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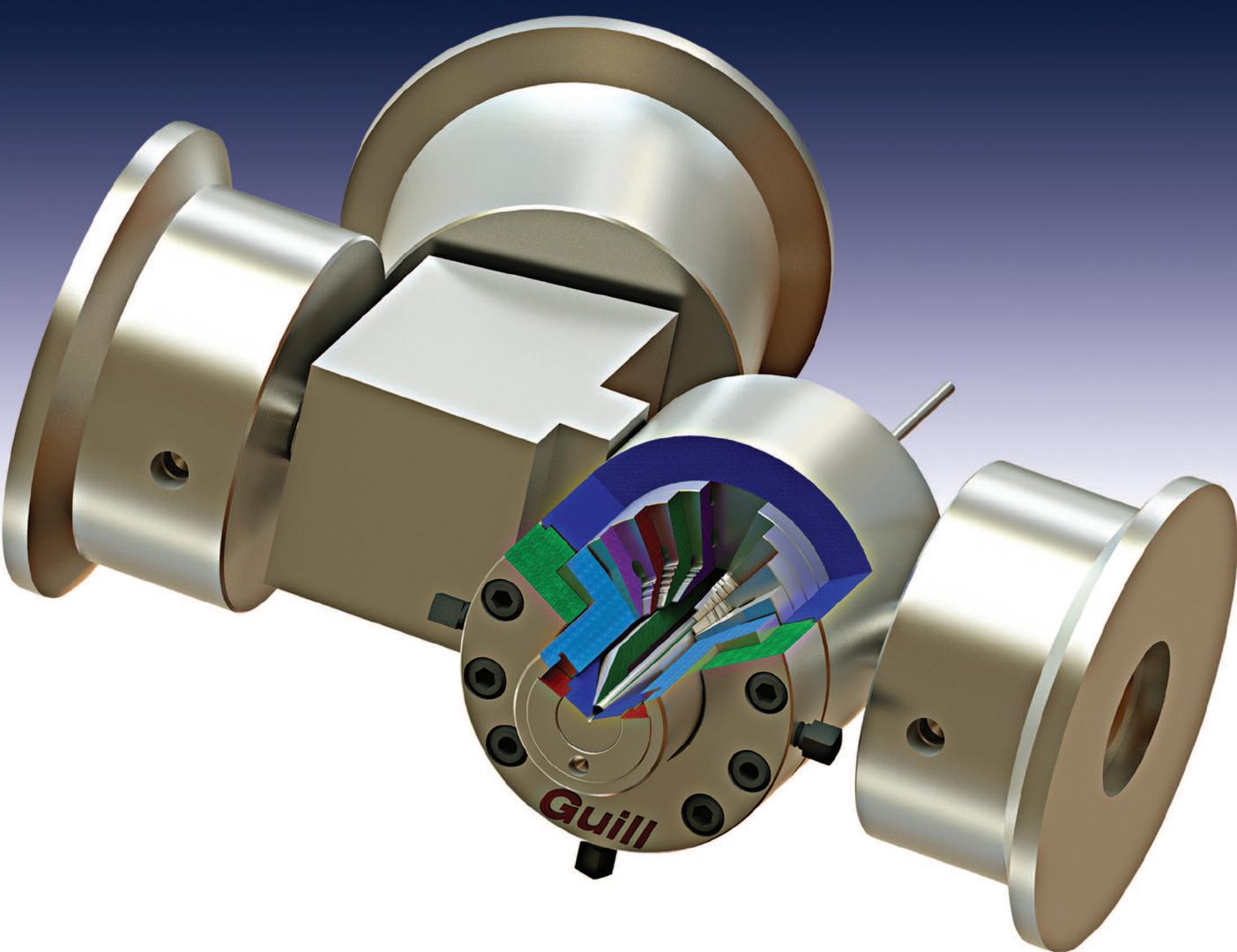
# EXTRUSION

ASIA EDITION



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### 大口径双壁波纹管生产线

Double Wall Corrugated Pipe Extrusion Line



### PVC 木塑快装墙板生产线

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*KraussMaffei Berstorff presents premium quality solutions in PVC and PO pipe extrusion at Chinaplas.*

在今年的中国国际橡塑展上ProTec将展出经济地生产高质量LFT ( 长纤维增强热塑性塑料 ) 颗粒料的拉挤生产线。

*At this year's Chinaplas ProTec will be presenting pultrusion lines for economically producing high-quality long fiber reinforced thermoplastics (LFT).*



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格诺斯展示最新的过滤,挤出和测量技术: 专利的RSFgenius 过滤系统全自动化操作,加工和压力始终恒定,通过反冲自清洗功能实现无以伦比的高效。

*Innovative Filtration, Extrusion and Measurement Technology: The patented Rotary Filtration Systems are characterized by the filter disk on which the screen cavities are located in a ring pattern and which is completely encapsulated by the two filter blocks.*

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*Highest accuracy, robustness, reliability and functionality distinguish all the laser measuring heads from ZUMBACH.*

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**Chinaplas 2018**

24. - 27. 04. 2018

Shanghai / P.R. China 上海 / 中國

➡ Adsale

[www.CchinaplasOnline.com](http://www.CchinaplasOnline.com)**NPE 2018**

07. - 11. 05. 2018

Orlando, Florida / USA

佛罗里达奥兰多 / 美国

➡ [www.npe.org](http://www.npe.org)**PLASTIC OSAKA**

09. - 11. 05. 2018

Osaka / Japan 大阪 / 日本

➡ [www.plas-kansai.jp/en/](http://www.plas-kansai.jp/en/)**Plast Milano**

29. 05. - 01. 06. 2018

Milan / Italy 米兰 / 意大利

➡ PROMAPLAST srl

[www.plastonline.org](http://www.plastonline.org)**PETnology Americas 2018**

26. - 26. 06. 2018

Atlanta, Georgia / USA

美国佐治亚州亚特兰大 / 美国

➡ PETnology/tecPET GmbH

[www.petnologyamericas.com](http://www.petnologyamericas.com)**Colombia Plast 2018**

24. - 28. 09. 2018

Bogotá / Colombia 波哥大 / 哥伦比亚

➡ Acoplasticos

[www.colombioplast.org](http://www.colombioplast.org)**Plastic Packaging and the EU Plastics Strategy**

25. 09. 2018

Brussels / Belgium 布鲁塞尔 / 比利时

➡ European Plastics Converters  
[plasticsconverters.eu](http://plasticsconverters.eu)**Powtech India**

11. - 13. 10. 2018

Mumbai / India 孟买 / 印度

➡ NuernbergMesse India Pvt. Ltd.  
[powtechindia.com](http://powtechindia.com)**Fakuma 2018**

16. - 20. 10. 2018

Friedrichshafen / Germany

腓德列斯哈芬 / 德國

➡ P. E. Schall GmbH & Co. KG  
[www.fakuma-messe.de](http://www.fakuma-messe.de)

## Maag在上海和广州新工厂开业

### New Facilities in Shanghai and Guangzhou

■ 致力于为塑料、化工、制药和食品行业提供齿轮泵、造粒系统、过滤系统和粉碎机的全球领先制造商Maag，隆重宣布两座全新工厂开业。这使Maag能够为中国市场提供更加完善的服务。

第一座厂区占地4000平方米，位于上海嘉定区。这座更宽敞的工厂可帮助Maag更好地向中国市场的客户展示其造粒机、齿轮泵和粉碎机产品组合，并强调其子品牌Gala和RE Scheer的技术实力。厂区将包含Maag泵和造粒机等产品的生产区域，以及用于销售、应用服务和售后支持的办公区。新工厂目前有80名员工，配备了中国最大的动刀研磨中心，每年可研磨多达2000个动刀。这使Maag能够为客户提供更高效、更完善的服务和解决方案。

第二座工厂是位于广州市的一个全新动刀研磨中心，它将为中国南方的客户带来与上海工厂和Maag在世界各地的其他研磨中心同等高质量的研磨服务。此外，该工厂还正在建造一座应用/技术实验室，以便进行包括Maag、Gala和RE Scheer在内的所有Maag产品的现场演示。并且，新工厂也将成为该地区全新销售中心。

larger, more spacious facility will help Maag better showcase its portfolio of pelletizer, gear pump and pulverizer products to its customers in this market, as well as highlight the capabilities of its Gala and RE Scheer brands. The facility will include production for Maag's pumps and pelletizers as well as offices for its sales, service and after sales support. The new facility currently houses 80 employees and features the largest rotor-regrinding center in China, with the ability to process up to 2,000 rotors per year. This will all enable Maag to offer better, more complete service and solutions to its customers.

The second facility is a brand-new rotor-regrinding center in the city of Guangzhou, which will introduce Maag's high-quality rotor-regrinding services to its large client base in the south of China. The rotor-regrinding center will offer the same high level of quality and service as that found in the Shanghai facility and Maag's other grinding centers around the world. In addition, an applications / technical lab is being set up at the facility, which will allow hands-on demonstrations of all Maag products, including those from Maag, Gala and RE Scheer. Finally, the facility will be home to a new sales office for the region.

➡ **Maag**  
[www.maag.com](http://www.maag.com)

### New Facilities in Shanghai and Guangzhou

■ Maag announced the opening of two new facilities that will serve the Chinese market. The first is a new 4,000 m<sup>2</sup> facility in the Jiading District of Shanghai. This

中国Maag上海新工厂开业典礼  
*Opening Ceremony at Maag Shanghai, China*



## 战略合作

■ 2017年9月9日，普发真空与兰州空间物理研究所(LIP)在德国阿斯拉尔(Asllar)签署战略合作协议。作为中国真空学会的创始人之一，兰州物理空间研究所是中国真空技术的先驱。LIP也是中国第一批直接从事卫星和航天器研究开发的机构之一，因此自1968年以来一直是空间技术研究院(CAST)的一部分。普发真空与LIP将在研发方面合作，为航空航天应用、真空计量、真空校准和其他应用提供真空解决方案。

两家机构的强强合作符合双方的共

同利益。普发真空致力于提供全面的解决方案、产品和服务，包括真空获得、测量检测和气体分析设备、复杂的真空系统及其全球销售和服务网络，而LIP在真空技术方面的研究水平在中国也处于领先地位。

2017年10月17日，LIP-普发真空真空技术联合中心在甘肃省兰州市成立。该中心将为未来的项目和联合开发提供平台。正如LIP在开幕式上所提到的，它将把“中国制造2025”和德国的“工业4.0”进行对接。

普发真空与兰州物理研究所合作的启动正值普发真空在中国成立十周年——在中国坚定不移、敬业奉献的十年。“我们希望凭借丰富经验和先进技

术，可以提供领先的真空解决方案和一流的服务，从而为我们中国客户创造美好的未来。”普发真空技术(上海)有限公司总经理Vic Chen说。

### Strategic Cooperation

■ Pfeiffer Vacuum signed a strategic co-operation agreement with Lanzhou Institute of Physics (LIP) in Asllar, Germany. As one of the founders of the Chinese Vacuum Society, the Lanzhou Institute of Physics is a pioneer in vacuum technology in China. LIP is also one of the first institutes in China which has been directly engaged in satellite and spacecraft

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development and is therefore a part of the China Academy of Space Technology (CAST) since 1968. Pfeiffer Vacuum and LIP will cooperate in research and development to create vacuum solutions for aerospace applications, vacuum metrology, vacuum calibration and other applications.

The strong cooperation between the two companies is in line with the common interests of both sides. Pfeiffer Vacuum is contributing with its extensive line of solutions, products and services ranging from vacuum pumps, measurement and analysis equipment to complex vacuum systems and its global sales and service network, while LIP is introducing its leading position in the China vacuum industry. On October 17, 2017, the LIP-Pfeiffer Vacuum Joint Center for Vacuum Technology was established in Lanzhou, Gansu province. The center will provide the platform for future projects and joint developments. As mentioned by LIP during the opening ceremony, it will connect 'Made in China 2025' and the German



LIP-普发真空真空技术联合中心在中国甘肃省兰州市的揭幕仪式  
Unveiling ceremony of the LIP-Pfeiffer Vacuum Joint Center for Vacuum Technology in Lanzhou, Gansu Province, China

'Industry 4.0' initiatives. The start of the cooperation between Pfeiffer Vacuum and the Lanzhou Institute of Physics is in conjunction with the 10th anniversary of Pfeiffer Vacuum in China – 10 years of committed dedication in China. "We hope that with our experience and advanced technology we can provide leading

vacuum solutions and first-class service to create a bright future for our Chinese customers", said Vic Chen, General Manager of Pfeiffer Vacuum (Shanghai) Co., Ltd.

► Pfeiffer Vacuum GmbH  
Pfeiffer Vacuum (Shanghai) Co., Ltd.  
[www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

## 第二个完整的热灌装PET生产线安装

■ 中国一流饮料代加工南京紫泉饮料工业有限公司，再次寻求与西得乐合作，以丰富热灌装整线，提高生产能力。新生产线的运行速度达每小时36000瓶 (bph)，用于包装中国知名功能型饮料品牌“脉动”饮料。2013年，紫泉安装了一条类似的西得乐PET热灌装整线，反响良好。此次项目是双方的再次合作，这将使南京工厂的热灌装生产线达到三条。

紫泉管理层表示：“紫泉之前安装的西得乐生产线一直保持着95%以上的运行效率，在近期升级后，600ml瓶装饮料的生产速度从30000瓶/小时提升到34500瓶/小时。首条西得乐热灌装整线的出色性能和可靠性，让紫泉愿意将项目再次交给西得乐，提供类似的解决方案。”这两条西得乐生产线均配备西得乐SBO 20HR吹瓶机（20个吹瓶站）、西得乐Matrix™ SF700热灌装机、传送带、贴标机和包装机。这对紫泉的热灌装能力和PET瓶装脉动饮料的生产都有所推进。

紫泉选择西得乐的另一重要原因在于，在卫生设计和食品安全方面，西得

乐在中国市场享有良好的声誉。此外，西得乐在无菌生产领域也颇有建树，在市场上建立了信誉，这也进一步凸显西得乐承担热灌装等其他复杂应用项目的能力。西得乐拥有45年的热灌装经验，其成熟的热灌装解决方案全球装机量超过1000套。紫泉管理层表示：“西得乐在PET包装领域的专业能力，以及在热灌装应用方面的丰富经验，是我们选择该公司作为新生产线供应商的根本原因。此外，之前我们几家工厂有七条生产线成功投产西得乐HR吹瓶机，这样的合作经历让我们进一步深信，西得乐有能力承担南京新脉动饮料生产线项目。”西得乐HR吹瓶机可处理热灌装生产中通常涉及到的复杂情况，比如包装塌陷，以及需要确定最合适的工艺以确保包装瓶质量。

### Second Complete Hot Fill PET Line Installed

■ Nanjing Ziquan, one of China's leading co-packers, has turned again to Sidel to increase its hot fill production capacity of Mizone, a functional drink brand particu-



larly popular in China and packaged in PET, for which consumption is growing. The new line – running at a speed of 36,000 bottles per hour (bph) – follows positive feedback on a similar complete hot fill PET line installed in 2013. It brings the total number of hot fill lines installed in the Nanjing plant to three.

"The earlier Sidel line had been maintaining an operating efficiency of 95%+ and has even been upgraded recently, so that its output speeds for the 600ml bottle format increased from 30,000 bottles per hour to 34,500 bottles per hour," comments the management team of Nanjing Ziquan. "As a result of the excellent and reliable performance of this first complete hot fill line, we were happy to award the project for a similar solution once again to Sidel." Both Sidel

lines comprise a Sidel SBO Heat Resistant blower with 20 blowing stations, Sidel Matrix™ SF700 hot filler, conveyors, labeller and packer. They strengthen the installed base of hot fill complete lines in the Nanjing Ziquan plant and increase production capacity of Mizone in PET bottles.

Another key factor driving the supplier's choice was the reputation built by Sidel in China in terms of hygienic design and food safety. Helped by the company's success with aseptic production, it established Sidel's credentials and helped to strengthen its credibility in undertaking other complex applications such as hotfill. Sidel counts on 45 years of hotfilling experience, with more than 1,000 proven hotfill solutions installed worldwide. "Sidel's expertise in PET packaging and its extensive experience in hotfill applications were decisive drivers in our choice of supplier for this new line," states the management team of Nanjing Ziquan.

"And having previously had success with Sidel HR blowers on seven lines at our other sites, simply reinforced our belief in Sidel's capabilities of handling the new Mizone line at Nanjing Ziquan," the team adds. The Sidel HR blowers allows management of the complexities typically associated with hotfill production, such as the collapsing of packages, as well as the definition of the most-adapted process possible to ensure bottle quality.

► **Sidel Group**  
[www.sidel.com](http://www.sidel.com)

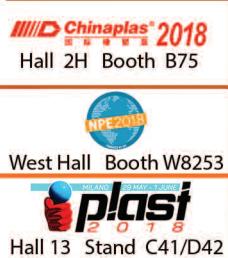
社会参与表现在2017年“同心、同力、同行”倡议活动中获得奖项。该倡议活动由中国德国商会（上海）、贝塔斯曼基金会和德国驻上海总领馆共同发起，旨在促进和激励在华德国企业充分践行企业家精神，积极履行社会责任。今年共有75个项目参与倡议活动，而顺德考特斯凭借其在企业内部引入德国双元制职业教育制度的项目而获得高度认可。

近年来，广东省政府大力推进职业教育及培训的改革和发展。顺德考特斯于2016年引入基于德国标准的双元制职业教育制度，初步计划项目时间为三年。通过为期一年的仔细考察，顺德考特斯与广东省轻工职业技术学校和中国德国商会（上海）于上年共同签署了“德国双元制职业教育合作备忘录”。通过促进中国职业教育和培训的发展，该项目不仅能帮助职校学生提高实际操作技能，为今后进入就业市场做好准备，也让企业能够聘用到具备专业素质的员工。

作为该制度的重要一环，德国双元制职业教育培训师资质培训也刚在企业

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**50**  
1967 YEARS OF EXPERIENCE 2017

内部顺利完成。六名顺德考特斯职员通过考试，获得由德国工商大会上海代表处颁发的培训师资格证书。

### Rewarded for Dual Vocational Education System

■ Shunde Kautex, a daughter company of the German machine manufacturer Kautex Maschinenbau, was recently rewarded for its commitment in Chinese society for its social engagement in the 2017 "More than a Market" initiative. This initiative has been set up by the German Chamber of Commerce in China (Shanghai), together with the Bertelsmann Stiftung and the German Consulate General in Shanghai. It aims to pro-

mote and motivate China based German enterprises to fully implement the entrepreneurial spirit and actively fulfill their social responsibility. 75 projects have competed for this year's award and Shunde Kautex was rewarded for its outstanding performance in a Dual Vocational Education Project based on German Standards.

This project was launched in 2016 in response to the Guangdong government's development in vocational education and training (VET) and is planned for three years. After more than one year of investigation, the company last year signed the "Memorandum of VET Co-operation" with Guangdong Light Indus-

try and Technical School and AHK Shanghai (German Chambers of Commerce Worldwide Network). By supporting vocational education and training in China, the project not only benefits students from vocational schools by allowing them to expand their practical skills and prepare for entering the job market, but also benefits the company with recruiting qualified staff.

Six Shunde Kautex employees have passed a special qualification exam and received an AEVO certificate to qualify as trainers in the new Dual Vocational Education System.

► **Kautex Maschinenbau GmbH**  
www.kautex-group.com

## 收购

■ 从2018年1月17日起，EDS有限公司这家国际化的高端挤出模具供应商成为了莱芬豪舍集团的一部分。EDS是平模头方面的专家，总部位于德国北莱茵-威斯特法利亚的Reichshof-Wenrath。

EDS有限公司将作为在莱芬豪舍集团内独立的业务单位运作。原来的业主 Johannes P. Müller 将与莱芬豪舍集团的运营总监 Uwe Gaedike 一起继续经营 EDS 有限公司。Uwe Gaedike 同时负责发展莱芬豪舍集团的部件业务。

莱芬豪舍集团执行总裁 Bernd Reifenhäuser 指出：“当涉及到设计和生产方面的专业知识时，EDS 和莱芬豪舍能够绝佳地相互补充。作为高绩效的团队，我们将共同利用和发展我们的优势。在密切而负责任地与客户合作方

面，我们两家公司都享有盛誉。这就意味着客户可以从中获益，得到他们所需要的专业知识和支持。”EDS公司的总经理 Johannes P. Müller 说道：“我们以成为莱芬豪舍集团的一部分而感到荣幸。我们将结合我们双方的优势共享我们的技术和生产资源。再加上面向客户的全球销售网络，这些将显著地提升我们的运营能力。”

与这一收购相伴，莱芬豪舍继续保持着其战略方向：为了确保长期的成功，位于 Troisdorf 的莱芬豪舍集团总部通过自主开发和收购与市场相关技术方面的专有知识致力于保持技术领先的能力。“这一收购完美地补充了我们在模头产品方面现有的专门技术。”Uwe Gaedike 强调说。与模头专家 EDS 一起，莱芬豪舍朝着其“始终提供最好的挤出加工”这一目标迈出了重大的一步。说到模头产品，EDS 代表了特殊定制的产品。“与莱芬豪舍的产品专有技术一起，我们将发展强大的业务，销售一流的模头。”Uwe Gaedike 解释道。

前EDS业主，现任总经理 Johannes P. Müller (左) 和莱芬豪舍集团执行总裁 Bernd Reifenhäuser

*Johannes P. Müller,  
managing director and  
former owner of EDS  
(left) and Bernd  
Reifenhäuser, CEO of  
Reifenhäuser Group*

关于莱芬豪舍的战略，Gaedike 说道：“随着最新的并购，我们继续朝着提升我们自主设计和自主制造的核心竞争力这一目标前进。除了整机制造，我们将自己定位为挤出机和模头方面处于领先地位的技术部件供应商。”随着新增的业务单元，莱芬豪舍集团模头和薄膜模具的设计专门知识将得到显著增强。

“EDS 的卓越成就和我们共同的价值观是我们决心一起共创未来的基础。”Bernd Reifenhäuser 谈到收购时说道。两家公司都代表着高质量、训练有素的员工、先进的技术和可持续的商业模式。Bernd Reifenhäuser 说道：“我们欢迎所有来自 EDS 的员工，并期待着与这些行业著名的专家们合作。我们将一起共同前进。”

此外，莱芬豪舍将增强特里斯多夫工厂的生产能力，针对部件制作进行新的投资。EDS 位于 Reichshof 的工厂将转变成为模头技术和服务中心。

### Acquisition

■ As of January 17, 2018, EDS GmbH an international supplier of high-end extrusion tools is part of the Reifenhäuser Group. EDS is a specialist for flat dies with headquarters in Reichshof-Wenrath, North Rhine-Westphalia, Germany. EDS GmbH will operate within the Reifenhäuser Group as a separate independent business unit. Johannes P. Müller, the previous owner, will continue to run EDS GmbH, together with Uwe Gaedike, Director Operations at Reifen-



häuser, who is also responsible for developing the components business of the Reifenhäuser Group.

"EDS and Reifenhäuser complement one another excellently when it comes to design and production expertise. As an effective team, we will use and expand on our strengths together," says Bernd Reifenhäuser, Chair of the Management Board. "Both companies have a reputation for close and responsible collaboration with our customers. This means that customers can avail of the expertise and support that they require." Johannes P. Müller, Managing Director of EDS: "We are proud to now be a part of the Reifenhäuser Group. We will combine our strengths and pool our technology and production resources. This, along with a worldwide sales structure for our customers, will considerably increase our ability to perform."

With this take-over, Reifenhäuser remains faithful to its strategy: To ensure

its long-term success, the Troisdorf company strives for technological leadership through in-house developments and the acquisition of know-how in market-relevant technologies. "This take-over perfectly complements our existing expertise in die production," emphasizes Uwe Gaedike. With the die specialist EDS, Reifenhäuser takes a great stride towards its goal of always delivering the best extrusion process. When it comes to die production, EDS stands for tailor-made products. "Together with the Reifenhäuser production know-how we will develop a strong business for the sale of first-class dies," explains Uwe Gaedike.

"With the latest acquisition we continue to move towards our goal of designing and producing core competencies in-house. Besides machine manufacture, we are positioning ourselves as a leading technological component provider for extruders and dies," says Gaedike about Reifenhäuser's strategy. With the new

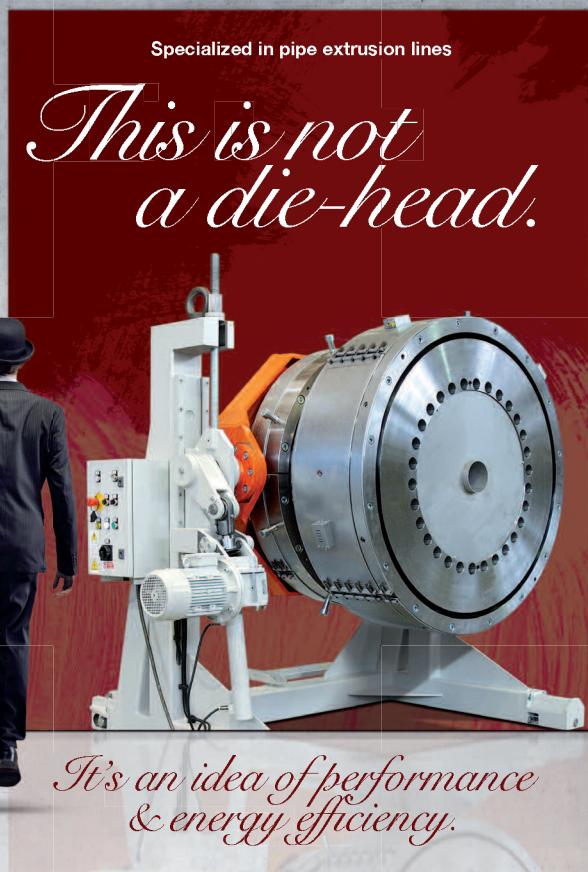
unit, the design know-how for die and film tools will be strengthened significantly.

"The excellence of EDS' work and our common understanding of values were the basis for our decision to enter talks on a future together," Bernd Reifenhäuser says about the acquisition. The two companies stand for highest quality, well-trained employees, advanced technologies, and sustainable business models. "We would like to welcome all the employees from EDS and look forward to collaborating with specialists who are well-known in the industry. Together, we will pick up momentum," says Bernd Reifenhäuser. In addition, Reifenhäuser is strengthening the Troisdorf site and making new investments in the manufacture of components. The EDS site in Reichshof will be turned into a technology and service center for dies.

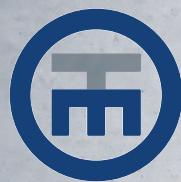
► **Reifenhäuser Group**  
[www.reifenhauser.com](http://www.reifenhauser.com)

Specialized in pipe extrusion lines

*This is not a die-head.*



*It's an idea of performance & energy efficiency.*



**TECNOMATIC**

Energy efficiency criteria is a crucial issue across manufacturing industries. Pipe extrusion is an energy intensive process and optimisation of process energy usage while maintaining melt stability is necessary in order to produce good quality product at low unit cost. At Tecnomatic, since 1977, the idea behind any machine is to design according to performance and productivity principles. The goal to offer to the market the most efficient, economic and competitive solution for pipe production.

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agenziap.it

## 40周年纪念日

■ 值此Friul Filiere公司迎接40周年庆典（2018年1月17日）之际，回顾一年来的大量研究工作，所获得的成果均具有较高的技术价值。新型挤出生产线的名称是FUTURA40，就是想要表达对这一纪念日的敬意。不夸张地说，这些成果是预料之中的，在新鲜的和标新立异的事物方面，整个公司在共同寻找过去珍藏的根源。

这仅仅是接二连三满足客户需求的许多产品新特性中最新的一个。市场（意大利、欧洲和国际市场）需要越来越多的特殊产品，而在Friul Filiere公司，找到一个参考点是可能的。公司不仅仅能生产机器和设备，同时还提供技术方案和加工工艺的专有技术，为型材和管材挤出项目提供交钥匙工程，成为完备服务的保证（Friul Filiere的NEXTRUSION CIRCLE项目可作为代表）。

雄心勃勃的应用请求来自于全然不同的领域，恪守承诺的研究工作一直都是富有成效的。这一点由2017年所开发的一系列技术得到了见证，包括用于下列项目的挤出生产线、模具和加工专有技术：

- 采用PA66+玻璃纤维制成的用于窗户行业的热隔断多出口的型材
- PC型材，透明度与玻璃相似，带压花，应用于LED照明行业
- 生产塑料仿木型材的全套生产线，颗粒状或粉末状混合料，含60%稻壳，加入了乙烯基的基材，适合高性能的户外应用

全套生产线，装备了TUBEASY系统（以流量为中心的专利，只需要两颗螺栓）的模头。特殊的校准系统以及用于下列挤出项目的专有技术：

FUTURA 40 新型下游设备  
FUTURA 40 new downstream

- 直径6-8mm的PA6-PA11管材，最高挤出速度达到前所未有的110米/分
- 采用特殊原料例如TPU生产带嵌件或不带嵌件的棒材及管材
- 带波纹或不带波纹的金属软管，带有极端热塑性的塑料材料涂层，例如TPU



用于生产下列产品的技术方案设计和特殊机器：

- 管材和型材的冲孔、压凸、切割、拉伸
- 全部表面的加工
- 不同原料的共挤和后挤出。

### 40th Anniversary

■ Friul Filiere after a year of intense research and results with high technological value, celebrated its 40th anniversary (17 January 2018). The new extrusion line, FUTURA40, with its name wants to pay homage to this event. Finding roots in the past of which it has treasured, it is projected – literally – in a new and avant-garde dimension but together with the whole company.

It is only the latest of many new features that have followed each other to satisfy customer demands. The market (Italian, European and international) requires more and more special products and the possibility of finding, in Friul Filiere, a single point of reference, able not only to produce machines and equipment but also to provide technological solutions and process know-how on turn-key projects for the extrusion of profiles and pipes, becomes a guarantee of a complete service (represented by the Friul Filiere NEXTRUSION CIRCLE).

The commitment to research has been constant and productive, prompted by ambitious requests for applications in the most different sectors. This is witnessed by a series of technologies developed in 2017: *Lines, toolings and process know-how for the extrusion of*

- thermal-break multiple exits profiles in PA66 + glass fibers with application in the windows sector
- PC profiles, transparent like glass and embossed, dedicated to the LED lighting sector

- Resysta profiles, compound in granule or powder, consisting of 60% of rice husk, added to a vinyl matrix, highly performing in outdoor applications complete lines

*Complete lines, die heads equipped with TUBEASY system (patent for centering the flow thanks to only 2 screws), special calibration systems and know-how for the extrusion of*

- 6-8mm diameter pipes in PA6-PA11 at the highest speed ever achieved (110 mt/min)

- rods with and without inserts but also tubes, in special materials such as TPU
- corrugated and no corrugated metal hoses coated with extreme thermoplastic materials such as TPU,

*Technical solutions design and special machines production for*

- punching, belling, cutting, stretching pipes and profiles
- all surface finishes
- coextrusion and post-extrusion of different materials.



► Friul Filiere Spa  
www.friulfiliere.it

## 应用范围广泛的挤出抗菌剂产品集群

■ VELOX 有限公司是欧洲领先的塑料、复合材料、添加剂和涂料油漆行业原材料专业解决方案提供商之一，宣布了与生命材料科技有限公司（泰国）建立新的分销伙伴关系。这是一家著名的抗菌添加剂制造商，处理塑料、涂料、纺织物行业的产品。VELOX 将在 DACH，比荷卢经济联盟和北欧地区独家经销。

VELOX 产品经理 Stefan Rokitta 评论说：“有了这种新的伙伴关系，VELOX 扩充了现有的抗菌产品集群，并有可能开拓组合料、挤出和注射模塑应用行业新的目标市场。我们期待着与生活材料科技有限公司非常成功的合作。”

VELOX 将提供有机和无机抗菌添加剂以及订制色母料以满足不同的高分子材料加工的要求。

LIFE 的解决方案符合欧盟的生物灭杀剂法规(EU BPR 528/ 2012)。此外，可依照 ISO 22196 或 JIS Z 2801 进行免费抗细菌测试，以及依照 ISO 846 或 ASTM G21 进行抗真菌测试，而且在有需要时，可以进行抗其它特殊生物体的测试。

### Extended Antimicrobial Portfolio for Wide Range of Applications

■ VELOX GmbH, one of Europe's leading solution providers of raw material specia-

LIFE™ 抑菌作用消除了细菌和气味，可以是粉状、液态、以及母体混合物形态  
(图片由 © Life Material Technologies Limited 提供)

*LIFE™ antimicrobials effectively eliminate bacteria and odour and are available as powder, liquid and masterbatch (Photo: © Life Material Technologies Limited)*



lities for the plastics, composites, additives and paint & coatings industries, announced a new distribution partnership with Life Material Technologies Limited (Thailand), a well-known manufacturer of antimicrobial additives and treatments for the plastics, coatings and textile industries. VELOX will be exclusive distributor in the DACH, Benelux and Nordics regions. Stefan Rokitta, Product Manager at VELOX, comments: "With this new partnership, VELOX is extending its existing antimicrobial portfolio and is able to address new target markets for compounding, extrusion and injection moulding applications. We are looking forward to a very successful cooperation with Life

Material Technologies." VELOX will be offering organic and inorganic antimicrobial additives and tailor-made masterbatches for different polymer processing requirements.

LIFE's solutions comply with the European Union's Biocidal Products Regulation (EU BPR 528/ 2012). Furthermore, free antimicrobial testing in accordance with ISO 22196 or JIS Z 2801 against bacteria and ISO 846 or ASTM G21 against fungi as well as testing in accordance with other special organisms are available upon request.

► VELOX GmbH  
[www.velox.com](http://www.velox.com)

## 进一步扩大生产能力

■ 巴斯夫 (BASF) 将在位于中国南京的化学工业园区内全资拥有的现有场地上建造一座新的特种胺工厂。新的工厂生产多种产品，年产量可达 21,000 公吨，进一步扩大了巴斯夫南京胺类产品集群中特种胺类化合物的生产能力。工厂计划于 2019 年投产，将主要生产 1,2-丙二胺 (1,2-PDA)、n-辛胺 (n-OA) 和聚醚胺 (PEA)。巴斯夫中间产品部门总裁 Stefan Blank 说道：“巴斯夫向全球提供各种各样的胺类产品，这一投资反映了我们一直以来的承诺：满足亚太地区增长中的市场需求。巴斯夫在开发和制造胺类产品方面积累了几十年的经验，这家新工厂将进一步巩固在这种通用中间产品方面全球的领导地位。”

### Production Capacity further expanded

■ BASF will build a new specialty amines

plant at its existing wholly owned site in Nanjing Chemical Industry Park in China. The new multi-product plant can manufacture 21,000 metric tons per year and further extends BASF's amines portfolio at the specialty amines complex in Nanjing. The plant is scheduled to come on stream in 2019 and will mainly produce 1,2-Propylenediamine (1,2-PDA), n-Octylamine (n-OA) and Polyetheramine (PEA). "BASF offers a wide range of amines globally, and this investment reflects our continued commitment to meeting the growing market demand in Asia Pacific," said Stefan Blank, President, BASF Intermediates division. "Building on decades of experience in developing and manufacturing amines, this new plant will further strengthen our global leadership in these versatile intermediate products."

► BASF  
[www.bASF.com](http://www.bASF.com)

Therformance

## “BULLET II”挤压头

■ 市场领导者GUILL TOOL推出的新型挤出头没有紧固件，便于清洁，可快速更换（从后面拆除端头，从前面拆除模具），并具备新的CAM LOCK®偏转器固定系统。

Guill Tool在2015年推出了Bullet®。根据公司提供的消息，这是一种带有固定中心设计、多端口螺旋流动设计和齿隙调整的新型挤出头，而且没有紧固件，因此比目前上市的任何常规挤压头都更容易、更快捷地清洁和重新启动。公司宣布推出新一代的独特专利工具Bullet II。

Bullet II可快速更换（从设备后面拆除端头，从前面拆除模具）。如同Guill开创的锥体和偏转器设计，无紧固件的设计可以避免泄漏。此外，正在申请专利的CAM LOCK®偏转器固定系统为挤出机和机器制造商提供了以下其他优势：

- 只需旋转CAM LOCK®半圈即可拆除和安装偏转器和端头
- 不需要紧固件
- 可快速更换，具备带螺纹的模具固定环和带螺纹的端头固定器
- 从前面拆除模具，从后面拆除端头
- 工具固定器还提供齿隙调整功能
- 无障碍空气/真空连接
- 简化清洁过程
- 减少宕机时间并降低运营成本

该挤出头适合高加工量和低加工量应用，而且只需简单地更换一个部件即可。可提供一系列十字头设计，用户可以指定“口径”，即最大模具内径。

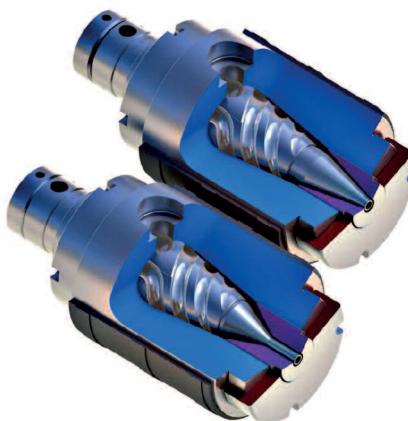
该设备配有一个真空室和用于装配和拆卸的套件。可选的键控工具功能为机器设计人和终端用户提供快速定位，因此，整体设备设计可实现更快的拆卸、适当的清洁和重新启动，从而提高生产线的盈利性和效率。

如需观看这种新设计的展示视频，请访问：[www.youtube.com/watch?v=MpEdmCRtaqg](http://www.youtube.com/watch?v=MpEdmCRtaqg)

### “THE BULLET II” Extrusion Head

■ New extrusion head from market leader features NO hardware, for easy cleaning, plus quick-change tooling, as tips removes from the back, die from the front PLUS new CAM LOCK® deflector retaining system.

Guill Tool introduced The Bullet® in 2015, a new extrusion head with fixed center design, multi-port spiral flow design and gum space adjustment, plus the added feature of no fastening hardware,



Bullet II的照片，显示无紧固件，即没有螺母和螺栓，因此更容易拆卸、清洁和重新启动

*Photos of The Bullet II, showing the absence of hardware, i.e. nuts and bolts, so disassembly, cleaning and restart are made easier*

so cleaning and restart are easier and faster than any conventional head on the market currently, according to company sources. The company announces the next generation of this unique and patented tool, The Bullet II.

The Bullet II allows quick tooling changes, as the tips remove from the back and the die removes from the front of the unit. The absence of fastening hardware eliminates leaking, as does the taper body and deflector design pioneered by Guill. Additionally, the new patent pending CAM LOCK® deflector retaining system offers these additional benefits to extruders and machine builders:

- It only takes  $\frac{1}{2}$  turn of the Cam Lock® to remove and install the Deflector and Tip
- No fastening hardware required
- Fast tool changes, threaded retaining ring for the die and threaded tip retainer
- Dies are removed from the front and tips from the rear
- Tooling retainers also provide gum space adjustment
- Hassle free air / vacuum connections
- Simplified cleaning
- Reduces downtime and lowers operating costs

High- and low-volume applications are suitable for this head and are accommodated with the simple, easy changing of just one component. A family of cross-head designs is available and users can specify the “caliber”, that is, the max. die ID.

A vacuum chamber and kit for assembly and disassembly are included with the unit. Optional keyed tooling capability offers machine designers and end users quick orientation, so the overall unit design enables faster disassembly, proper cleaning and restart, allowing the line to become more profitable, more quickly.

For a video demonstrating this new design, please visit: [www.youtube.com/watch?v=MpEdmCRtaqg](http://www.youtube.com/watch?v=MpEdmCRtaqg)

► Guill Tool & Engineering  
[www.guill.com](http://www.guill.com)

## 卷帘百页门窗生产自动化

■ 从1953年创建以来，作为塑料挤出模具和挤出生产线制造商，Baruffaldi已经在国际水平上创立了良好的声誉，产品包括生产PVC型材的自动在线和离线设备，电气行业用的电缆和安装管道，以及特殊设备的交钥匙工程公司的龙头产品之一就是种类齐全的PVC和铝材卷帘百页门窗组装设备。这些设备包括丰富多样的装配解决方案以满足各式各样的产品需求。

对于卷帘百页门窗系统，一切都起始于研究特别高的生产效率的在线式设备，专用于生产卷帘百页门窗的Combiroll，以及Combiroll，用6.5米长的窄板条卷，单链和双链方式生产，效率可达 $2 \times 15\text{m/min}$ 。这些都是自动的模块化机器，包括冲孔、连锁、切割和装配单元，同时可以提供气动版本以

及采用高性能的无刷电机。

在过去十年中，公司完善了其自动卷帘百页门窗系统的范围以及针式插件和盖式插件。这种新一代的机器代表了传统的Combiroll在线技术向离线的进化。这种发展的到来与不同程度的自动化一起，能够满足客户生产的需求，可以适用于PVC和卷帘百页门窗型材。得益于Baruffaldi的模块化系统，针式插件和盖式插件均属于离线系统，特别设计用于生产PVC和铝卷帘百页门窗，采用6.5米长的卷帘百页板条，或者采用已经切割成需要长度的型材进行生产。

针式插件配备了针式互锁单元，然而盖式插件配备了两个互锁单元，型材的两端都插入塑料盖。

最新的盖式插件被称为CAP-SP，这里CP意味着特殊，是客户定制的可以加工PVC和铝卷帘百页门窗型材的设备，代表着Baruffaldi的研发团队设计高性能和自动化设备仅仅是盖式插件方面的努力。

最新型号的PINCO 6.5适用于PVC和铝型材，公司通过内置计算机和打标单元充实了设备的配置，接口与客户的制造系统匹配。

### Automation of Roller Shutter Production

■ Since it was established in 1953 Baruffaldi has created a solid reputation at an international level as a manufacturer of extrusion tools and extrusion lines for plastics, automatic in-line and off-line machines for PVC profiles, cable and installation ducts for the electrical industry as well as special machines and turnkey projects. One of its flagships is its wide



range of assembling machines for PVC and aluminum roller shutters. This includes a rich variety of solutions for the most different production needs.

For the roller shutter systems all started by studying special high productivity in-line machines dedicated to the production of roller shutters i.e. Combiroll and 6.5mt long slat packs i.e. CombiPack, in single and dual strand, with productivity up to 2 x 15m/min. These are automatic modular machines complete with punching, interlocking, cutting and assembly units, also available in the pneumatic version and with brushless motors for high performance.

In the course of the last decade, the company completed their automatic roller shutter system range with Pin Inserters and Cap Inserters. This new generation of machines represents the off line evolution of the traditional Combiroll in-line technology. They come with diffe-

rent degrees of automation, to meet the production needs of the customers and can be used for both PVC and roller shutter profiles.

Pin Inserters and cap inserters are off-line systems especially designed to produce PVC and aluminum roller shutters starting from profiles already cut to length, thanks to the modularity of the Baruffaldi systems. Pin inserters are equipped with a pin interlocking unit, whereas cap inserters are equipped with two interlocking units that insert plastic caps at both profile ends.

The last cap inserter named CAP-SP, where SP means special, is a customized machine that can process both PVC and aluminum roller shutter profiles.

In the latest versions of PINCO 6.5 for PVC and aluminum profiles, the company enriched the plant configuration with a built-in computer and a labelling unit that interfaces with the customer manufacturing system.

► **Baruffaldi Plastic Technology Srl**  
[www.baruffaldi.eu](http://www.baruffaldi.eu)

## 首次推出自动清洁混料机

■ ABS公司(Advanced Blending Solutions)首次推出了自动化的自清洁混料机，型号为“Chameleon Simplicity 3000”。推出这款产品的目的在于满足巨大的市场需求。“Chameleon Simplicity 3000”是全自动物料清洁系统，可以不需要操作人员协助而完成混料机的物料变换。该机采用自动真空系统将物料从混料机的上料托盘上去除，可以将清除的物料送到物料回收站或容器以备以后使用。采用压缩空气清洁原料料斗的侧板。如果使用缩减特性，最小的ABS上料机换料工作可以在20秒时间内完

成。“Chameleon”设备可以显著地减少清除过程产生的废料，并且可增加设备的运行时间。任何ABS公司的混料机都可以进行改造。

### Automated Blender Cleaning introduced

■ Advanced Blending Solutions (ABS) introduced its first automated self-cleaning blender, the Chameleon Simplicity 3000. Designed to meet a significant market demand, the Chameleon Simplicity 3000 is a fully automated material cleanout system that can complete a blender material change without operator assistance. Material is removed from the fe-

der tray using an automated vacuum system, and can be sent to a material collection station or bin for later use. Compressed air cleans the side walls of the component hopper. Changeovers can be done in as little as 20 seconds with the smallest ABS feeder, assuming that the rundown feature was used. Chameleon can significantly reduce purge waste, and increase equipment run time. It can be retrofitted to any Advanced Blending Solutions blender.

► **Advanced Blending Solutions**  
[www.adv-blend.com](http://www.adv-blend.com)

# 充分利用挤出工具

## Extrusion Tooling: Getting the Most from Extrusion Tooling

工具维护可提高医用管路应用的挤出效率、质量及整体效率。

*Tooling maintenance improves extrusion efficiency, enhances quality and boosts overall productivity for your medical tubing applications.*

通过使用最先进的生产设备和工艺，可将当今多腔和多层次医用管路的加工容差降至最低。一定要注意，工具的任何误差都可能在成品中被放大。清洁的部件，尤其是密封和定位表面，是保证产品性能和优质成品的关键。这些表面在制造过程中获得的保养和关注最多，并且是确保整个管路一致性的控制表面。请记住，精确加工的对位甚至会受到直径只有千分之几英寸的灰尘的影响。人的发丝约为0.003英寸（0.08毫米），由于高质量工具中有许多这样的表面，清洁程度至关重要。检查工具是否有任何变形也很重要。毛刺、划痕和刮伤通常是由粗心搬运和/或存放设备造成的。双层和三层挤出头的维护难度更高。密封和定心表面的数量倍增，而且会放大沾污工具的效应。在更换时，可以拆卸挤出头以更换化合物和/或头端和模具。通常在此时引入异物，必须彻底清除残留物质。由于处理不当和储存技术不佳，通常在此阶段损坏物理工具。这些部件是高精密部件，但也可能笨重、巨大，难以徒手拆卸。建议使用专门用于并配备用于挤出头维护的专用工作车。该工作车配备有备件和硬件，建议购买和使用，特别是考虑到维护良好的工具可帮助您降低成本。应注意：

- 使用柔软、干净、可再生工作表面保持工作区域干净整洁
- 使用带有软钳口（如铜）的虎钳使用特殊设备，如头端拆卸工具等。
- 标准工具包括扳手、软面锤等。
- 保持备有柔软干净的抹布
- 使用喷雾瓶装清洁剂
- 根据工具供应商的建议使用妥善组织和储存的备件
- 将设备维修/维护手册保存在便利的地方，以便随时查阅
- 使用小型平板，以提供平坦表面
- 使用一套适当的量规和顶针进行初始工具位置调整

确保您拥有所有适当的举升辅助工具，包括高架起重机、液压升降机等。在大多数情况下，挤出头和模具将仍然处于高温，因此处理时需要戴衬里手套。当今，管路制造商需要与全球的公司竞争。要成为一家成功、盈利的公司，质量和效率至关重要。在挤出领域尤其如此，因为材料成本通常远高于人工成本。就像一辆身陷凹坑的赛车一样，许多挤压机由于工具不良或损坏而处于闲置状态，还需要过多的维护时间。管理费用会迅速上升，最终会造成亏损。有些挤压机能够快速启动，但只是在制造废料，而另一些挤压机启动后会制造超大产品，以至于无法达到最小容差的要求。10%到20%的材料被浪费，占产品成本的50%到90%。工具供



商在竭尽全力将头端和模具加工到确定的规格，以确保完美的同心度和对位。然后，材料将作为成品的一部分安放到适当的位置。

在开始之前了解维护程序并保持井井有条。示例1。一这个例子显示，使用不正确的居中工具导致计算出的超容差面积达到0.059平方英寸（38平方毫米）。当比较这两个表面积时，计算出的材料浪费率占成品的11.8%。壁厚% = 最小壁厚/最大壁厚X100。

处理沉重和笨重部件，请寻求帮助。表面和边缘很硬，有点脆，因此部件掉落或碰撞可导致损坏。将工具妥善存放在干燥清洁的地方—最好是每个工具都有专用存放位置。这些区域应该有柔软的表面，每个器械在清洁后均应盖好。另外，工具应该被隔离，以免它们彼此接触。储存前应彻底清洁工具和所有器械。拆卸工具时，必须使用专用工具来方便拆卸。供应商可以提供这些专用工具。如果供应商不提供专用工具，请咨询有信誉的工具厂获得更换部件。这些工具的成本容易被潜在的损坏成本所抵消，而损坏通常是由不适当的设备（如锤子）和偏移造成的。请遵循操作手册中的指南。个别工具可能会有特殊要求，所以如果有任何不清楚的地方，请联系供应商。供应商理解最佳性能取决于正确的保养和维护。这里提供一些有用的提示：

- 当设备仍然很热时，请清洁设备，因为此时更容易清除残留物。一次应仅拆卸和清洁一件工具，以保持较高的温度。
- 清洁双组合十字头时（塑料和橡胶），先清洁塑料工具，然后再清洁橡胶工具。
- 切勿使用刮刀或螺丝刀等钢制工具，因为这些工具可划伤和损坏模具。

- 不要使用明火，因为这会产生过多的热量，特别是在较薄的部分，这会影响部件的硬度、同心度和容差。推荐的清洁工具和材料包括：
- 黄铜钳子，用于抓住材料并协助拉动
- 不同宽度的黄铜刮刀，用于清洁平坦的暴露表面
- 黄铜刷毛管，直径从1/16英寸到1英寸，增量为1/16英寸（适用于清洁孔和凹槽）
- 黄铜棒—不同直径的黄铜棒适用于将材料推出流孔
- 铜丝网，用于清洁和抛光暴露的圆形或圆锥形表面
- 铜刀，用于清除凹槽和其他难以触及的区域的残留物。另外，抛光化合物可复原抛光表面
- 压缩空气可更有效地释放塑料，同时也有助于去除橡胶。小心不要用压缩空气将残留物压入凹槽
- 清洁液可能有帮助，请记住使用新的干净抹布（旧抹布通常嵌有金属屑，可能会划伤抛光表面）
- 清洁烤箱—仅限用于塑料部件。遵循制造商的建议。如果没有指定温度，不要超过850华氏度（454摄氏度）。不要淬火冷却工具，因为这可能会影响工具硬度、同心度和容差。
- 清洗化合物—有数种清洗化合物可用于清洗挤出机螺杆/机筒中的残余聚合物和橡胶化合物清除多余材料，获得最佳加工效率清洁的部件对挤压工具性能和高质量制造至关重要。

密封和定位表面尤其如此，因为它们控制生产流程的一致性。对于工具的一般维护，在储存或工具转换之前，彻底清洁和清除多余材料可确保生产具有精准容差成品所需的精密加工对位。设备应在温度仍然很高时清洁，因为会更容易清除残留的聚合物和橡胶。加热工具时请务必遵守所有MSDS建议。请戴防热手套，以保护手部因接触加热工具表面而受伤。建议使用黄铜刮刀以及黄铜或铜丝清洁布，因为它们足够柔软，不会划伤表面。

### 使清洁工具的过程变得更容易

拆卸模具的最快方法是利用挤压机的压力将其推出。使用空气压缩机和黄铜钳清洁体部，以便材料冷却，从而增加熔体强度，使其成为一体，而不会成为难以去除的弹性胶状物质。使用压缩空气和黄铜钳清洁体部进料口，以同时冷却和去除进料口上多余的残留物。完成此步骤后，用圆形黄铜刷子刷表面，以抛光表面。小心使用黄铜刷清洁2英寸（51毫米）法兰接合器的流动区域。

检查所有表面是否有任何不规则现象，如毛刺和划痕，因为在重新组装挤出头前必须修复上述现象。大多数制造商建议使用手工抛光石来去除有害的毛刺。使用抛光石清洁后，必要时使用600目砂布进行轻微磨光，但应避免本应锐利的边缘。平坦的密封表面也可以用抛光石清洁，然后用600目砂布磨光。将布放在干净、平整的表面上，最好是平板上，然后以圆形手动方式施加摩擦，直至相应区域干净平整。这些部件应全部为硬化钢合金，不会因使用上述方法而受到不利影响。铬镍铁合金、蒙乃尔合金和哈氏合金®通常不经过热处理，因此需要特殊的养护和处理以避免损坏。

### 不要忽视维修

工具维护有助于确保高质量的挤出产品，即符合尺寸规格、保持指定的最小容差并经济实惠的产品。沾污、未经适当维护和未经妥善调整的工具会导致应用过多的化合物，从而使维持最小厚度容差变得更复杂。多余的材料会导致不必要的成本支出，这会直接影响贵公司的盈利能力以及与客户的关系。

### 概要

使用专用工具车，按照制造商的说明进行重新组装。在安装之前，请使用干净的抹布对每个部件进行最后的擦拭。必须清除哪怕是极微量的砂砾、污垢和残留物质。对于沉重和笨重部件，使用机械或请他人帮助，以避免不必要的事故。如果需要，在所有紧固件上重涂一次抗卡化合物。按照制造商推荐的规格以及建议的顺序拧紧紧固件。手册中应说明紧固顺序，通常为星形图。逐渐拧紧紧固件，直到达到适当的扭矩，以防止工具变形。模具制造商的主要目标之一是尽可能在挤出物刚刚从模具的分布毛细管中被挤出时快速、准确地在模具的主要部分形成同心圆锥体。适当设计和制造的模具在挤出物入口点附近具有均匀的分布，但是当模具被调整，这种分布就会受到影响，从而使挤出物向一侧偏移。在主要区域形成一个偏心圆锥体，并且在该流程中仅在一处存在同心圆锥体，而不是形成体积逐渐减小的平滑连续的流动路径。适当制造和对位的挤出头以及维护良好的工具应该只需很少的调整或不需要调整。不必要的模具调整的另一个不利影响是不平衡流动对挤出物产生应力。净效应是成品保留了这种不平衡的记忆，并导致无法预测的模具膨大。

By utilizing state-of-the-art production equipment and processes, machining tolerances are held extremely close on today's multi-lumen and multi-layer medical tubing. It is important to note that any misalignment of the tools may be exaggerated in the final product output. Clean parts, especially with sealing and locating surfaces, are key to product performance and successful end products. These surfaces receive the most care and attention during manufacturing and are the control surfaces that ensure uniformity throughout the tubing. Remember, precision-machined alignments are affected by even a speck of dirt measuring only a few thousandths of an inch. A human hair is about 0.08 mm, and since there are many such surfaces in a quality tool, cleanliness is critical. Checking of the tools for any deformities is also important. Burrs, scratches and scrapes are usually a result of careless handling and/or storage of equipment. Double and triple-layer extrusion heads pose an even greater challenge for maintenance. The number of sealing and centering surfaces multiplies and can magnify the results of dirty tools. During changeovers, the head may be disassembled in order to change compounds and/or tips and dies. Foreign matter is usually introduced at this point and residual materials must be thoroughly removed. Physical tool damage often occurs during this phase, due to mishandling and poor storage techniques. These are highly precise parts, but can also be heavy and bulky to remove by hand. Use of a dedicated work cart exclusively reserved and equipped for extruder head maintenance is recommended. This cart along with a supply of spare components and hardware is easily justified, especially when examining the potential cost savings that result from well-maintained tools. The following should be considered:

- Maintain a clean, organized work area with soft and clean renewable work surfaces
- Using a vise with soft jaws, such as copper, and special equipment such as tip removal tools, etc.
- Standard tools include wrenches, soft-faced hammers, etc.
- Maintaining a supply of soft, clean rags

- Using cleaning solutions in spray bottle
- Using spare parts as suggested properly organized and stored
- Keep handy your equipment's repair/maintenance manual
- Have a small surface plate to provide a true flat surface
- Using a set of appropriate gauge and tip pins for initial tool location adjustment

In most situations, the head and tooling will still be at elevated temperatures, therefore lined gloves are needed when handling. Today, tubing manufacturers compete with companies all over the world. To be a successful and profitable company, quality and efficiency are essential. This is especially true in extrusion, where material costs are usually much higher than labor costs. Like a racing car stuck in the pit, many extruders sit idle because of poor or damaged tooling, plus excess maintenance time. Overhead costs add up and losing money is the result. Some start up quickly and make scrap, whereas others start up and run a product oversized to hold minimum tolerance. They waste 10% to 20% of the material, which can run from 50% to 90% of the product cost. The tooling supplier goes to great lengths so that tips and dies are machined to a determined specification, ensuring perfect concentricity and alignment. The material is then distributed in the proper location as part of the finished product.

In this example, with an improperly centered tool, a calculated out-of-tolerance area of 38 mm<sup>2</sup> was derived. When the two surface areas were compared, the calculated material waste was 11.8% of the finished product. % wall = min. wall thickness / max. wall thickness X 100.

### **Get help for heavy parts and awkward situations**

Surfaces and edges are hard and therefore somewhat brittle, so dropping a part or striking parts together can result in damage. Store your tools properly in a dry, clean area. These areas should have soft surfaces and each instrument should be covered after cleaning. Also, tools should be segregated so that they do not come into contact with each other. And tools and all instruments should be cleaned thoroughly before storage. For disassembly of tools, it is imperative to use purpose-built tooling to facilitate disassembly. Here are some useful tips:

- Clean the equipment while it is still hot as the residue is easier to remove
- When cleaning a dual compound crosshead, (plastic and rubber) clean the plastic tooling first; the rubber second
- Never use steel tools
- Do not use open flames

Recommended cleaning tools and materials include:

- Brass pliers to grip material and aid in pulling
- Brass scrapers
- Brass bristle tube brushes (ideal for cleaning holes and recesses)
- Brass rods
- Copper gauze for cleaning and polishing exposed round or conical surfaces
- Copper knives for removing residue from recesses and other hard-to-reach areas

- Compressed air, which is more effective for releasing plastic, but also aids in rubber removal
- Using fresh, clean rag.
- Cleaning oven. If no temperatures are specified, do not exceed 850 degrees F (454 degrees C). Don't quench tooling to cool, as this could affect tooling hardness, concentricity and tolerances
- Purging compounds – several are offered to purge the extruder screw/barrel of residual polymer and rubber compounds

### **Removing Excess Material for Optimum**

Machining Efficiency Clean parts are critical to extrusion tooling performance and quality manufacturing. This is especially true for the sealing and locating surfaces – that control uniformity of the production process. For general maintenance of the tools, before storage or tooling changeover, a thorough cleaning and removal of the excess material assures the precision machining alignments required to produce end products to the precise tolerances. Equipment should be cleaned while it is still hot, since residual polymer and rubber will be easier to remove. Be sure to follow all MSDS recommendations when heating the tooling. Thermal gloves are used to protect the hands from the heated tooling surfaces. A brass scraper, as well as a brass or copper wool cleaning cloth are recommended because they are soft enough not to scratch the surface.

### **Make Tool Cleaning Easier**

The quickest way to remove the die is to employ the pressure of the extruder to push it out. Clean the body by using an air compressor and brass pliers so that the material cools down which increases the melt strength, making it into one-lump versus an elastic, gummy-like substance that is harder to remove. Cleaning the body feed port using compressed air and brass pliers to simultaneously cool and remove the excess residue from the feed ports. This procedure is followed by brushing with a round brass brush that polishes the surface. The flow area of the 51 mm flange adapter should be cleaned by carefully using a brass brush.

Examine all surfaces for any irregularities such as burrs and scratches since these must be repaired before the head is reassembled. Most manufacturers recommend using a hand polishing stone to remove the offending burr. Follow stoning with a light application of 600-grit emery cloth if necessary, but avoid rounding edges that are intended to be sharp. Flat sealing surfaces can also be cleaned using a stone, followed by a 600-grit emery cloth. Place the cloth on a clean, flat surface, preferably a surface plate, then apply friction in a circular hand motion until the area is clean and even. The parts in question should all be hardened steel alloys and will not be adversely affected using these methods. Inconel, monel and Hastalloy® are typically not heat-treated, requiring special care and handling to avoid any damage.

### **Don't Overlook Repairs**

Tooling maintenance helps ensure a quality extruded product – one that meets dimensional specifications, maintains the speci-

fied minimum tolerance and is economically produced. Dirty, neglected and improperly adjusted tools contribute to excessive compound applications, which in turn complicate maintenance of minimum thickness tolerance. Excess material results in unnecessary costs and these directly affect the profitability of your company and the relationships with your customers.

### Summary

Working from your dedicated tool cart, follow the manufacturer's instructions for reassembly. Give each component a final wipe down with a clean rag before installing. Even the smallest amount of grit, dirt and residual material must always be removed. Use mechanical or manual assistance for heavy and awkward components to avoid unnecessary mishaps. Reapply anti-seize compound to all fasteners if required. Tighten fasteners to manufacturer's recommended specifications as well as in the recommended sequence. This fastening sequence should be specified in the manual and is generally in a star pattern. Tighten gradually until the proper torque is achieved to prevent distortion of the tooling. One of a die manufacturer's main goals is to form a concentric cone as quickly and accurately as possible in the primary section of the die – when the extrudate first emerges from the die's distribution capillaries. A properly designed and manufactured die has even distribution close to the extrudate entrance point, but this effort is negated once the die is adjusted, shifting the extrudate off to one side. An eccentric cone is formed in the primary area, and a concentric cone exists at only one point in the process, rather than a smooth, continuous flow path with decreasing volume. A properly manufactured and aligned extruded head, along with well-maintained tooling should require little or no adjustment. Another adverse affect of unnecessary die adjustment is the stress introduced to the extrudate caused by unbalanced flow. The net effect is the final product

retains memory of this imbalance and unpredictable die swell occurs.

**Guill Tool & Extrusion Co., Inc.**  
10 Pike Street West Warwick, RI 02893 USA  
[www.guill.com](http://www.guill.com)



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## 完美质量 的保证

**CENTERWAVE 6000**, 专为外径  
范围90mm - 3200mm 的超大管材  
设计, 运用突破性的毫米波技术为  
管材提供外径、壁厚、偏心度和下  
垂度的测量与控制。即使是复  
杂的多层管材, 也可精确测得所有数  
据。CENTERWAVE不受耦合材料影  
响, 可精准地对管材壁进行多点高  
精度测量。因而, 该系统具有很好  
的操作重复性, 为大直径的塑料管  
材的品质保障提供了一个前瞻性的  
重要技术保障。

- 操作简单, 不需要预先设定产  
品参数
- 检测不受材料及温度的影响
- 测量数据的实时显示及控制
- 可靠的测量数据, 不需要校正



[www.sikora.net/centerwave6000](http://www.sikora.net/centerwave6000)

# 挤出机械巨头金纬在溧阳生产基地举办其盛大20周年庆

## *Jwell, Extrusion Machinery Giant held its Grand 20 Anniversary in LiYang Production Base*

2017年12月10日,在不远的东方,中国塑料挤出巨头金纬机械邀请了500多位中国及全球商业合作伙伴,来到一个风景如画的溧阳,举办了其成立20周年庆,一同见证金纬的成长20年历程。

*On December 10, 2017, China's plastics extrusion giant Jwell invited more than 500 Chinese and global business partners to come to a picturesque town called Liyang and held its 20th anniversary, witnessing the growth of Jwell 20-years-history development.*

在这500多位商业合作伙伴,主要是来自中国塑料机械工业协会高层,塑料界嘉宾以及溧阳政府官员。其中,中国塑料机械工业协会会长张剑鸣先生(海天国际董事长),监事长朱康健先生(博创董事长),常务副会长兼秘书长粟东平,中国塑料加工工业协会副理事长马占峰,溧阳市领导、吉林华邦新材料科技有限公司董事长李方圆、ABB代表胡士中先生等出席了该公司20周年庆并祝贺。

金纬20周年庆精心筹备,选择这个大约1550平方千米的溧阳,举办如此重要的活动,不仅仅因为是20周年庆,还有一个重要的原因是金纬初步完成了其在溧阳新厂区的建设。溧阳生产基地的建成与其后续的生产能力,极大增强了金纬面向包括全球市场的年生产供应能力。金纬溧阳产业园创立于2012年,位于江苏常州溧阳中关村科技产业园区,占地近400亩,每年可生产不少于1000(台)套高档的塑料挤出生产线。无疑,溧阳生产基地为金纬后续10年的年制造能力提供了新动能。在20周年庆典活动中,溧阳厂区总经理刘惠明主持召开了20周年庆媒体见面会。



左: 中国塑料机械工业协会常务副会长兼秘书长粟东平;  
中: 中国塑料机械工业协会会长张剑鸣先生(海天国际董事长);右: 中国塑料机械工业协会副会长何海潮先生(金纬集团董事长)

*Left: Ms. Dongping Su, Secretary-General of the Plastics Machinery Industry Association);  
Middle: Mr. Jianming Zhang, Chairman of China Plastics Processing Industry Association and (Chairman of Haitian International);  
Right: Mr. Haichao He, Vice Chairman of China Plastics Processing Industry Association and (Chairman of Jwell Company)*

金纬的快速发展,得益于金纬CEO何海潮先生在中国的布局和金纬管理团队的共同努力。金纬的发展历程,是中国塑料机械成长过程的缩影。而作为全球塑料挤出行业的践行者,金纬成为这类故事的不断演绎者和影响者。它始终将质量、安全与创新看作产品的灵魂,并从全球用户的需求反馈获得灵感,创造出符合市场应用的产品。目前金纬在全国,拥有五大生产基地,和完备的人员体系的建设。

正如何海潮董事长在致辞中提到,“20年的砥砺前行让金纬拥有了一个很好的产业平台,一个知名品牌和一大批优秀



的金纬人才，有了很多遍布全球的客户。但面对未来，我们必须要有归零的心态。看到世界的变化，产业的进步和发展。网络化大数据时代，未来要进一步深化我们的优势，潜心于市场的专业细分，用心持久，不仅仅是提供各细分领域的高端生产线，更要提供全套的自动化智能化的应用解决方案，将标准化、数据化和KPI关键的绩效考核，通过人工智能、数字化系统、大数据等，落实到生产、采购、外协、质量管控、库存管理、客户体验等各个环节，全面提升公司的运营效率，确保产品一流品质，全面改善客户体验。我们的梦想就是打造一个高度智能化的全球挤出装备领域的生态链！让这个平台上的每一家企业和优秀的员工都有一个展示自己价值的舞台。”

## 关于金纬

金纬公司从1997年在上海成立以来，已连续七年蝉联挤出行业综合实力排名第一，获得300多项专利。现有五大生产基地，拥有全资及合资企业22家，3000多员工，从单一生产加工螺杆机筒部件，到制造塑料管道、板片膜、异型材、中空包装、汽车内饰和轻量化产品等大型生产线智能装备，以及大规模整厂化纤纺丝工程设计与制造，年产2000多套高档塑料挤出生产线，产品畅销世界120多个国家和地区。在当今工业高度智能化的背景下，金纬积极与国际一流的科研机构交流合作，研发的新技术、新工艺、新产品，被广泛应用于建材、家电、包装、医疗、汽车、新能源、航空航天、轨道交通等诸多领域，与人类的生活息息相关。

In this more than 500 business partners, mainly come from China Plastics Machinery Industry Association high-level management, plastic industry guests and local government officials. Jwell 20th Anniversary, well-prepared in Liyang, the city with approximately 1,550 square kilometers of Liyang, held such an important event, not only because it is the 20th anniversary. It is an important reason that Jwell initially completed its new plant in Liyang as its new production base. The completion of Liyang's production base and its follow-up production capacity have greatly enhanced Jwell annual production and supply capacity to its local and global market.

## 金纬机械20周年庆典大会 Jwell 20 anniversary celebration performance



金纬公司董事长何海潮先生与中外嘉宾共同参加金纬机械20周年庆典大会

*Haichao He, Chairman of Jwell Company and Jwell honoured guests at its 20 Anniversary Celebration*

Established in 2012, Jwell Liyang Industrial Park is located in Zhongguancun Science and Technology Industrial Park, covering an area of nearly 400 acres. It can produce not less than 1000 sets of high-grade plastic extrusion production lines each year. Undoubtedly, Liyang production base provides new energy for the manufacturing capacity of Jwell in the following ten years. In the 20th anniversary celebration, Mr. Alex Liu, GM of Liyang plant presided over the 20th anniversary celebration media meeting.

Among them, Chairman of China Plastics Processing Industry Association and – Chairman of Haitian International Mr. Jianming Zhang, Chairman of the Board of Supervisors and Chairman of Borch Mr. KangJian Zhu, Secretary-General of the Plastics Machinery Industry Association Ms. Dongping Su, Vice Chairman of China Plastics Processing Industry Association Mr. Zhanfeng Ma, Chairman of Jilin Huabang New Material Technology Chairman Mr. Fangyuan Li, and ABB representative Mr. Shizhong Hu attended the 20th anniversary and congratulated the grand activity.

The rapid development of Jwell is benefited from the industrial layout of its Chairman Mr. Haichao He and the joint efforts of Jwell Management Team. It is also a microcosm of the



中外嘉宾参观金纬机械溧阳工厂  
China and global VIP Guests Visited at Jwell LiYang Plant

growth process of china plastic machinery industry. As a practitioner of the global plastic extrusion industry, Jwell has become a constant deduction and influencers of such stories. It always regards quality, safety and innovation as the soul of its products and takes inspiration from the needs of global users to create products that fit the market. Currently Jwell in the country, have five major production bases, and a comprehensive staff system.

As Mr. Haichao He said in his speech: "20 years of tempering forward Jwell has a very good industry platform, a well-known brand and a large number of outstanding Jwell talent, with many customers around the world. However, facing the future, we must have a zero mentality. Catch the changes the industry's progress and development. In the era of big data, Jwell will deepen our advantages, with great concentration on the market segments, long-lasting , Not only to provide high-end production lines in various segments, but also to provide a full range of automation and intelligent application solutions, standardization, data and key KPI performance appraisal, through artificial intelligence, digital systems, big data implementation

左:吉林华邦新材料科技有限公司董事长李方圆  
中:常州金纬挤出机械副董事长徐国富

右:常州金纬机械副董事长王亮

*Smart Manufacturing - Industrialization 4.0:*

*Left : Chairman of JiLin HuaBang New Material Co., Ltd;*

*Middle : Changzhou Jwell Extrusion Machinery ,Vice Directing Manager Mr. GuoFu Xu;*

*Right: Changzhou Jwell Extrusion Machinery Vice President, Mr. Lliang Wang*



to the production, procurement, outsourcing, quality control, inventory management, customer experience, and comprehensively enhance the operational efficiency to ensure that the first-class product quality, and comprehensively improve the customer experience. Our dream is to create a highly intelligent global extrusion The ecological chain in the field of equipment! To win a showcase for every Jwell company and excellent employee on this platform with its own value."

### About Jwell

Since its establishment in Shanghai in 1997, Jwell has been ranked No.1 in the extrusion industry overall strength in plastics extrusion in China for seven years. Now it has five major production bases, with wholly owned and joint ventures 22 companies, more than 3,000 employees, from a single production and processing screw barrel parts, growing to the manufacture



左:苏州力弗特智能装备有限公司总工程师胡平  
右:苏州力弗特智能装备有限公司总经理谢丹

### Outlook On Composite Application:

*Left: Suzhou LFT Intelligentization Equipment Co, Ltd.*

*Chief Engineer Professor Ph.D, Mr. Ping Hu;*

*Right: Suzhou LFT Intelligentization Equipment Co, Ltd. General Manager, Mr. Dan Xie*

of plastic pipe, sheet membrane, profile, hollow packaging, automotive interior and lightweight products And other large-scale production line intelligent equipment, as well as large-scale whole plant chemical fiber spinning engineering design and manufacturing, with an annual output of over 2,000 sets of high-grade plastic extrusion lines, selling products into more than 120 countries and regions.

In today's highly intelligent industrial context, Jwell cooperates with world-class scientific research institutions, research and development of new technologies, new processes, new products, are widely used in building materials, home appliances, packaging, medical, automotive, new energy, Aerospace, rail transit and many other fields, closely related to human life.

**Shanghai Jwell Machinery Co., Ltd.**

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# 中空成型机: 采用聚碳酸酯 (PC) 制造水桶已成为全球趋势

## *Blow-Moulding Machines: Trending Worldwide – Water Bottles made of Polycarbonate, PC*

在外奔走或在办公室感到口渴？当前在许多地方都备有饮水机。起初，美国开发出了用于提供办公室饮水的容器，从那时起，在全世界的超级市场、零售商店、医疗场所和健身房都能看见这种容器。但是，供应公共饮用水的地方仍然不够，这些容器提供宝贵的水源。这样一来，全球对于聚碳酸酯 (PC) 水桶的需求正在增加。

*Thirsty on the go or at the office?  
Water dispensers are available  
today in many places. The  
containers, which were first de-  
veloped to provide water for offices  
in the USA, have long since found  
a home in super-markets, retail  
stores, medical practices and  
fitness studios all over the world.  
However, in places where the  
public drinking water supply is not  
enough, these containers supply  
precious water. As a result, the  
demand for PC (polycarbonate)  
water bottles is increasing world-  
wide.*

直到今天，在制造10升以上的饮用水容器时，聚碳酸酯 (PC) 仍是用得最多的材料。这是由于这种物料在稳定性、洁净性和透明度方面均具有极为出色的特性。由于PC水桶的透明度好，只需要快速看一眼水位线你就可以知道什么时间需要更换。由于有实用的套接系统，更换水桶是很方便的。水桶有着高品质的光学性能，具有吸引人的外观。最常见的水容器标准规格为5加仑(18.93 升)，这种水桶被大量使用。它是这样设计的：适合于市场上流行的所有自动售货机。



紧凑而强劲：BEKUM用于生产5加仑PC水桶的高性能中空成型机BA 25

*Compact and powerful: BEKUM BA 25 high-performance blow molding machine  
for 5-gallon PC water bottle production*

### BA系列市场占有率很高

BEKUM 的BA系列挤出中空成型模塑机多年来已在这一市场上构筑起了坚实的基础。BEKUM 生产的BA25是市场上非常畅销的PC水桶制造设备，兼备高性能和高效率。BA25的锁模力为200kN，占地面积紧凑，对于制造水容器而言是显而易见的明智选择。该机具有非常稳定的合模装置，高耐磨。BA 25设备的设计目标就是高耐用度、使用寿命长及高可靠性，尤其是能通过全球的饮水机为饮用水供应商作出经济贡献。



### 合模及塑化单元在生产中给人深刻印象

BEAKUM的BA25质量是突出的：BA25 设备设计用于非连续累积式工作，带底部校准和可垂直调节的型坯分离器。采用现代化的控制和液压系统，因此分离器以非常精确的节拍循环，实现高效率生产。BA25系统同时还有出色的塑化性能。BEKUM挤出机使用特殊螺杆几何形状以实现对物料的最佳的均化作用。节能型交流电机保证了物料在低旋转速度下温和地熔融。BEKUM拥有专利的螺旋芯轴分配头技术，能够实现水桶在360°圆周上都有均匀的壁厚，并具有首屈一指恒定不变的产品质量。BAKUM这一自主开发的成果几乎消除了出现产品变薄和流痕的缺陷，保证了水桶水晶般的透明度，且表面无云纹，这样一来，就生产出了高质量产品。

### 高效率是至关重要的

高透明PC容器是采用特殊中空成型模具吹制成型的，模具有多区域温度控制和磁力快速更换插件，可以带或者不带把手。BEKUM的BA系列单工位中空成型机实现了无可争辩的高产量，使用参考牌号的原料生产净重750克的“雀巢5加仑水设计”无把手容器，每小时产量超过160件。哪怕脱模温度超过85°C，采用高产量生产并不影响到产品的高稳定性以及清澈的透明度。

### 复杂的聚碳酸酯

PC容器在不同国家有着不同的规定。有纯新原料(例如采用拜尔 Bayer Makrolon, 三菱Mitsubishi Novarex 和其它

高度透明的PC带提手容器在传送带上，定向生产的产品

*Highly transparent PC container with handle on conveyor belt for directional article output*

PC 原料)，不同的新原料与回收料混合，以及100%回收料。制造者知道：当熔融时，聚碳酸酯是一种敏感的物料。这需要采用特别定制的物料处理系统进行物料干燥和物料上料。在成型后，冷却的产品物料和飞边非常坚硬，需要相适应的破碎设备。为了最好地适应对于高性能外围设备的需求，BEKUM基于自己在许多客户那里已安装的项目，根据尝试和测试的经验，介绍满足高性能要求的合作伙伴。

### 实用为目标的自动化提升了生产效率

最后一项要点，对于用户而言，要想提高效率，自动化起着重要的作用。特别是带把手的容器，全自动带导向的去除飞边是重要的。此外，产品生产线上配备自动去除夹持器和校准用的旋转工位，可提高操作效率。由于针对PC水桶产品进行了最佳化的系统设计，BA系列成型机具有令人信服的性能特色，在生产水桶时是值得考虑的。

To this day polycarbonate (PC) is the most used material in the manufacturing of water bottle containers over 10 litres. This is due to the excellent material properties for stability, cleaning and transparency. Thanks to the transparency of the PC water bottle, with just a quick glance at the water level you can see when it is time to replace it. Replacing the water bottle is easy thanks to the practical cartridge system. The high-quality optics of the container also adds an appealing look to the water. The container size of 5 gallons (18.93 litres) is a widely used standard size with high quantities. It is designed in such a way that it fits all dispensers which are common in the market.

### BA series with high market shares

Extrusion blow moulding plants for BEKUM's BA series have been firmly established in this market segment for years. The BA 25 by BEKUM is a very marketable PC water bottles machine that combines high performance and efficiency. With a clamping force of 200kN and its compact footprint, the BA 25 is the obvious choice for manufacturing water containers. It has a very stable clamping unit and is highly wear-resistant. The BA 25 machine has been designed for high durability as well as long production capability and has long provided a reliable and, above all, economic contribution to the drinking water supply via water dispensers worldwide.

### Clamping and plasticising unit impresses in production

The quality of the BA 25 from BEKUM is apparent: The BA 25 machine is designed for discontinuous accumulator operation as well as bottom calibration and uses parison spreaders with vertical adjustment. Modern controls and hydraulics allow the processor very accurate repeatable cycles for high efficiency

production. The BA 25 system has also excellent plastification. BEKUM extruders use a special screw geometry for optimum homogenisation of the material. An energy-saving AC motor ensures that the material is melted gently at low rotational speeds. The patented spiral mandrel distributor head technology from BEKUM allows uniform wall thickness over 360° of the water bottle and offers reproducible product quality that is second to none. This in-house development by BEKUM practically excludes article thinning and flow marks, ensures a crystal-clear water bottle transparency with a cloud-free surface and, by doing so, enables products of high quality.

#### *High efficiency at the forefront*

The highly transparent PC containers are blown out in a special blow mould, which has multi-zone temperature control and magnetic quick-change inserts, with or without a handle. The BEKUM single-station blowers of the BA series achieve an undisputed output of over 160 containers / hour at a net weight of 750 g based on the reference article "Nestlé 5 Gallon Aqua Design without handle". This high output rate is possible without compromising the high article stability as well as the crystal-clear transparency, even at demoulding temperatures of over 85°C.

#### *Sophisticated polycarbonate*

PC containers are country-specific and made out of pure new materials (e.g. from Bayer Makrolon, Mitsubishi Novarex and other PC materials), a varying material mix of new material and recycled material, as well as 100% recyclates. Processors know: When melting, polycarbonate is a sensitive material. This requires specially tailored material handling systems for material drying and material inlet. After shaping, the cooled article material and flash are very hard, requiring coordinated cutting mills. For an optimally coordinated, high-performance periphery, BEKUM brings with it the experience gained from many installed user projects and relies on tried and tested, high-performance partners.

#### *Practice-oriented automation to increase productivity*

Last but not least, automation plays an important role for the user if efficiency should be increased. Especially for containers with an integrated handle, fully automatic and guided flash removal is important. Furthermore, the automated removal with removal grippers and alignment by a turning station for placing on an article production line, increases efficiency of the operation. With its convincing performance characteristics and the system design optimally aligned to PC water bottle production, the BA series is a reference in water bottle production.



打开的中空成型模具，带有多区温度控制，用于生产PC原料制成的水桶

*View into the open blow mould with multi-zone temperature control for the production of a water bottle container made of PC*

中国国际橡塑展：2号馆，展台号 2J03

**Chinaplas: Halle 2 Stand 2J03**

**BEKUM Maschinenfabrik GmbH**  
Kitzingstr. 15 / 19, 12277 Berlin, Germany  
[www.bekum.de](http://www.bekum.de)

# 热成型先驱

## Pioneer in Thermoforming

ILLIG是中国热成型协会（CTFA）第一创始会员

*ILLIG is the First Founding Member of the China Thermoforming Association (CTFA)*

ILLIG Maschinenbau GmbH. 是行内第一家设备供应商研发出第一台工业用热成型机，公认为热成型领域的先驱。ILLIG是当今全球领先的高性能热成型生产线和模具供应商，同时也是包装行业的解决方案供应商，公司的产品和服务组合包括复杂生产线和组件的开发，设计，制造，安装和调试。70多年来，这家家族企业一直以成为全球客户可靠的合作伙伴为目标，以高性价比的方式生产复杂的高精密零件，采用创新的技术和卓越的品质，销售支持。在全球80多个国家设有分支机构和销售代理机构，为全球市场提供本地化服务。

ILLIG，CTFA的创始成员之一，提供技术培训

ILLIG是CTFA中国热成型协会的13个创始成员之一，自2017年10月26日起成为会员。中国热成型协会与目前150家成员公司的目标是为中国热成型行业推动发展，提供一个高效、专业的沟通交流，行业代言、标准建立，国际交流等的服务性组织平台，中国和国际的创始成员公司都全力支持和促进协会的成立。协会成立后不久，ILLIG就为协会举办了为期8天的热成型技术培训，提供了基础技术的培训，为中国的合作项目提供了支持。培训期间，中国热成型协会创始成员之一，苏州格来纳公司，的工作人员成功地参加了位于浙江海宁的新ILLIG客户解决方案中心（CSC）的ILLIG培训系列首次活动，ILLIG技术培训部门负责人Jörg Schuster先生



ILLIG – 提供热成型设备，模具的一站式服务，为您提供成功的解决方案。图:使用在ILLIG机器的ILLIG盖子模具

*ILLIG - machine and mold making from one source. Picture: Multi-cavity lid mold in a thermoforming machine (Picture: ILLIG)*

和ILLIG包装技术部门负责人Sven Engelmann先生讲解了热成型技术理论和实践经验，并透过相关实验，在整个培训过程中对非常感兴趣的参与者提供有趣，实用的培训和交流。

### ILLIG 编辑的热成型技术参考书籍

ILLIG资深，拥有丰富热成型经验的技术导师，加上ILLIG编辑的参考书籍“Thermoforming - A Practical

Guide 热成型实用指南，为技术培训的基础。热成型实用指南参考文献已筹备发布第三版，目前正在翻译成几种语言，其中包括中文。在第三版内，热成型基础技术和方法全面地解说，此书是学生，工程师和技术人员的宝贵参考书。除了关于热塑性塑料的信息，所有的热成型工艺步骤，最重要的机器，工具，模具制造的基础知识都通过实际例子详细描述和证明。

## 提供全面的热成型设备

每年，ILLIG总部位于德国海布隆的工厂产出有超过250条新热成型生产线，在各地大多数的工业部门使用20,000多个ILLIG系统，我们的日常生活中都会直接或间接地使用到ILLIG的产品，这包括用于生产水果和蔬菜，鲜肉和人造黄油以及酸奶，甜点和咖啡胶囊等包装材料的机器。在乳制品公司，(水果)凝乳和酸奶杯能在一条成型，灌装，和封切生产线上，这意味着最终产品直接准备销售。在非食品行业，ILLIG的客户制造剃刀和刀片，以及灯具，玩具和文具的包装材料。ILLIG的客户各自行业里生产各种高精度的成型品。ILLIG的模具生产部，配合ILLIG的高性能热成型机，两组的集成开发和完美协调，让ILLIG在效率，生产率，和可靠性方面形成了具有竞争力的生产系统。ILLIG也推出Pactivity®计划，协助客户提供有关适销产品和完美产品解决方案和支持。

ILLIG Maschinenbau developed the first thermoforming machine used in industry and is viewed to this day as pioneer in thermoforming. The German company is a leading global supplier of high-performance thermoforming lines, tools and molds, as well as solutions for the packaging industry. The company's product and services portfolio includes the development, design, manufacture, installation and commissioning of complex production lines and components. For more than 70 years, the family-owned enterprise has been serving its customers across the globe as a reliable partner for the cost-effective manufacturing of complex high-precision parts out of thermoplastic materials with innovative technology of unsurpassed quality and comprehensive worldwide after-sales support. With branches and sales agencies in over 80 countries, ILLIG is locally present in all markets around the globe.

## ILLIG, CTFA founding member, provides technical training on site

ILLIG is one of the 13 founding members of the CTFA and has been a member since October 26, 2017. The aim of the CTFA with its currently 150 member companies is the development of the thermoforming industry in China. The Chinese and international founding members of the machine and tool making sector in thermoforming promote this development. Shortly after the foundation of the association ILLIG supported the joint project in China by providing a basic technical training in thermoforming for several days. Staff members of the Chinese CTFA founding member, Shanghai Glades, successfully participated in the opening event of the ILLIG training series at the premises of the new ILLIG Customer Solution Center (CSC) in Haining. Mr. Jörg Schuster, head of the Technical Training Department, and Sven Engelmann, head of the ILLIG Packaging Technology Department, conveyed theoretical thermoforming contents and provided support to the very interested participants throughout the training by also using accompanying experiments.

## The standard reference in thermoforming by ILLIG

The profound technical know-how of the highly qualified ILLIG staff together with the reference book „Thermoforming – A Practical Guide“, edited by ILLIG, are the basis for the technical training. The standard reference in this sector was published in the third edition and is currently being translated into several languages, among others, also into Chinese again. Fundamentals and thermoforming methods are imparted in a comprehensive way. It is a valuable reference book for students, engineers and technicians. Besides information on thermoplastics, all thermoforming process steps, the most important machines and basics on tool and mold making are described in detail and substantiated by practical examples.

## Comprehensive machine portfolio

Annually, more than 250 thermoforming lines leave the factory of the company's headquarters in Heilbronn, Germany. More than 20,000 ILLIG systems are used in most industrial branches and sectors of every-day life. This includes machines for the production of packs for fruit and vegetables, fresh meat and margarine as well as yogurt, desserts and coffee capsules. In dairy companies, (fruit) curd and yogurt cups are formed, decorated and filled in one line which means the end products are directly ready for the point of sale. In the non-food sector ILLIG customers manufacture packs for razors and blades, as well as lamps, toys and stationery. Various high-precision formed parts are produced by ILLIG customers in series for the industry. The system supplier completes its portfolio by an efficient in-house tool and mold shop. With its pactivity® initiative ILLIG provides customer support regarding marketable products and perfect product solutions.

*Remark: Terms marked with ® are registered and protected brands of ILLIG Maschinenbau GmbH & Co. KG.*

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# 包装行业破碎机解决方案

## Processing: Size Reduction Solutions for the Packaging Industry

新型规格齐全的设备首次亮相，技术创新和具有特色的设计是其突出亮点。

*The new and complete range makes its debut, characterised by innovative technical and design-based features.*

当今，所有工业产品的设计思路都充分考虑了尽可能对不合格品进行再生和回收利用。在有些领域，例如食品和饮料包装行业，经常作出的决定是不改换原料，以保持现有的回收渠道和方法。在研究和发展部门，开发可回收原料的需求影响和决定了选择。正因为如此，在塑料领域，造粒机已经扮演了重要的角色，已经进行了专门设计，以回收塑料加工中的废料，使其可以重复使用。

百旺 (Piovan) 已经重新开发了回收利用领域的产品，推出了非常高质量的设备，可以满足全部塑料领域所有回收利用的需求。应用于包装、医药、汽车、纺织和电子行业的塑料，在任何情况下，一贯的做法是回收利用，对造粒机的效率和可靠性日益增长的需求证实了这一现实状况。为此，百旺推出了新型全范围造粒机，产品范围涵盖了小型，中型和大型设备。

适用于薄膜和切边的造粒机

*Granulator for Film and Edge Trim*



中大规格的造粒机，型号N35-60

*Medium Large Size Granulators N35-60 Model*

能源利用最佳化：工业标准是40 Wh/kg 新的百旺标准降低到了25 Wh/kg:

最重要的是，所有新机器都装有绝对独一无二的切线锯切系统。旋转刀片相对于固定刀片成斜度并尽可能接近切割圆的几何切线，从而切割精度得到提升和实现了最佳化。通过这种方式，使用较小的电机就能实现较高的加工能力，且格外带来了好处：粉尘释放和热量产生降到了最低水平。产品的这些特点保证了破碎加工中更为合理的切割和更好的尺寸一致性。没有如此高质量的粉碎单元，除了会产生不合格的产品外，将有着较高的粉尘含量，因此更难于处理。

创新的设计和制造方法使得百旺新型破碎机比目前市场上见到的同类产品领先一步：

切割单元由机加工件组装而成，而不是采用铸造件或焊件。这种设计采用高度精密的部件进行构建，能够提升破碎切割的效率和提高产品的质量，同时，由于磨损的部件能够更换，因此提高了破碎机的使用寿命。百旺破碎机另一个与众不同的特性是可提供订制化服务。即使最基本的型号也可以修改以满足客户加工的特殊需求。

### N35-60: 当代最先进的破碎机:

百旺新型破碎机产品范围中非常具有特色的一款产品是N35-60, 这是一款包含了所有上述特性的产品, 除此以外, 配备了可90°调节的料斗, 这样就保证了当采用输送带喂料时, 在四个装填位置输送带的方向总是可以适合于破碎机的料斗入口。维护工作也因此得到了简化, 且只需要更小的工作空间。

N35-60是三种造粒机系列产品的一部分, 特别适合于大块物料, 例如注射模塑食品容器、大瓶子或罐子(中空成型)、大容器、箱子(滚塑成型工艺)。这些物体通常又大又轻, 所以容易反弹, 难于切碎。

### 百旺破碎方案:

节省能耗表现出色: 百旺造粒机同样配备了高能效的电气系统和控制系统, 现在全部输送系统实际上都已得到改进, 当一周7天每天24小时使用的情况下, 可以实现节能省电。即使造粒机不是连续工作, 仍然可以优化峰值负载以减少能量的消耗。

例如, 在中空成型的情况下, 造粒机在开机阶段被高频率使用, 然而当设备正常运转时, 只需要间歇地破碎百分之20到30的产品。在一个模塑成型和另一个模塑成型之间有着一连串的空闲周期, 在此期间造粒机不起作用, 而电机保持着运转。在这种情况下, 能源节省系统介入并管理这一空闲周期, 并优化能源消耗。

根据不同的应用, 百旺新系列高效率制粒机能够保证节能百分之15到35。

Nowadays, all industrial products are designed with a view towards recovering and recycling as many reject components as possible. In certain sectors, for example in the Food & Beverage packaging sector, a decision is often made not to change raw material, in order to continue the existing recycling channels and methods. The need to develop recyclable materials influences and determines choices in the research and development sector. For this reason, granulators have assumed a fundamental role in the plastics sector, having been specifically designed to recover plastics processing waste and make it reusable.

Piovan has redeveloped its range of recycling products introducing very high quality machines able to satisfy all recycling needs throughout the plastics sector. In all cases where plastic is used in the packaging, medical, automotive, textiles and electronics sectors, recycling is common practice, confirming the need for increasingly efficient and reliable granulators. Piovan has therefore introduced a new range complete with small, medium and large granulators, characterised by innovative technical and design-based features.

### Optimised energy utilization: drop from the industry standard of 40 Wh/kg to the new Piovan standard of 25 Wh/kg

Most importantly, all new machines are fitted with an absolutely unique tangential cutting system. The rotary blades are inclined with respect to the fixed blades and are positioned as close as possible to the geometric tangent of the cutting circle, therefore optimising and improving cutting precision. In this way, high production capacities are achieved using smaller mo-

tors, with the additional benefit of minimising dust production and heat generation. These features ensure a more regular cut and more dimensionally consistent reground.

Without a cutting chamber of this quality, the reground, in addition to being irregular, will also have a higher dust content and will therefore be more difficult to process.

### *Innovative design and manufacturing methodologies put the new Piovan granulators a step ahead of current solutions available in the market*

The cutting chamber is made from machined pieces, which are then assembled rather than being cast or welded. This design has enabled the construction of high-precision components that improve the efficiency of the cut and the quality of the ground product, while improving the life of the granulator, as worn pieces can be replaced. Another distinctive feature of the Piovan granulators is the possibility for customisation. Even the most basic versions can be modified to suit the specific needs of the process.

### *N35-60: the state-of-the-art granulator*

One of the very distinctive models of the new Piovan range of granulators is the N35-60, a machine encompassing all of the characteristics described above, in addition to featuring a 90° adjustable hopper for four loading positions, ensuring that if fed by conveyor belt, the direction of the belt can always suit the granulator hopper inlet. Maintenance is therefore simplified and less operating space is required.

N35-60 is part of a family of three granulators designed specifically to process large pieces or such as injection moulded food containers; large bottles or cans (blow moulding); tanks, bins, (rotational moulding process). These objects are normally quite large and light and can therefore bounce and be difficult to cut.

### *Piovan size reduction solutions: excellent results using less energy*

Piovan granulators are also fitted with energy efficient electrical and control systems: the entire transmission system has in fact been revised to achieve effective energy savings when used 24/7. Even if the granulator doesn't work continuously, it is possible to optimise peak loads to reduce energy consumption. For example, in the case of blow moulding, the granulator is used heavily at start-up, while during operation it is used intermittently to grind 20 to 30 percent of production. Between one mould and another there are a series of idle periods in which the granulator is inoperative, even if the motor remains on. The energy saving system intervenes in this case to manage the idle periods and optimise consumption.

The new range of Piovan high-efficiency granulators guarantees energy savings between 15 and 35 percent depending on the application.

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# 针对塑料管材制造企业，意大利挤出机制制造商把注意力集中到工业4.0

## Italian Extruders Maker focuses on Industry 4.0 for Plastic Pipes Companies

世界正在进入工业4.0时代，计算机和自动化将会以全新的方式结合起来，机器人技术与配备了自动学习算法可以理解和控制机器人的计算机系统远程连接，只需要非常少的人工输入操作。

*The world is going to enter Industry 4.0, in which computers and automation will come together, in an entirely new way, with robotics connected remotely to computer systems equipped with machine learning algorithms, that can understand and control the robotics with very little input from human operators.*

工业4.0-更高的质量同时降低了成本

INDUSTRY 4.0 – Higher quality & costs reduction



工业4.0引入了被称为“智能工厂”的理念，也就是网络化的物理系统监视工厂的物理过程并作出分散式的决策。物理系统成为了物联网，通过无线网络与人类实时通讯交流与合作。

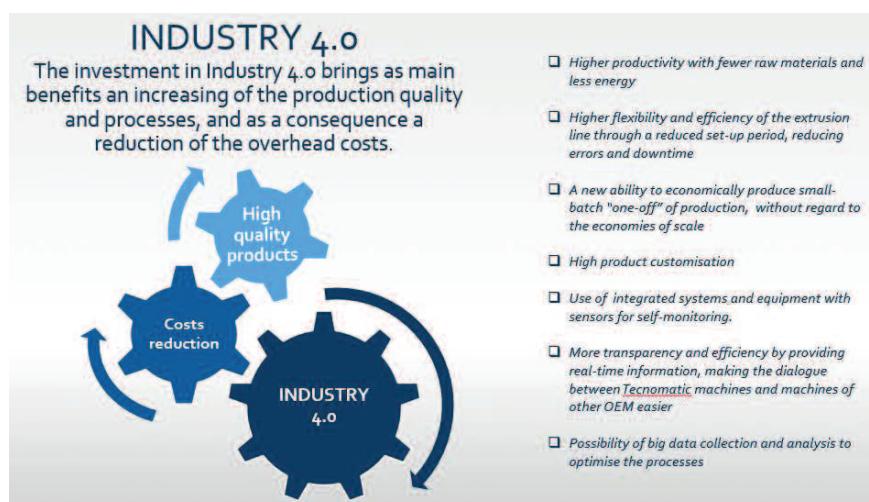
就这一点而言，Technomatic在设计、实施和系统整合过程中支持其客户，旨在支持新的数字化工业革命，向塑料管材制造商提供完整和协调的产品综合解决方案、工业软件和自动化技术。

系统提供适合于管材挤出机群的简单的用户友好的程序。通过机器的EPC(挤出过程控制)系统，若干台机器及周边设备可通过统一的用户接口互相连接及关联在一起进行工作，各单元之间可以相互作用。通过这种方式，全部

制造过程，包括原料加料、温度控制、同步运行等都实现了协调和可追踪化。

另一个重要方面是所有参数都被集中记录和监视。系统不仅仅进行能源监视，同样能将生产线加工过程中的数字和数据转换成有价值的信息。这样就可以对生产线的性能进行最佳化分析。从轮班长要用到的关键性能显示信息直到管理人员要用到的生产线性能的清晰描述均可获得。

工业4.0完全符合“智能工厂”的理念，所有数据，包括预防性维护和服务的参数或者报警信息都可以通过个人计算机、服务器或者可移动终端设备从网络或互联网进行监视。



Industry 4.0 introduces what has been called the "smart factory," in which cyber-physical systems monitor the physical processes of the factory and make decentralized decisions. The physical systems become Internet of Things, communicating and cooperating both with each other and with humans in real time via the wireless web.

In this regard, Tecnomatic supports its customers during the design, the implementation and the integration of systems aimed at supporting the new digital industrial revolution, providing to the plastic pipes manufacturers a complete and integrated portfolio of products, so-

lutions, industrial softwares and automation technologies.

The system provides a simple user-friendly program for the networking of extrusions pipes lines. Via the machine's EPC (Extrusion Process Control) system, several machines and peripherals are connected and linked together to be operated via a uniform user interface, which enables interaction between the individual appliances. In this way, the entire manufacturing process, including material

feeding, temperature control, synchronization is coordinated and tracked.

Another important point is having all parameters centrally recorded and monitored. The system allows, not only to carry out energy monitoring, but to convert numbers and data into valuable information on the processes within the line. This enables optimal analysis of a line's performance. From the relevant key performance indicators for shift supervisors up to the clear presentation of the line

performance for the management.

Perfectly in line with the concept of "smart factory" of the Industry 4.0, all data, including preventive maintenance and service parameters or alarms can be monitored via internet or intranet, to Pc, servers or to mobile devices.

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## 型材挤出：升级设备开拓新市场

### *Profile Extrusion: Upgrade opens up New Markets*

位于巴伐利亚拜恩的Inoutic公司是Belgian Deceuninck集团的德国子公司，刚刚向其长期设备供应商巴顿菲尔辛辛那提公司订购了一套共挤设备。在短短一年内，该型材生产商已经第三次决定升级并扩展现有单挤出生产线，将其改造成共挤生产线，从而更好地响应当前的市场需求。

*Inoutic, a German subsidiary of the Belgian Deceuninck group, has just ordered a co-extrusion solution from its long-standing machine supplier battenfeld-cincinnati. Within only one year, the profile manufacturer has decided for the third time to upgrade and extend an existing mono-extrusion line and to transform it into a co-extrusion line, for optimal response to current market demand.*

Inoutic公司是欧洲门窗和卷帘节能型材系统的领先制造商之一。其产品系列还包括平台系统以及由Twinson木塑复合材料和PVC制成的建筑外墙和屋顶覆盖。由于现有资源的可持续管理是公司的重中之重，因此其生产的型材不仅可以回收利用，而且越来越多地使用再生PVC制造型材。共挤型材是将现代高质量表面与回收材料芯材相结合的理想

方法，从而制成具有可持续发展性的产品。

数年来，这家总部位于拜恩的公司一直使用德国-奥地利设备制造商，巴顿菲尔辛辛那提公司的型材生产线。这些生产线主要是采用配有坚固平行双螺杆挤出机的单一物料挤出生产线。为了在产品系列中增加共挤产品，现有生产线中的三条通过添加conEX系列的63



Inoutic公司拜恩工厂带全新背驮式共挤机的共挤出生产线  
(图片来自© Inoutic)

*The co-extrusion lines with the new co-extruders in piggyback configuration at the Inoutic plant in Bogen/Germany (Photo: © Inoutic)*

mm共挤挤出机进行了扩展。现有单挤出生产线中的螺杆结构也针对共挤出进行了优化，将其调整到所需的较低生产速度。

考虑到可用的空间有限，共挤挤出机以背驮式配置安装在主挤出机上。共挤挤出机用线性导轨固定在地板上，使其可以轻松地前后移动。这样就可使加工厂商拥有极高的灵活性，便于对主挤



巴顿菲尔辛辛那提共挤出生产线升级后生产的Inoutic公司Prestige和Ecopowercore品牌的塑料窗型材模型  
( 图片来自© Inoutic )

*Window profile model Prestige with Ecopowercore from Inoutic, manufactured on the upgraded coextrusion lines from battenfeld-cincinnati (Photo: © Inoutic)*

cludes terrace systems as well as facade and roof claddings made of Twinson wood-plastic composite and PVC. Since sustainable management of existing resources is a top priority for the company, the profiles it produces are not only recyclable, but also to an increasing extent made of recycled PVC in the first place. Co-extruded profiles offer the ideal option to combine a modern, impeccable surface with a core made of regrind, thus creating a sustainable product.

For several years now, the company has been relying on profile extrusion lines from the German-Austrian machine manufacturer battenfeld-cincinnati. These are mono-extrusion lines equipped with sturdy parallel twin screw extruders. To include co-extruded products to the portfolio, three of the existing extrusion lines have now each been extended by adding a 63 mm co-extruder from the

conEX series. The geometries of the screws inside the existing mono-extrusion lines were also optimized for co-extrusion by adjusting them to the required lower output rates.

To take account of the limited space available, the co-extruders were placed in piggyback configuration on the main extruders. The co-extruders are fastened to the floor with linear guides so that they can be moved easily forwards and backwards. This gives the processor maximum flexibility and facilitates cleaning and maintenance work on the main extruder. All screws, both the new ones for the main extruders and those for the conical co-extruders, not only come with the molybdenum coating on the screw flights, which has been tried and tested for many years, but with additional BC coating, which provides a unique level of anti-wear protection. Especially in processing PVC regrind or abrasive materials such as wood-plastic composites, this ensures high uptime rates and consequently cost-efficient profile extrusion.

**battenfeld-cincinnati**  
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出机进行清洁和维护工作。主挤出机的新螺杆和锥形共挤挤出机的螺杆都不仅在螺杆螺棱上覆有经多年实践验证的钼涂层，还增加了BC涂层，这种涂层拥有独特的抗磨损保护水平。特别是在加工PVC回收料或木塑复合材料等磨蚀性材料时，可确保较长的正常运行时间，从而使型材挤出过程具有较好的经济性。

Inoutic ranks among the leading European manufacturers of energy-efficient profile systems for windows, doors and roller blinds. Its product portfolio also in-

## 市场上最新型的直径测量装置 *Latest Diameter Measurement Devices in its Market*

ODAC®系列激光测量单元采用现代化的双坐标测量头。有别于仲巴赫 ( ZUMBACH ) 所有激光测量头，这种测量单元有着最高的精密度，坚固可靠，功能强大。得益于紧凑的设计，ODAC® 14XY测量头可以用于几乎任何制造过程，例如电线电缆行业、塑料橡胶行业以及钢铁金属行业。仲巴赫的激光测量头以精度、质量和易于使用而著名，在同类产品中最为出色。

*Modern dual axis measuring head from the ODAC® laser measuring unit series. Highest accuracy, robustness, reliability and functionality distinguish all the laser measuring heads from ZUMBACH. Thanks to the compact design, the ODAC® 14XY measuring heads can be used in virtually every manufacturing process in the wire and cable industry, the plastics and rubber industry as well as the steel and metal industry.*

这种测量头的技术基础经过了深思熟虑，永远采用最尖端的技术，配备激光二极管作为光源，结合智能化的强劲的测量值处理器，进行方便而灵活的整合。

在杰出的产品特性中，尤为重要的 是例如单扫描校准 ( CSS )，单扫描监控以及输出数据高达每秒 125 个数据包的高速率 ( 取决于测量头的型号，传输数量测量值以及接口的传输速率 )。测量头可以满足所有的生产线速度的要求。生产中的振动对于测量没有显著影响。

这种产品特别适合用于细微和超细微金属线、漆包线、电缆、钢丝帘子线、纤维、医用导管、挤出塑料或橡胶产品。

ODAC 14XY 型号有两种测量范围可供选择：

- 微型版本  $\varnothing$  0.015 到 3mm (.0006 to .12 in.)。由于使用了特殊激光，这种版本的测量头可以测量微米级的最小的直径。
- 标准版本  $\varnothing$  0.06 到 16mm (.0024 to .64 in.)

### 测量单元自动适配的信号处理提高了精度

所有 ODAC® 系列测量头都有自动适配的信号处理 ( 专利 DE3111356 )，不需要后续的定期重新校准，仅在例如更换部件或遵从 ISO 9000/9001 的校准规定等情况下才需要重新校准。

所有有关精确度的参数连续不断被测量系统所监控并自动补偿。这种补偿是有效的，尤其是对于扫描电机或测量电子元件长期运行的状况下可能发生变化。

小巧智能和灵活通讯的一体化：新一代的激光头采用高频率扫描，可提供不同版本以适应 RS-232 /-422 /-485 串口通讯、Profibus DP、Profinet IO、Ethernet TCP/IP 或 EtherNet/IP，从而很方便地实现直接通讯。数字化的 J/J-M 测量头连接到久负盛名的

ODAC 14XY 测量头，带有可选配的现场显示器 LOC 01

*ODAC 14XY measuring head with optional local display LOC 01*



ZUMBACH USYS 处理器，组成了完整的仪表单元。

### 最高水平的团块和颈缩探测

新型 CSS 技术带来了大量的技术细节的创新和改进。其中最重要的一点是：每一个反射都单独识别，其误差特性储存在芯片中。这意味着每个反射被单独校准。也就是说现在每坐标高达每秒 3000 个测量值 ( 对于 ODAC TRIO 激光头是 9'000 个 )。即所有测量值可以被进一步处理。

测量头上的高速处理器可以根据过程 ( 速度，产品表面，污垢，水等等 ) 过滤和分析测量数值并配置对最小、最大、平均、不圆度、故障检测等数据进一步的处理。每秒钟 300 多个这样处理过的数据包通过数据端口传送出去。

新的 CSS 技术伴随着更高的测量和数据速率，与此同时，结合了独具特色既坚固又精密的激光扫描。

CSS 已经在若干 ODAC® 激光头上被采用。

the number of transmitted measured values as well as the baud rate of the interface) data packages per second. The measuring heads can be used with all line speeds. Vibrations during production have no noticeable influence on measurements.

**Specially suited for** fine and extra fine wires, enamelled wires, cables, steel cords, fibres, medical tubing, extruded plastic or rubber products.

The ODAC 14XY models are available for 2 measuring ranges:

- Micro version from  $\varnothing$  0.015 up to 3mm (.0006 up to .12 in.). Thanks to the use of a special laser, these versions can measure smallest diameters within the micrometer range.
- Standard version from  $\varnothing$  0.06 up to 16mm (.0024 up to .64 in.)

### Adaptive signal processing in the measuring units increase accuracy

All the measuring heads of the ODAC® series have adaptive signal processing (patent DE3111356)，which makes subsequent regular re-calibrations superfluous. Only in instances of component exchange or compliance to calibration regulations ISO 9000/9001 etc would re-calibration be required.

All the relevant parameters for accuracy are continuously monitored by the measuring system and automatically compensated. This is valid in particular also for possible long-term changes of the behaviour of the scanner motor or the measuring electronics.

**Compact Intelligence and Flexible communication integration:** New generation of laser heads with high scanning frequency and versions for serial RS-232 /-422 /-485 communication, Profi-

图片显示配备了 CSS 技术的 ODAC® 测量头。这些激光头有 1, 2 或 3 坐标型号可供选用

*Picture shows ODAC® measuring heads equipped with the CSS technology. These heads are available as 1, 2 and 3 axis models*



bus DP, Profinet IO, Ethernet TCP/IP or EtherNet/IP make direct communication easy. Digital JJ-M measuring heads for connection to the well proven ZUMBACH USYS processors, complete the line of these gauges.

#### *Lump & Neckdown Detection of the Highest Level*

The new CSS technology invokes a number of detail innovations and improvements. The most important one: Each mirror is individually identified and its er-

ror characteristics is stored in a chip. This means that each mirror is individually calibrated.

This means that now up to 3000 measurements/s per axis (9'000 at an ODAC TRIO laser head), i.e. all measurements, are available for further processing.

A high speed processor in the measuring head allows to filter and to analyse the measuring values depending the process (speed, product surface, dirt, water etc.) and to configure the further processing for min., max., average, ovality, fault de-

tection etc.. Over 300 so processed data packages/s can then be exported over a data port.

With the new CSS technology much higher measuring and data rates and, at the same time, the unique robustness and precision of laser scanning, are combined. CSS is already available in a number of ODAC® laser heads.

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## 在2018年中国国际橡塑展期间展示创新成果 *Innovations at CHINAPLAS 2018*

2018年4月24-27日，第32届中国橡塑展将于上海虹桥国家会展中心盛大举行。来自德国的威德霍尔机械制造公司将在展会上展出其柔性包装生产设备的创新技术。届时，在2号展厅第L 43号150平米的展位上，公司的挤出、印刷和制袋方面的技术专家将为专业参观者提供全面的咨询服务。展会中的一个亮点是VAREX II吹膜设备上用于物料自动更换的TURBOCLEAN系统，届时，我们将借助用做复合膜或精收缩膜的5层POD膜为例介绍TURBOCLEAN系统。

*At the 32nd Chinaplas, which will take place from 24 to 27 April 2018 in Shanghai, the German machine manufacturer Windmöller & Hölscher will be presenting innovations from its extensive portfolio for manufacturing flexible packaging. W&H experts in the areas of extrusion, printing and conversion will be at the 150 m<sup>2</sup> booth in Hall 2, Stand L 43, ready and waiting to provide comprehensive advice to trade visitors. A special highlight is TURBOCLEAN for the automatic material changeover on VAREX II blown film lines, which will be demonstrated using, by way of example, a 5-layer POD blown film for lamination and collation shrink film.*



配备TURBOCLEAN自动油墨系统的VAREX II吹膜设备，可以进行速度最快的材料更换  
*VAREX II with TURBOCLEAN for the fastest material changeover*

在薄膜生产领域，我们将展出所有设备的目录，包括各种应用的创新解决方案。“市场对于特种用途的创新优质薄膜的需求不断增加，W&H公司以其新技术研发迎接了这一市场挑战”，W&H亚太分公司CEO费舍尔先生这样说道，例如，透气性能要求较高的尿布用薄膜。W&H公司配备了在线MDO单轴（纵向）拉伸装置的VAREX II 三层吹膜设备适于生产单位面积重量仅为12克/平米的、透气性好的超薄尿布用底膜，迄今为止，这种底膜大多采用流延膜工艺生产，且单位面积重量较重。此外，表面保护膜、FFS膜、最多可达11层的阻隔膜以及最多可达55层的纳米级拉伸膜等，这些薄膜如何在FILMEX流延膜设备上生产，也是我们展出的重点之一。而用于生产注射液袋的AQUAREX下吹水冷式吹膜设备肯定也会引起展会观众的极大兴趣。

在柔印和凹印设备领域，W&H公司也将展示自己的专业技能，其重点主要放在降低挥发性有机化合物、快速订单更换以及工业用纸袋、塑料袋以及编制袋生产等方面，届时，我们将用保湿性能超强的新型AD proFilm MP阀口塑料袋为例进行介绍。

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展会上，除了子公司嘉让特公司的小袋设备目录以外，W&H公司还将展出德国B&B包装技术公司的小袋设备目录，该公司在可重复封口的侧折边袋以及带吸嘴自立袋生产领域里是一家世界领先企业，其自立袋生产线还可选择配置自立袋漏损鉴定装置。W&H公司是B&B包装技术公司在亚洲的销售和服务代理，这一合作丰富了W&H公司柔性包装生产设备的产品种类。

In the area of film manufacturing the complete machine range with innovative solutions for the most varied applications will be presented. "The need for new innovative quality forms for special fields of application is increasing and with their developments, Windmöller & Hölscher take these into account", said Michael Fischer, CEO W&H Asia Pacific. This applies for, e.g., the production of breathable diaper film. With the 3-layer system VAREX II with Inline-MDO stretching unit, W&H offers a machine configuration for the production of a particularly thin breathable diaper back sheet film of only 12 g/m<sup>2</sup> – a product that is predominantly produced in cast film extrusion and with a higher basis weight. However, the focus will also be on the manufacture of surface protection films, FFS films, barrier films with up to 11 layers and nanolayer stretch films with up to 55 layers, as they can be produced on the FILMEX cast film extrusion line. The AQUAREX upside-down line for the production of films for infusion bags should also attract considerable interest. W&H also demonstrates competence in the field of flexographic and gravure printing presses with a special focus on VOC



FILMEX II – 用于拉伸罩膜、CPP膜和阻隔膜生产的流延膜设备

*FILMEX II – cast film extrusion line for stretch, CPP and barrier applications*

reduction (reduction of volatile organic compounds) and the fastest changeover times, as well as in the area of industrial sacks made from paper, plastic and woven plastic materials. A prime example here is the new AD proFilm MP film valve sack, which is characterized by a particularly high level of moisture protection.

Alongside the paper bag machine range of the W&H subsidiary GARANT, W&H will present the bag machine range of the German company B&B Verpackungstechnik. B&B is a global market leader for the manufacture of reclosable side-gusseted bags as well as stand-up pouches with inline spout insertion and optional leak detection. W&H operates as a sales and service organization for B&B Verpackungstechnik in Asia, thus advantageously supplementing the W&H portfolio of machines for the manufacture of flexible packaging.

**Windmöller & Hölscher at the CHINAPLAS:  
Hall 2, Booth L43**

中国国际橡塑展：温德默乐与霍尔舍公司位于展馆2 展台号L43

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## 格诺斯展示最新的过滤，挤出和测量技术

### *Innovative Filtration, Extrusion and Measurement Technology*

#### 格诺斯加工装置 ( GPU )

格诺斯加工单元 ( GPU ) 已上市好几年并且已被证明具备再加工PET废料和消费后瓶片以及工业废丝和废膜片的能力。这种加工装置包含有格诺斯具有无可匹敌脱挥能力和除污能力的MRS挤出机以及高效的格诺斯旋转过滤系统和可提供实时粘度数据控制，监控并调节的在线粘度测试仪。

虽然设计初衷是专门为PET瓶片加工，但目前格诺斯多螺杆挤出机也可以在聚烯烃和尼龙领域应用。在其它材料领域的测试应用预示着在未来它将拥有更加广泛的前景。

挤出机的超强的排气和去污性能已经得到客户的高度肯定。MRS出机它可以做到无预干燥，简单的水封泵抽真空，从PET瓶片直接加工成高质量的产品。该项技术通过独一无二的专利加工部份来实现。在传统的单螺杆技术的基础上，多螺杆部分内含8根卫星单螺杆，通过齿环和齿轮传动来驱动，料筒部分大约有30%的部分暴露在外并提供熔体最佳的熔体排气效果。

由于这种设计，排气效果会是传统单螺杆挤出机的50倍，真空系统仅仅是25~40mbar. 通过避免高真空度系统和预干燥，MRS 是传统技术的最佳取代者。更深层次的是简单和坚固的设计和灵活性。容易操作和低的维护率，加工的灵活性和优越的筒体质量和均一性。

在PET包装片材生产领域格诺斯的这个技术已经得到了成功的证明，除了高品质硬质片材以外，格诺斯现在提供可快速灵活切换到PET发泡片的生产线模式。发泡片材可以减少50%的重量，同时具有稳定的发泡孔结构而且可以使用100%消费后回收料制作。发泡PET片材是一种理想的材料去制造经济型热塑性食品工业方面使用的包装容器比如肉类托盘，蛋盒，杯子或盘子之类。

#### 格诺斯旋转过滤系统

专利的RSFgenius 过滤系统全自动化操作，加工和压力始终恒定，通过反冲自清洗功能实现无以伦比的高效。针对高质量的过滤应用来说是最佳的选择。

所有模型在去年都得到了完全的更新。过滤器内腔得到了改进提供了更大的过滤面积可以承受更高的压力。不同过滤器的零配件也进行了统一化处理以保证更短的交货期和更低的成本。

专利的SFXmagnus 过滤系统的特点是过滤面积特别



MRS130多螺杆挤出机，RSFgenius 150旋转过滤器，VIS在线粘度测试仪和格诺斯压力传感器

*MRS extrusion system with Multi Rotation Extruder MRS 130, Rotary Filtration System RSFgenius 150, Online Viscometer VIS and Gneuss pressure transducers*

大。可以客户的实际加工需求决定是否需要配置反冲自清洗系统。过滤网片的切换不会对产品质量有任何的影响。

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KF 连续性过滤器是针对特殊应用开发的，主要针对需要频繁切换材料，品种，等级，颜色或者像吹膜这样需要高压的应用。KF 过滤器特别小巧和提供最佳的性价比。

#### 格诺斯测量技术

作为设备供应商，格诺斯有生产能力满足客户非标准的需求，同时具备最短发货时间的能力。格诺斯传感器可以满足各种应用的特殊要求，比如Atex，Hart通讯或者EAC.

特定用于压力过载保护。无论是标准应用中的单个传感器系统还是防爆特定环境下的完整传感器系统，格诺斯都有相应完备的压力监控系统。

同时，格诺斯提供在食品应用行业方面的特殊压力传感器，比如需要经常进行设备清洗的场合，所以传感器必须能经受蒸汽或者水压冲洗的过程。格诺斯开发了针对这种应用的特殊传感器，即使在拆除传感器后同样可以具备防水功能。

### Gneuss Processing Unit GPU

The Gneuss Processing Unit (GPU) has been available for several years now and has proven itself for the reprocessing of bulky PET waste such as post-consumer bottle flake and industrial waste from fiber and film manufacture without pre-drying. A Gneuss Processing Unit consists of a Gneuss MRS extruder with its unmatched devolatilization and decontamination performance in combination with a highly-efficient Gneuss Rotary Filtration System and an online viscometer VIS for intelligent dynamic viscosity control.

Although originally developed specifically for PET, the MRS is now also running in polyolefin and nylon applications, and being tested on a range of other materials and applications. Thanks to the patented combination of single screw extruder with a multiple screw section, the extruder is very sturdy and particularly well suited for recycling applications.

The MRS extruder permits the processing of PET without pre-drying by using a simple water ring vacuum system to process the material directly to high quality end products. This is achieved by means of its unique and patented processing section. Based on a conventional single screw extruder, the Multi Rotation Section is a drum containing eight satellite single screws, driven by a ring gear and pinion transmission. The "barrels" cut into the drum are approximately 30 % open and provide optimum exposure of the melt.

Thanks to this design, the devolatilizing performance is approx. fifty (50) times greater than that of a conventional single screw extruder – and this at a vacuum of only 25 to 40 mbar. By avoiding the need for a deep vacuum system and pre-drying, the MRS is an economically efficient alternative to conventional technologies. Further arguments in its favor besides energy savings are the simple and rugged design, small footprint, its ease of operation and low maintenance, processing flexibility and last but not least its excellent melt quality and homogeneity. One area this technology has been especially successful is in PET sheet extrusion. Besides producing high quality rigid sheet, Gneuss now also offers the option for its PET sheet extrusion lines to quickly and flexibly switch to producing physically foamed PET sheet with the addition of Gneuss' new PET foam module. Foam sheet with a weight reduction of 50 % can be extruded (depending on the process) with a consistent foam structure and mechanical properties. And this from up to



片材生产线含MRS多螺杆挤出机，RSFgenius旋转过滤系统和VIS在线粘度测试仪和PET发泡模块 *Sheet extrusion line with Multi Rotation Extruder MRS, Rotary Filtration System RSFgenius, Online Viscometer VIS and PET foam module*

100 % post-consumer material. Foamed PET sheet is an ideal material for economically manufacturing thermoformed containers for the food industry such as meat trays, egg cartons, cups or plates.

### Gneuss Rotary Filtration Systems

The patented Rotary Filtration Systems are characterized by the filter disk on which the screen cavities are located in a ring pattern and which is completely encapsulated by the two filter blocks. Screens can be inserted into the cavities by opening a small hatch door giving access to the cavities while the production process continues to run without any interruptions or disturbances.

All models have been completely revised in the last years. Modifications to the screen changer housings permit operation on a wider range of applications at higher pressures, whilst offering enlarged active filtration areas. Components and modules have been commonised in order to offer shorter delivery lead times and lower costs.

The SFXmagnus series operates automatically as well as process and pressure constant. It is suitable for a very wide range of applications. This series is characterized by an extra large active screen surface area, its compact design, as well as extremely easy operation. Screen changes do not have any influence on the product quality.

Gneuss' top model, the RSFgenius, operates with an integrated self cleaning system for very demanding applications and highest quality requirements. Screens can be automatically reused up to 400 times and filtration finenesses below 10 microns/1200 mesh are available.



使用在经常切换材料方面的KF连续型过滤器

*Continuous Rotary Filtration System KF 150 for frequent material changes*

The KF range of continuous filtration systems is designed specifically for applications with frequent material type, grade or color changes as well as for high pressure applications like blown film. The KF screen changers are especially compact and offer excellent value for money while permitting simple and quick screen changes on the fly.

#### **Gneuss Measurement Technology products**

As a machinery manufacturer, Gneuss has the manufacturing capabilities to realize even unusual sensor requirements. The lean manufacturing structure at Gneuss makes this possible with shortest delivery times. Gneuss sensors are available to match regional or application – specific requirements such as Atex, Hart Communication or EAC

In especially difficult process conditions with short pressure overloads, frequent pressure spikes as well as unmelts in the material, sensors are highly stressed. Gneuss builds a special

heavy-duty design with a special membrane technology for these applications.

Also, Gneuss offers a special transducer for food applications, where regular cleaning of the machinery is necessary, so that sensors are often subject to steam or water jets. Gneuss has developed a special type of sensor for these applications, which remains waterproof even if its plug is removed.

#### **Gneuss at the CHINAPLAS: Hall 2, Booth 2J31**

中国国际橡塑展：展馆2 展台号2J31

**Gneuss Kunststofftechnik GmbH**  
Moenichhusen 42, 32549 Bad Oeynhausen, Germany  
[www.gneuss.com](http://www.gneuss.com)

## **挤出吹塑机**

## **Extrusion Blow Molding Machines**

来自德国的考特斯机械制造 ( Kautex Maschinenbau ) 将于4月24日至27日参加在上海国家会展中心举办的2018国际橡塑展。这家世界领先的挤出吹塑成型设备制造商将会以更大的展位来迎接近年越来越多的观众。然而今年展出的KCC10 MK3中空成型机凭借其出色的紧凑设计，只需占据不多的场地空间。届时，这台新一代的KCC机器将在现场演示1000毫升带发泡中间层的三层塑料瓶生产。

**即将完成机器换代升级：**2016年考特斯开始逐步在中国广东的顺德工厂推出第三代KCC系列设备，KCC20 MK3成为KCC系列第三代中空成型机的首款机型。随着型号的不断扩展与机器的优化完善，现在换代升级即将完成。为与展会口号（为高生产性能设定基准）保持一致，新型KCC MK3机器不仅操作更便捷，产品切换速度更快，而且交货时间也更短。全面的功能配置意味着KCC MK3系列机器可广泛应用于包装、汽车和特殊制品领域。

**现场演示发泡生产：**KCC10 MK3可用于生产尺寸从50毫升到5,000毫升的瓶子。在今年国际橡塑展上，考特斯将现场演示使用MuCell®Extrusion微发泡技术生产中空塑料瓶的过程。中间层的发泡大大减少了所需材料的用量。随着碳排放量的降低的和保温隔热性能的提高，生产方法也更加环保。发泡工艺可用于考特斯所有连续挤出的包装机器。

*Kautex Maschinenbau will be participating in Chinaplas 2018 at the trade show's new venue in Shanghai. With a larger stand area, the manufacturer of extrusion blow molding machines is responding to the increasing visitor attendance of recent years. The company will not, however, be needing much space to present its compact KCC10 MK3, which will be used to demonstrate the production of three-layer 1,000 ml bottles with a foamed middle layer.*

**加大研发投入力度：**顺德考特斯的研发中心即将开放，参展机下一步将用于研发中心进行新应用的开发与拓展。在不久的将来，中国的客户就能同样享受到德国波恩总部的考特斯服务。持续不断改进服务是考特斯在全球范围内的首要任务之一。除德国波恩总部外，位于美国新泽西州和广东顺德的分公司也将提供样品和材料测试。

**新一代虚拟机亮相：**今年考特斯将展示KBS油箱吹塑成型虚拟机。虚拟机是考特斯为客户提供零风险高效培训的重要工具，能够实时模拟各种型号机器和应用案例的生产过程。硬件由一个紧凑的工作站、两个显示器、一个投影仪和一个真正的机器控制面板。模块化设计能够实现从一个机器系列到另一个机器系列的无缝转换。除KBS和KBB全电动机外，最近新增KCC机器系列可供培训。

**Transition to third generation almost complete:** In 2016, Kautex Maschinenbau's introduction of the KCC20 MK3 started the gradual process of transitioning to the third generation of KCC-series equipment at its Shunde plant in Southern China, which is by now almost complete. In keeping with the trade show slogan (Setting benchmarks for high production performance), the benefits of the new KCC MK3 models include not only better accessibility and significantly quicker changeover times, but also shorter lead times. Their all-rounder status means that the machines can be used for a wide range of applications – for packaging, automotive and special applications.

**Live production with foaming process:** The KCC10 MK3 can be used to produce bottles in sizes ranging from 50 ml to 5,000 ml. At Chinaplas, Kautex Maschinenbau will present a live demo of a foamed bottle being produced with technology from MuCell® Extrusion. The foaming of the middle layer significantly reduces the amount of material required. With a lower carbon footprint and better thermal and insulating properties, the production method is also more environmentally friendly. The foaming process can be used for all packaging machines with continuous extrusion.

**Investment in research and development:** The next stop for the demo machine will be the technical center planned for Shunde Kautex, where it will be used to develop new

applications. Customers in China will thus be able to benefit from the same Kautex service available from Bonn in the future. The continuous improvement of its service offering is one of the top priorities for Kautex Maschinenbau worldwide. Alongside the Bonn HQ, international locations in New Jersey and Shunde will also be available for samples and material tests.

**Virtual KBS fuel tank blow molding machine:** The new generation of virtual machines will also be presented at the stand. These training tools simulate production processes for various machine types and use cases in real time. The hardware consists of a compact workstation unit, two monitors, a projector and a real machine control panel. Modularization allows for a seamless transition from one series to another. KCC machines were recently added to the training tool, which already includes the KBS and KBB series.

#### Kautex at Chinaplas 2018: Booth 2J93

Kautex将出席中国上海国际橡胶展 展，展台2J93

**Kautex Maschinenbau GmbH**  
Kautexstr. 54, 53229 Bonn, Germany  
[www.kautex-group.com](http://www.kautex-group.com)

[www.kraussmaffei-berstorff.com](http://www.kraussmaffei-berstorff.com)

With QuickSwitch technology, benefit from maximum flexibility and availability

- Flexible dimension and wall thickness changes at the push of a button
- Reduced stoppage and changeover times
- Minimum scrap
- Lower costs due to time savings
- Small lot sizes and special dimensions also possible
- PE, PP and multi-layer pipes possible

Chinaplas, hall 2H, booth T01

## QuickSwitch – The best in fully automatic in-line dimension changes

Engineering Value

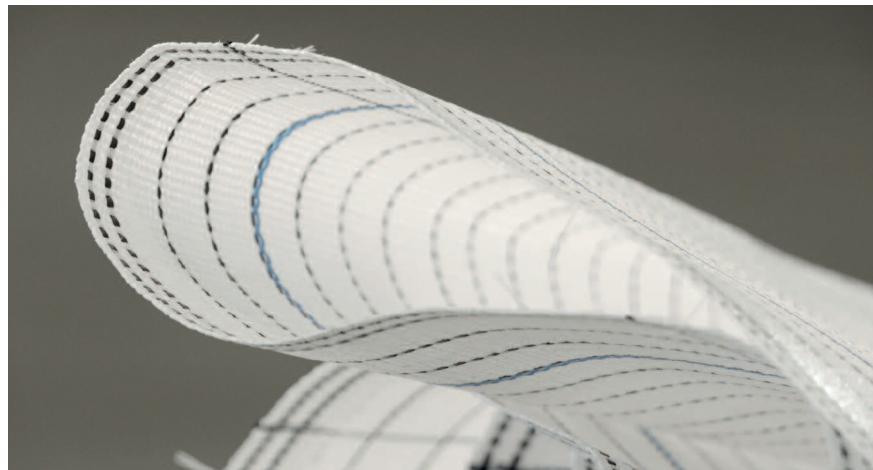
**KraussMaffei**  
Berstorff

# 高品质再生颗粒解决方案越来越受欢迎

## *Solutions for Quality Recycled Pellets in more Demand than ever before*

4月24日至27日的国际橡塑展上，EREMA将在2H馆2B59号展位向来宾们展示如何利用卓越的技术使洁净的生产废料及污染严重的消费后材料再生为崭新的原料。与EREMA智能数字化技术相结合，为塑料再生的质量及工艺建立了新标准。

*Visitors to the EREMA trade fair stand 2B59 in Hall 2H at Chinaplas will find out how, using the right technology, they can process not only clean production waste but also even heavily contaminated post-consumer materials to make new raw material. In combination with EREMA's smart digital solutions, this sets a new standard in terms of quality and processes in plastics recycling.*



FIBC-包装袋由INTAREMA TVE加工成高品质再生颗粒

*FIBC bulk bags will be processed live on an INTAREMA TVEplus to make high-quality recyclates*

埃瑞玛大中华区首席执行官James Qiu认为，在中国，材料再生仍旧拥有巨大潜力。为了支持该市场的发展，EREMA再生材料的生产始终坚持顶级质量。尤其在消费后材料加工方面，EREMA研发了INTAREMA TVEplus®设备。在欧洲，INTAREMA TVEplus®的市场占有率已经远超80%。“传统的熔化过滤器清洁效率不够高，相比之下INTAREMA TVEplus®和EREMA激光过滤器的结合能够更好地处理重污染材料。在中国，工业垃圾中未经清洗的含有纸质杂质的薄膜垃圾、生活垃圾中的塑料垃圾以及电子垃圾的占比很高。在这样的情况下，对分类和搜集系统的投资在不断的增加，这样的改变是令人欣喜的”，James Qiu说到。

如何能最高效地使用不断累积的生产废料？EREMA从技术角度回答了这个问题，供加工者们借鉴。对此感兴趣的观众可以在EREMA的展位上亲自见证INTAREMA TVEplus的生产质量。在现场的展示中，由聚丙烯制造的包装袋垃圾无需

粉碎，直接被加工成高质量的再生材料。“由于塑料适用广泛，人们在餐饮、生活用品、建筑行业等越来越多的领域使用塑料制作的大包装。塑料自身所带的价值很高，将其作为垃圾处理是一种资源浪费。经过EREMA系统的稳定处理，人们可以将回收材料顺利地回用到主生产中。”James Qiu说。而INTAREMA TVEplus®与EREMA激光过滤器的结合，超越了包装袋生产废料的回收，更能运用于使用过的包装袋回收领域，高效地将污染或印刷严重的消费后包装再循环。

EREMA的智能工厂包负责后续的质量完善。回收工厂和生产者将EREMA设备与在线质量测量仪结合使用，由此在持续的生产中，即可随机摘取再生材料的MVR以及色相值，取代了额外的实验室检测。MES re360系统能记录一台或多台设备的生产信息及参数，即使这些设备所处国家不同，数据也能实时传送到电脑上。



带有激光过滤器的INTAREMA TVEplus能使堆积密度不同的严重污染材料高效循环

*The INTAREMA TVEplus with Laserfilter enables the highly efficient recycling of heavily contaminated materials with different bulk densities*

The potential of plastics recycling in China can be tapped even further, says a confident James Qiu, CEO of EREMA China. To support this development from the technological side, EREMA counts on maximum quality in the production of recyclates. EREMA developed the INTAREMA TVEplus system especially for the processing of post-consumer materials which, with a market share of over 80 per cent in Europe, has secured a clear lead. "The unique combination of INTAREMA TVEplus and EREMA Laserfilter is particularly suitable for material with a high degree of contamination, when conventional melt filters can no longer offer the necessary cleaning efficiency. The amount of unwashed waste film with paper labels from commercial waste, HDPE from household waste or WEEE, for example, is high in China. This is why the current developments in terms of increased investment in the expansion of sorting and collection systems are encouraging," says Qiu.

污染严重的薄膜由INTAREMA TVEplus和EREMA激光过滤器加工成高价值再生粒

*Heavily contaminated film can be processed with the recycling duo INTAREMA TVEplus and EREMA Laserfilter to make high-quality recyclates*



For processors, EREMA offers the technical answer to the question of how the production waste which accumulates can be used as efficiently as possible. Interested attendees can see the production quality of the INTAREMA TVEplus 1007 for themselves at the EREMA booth. The system will be processing production waste from polypropylene big bag bulk containers (FIBCs) live to make high-quality recyclates – direct and without any pre-shredding. "Due to its wide variety of use you find large plastic fibre packaging in an increasing number of areas, such as food products, consumer durables and the construction industry. Plastic is too valuable to dismiss as waste. Thanks to the stable processing with our EREMA systems it is no trouble to put the recyclates back into the production process," states Qiu. Equipped with an EREMA Laserfilter, the INTAREMA TVEplus system can even recycle heavily contaminated or heavily printed post-consumer bulk bags.

EREMA's smart factory package represents another boost in quality. Recyclers and producers can equip their EREMA systems with online quality measuring equipment to record the MVR and colour values of the recyclates at the machine during processing – as opposed to later on in the laboratory. Additionally, the re360 Manufacturing Execution System (MES) enables you to transfer production and machine data from one, two or dozens of systems – also at different locations – directly to the computer in real time.

**EREMA at the CHINAPLAS: Hall 2H, Booth 2B59**

中国国际橡塑展：展馆2H 展台号2B59

## 管材挤出的高品质和自动化

# Premium Quality and Automation in Pipe Extrusion

KraussMaffei Berstorff将在上海国际橡塑展 (展厅2H, 展台2T01) 上展示PVC和PO管材挤出的高品质解决方案。公司将与宝塑管业一道推出双向拉伸PVC管技术。早已大获成功的自动在线变径应用快速变径QuickSwitch技术征服了中国市场和亚洲市场。

*KraussMaffei Berstorff presents premium quality solutions in PVC and PO pipe extrusion at Chinaplas (Hall 2H, Booth 2T01). The company is introducing biaxially oriented PVC pipe technology together with Baosu Pipe Industry. QuickSwitch technology for automatic in-line dimension changes, already successful for many years, is taking over the Chinese and Asian market.*



双轴向PVC-O管  
Biaxially oriented PVC-O pipes

### 与宝塑合作开发面向未来的PVC-O管道技术

根据2017年年底达成的合作协议, KraussMaffei Berstorff和宝塑管业(中国河北省)将积极推动PVC-O技术的国际销售。“宝塑是PVC管材挤出专家, 多年来一直致力于开发特殊的拉伸技术,”慕尼黑基地销售经理Andreas Kessler强调说。自20世纪80年代以来, KraussMaffei Berstorff一直与宝塑保持着良好的合作伙伴关系, 根据最新发展状态, 合作推出用于U-PVC生产的双螺杆挤出机方案。

“为了能够更快更准确地响应客户对工艺工程和材料成分的要求, 宝塑管业计划安装一台配备双螺杆挤出机的设备, 用作示范”, Kessler解释说。

与未定向PVC管相比, 双轴向管材几乎可以具有两倍的耐冲击性, 更高的耐内压性且重量减轻40%。

这种管材主要用于污水和饮用水供应领域, 以最佳的方式将可持续性和出色的技术特性结合在一起。此外, 更容易运输和敷设。

宝塑管业所销售的产品品牌名称为Taiji Blue pipe®。

### 快速变径: 自动化程度高, 可小批量生产

在中国, 塑料加工行业对数字化解决方案的兴趣也是巨大的。通过快速变径, 生产商可以实现小批量生产, 且准备时间短, 废料少。

KraussMaffei Berstorff将通过一个锥形件向中国国际橡塑展的观众展示这种技术的优势, 在该工件上过渡区域从加工直径直到新直径(160-250mm)。这是KraussMaffei Berstorff对大批量生产转向工业化高品质单件定制生产趋势的响应。“我们成熟的全自动变径系统可以节省时间, 降低成本, 代表着经济生产,”塑料挤出业务副总裁Bengt Schmidt在中国说。此外, 为加工者提供高度的灵活性, 从而确保最大的竞争力。“投资快速变径就是投资智能高效生产, 为未来的’smart factory’铺平道路,”Schmidt说。

### Partnership with Baosu for groundbreaking PVC-O pipe technology

After signing a cooperation agreement at the end of 2017, KraussMaffei Berstorff and Baosu Pipe Industry (Hebei province, China) are actively pushing the international sale of their PVC-O technology. “Baosu is a specialist in PVC pipe extrusion that has concentrated on the development of special stretching technology over the course of many years,” says Andreas Kessler, General Sales Manager at the Munich location. KraussMaffei Berstorff has maintained a strong, long-term customer relationship with Baosu since the eighties. Among other deve-

lopments, it will contribute its twin-screw extruder for U-PVC production based on the latest technology to this cooperation as a core component.

"In order to respond more quickly and with more precision to customer demands regarding process engineering and material composition, Baosu Pipe Industry is planning to install a system – equipped with our twin-screw extruder – that will be used for demonstration purposes," explains Kessler. Compared to non-oriented PVC pipes, biaxially oriented pipes achieve nearly twice the impact resistance, higher internal pressure resistance and a weight reduction of up to 40 percent. They will predominantly be used for wastewater and drinking water supply. Here in particular, they exhibit an excellent combination of sustainability and outstanding technical properties. Transporting and laying these pipes is also easier. Baosu Pipe Industry will market the finished product under the brand name Taiji Blue pipe®.

**QuickSwitch: High degree of automation and small batch sizes**



KraussMaffei Berstorff的快速变径定径篮  
*QuickSwitch calibration basket from KraussMaffei Berstorff*

There is an enormous amount of interest in digitalized solutions in the plastics processing industry in China, as well. Using QuickSwitch, the producer gets small order batches with short set-up times and minimal material waste.

KraussMaffei Berstorff shows Chinaplas attendees the advantages of this technology using a tapered piece, which illustrates the transition from the manufactured diameter into the new dimension (160 to 250 mm). This is KraussMaffei Berstorff's answer to the trend in mass-produced products towards individualized, high-quality single-unit production. "Our system for fully automated dimension changes, tried and tested for years in day-to-day production, saves time and money and is a prime example of cost-effective production," says Bengt Schmidt, Vice President of Plastic Extrusion in China. In addition, it guarantees processors a high degree of flexibility and, as a result, maximum competitiveness. "Those who invest in QuickSwitch are investing in intelligent, efficient production and are well on their way to the 'smart factory' of tomorrow as a result," says Schmidt.

锥形件 – 在KraussMaffei Berstorff的快速变径设备上加工而成

*Tapered piece – manufactured on a KraussMaffei Berstorff QuickSwitch machine*



**KraussMaffei Berstorff at Chinaplas 2018: Hall 2H, Booth 2T01**

KraussMaffei Berstorff将出席中国上海国际橡胶展  
展厅2H, 展台2T01

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[www.kraussmaffieberstorff.com](http://www.kraussmaffieberstorff.com)

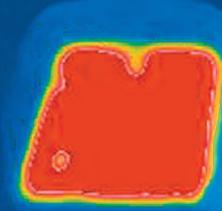


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FRANZ MESSER



ELEKTROWÄRMETECHNIK

## 专注于特殊薄膜生产

## Focus on Specialty Film Production

在2018年上海举行的中国国际橡塑展期间，**展台2L91**，德国薄膜拉伸线的全球市场领导者布鲁克纳机械有限公司将为高附加值塑料薄膜的生产，展示他们的最新概念。

*At Chinaplas 2018 in Shanghai, Booth 2L91, German film stretching line market leader Brückner Maschinenbau will present their latest concepts for the production of added-value plastics films.*

### 在展台现场演示：新型的实验室拉伸机KARO 5.0

对于任何一种拉伸薄膜的开发，都必须在完全可靠和精确的实验室拉伸设备上进行所有的试验。拥有超过40台已经成功安装使用的经验，布鲁克纳“KARO IV”，为实验室拉伸机树立了一个全球性的标准。无论是用于新型包装膜配方，优化表层，高速树脂开发，和其他应用，如电容器膜、电池隔膜或光学薄膜，KARO IV多年来一直是薄膜发展不可或缺的一部分。

现在新一代的“KARO 5.0”将会在2018年的中国国际橡塑展期间首次展示其一系列扩展功能。从单向到双向，分次或同步拉伸，它提供了更多及强化的可能性，在布鲁克纳展台现场演示：

- 符合人体工程学的机器设计，使操作更加舒适和方便
- 全新的可视化系统，实现优化，直观的机器控制
- 更好的工艺控制
- 更快地更改工艺设置和烘箱冷却功能
- 夹子冷却系统可以加快试验结果
- 更安静的机器操作
- 低能耗

### 电池隔膜生产线：独有的超大宽度，独特的同步工艺

布鲁克纳的电池隔膜技术呈现出两全其美的效果

- 用于湿法电池隔膜生产的精密和定制生产线和部件 - 实现最高的生产率和灵活性
- 专利的蒸发成孔Evapore生产线概念，包括完整的工艺技术和薄膜保证 - 实现能源效率和低生产成本。



Latest Simultaneous Stretching Technology

### 最新的同步拉伸技术

在2018年的中国国际橡塑展期间，布鲁克纳将介绍两个惊艳世界的新产品：

- 5.5米的生产线概念 - 市场上最强大和最高效的电池隔膜技术
- 独特的LISIM同步工艺 - 首次应用于湿法电池隔膜生产

### 高性能BOPP和BOPET包装膜生产线

中国的包装膜生产商要求高产量和低生产成本。布鲁克纳的薄膜拉伸线是业内最广阔，最快速和最有生产力的。国际橡塑展的参观者将会了解

- 10.4米工作宽度的BOPET薄膜生产线
- 产量大大超过6万吨/年的BOPP薄膜生产线

结合提高能源和原材料的利用效率以及“简易操作”的新操作理念，布鲁克纳的包装薄膜生产线显着降低了薄膜制造商的总成本。

在布鲁克纳集团的综合展台上，除了布鲁克纳机械有限公司外，参观者也可以与布鲁克纳技术服务公司的人员会面，了解他们为薄膜拉伸线的盈利运行所提供的解决方案。凯孚尔公司将展示在包装、汽车、医药和家电工业的最新发展，而PackSys Global公司将展示其先进的包装设备。

**Live at the booth: New laboratory stretching machine KARO 5.0**

For any kind of oriented film development, it is essential to perform all trials on completely reliable and accurate lab-stretching equipment. With more than 40 installed units, Brückner's "KARO IV" has set a worldwide standard as the laboratory stretching machine. Whether for new packaging film recipes, optimized skin layers, high speed resins, and other applications such as capacitor film, battery separator film or optical films, the KARO IV has been an indispensable part of film development for many years.

Now the new "KARO 5.0" generation will come with a series of extended features which will be introduced for the first time at Chinaplas 2018. From mono-axial to bi-axial, sequential or simultaneous stretching, it offers enhanced possibilities, demonstrated live at the Brückner booth:

- Ergonomic machine design for a more comfortable and convenient operation
- New visualization system for an optimized, intuitive machine control
- Better process control
- Faster change of process settings and oven cooling function
- Clip cooling system for faster trial sequences
- Quieter machine operation
- Less energy consumption

**Battery separator film production lines: Exceptional width, unique simultaneous process**

Brückner's battery separator film technology presents the best of both worlds

- Sophisticated and customized lines and components for the wet battery separator film production – for highest productivity and flexibility
- Patented Evapore line concept including full process know-how and film guarantees – for energy efficiency and low production costs

At Chinaplas 2018 Brückner introduces two absolute world novelties:

- A 5.5 m line concept for the wet process – the most powerful and efficient battery separator film technology on the market
- The unique LISIM simultaneous process – applied to wet battery separator film production for the very first time

**High performance BOPP and BOPET packaging film lines**

Chinese packaging film manufacturers ask for high output and low production costs. Brückner's film stretching lines are the widest, fastest and most productive within the industry. Chinaplas visitors will get to know

- BOPET lines with 10.4m working width for enhanced productivity
- BOPP lines with significantly more than 60,000 tons/year of output

Combined with increased energy and raw material efficiency as well as the new operating concept "Easy Operation" Brückner's packaging film lines significantly lower film producers' total cost of ownership.

At the joint Brückner Group booth, besides Brückner Maschinenbau, visitors will also meet Brückner Servtec with their solutions for the profitable operation of film stretching lines, Kiefel, showing the latest developments for the packaging, automotive, medical & appliance industry, and PackSys Global, presenting advanced packaging equipment.

**Brückner Group**  
Königsberger Str. 5-7, 83313 Siegsdorf, Germany  
[www.brueckner.com](http://www.brueckner.com)

## 所有双向拉伸生产线服务升级

### *Enhanced Lifecycle Service for all Biax Film-Stretching Lines*

2018橡塑展，布鲁克纳技术服务公司将在上海2L91展位呈现解决方案，以提升现有生产线效率和盈利空间，亮点如下：

*At Chinaplas 2018 in Shanghai, Booth 2L91, Brückner Servtec presents solutions to boost the efficiency and profitability of all existing film production lines, along with following highlights:*



*Clip and Chain refurbishment services in China*

中国的链条链夹翻新服务

### 加强中国市场本地服务

着眼全球，立足当下，布鲁克纳技术服务公司全球化网络助力中国所有薄膜生产商取得显著且持久效益。布鲁克纳机械技术苏州有限公司是布鲁克纳技术服务公司国际专家网络中的中国本地站点，包括一致的供应商接洽。本地语言的服务和支持，涵盖工艺、电气和机械的各个方面，不断增加的本地化产品使布鲁克纳苏州成为您薄膜拉伸线整个生命周期的优秀合作伙伴。在2018橡塑展，客户将会体验到如何一站式服务薄膜生产商的需求。

### 虚拟IPC系统升级

布鲁克纳薄膜拉伸线设计工作数十年。布鲁克纳机械技术公司的虚拟技术如同生产线的“大脑”——精良的IPC过程控制系统。虚拟IPC系统不会过时，延长所有关键部件寿命，并可集合进工厂集中管理网络，提供轻松服务和支持。布鲁克纳苏州公司可本地提供一系列IPC和虚拟化方案和服务。

### 中国的链条链夹翻新服务

很多客户已经从布鲁克纳服务公司的链条链夹翻新服务中获益，可谓是薄膜拉伸线滑块和轴承链条的最好服务。原厂制造商经验、先进工具和一系列备选方案，例如链条链夹部件租借，可将停机时间最短化，并保证持久品质。一系列新型服务，例如FOK4.4.6和FOK4.4.4的现场链条链夹清理，完善了这项服务。

### 布鲁克纳服务公司助您搬迁生产线

现有薄膜生产线的搬迁原因可谓多样，例如将低产量小线转入新兴市场或将生产线从新城边缘搬至空置的宝贵土地。布鲁克纳服务公司为薄膜生产商提供一站式服务：从设计支持到整条生产线的交钥匙搬迁，包括同步的现代化。

### *Enhanced local services for the Chinese market*

Thinking globally, acting locally, the network of Brückner Servtec aims to generate significant and lasting benefits for all Chinese film-producers. The China local service station Brückner Technology Suzhou is part of Brückner Servtec's international specialist network, including aligned supplier access. Service and support in local language, in any process, electric and mechanical subjects, as well as an increasing number of localized products and

services, make Brückner Technology Suzhou an exceptional partner throughout the whole lifecycle of a film-stretching line. At Chinaplas 2018, customers experience how needs of film-producers are comprehensively served out of one hand.

### *Virtualized IPC system upgrade*

Brückner film-stretching lines are built to last for decades. Brückner Servtec's virtualization technology is just like the same for the line's "brains", the sophisticated IPC process control system. The futureproof virtualized IPC system extends the lifecycle of all vital components and is integrated into the plant's network for centralized management and easy service and support. Brückner Technology Suzhou offer an extensive bouquet of IPC and Virtualization solutions and services locally in China.

### *Clip & Chain refurbishment services in China*

Many customers already take advantage of Brückner Servtec's clip & chain refurbishment service, the best service for sliding and roller chains used in film-stretching lines. The expertise of the original equipment manufacturer combined with state-of-the-art tools and a variety of additional options, such as rental models for clip and chain parts minimize downtime and ensure long-lasting quality. An attractive range of new services like on-site clip and chain cleaning for FOK 4.4.6 and FOK 4.4.4 complete the service offer.

### *Moving your production line with Brückner Servtec*

There are multiple reasons to relocate existing film production lines, i.e. move smaller lines with lower output into new emerging markets or move lines out of new city borders to vacant precious land. Brückner Servtec offers film producers everything from one source: from engineering support to turnkey relocation of complete production lines, including simultaneous modernisation.

#### Brückner Servtec GmbH

Königsberger Str. 5-7, 83313 Siegsdorf, Germany  
[www.brueckner.com](http://www.brueckner.com)

# 塑料的结晶化和干燥：PET去污染、回收利用和散装物料输送的解决方案

## *Crystallization and drying of plastics: Decontamination of PET. Recycling and Bulk Handling Solutions*

2018年中国国际橡塑展将于中国上海举办，值此之际，凯恩伯格（KREYENBORG）设备技术公司将推出其新产品，即基于其著名IRD（红外旋转干燥鼓）的IR-CLEAN® 和 PET-BOOSTER® 系统。此外，在2J33展台上还将展出其它值得关注且久负盛名的挤出和回收利用行业设备，用于散装物料处理（料仓，混合器，填塞加料机）。

*On the occasion of the CHINAPLAS 2018 in Shanghai, China, KREYENBORG Plant Technology will be presenting their new products IR-CLEAN® and PET-BOOSTER® based on their well-known IRD Infrared Rotary Drum. In addition, the proven solutions for bulk material handling (silos, mixer, crammer feeders) for the Extrusion and recycling industry will be another key aspect on booth 2J33.*

这一年的展台，尤其是对于挤出和回收利用行业而言，应予特别关注的将是不同塑料的结晶化、干燥和去除污染以及散装物料处理过程的综合的解决方案。

### IRD红外旋转干燥机：

IRD干燥机的应用范围几乎是无所不包的。IRD可用于一系列的塑料原料的结晶化和干燥，例如ABS, EVA, HDPE, PC, PEEK, PET, PLA, PPS, PTFE, TPE和TPU，可以是纯新原料或者回收再生原料。通过连续不断运转的红外旋转干燥，完全避免了使用高耗能的热空气或干燥空气，轻松地达到了平均节能30% 的效果。

### PET-BOOSTER®:

这种连续运转的系统对于PET进行结晶化和干燥只需7-10分钟。这里特别应当关注采用排气式挤出机（双螺杆挤出机，行星式挤出机和多螺杆挤出机）挤出PET片材、薄膜和纤维。含水量水平变化着的输入原料导致挤出过程中工艺条件的变化，采用凯恩伯格PET-BOOSTER®可以消除这一影响。



IRD 红外干燥机

*IRD Infrared Dryer*

### IR-CLEAN®:

消费后的PET碎片用于生产直接接触食品的产品时，应去除污染，以符合美国FDA（食品和药物管理局）的规定。IRD系统的新概念是立足于已得到验证的IRD思路，采用常规的结晶化+干燥工艺生产出洁净的碎片。在IR-CLEAN® 工艺中，碎片的处理是对其表面进行恒定不变的交换，结合高温，但不采用任何真空系统。不同的挑战性测试显示出难以置信的洁净效果，并获得了FDA的无异议确认函。IR-CLEAN® 系统可以与所有挤出方式结合使用，且特别有吸引力的是可对现有的PET片材生产线采用非常经济的方式翻新。

### 散装物料的处理:

另一种得到公认的产品是凯恩伯格散装物料处理产品，特别是处理流动性差的产品，例如薄膜碎片、绒毛材料和纤维。作为回收利用行业久经考验的解决方案，将展出料仓，混合器，输送和填充上料系统。

Particular focus this year will be crystallization, drying and de-contamination of various plastics as well as comprehensive solutions for bulk material handling processes, especially for Extrusion and the Recycling Industry.

#### **IRD Infrared Rotary Dryer:**

The range of applications of the 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 the energy-intensive use of hot or dry air is completely eliminated, easily resulting in energy savings averaging 30%.

#### **PET-BOOSTER®:**

This continuously operating system crystallizes and dries PET within 7-10 minutes. Focus here is specifically on applications in extrusion of PET sheet, films and fibres with degassing extruders (twin-screw, planetary- and multi-screw-extruders). Varying levels of input moisture that results in process variations in the extrusion process can be eliminated with the KREYENBORG PET-BOOSTER®.

#### **IR-CLEAN®:**

Decontamination of Post-Consumer PET Flakes for Direct Food Contact Products in compliance with US FDA regulations. A

new concept of the IRD system is producing clean flakes based on the general crystallization + drying process of the well-established IRD concept. In the IR-CLEAN® process the flakes are treated under permanent exchange of surface in combination with high temperatures, but without any vacuum systems. Different Challenge Tests show an incredible cleaning efficiency and it is confirmed by a FDA Letter of Non Objection. IR-CLEAN® systems are intended to be used in combination with all extrusion concepts and are especially interesting as a very economic retro-fit solution to existing PET-Sheet-lines.

#### **Bulk material handling:**

Another well-established product line are the KREYENBORG solutions for Bulk material handling especially of bad flowing products like film flakes, fluff materials and fibres. Silos, mixer, conveying and crammer feeder systems will be presented as proven solutions for the recycling industry.

#### **Chinaplas: Halle 2 Stand 2J33**

中国国际橡塑展 : 2号馆 2J33展台

**KREYENBORG Plant Technology GmbH & Co. KG**  
Messingweg 18, 48308 Senden, Germany  
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## 测量 : 2018 国际橡塑展 SIKORA 展位号

### **Measurement Technology: SIKORA at Chinaplas 2018**

CHINAPLAS 2018 国际橡塑展将于 4 月 24 - 27 日在上海国家会展中心盛大举行。作为为全球用户提供创新型测量、控制、检测分析及分拣系统的 SIKORA 公司，也将参与此次盛会。在展会上，SIKORA 公司将展出在管材、板材和塑料工业领域与品质控制、操作流程优化及成本节省相关的检测系统。

*At the Chinaplas in Shanghai from 24 to 27 April, 2018, SIKORA, manufacturer and global supplier of innovative measuring, control, inspection, analysis and sorting devices, will present a comprehensive portfolio of systems for quality control, process optimization and cost savings for the hose, tube, sheet and plastics industries.*

The PURITY SCANNER 在线检测并自动剔除塑料材料杂质

*The PURITY SCANNER for online inspection and sorting of plastic material*



SIKORA 的 CENTERWAVE 6000 系统，用于挤出生产线上测量大规格管道的直径、椭圆度、壁厚以及熔垂度。该系统采用创新的毫米波技术，测量管道范围从 90-3200mm。CENTERWAVE 6000 可配备旋转测量系统对管材的表面进行360度的检测。另外，该系统也可采用多轴的固定式探头设计。同类型的 PLANOWAVE 6000 系统也是采用毫米波测量技术，用于测量塑料板材的厚度。

展出仪器中的最一个亮点是 PURITY SCANNER ADVANCED 系统，用于塑料材料的在线检测和分拣。该系统采用 X 射线成像系统与光学系统的灵活配合运用，是目前市场上唯一能够对塑料颗粒表面以及内部的杂质进行可靠检测的应用系统。在使用过程中，含杂质的颗粒被自动剔除。根据所需检测杂质的不同及应用场合，该系统可以采用高速的光学成像系统、X 射线成像系统、彩色及红外成像系统。

对于较小的材料检出量、以及实验室样品测试及来料检查的应用情况，可以采用 SIKORA 的 PURITY CONCEPT 系统。该系统可以采用 X 射线、光学及红外接收器，可以对颗粒、薄片、薄膜/胶带及注塑件进行检测。

另外，SIKORA 还有一系列的其他检测系统，用于外径、椭圆度、壁厚、偏心及表面缺陷检测。

With the CENTERWAVE 6000, SIKORA showcases a system for the measurement of diameter, ovality, wall thickness and sagging of large plastic pipes during extrusion. The system is based on millimeter waves technology and measures pipes from 90 to 3,200 mm. The CENTERWAVE 6000 is available in a rotating version and thus offers the complete measurement of the wall thickness at 360 points of the entire circumference of the pipe. Alternatively, a multiaxial system is available with static sensors. The PLANOWAVE 6000, also based on millimeter waves technology, is used for thickness measurement of plastic sheets.

Another highlight is the PURITY SCANNER ADVANCED for online inspection, and sorting of plastic material. The combination of an X-ray camera with a flexible, optical camera system is the only technology at present that reliably detects contamination on the surface as well as inside of plastic pellets. Contaminated pellets are automatically sorted out. Depending on the type of contamination and application, optical high-speed cameras as well as X-ray, color and infrared cameras are used.

For smaller material throughputs and for applications where sampling analysis or incoming goods inspection are sufficient, SIKORA offers the PURITY CONCEPT Systems. Alternatively, these analysis devices can be equipped with X-ray technology, optical cameras or infrared sensors and detect contamination in pellets, flakes, films/tapes and crosshead parts.



CENTERWAVE 6000为管道生产提供在线的品质保障

*SIKORA presents at Chinaplas the CENTERWAVE 6000 for online quality control of plastic pipes*

SIKORA also shows a wide range of systems for online measurement of the diameter, ovality, wall thickness and eccentricity of products as well as for lump detection.

**Sikora at the CHINAPLAS: Booth 2J63**

2018 国际橡塑展 SIKORA 展位号：2J63号展位

# 用于生产高质量LFT混合料的拉挤生产线及周边设备

## *Pultrusion Lines and Peripherals for Producing High-Quality LFT Compounds*

在今年的中国国际橡塑展上 ProTec 将展出经济地生产高质量 LFT ( 长纤维增强热塑性塑料 ) 颗粒料的拉挤生产线。这种生产线可以全自动加工各种各样的物料，已在中国和整个亚洲引起了广泛的关注。

*At this year's Chinaplas ProTec will be presenting pultrusion lines for economically producing high-quality long fiber reinforced thermoplastics (LFT). These lines are capable of fully automatically processing numerous materials and have aroused considerable interest in China and right across Asia.*

ProTec 生产的物料处理设备范围广泛，可以互相联接并联网。作为产品范围广泛的有代表性的产品，ProTec 将展出灵活的 RDM-40 树脂干燥机。这种移动式辅助单元，配备了工业 4.0 控制器，由于其节能的特性和易于清洁，所以效率特别高。这家德国一站式服务塑料加工设备供应商所提供的 RDM 系列产品，产量范围可从 5 kg/h 到 150 kg/h，干燥温度可从 60°C 到 140°C。



64 束拉挤生产线在中国江苏省苏州禾昌聚合材料股份有限公司运行  
*64 strand pultrusion line in service at Suzhou Hechang Polymeric Materials (HCJH), in the Chinese province of Jiangsu  
 (Photo: Suzhou Hechang Polymeric Materials Ltd.)*

### 适合于生产种类繁多的纤维-高分子组合材料的 LFT 拉挤生产线：

ProTec 的拉挤生产线可以采用各种纤维-高分子材料组合制造 LFT 粒子，甚至可采用难于加工的匹配如碳纤维和聚丙烯。拉挤成型生产线包括连续不断牵引的纤维束通过聚合物熔体，让聚合物均匀地将其润湿。冷却以后，对 LFT 链进行切片，成为预先所要求长度的颗粒。当采用玻璃纤维、钢纤维、碳纤维或聚酰胺纤维作为增强材料时，基质可以是任何适合的热塑性塑料。通过注射模塑成型，LFT 粒子可以制成特别轻量的高强度部件，例如在汽车构件、电器、包装和运动器材行业以及航空航天中应用的部件。



HCJH 采用 ProTec 拉挤生产线和各种高分子材料基材以及不同的纤维含量，生产不同的 LFT 粒子产品，客户用来转化成零部件，比如洗衣机零件

*HCJH uses the ProTec pultrusion line to produce a variety of LFT pellets with a variable polymer matrix and different fiber contents, which its customers convert for example into washing machine parts  
 (Photo: Suzhou Hechang Polymeric Materials Ltd.)*

从2017年八月起，禾昌就已在ProTec生产线上生产出用于汽车工业和其它领域的LFT粒子

*HCJH has been producing LFT pellets for the automotive industry and other sectors on the ProTec line since August 2017 (Photo: Suzhou Hechang Polymeric Materials Ltd.)*

### 苏州禾昌：塑料加工商，一个快乐的客户：

江苏省苏州禾昌聚合材料股份有限公司 (HCJH) 是ProTec的中国客户之一，对ProTec LFT 拉挤生产线感到满意。这家区域性改性塑料供应商有200多名员工，主要业务方向是汽车和家用电器行业。禾昌持续不断地开展研发保证了LFT粒子技术的不断发展，这些粒子采用聚丙烯 (PP)、聚酰胺 (PA)、丙烯腈 - 丁二烯 - 苯乙烯共聚物 (ABS) 和聚酯 (PBT) 为基材，主要地与玻璃纤维相结合。

从2017年八月起，ProTec的拉挤生产线已经在这家公司运行了。ProTec 不仅提供产量高达1,000 kg/h的标准设备，还提供了全套订制系统，包括来自于同一家供应商的规划建设安装服务。禾昌选择了64束生产线以及由ProTec 提供的SOMOS Gramix 称重计量混合系统。

### LFT粒子用于各行各业：

禾昌选购的生产线，采用各不相同的高分子材料基质和不同的纤维含量生产LFT粒子，以适应不同的应用领域。其中一个热点是汽车行业，例如制造前端模块、仪表板支撑和天窗框架。禾昌的研发工程师Shi Yaoqi 解释道：“我们帮助我们的客户降低成本，改善物料的性能，提升其竞争优势。”生产线以30-35 m/min的线速度生产10到12mm长度的粒子，纤维含量（重量百分比）可高达65%，根据高分子材料及所含纤维的不同，生产线速度可高达50 m/min。Shi Yaoqi满腔热情地补充说：“我们对这条拉挤生产线感到很满意。生产线非常可靠，其性能与我们的预期完全一致。”他提到的优点包括：

采用LFT粒子生产的汽车部件，包括前端模块

*Automotive parts produced from LFT pellets include front-end modules (Photo: Suzhou Hechang Polymeric Materials Ltd.)*



纤维的浸渍非常均匀，从而得到高质量的LFT，生产线的灵活性，全自动运行的可能性。生产线中央控制器自动地协调所有生产线模块，例如生产线速度或粒子切片长度的变化。

**ProTec将出席中国上海国际橡胶展 展厅2，展台J11**

They can be combined and networked at will with components from ProTec's comprehensive materials handling range. ProTec will also be showing its flexible RDM-40 resin dryer as a representative of the wide range available. This mobile auxiliary unit has an Industry 4.0-capable controller, is particularly efficient thanks to its energy-saving features and is easy to clean. The RDM series from this German one-stop shop plastics processing supplier covers moderate throughputs from 5 kg/h to 150 kg/h and drying temperatures from 60°C to 140°C.

### *LFT pultrusion lines for numerous fiber-polymer combinations*

ProTec's pultrusion lines are capable of manufacturing LFT pellets from many fiber-polymer combinations, even difficult to process pairings such as carbon fiber and polypropylene (PP). Pultrusion involves continuously drawing fiber strands through a polymer melt and wetting them uniformly with the polymer. After cooling, the LFT strands can be chopped into pellets of the desired length. The matrix can be any conventional thermoplastic, while glass, steel, carbon or aramid fibers are used as the reinforcement. The LFT pellets can be converted into particularly light-weight, high-strength components by injection molding, for example in automotive construction, in the electrical, packaging and sporting goods industries and in aerospace applications.

***A happy customer: plastics processor HCJH from Suzhou***

Suzhou Hechang Polymeric Materials Ltd. (HCJH) from the city of Suzhou in Jiangsu province is one of ProTec's Chinese customers who are delighted with their ProTec LFT pultrusion line. This regional supplier of modified plastics has over 200 staff



and predominantly supplies businesses in the automotive and domestic appliance industries. HCJH's ongoing R&D activities ensure the continuous development of LFT pellets which it produces from polypropylene (PP), polyamide (PA), acrylonitrile-butadiene-styrene (ABS) and polyesters (PBT), predominantly in combination with glass fibers.

ProTec's pultrusion line has been in service at HCJH since August 2017. ProTec offers not only standard systems with throughputs of up to 1,000 kg/h but also complete custom solutions which include planning, construction and installation from a single source. HCJH opted for a 64 strand line and a SOMOS Gramix gravimetric dosing and mixing system, also supplied by ProTec.

#### *LFT pellets for various sectors*

HCJH uses the line to produce LFT pellets with a variable polymer matrix and different fiber contents for processing in various sectors. One focus is the automotive sector, for example for manufacturing front-end modules, instrument panel carriers and sliding roof frames. "We help our customers cut costs, improve material performance and gain a competitive edge", explains Shi Yaoqi, R&D engineer at HCJH. Pellets 10 to 12 mm in length are produced at a line speed of 30 to 35 m/min. Fiber contents of up to 65 wt.% and line speeds of up to 50 m/min are possible, depending on the polymer and fiber content involved. "We are very happy with our pultrusion line", adds Shi Yaoqi enthusiastically, "it is very reliable and performs entirely as expected." Advantages he mentions include its extremely uniform impregnation of the fibers and the consequent high quality of the LFT, the flexibility of the line and the possibility of fully automatic operation. A central line controller automatically coordinates all line modules, if for example line speed or pellet chopping length vary.

**ProTec at the CHINAPLAS: Hall 2, Booth J11**



除了LFT拉挤生产线，ProTec 还可以提供各种各样的物料处理设备。其中的一个例子是将在展会上展出的RDM系列移动式树脂干燥机，例如在图片中展示的RDM-70/200，可以作为灵活的辅助单元来使用

*In addition to LFT pultrusion lines, ProTec can supply a wide range of materials handling equipment. One example which will be exhibited at the fair is an RDM series mobile resin dryer, such as the RDM-70/200 shown here, which can be used as a flexible auxiliary unit (Photo: ProTec Polymer Processing).*

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## 用于塑料加工行业的最新开发的和先进的造粒机

### *Recently developed and advanced Pelletizers for the Plastic Processing Industry*

马格作为全球领先的齿轮泵、造粒和过滤系统及高要求应用领域粉磨机的制造商，将在4月24至27日在上海举行的2018国际橡塑展上，为塑料原料生产商、改性塑料生产商和循环造粒用户隆重推荐其最新型的造粒系统。并且在此次国际橡塑展上，马格将与其子公司埃特林格首次联合亮

相。埃特林格公司是高性能溶体过滤器的制造商，其产品主要应用于再循环应用行业，自年初加入马格集团。此次马格的展位是2号展厅P38展位，其展位面积将创历年之最，此次展出的最新型造粒系统ZHULI®、PEARLO®、BAOLI®和M-USG系列都将是展位的大看点。

- 在马格的ZHULI® 水下造粒系统中，2017年马格已经推出的ZHULI® SLC ( SLC表示弹簧压力控制切割 ) 系列是一个高性价比的水下切割入门级系统，用于低至中等生产量的标准应用。SLC型的基本原理是利用其选定的弹簧将其刀片以恒定的压力压在模头上。而2018年马格将推出最新的ZHULI® MAP水下造粒系统，这款新型的MAP ( MAP代表手动可调式造粒机 ) 则可随意调节，该技术显著扩展了应用范围，能满足更复杂的应用要求。所有ZHULI® 系列产品的核心部件均在美国和德国制造。

- PEARLO® 是马格用于生产球形颗粒的高性能水下造粒系统，它结合了加拉和奥托马蒂克的技术，能满足最复杂应用的需求，产量高达可达 36,000公斤/小时。紧凑和模块化的结构，使其占地面积极小。EAC电子控制技术确保了造粒刀片在运行过程中的精确输送，并且确保在长时间不间断运行时，塑料颗粒也能保持始终如一的高质量。

- BAOLI® 干切料拉条造粒机是马格针对硬质和软质的改性和回收物料的造粒设备，在此次国际橡塑展中，马格将展示其全新的第3代版本。其工作宽度可达300毫米，可适用于将多达75根的料条，加工成长度1.5毫米至5毫米的圆柱形颗粒。与先前的老型号相比，第3代将更为紧凑，更易于清洁，更易于操作。其突出的特点是其采用高度可调的结构，并且操作面板在左侧或右侧可随意安装。BAOLI® 系统的关键部件在德国制造，所有规格均符合德国适用的安全标准。可选装隔音罩，进一步降低噪音。

- M-USG水下拉条造粒机是马格造粒机家族中的旗舰款，在业界处于领先地位，主要应用于PET、PA和PC等原料塑料生产，其最高产量可达20,000公斤/小时。其最突出的特点是采用整体优化结构设计来实现操作和维护上的便利，可实现高度自动化的刀头快速更换。采用高耐磨切削刀具确保长时间稳定持续运行。可以说，M-USG在业界就是出色稳定的颗粒品质的代名词。

埃特林格公司也将首次出现在马格的展台上，为客户展示其2017年底最新推出的ERF350型最新熔体过滤器。在过滤污染的塑料熔体时，该产品可以可靠地去除杂质，如纸张、铝、木材、弹性体或污染程度高达18%的高熔点塑料，并且熔体损失极低。该产品的设计新颖，效率高，适用于不同的熔体类型和溶解度，满足不同的过滤精度要求，最高产量可达3800公斤/小时。广泛适用于所有常见的聚烯烃和聚苯乙烯以及众多的工程塑料，如苯乙烯共聚物、TPE和TPU。

**F**or Chinaplas 2018 Maag, a leading global manufacturer of gear pumps, pelletizing and filtration systems as well as pulverizers for challenging applications, is highlighting pelletizing systems for plastic producers, compounders and recyclers. Chinaplas is also Maag's first joint appearance with Ettlinger, a manufacturer of high-performance melt filters for recycling applications belongs to Maag since the beginning of the year. The pelletizing systems presented at booth P38 in hall 2 – with the largest area ever for Maag at a trade fair in China – focus on the ZHULI®, PEARLO®, BAOLI® and M-USG series.



马格M-USG水下拉条造粒机

*Maag M-USG Underwater Strand Pelletizer*

- Maag's ZHULI® underwater pelletizing system was expanded with the new ZHULI® MAP, building upon the ZHULI® SLC (SLC stands for Spring Loaded Cutters) which was introduced in 2017 and is the cost-effective basic system for numerous standard applications with low to medium throughput. While the knives in the SLC type are pressed against the die with a permanently selected spring pressure, the pressure of the knives against the die in the new MAP type (Manual Adjustable Pelletizer) is variably adjustable. This option significantly extends the application range by making it possible to adapt to the relevant process parameters. All key components are manufactured in the USA and Germany, as they are for the entire ZHULI® product family.

- PEARLO® is the high-performance underwater pelletizing system from Maag for making spherical pellets. It combines technologies from the previously independent companies Gala and Automatik for efficient and flexible use in challenging applications with throughput of up to 36,000 kg/h. Compact and modularly designed, it requires only a very small footprint in production. Electronically controlled EAC technology guarantees precise feed of the pelletizing knives during operation, thereby ensuring long runtimes free of interruptions with consistently high pellet quality.

- BAOLI® dry-cut pelletizers from Maag for compounding and recycling hard and soft materials are available at Chinaplas in the 3rd, completely revised generation. With working widths up to 300 mm, they are designed for processing up to 75 polymer strands into cylindrical pellets from 1.5 mm to 5 mm in length. Their advantages compared to previously available versions include the more compact design and good accessibility for cleaning as well as variable height adjustment and control elements optionally positioned on the left or right side for added operational flexibility. The key components of BAOLI® systems are manufactured in Germany and all versions meet the requirements of applicable safety standards in Germany. Noise emission, which is already reduced, can be further diminished with the optionally available sound insulating hood.

- The M-USG underwater strand pelletizers are the flagship of Maag pelletizers and the market leading systems worldwide for making raw plastic materials such as PET, PA and PC. With throughput of up to 20,000 kg/h, they stand for outstanding, consistent pellet quality, high system availability due to the quick-change cutting head, a high level of automation, long service life of the extremely wear-resistant cutting tools and excellent accessibility for convenient operation and maintenance. For the first time under the Maag umbrella, Ettlinger is presenting the performance-enhanced melt filter type ERF350 at Chinaplas, just recently introduced to the market at the end of 2017. It reliably filters plastic melts with impurities and separates foreign materials such as paper, aluminum, wood, elastomers or plastics which fuse at a higher temperature with impurity levels up to 18 % – all with extremely low melt losses.

Designed for especially high efficiency, it achieves a maximum throughput of 3800 kg/h, depending on the type of melt and degree of impurities as well as the selected filtration rating. It is suitable for all commonly used polyolefins and polystyrenes as well as a large number of technical plastics such as styrene copolymers, TPE and TPU.

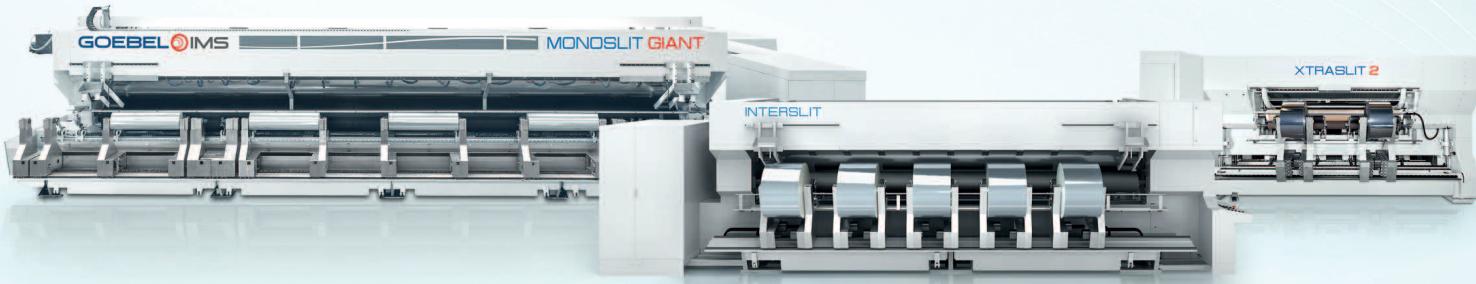
**Maag at Chinaplas 2018: Hall 2, Booth P38**

Maag将出席中国上海国际橡胶展 展厅2，展台P38

**Maag Pump Systems AG**  
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## 性能卓越的分切复卷机组合

### *Top-Performing Portfolio of Slitter Rewinders*



中国是橡胶塑料设备的最大进口国 – 德国是中国橡胶塑料生产商的主要供应商。这一紧密的关系即使在最近的“新常态”放慢了中国橡塑业发展增速的情况下依然在持续。中国仍然在国际市场中扮演着主要角色：终端市场在增长，对高品质产品的需求在上升。格贝尔艾玛斯通过提供顶级性能的一系列分切复卷机来响应这一发展，分切机涵盖了从 1,800 毫米到 12,000 毫米的整个膜宽范围。

作为创新的分切复卷设备的全球领先供应商，格贝尔艾玛斯将在 2018 年 4 月 24 日至 27 日的橡塑展中突出展示其综合性的一系列高性能分切复卷机，这个历史悠久的供应商将在展台 **02 2J96** 欢迎各位访客的莅临，并向您展示最新的分切复卷设备：莫诺系列分切机，因特系列分切机和艾特 2 代分切机，涵盖了整个从 1,800 毫米至 12,000 毫米范围的膜

宽，并设定了薄膜分切的标准。所有分切复卷机结合了高性能及高质量的最新技术。

莫诺系列分切机，由最大工作宽度到 9,000 毫米的莫诺型分切机和最大工作宽度到 12,000 毫米的莫诺巨人型分切机组成，设计用于分切多种类型的薄膜，例如 BOPP, BOPET, OPP, CPP, BOPA, BOPS 和其它特种薄膜。厚度在 0.5 至 500 微米的材料可以在最高为 1,500 米/分钟的速度下进行分切，即使在最大速度下也可平稳运行，并保证最终产品的优异质量。最新设备的放卷直径设计为最大 1,800 毫米，复卷直径最大 1,550 毫米，复卷站的最大成品卷载重为 5,000 公斤。

新开发的因特型分切机，已在成功运行，尤其是在亚洲市场上，该机设计用于中等宽度最大到 7,000 毫米材料的大

产量分切，因特机型是基于莫诺机型设计的，另外，非常紧凑设计的艾特 2 代，涵盖了最大宽度为 3,600 毫米的宽度。因特机型适用于厚度为 0.5 至 500 微米的包装膜，电容器膜，热转印膜，镀铝膜及用于工业和光学用途的厚膜。该机型的收卷站的承重量最重为 5,000 公斤，放卷直径最大为 1,550 毫米，复卷直径最大为 1,300 毫米。由于使用了超轻型张力浮动辊，可确保在高速运行时的恒定膜张力，因此可保证最大速度 1,200 米/分钟的运行。因特机型可分切出非常窄的成品卷，最小分切宽度 180 毫米。

即使听起来相似，但因特型隔膜分切机的设计是完全不同的：这款初次分切机专门用于分切电池隔膜及湿法 BOPE 电池隔膜，都是非常敏感的材料。它可分切宽度最大为 6,000 毫米的材料，具有清洁，集成式的设计。

所有的格贝尔艾玛斯分切复卷机都使用了数字交流技术，可高效回收电能，帮助减少操作成本并提高能效。这些机型都有经济基础型，也可加装特殊配置变为高配型。例如因特型分切机，可以加装一套剃刀更换装置或一套监视分切单元的视频系统。

格贝尔艾玛斯，全球知名的创新分切复卷设备供应商，为纸张和纸板，薄膜，烟纸，铝箔，无菌包装以及其它特殊材料的生产商和深加工商提供设备，并不断为最大能效及最优秀的分切和复卷质量而努力。设备机型包括用于卷材的分切复卷机，收卷机以及特殊机型。公司一直将创新的技术，最高的设备稳定性及质量放在工作的首位。

**C**hina is the biggest import market for plastics and rubber machines – Germany is the major supplier for Chinese plastics film manufacturers and converters. This close relationship continues even though the “new normal” has recently slowed down the economic growth of the Chinese rubber and plastics industry. Still, the People’s Republic is one of the main global players in the market: The end-user market is growing and demands for high quality products are rising. GOEBEL IMS answers this development by offering a top-performing portfolio of slitter rewinders, that covers the complete web width from 1,800 to 12,000 mm.

As one of the global leaders in innovative slitting and winding solutions, GOEBEL IMS will highlight its comprehensive portfolio of high-performing slitter rewinders at Chinaplas 2018: The long-established manufacturer welcomes visitors at **booth 02 2J96** and informs about its latest slitting and winding solutions:

MONOSLIT, INTERSLIT and XTRASLIT 2 cover the complete range of web widths from 1,800 to 12,000 mm and set standards in film converting. All slitter rewinders combine high performance and top quality with cutting-edge technology.

MONOSLIT series, comprising the MONOSLIT with a working width of up to 9,000 mm and the MONOSLIT GIANT with a 12,000 mm working width, are designed for converting a broad spectrum of films, such as BOPP, BOPET, OPP, CPP, BOPA, BOPS and other special films. Materials with thicknesses between 0.5 and 500 µm can be converted at a speed of up to 1,500 m/min, featuring an extremely smooth run at maximum speed while guaranteeing outstanding quality of the end product. The new machine design allows for an unwinding diameter of up to 1,800 mm and a rewinding diameter of up to

1,550 mm, with winding stations carrying a maximum finished roll weight of up to 5,000 kg.

The newly developed machine INTERSLIT, that has already proven very successful especially on the Asian market, is designed for the highly productive processing in the range of intermediate width of up to 7,000 mm. INTERSLIT is based on MONOSLIT on the one hand and, on the other hand, on the especially compact designed XTRASLIT 2, that covers working widths of up to 3,600 mm. The machine is suitable for foil thicknesses of 0.5 to 500 µm and process packaging films, capacitor films, thermal transfer films, metallized films and thick film for industrial or optical applications. The machine’s winding stations can accommodate a remarkably high roll weight of up to 5,000 kg with an unwind diameter of up to 1,550 mm and a rewind diameter of up to 1,300 mm. Top speeds of 1,200 m/min are guaranteed thanks to the ultra-light dancer roller ensuring constant web tension even at high speeds. INTERSLIT allows for the production of narrow rolls, starting from a minimum slitting width of 180 mm.

Though sounding similar, INTERSLIT BSF is truly different: This primary slitter rewinder is dedicated to processing battery separator films and wet processed BOPE-based battery separator film, both ultra-sensitive materials. It can convert web widths up to 6,000 mm and features a clean, integrated machine design.

All GOEBEL IMS slitter rewinders comprise a digital AC drive technology that allows for highly efficient energy recovery and, thus, helps reducing operational costs and improve energy savings. Further, the machines come both as an economic, basic model and with special upgrade options with a range of technical features. INTERSLIT, for example, can be customized with a razor blade exchange device or a camera system monitoring the slitting unit.

GOEBEL IMS, a globally valued manufacturer of innovative slitting and winding solutions both for producers and manufacturers for paper and board, film, tobacco paper, alufoil and aseptic packaging and other special materials, continuously strives for maximum efficiency and excellent slitting and winding quality. The range of products include slitter rewinders and winding machines as well as special machinery for web materials. The company always puts innovative technologies, highest machine availability and quality in the focus of their work.

#### GOEBEL IMS at the CHINAPLAS: Booth 02 2J96

中国国际橡塑展：展位 02 2J96

**GOEBEL IMS**

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# 在2018年中国国际橡塑展上，继续聚焦于本地区

## *Regional Focus Continues at Chinaplas 2018*

在2018年中国国际橡塑展8.1号馆D19展台，戴维斯标准(Davis-Standard)将推出公司近期开发成果和设备创新。在戴维斯标准的最新动态中，包括近期对Maillefer的收购，公司在苏州的优势，进一步扩充了的dsX flex-pack™挤出涂布技术以及新的拉伸膜能力。戴维斯标准将同时展出MEDD(医用直接驱动)挤出机。

*Davis-Standard will promote the company's recent expansion and equipment innovation in Hall 8.1, Booth D19, during CHINAPLAS 2018. Among Davis-Standard's latest developments are the recent acquisition of Maillefer, the company's strengths in Suzhou, expanded dsX flex-pack™ technology for extrusion coating, and new stretch film capabilities. Davis-Standard will also exhibit a MEDD extruder (Medical Extruder Direct Drive).*

2017年戴维斯标准对Maillefer的收购扩大了公司在电线电缆、管材和软管设备领域的供货范围，在芬兰和瑞士拥有了更多的设施，能够更好地服务于客户，包括中国客户。值得指出，生产电线电缆的能力，包括了生产汽车用电线，建筑用电线，同轴电缆、局域网、光导纤维、中压、高压和超高压电线电缆。对于管材和软管的应用范围，包括了汽车管，加热管道和水管设施，灌溉管，医疗用管，微导管和软管，国外和按需定制的生产线。随着Maillefer的加入，增强和补充了戴维斯标准公司以及戴维斯标准(苏州)塑料包装机械有限公司在中国的业务。苏州的工厂是戴维斯标准公司在中的制造基地，提供FPVC医用导管设备和共挤应用设备，同时组装电子控制台、挤出机和齿轮箱。

除了制造以外，苏州公司也是研发实验室，用以支持亚洲增长中的医疗市场。实验室配置了技术装备，例如MEDD挤出机(曾展出过)，用来测试一系列硬质和软质的产品以及用于静脉点滴和液体输送的FPVC导管。导管的用途包括微



戴维斯标准的MEDD挤出机

*Pictured is Davis-Standard's MEDD extruder*

内径导管，多腔管以及气管内及气管切开术用导管，无线电不穿透管，气泡管，锥形管，吸液管和多层管。MEDD挤出机是专门为这些公差要求严格的应用而设计的，结构紧凑，能源效率高，原料适应性好。这种挤出方式的优点包括线性移动，加料部分衬垫可更换，机筒组件可更换以及建立在Windows®基础上的控制系统。

戴维斯标准亚洲业务发展部副主席Sekaran Murugaiah说道：“我们在苏州的公司已经对我们在中国的成长给予了帮助。例如，我们的一个客户将戴维斯标准定为优先的挤出机供应商，其原因是我们的本地化和设备性能的恒定。我们将继续依靠我们的设备优势，例如我们的dsX™产品线以及制造和服务能力来满足亚洲市场的需求。中国国际橡塑展是一个理想的交流平台，我们期待着一个富有成效的展会。”

最新的dsX flex-pack系列产品型号是300S单工位挤出复合生产线，是特别针对亚洲软包装市场而设计的。戴维斯

标准dsX flex-pack™ 300S 的设计是由公司在美国、德国和中国的团队合作完成的，其目的是保证价格、占地面积、速度和产量指标，以及在较短的运行时间内能够满足产品更换要求的能力。此外，针对亚洲软包装市场，戴维斯标准将提供前后排列配置的这种设备，命名为dsX flex-pack™ 300T。戴维斯标准计划，首台dsX flex-pack 300S在2018年第四季度苏州的客户工厂开放日进行现场演示。

戴维斯标准同样希望新的拉伸膜生产线及DS S3 收卷机有助于亚洲的包装印刷加工行业。质量控制，多功能性和高效率是这种技术的特点。生产线的设备排列紧凑，易于维护，有着绝佳的断面控制，恒定的膜卷质量和直观的控制程序包。设计用于高速生产薄型薄膜，厚度量规31-到 51 (7.8μ到 13μ)。戴维斯标准的DS S3并排式重叠收卷机对于这种应用场合是必不可少的。DS S3收卷机可以实现分切宽度最大化，适合于手动缠绕包装，机器缠绕包装和大卷，用一台收卷机即可满足多种细分市场的需求。薄膜卷在生产线的前方卸载出来，到达共同的一侧以简化膜卷的包装和满足未来的自动化的要求。管芯同样由同一边从后方装入，以避免干扰包装工作。在换卷过程中，有一条辅助辊清除上部缠绕的废料，可以优化膜卷的质量和消除外缠绕层的换卷废料。所有特性都有利于高等级薄膜的加工。

"Our location in Suzhou has been instrumental to our growth in China," said Sekaran Murugaiah, Davis-Standard Vice President of Business Development, Asia. "For example, one customer has made Davis-Standard their preferred extruder provider due to our regional presence and consistent equipment performance. We also continually build upon equipment strengths such as our dsX™ product line as well as manufacturing and service capabilities addressing the needs of the Asian market. Chinaplas is an ideal platform for this exchange and we anticipate another productive show."

The latest dsX flex-pack model is the 300S, which is a single station extrusion and lamination line with benefits specifically engineered for the Asian flexible packaging market. Design of the dsX flex-pack™ 300S is a collaboration between Davis-Standard's teams in the U.S., Germany and China to ensure that pricing, machine footprint, speeds and output, and the ability to make shorter runs would accommodate demands of converters. In addition, Davis-Standard will offer a tandem configuration of this machine called the dsX flex-pack™ 300T for the Asian flexible packaging market. Davis-Standard plans to have its first dsX flex-pack 300S demonstrated during a customer open house in Suzhou in the fourth quarter of 2018.

Davis-Standard also anticipates that its new stretch film line with the DS S3 winder will be beneficial to Asian converters. Quality control, versatility and efficiency are hallmarks of this technology. The line offers a compact machine arrangement, ease of servicing, excellent profile control, consistent roll quality and an intuitive control package. It is engineered for producing thin films from 31-to 51-gauge (7.8μ to 13μ) at high speeds. Davis-Standard's side-by-side DS S3 overlapping winder is essential to this capability. The DS S3 winder enables maximum slit widths for hand-wrap, machine-wrap and jumbo rolls, supporting multiple market segments on one winder. Films discharge out the front of the line to a common side to simplify roll packing and future automation. Cores are also same-side loaded from the back to prevent disruption of packing activities. There is an auxiliary lay-on roll to eliminate top-wind waste during transfer, optimizing roll quality and eliminating outer wrap transfer waste. All features are advantageous for high-grade film operations.

Davis-Standard's acquisition of Maillefer in 2017 expanded the company's wire and cable, pipe and tube equipment offering, and added facilities in Finland and Switzerland to better serve customers, including those in China. Wire and cable capabilities include automotive, building wire, coaxial cable, LAN, fiber optic MV, HV and EHV among others. For pipe and tube applications, this includes automotive, heating and plumbing, irrigation, medical, micro-duct, off-shore and custom lines. The Maillefer addition complements Davis-Standard's presence in China with Davis-Standard (Suzhou) Plastics Packaging Machinery, Co., Ltd. The Suzhou facility is Davis-Standard's manufacturing base in China, offering equipment for FPVC medical tubing and co-extrusion applications as well as assembly of electrical control panels, extruders and gear-cases.

In addition to manufacturing, Suzhou is home to an R&D laboratory to support Asia's growing medical market. The lab is equipped with technology such as the MEDD extruder (being shown) to test a range of rigid and flexible products as well as FPVC tubing for IV & fluid delivery. Applications include micro-bore tubing, multi-lumen and catheter tubing, endotracheal and tracheotomy tubing, radio opaque tubing, bubble tubing, taper tubing, pipette tubing and multi-layer tubing, among others. The MEDD is specifically engineered for these tight tolerance applications due to its compact design, energy efficiency and materials versatility. Advantages of this extruder model include linear movement, a replacement feedsection liner, interchangeable barrel assemblies and Windows®-based control system.

#### Davis-Standard at Chinaplas 2018: Hall 8.1, Booth D19

Davis-Standard2018年国际橡塑展: 8.1号馆，D19展台

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# 在2018年CHINAPLAS期间展示自动化技术

## Automations at CHINAPLAS 2018

Moretto是领先的意大利各种自动化及技术的供应商,服务范围包括物料处理、干燥、混料、热传导和粉碎设备，将在本年度上海举办的中国国际橡塑展期间展示。

*Moretto, a leading Italian provider of wide range of automations and technologies for Material Handling, Drying, Blending, Heat Transfer and Size Reduction equipment, will attend this years Chinaplas in Shanghai.*

从1980年起，Moretto 就向塑料加工商提供集成化系统和辅助设备解决方案。支持过程自动化和最佳化，特别是有高精度要求的PET预成型注射模塑。当今Moretto 的目标是面向全球市场。除了在意大利的总部，集团在全球包括在中国还有7个销售分公司。中国塑料工业市场有着巨大的潜力，对新技术也越来越敏感。随着Moretto的当地分公司进入市场并提供出色的解决方案、专有技术、售前-售中和售后服务，可以迅速地对中国客户需求作出响应并建立长期的关系。

**干燥:** 在 Chinaplas 上，聚光灯将会聚焦于EUREKA PLUS 和 MOISTURE METER MANAGER。EUREKA PLUS是模块化、节能型树脂干燥系统，被誉为“市场上能买到的最先进的低能耗干燥系统”。项目的诞生经过了十五年以上的研究、模

拟和实验，并继续在发展中，包括新的模具和新的用途。EUREKA PLUS由四种Moretto拥有专利技术的单元组成：

X MAX 高性能、模块化的多层流化床干燥机，有着恒定的露点，与 FLOWMATIK (一种动态气流管理装置)，OTX 干燥料斗 (出色的质量流量干燥特性) 以及“湿度计量管理” (革命性的在线实时湿度分析仪)。湿度计管理在线测量粒子里的实时残留水分含量并在转化过程之前立即检查聚合物是否充分干燥。在料斗的入口和出口之间三角测量粒子初始的和最终的含水量，湿度计量管理系统能够自动管理干燥机的工作条件，并适应联机过程界定工艺参数以得到适当的干燥和最大的能源效率。这种工艺能够让干燥机的运行基于聚合物在任何给定的时间内的条件，做到实际的“有需要就干燥”。通过获得物料的初始数据以及知道最终所需要的含水量，湿度计量管理系统在整个过程中拥有全部控制并管理全部工艺变量 (物料的种类、最终湿度设定、小时生产率、处理温度、特定的气流)。

为完善干燥机供货范围，Moretto出品了X 干燥空气微型干燥机及X Comb 系列高性能机器用于干燥少量的技术性原料。对X Comb 进行了特别设计，能满足医药部门严格的要求。这种干燥机由OTX料斗 (有着合适的几何形状，使得物料的流动和空气的流动均匀，保证了无与伦比的特性)。X Comb 技术的核心由集成的露点均衡器 (能够保持稳定的露点到0-52 ° C ) 及高效率涡轮压缩机组成。此外，自适应变量气流和抗应力控制保证了最佳的处理和防止了过度干燥。对于需要洁净室的医用和光学以及技术应用而言，排放气体的再生使得X Comb 干燥机成为完美的解决方案。

Kasko 属于Moretto开发的输送流动性差的塑料原料上料机的范围。Kasko 是坚固的设备，适合于大多数工的作要求。有从30 kg/h 到 80 kg/h不同的型号供选用，可以单机应用也能组成复杂的集中式系统。



DGM GRAVIX系列称重计量单元和GRAMIXO连续失重批次混料机，均为Moretto 的完善的计量解决方案。DGM GRAVIX 系列称重计量单元是高技术设备，Moretto 的构思是不仅要保证无与伦比的精度水平(0.001%) 同时还要与可能互联的网络交换数据，进行远程管理设备参数和生产数据、消耗数据以及成本的统计。

GRAMIXO 沿袭了Gravix系列的计量精确度，可以有不同的相关模式以适合不同部门的应用（医疗，片状，高温，粉状，微量计量，耐腐蚀）。这种计量装置的特色是“双眼皮系统”（一种自由称量料斗，抗振动系统），特别方便的可视触摸界面和可连接到Mowis 监控系统。TE-KO是Moretto 的温度控制系列，可以采用加压水和采用油作为媒介两种方式。目的在于即使在非常困难的情况下也能保证温度自动控制的效率和绝对精密，不管是应用于注射模塑还是挤出机的机筒或辊筒。

MOWIS (Moretto目标窗口集成管理器) 是集成的自组态监管系统，带有直观的目标规划，由Moretto 开发，用于塑料加工工厂整个自动化链机器的连接和控制。Mowis通过使自己适应需求和定性克服了传统监管的障碍，适应每一个客户生产和管理的目标。模块化的软件以及合适的自动组态和用户友好界面，能够立即显示系统状态。

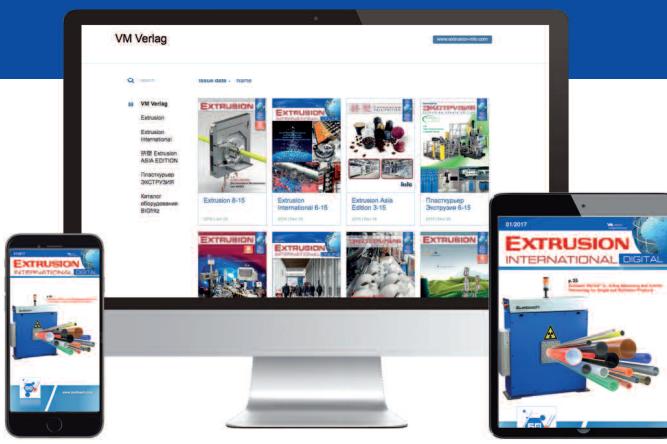
在Moretto 的智能工厂里机器互相之间都采用公司管理软件实现互联化，系统可以从所有生产过程的参与单元取得大量数据，精心制作，分享和使用这些数据从而实现更高水平的效率。项目的目标是结合技术领导能力和数字技术以获得可以自动化地适应市场所需要的产量，预测破损或提前停

机，提供实时远程支援。当今的挑战是从支离破碎的服务中走出来，建立一个相互关联的供应链模式。

Since 1980, Moretto has been providing plastic processors with integrated systems and auxiliary equipment solutions, enabling process automation and optimization, particularly for the high precision requirements of the injection molding of PET preforms. Today Moretto is projected towards the global market. In addition to its headquarters in Italy, the group boasts a global presence with 7 sales branches including China. The Chinese plastic industry market has huge potential and is increasingly sensitive to new technologies. With its local branch Moretto enters in the market offering excellent solutions, know-how, pre-during and after sale service, able to promptly respond to the needs of Chinese customers and establish long-term relationships.

**Drying:** At Chinaplas the spotlight will be focused on EUREKA PLUS and MOISTURE METER MANAGER. Eureka Plus is a Modular, Energy-Saving, Resin Drying system, claimed to be "the most advanced low consumption drying system available on the market". A project born from over 15 years of studies, simulations and experiments and which continues to evolve including new tools and applications. Eureka Plus is comprised of four Moretto-patented technologies:

X MAX high performance, modular multi-bed dryer with con-



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sistent dew point, combined with FLOWMATIK, a dynamic airflow management device, OTX drying hoppers with superior mass flow drying characteristics and now MOISTURE METER MANAGER, a revolutionary In-real and real-time moisture analyzer. Moisture Meter Manager measures In-line the actual residual moisture content in the granule and checks that the polymer is adequately dehumidified immediately prior the transformation process. The delta measurement between the initial and final moisture content of the pellet, at the hopper inlet and outlet, allows Moisture Meter Manager to automatically manage the dryer working conditions and to adapt the process on the fly defining process parameters for proper drying and maximum energy efficiency. This process allows the dryer to operate based on the condition of the polymer at any given time, providing a real "drying on demand". By acquiring the initial data of the material and knowing the final moisture requested, Moisture Meter Manager holds a complete control over the process and manages all the process variables (type of material, final moisture set, hourly production, treatment temperature, specific Airflow).

To complete the drying offer Moretto presents its X Dry Air mini-dryer and X Comb range, high performance machinery for the drying of small quantities of technical materials. X Comb has been specifically designed for satisfy strict requirements of the medical sector. This dryer is composed by the OTX hopper which, thanks to its unique geometry, allows a flow of material and uniform air ensuring unmatched performance. The technological heart of X Comb consists of the integrated Dew Point equalizer which allows to maintain a stable dew point up to  $-52^{\circ}\text{C}$  and high-efficiency turbo-compressors. In addition, an adaptive variable airflow and anti-stress control ensure an optimal treatment and protection against over-drying. The regeneration of the exhaust air makes X Comb dryer the perfect solution for medical and optical sector and technical applications that require cleanroom.

Kasko is the range of feeders developed by Moretto for the conveying in depression of plastic material. Kasko is a robust device, suitable for the most demanding jobs. Different models are proposed with capacity from 30 kg/h to 80 kg/h, for single applications or complex centralized systems.

The gravimetric dosing units of DGM GRAVIX series and the continuous loss-in-weight batch blender GRAMIXO, are Moretto's perfect dosing solutions. The DGM GRAVIX series gravimetric dosing units are high-tech machines, conceived by Moretto not only for ensuring incomparable precision levels (0.001%) but also for interchanging data with the possibility to be networked, for remotely managing the machine parameters and performing statistics on production, consumption and costs. GRAMIXO inherits dosage accuracy of the Gravix series, its available in various specific models for different sectors applications (medical, flakes, high temperature, powder, micro-dosing, corrosion-proof). These dosers are characterized by a double eyelid system, a free weighing hopper, vibration immunity system, a super easy Touch View interface and a connection to the Mowis supervision system.

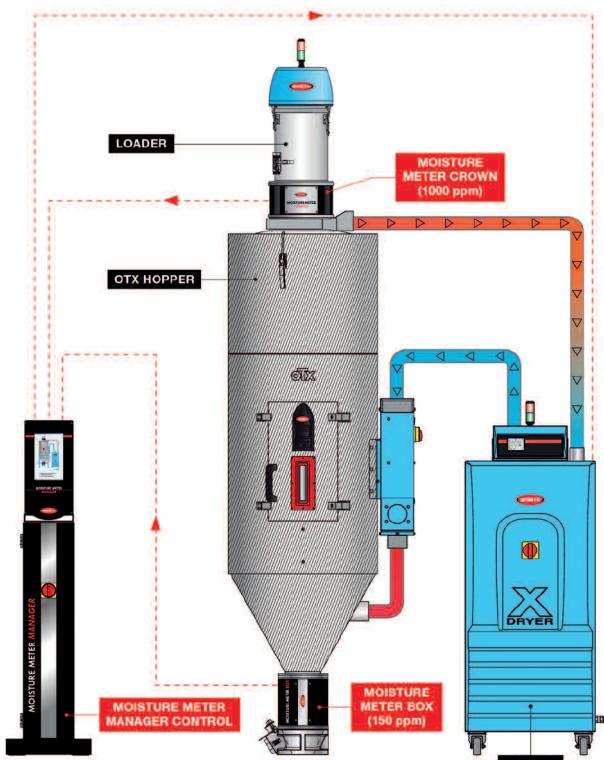
TE-KO is Moretto's temperature control series, available in pressurized water and oil versions, designed to ensure efficiency and absolute precision in automatic temperature control even in the most difficult conditions, whether they are dedicated to injection molds, or cylinders or rollers of extruders.

MOWIS (Moretto Object Windows Integrated Supervisor) is the integrated self-configurable supervision system with intuitive object programming, developed by Moretto for the machine's connection and the control of the whole automation chain in the plastics processing plants. Mowis overcomes the barriers of traditional supervision by adapting to the needs and the qualitative, productive and managerial objectives of every customer. A modular software with unique, auto-configurable and user friendly interface which allows immediate display of the system status.

The Moretto's Smart Factory is where machines are interconnected with each other and with the company management software, a system that is able to acquire large amounts of data from all the actors of the production process, elaborate, share and use them to achieve higher levels of efficiency. The project aims to combine technological leadership with the digital one in order to obtain plants that are able to automatically adapt output to the market needs, predict breakages or machine stops in advance and have a real-time remote support. Today's challenge is to move from fragmented services to an interconnected supply chain model.

#### Moretto at the CHINAPLAS: Hall 2, Booth C61

Moretto 在中国国际橡塑展: 2号馆, 展台号 C61



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# ST 第125 台ASPI 系列三维吹塑机在2018 中国橡塑展与您见面

## *The 125th Blow Moulding ASPI Series Machine at Chinaplas 2018*

ST 公司参加每年一度的中国橡塑展已经成为其不变的传统。本届橡塑展上 ST 公司的登场对于整个团队来说具有非凡的意义。这次展示的机器在 ST 公司的历史上具有重要的里程碑意义：它不仅是卖到中国的第 22 台机器（光2017 年就交货5 台，2018 年已经交货 2 台），而且这是 ST 生产的第 125 台三维吹塑机。

还是在2003 年，ST 团队第一次决定面对这个不同于传统领域的技术项目。2004 年 ST 就交付了它第一台三维技术的机器 ASPI 180。在接下来的几年中，紧跟着新技术的挑战，我们又开发了第一台分段共挤出吹塑机。后来，在2010 年，又诞生了 ASPI 双机，它的特点是双挤出机和双机头。它专为大生产设计，但保留了它的操作灵活性：即可以在两个模腔内同时生产两种不同的产品，甚至采用不同的工艺（一个模腔用传统的二维工艺，而另一个模腔用三维吹塑工艺）。2011 年制造了第一台ASPI 系列全电动吹塑机，叫做 E-Move：它是这个系列的“小家伙”。2014 年 ASPI 400 机型的加入进一步充实了这个家族，它是一款三维吹塑机，但也加强了二维产品的生产能力：特点是加大了模具底板的尺寸，合模力和机头增大了一倍。

“ASPI”系列总是以它的技术特点独步市场。经过多年的研究和创新，在我们经验的基础上与我们的客户一起形成了我们强大的竞争优势：比如4WDS 径向厚度控制系统，它是四向驱动的，比起所有其它厂家仅有的两向驱动系统来说提供了更高的精度和反应控制能力。

2009 年是ST 公司在三维吹塑领域确立领导地位的一年：第一台 ASPI 150 机器面世，这是一个新的系列，后续的升级有 -ASPI 150.2 和今天的 ASPI150.3-组成了 ST 历史上卖得最好的机型。

本届中国橡塑展的参观者将会看到一台卖给一家中国声名卓著的客户的最新版本的 ASPI 150.3 机器，它融合了 ST 公司所有的最新技术和配置，尤其是“W-Print”系统，它可以在坯料上直接打印日期和文字，这次展会上将展示“W-Print”系统使用魔力墨水（只能在紫外光下可见）无损打印吹塑产品。

国际橡塑展的ST Blow Moulding：展位02 2J96

The participation of ST Blow Moulding at the Chinaplas fair is now a consolidated tradition. This year the presence of ST Blow Moulding, at Chinaplas, has a special meaning for the whole team. The machine that will be exhibited represents an important milestone in ST Blow Moulding's history: Not only is it the 20th machine sold in China (in 2017 alone five and in



2018 two machines are delivered), but it is also the 125th machine with parison suction technology, produced by ST.

It was 2003 when, for the first time, the ST team decided to confront a project requiring a different technology from its traditional field of expertise. In 2004 ST delivered the first machine with parison suction technology, the ASPI 180. In the subsequent years new technological challenges followed and the first sequential coextrusion machine was developed. Later, in 2010, the ASPI Dual was born, characterized by the presence of two extruders and two heads. Designed for mass production, but also retaining versatility in its operation: enabling simultaneous production of different items in two cavities, even with different processes (conventional 2D in one cavity and 3D parison suction in the other). In 2011 the first ASPI series electric machine was created, called E-Move: it is the "little one" of this series. In 2014, the range was enhanced with the ASPI 400, a model for the production of 3D mouldings with parison suction, that emphasized the machines versatility in the production of 2D articles: featuring increased mould platen dimensions and double the clamping force.

The "ASPI" series has always presented technical characteristics that make it unique in the market. The developments and innovations introduced over the years, based on the experiences with the customers, give competitive advantage: an example is the 4WDS radial thickness control system, which has four ac-

tuators to provide a more precise and reactive control than the systems used by all the other manufacturers which have just two actuators.

2009 was the year when ST Blow Moulding's leadership in the parison suction technology commenced: the first ASPI 150 was launched, the origin of a new series that, with subsequent updates – the ASPI 150.2 and today's ASPI 150.3 – has become the best-selling model in ST's history.

Chinaplas visitors will be able to see the ASPI 150.3, which is sold to a prestigious Chinese group, in production and equipped with all the latest innovations introduced by ST Blow Moulding. In particular, the "W-Print" system, which allows data or text to be printed directly on the parison. In the configuration which will be exhibited at the fair, the "W-Print" works with ghost ink (visible only under a UVA lamp), for non-invasive marking of the blown item.

#### Soffiaggio Tecnica s.r.l.

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[www.st-blowmoulding.com](http://www.st-blowmoulding.com)



ST Blow Moulding at the CHINAPLAS: Booth 2D67

## 欢迎来到AD\*STAR 的世界

### Welcome to the World of AD\*STAR

史太林格将在 2018 年 Chinaplas 展会上向参展者提供两次能够进一步了解方底阀口袋 AD\*STAR 技术的机会。一方面，参展者可以通过使用加强版的现实应用软件更加具体的了解史太林格的设备。另一方面，史太林格的潜在客户将被邀请参加太仓分公司举办的史太林格开放日，开放日将持续到展会结束。

史太林格的区域销售总监 Klaus Mayerhofer 说：“我们计划在大批观众面前展示我们的设备，在中国设有我们自己的工厂可以最大程度支持客户。”

#### 现场机器演示

AD\*STAR 袋的抗阻性，多用途性，环境友好性，使之成为包装干散货，例如水泥，肥料的最佳选择。AD\*STAR 袋环境友好的特点是因为袋子的精确生产和坚固特性：他们异常牢固，在罐装，运输，储藏过程中能够有效地防止产品的泄漏。用于制作 AD\*STAR 袋的基布是在高速圆织机上编织的 RX6.0 版本的圆织机将在展会



圆织机 RX6.0 (©Starlinger)  
*Circular loom RX 6.0 (©Starlinger)*

上展出。在太仓分公司的展示区，参观者能够看到用于袋子生产的另外两种机器的现场演示：涂膜机 lamiTEC LX 和制袋机 ad\*starKON。参观者能够更加直观地看到史太林格专利技术AD\*STAR 热封工艺的演示，该工艺在热封过程中无需使用胶水。为了展示史太林格微打孔单元microSTAR+的效果，史太林格还会进行空气透气性测试。史太林格的机器能够生产多种多样的产品，包括带手柄的拎袋，用质量轻的纺粘无纺布制成的 REICO\*STAR 袋。

### 了解史太林格的 PET 技术

PET 具有以下特点：食品级安全，视觉吸引力，抗阻性，形态稳定性和可回收性。史太林格意识到 PET 材料的无限潜能，生产用于制作扁丝的设备，该设备能够喂入原始 PET 材料，回收颗粒，甚至 PET 瓶片。这一技术已经离开了发展阶段，现在正在占领市场。该技术用于生产集装袋，也可用于生产食品和消费品的包装材料。最近史太林格的信封袋 rPET PP\*STAR 斩获了 2018 年世界之星奖项。这种类型的袋子由回收材料制成，因此可回收利用。对于 PET 回收，史太林格提供 PET 回收设备，用于优越的颗粒质量，可选配去污设备和粘度增加设备。套筒快速更换设备是史太林格最近的一项创新—专为受污染的 PET 回收而研制的熔体过滤器。最大的卖点在于它可以将过滤精度提升至 15  $\mu\text{m}$ ，及其超长的运行时间。

备注：AD\*STAR® 和 REICO\*STAR® 是注册商标。AD\*STAR® 和 REICO\*STAR® 袋 仅在史太林格的设备上生产。

**A**t Chinaplas 2018, Starlinger will offer its visitors two unique opportunities for getting to know the company's AD\*STAR technology for block bottom valve sacks made from polypropylene woven fabric. On the one hand, they will be encouraged to use an augmented reality application software that allows a detailed familiarization with the equipment. On the other hand, potential clients are invited to visit Starlinger's Open House, which is being held in Taicang during the entire trade show. "We look forward to presenting our machinery to a wide audience," says Klaus Mayerhofer, Regional Sales Director at Starlinger. "Having our own factory in China is definitely an advantage in providing support to our customers."

### Live machinery demonstrations

AD\*STAR 袋是包装干散货的首选解决方案，如水泥或化肥，由于其极高的耐候性，多功能性和环保性。后者主要是由于袋子的精确制造和坚固的性质：它们异常紧密，防止产品在处理、运输和储存过程中丢失。AD\*STAR 袋的织物在高速圆机上编织——RX 6.0 模型将在 Chinaplas 展示。在史太林格在太仓的展厅，参观者将体验到另外两种机器的现场演示：涂膜机 lamiTEC LX 和制袋机 ad\*starKON。参观者将获得对专利 AD\*STAR 热封工艺的直观印象，该工艺在热封过程中无需使用胶水。为了展示史太林格微打孔单元 microSTAR+ 的效果，将进行空气透气性测试。史太林格的机器能够生产多种多样的产品，包括带手柄的拎袋，用质量轻的纺粘无纺布制成的 REICO\*STAR 袋。



史太林格太仓开放日 (©Starlinger)  
Starlinger Open House in Taicang (©Starlinger)

wide range of products can be produced, from AD\*STAR \*carry bags that come with handles to REICO\*STAR sacks made of lightweight, spunbonded nonwoven.

### Learn about Starlinger's PET technology

PET has it all: food-safety, visual appeal, resistance, shape stability, and recyclability. Starlinger recognized the immense potential of PET and built machinery for the production of tape fabric that can be fed with virgin PET, recycled pellets, and even PET bottle flakes. Having left its development phase behind, this technology is now capturing the market. It is used in the production of FIBCs as well as in the packaging of food and consumer goods. Just recently, Starlinger's pinch bottom bag rPET PP\*STAR received a WorldStar Award 2018. This bag is made of recycled material and is fully recyclable. For the recycling of PET, Starlinger offers PET recycling lines for excellent resin quality with optional decontamination and IV increase. A recent innovation is the Rapid Sleeve Changer – a melt filter developed specifically for contaminated PET recycling streams. Its main selling points are finest filtration down to 15  $\mu\text{m}$  as well as high machine uptime.

*Note: AD\*STAR® and REICO\*STAR® are registered trademarks. AD\*STAR® and REICO\*STAR® sacks are produced exclusively on Starlinger machines.*

### Starlinger at the CHINAPLAS: Hall 2, Booth D51

国际橡塑展的Starlinger：展位2 D51

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[www.starlinger.com](http://www.starlinger.com)

# “驰向智能化和可持续的未来”

“Moving towards a smart, sustainable future”



通过增强现实 ( AR ) 技术 , 探索科莱恩解决方案。(图片提供 : 科莱恩)

Explore Clariant's solutions in Augmented Reality. (Photo: Clariant)

全球领先的特种化学品制造商科莱恩亮相2018国际橡塑展 , 通过一辆增强现实 ( AR ) 技术呈现的电动汽车 , 为参观者开启了一场振奋人心的旅程 , 高效、创新地助力汽车行业满足高性能、轻量化和低排放的生活趋势和挑战。

无论是车内、车外还是引擎盖下 , 科莱恩都能为电动汽车行业的特定性能和安全挑战提供解决方案 , 为在中国市场大力投资电动汽车的原始设备制造商和关注电动汽车的消费者提供有力支持。乘客和热点用户们将发现 , 科莱恩的添加剂、色母粒和颜料可以稳定及可持续地提升汽车功能性、安全性和美观性 , 实现在众多塑料、涂料和织物中的应用。参观者可以通过与参展产品的虚拟互动深入了解产品的性能。科莱恩主要创新产品包括 :

## 为外部零部件减重 , 提高生产率 :

使用Hydrocerol® 发泡剂制造脚踏板 , 制造商可以在不降低性能的前提下减少5-20%的脚踏板重量 , 同时缩短循环周期 , 提高车辆生产率。

## 外观持久、内饰健康无异味 :

采用特殊的AddWorks® ATR 146无硫光热防护解决方案 , 可以有效地保持热塑性聚烯烃 ( TPO ) 内饰零部件的美观性 , 同时减少起雾及挥发性有机化合物 ( VOC ) 的排放。

## 车身塑料安全防火 :

科莱恩Exolit® OP 1400是一款高度稳定、基于亚膦酸盐的无卤阻燃剂 , 只需较少的剂量便可为电子和汽车的聚酰胺结构零部件提供优异的加工稳定性 , 可适用于湿热环境 , 因其卓越的可持续性和一流的性能而被授予科莱恩EcoTain® 标签。

低卤控制 ( LHC ) 着色剂能够为高压充电电缆和连接器提供醒目的橙色。科莱恩PV Fast橙色着色剂属于LHC颜料系列 , 具有极佳的耐候性和耐热性 , 适用于电动车充电电缆、充电桩以及连接器的应用。

为顺应中国消费者向智能、安全、可持续生活方式的转变 , 科莱恩在2018国际橡塑展上还将重点展示与生活趋势和城市化相适应的创新产品 , 例如针对中国3D打印趋势而生产的优质3D打印线材。

常驻上海的科莱恩执行委员会委员顾培楠 ( Christian Kohlpaintner ) 说道 : “科莱恩致力于引领推动行业创新和可持续发展。能够在国际橡塑展上展示未来主义的概念 , 我们感到非常激动。这一概念突显了我们对环保和城市化等大趋势的支持 , 中国在高度认可这些趋势的同时正在迈向智能化、可持续发展的新未来。”

Clariant, a world leader in specialty chemicals, steps up a gear for Chinaplas 2018 with an Augmented Reality electric car ready to immerse visitors in an inspiring tour of efficient and creative ways for the automotive industry to meet lifestyle trends and fulfil challenging requirements for higher performance, lighterweight vehicles and reduced emissions.

Climb aboard, peruse the exterior and get under the hood. Clariant gets behind the significant OEM investment and consumer interest in electric vehicles in China with solutions to the particular performance and safety challenges of Electro-mobility. Passengers and hotspot users will explore how its additives, masterbatches and pigments contribute sustainably to improving the functionality, safety and aesthetics of a multitude of plastics, coatings and textile applications. Virtual interaction with highlighted products offers in-depth insight. Among the featured innovations:

#### *Weight reduction and productivity boost for exterior parts*

Using Hydrocerol® foaming agents for the production of running boards, manufacturers can achieve an exceptional 5 to 20 per cent weight saving with no decrease in parts' performance and a productivity increase due to shorter cycle times.

#### *Long-lasting surface aesthetics and a healthier, odorless interior*

Maintain the aesthetics of Thermoplastic Polyolefins (TPO) interior parts while also reducing fogging and VOC emissions with the exceptional sulfur-free heat and light shield AddWorks® ATR 146.

#### *Safer fire protection for vehicle plastics*

Clariant's Exolit® OP 1400, a highly stable non-halogenated phosphinate based flame retardant, offers excellent processing stability at low dosage to polyamides used in electrical and structural automotive parts. It is suitable for hot and humid environments and has been awarded the Clariant EcoTain® label for outstanding sustainability and best-in-class performance.

Low halogen controlled (LHC) colorants achieve the typical "warning orange" for high voltage charging cables and connectors, complying with the industry's halogen-free standards. Clariant's PV Fast Orange colorants are part of a full range of PV Fast LHC pigments offering excellent weather-fastness and heat-resistance for electric vehicle charging cables, charging stations and connectors.

To support the current shift by Chinese consumers towards living a smarter, safer and more sustainable life, Clariant also extends its Chinaplas 2018 focus to further innovations in tune with lifestyle and urbanization trends, such as superior quality 3D printer filaments for the 3D printing boom in China. Christian Kohlpaintner, member of the Executive Committee at Clariant and based in Shanghai, comments: "Clariant is taking on a leadership role in driving innovation and sustainability in the industry. We are very excited to be presenting a futuristic Chinaplas concept that emphasizes our support for megatrends, such as environmental protection and urbanization, being actively embraced by China as its moves towards a smart and sustainable future."

#### **Clariant at the CHINAPLAS: Booth #8.2E63**

国际橡塑展的Clariant : 展位8.2E63





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