration on product development. The successful approach of the AITC includes cooperative fast prototyping as well as design and process optimisation. Centred on PAEK*-based solutions such as VICTREX™ PEEK polymers, APTIV™ films and VICOTE™ coatings, Victrex is supporting customers in shaping future performance at a rapid pace. "The Shanghai AITC has delivered performance benefits for customers," noted Raymond Cai, Head of Technical Service, AITC Shanghai. "Drawing on a superb pool of professional talent, where each team member has, on average, more than 10 years of service experience in the

plastics industry, the AITC has provided a stream of locally-generated, locally-specific solutions while leveraging Victrex's global resources."

Victrex, an innovative world leader in high-performance polymer solutions and the first in commercialising PEEK, draws on more than 35 years of experience in high-performing PAEK polymers with two further technology centres, one in the UK one in Japan, in addition to the AITC in China, working with customers across numerous industry sectors.

► **Victrex**
www.victrex.com

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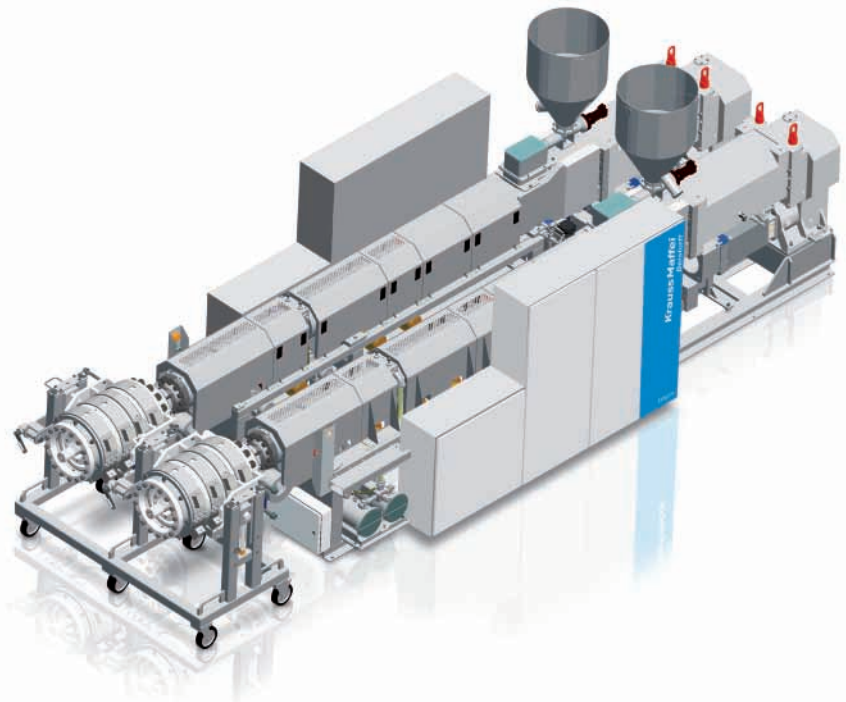
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在2016年杜塞尔多夫K展（10月19到26日）期间，克劳斯玛菲贝尔斯多夫公司将推出特殊定制的设备：长径比为36的双螺杆挤出机，这台高性能设备用于挤出硬质PVC管材，所需占地面积最小。两台KMD108-36 E2/R双螺杆挤出机组合在一起，产量高达2000 kg/h，令人瞩目的演示将展示这一智能化和个性化的系统工程。设备的设计目标就是增加产量，36D双螺杆系列长期以来享有盛誉，因此设备综合效率（OEE）高。在这一方面，由于设备综合效率的提高，克劳斯玛菲贝尔斯多夫公司向其客户提供了优质的解决方案。



The K 2016 trade show in Düsseldorf/Germany (October 19 to 26, 2016) will feature KraussMaffei Berstorff's custom solution for 36D twin-screw extruders, which is designed for high-performance extrusion of U-PVC pipes with minimum space requirements. The combination of two KMD 108-36 E2/R twin-screw extruders produces at a throughput of up to 2000 kg/h, providing an impressive demonstration of intelligent and individualized systems engineering. The longtime success story of the 36D twin-screw series is due to the high overall system efficiency (OEE) with its process technology features that are designed to increase output. In this respect, with OEE Plus KraussMaffei Berstorff supplies its customers with premium quality and high performance solutions.

体现节省空间理念的KMD 108-36 E2/R双螺杆挤出机，高性能挤出硬质PVC

Space-saving concept with KMD 108-36 E2/R twin-screw extruder for U-PVC high-performance extrusion

在狭窄的空间以高产量生产PVC标准管材：

Peter Roos是克劳斯玛菲贝尔斯多夫品牌的挤出技术部总裁，他指出：“作为系统提供商，面对客户定制的系统工程，我们不仅仅是将自己看成是高专业水平的设备系统供应商，在需要的时候，我们还要成为客户专业订制的系统工程伙伴。我们具有特色产品最好地满足了我们的客户的需求，就是在提升性能的同时使占地面积降低到最小。”两台双螺杆挤出机KMD 108-36 E2/R组合在一起，设计目标是减少约三分之一的占地面积。这样一来即使仅有很小的空间，也能实现高产量生产。Roos先生这样描述组合式挤出机：“那些大批量生产硬质PVC标准管材同时对于成本效益必须格外看重的加工人员，将会对这种系统特别感兴趣。较高的产量加上较小的占地面积，可以长期地降低生产成本。”



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www.getecha.de



这种设备还有着特别节省能源的优点。与采用一模双腔方式生产的较大规格挤出机相比，组合式挤出机对能源的需求量更低。高性能组合式挤出机的生产能耗与KMD 164-32/R相比，加工每千克原料可节省能耗0.02 kW。

这套高性能组合式挤出生产线的另一特色，就是KM-RK 23-250管材模头与挤出机的完美匹配。这种最新一代设计的管模头，有着很宽广的加工直径范围和非常高的产量。由于其设计特点，例如流道容积和为了优化流道而配置的芯轴脊，这种管模头对于高性能挤出生产线和始终如一的高质量而言是十分理想的。

高性能和灵活性强的加工技术理念

来自于克劳斯玛菲贝尔斯多夫的36D双螺杆挤出机的加工理念代表了PVC加工领域最大的产量和最高的产品质量。主要的着眼点在于加长的高效预热段，这种设计确保了剪切能量和加热能量的平衡组合。实现了最佳的物料加工，并获得极为出色的熔体均匀性。此外，在加料区域低的压缩值有了保证。深度氮化的机筒和螺杆的螺楞上钼堆焊层保证了最佳的抗磨损性。这样，就十分适合于加工高填充的PVC混合料。

High-output production of PVC standard pipes in tight spaces

"We not only distinguish ourselves with our high level of expertise as a system provider, but also are in demand as a capable partner for customized systems engineering," explains Peter Roos, President of the Extrusion Technology Segment and of the KraussMaffei Berstorff brand. Our featured product is an optimal implementation of our customers' requirements for increased performance while simultaneously minimizing the space requirements," says Roos. The combination of two KMD 108-36 E2/R twin-screw extruders is designed to reduce the space requirements by about one-third. This enables production at the highest output, even in the smallest spaces. "This system is of particular interest to processors who manufacture U-PVC standard pipes in large quantities and must place particular focus on cost-effectiveness. Higher output with a smaller footprint cuts production costs over the long term," says Roos, describing the extruder combination. They also feature exceptional energy-saving benefits. The energy requirements are lower compared to a larger extruder that uses the twin-strand. The

high-performance combination saves 0.02 kW per h/kg of material throughput compared to a KMD 164-32/R.

The featured product is part of an exemplary combination with the KM-RK 23-250 pipe head, a model from the newly designed pipe head generation designed for a very large diameter range with very high outputs. Due to its design features such as flow channel volume and mandrel ridges configured for optimum flow, the pipe head is ideally suited for high-performance extrusion with consistently high quality.

Process technology concept for performance and flexibility

The process concept of the 36D twin-screw extruder from KraussMaffei Berstorff stands for the highest output in conjunction with maximum product quality in PVC processing. The main focus is on the long, effective pre-heating length, which ensures a balanced combination of shearing energy and heating energy, optimal material processing and thus excellent melt homogeneity. In addition, it ensures low compression values in the area of the throttle zones. Optimal wear-resistance is guaranteed by the deep-nitrided barrels and the molybdenum welded layer on the screw threads. This makes it possible to process even higher-filled PVC compounds optimally.



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B27/C24/C27/D24

KraussMaffei Berstorff
www.kraussmaffeiberstorff.com

Standort München:
Krauss-Maffei-Str.2, 80997 München, Germany

Standort Hannover:
An der BreitenWiese 3-5, 30625 Hannover, Germany

推进在撒哈拉以南非洲的销售市场

Pipe Extrusion: Sales in Sub-Saharan African Markets boosted

通过向毛里塔尼亚一家重要的集团交付四条聚乙烯管材挤出生产线，Tecnomatic公司在撒哈拉以南非洲的市场地位得到了提升。这一新项目通过这一地区的公司与在坦桑尼亚、加纳、尼日利亚、象牙海岸、南非、埃塞俄比亚等国家重要的供应商实施，已经证实了生产线具有良好的工作性能。为了在这一市场建立长期和专业的关系，Tecnomatic在开发技术解决方案以增加可靠性方面给予了极大的重视，生产线能够在严酷的条件下生产，并有着卓越的性能和出色的产品质量。



水管的安装和焊接
Water pipe installation and welding

Tecnomatic increases its presence in the Sub-Saharan african market by the delivery, to an important group of Mauritania, of four extrusion lines for polyethylene pipes. This new project, follows and confirms the good work performed by the company in the area, with important supplies in Tanzania,

Ghana, Nigeria, Ivory Coast, South Africa, Ethiopia. To establish a constant and professional relationship in these markets, a strong focus has been placed in developing technical solutions able to increase realibility and to grant excellent performance and quality production even in harsh condition.

VEGA挤出机75.37，配备VENUS 400 和 PAC 空气冷却系统，用于高效率生产管材
VEGA extruder 75.37 with VENUS 400 and PAC air cooling system, for efficient pipe production



预计管材挤出生产线这一项目有着相当大的环境和社会影响。气候环境（干旱和沙漠化），自然资源的退化以及贫困，特别是在最不享有特权阶层的人口中，需要水的设施和需要整合资源管理计划以应对气候的变化，这方面的压力增加了。联合国开发计划署（UNDP）估计：在撒哈拉沙漠以南非洲，当前花费在水和环境卫生部门的总预算是大约一年8亿美元。通过“成本回收”，这一数额可能会增加到25亿美元。

管材制造业将有利于支持发展这个国家主要的基础设施工作。这家客户代表了建筑和贸易业务公司重要的集团，即使最近才开始其管材生产，但声誉有着快速的增长，这是因为公司选择了以质量为导向的方针。

生产线的技术细节：

采用可靠的技术解决方案是生产线的特色：例如Vega挤出机，长径比37，带管材内冷（PAC）的支架式模头，可生产直径达400mm的HDPE管材。

Vega系列挤出机是凝聚了多年的制造经验并不断努力研发每一个挤出机零件的成果。螺杆的设计不断改进，与水冷直接进料衬套相匹配，即使在在高产量生产时也有最佳塑化效果，能够保证出色的产品价值。特性输出产量已经有进一步提高，并在整个螺杆转速范围内或甚至高背压值下保持了恒定。设备配置了同步交流电机，速度可变，特别适合于高动态特性的应用场合。精心挑选的电机，机械结构坚固，能承受高过载，同时高效的绝缘层防止了在高频率运转下绝缘的逐渐恶化。Vega系列挤出机采用意大利的齿轮箱，其优点在于整体式铸铁框架，独立的冷却单元具备强大的油冷却能力，VEGA系列挤出机的传动系统采用高性能轴承单元（耐压高达500bar）。

为了实现高产量和低背压生产，并将压力负荷施加于原料，VENUS模头是适合的成型模具。基于螺旋分配器理念及采用紧凑设计，得益于创新的几何形状和内部空气冷却（PAC系统），最佳的壁厚分布、不圆度和低下垂都有了保证。

生产线的每台挤出机都采用同步称重计量，这样就能保证连续的物料喂料和记录整个产量的变化，从而实现了对每米重量和壁厚分布完美的控制。下游设备包括Tecnomatic真空和冷却罐，由独立的矢量交流电机控制的履带轨道式牵引机以及带切刀和通用夹持装置的行星式切割锯，可生产出精确的无屑管材成品。

The project is expected to have considerable environmental and social impacts. The climatic context (drought and desertification), the degradation of natural resources as well as poverty, particularly among the least privileged segments of the population, have increased the pressure on and demand for water facilities and the need for integrated resource management planning to cope with climate change. The UN Development Programme (UNDP) estimates that total budgetary spending in the water and sanitation sectors in sub-Saharan Africa is currently around \$800 mn a year. This amount could likely be increased to \$2.5 bn through “cost recovery”.

The manufacturing of pipes will help to support the development and major infrastructure works under way in the country. The customer, representing an important group of companies in the construction and trading business, even if has started its

遥远村庄的公共水龙头
A communal water tap in a remote village



pipe production recently, has rapidly gained reputation because of its choices quality oriented.

Technical details of the line

The lines, characterized by reliable technological solutions – such as the extruders Vega with L/D ratio of 37 and Venus heads with internal pipe cooling (PAC) – will produce HDPE pipes with diameters up to 400 mm.

The VEGA series are the result of years of experience manufacturing extruders and of a constant effort to develop each part of them. A constantly updated screw design, matched with the water cooled straight feed bush, ensure excellent production values with optimal plasticizing, even at high output rate. The specific output has been further increased and it maintains constant across the whole screw speed range or even at high backpressures values.

The machines are equipped with synchronous AC motors specifically designed to be used in applications at high dynamic performances with variable speeds. The selected motors are mechanical sturdy to withstand high overloads while a highly effective insulation avoid a gradual deterioration caused by operation at high frequencies. Italian gearboxes characterised by single block cast iron frame, for large oil capacity cooled by an independent unit, and high performance bearing unit (up to 500 bars) fit out the transmission system of the VEGA series.

To process the high throughput with low backpressure and stress load to the material VENUS die-heads are the proper tools. Based on a spiral distributor concept with a compact design thanks to their innovative geometries and the internal air cooling (PAC system) ensure an optimal wall thickness distribution, ovality and low sagging.

The lines are synchronized using gravimetrics on each extruder, to guarantee a continuous raw material feed and to record variations in mass throughput, thereby ensuring a perfect control of the weight per meter and wall thickness distribution. The downstream equipment includes Tecnomatic vacuum & cooling tanks, haul-offs with caterpillar tracks controlled by an independent vector AC motor and planetary saws with knife cutting and universal clamping device, for a very accurate swarfless pipe delivery.

Tecnomatic S.r.l.

Via Emilia, 4, 24052 Azzano S. Paolo, (Bergamo) Italy
www.tecnomaticsrl.net

塑料管材领域的创新

Innovations in the Field of Plastic Pipes

Sica公司推出了多种多样的技术创新:采用节能、节省原料和节省成本设计的“绿色”塑料管材设备。

RoboJack 250 机械手管材堆垛机:适用于带或不带承插口的PVC, PE和PP管材的自动堆垛机, 管材外径32-250, 长度1米到6米, 可同时在带有木质支架的推车上堆码两种不同长度的管材。这台设备配备了管材储存仓和人性化的机械手,承担管材处理单元的任务, 即使管材旋转时可用的空间极为狭小, 也可以将托盘上各层承插口的位置交替堆放。

Flash450 薄膜缠绕机:自动缠绕包装PVC、PE和PP波纹管, 管直径从8到25mm, 短长度卷取并用拉伸膜包装。缠绕机有三个盘绕轮, 带有中心调节控制, 薄膜分配电子张力控制, 通用薄膜切割系统和几何形状可变的盘管卸载装置。设备配备了无线通讯系统以控制主要的卷管功能。

TRS 160 W 无尘锯:可以切割任何PVC、PP和PE塑料原料制成品, 倒角而不需要去除物料。采用这一方法, 可以显著地节省大量原料, 而原料占到了管材成本的80%, 与此同时, 避免了碎屑抽吸和回收带来的麻烦。一般传统的切割机, 都采用切刀或刀具, 即使采用了抽吸装置, 也会有一部分碎屑和粉尘堆积在切割机的构件之间, 为此, 所需要的维护工作量增加了。与此相反, 新型TRS 160 W 采用创新系统(专利申请中)解决了这一问题, 保证了既清洁而又完美垂直地用切刀切割, 同时能够精确地按照要求进行倒角, 保持相同的生产效率和符合要求的速度, 满足现代化挤出生产线所提出的要求。

Unibell1 200JRE PVC压力管扩口机:自动在线扩口机带有一台IR-SW(短波长-红外线)加热炉, 用于平滑实壁硬质PVC管或多层管, 管外径32到200mm, 长度0.5到6米外加承插口。设备采用机电、电气和气力驱动, 电气操作屏带



有PLC控制器。对于所有直径的管材, 采用单腔外部压力成型, 采用预先冷却过的压缩空气对承插口进行冷却, 并通过内部制冷循环对压缩空气进行冷却(Sica的专利)。扩口机可以成型平滑的溶剂粘固剂承插口, 带机械芯棒系统垫圈座的承插口以及带有整体垫圈的承插口(Rieber系统), 配有全套垫圈储存仓及将密封环装载到芯棒上的系统(Sica专利)。

Multibell 200M PVC排水管扩口机:高生产效率, 采用旗舰版本设备每小时可生产高达900个承插口。与原有的机型相比, 这一新机型在大幅度降低了价格的同时, 引入了大量的特色技术, 机器和设备具备了大量新的优点, 例如在相同的生产效率下尺寸更为紧凑, 适用于多种管材承插口的革命性的系统, 易于使用和可以快速转换规格等。机器仍然完全采用气动, 而不采用液压单元, 这样一来, 设备就具有了相应的优势, 具备高度洁净的特点, 且非常易于维护管理。由于采用了全套可移动式机器工作台, 因此可以满足新推出的关于易接近性的重要标准:这台设备能够让工作者完全地和安全地接近需要设定的主要区域, 能够促进和加快生产规格转换的进程。



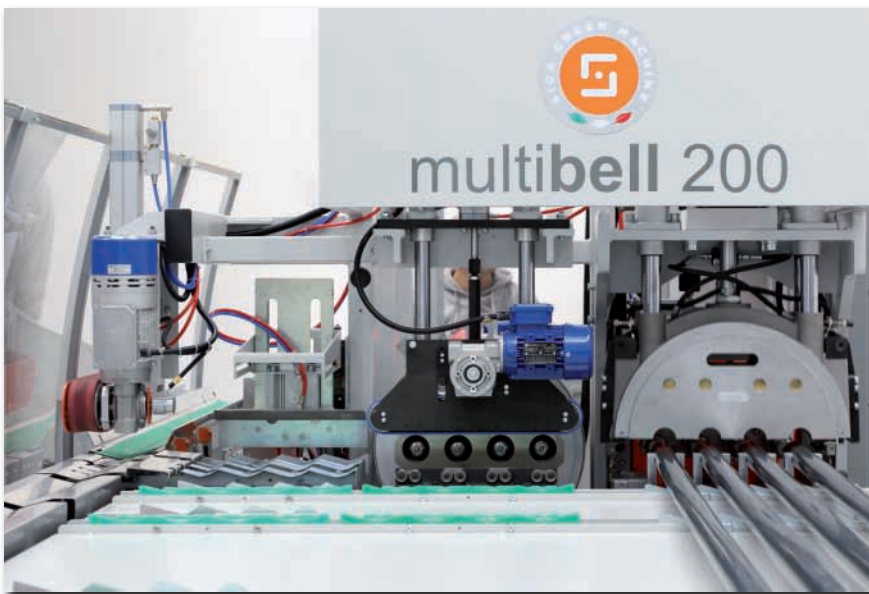
Sica presented a wide-ranging innovation: "green" plastic pipe machines designed to save energy, materials and costs.

RoboJack 250 – Robotic pipe palletizer: Automatic palletizing station for PVC, PE and PP pipes, with or without sockets, OD 32-250, 1 m to 6 m in length, for the



scrap suctioning and recycling. In traditional cutting machines, also in those with knife or tool, chips and dust end up partially between saw mechanisms despite suctioning; for this reason, the necessity of maintenance increases. In contrast, the new TRS 160 W removes the problem with an innovative system (Patent Pending) that guarantees not only a clean and perfectly perpendicular cut with knife but also a precise and well-defined chamfer, maintaining the same productivity and a satisfactory speed; these are requirements for modern extrusion lines.

Unibell1 200JRE – PVC pressure pipe bellowing machine: Automatic inline bellowing machine with one IR-SW oven for PVC-U smooth solid-wall or multilayer pipes with O.D. 32 mm to 200 mm and for lengths from 0.5 m to 6 m plus the socket. Machine with electro-mechanical, electrical and pneumatic drives; with PLC controlled from an electrical panel. Forming by external pressure in a single chamber for all pipe diameters and socket cooling by compressed air pre-cooled by an internal refrigeration cycle (Sica patent). The bellowing machine can form smooth solvent-cement sockets, sockets with gasket seats with a mechanical mandrel system and sockets with integral gasket (Rieber system), complete with gasket magazine with system for loading the ring seals on the mandrel (Sica patent).



Multibell 200M – PVC sewage pipe bellowing machine: High productivity per hour up to 900 sockets/hour with the flagship version. This new machine, compared to the previous version, introduces numerous technical features in view of a greatly reduced price both of machine and equipment and a lot of new advantages such as more compact dimensions with equal productivity, revolutionary system for multi-socketting pipes, ease of use and quick format change. The machine is still completely pneumatic, with the inevitable advantages related to the higher cleanliness and the superior ease of management thanks to the absence of the hydraulic unit. New important accessibility standards have been achieved with the introduction of a completely movable machine bench: the solution allows complete and safe access to the main areas required for set-up in order to facilitate and accelerate the format change phases.

simultaneous palletizing of two different pipe lengths on carts with wooden frames. The station is equipped with a pipe magazine and an anthropomorphic robot serving as the pipe handling unit, capable of alternating the position of the sockets in the pallet layers even with minimal area available for rotation of the pipe.

Flash 450 – Film coiler: Automatic coiler for packing corrugated PVC, PE and PP pipes, with diameters from 8 to 25 mm, in short length coils covered with stretch film. The coiler has three reels with centralized adjustment controls, a film dispenser with electronic tension control, universal film cutting systems and variable-geometry reel unloading device. The machine is equipped with a wireless communication system for control of the main reel functions.

TRS 160 W – Swarfless saw: It can cut any PVC, PP and PE plastic material and chamfer without removing material. This manages to save a considerable quantity of raw material that affects the 80% of the pipe cost, but also to avoid problems of

Sica SpA
Via Stroppata, 28, 48011 Alfonsine (RA) Italy
www.sica-italy.com

用于生产热隔断型材的全套挤出生产设备

Profile Extrusion: Complete Extrusion Plant for the Production of Thermal Break Profiles

Friul Filiere SpA 已经为一家欧洲的客户完成了以八条并挤方式生产热隔断挤出型材的交钥匙项目。就这种物料的特殊性能而言，这是非常出色的结果。原料是PA66 25% GF，也就是采用25-30%玻璃纤维增强的尼龙，具有非常高的加工温度，给整个定型带来了困难。此外，由于产品应用于窗户，要求更为严格的公差（这一项目要求达到百分之一）并且还要同时生产八条型材，这些要求都进一步使挤出工艺复杂化。

Friul Filiere SpA has realized for a European customer a Turn-Key project for the extrusion of thermal break profiles in eight strands. An excellent result considering the particular characteristics of this material. PA66 25% GF is a nylon (in this case reinforced with 25-30% of fiber glass) with very high processing temperatures which entail calibration difficulties. Furthermore, the reduced tolerances (in the order of hundredths) which requires their application within windows and the production of eight profiles simultaneously, further complicate the extrusion process.

整套设备确保了以每分钟两米的速度（90kg/h）同时生产八条型材，设备中包括一台带PLC控制的Omega80单螺杆挤出机，原料到达挤出机时已经经过了干燥，成熟的下游设备还包括其它辅助设备。齿轮泵有利于实现稳定加工，使物料的流动恒定而均匀，并行挤出八条型材是相当复杂的，这得益于Friul Filiere将其特殊的技术应用到了模头上。此外，Friul Filiere 的定型技术可以使生产更为便捷，不需要任何强化冷却装置。八条型材的挤出控制是由专用的带有模头校准器的定型系统来完成的，值得信赖。模头校准器能够完美地校准并完成型材定位。

挤出设备具有灵活性，可以在生产线中添加喷砂单元和施胶系统。喷砂单元将型材与窗框结合将要喷漆的表面进行预处理，这样就能够获得更好的光泽效果。施胶系统自动地将来自于16个小胶带卷的胶带施布于型材上。

挤出热隔断型材的机械强度特性类似于铝材，但有着高度隔热的特性。



隔热简介 / Thermal break profile

The plant ensures the production of eight profiles at 2 mt/min (90 kg/h) and it is composed of a single-screw extruder Omega80 with PLC, in which the raw material arrives already dried, and classical downstream with insertion of auxiliary machines. A gear pump helps the process stability but the material flow is constant and homogeneous, despite the complexity of the eight strands, thanks to the special technology Friul Filiere applied to the die. Furthermore Friul Filiere's calibration technology is able to work easily without any need of intensive cooling devices. The control of the eight strands is assured by a dedicated calibration system with die-calibrator centering which allows a perfect alignment and facilitates the positioning of the profiles.

The flexibility of the extrusion plant has allowed the insertion in line of a sandblasting unit and a glue insertion system. The sandblasting unit prepares the profile surface that will be varnished together with the window frame, allowing a better accession of the varnish. The glue insertion system assembles the glue wire into the profile automatically, unwinding it from 16 small coils. The extruded thermal break profile presents mechanical characteristics of resistance similar to aluminum but ensures high thermal insulation performance.

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始终保持领先地位.

Profile Extrusion:

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在2013年，格瑞纳挤出公司开发出了RED.TOOLING模具系统，致力于实现高效率生产高质量型材以及实现生产节省化。基于这些成就，并且为了充实RED.LINE系列的产品范围，公司推出了全新开发的RED.后共挤单元。该单元可以和所有其它种类的格瑞纳模具相匹配。

遵循用户优先，实现领先优势

当用户使用RED.后共挤单元时会有明显的效益，一方面用户实现了优化生产，另一方面在生产过程中质量得到了提升。对于不同几何形状的型材，采用多功能的后共挤模具可以在节省成本方面发挥巨大的潜力。安装系统包括配备了安装杆的水槽。

可以沿着长度方向连续调节，并可以从两侧进行操作。安装末端抽吸和安装密封板都相当方便。密封板上圆柱型的安全嵌件可防止加工中断，并同时使开机过程更为容易。当更换模具时，因为加热器部件和后共挤导轨器停留在调节块，缩短设定时间会有着良好的效果。安装杆上可以固定多达四个后共挤胶条垫，包括调节块，调节块同样可以从两边进行操作

通过提升质量，取得领先优势

使用RED.后共挤单元可以采用内连接挤出和上连接挤出方式生产胶条垫。内连接胶条垫可以更换并易于回收。上连接胶条垫可通过最佳效果的粘合剂与型材连接。两种不同的结合方式可在RED.后共挤单元的生产过程中进行处理：首先是采用著名的热风功能，其次是使用最新开发的带预加热导轨进行变换。采用热风改变焊接区是使用空气喷射加热。为此目的，需要附加的设备如热交换器，热风鼓风机以及控制箱。第二种变化方式即无接触预热导轨被称为RED.后共挤 plus系统。采用后共挤 plus系统时，承载型材的连接表面被预热导轨加热，还要采用刀片插入焊接表面。此后，胶条垫直接连接到承载型材。这种生产工艺通过最适宜的粘附和准确定位于型材而突出了本身的价值。



挤出胶条垫采用上连接
Gaskets joined on by extrusion



挤出胶条垫采用内连接
Gaskets joined in by extrusion

In 2013, Greiner Extrusion developed RED.TOOLING, the tooling system focusing on productivity, profile quality and economization. In line with this achievement and in order to complete the RED.LINE-system product range, post-co-extrusion has also been developed further with the creation of RED.PCE. The RED.PCE unit is compatible with all other Greiner tooling types.

The leading edge through user optimization: The clear benefits when using RED.PCE are user optimization on the one hand and increased quality during the production process on the other. The multiple use of PCE dies for different profile geometries allows for a huge saving potential. The mounting system includes a tank with integrated mounting bars. It is continuously adjustable along its length and can be operated from both sides. Mounting of the end suction and sealing plates is fairly straightforward. Cylindrical safety inserts in the sealing plates prevent process interruptions and make the start-up process easier at the same time. The short set-up time has a positive effect when changing the dies, as the heater block with PCE guide stays on the adjustment block. Up to four PCE gaskets including adjustment blocks that are also acces-

sible from both sides can be fitted onto the mounting bars.

The leading edge through increased quality: Using RED.PCE allows the production of gaskets using joined-in and joined-on extrusion. The joined-in gaskets can be exchanged and easily recycled. The joined-on gaskets stand out through optimum adhesion. Two variants of joined-on gaskets can be processed during RED.PCE production: firstly, with the well-known heated-air function and secondly, using the recently developed variant with the pre-heater rail. With the heated-air variant the welding area is heated with an air jet. For this purpose, additional equipment is required such as the heat extension, leister hot air blower, and control box. The second variant with the contactless pre-heater rail is called RED.PCE plus. With the RED.PCE plus system the joining surface of the carrier profile is heated with the pre-heater rail and the welding surface is extended with an additional blade. After this, the gasket is directly joined onto the carrier profile. This production process distinguishes itself through optimum adhesion and exact positioning to the profile.

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Film Extrusion: Perfect Flat Film for Successful Thermoformed Packaging

采用拜雷尔 (Breyer) ThermoFlex 系统的三层共挤机型生产PET片材，可以实现快速开机和快速转换不同厚度的产品。设备采用120mm单螺杆挤出机和60mm的共挤出机，总产量可达到1,100 kg/h，并且可以完全采用回收物料进行生产。拜雷尔提供各种各样先进的模块化方案，对系统的功能进行提升和改进，为经济高效地生产挤出片材提供了所有先决条件，这样就能够节省时间，节省原料以及由此而来节省了资金。

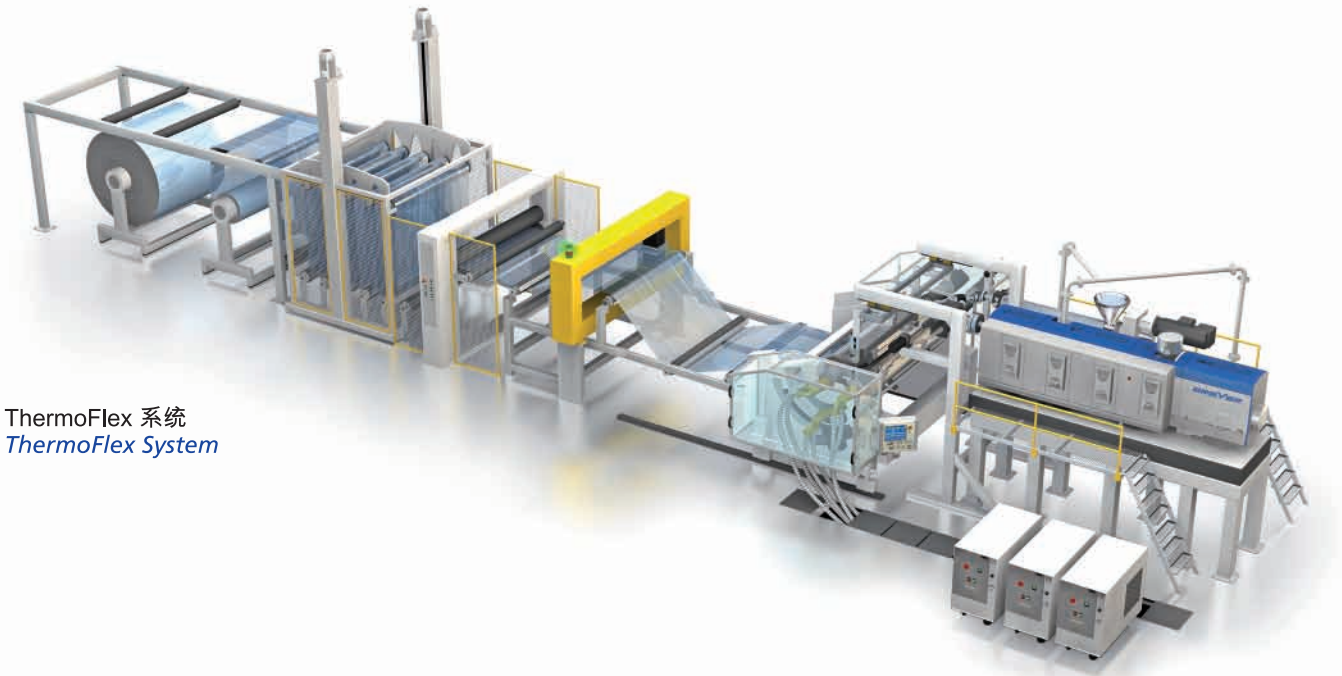
On the Breyer ThermoFlex system in co-extrusion version for 3-layered film, the fast startup of a PET film system and quick changeover to different film thicknesses is possible. Pure recycling material can be processed with a 120 mm single-screw extruder and a 60 mm co-extruder with a total performance of 1,100 kg/h. For the functional retrofitting of the system, Breyer offers a number of progressively conceived building blocks that save time, raw materials and, hence, money all of the required preconditions for economically efficient film extrusion.

为片材挤出树立新的标准

在食品包装行业，占主导地位的物料是PP、PS和PET。采用这些物料生产片材时，可采用单层或多层挤出的方式。为了提高经济效益，应当使用来自于热成型生产过程中的落地物料和回收再生物料。特别是面对有着强烈竞争的艰难市场，设备的特殊性能将有助于拉开差距。在这种情况下，追求更好的质量总是会得到回报的。

由于片材的生产成本很大程度上是由原料成本所决定（大约百分之六十五），而投资于设备系统的成本并非主要因素，因此，将重点放在能够安全运转的高质量的设备上这一思路是非常重要的。尤其重要的是：这些设备能够节省原料，并可以快速适应调整。PET原料通过红外线技术进行干燥，可节省时间和能源。高达百分之百的落地物料可以通过红外线干燥机直接处理。加工PP和PS原料可以不需要干燥过





ThermoFlex 系统
ThermoFlex System

程。设备经历过多次精心试验，系统的参数设定非常方便，再加上拜雷尔在节省时间和金钱方面的先进技术，共同提供了下列可能性：实现迅速开机。这是由于特殊的熔体泵控制以及片材厚度的快速调节。厚度的调节采用的是拜雷尔的快速而便捷的压光机夹辊间隙设定技术，这样就实现了经济而又高效的挤出生产。所要求的夹辊间隙调节能够在数秒钟内完成，并且这一方式可以重复，这样一来，对于片材生产商特别是那些价格敏感的包装市场片材生产商，这种节省成本的潜力是有吸引力的。操作人员导向的触摸屏控制和有利于操作者及维护者的系统技术将使客户受益。此外，采用这一技术能够生产低应力平整片材，这种片材对于接下来的热成型加工有着特别的好处。

压光机是拜雷尔挤出生产线的质量核心

拜雷尔快速便捷的间隙调整技术不需要任何机械控制部件。这套复杂的系统可以在满负荷生产的过程中精确地定位辊筒。任何所要求的间隙都可以精密地调整到位。快速、精密和舒适操作已融为一体。

灵活性达到了最大化

拜雷尔的片材压光机为产品提供了最大程度的灵活性。系统操作方便，只需按下按钮：通过彩色显示的触摸屏操作输入设定值。

快速设定厚度

这套系统的片材厚度调节的方式在挤出技术上是独特的。有一种间隙调节模式，能够在改变挤出机的速度时随即精密而自动地调节辊之间的间隙。当生产新产品时，操作者在显示器上重新设定合适的挤出速度值，只需要数秒钟，即可得到所需要的预定厚度。这清楚地表明，与传统的间隙调整相比，时间和成本都得到了节省。

在K展期间，拜雷尔将展示整条生产线关键的功能模块：120挤出机，换网器，熔体泵，模头和压光机。

Setting new standards in film extrusion

PP, PS and PET are the dominant materials in the food packaging segment. They are extruded into film in single and multi-layers. To increase economic efficiency, additional ground material from the in-house thermoforming production and recycled materials are used. Especially in difficult markets with strong competition, it is helpful to differentiate with special characteristics. Here, too, better quality always pays off.

Since the production cost of the film is largely determined by the raw material (approx. 65 percent) and not primarily by the investment in the system, it is extremely important to focus on high-quality equipment with operational security, which, above all, saves raw materials and can be quickly readjusted. Drying PET via infrared technology saves time and energy. Up to 100 percent ground material can be directly processed in the infrared dryer. PP and PS can be processed without a drying process. The combination of well-tried and simple system setup paired with advanced Breyer technologies that save time and money makes it possible: fast startup due to the special melt pump control and fast adjustment of the film thickness with the BREYER *fast&easy polishing nip* make the extrusion economically efficient. The required nip can be adjusted within seconds in a reproducible way, resulting in interesting savings possibilities for the manufacturer especially in the price-sensitive packaging market. The personnel profits from a user-guided touch-screen control and the user- and maintenance-friendly system technology. In addition, the technology allows for the production of low-stress flat film, which is a special advantage for the subsequent thermoforming process.

The calender the quality hub of a BREYER extrusion line

The BREYER *fast&easy gap adjustment* does without any mechanical control parts. A sophisticated system allows for the precise positioning of the rollers during production and at full



PET 泡罩包装
PET blister

mode allowing the precise and automatic adjustment of the gap in between the rollers just by changing the extrusion speed. The operator changes the speed value appropriate for the new products on the display and has set the required thickness within a few seconds. This represents clear savings in time and cost compared with traditional gap adjustment, where the speed has to be re-adjusted after the gap correction.

At the K-show Breyer will present the Key building blocks of the entire line: Extruder 120, screenchanger, melt-pump, die and the calender.

load. Any required gap can be precisely adjusted. Speed, precision and operational comfort in one.

A maximum in flexibility

BREYER film calenders offer a maximum in flexibility for the production. Easy operation with the push of a button: The set values are entered via a touch screen color display.

Fast film thickness setting

In this system, the method of film thickness adjustment is unique in extrusion technology. The gap adjustment has a



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Granulation Technology: Increased Efficiency without Dancer

Getecha是一家设备工程公司。在今年的K展期间，这家公司将展示大量用于塑料加工过程中的中央式或分散式粉碎机技术方面创新的解决方案。在今年这届贸易展会上，上述创新中的重点是最新一代的RS 45000系列大料仓式粉碎机以及采用了新型控制技术的RS 3004-E横向进料粉碎机。同时参加展出的还有GRS 180防尘洁净室粉碎机以及RS 1615紧凑型旁压式粉碎机。来自德国阿沙芬堡的这家公司还将展出价格实惠的GETpick 700浇注口收集器，以体现其自动化产品组合。

At this year's K, the plant engineering company Getecha will show numerous innovative solutions for central and decentral granulation technology in plastics processing. This year, the focus of the trade show is above all the latest generation of the large hopper granulators of series RS 45000 as well as a new control for the infeed granulator RS 3004-E. Also part of this are the dustproof clean room granulator GRS 180 and the compact beside-the-press granulator RS 1615. The company from Aschaffenburg in Germany will present the economically priced sprue picker GETpick 700, representing its automation portfolio.



在工业化的生产车间，粉碎技术设备如何能够完美地将高生产效率和人机工程学相结合？Getecha设备工程公司在K2016展会期间将通过其RS45000系列粉碎机这一范例来证明这一成就。这台料仓式粉碎机是新一代产品的代表，并且达到了当代最高的技术水平，每小时产量在700-1200kg之间，在公司的展台上将展示采用新型外罩的粉碎机RS 45090。与众不同的特点是配备了高效

Getecha将会在K展上展出这种型号为RS 45090的料仓式粉碎机，带有隔音的粉碎室以及位于侧面以及后面板的附加的旁路料斗，用于管材、型材和板材材料的喂料

Such a hopper granulator of type RS 45090 will be shown by Getecha at the K with a sound-insulated granulator housing as well as with additional bypass hoppers on the side and at the rear panel for feeding tubing, profiles and plate material
(All images: Getecha GmbH)

在K2016期间，Getecha将展示其防尘洁净室滑动式粉碎机GRS180，针对采用塑料技术的卫生和清洁材料生产线的增长的需求提供粉碎机解决方案

Getecha will be showing off its dust-proof clean room slider granulator GRS 180 at the K 2016 as granulation solution for production lines of plastics technology with increased demands on hygiene and cleanliness

率集成式隔音，可将中心粉碎机的工作噪声降到最低水平。尽管采取了这些人类工程学措施，但由于RS 45090的驱动装置配置到了罩壳的顶部，占地面积很小，所以整机非常紧凑。

一台粉碎机完成三项任务

此外，Getecha将通过实物展示来说明如何显著地增加料仓式粉碎机的效率和灵活性：安装在侧面的附加旁路料斗可用于来自挤出设备的管材和型材，并且还有位于背面的另一个旁路料斗，

用于板材物料的喂料。在这种布置下，Getecha生产的RS45090可以从三个方向喂料（前方，侧面和背面）。对于使用者而言，这意味着最多仅仅需要一台粉碎机就可以取代三台粉碎机。除了粉碎机具有很高的总体稳定性以外，能够实现这种最优化的方案的重要基础是其粉碎装置强有力的3刀转子和使用了双定子刀片。最后一项要点是，RS45090带有电动液压开启功能，从而易于接近料仓和筛网摇臂，这将使维修工程师感到满意。

力矩控制替代浮动辊筒控制系统

在K展期间，Getecha将展出另一项令人瞩目的技术：新型力矩控制喂料系统。这一系统采用另一台隔音喂料粉碎机RS3004-E进行示范。型号为RS3004-E的粉碎机的设计从根本上就是用于薄膜和板材挤出生产的，设备配备了双横向喂料系统，不同厚度的边角料和切边料可以用不同的速度进行喂料。为了使粉碎机喂料速度和切边及薄膜系统的速度同步，并且控制切边料的拉伸载荷，很多年以来都是使用久经考验的带有松紧调节臂的浮动辊筒控制系统。可是，挤出生产线的切边料粉碎机越来越多地需要非常靠近生产线，而这里有很多机器在争夺空间。为此，Getecha已经开发出了新型的更加紧凑的解决方案：喂料电机的最大力矩现在可以通过变频器的参数进行配置，这样就使切边料的牵引以及喂料的速度达到了最佳状态。这种方式节省了大量空间，不再需要采用多余的机械式浮动辊筒控制系统。K展的来宾在Getecha的展台将可以亲自看到这一系统实际上如何平滑地工作。在杜塞尔多夫，Getecha还将展示其防尘洁净室滑动粉碎机GRS180。采用塑料技术的卫生和洁净材料生产线需求日益增长，GRS180就是为此设计的粉碎机解决方案。设备采用剪切转子，每小时的设计产量达35kg。然而，GRS180备受推崇是由于采用了自动锁定式料仓，这是一种整体式的可取出容器，采取了许多有关密封的措施。这样，这台粉碎机工作中只有非常少的粉尘粒子或落地物料逸出到环境中，能够符合许多塑料加工商对于洁净室的要求（微粒 $<1.0\ \mu\text{m}$ ）。

准备过程最佳化

Getecha本年度的K展内容将由于紧凑型RS1615粉碎机以及GETpick700浇口收集器而更为完美。RS1615是身材修长的压力旁路粉碎机，每小时产量为25kg。这种型号的设备久经考验，适合分散式使用，并在去年得到进一步

开发，最重要的改进是简化了操作和维修。另一台设备GETpick700作为范例，代表了Getecha品种丰富的浇注口收集器抽取系统，采用这一系统处理物料的循环和准备过程，可以使生产过程得到优化。由于入门级型号有着非常合理的价格，GETpick700是得到公认非常受欢迎的。其优雅的线性技术设计，针对的适用浇口重量为250g，在Y方向的动作带有轻质碳纤维管以及三个永久性已进行编程的操作程序。抽出行程为500或700mm，抽取周期小于1.5秒。无论是挤出技术，热成型，中空模塑技术或注射模塑技术方面，在今年K展的Getecha展台上，所有类型的塑料加工商家都可以熟悉本行业以及其它相关领域的与粉碎机有关的设备制造公司系统解决方案。同时，来宾还能看到这家公司范围非常广泛的自动化组合，其范围从项目规划到开发、工程设计、编程和装配直到调试开机、维护和服务。

How to skilfully combine high efficiency in granulation technology with ergonomics at the industrial workplace will be demonstrated by the plant engineering company Getecha at K 2016 with the example of its granulator series RS 45000. As representative of this new generation of state-of-the-art hopper granulators for hourly throughput rates between 700 kg and 1200 kg, an RS 45090 will be presented at the company's booth with a new granulator housing. The special feature here is the highly effective integrated sound insulation, which lowers the operating noise of the central granulator to a minimum. Despite these ergonomic measures, the RS 45090 is very compact due to its drive integrated at the top in the housing, with a relatively small footprint.

A single granulator for three tasks

Furthermore, Getecha will demonstrate how the efficiency and flexibility of this hopper granulator can be significantly increased in practice: With an additional bypass hopper attached on the side for



GETpick 700 代表了Getecha浇口收集器和提取系统多种多样的产品，这一系统用于物料循环和制备过程，可以实现处理的最佳化

The GETpick 700 represents an example of the broad Getecha range of sprue pickers and extraction systems with which material cycles and preparation processes can be optimised with regard to handling

feeding tubing and profiles from extrusion as well as with another bypass hopper at the rear for the plate material feed. In this version, the RS 45090 from Getecha can be fed from three sides (front, side, rear). For the user this means that at best he will only need one granulator instead of three. An important basis for the realisation of these optimisations is, in addition to the high overall stability of the granulator, its powerful 3-blade rotor and the usage of two stator blades in the milling device. Last but not least, the RS 45090 will delight maintenance engineers with an electrohydraulic opening mechanism, which simplifies access to the hopper and the screen rocker.

Torque control instead of floating roller control system

Getecha will present another technical highlight at the K-show with its new

torque controlled infeed system based on the example of another sound-insulated infeed granulator RS 3004-E. This granulator type is fundamentally designed for usage in film and plate extrusion and has a double infeed system, with which offcuts and edge trims of different thicknesses can be fed at different speeds. A floating roller control system with dancer arm has proven itself for many years for this purpose, synchronising the speed of the edge trim feed with the speed of the film system and controlling the tensile load of the edge trims. However, the edge trim granulators are to be parked more and more frequently very close to the extrusion line, where many machines compete for a footprint. For this reason, Getecha has developed a new, much more compact solution: The maximum torque of the infeed drive is now configured via a para-

meter of the frequency converter, thus optimising the traction on the edge trim as well as the infeed speed. This saves a lot of space and renders the mechanical floating roller control system with dancer superfluous. How smoothly this works in practice, visitors of the K will be able to see for themselves at the Getecha booth. Getecha will be showing off its dust-proof clean room slider granulator GRS 180 in Düsseldorf as granulation solution for production lines of plastics technology with increased demands on hygiene and cleanliness. It works with a scissor-cut rotor and is designed for hourly throughput rates of up to 35 kg. However, the GRS 180 scores particularly high with an automatic lock hopper, an integrated extraction container and numerous measures relevant for sealing. The result: This granulator lets very few dust particles or ground material escape into the environment, and thus corresponds to the clean room demands (particles $<1.0 \mu\text{m}$) of many plastic processors.

Optimising preparation processes

This year's K exhibition program from Getecha will be rounded off by the compact RS 1615 and the sprue picker GETpick 700. The RS 1615 is a very slim beside-the-press granulator for hourly throughput rates of up to 25 kg. It is a proven solution for decentralised use and has been continuously further developed in past years – most of all with re-

gard to simplified operation and maintenance. The GETpick 700 on the other hand represents an example of the broad Getecha range of sprue pickers and extraction systems with which material cycles and preparation processes can be optimised with regard to handling. The GETpick 700 is regarded as very popular – as it is very reasonably priced – entry-level version. Its elegant linear technical design is intended for sprue weights of up to 250 g, operates in Y-direction with a light carbon fibre tube and has three permanently programmed operating programs. The extraction stroke is 500 or 700 mm and the extraction cycle is less than 1.5 sec.

Whether it is extrusion technology, thermoforming, blow moulding technology or injection moulding technology – at this year's K booth of Getecha, plastics processors of all disciplines can not only familiarise themselves with the granulation-related system solutions of the plant construction company, but also with the company's now very comprehensive automation portfolio. It ranges from project planning and development, engineering, programming and assembly to commissioning, maintenance and service.



Getecha在这一年的K展上将展出紧凑型RS 1615粉碎机，该机型适用于每小时25kg的产量

This year's K exhibition program from Getecha also includes the compact RS 1615, which was developed for hourly throughput rates of up to 25 kg



Halle 9, Stand A21

Getecha GmbH
Am Gemeindegarten 13,
63741 Aschaffenburg, Germany
www.getecha.de

管材和软管的挤出在严格的控制之中

Measurement Technology: Extruded Pipe and Hoses under Tight Control

仲巴赫的展台重点展示生产管材和软管的在线测量和控制系统，提供新颖和智慧解决方案以及投入小收效大的解决方案。

Novel and intelligent solutions as well as cost efficient solutions for in-line measurement and control of pipes and hoses are going to be the focus of Zumbach's exhibition booth.

测量和控制偏心率和壁厚，从而节省了原料：通用型高技术超声波系统 WALLMASTER 针对测量和监视壁厚这一特定应用提供了解决方案。测量数据处理器带有触摸屏显示，全自动地完成收集数据和质量控制。

将UMAC 扫描器和ODAC直径测量以及缺陷探测器结合到一起，测量和监控范围可以扩大到外径和内径、数据统计、质量过程管控以及与处理器的通讯。

使用仲巴赫WALLMASTER测量和控制系统，制造商可以节省其原料花费。投资回报周期ROI只需要几个月时间。这一系统的使用同样能够显著缩短开机时间。

多层复合塑料管材和软管的最佳化测量：WALLSTARTER 是一种低成本处理器，用于UMAC® 超声波偏心率和壁厚测量装置，专门定制以满足测量和监视多层复合管材和软管的需求。

新型超声波扫描器，用于灵活地测量直径：这种新奇的构造（专利申请中）将会成为展览会的亮点之一：传感器可以进行独立调节也可以同步调节，只需数秒钟即可调节到最佳的测量位置。扫描器可测量的外径达180mm，代表了完全无接触在线式管材、软管和电缆护套偏心率和壁厚测量巧妙而简单的解决方案。

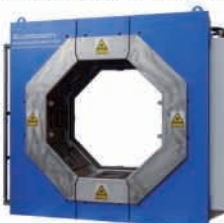




结合了激光和CCD感光元件技术的高端无接触型材和形状的测量

在线式测量任何种类的塑料和橡胶型材断面：仲巴赫PROFILEMASTER 系统代表了在整个制造过程中测量和监视由塑料或橡胶制成的型材和管材尺寸和全部横截面精确而经济的解决方案。所有有关的尺寸如宽度，高度，角度和半径都汇总到一起，形成全部横截面图像。

线性传感器技术性能价格比高，能够在挤出过程中对直径和椭圆度进行同步多轴测量：独特的测量技术，适用产品外径可达200mm。

- 新产品生产线带有2套彩色LED光源，能够在每一轴（XY）同步扫

采用OPC UA的仲巴赫装置，可以有多种选择 / *Selection of available Zumbach instruments with OPC UA*

<p>USYS IPC</p>  <p>OPC UA</p>	<p>PROFILEMASTER® SPS</p>  <p>OPC UA</p>	<p>PROFILEMASTER® PMM</p>  <p>OPC UA</p>	<p>STEELMASTER</p>  <p>OPC UA</p>
<p>RAYEX®</p>  <p>OPC UA</p>	<p>SIMAC®</p>  <p>OPC UA</p>	<p>ODAC®</p>  <p>Option: OPC Server</p> <p>OPC UA</p>	<p>Other Devices:</p>  <p>Option: OPC Server</p> <p>OPC UA</p>

描，甚至在产品振动时也能实现无故障测量。

- 安装有外部光线过滤器，防止了测量错误的产生，这类错误迄今为止曾被认为是无法避免的。
- 由于每一轴都采用了不同色彩的照明，甚至对于反光的表面也能获得完美的性能。

OPC UA：透明的数据管理，简单地监视实时数据

- 仲巴赫采用得到公认的OPC UA标准配备到其强有力的仪器上。采用这种关键技术，就为测量结果提供了方便的、可扩展的和安全的信息交换平台，能够与生产线上的来自于不同制造商的不同系统之间实现数据交换。

Material savings thanks to measurement and control of eccentricity and wall thickness: The versatile high-tech ultrasonic system WALLMASTER offers application-specific solutions for measuring and monitoring wall thickness. The measuring data processor with touch-screen display gathers data and QC fully automatically.

In combination with ultrasonic UMAC® scanners and various ODAC® diameter measuring gauges as well as with error detectors, the measuring and monitoring scale can be expanded to outside and inside diameter, statistics, SPC and processor communication.

Using Zumbach's WALLMASTER measurement and control systems, manufacturers can economise their expenditure of raw materials. The ROI is achieved within a few months. The use of these systems also allows reducing considerably the start-up time.

Optimized measurement of monolayer synthetic pipes and hoses: WALLSTARTER – the low-cost processor solution for UMAC® ultrasonic eccentricity and wall thickness measuring is tailored to the requirements of the measuring and monitoring of monolayer synthetic pipes and hoses.

New ultrasonic scanners for flexible diameter adjustment: This novel construction (pat. pend.) is going to be one of the exhibition's highlights: the transducers can be either individually or simultaneously adjusted to the best possible measuring position within seconds. The scanners cover an outside diameter up to 180 mm and represent a smart

and simple solution for full non-contact, in-line eccentricity and wall thickness measurement of tubes, hoses and cable jackets.

High-end Non-contact Profile and Shape Measurement, Combining Laser and CCD Technology

In-line cross-section measurement of plastic and rubber profiles of any kind: The PROFILEMASTER systems from Zumbach represent an accurate and economical solution for measuring and monitoring dimensions or even the complete cross-section of profiles and pipes made of plastics or rubber – throughout the manufacturing process. All relevant dimensions such as width, height, angle and radii are added together to form the full cross-sectional picture.

Linear Sensor Technology allows cost effective, synchronous multi-axis Measurement of Diameter and Ovality in Extrusion Processes: Unique measurement technology for products up to 200 mm outside diameter:

- A new product line with 2-coloured LED light sources allowing simultaneous scanning in each axis (XY*) and thus trouble-free measurement even with product vibration.
- Integrated extraneous light filters prevent occurrence of measurement errors that to date seemed unavoidable.
- Perfect performance even with reflective surfaces thanks to the use of different colour lighting for each measurement axis.

OPC UA: Transparent data management – simple monitoring in real-time:

- ZUMBACH equips its powerful instruments with the recognized OPC UA standard. With this key technology, measurement solutions provide easy, scalable and secure information exchange with different systems in the production line – Platform and manufacturer-independent data exchange.



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西科拉向大家展示了创新的测量、控制、检查、分析及杂质筛除方面的技术

SIKORA shows innovative measuring, control, inspection, analysis and sorting technology

2016杜塞尔多夫K展的重点是塑料和橡胶。无论是在塑料生产和加工的方法或是产品质量保证方面，作为国际性的贸易展会，K展的重点是那些面向未来的技术。在2016 K展，SIKORA公司将进一步扩大其产品攻势范围，如测量，控制，检测和杂质筛除技术的提高，进而提高产品质量、优化生产工艺并节约成本。

At the K 2016 in Düsseldorf great importance is attached to the topics plastics and rubber. Whether methods for plastics manufacturing and processing or for quality assurance, the international trade show focuses on future oriented technologies. At the K 2016 SIKORA further continues its product offensive in the areas measuring, control, as well as inspection, analysis and sorting technology for an increase in quality, process optimization and cost saving.

在此次展会上，SIKORA公司将首次展出两款特别的产品-CENTERWAVE 6000和 PURITY CONCEPT检测系统。CENTERWAVE 6000采用了毫米波技术，可精确测量大规格（120 mm以上）管道的内、外径、椭圆度、壁厚以及材料下垂度。PURITY CONCEPT系统是应用于颗粒、薄片以及薄膜/胶带的检测及分析系统（在线/离线）。通过这些新产品的推出，位于德国不来梅的技术型公司SIKORA进一步拓展了其在挤出机塑料市场上的产品范畴，并为用户的个性化应用提供了选择。

CENTERWAVE 6000:用于大规格管道的测量

CENTERWAVE 6000采用了毫米波技术，可精确测量大规格挤出生产线上（120 mm – 2500 mm）管道的内/外径、椭圆度、壁厚以及材料下垂度。它还可以用于精确测量多层管的壁厚。即使没有被测物体的材料类型及温度的信息，该系统也能通过在管壁圆周轴上的几个点，测量出其数值且无需任何耦合介质。因此，该系统的应用可确保工艺流程具有良好的重现性，为大规格塑料管道的生产品质控制提供了一个前瞻性的技术选择。

PURITY CONCEPT系统：对颗粒、薄片、薄膜/胶带进行检测和分析

SIKORA公司将首次在2016 K展上展出PURITY CONCEPT系统。该设备是应用于颗粒、薄片以及薄膜/胶带的检测及分析系统（在线/离线）。系统通过X射线、红外或光学技术进行检测和分析，适用于不同的应用需求，如生产过程在线控制，分析及产品的检测。

PURITY SCANNER: 适用于塑料颗粒的检测与筛除

SIKORA在展会上的另一亮点是用于塑料颗粒在线检测和筛除的PURITY SCANNER检测系统。该系统的应用确保了在生产过程中进入到下一生产工序的材料是最洁净的。该检测



新产品CENTERWAVE 6000应用创新的毫米波技术测量大规格管道的直径、椭圆度、壁厚以及料的下垂度

The new system CENTERWAVE 6000 for measuring the diameter, ovality, wall thicknesses and sagging of plastic tubes on the basis of millimeter wave technology

系统采用了X射线以及光学检测技术，能够检测出颗粒内部或表面存在的大于50 μm的杂质，并能自动筛除含有杂质的颗粒。

“对于将‘为用户提供最洁净的塑料材料并对生产工艺进行优化’为目标的聚合物及复合物制造商、塑料应用企业以及塑料回收生产商来说，PURITY SCANNER是一款最合适的应用系统。”SIKORA公司CEO Christian Frank博士说道，“此外，通过PURITY CONCEPT系统，我们为用户提供了一个可适用于不同应用场合的检测分析设备，该设备可应用于生产过程中的检测或样品测试。

其他产品亮点

在管材检测领域，SIKORA将展出的产品有经典的外径测量仪LASER 2000系列和高端的外径测量仪LASER 6000系列，以及X射线测量系统X-RAY 6000系列。通过精确测量产品的内/外径、多达三层管的壁厚、偏心度及椭圆度，该系统确保了在挤出生产线上生产出最高品质的产品，同时兼顾成本的控制，获得最大效益。

SIKORA还将展出的产品有：采用了双传感器技术的LUMP 2000，该产品应用于管材表面缺陷检测，检测性能精确可靠；此外，还有采用了非接触检测技术，用于检测塑料表面温度的PLAST-TEMP 6000以及对熔融PE进行温度测量的ULTRATEMP 6000。

At the SIKORA booth there are two exceptional devices celebrating their premiere. The CENTERWAVE 6000, which measures precisely on the basis of millimeter wave technology online the inner and outer diameter, ovality, wall thicknesses and the sagging of large plastic tubes with a diameter from 120 mm as well as the PURITY CONCEPT Systems for on- and offline inspection and analysis of pellets, flakes and films/tapes. With these new models the Bremen-based technology company extends its portfolio for the extrusion and plastics market and thus provides its customers with innovative systems for individual applications.

CENTERWAVE 6000: Measurement of large plastic tubes

The CENTERWAVE 6000 is based on millimeter wave technology and measures precisely the inner and outer diameter, ovality, wall thicknesses and sagging of large plastic tubes from 120 mm to 2,500 mm during extrusion. Also the layer thicknesses of multi-layer tubes are measured with highest precision. The measurements are taken at several points of the tube circumference without the need for any coupling media and independently of the material and temperature of the measuring object. Calibration procedures are not necessary. Thus, the system allows for reproducibility of the processes and represents a key technology for future-oriented quality assurance at the production of large plastic tubes.

挤出应用的高精度称重混料机



GDS 7

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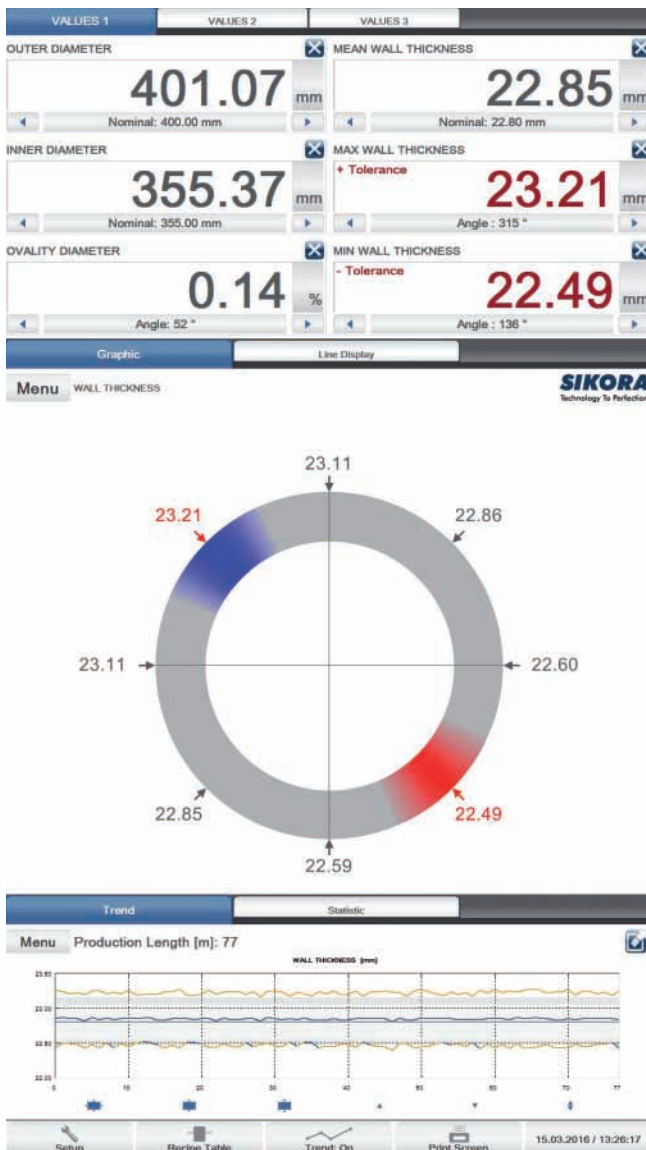
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PURITY CONCEPT Systems: Inspection and analysis of pellets, flakes and films/tapes

The PURITY CONCEPT Systems also make their first appearance at the K 2016. The modularly designed devices are available for on- and offline inspection and analysis of pellets, flakes and films/tapes. The systems are based on X-ray, infrared or optical technologies and are suitable for any application, such as for example online process control, analyses and incoming goods inspection.

PURITY CONCEPT 系統可檢測及分析顆粒、薄片以及薄膜、膠帶

The PURITY CONCEPT Systems inspect and analyze pellets, flakes and films/tapes
(Images: Sikora)



PURITY SCANNER: Inspection and sorting of plastic pellets

Another highlight is the PURITY SCANNER for online inspection and sorting of plastics material. The system assures that only the purest material gets into the next production process. It combines X-ray technology with an optical measuring system and detects contamination from 50 µm on the surface and inside the plastic pellet. Contaminated pellets are sorted out automatically.

"The PURITY SCANNER is the perfect system for manufacturers of polymers, for compounders, the processing industry as well as recycler in the plastics industry that aim to provide their customers with the purest plastics material and optimize their own processes at the same time," says Dr. Christian Frank, Chief Executive Officer at SIKORA AG. "Additionally, with the PURITY CONCEPT Systems we offer an inspection and analyzing device tailored to every application – for the inspection during the production or as a laboratory scanner for sample testing," explains Frank.

Additional product highlights

In the hose and tube area, SIKORA's product spectrum ranges from devices for classic and high-end diameter measurement with the LASER Series 2000 and LASER Series 6000 up to X-ray measuring systems of the X-RAY 6000 series. With the precise measurement of the inner and outer diameter, the wall thickness of up to 3 layers, the eccentricity as well as the ovality of products, the systems assure manufacturers the highest quality as well as cost saving and profitability during the extrusion.

Other SIKORA highlights at the show are the equally precise as reliable LUMP 2000 devices with double sensor technology for lump detection on the product surface. Additionally, SIKORA continues its offensive for technologies that ensure flawless and pure plastics material with the PLAST-TEMP 6000, which measures the surface temperature of plastics material on a non-contact basis as well as the ULTRATEMP 6000 for temperature measurement of PE melt.



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SIKORA AG
Bruchweide 2, 28307 Bremen, Germany
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Extrusion Technology: „Driven by innovation“ ...

“以‘创新先行’为新座右铭，我们结合了专一服务、现代高品质设备和领先的解决方案，来解决当前行业中极为重要的能效和工业 4.0 等问题。我们确信，这将使我们确保今年 K 展上作为挤出机行业技术领先者的地位。”巴顿菲尔辛辛那提集团 CEO Gerold Schley 先生在邀请莅临 16 展馆，B19 展台时如此强调。届时将在展台展示其在管材、型材和热成型挤出片材方面的最新研发成果。

... in terms of flexible and customer-specific solutions

“In our new motto ‘driven by innovation’ we combine individual services, modern and high-quality equipment and solutions for questions like energy efficiency and industry 4.0 that are currently particularly important to the sector. We are sure that with this we will maintain our position as a technology leader in the extrusion industry at this year’s K,” emphasizes the CEO of the battenfeld-cincinnati group, Gerold Schley in his invitation to the booth in hall 16, B19. Here, the extrusion machinery manufacturer will present its latest developments for the pipe, profile and thermoforming sheet sectors.



E展台上将展示一台XXL系列成功的Multi-Touch (多重触控) 压光机

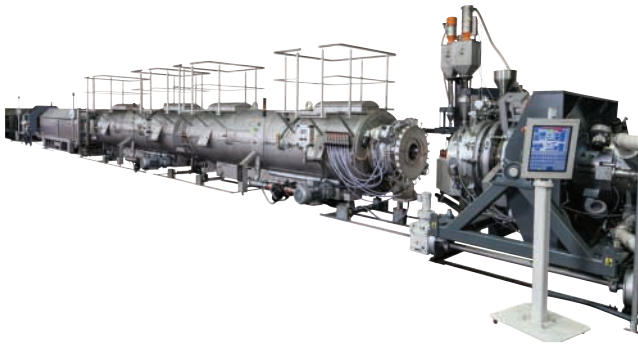
An XXL version of the successful Multi-Touch roll stack will be shown at the booth (Pictures: battenfeld-cincinnati)

为 PO 管材生产而设计的全新单螺杆挤出机 solEX NG 75 将必定成为展台上的亮点。在得到市场广泛认可的 solEX 系列机型基础上，NG 系列对机筒-螺杆结合进行了全新设计。籍此，巴顿菲尔辛辛那提在市场上制定了产量和能耗的新标杆。相比先前的机器型号，“新一代”的优势包括更低的熔温、优化恒定的熔压、显著提高的产量和更低的维护成本。得益于更低的驱动能耗和能源损耗的降低，能耗可节约高达 15%。“凭借全新 NG 系列的设计，我们再次证明了巴顿菲尔辛辛那提的创新能力。我们已经成功研发出市场上前所未有的极其强劲且高效的加工处理单元。”巴顿菲尔辛辛那提首席销售与营销官 Grant Flaharty 强调。

结合这款新型 PO 生产挤出机，巴顿菲尔辛辛那提将展示另一项创新：快速模具规格转换 (FDC) 系统。三个部件 (管模头、定径套和真空箱) 将在展台一并展出。

solEX NG 系列挤出机突显出一个全新的加工处理单元，提供众多优点，如更低熔温和能耗降低达 15%

The solEX NG extruder series features a completely new processing unit that offers a multitude of advantages, such as a lower melt temperature and energy costs reduced by up to 15%



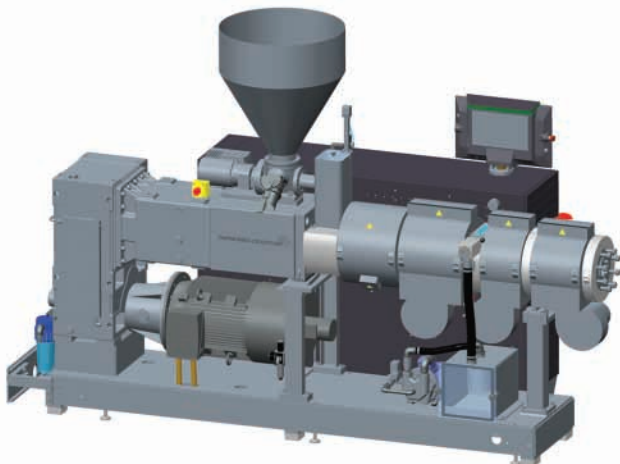
(快速模具规格转换) FDC系统使生产中管材规格尺寸更换成为可能。届时将于展台展出该系统的3个主要部件：模头、定径套和真空箱

The FDC (fast dimension change) system enables pipe dimension changes during production. Three components of the system will be shown at battenfeld-cincinnati's booth: pipe head, calibration sleeve and vacuum tank

凭借FDC快速模具规格转换技术，模具的更换很大程度上不需要了，因为熔体间隙是可调节的。所以，它可以在广泛的管材直径范围中通用。管外表面适配器首次被集成到可调节模头中，提供了当前最短的清洗换料时间（如颜色更换过程）。取代了固有的定径套，FDC定径套又多了可移动单元组成，可被调整适用于几乎所有的管材直径，且不会在成品上留下任何印迹。最后，1.5m长的FDC真空箱有剪叉式升降台，可以由伺服电机调整任何高度。独特、灵活而尤其简易调节的密封技术确保了真空箱的稳妥密封。

conEX NG系列突显出一个全新研发的加工处理单元，极具灵活性和非常高效节能。届时，将一同展出作为独立挤出机，和安装在基座上作为共挤机的conEX NG挤出机

The conEX NG series features a newly developed processing unit and is extremely flexible and energy-efficient. Both a stand-alone execution and a co-extrusion execution mounted on a pedestal will be exhibited



The new single screw extruder soLEX NG 75 for the production of PO pipe will definitely be a highlight at the booth. Based on the soLEX series, which is already established in the market, the NG series offers a completely re-designed barrel-screw combination. With this, battenfeld-cincinnati sets new benchmarks in the market in terms of output and energy consumption. The advantages of the "Next Generation" are lower melt temperatures, optimized, constant pressure build-up and reduced maintenance costs with significantly higher outputs compared to the previous models. Thanks to the lower drive energy and reduced energy losses, energy costs can be decreased by up to 15%. "With the design of the new NG series we again prove our innovativeness. We have succeeded in developing an extremely powerful and energy-efficient processing unit that has not yet been seen on the market in this form," emphasizes Grant Flaharty, battenfeld-cincinnati's Chief Sales and Marketing Officer.

In combination with the new PO extruder, the machinery manufacturer will show another innovation: the Fast Dimension Change (FDC) system. At the booth, three components will be shown – the pipe head, the calibration sleeve and the vacuum tank. With the FDC pipe head, die changes are largely unnecessary, thanks to an adjustable melt gap. Therefore, it can be used universally for a wide pipe diameter range. For the first time, an adapter for the outer layer has been integrated in the adjustable die, offering the shortest purging times currently available, for example during a color change. Instead of a rigid calibration cylinder, the FDC calibration sleeve consists of movable elements that can be adjusted to almost every diameter, but do not leave any markings on the final product. Finally, the 1.5 m long FDC vacuum tank has scissors lift tables that allow the adjustment to every height with servomotors. A unique flexible and, above all, easily adjustable sealing technology ensures a secure sealing of the vacuum tank.

Multi-Touch roll stack reaps success worldwide

"We have proven in the past years that we are optimally prepared for the growth market packaging sheet with our high-speed extruders and the Multi-Touch roll stack which is unique in the industry. Customers all over the world have decided in favor of this technology and we have installed numerous systems worldwide," Dr. Henning Stieglitz, Chief Technology Officer, is pleased to report about the market success of thermoforming sheet extrusion equipment. This is why the machinery manufacturer will show a Multi-Touch roll stack at its booth – this time in a XXL-version. Multi-Touch roll stacks work with a combination of a roll stack with two rolls for pre-calibration and three, five or seven rolls in post-calibration. So they produce stress-free sheet with thickness tolerances of +/- 1% at high speeds. The newly developed XXL roll stack shows exceptionally high performance. Outputs of more than 3 t/h can be realized depending on the width and thickness of the sheet while at the same time there are no compromises in sheet quality.

Of course, a complete extrusion line also requires a matching control technology. Here, too, flexibility is key. A new control with a modern 21.5" full-HD multitouch display in landscape format will be presented at the booth. Not only does it offer a novel operating and visualization concept, but also additional features that are a perfect tool for processors in the realization of industry 4.0 agendas.

Multi-Touch (多重触控) 压光机在全球大获成功

“过去几年的实践证明，凭借我们的高速挤出机和行业中独一无二的 Multi-Touch (多重触控) 压光机，我们对包装挤出片材市场的增长做了最佳的准备。来自世界各地的客户都青睐这项技术，我们已经在世界各地成功安装了许多套这系统。”首席技术官 Henning Stieglitz 博士高兴地分享了热成型片材挤出设备在市场上的成功。这是将在展台展出 Multi-Touch (多重触控) 压光机的缘由——这次展出的是 XXL 版本。Multi-Touch (多重触控) 压光机通过带有两个轱的压光机进行预定型，然后通过三轱、五轱或七轱进行后续校正定型。因此，可以快速地生产出厚度公差 +/-1% 的无应力片材。新研发的 XXL 压光机显示出与众不同的高性能。在不损害片材质量的同时，根据片材的宽度和厚度不同，挤出机产量可达到 3 吨/小时以上。

当然，成套挤出整线也要求与之相匹配的控制技术。灵活性在这里同样关键。一个带有先进的 21.5" 全高清多点触控横摆格式的新控制系统将在展台上展出。它不仅提供新颖的操作和可视化的理念，同时还具有多种额外特性，作为一个信息处理器成为实现工业 4.0 的完美工具。

灵活性对双螺杆挤出机至关重要

最后，巴顿菲尔辛辛那提产品组合在展台上还会展出几台用于管材和型材生产的双螺杆挤出机。两个全新研发的锥形双螺杆挤出机系列是此次展会亮点，得益于全新设计的加工处理单元，提供了极其广泛的应用范围。除了加工处理技术外，整套挤出机根据现场生产经验进行了重新设计和优化。“研发这个系列的过程中，除了其他考虑之外，我们还在考虑日益增长的窗型材生产商的需求。这些设备提供了一个广泛的产量范围，以及加工处理多种不同配方的可能性。”Stieglitz 博士在提及新系列优势的时候强调。除了灵活性，挤出机在熔体加工处理的平稳性和机器操作的便捷性上也令人信服。

2016 德国 K 展上，有两款来自全新系列的挤出机将亮相展台：一台独立操作的 conEX NG 65 挤出机和一台用作共挤挤出的 conEX NG 54 挤出机。后者安装在底座上，与作为主挤出机的 twinEX 93EP 组合在一起。这种新的底座组合解决方案适合多种应用组合，得益于其模块化系统，可根据现场需求进行单独调整。所展示的所有组合均体现加工处理单元的最高灵活性和最佳的性价比。此外，conEX NG 54 会突出一系列重要节能组件。这包括一个同步电动机和其他各种附件，使得挤出机的能耗显著降低。




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Hall 16, Booth B19

battenfeld-cincinnati
32547 Bad Oeynhausen, Germany
1230 Vienna, Austria
www.battenfeld-cincinnati.com

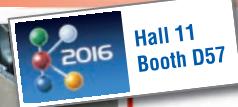
Flexibility is paramount for twin screw extruders

The machine portfolio at the booth is completed by several twin screw extruder exhibits for pipe and profile production. The highlight are two models from the completely newly developed conical twin screw extruder series that offers an exceptionally wide application range thanks to a newly designed processing unit. Apart from the processing technology, the complete machine was redesigned and optimized based on experiences in the field. "With this series we take into account, among other considerations, the increasing requirements of window profile producers. The machines offer a wide throughput range, as well as the possibility of processing diverse formulations," emphasizes Dr. Stieglitz in speaking of the new series' advantages. In addition to their flexibility, the extruders convince with gentle melt processing and easy handling.


At K 2016, two extruders from the new series will be shown: a conEX NG 65 in stand-alone execution and a conEX NG 54 in a co-extrusion set-up. The latter is mounted on a pedestal and combined with a twinEX 93EP as main extruder. This new pedestal solution is suitable for a variety of set-up options and can be adjusted individually to the location's requirements thanks to its modular system. The set-up on display offers processors highest flexibility and an optimal price-performance ratio. In addition, the conEX NG 54 will feature an energy-saving kit. This includes a synchronous motor and a variety of additional features that significantly reduce the extruder's energy consumption.




ERGE Elektrowärmetechnik
Franz Messer GmbH
91220 Schnaittach · Hersbrucker Straße 29-31
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ELEKTROWÄRMETECHNIK

干燥，储存，混合，输送以及计量

Periphery: Drying, Storing, Mixing, Conveying and Dosing

凯恩伯格设备技术有限公司 (KREYENBORG) 总部位于德国西北部明斯特兰地区 (Münsterland) 的森登 (Senden)。在德国杜塞尔多夫2016K展举办期间，公司将推介他们产品丰富多彩的信息，这些产品适合于在塑料、食品和化学工业中高效处理散状物料。今年的主题范围特别着重于干燥和结晶，以及散状物料处理工艺的综合解决方案。

On the occasion of the K2016 in Düsseldorf, Germany, KREYENBORG Plant Technology GmbH, based in Senden, in northwestern Germany's Münsterland region, will be presenting information regarding their wide assortment of efficient bulk material handling in the plastic-, food- and chemical industries. Particular focus this year will be on the range of topics regarding drying and crystallizing, as well as comprehensive solutions for bulk-material handling processes.

凯恩伯格的旋转式红外干燥机IRD，其应用范围几乎没有限制。IRD可用于纯新原料或再生原料的结晶和干燥，适合于一系列的各种塑料原料，如ABS, EVA, HDPE, PC, PEEK, PET, PLA, PPS, PTFE, TPE和TPU。通过使用连续运转的IRD旋转式红外干燥机，可以完全淘汰使用干燥空气的能源密集型干燥工艺，很容易地获得平均节能降耗30%的效果。原料由红外光直接加热，被格外温和地处理，这样潮气的蒸发是从原料的内核向外部传送的。物料被均衡地输送通过机器，并且通过旋转鼓的旋转精细地循环以及均匀地被加热。这种方式能够消除原料结块现象。旋转速度低，避免了产品的破碎、磨损以及粉尘的产生。此外，在大量的应用中，采用旋转式红外干燥机对现有的设备进行改造，能够显著地增加设备的产量，同时能够提高产品的质量。通过对原料进行最佳的连续和恒定的预干燥，挤出机的负载也得以减轻。

干燥：凯恩伯格新型PET-BOOSTER系统介绍

凯恩伯格将首次展出新型PET-BOOSTER系统。这种系统连续运转，PET原料只需7到10分钟即可干燥。这里特别要重点介绍采用带排气的挤出机（双螺杆，行星式和多螺杆挤出机）对塑料薄膜和纤维的挤出。不同含潮量的原料会导致挤出加工过程中的波动（以及最终产品质量的波动），凯恩伯格的PET-BOOSTER可以消除这一现象。通过稳定一致地喂入预热过的含潮量低的物料，可以采用较小的挤出机和真空排气系统。对于现有的设备，安装PET-BOOSTER系统可实现产量迅速提升30%。还有更多的附加收益：来自真空



IRD旋转式红外干燥机
IRD Infrared Rotary Dryer

系统的有毒的液体沉淀物减少了50%。这样，投资在很短的时间内就得到了偿还。

粒子的涂覆

旋转式红外干燥机还有特别的用途，就是对粒子进行粉末或液体涂覆。物料的稳定的再循环并且同时进行加热，保证了涂覆介质非常均匀地湿润和粘附在粒子上。

新产品！气力输送系统

在K展上，凯恩伯格将首次展出其新型气力输送系统。得益于在流动性差的散状物料（例如瓶片或薄膜碎片这样依然代表着挑战的原料）输送方面多年的经验，凯恩伯格已经将料斗装载机集成到了工艺过程中。输送设备以其避免了搭桥的容器几何形状或内置架桥破碎机而闻名。标准的容器带有非常大的排料口。输送设备配备了紧凑的中央过滤器单元，有着大的过滤面积，以满足输送带有粉尘的再生料的要求。输送系统可以组合其它凯恩伯格部件成为完善的系统并整合到凯恩伯格的PLC控制中。这一扩展的凯恩伯格交钥匙解决方案用于散状物料的处理是十分出色的。

混合，散状物料混料，快速，精确，并且温和

凯恩伯格混合及喂料系统的突出特点是：将重点放在非常特殊的特定的散状物料。凯恩伯格通用型快速混合器的特点是：非常精确的混合以及对流动性不足的散装物料进行均质化。另一方面，凯恩伯格母料混合机显示了其价值：能够快速和温和地混合以及均质化敏感的散状物料。

凯恩伯格料仓，包括纤维及碎片料仓，适用于那些常规系统不能可靠工作的场合。尤其适合于塑料和食品行业，用来存储和排放非常轻质的散状物料。可靠的物料处理对于加工来说是必不可少的。这类物料典型的堆积密度是0.02 km/dm³，边长30mm，对于凯恩伯格的料仓来说，处理这类物料是没有问题的。

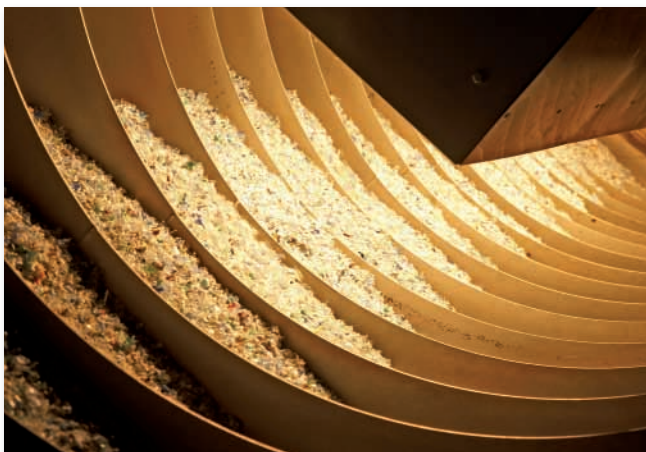
The range of applications of the KREYENBORG Infrared Rotary Dryers IRD is nearly unlimited. The IRD is used for crystallizing and drying virgin or regrind materials for a series of plastics, such as ABS, EVA, HDPE, PC, PEEK, PET, PLA, PPS, PTFE, TPE, and TPU. Through the use of the continuously functioning IRD, the need for energy-intensive processing using dry air is completely eliminated, easily resulting in energy savings of an average of 30%. The raw material is heated directly with infrared light that works especially gently, so that the vaporizing moisture is diverted from the core of the material toward the outside. The raw material is conveyed evenly through the machine, and by the rotating of the drum carefully circulated and evenly heated. This eliminates clumping. The low rotation speed prevents breaking, abrasion and raising of dust from the product.

Moreover, in a multitude of applications, a retrofitting of the IRD into existing plants significantly increases plant throughput, as well increasing the quality of the product. Through optimal, continuous, and constant pre-drying of the material, the load is taken off of the extruder.

Drying: Presentation of the New KREYENBORG PET-BOOSTER

For the first time, KREYENBORG will present their new PET-BOOSTER. This continuously operating system dries PET within 7 to 10 minutes. Focus here is specifically on applications in extrusion of plastic films and fibers with degassing extruders (twin-screw, planetary and multi-screw-extruders). Varying levels of input moisture that results in process fluctuations in the extrusion process (as well as fluctuations in end-product quality) can be eliminated with the KREYENBORG PET-BOOSTER. By feeding pre-heated material with a consistent, low input moisture level, a smaller extruder and vacuum degassing system can be used. With existing plants, a quick 30% increase in throughput can be realized with the installation of the PET-BOOSTER. A further positive side-benefit: the toxic liquid precipitate from the vacuum system is reduced by up to 50%. The investment is thereby amortized in a very short period of time.

IRD (内部)
IRD (interior)



Coating of Granulates

A specialty application of the IRD lies in the coating of granulates with powders or liquids. The constant recirculation of the materials with simultaneous heat input guarantees a very homogenous moistening and adhesion of the coating medium to the granulate.

New Product! Pneumatic Conveying Systems

At the K, KREYENBORG will present, for the first time, their new pneumatic conveying system. Owing to many years' experience with the conveying of poorly-flowing bulk materials, as for example bottle flakes or film flakes, that still present a challenge, KREYENBORG has incorporated hopper loaders into the process. The conveyers are distinguished by their container geometries that avoid bridging or even have internal bridge-breakers. The containers come standard with an extremely large outlet. The conveyors have a compact central filter unit with a large filter area, to meet the requirements for dusty regrind materials.

The conveying systems can be combined with additional KREYENBORG components for complete systems and integrated into KREYENBORG PLC-Control. This enlarges KREYENBORG's turn-key solutions excellence for bulk material handling.

Mixing. Blending Bulk Materials. Fast, Precise, and Gentle

KREYENBORG mixing- and feeding systems are distinguished by a very specific focus on the particular bulk material used. The KREYENBORG Universal Quick Mixer features extremely precise mixing and homogenizing of bulk materials with limited flow properties.

The KREYENBORG Masterbatch Mixer on the other hand shows its value through fast and gentle mixing and homogenizing of sensitive bulk materials.

The KREYENBORG silos, including its fiber- and flake silos, are used where conventional systems no longer work reliably. Particularly with storage and discharging of very light bulk materials in the plastic and food industries, dependable material handling is essential for the process. Typical bulk density of 0.02 km/dm³ and an edge length of 30 mm are no problem for KREYENBORG silos.



16号展馆, 展台号C18
Halle 9, Stand A55

KREYENBORG Plant Technology GmbH & Co. KG
Messingweg 18, 48308 Senden, Germany
www.kreyenborg.com

Levapren在电力电缆应用上的优势

■ 在2016年K展期间，ARLANXEO公司将重点推介Levapren（乙烯-醋酸乙烯酯橡胶EVM弹性体）对于生产商和最终用户所带来的效益。访问ARLANXEO展台的来宾将可以了解到无卤素乙烯-醋酸乙烯酯橡胶（EVM）如何能够有利于显著地减少发电机内部或其附近火灾的蔓延，以及减轻随后由于盐酸腐蚀所造成的损害，从而保护大型设施，防备火灾的投资是相当重要的。

按照特殊配方制造的乙烯-醋酸乙烯酯橡胶Levapren 500和700混合料应用于风力涡轮机的舱室是非常理想的，尤其是用作电缆护套，因为这种物料不含卤素，因此不会在着火时散发出高腐蚀性的盐酸气体，而基于卤素的物料在火中通常会散发这种腐蚀性气体。除了不含卤素外，Levapren EVM乙烯-醋酸乙烯酯橡胶弹性体的醋酸乙烯酯（VA）含量相当高，具有很高的极性，可以与极性填充料相容。这种物料可以含有大量无机的无卤素阻燃剂-例如铝或镁氢氧化物-当接触到润滑脂时，极性橡胶原料不会发生膨胀。Levapren 500和Levapren 700不会吸收周围机械的润滑油或油脂，因此在发生火灾时，被吸收的燃烧的碳氢化合物将不会破坏电缆护套的阻燃特性。

Levapren有着特别广泛地分布和良好地控制的分子量。此外，这种产品是无凝胶点的，这对于物料的易于加工性以及保证最终产品的质量都有着良好的作用。

谈起Levapren在高压电缆上的应用，ARLANXEO公司的CR/EVM技术和市场部经理Jörg Stumbaum说道：“风力被认为是对环境最为友好的能源之一。但是，强大的电流会以超过500V

的电压流经大型风力涡轮机。尽管风力涡轮机的火灾风险不会比任何其它保养良好的技术设施更高，但如果火灾突然发生，例如由于电气短路或雷击，那么，由于安装部件的发电机机舱处于非常高的空中，火灾将远远更为难以扑灭。此外，如果发生火灾，其后果（即卤素气体的腐蚀）必须尽可能限制在最小范围。所以，对于运营者来说，通过选择Levapren EVM弹性体进行重点防护是有必要的。”

Levapren是CR/EVM商业化生产线的产品，是“高性能弹性体业务单元”的一部分。

■ **Benefits of Levapren for Alternative Energy Cable Applications:** At K 2016, ARLANXEO is focusing on the benefits of Levapren EVM Elastomers for processors and end users. Visitors to the ARLANXEO stand will be able to learn how the halogen-free ethylene-vinyl acetate synthetic rubber (EVM) helps to significantly reduce the spread of fire and the subsequent damage due to hydrochloric acid corrosion in or near generators, thus protecting large installations and considerable investments in the event of fire.

Specially formulated Levapren 500 and Levapren 700 compounds are ideally suited for use in nacelles of wind turbines, specifically in the cable sheathing, because they contain no halogens, so they do not emit the highly corrosive hydrochloric acid gas normally released by halogen-based materials in a fire. In addition to being halogen-free, these Levapren EVM grades have a comparatively high vinyl acetate (VA) content which makes them compatible with polar fillers thanks to their high polarity. They can contain large quantities of inorganic, halogen-free flame retardants, such as aluminium or magnesium hydroxide – and the polar rubber raw material does not swell in the presence of lubricating greases. Levapren 500 and Levapren 700 do not absorb oil or grease from the surrounding machinery, so in the event of a fire, absorbed burning hydrocarbons will not destroy the flame suppressing properties of the cable jacket.

The molecular weight of Levapren is particularly widely distributed and well controlled. In addition, it is a gel-free pro-



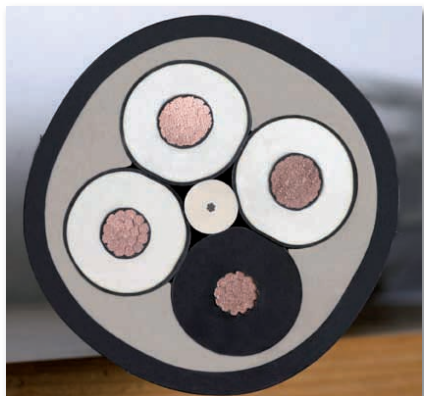
近海风力发电塔群
Offshore windmill park
(Photos: ARLANXEO)

duct, which has a positive effect on the processability of the material and the quality of the end product.

Talking about Levapren in high voltage energy cable applications, Jörg Stumbaum, Manager Technical Marketing CR/EVM at ARLANXEO, said: “Wind power is considered to be one of the most environmentally friendly sources of energy. However, strong electrical currents flow through large wind turbines at voltages of over 500 volts. Although the risk of fire is not greater in wind turbines than in any other well-maintained technical installations, if fire should break out – for instance because of an electrical short or lightning strike – it is much more difficult to extinguish, since the components that house the generators are very high up in the air. And if a fire does occur, the consequences (e.g. corrosion by halogenic gases) must be minimized as much as possible. So it makes sense for operators to focus on prevention by choosing Levapren EVM elastomer.”

Levapren is a product of the business line CR/EVM which is part of the business unit High Performance Elastomers.

风力发电塔电缆截面
Windmill cable cross section



► ARLANXEO Holding B.V.
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K 2016: Hall 06, Stand C78
06号展馆, 展台号: C78

新开发的可持续性塑料原料，创造了更多的价值，让世界成为更加明亮的地方

■ 2016年德国杜塞尔多夫的K展将成为科思创 (Covestro,即原来的拜耳材料科技) 发展过程中的标志, 公司将在这届展会上采用新的名称参展。

公司积极应对重要的发展潮流, 采用创造性的可持续性的物料解决方案, 通过努力勇敢地超越现有的极限, 使世界成为更加明亮的地方。参加这个全球塑料行业首屈一指盛会的来宾, 可以在科思创的展台上看到展示样品: 这些产品和技术可应用于汽车工业、建筑业和电子工业, 同样, 在卫生保健、化妆品、运动和服装等领域有着新的出人意料的应用。

科思创的首席执行官 Patrick Thomas向记者表示: “通过我们的持续开发, 提供了越来越多的可持续发展的产品和工艺。我们的愿望是实现许多由联合国在去年列出的可持续发展目标。我们的主要目标是提高能源效率, 改善人们的生活并且创造价值, 与此同时减少我们对化石资源的使用。但是这类开发如果缺少了集中的有针对性的创新, 是不可能完成的。”科思创公司负责创新的董事会成员Markus Steilemann博士进一步指出: “沿着这条道路前进, 我们同样必须质疑以前的心态和模式, 并跨越现有的边界。”

在科思创, 与大学和科技学院合作开展研究尤其受到重视, 为此, 公司将首次在K2016期间举办科技庆典, 将荣誉授予大学的教授, 以表彰他或她在科学发展方面开拓进取的成就。

电动汽车新的设计理念:

这次展会的亮点之一, 就是融合了当前外部设计潮流的电动汽车新设计理念。Markus Steilemann说道: “这一新理念是我们在增强可持续性和开创性的驱动技术方面的贡献。”在K2016展会上, 梦幻的理念将以当代的电动汽车形式呈现出来。

开创性的材料开发成就来自于科思创, 采用这一成果能够设计出前端不带有任何可见接缝的前所未有的产品: 全息照明灯。照明灯和照明效果本身现在已经成为了形成风格的要素, 弧形包围的透明罩由聚碳酸酯制成, 采用具有可持续性的涂层和粘合剂系统, 充分体现了这一理念。

■ *Creating value added with plastics: Innovative and sustainable materials help make the world a brighter place: K 2016 in Düsseldorf/Germany marks the first time that Covestro, for-*



随着整体式前大灯和尾灯的出现, 汽车照明灯正在进入全新的时代, 即由表面发光材料所开创的时代: 照明灯及其照明效果现在是形成风格的要素。科思创 (Covestro) 采用新设计理念, 携手汽车工业供应商海拉 (HELLA) 开发出了一套基于全息薄膜的创新解决方案。

Automotive lighting is entering a totally new dimension defined by luminous surfaces with integrated headlamps and rear lights: Light and the lighting effect itself is now the styling element. For the new design concept, Covestro has developed an innovative solution based on holographic films, together with automotive supplier HELLA

merly Bayer MaterialScience, is appearing at the show under its new name. The company responds to key trends with its innovative and sustainable material solutions, courageously going beyond existing limits in its efforts to make the world a brighter place. Visitors to this premier gathering for the global plastics industry can find examples on display at Covestro's Stand: Products and technologies for the automotive, building and electronics industries, but also new and unexpected applications in the fields of health, cosmetics, sports and fashion.

“Through our continuous development to deliver more sustainable products and processes, we aim to address many of the Sustainable Development Goals outlined by the United Nations last year,” said Covestro CEO Patrick Thomas to journalists. “Our main objective is to drive energy efficiency, improve people's lives and create value, while at the same time reducing our own use of fossil resources. But developments of this kind are impossible without intensive and targeted innovation.” Dr. Markus Steilemann, Management Board Member responsible for Innovation, added: “Along the way, we also have to question previous mindsets and models, and push existing boundaries.”

Partnering with universities and scientific institutes is particularly important to research at Covestro. For this reason, the company will be holding a Science Celebration for the first time at K 2016 to honor a university professor for his or her pioneering scientific developments.

New design concept for electric cars:

One of the highlights of the trade fair exhibit is a new design concept for electric cars incorporating current trends in exterior design. “The concept is our contribution to expanding this sustainable and pioneering drive technology,” said Markus Steilemann. At K 2016 the visionary concept is to be presented in the form of a contemporary electric car.

Groundbreaking materials developments from Covestro make it possible to design the front-end without any visible seams and with innovative holographic lighting. Light and the lighting effect itself now becomes the styling element. The wrap-around glazing made of polycarbonate and the use of sustainable coating and adhesive systems round out the concept.

► Covestro

www.covestro.com

K 2016: Halle 06 Stand 75A

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P.O.Box 12 60 · 76339 Eggenstein-Leopoldshafen/Germany

Tel. +49/721/700 626 · Fax +49/721/62 71 02 66 · e-mail: i.boehle@vm-verlag.com

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