

05/2018

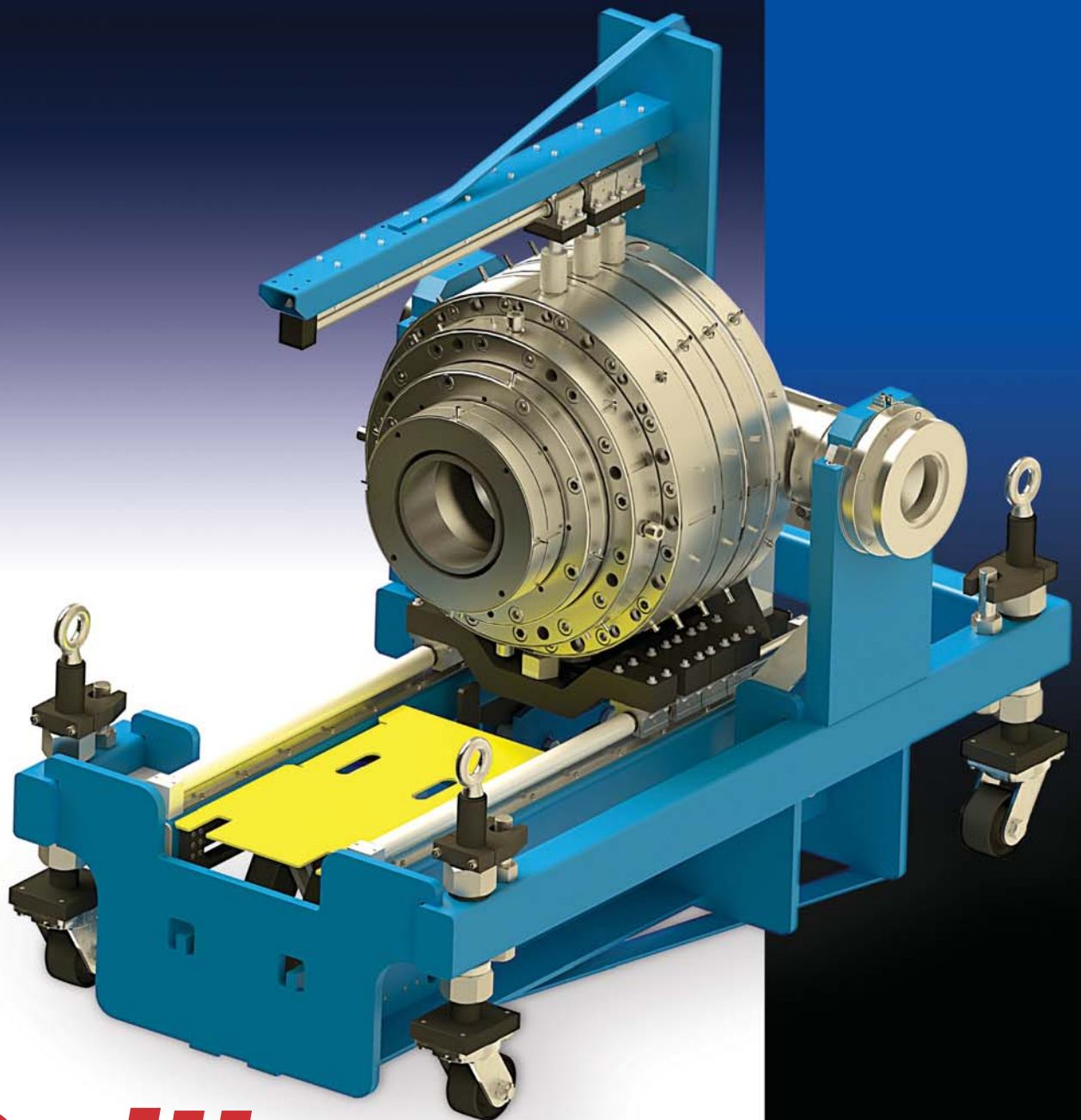
VVA VERLAG  
Cologne /Germany



# EXTRUSION

INTERNATIONAL

FAKUMA  
special issue



**Guill**  
EXTRUSION TOOLING

## Profile stacking machine PRO

INNOVATION



### Profile length measurement during extrusion

Using special sensors the length of individual profiles can be detected before the formation of a profile layer to stack. The measured length can be used for checking and correcting the cutting unit of the extrusion line or for documentation (quality assurance) of the produced profile lengths.

### Weight determination during extrusion

Special weighing units can be used to weigh individual profiles before forming a profile layer. The determined weight can be used to optimize the extrusion process.

### Paper / Foil or Strip laying

By a paper / foil laying unit the profile stacking machines are capable to provide a paper or foil layer between stacked profile layers.

**NEW:** Additional to this feature plastic strips for the further stabilization of the profile layers in the transportation cassette can be provided.

The strips are positioned by a special device in defined positions on the profile layer already stacked. The next profile layer will be stacked on these strips then.



Made in  
Germany

### Laminating foil cutting unit

**INNOVATION**

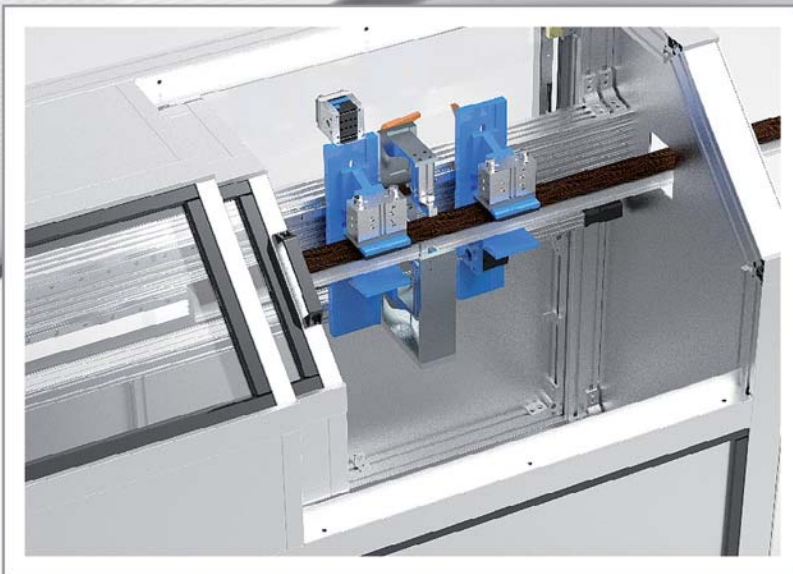


#### Foil cutting for laminating lines

For the offline lamination of profiles single profile sections are provided to the laminating line **end to end** and are laminated with foil continuously.

After the lamination process the laminating foil has to be cut to separate the profiles again.

The **laminating foil cutting unit** detects the profile ends, makes a gap in between the ends and cuts the laminating foil automatically.



#### Advantages of the laminating foil cutting unit

- No damage of the profiles when cutting the laminating foil.
- No interference of the cutting process into the laminating process.
- No danger to employees due to manual cutting.

**„STEIN BLUE-LINE – for a sustainable future“** stands for sustainable and energy-efficient equipment. Almost 100% domestic production and the high degree of manufacturing penetration guarantee compliance with even the most stringent of demands.



**STEIN Maschinenbau  
GmbH & Co. KG**

Wartbachstr. 9  
D-66999 Hinterweidenthal/Germany  
Tel. +49/63 96/92 15-0  
Fax +49/63 96/92 15-25  
stein@stein-maschinenbau.de  
www.stein-maschinenbau.de

Firms in this issue	6	FB BALZANELLI: Automatic coiler for PE pressure pipes up to 10" (250 mm)	44
Imprint	7	Moretto: Concept of Efficiency 4.0	45
<b>Editorial</b>			
"... take a look at the upcoming FAKUMA"	8	AKRO-PLASTIC: Focusing on plastic-metal composites and alternatives to PA 6.6 for lightweight construction	48
<b>industry news</b>	11-25		
<b>FAKUMA 2018 Preview</b>	26-53		
Trade Fair for Everyone	27	FKuR: Heat-resistant PLA compounds and versatile bioplastics for extrusion, injection molding and thermoforming	49
Friul Filiere: A new downstream to celebrate its 40th anniversary	28	Ettlinger: Melt filtration in challenging applications, smaller screen size for PET recycling	50
Gneuss: Further Development of Rotary Filter for Plastic Melts	30	PIOVAN GROUP: Features from Piovan, Aquatech and Fdm brands	52
Getecha: Innovative granulators - Individualisation is the key	32	Exhibitor Notes	54 + 55
Maag: From raw material production through to recycling systems	34	<b>Extrusion Tooling</b>	
Gamma Meccanica: The growing success of the GM Tandem lines produced	36	Flow Dynamics of Extrusion Tooling	56
Brabender Technologie: When speed matters: Easy Change version of FlexWall® Plus	37	<b>Film extrusion</b>	
SIKORA: Premiere of the PURITY CONCEPT V for optical offline inspection and analysis of plastic material	38	Die Heads will be fit again	58
DREYPLAS: Unique UHMW-PE can be processed directly in injection moulding and extrusion	40	<b>Measuring and controlling</b>	
plasticWOOD: The green concept for extrusion and injection molding	41	An interview with Philipp G. Weber, Hch. Kündig & Cie. AG: "We want to make sure it's our customers that come back to us and not our products."	60
FEDDEM: More than just extruders	42	Meaning of "measuring rate", "averaging" and "accuracy" when investing in a measuring device	64
WIWOX: Cleaning concepts for plastics production	43	<b>Pipes and profiles periphery</b>	
		Primac once again hits the mark	62
		<b>Trade Fairs</b>	
		CHINAPLAS 2019 Paves the Way to Plastics' Future	66

Moretto presents the new advertising campaign "Art in color dosing" dedicated to DPK gravimetric loss-in-weight doser, recently launched on the market. DPK completes the full range of Moretto's dosers and solves the overdosing problem with a very precise control.

## Page 12



This year Friul Filiere is celebrating its 40th anniversary and FAKUMA 2018 will be a great opportunity to celebrate its 40th anniversary showing the latest technological developments, first of all among them, the brand new downstream Futura40.

## Page 28

The hopper of the GRS 180 (type A 00246) at the Fakuma stand of Getecha is also equipped with this flexible gateway function. Here, loading can be performed for example with a sprue picker from the portfolio of Getecha. The feeding process including the gateway function is regulated by a higher control in this case.



## Page 32

The FEDDEMs FED 26 MTS extruder is particularly well suited for product developments and as a pilot plant in production. The 34 kW motor is water-cooled and has a torque limiting clutch and high-torque transmission that ensure top performance. With a base length of 42 L/D and a 10 L/D module to extend the processing length to 52 L/D, this extruder can also be used for products requiring a longer dwell time.



## Page 42

Medical tubing and jacketed products must be produced to confirm to very tight tolerances, often wall thickness(es) and diameter(s) being inspected to tolerances lower than 0.0004"/.01mm.

## Page 56



Mr. Weber, Managing Director and current owner of Hch. Kündig & Cie. AG "The company constantly expanding our product range... One example is the K-500 contact capacitive film thickness gauge with extremely low-wear sintered ceramic surfaces. When combined with our patented rotational scanner, the Rotomat KT, a transversal thickness profile can be measured within 36 seconds, without any losses in the measuring accuracy.

Philipp G. Weber  
(All images: Hch. Kündig & Cie. AG)

## Page 60

## Index of Advertisers, companies and *fairs* referred in this issue

<b>ADSALE</b> .....	<b>Back Cover+66</b>	<b>Jwell</b> .....	<b>23</b>
<b>AKRO-PLASTIC</b> .....	<b>48</b>	<b>KraussMaffei Technologies GmbH</b> .....	<b>11</b>
<b>Baruffaldi Plastic Technology s.r.l.</b> .....	<b>62</b>	<b>KÜNDIG Control Systems</b> .....	<b>17+60</b>
<b>battenfeld-cincinnati</b> .....	<b>15+16</b>	<b>Maag</b> .....	<b>25+34</b>
<b>Bischof+Klein</b> .....	<b>12</b>	<b>Messe Düsseldorf</b> .....	<b>20</b>
<b>Borealis</b> .....	<b>18</b>	<b>Messe Frankfurt</b> .....	<b>Inside Back Cover</b>
<b>Brabender Technologie</b> .....	<b>37</b>	<b>Molecor</b> .....	<b>14</b>
<b>Brückner Maschinenbau</b> .....	<b>24</b>	<b>Moretto</b> .....	<b>45</b>
<b>BST eltomat International</b> .....	<b>25</b>	<b>motan-colortronic</b> .....	<b>21</b>
<b>Bürkert</b> .....	<b>39</b>	<b>NGR</b> .....	<b>53</b>
<b>Clariant</b> .....	<b>20</b>	<b>Nordson</b> .....	<b>12+22</b>
<b>Conextru</b> .....	<b>37</b>	<b>P.E. Shall</b> .....	<b>27</b>
<b>DREYPLAS</b> .....	<b>40</b>	<b>Pfeiffer Vacuum</b> .....	<b>22</b>
<b>Easyfairs Deutschland</b> .....	<b>24</b>	<b>PIOVAN S.p.A.</b> .....	<b>52</b>
<b>EREMA</b> .....	<b>35</b>	<b>PLASTICO TRADING</b> .....	<b>49</b>
<b>Erge</b> .....	<b>43</b>	<b>Plastics</b> .....	<b>18+63</b>
<b>Ettlinger</b> .....	<b>50</b>	<b>plasticWOOD</b> .....	<b>41</b>
<b>Extricom</b> .....	<b>29</b>	<b>RE-ATLANTIS</b> .....	<b>61</b>
<b>FB BALZANELLI</b> .....	<b>44</b>	<b>REPI</b> .....	<b>47</b>
<b>FEDDEM</b> .....	<b>42</b>	<b>Sikora</b> .....	<b>21+38+64</b>
<b>FKuR</b> .....	<b>49</b>	<b>Stein Maschinenbau</b> .....	<b>Inside Front Cover + 3</b>
<b>Friul Filiere</b> .....	<b>28</b>	<b>Tosaf</b> .....	<b>23</b>
<b>Gamma Meccanica SpA</b> .....	<b>36</b>	<b>VDMA</b> .....	<b>11</b>
<b>Getecha</b> .....	<b>32</b>	<b>VELOX</b> .....	<b>51</b>
<b>Gneuss</b> .....	<b>19+30</b>	<b>VM Verlag</b> .....	<b>6+8+59</b>
<b>GOEBEL IMS</b> .....	<b>16</b>	<b>W.Amsler Equipment Inc.</b> .....	<b>15</b>
<b>Graham Engineering</b> .....	<b>19</b>	<b>Weber, Hans</b> .....	<b>9+10</b>
<b>GUILL</b> .....	<b>Front Cover+56</b>	<b>Welex</b> .....	<b>19</b>
<b>IKV Aachen</b> .....	<b>14</b>	<b>WINDMÖLLER &amp; HÖLSCHER</b> .....	<b>58</b>
<b>ILLIG</b> .....	<b>41</b>	<b>WIWOX</b> .....	<b>43</b>
<b>iNOEX</b> .....	<b>13</b>		



**Subscribe  
for a year  
free of charge!**

Annual subscription to the digital magazine  
**Extrusion International**

- **Free of charge**
- **Just** leave your **e-mail address**. No spam. Your data is safe
- Get **immediate notifications** when new issues are published and read online

**www.plastic.expert**



The Extrusion International Digital/Print Magazine is published bimonthly by VM Verlag GmbH. P.O.Box 501812, D- 50879 Cologne, Germany

**EDITORS**

Dr. Yury Kravets (Editor-in-chief)  
Tel. +49 2233 979 2976  
y.kravets@vm-verlag.com

Bettina Jopp-Witt  
Tel. +49 221 546 1539  
redaktion@vm-verlag.com

Alla Kravets  
Tel. +49 2233 949 8793  
a.kravets@vm-verlag.com

**ADVERTISING SALES**

Martina Lerner  
Tel.:+49 6226 971515  
lerner-media@t-online.de

**ADMINISTRATION**

Alla Kravets  
Tel. +49 2233 949 8793  
a.kravets@vm-verlag.com

**PRINTING**

h-mailconcept e.K.  
directmarketing  
Venloer Str. 1271, Cologne, Germany

**SALES REPRESENTATIVES**

Quaini Pubblicita (Milano IT)  
Tel. +39 02 39216180  
grquaini@tin.it

Worldwide Services Co., Ltd.,  
(TAIWAN)  
Tel. +886-4-2325-1784  
global@acw.com.tw

Tokyo PR Inc. (Japan)  
Tel. +81 (3) 3273-2731  
extrusion@tokyopr.co.jp

**Reprints, Translation etc**

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photographic, recording or otherwise, without prior permission of the publisher.

[www.extrusion-info.com](http://www.extrusion-info.com)



# Probably the most flexible loader system on the market

 think materials management

**Fakuma**  
 Please visit us:  
**Hall B1,  
Stand B1-1111**



## METRO G

Better than ever before.

motan-colortronic gmbh - [info@motan-colortronic.de](mailto:info@motan-colortronic.de)  
[www.motan-colortronic.com](http://www.motan-colortronic.com)



Dear Readers,

the magazine you are currently holding in your hands, or flicking through on our website [www.extrusion-info.com](http://www.extrusion-info.com), is primarily dedicated to FAKUMA, the plastics processing exhibition in the southern German city of Friedrichshafen, which begins on 16 October. 'Why FAKUMA?', meticulous readers may ask. It is true that the exhibition is traditionally focussed on plastic moulding, and Hall 6, the one set aside for extrusion, appears rather modest and relatively low on visitors in comparison with the halls displaying giant injection moulding machines. Yes, extrusion is not the main draw of the exhibition. But the absence or limited interest of the major engineering firms is more than compensated for by the numerous businesses displaying their latest developments in the fields of control and automation, mixing and dispensing, granulation and recycling, and so on. Frequent visitors will know that, more than at any other exhibition, FAKUMA allows you to leisurely and serenely acquaint yourself with a variety of auxiliary equipment widely used in compounding and extrusion. This is due to its

***“... take a look at the upcoming FAKUMA,,***

compact size and visibility, and the fact that, unlike the major international shows like K and CHINAPLAS, you don't need to worry about managing to see absolutely everything. FAKUMA has competed with PLAST in Milan for many years, and has earned itself a place among the most important events in the plastics industry, building its own unique, warm atmosphere, inspired, perhaps, by the astoundingly beautiful views it affords over Lake Constance.

But that's enough lyrical contemplation: let me return to the contents of this edition, and direct readers' attention to a few items in its various sections. Firstly, Molecor has developed an exclusive and highly efficient industrial system for manufacturing PVC-O fittings, allowing the company to build products with better mechanical properties. In the rest of the magazine we take a look at the upcoming FAKUMA. Maag, for example, reports on the PRIMO 200 E pelletiser from its WSG dry-cut strand pelletising systems range, which reliably produces high-quality cylindrical pellets or micro-pellets ideally suited to further processing. Gneuss' MRS technology has been particularly successful in PET sheet extrusion – as well as producing high quality rigid sheet, the company's PET sheet extrusion lines can now also switch quickly and flexibly to producing physically foamed PET sheet with the addition of Gneuss' new PET foam module. Sikora, meanwhile, will use its exhibition booth to present innovative systems for quality control during the extrusion of hoses and tubes, as well as for inspecting, sorting and analysing plastic materials.

Finally, I have some good news for readers who want a paper version of the magazine. The editorial team is gradually moving from one-off print editions covering major events to a year-round series in both digital and print form. From next year, four of the six editions will be available to read in the traditional paper format. I can already hear some of readers eulogising “the aroma of fresh printer's ink and the rustle of the pages...” The digital version, meanwhile, will, as before, be regularly uploaded on our website, but at a new address: <http://smart-extrusion.com>.

We hope you enjoy reading Extrusion International.

Yours sincerely,

Dr. Yury Kravets, Editor-in-chief



[hansweber.de](http://hansweber.de)

as geothermal plants, district heating and industrial applications. PEXa is the **right choice** wherever pipes have to resist fluids with **high temperatures**. This includes the heating and sanitary sector as well as powerful extruders for these powerful pipes – we are confident that you will agree!

▲ The best for hot things: **Special** tasks require **special solutions**. The **PEXa pipe** offers exceptional properties and **is** therefore used in areas where robustness is required.





# PEXa – the pipe for fluids

## with high temperatures

A high-quality pipe with exceptional properties:

The peroxide cross linking of HDPE makes the PEXa pipe one of the best of its kind. There is a good reason why these pipes are used in areas with particularly high requirements. This includes the heating and sanitary sector, geothermal plants, district heating and industrial applications.

WEBER offer equally powerful extruders for these high performance pipes – and specially customised systems in cooperation with renowned partners.



Scan code and  
download data sheets  
[extrudertechnologie.de/  
en/pipe](http://extrudertechnologie.de/en/pipe)

## Advantages

- // High output capacities
- // Maximum process reliability
- // Good melting homogeneity at very low compound temperatures
- // Practically oriented, proven system components

## Window profile production: Large order from Turkey

■ Adopen Plastic and Industrial Construction Inc. Co., one of the leading profile manufacturers in Turkey ([www.adopen.com](http://www.adopen.com)) placed another large order for more than 16 profile extruders. The machines were delivered in various slots over the past months and will soon go into operation in Antalya.

Impressive machine pool from KraussMaffei Berstorff

"We are very proud of and excited about another large order from our longtime, faithful customer, Adopen," says Andreas Kessler, General Sales Manager at KraussMaffei Berstorff Munich. "The company is now expanding its impressive machine pool of nearly 100 systems by adding another 16 profiling machines, which will be used in producing classic PVC window and exclusive profiles," Kessler explains.



Production plant of Adopen

KraussMaffei Berstorff 32D twin-screw extruder for profile extrusion



The current order includes 12 KMD 90-32/P series twin-screw extruders, a KMD 75-32/P and three KMD 63 K/P conical twin-screw extruders. "Along with the high performance capacity of the machines comes the excellent product quality we attain in extremely flexible and cost-effective production," Mr Emre Aksoy, Chief Production Officer at Ado Group says.

Renowned Turkish processor with global activities

Founded in 1997, the company first concentrated on the domestic market. After a short time, Adopen established itself as a leading window profile manufacturer with international activities and production facilities in five different countries. In addition to the classic PVC window profile, the portfolio includes additional products such as sheets, laminate flooring or natural fiber-reinforced plastics.

■ KraussMaffei Technologies GmbH  
[www.kraussmaffeiberstorff.com](http://www.kraussmaffeiberstorff.com)

## Outlook on plastics and rubber machinery manufacturing stays positive

■ The plastics and rubber machinery manufacturers continue to have a positive outlook on the worldwide demand – except for the Latin American market. This is the verdict of the trend survey for the current year, which is conducted semi-annually by the Plastics and Rubber Machinery Association. A slight decline is already noticeably, however, since the companies had evaluated their markets considerably more positively at the start of this year.



A further decline is expected for the first half of 2019, for which many of the surveyed companies expect a poorer sales development.

Reasons for the negative impact in production are the lack of skilled workers and the lengthy procurement of materials, according to the majority of participants. Although few companies state that they lack incoming orders, the trend is slightly growing. Regarding the companies' recruitment policy, no short-term tendency reversal is conceivable. The big majority will keep hiring new staff in the coming months to handle the abundance of orders quickly.

The detailed results of the trend survey are exclusively available to the participating companies. The next survey will be conducted at the start of next year by the Plastics and Rubber Machinery Association..

■ VDMA  
<https://kug.vdma.org>

## New Cutter Hub for Pelletizing HUB

■ Bischof + Klein, a leading European producer of films and laminates, reports that new-design cutter hubs retrofitted on its pelletizers have substantially increased blade life and improved pellet quality. Bischof-Klein uses BKG® underwater pelletizers from Nordson Corporation within their compounding lines to mix colors and additives for its film manufacturing. When the company installed Nordson's new BKG® HiCut™ cutter hubs on two of its pelletizing lines, the blades mounted on the hubs lasted two to three times longer than those of the older design, and with some materials – particularly non-abrasive compounds – blade life was extended from a typical three days to nearly three weeks. In addition, the pellets produced with the blades exhibited fewer “tails,” which subsequently separate from the pellet as fines, can abrade or clog equipment, and represent a waste of polymer.

*HiCut™ Cutter Hub with Six Blades, Installed at Bischof + Klein Plant*



“Because Nordson’s new design increased the number of blades on the hub by a factor of 50%, we were able to reduce the rotation speed of the cutter while maintaining our standard high level of throughput,” said Eduard Beifus, responsible for regenerates and concentrates at the Bischof + Klein site in Lengerich, Germany. “This decrease in driving speed led to a reduction in wear to the blades and a substantial increase in their lifespan.”

In an underwater pelletizer, polymer strands emerge from the die plate, solidify as they enter the water, and are then cut into pellets by the blades mounted on the cutter hub. The new HiCut design accommodates up to 100% more angled blades per hub and up to 54% more straight blades. This makes possible an increase in throughput or, alternatively, a reduction in pelletizer RPM, which decreases wear to the die plate and blades.

“The blades on BKG HiCut cutter hubs have round edges and smooth surfaces with countersunk screws. This optimizes the flow and reduces swirling, and there is more space between the blades so that pellets do not accumulate,” said Frank Asmuss, global product manager for BKG pelletizing systems. “For certain products, the increased throughput achieved with the new design makes it possible to invest in a smaller pelletizer, saving cost.” BKG HiCut designs are compatible with all existing pelletizer systems, and the hub accommodates both angled and straight blades.

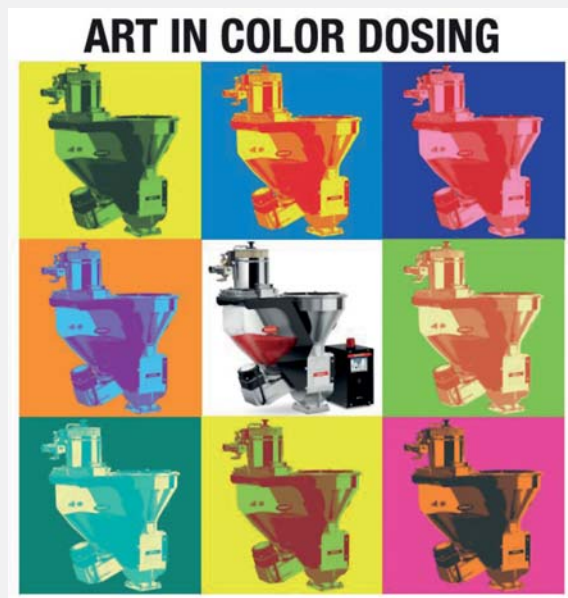
► Nordson Polymer Processing  
[www.nordsonpolymerprocessing.com](http://www.nordsonpolymerprocessing.com)  
 Bischof + Klein  
[www.bk-international.com](http://www.bk-international.com)

## New Advertising Campaign “Art in Color Dosing”

■ Moretto presents the new advertising campaign “Art in color dosing” dedicated to DPK gravimetric loss-in-weight doser, recently launched on the market. DPK completes the full range of Moretto’s dosers and solves the overdosing problem with a very precise control. DPK is a compact, loss-in weight precision feeder, suitable for intermittent or continuous dosing of small quantities of color or additives into a flow base resin.

The advertising campaign focuses on the “precision in color dosing” and refers, with nice allusions, to the importance of color in works of art. The new advertising is clearly inspired by Pop Art and DPK is its “icon”, with its characteristic compact design and transparent hopper. The campaign is promoted on the press, as well as web and company’s social networks.

Thanks to the exclusive vibration immunity system, the machine control algorithm and the hopper removable from the dosing unit, DPK achieves a dosing accuracy upto  $\pm 0,03\%$ , allowing processors to avoid unnecessary wastes of expensive additives. The integrated feeding system automatically manages the loading of the material, according to the needs of the processing machine.



► Moretto S.p.A.  
[www.moretto.com](http://www.moretto.com)

*I make things  
possible...*

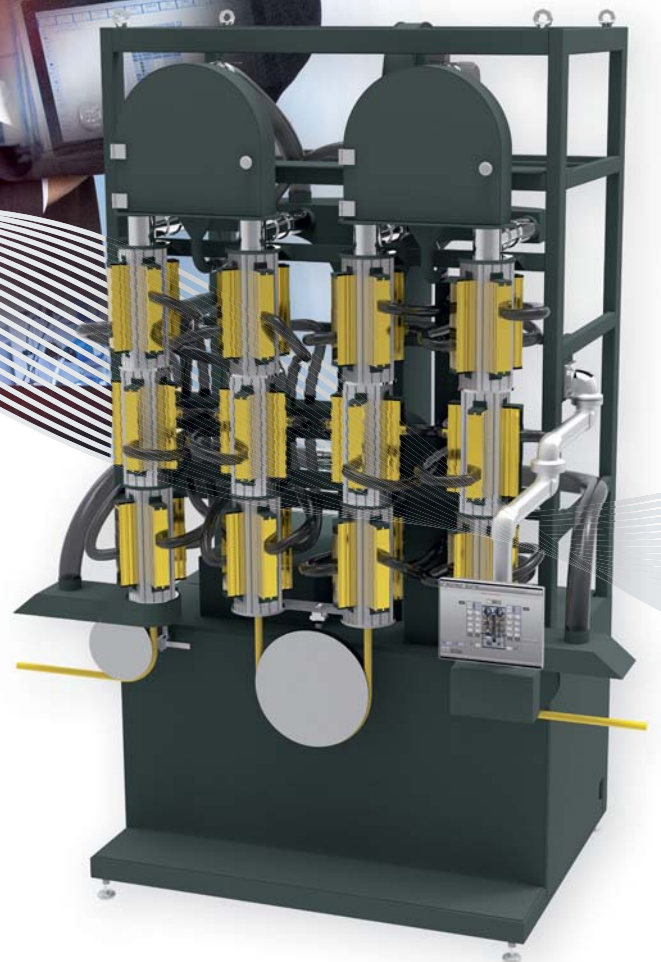
**Martin Deters**

Managing Director iBA GmbH  
and developer of PEXLINK

**... because I overcome hurdles to deliver the best solutions to our customers.**

PEXLINK is the answer to what the market was demanding and where many others previously failed: The system controls the one-stage PEXa pipe extrusion process which is run fully automated and precisely whilst taking into account all relevant variable parameters.

[www.inoex-innovator.com](http://www.inoex-innovator.com)



## Combined Joining and Forming Process of Additively Manufactured Thermoplastic Parts

■ Complex functionalised parts based on fibre-reinforced thermoplastics can nowadays be produced with integrated manufacturing processes in short cycle times. However, the economical production of prototypes or small series has so far not been successful because of the high mould costs involved. For this reason, the Institute of Plastics Processing at RWTH Aachen University has, as part of a joint BMBF project called "LightFlex", linked up with other project partners to develop an innovative, photonic-based production process for increased flexibility and geometrical complexity in prototype and small-series manufacture.

The core development of the innovative production process is the combined joining and forming process of a previously additively manufactured polyamide functional structure with a thermoplastic composite. While the thermoplastic component – a composite sheet, for example – is heated under an infrared lamp, the surface of the additively manufactured structures is heated with a 1 kW laser from Laserline GmbH, Mühlheim-Kärlich. Thanks to the combination of the laser with a 3D laser scan head provided by Arges GmbH of Wackersdorf, the focus of the laser can be shifted in all directions inline. Only in this way is it possible to ensure that defined melting of the surface takes place, even with uneven and complex geometries.

After the successful integration of the laser and laser scan head into the thermoforming line at IKV, the research team is now oc-



*Integration of the laser into existing plant engineering at IKV (Photo: IKV)*

cupied with the interplay of the different process parameters and their effects on the quality of the end-product. Of interest here, for example, is the influence of lamp temperature, heating-up time and start of heating, as well as the laser output, processing speed and number of passes.

This process makes it possible for the first time to economically produce individual fibre-reinforced parts even in small series.

► **Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts at RWTH Aachen University**  
[www.ikv-aachen.de](http://www.ikv-aachen.de)

## ecoFIT TOM<sup>®</sup>, innovative, efficient and productive technology

■ Molecor, in its continuous process of Research and Development has developed an exclusive and highly efficient industrial system for the manufacture of PVC-O fittings, with which the company has been capable of manufacturing a product with better mechanical properties.

The technology used for the manufacturing of the ecoFIT TOM<sup>®</sup> PVC-O fittings is based on the technology used for manufacturing TOM<sup>®</sup> pipes. It consists of a Genuine Air System that ensures higher efficiency and control of the molecular orientation parameters throughout the entire process. In this way, potential risks are eliminated and

complete security and reliability of the technology are guaranteed.

Energy used in the manufacturing process of ecoFIT TOM<sup>®</sup> is applied to the fitting by a specific air distribution that allows the optimization of the resources, since it uses the lowest amount of energy possible obtaining the maximum performance.

In addition to this, the system allows the use of reprocessed material in the manufacturing of the PVC-O fittings ecoFIT TOM<sup>®</sup> which are subjected to exhaustive quality tests once the production process is finished.

This project has received recognition from the European Union for innovation in the use of innovative materials and technologies for manufacturing and processing.



► [www.molecor.com](http://www.molecor.com)  
**Molecor**

## Expanded Facility

■ W. Amsler Equipment Inc., a leading supplier of all-electric linear PET stretch blow molders, has announced plans to relocate its headquarters and manufacturing operations to Bolton, Ontario, USA later this summer. The new location – designed to meet the expanded demands of the company’s growing PET blow molding machine business – will be in the heart of the “Plastics Corridor,” less than 20 kilometers from the Pearson (Toronto) Airport in Rexdale. The Bolton area is also home to suppliers such as Husky Injection Molding Systems, Athena Automation, and many blow molding companies.

W. Amsler has signed a lease agreement for 34,000 sq ft of space which will more than double the company’s current facility. The standalone facility will provide room to grow and more space for collaboration with customers. In addition to corporate offices, the new space will house



business development and project management activities, said Heidi Amsler, marketing manager for W. Amsler. “We’ve experienced rapid growth over the last five years and we’ve outgrown our current space,” said Amsler. Effective August 1, the new address of W. Amsler’s headquarters is 31 Parr Blvd., Bolton, Ontario, USA.

■ W. Amsler Equipment Inc.  
[www.amslerequipment.net](http://www.amslerequipment.net)

Meeting extrusion challenges with higher performance, more flexibility & lower energy costs

Presenting the powerful “Next Generation” NG extruder series:



**conEX NG / conical twin screw**

- Enlarged processing window through balanced energy input
- Fully insulated barrel for up to 10% energy savings compared to standard executions
- Up to 20% energy savings through optimized processing



**solEX NG / single screw**

- Up to 20% higher outputs
- Up to 15% less energy costs
- Up to 10°C lower melt temperature with excellent melt homogeneity and mixing quality

## High-quality, reliable processing for Brazilian PVC pipe producer

■ Duro is a well-known pipe producer from central Brazil, active in several business areas. For the expansion of their water well lining production, they bought a new twin screw

*Duro's owner, Leonardo Brito Ferreira, with a twinEX machine at Duro's production facility (Image © Duro, Brazil)*



extruder for their headquarters at Goiania, GO, Brazil. The company now has two extruders from battenfeld-cincinnati's twinEX series in their production facility.

"We have been running a twinEX in our production since 2015 and have had consistent good performance with it. When we expanded our business, we decided to invest in another twinEX. The pipe quality is excellent and we appreciate the level of local support we receive from battenfeld-cincinnati. The reliability and consistently good processing performance are a decisive advantage for us as well," says Leonardo Brito Ferreira, owner of Duro.

Duro bought its first battenfeld-cincinnati twinEX 93-34 parallel twin screw extruder in 2015. They closed the deal for a second machine at K 2016, due to their good experience with the first. The second machine was delivered in summer 2017. The extruders produce PVC pipe for water and sewage transport as well as water well linings for the Brazilian market.

► battenfeld-cincinnati  
[www.battenfeld-cincinnati.com](http://www.battenfeld-cincinnati.com)  
[www.duropvc.com.br](http://www.duropvc.com.br)

## Slitting and Winding Machines

■ Since more than 165 years, GOEBEL IMS is offering customized solutions for the paper and film processing industries. GOEBEL IMS supplies slitting and winding machines that are tailor-made and, therefore perfectly meet the needs of their customers. Thus, the special machine manufacturer enables its customers to reach optimum productivity. With its current communication campaign "Tailor-made Converting", the company is demonstrating this value proposition in a particularly creative way. The heart of the campaign is a film that plays in two worlds: The world of engineering and manufacturing technical solutions and the world of tailoring. Thereby the message of the campaign "a perfect fit is always tailor-made" is taken up vividly.

GOEBEL IMS draws on many years of experience in special machine construction and has a comprehensive technical know-how. This allows the company to offer its customers a variety of slitting and winding solutions for a wide range of materials and applications. A perfect example of the excellent customization is the RAPID D1 (Image) slitter rewinder: representing the extensive portfolio of GOEBEL IMS, it plays the leading role in the campaign film. Its success story perfectly reflects GOEBEL IMS' tailor-made concept: the converting machine processes a broad spectrum of materials using state-of-the-art technology and the latest developments. This makes it a long-term success in a variety of markets and industries.

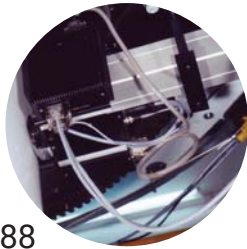


► GOEBEL IMS  
[www.goebel-ims.com](http://www.goebel-ims.com)



# KÜNDIG CONTROL SYSTEMS

The Gauge Manufacturer for Film Extrusion  **SWISS MADE**



1988



1998



2017



2015

Since 150 years  
at the cutting edge

**150<sup>th</sup>**  
ANNIVERSARY  
1868 - 2018

HCH. KÜNDIG & CIE, AG



## Acquisition

■ Borealis announced that it has signed an agreement for the acquisition of 100% of the shares in Ecoplast Kunststoffrecycling GmbH ("Ecoplast"), an Austrian plastics recycler. Ecoplast processes around 35 000 tonnes of post-consumer plastic waste from households and industrial consumers every year, turning them into high-quality LDPE and HDPE recyclates, primarily but not exclusively for the plastic film market.

"It is a logical next step for us to expand our mechanical recycling capabilities, which are key to our sustainability and circular economy efforts. Borealis wants to be a provider for circular economy plastic solutions and we see Ecoplast as an important complement to mtm in Germany. mtm's focus is on rigid, injection moulding solutions. Ecoplast's core competence is recycling flexibles from highly contaminated household and commercial waste into a product that is suitable for thin film production," says Borealis Chief Executive Alfred Stern.



■ Borealis AG  
www.borealisgroup.com

## Extrusion Russia 2019 Invites Extrusion Experts

■ Extrusion Russia 2019 conference held in Moscow's Expo-center as part of Interplastica 2019 trade show will serve as the main information platform for the communication of extrusion experts.

Extrusion Russia will pick up the baton from 3R-plast forum, known since over a decade and a half. Preserving continuity but renewing its focus, the conference suggests the polymer community to discuss topical issues of a thriving sector of the processing industry that is plastic extrusion.

The 2019 issue of the technology conference will already be the 17th. Some 150 top managers, production heads and process engineers of processing companies are expected.

The following issues will be discussed:

- Equipment for various extrusion segments: film, tube, sheet, cable, as well as geosynthetics
- Key components of an extrusion line (filters, melt pumps, degassers, etc.)
- Tooling (dies, heads, calibrators, corrugators), quick change and cleaning solutions
- Peripherals for material preparation, transport and dosing
- Downstream equipment (orientation systems, withdrawal and cutting devices, winders, laminators, markers, packers)
- Automation tools for extrusion lines
- Special material grades, additives and fillers for extrusion
- Compounding and pelletizing of composites and masterbatches
- Special aspects of twin-screw extrusion
- Quality control of raw materials and final product parameters

- Flat-die extrusion, extrusion blow molding, thermoforming
  - Extrusion in recycling of industrial and household plastic waste
  - Engineering and optimization of extrusion processes.
- The event will traditionally be organized by Russian trade journal Plastics with the help of Messe Dusseldorf Moscow. The renewed conference will get another co-organizer, the German publishing house VM Verlag GmbH that distributes the specialist Extrusion magazine in German, English, Chinese and Russian. The conference will be held in a room with all the necessary multimedia equipment. Every participant will receive a package of conference materials. Audio recordings will be made, and presentations given by speakers will be published following the event.



■ Extrusion Russia  
extrus.plastics.ru

## Thin-Gauge PET /PP Line



*Pro-Ex Extrusion Co-Owner and VP of Operations Chris Bendickson with Welex Evolution® sheet line. He says: "Many sheet houses are able to produce PET/RPET at 15-18-20 mil. The ability to manufacture high quality polyester at 10-12-14 mil expands our capability to serve more demanding applications and gives us a capability not generally found among custom sheet houses. Adding the ability to run high quality clear and colored polypropylene on the same sheet extrusion line as thin as 15 mil truly differentiates us in the market."*

■ A Welex Evolution® sheet extrusion line from Graham Engineering Corporation has given custom sheet processor Pro Ex Extrusion a thin-gauge capability not generally found among custom sheet houses.

In 2017, Pro Ex partnered with Graham Engineering to specify a Welex Evolution sheet line that would expand its capability and capacity. Commissioned in December 2017, the dual-resin PET/PP line features a 5" (130 mm) extruder with the flexibility to expand to co-extrusion. The J-stack configuration features roll-skewing and electric gap adjustment under full hydraulic load followed by a unique arrangement of auxiliary cooling rolls, each independently driven, heated, and cooled.

Based in Oskosh, Wisconsin, Pro Ex Extrusion is a recycler and manufacturer of custom and proprietary plastic products, including sheet, roll stock, profile, injection molding, polymeric compounds, and packaging technologies for several industries. The company's sheet business comprises roll stock for thermoforming and lithography. They also work with several experienced printing partners to apply high-quality graphics to their products.

*J-stack configuration featuring roll-skewing and electric gap adjustment under full hydraulic load*



■ Welex  
[www.welex.com](http://www.welex.com)  
Graham Engineering  
[www.grahamengineering](http://www.grahamengineering)

# The Big Cleanup



## Efficient Decontamination: MRS Extrusion

Unique technologies, innovative solutions, comprehensive technical support, high expertise in all kinds of plastics applications. In others words: typical Gneuss.



A6-6501

[gneuss.com](http://gneuss.com)



## New Additives Production Facilities in China

■ Clariant announced the official opening of two new, fully-owned additives facilities at its site in Zhenjiang, China. This completes a multi-million CHF investment originally announced last year and puts Clariant's Additives business in China on track to further expand its offering of customized, high-end solutions for the plastics, coatings & ink industries. The newly opened facilities are dedicated to the production of Ceridust micronized waxes and AddWorks synergistic additive solutions, both of which are used in various applications across the plastics, coatings and ink industries. Clariant's Additives business is already a partner of choice for producers in these industries and the additional local production capacity will allow Clariant to provide more tailored solutions at shortened lead times. Such tailored solutions are a key component in continuing to expand Clariant's China sales, as they fulfill the demand for environmentally com-



*The opening ceremony was attended by Clariant Executive Committee member Christian Kohlpaintner, key customers and local government officials, as well as Clariant's Greater China Regional President and other members of the company's Business Unit Additives (Photo: Clariant)*

patible and safe products as outlined in China's 13th Five Year Plan and the industrial policy 'Made in China 2025', while allowing Clariant to differentiate itself in the market environment.

■ Clariant  
[www.clariant.com](http://www.clariant.com)

## On the Road to Success:

### pacprocess India, indiapack and food pex India from October 24 to 26, 2018

■ The interpack alliance trade fairs pacprocess India, food pex India and indiapack (organized by the Indian Institute of Packaging) are on the road to success: Spread over 19,000 square meters of exhibition space, 350 exhibitors are expected to attend, among them global players and market leaders such as Bizerba, Constantia Flexibles, Hangzhou Youngsun Intelligent Equipment Co., Huthamaki or Pakona Engineers Pvt. Ltd. as well as joint group exhibits from China, Germany and Italy. The trade fair trio will take place at the Bombay Convention and Exhibition Centre (BCEC) in Mumbai from October 24 to 26, 2018. As at last year's successful premier, this will be augmented by the drink technology India trade fair, organized by Messe München, which will take place in

parallel. The success of this trade fair concept is based especially on the the concept of trade fairs that complement one another, in this case for the packaging sector and the related process industry (interpack alliance trade fairs), as well as the topics beverage technology, dairy and liquid food (drink technology India, Messe München). Another important cornerstone of the overall concept is the trade fair location that alternates between New Delhi, where the premier attracted a lot of attention in 2017, and Mumbai.

The Indian subcontinent with its population of over 1.3 billion is an increasingly important market for the entire packaging sector and the related process industry. This trade fair quartet is the ideal platform to enter this new market. Accordingly, the German joint booth of the Federal Ministry for Economic Affairs and Energy has a range of high-ranking participants: Twelve companies will participate on 315 square meters. Among them are market leaders Multivac, Bizerba, Constantia Flexibles, KHS, Krones and Huthamaki. The official participants from China and Italy (supported by the industry association UCIMA) also reflect the economic importance attached to the packaging sector in India and will participate with large joint booths.



■ Messe Düsseldorf GmbH  
[www.interpackalliance.com/regindia](http://www.interpackalliance.com/regindia)  
[www.pacprocess-india.com/](http://www.pacprocess-india.com/)

# Who will win the motan innovation award (mia) 2018?

## Award winners will be announced on 18 October in Friedrichshafen

■ The countdown has started: Six mia finalists presented their plastic innovations to an independent jury of experts in July and are now waiting to see if they will make it to the podium. After close examination of the project ideas behind closed doors, the four-member panel of experts from universities and institutes in the field of plastics research has already come to a decision. However, official announcement of the winners will not be made until autumn: The motan innovation award will be presented on 18th October 2018 during FAKUMA at the Dornier Museum in Friedrichshafen. Nominated are ideas that ...

- Solve customer-specific problems.
- Integrate new technologies into existing applications.
- Create new applications for existing products and solutions.
- Conserve resources, be it on motan devices or on the part of plastic manufacturer and processors.
- Increase operator and service ease of use.
- Enable new business models.

The first annual mia award ceremony took place nearly two years ago at K'2016 in Düsseldorf. At that time, four clever ideas convinced the jury. Two of the award-winning innovations also passed all practice tests and were further developed successfully. Once again in 2018, motan holding gmbh wants to make good ideas sustainable by promoting projects by future mia award winners. In addition to prize mon-

ey, winners will receive support for patent applications as well as developing their own inventions to market maturity. But patience is still required: at the moment, who will occupy the first three places and how the prize money of Euro 20,000 will be distributed is only known by the jury.

*The trophy of the motan innovation award*



motan group  
[www.motan-colortronic.com/de/innovation/motan-innovation-award.html](http://www.motan-colortronic.com/de/innovation/motan-innovation-award.html)

**SIKORA**  
 Technology To Perfection

## Quality in its purest form.

With passion, we develop future-oriented inspection, analyzing and sorting systems for offline quality assurance of plastic pellets, such as the **PURITY CONCEPT** Systems. A technological innovation significantly increasing the quality of raw material and end products resulting in saved costs.

- Offline inspection and analysis of transparent, diffuse or colored plastic material
- With X-ray or optical technologies depending on expected contamination
- Monitoring and data logging for maximum process optimization



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

*The six MIA nominees and motan CEO Sandra Füllsack. From left to right: Philipp Mählmeyer, Peter Haupt, Sandra Füllsack, Bernd Michael, Karl Wolfgang, Stefan Endres and Reinhard Herro*



Visit us from October 16-20 at Fakuma 2018 Friedrichshafen, Germany. **Booth A6-6110**

## Nordson Corporation: new sales manager in Asia

■ Nordson Corporation has appointed Dirk Guderian as Asia regional sales manager for melt delivery products. Mr. Guderian will be responsible for sales of BKG® melt filtration systems, gear pumps, diverter valves, and related components. "Dirk brings seven years of experience with our melt delivery technology, including working directly with customers in Asia," said Sven Conrad, business unit director. "He will play a key role in meeting the rapidly growing regional demand for BKG systems based on their efficiency and reliability."

Dirk Guderian entered the plastics industry in 2011 in the technical department of Kreyenborg GmbH, whose melt delivery business was acquired by Nordson in 2013. Soon after the acquisition, he took on sales responsibilities. Mr. Guderian holds certification as an engineer and a degree in business economics from IHK Nord-Westfalen in Münster.



*Dirk Guderian*

■ Nordson Corporation  
www.nordson.com

## Diverse training options at Pfeiffer Vacuum

■ At the beginning of August, 15 young men and women started their vocational training or dual studies at Pfeiffer Vacuum in Asslar. Another two students began one-year internships. In Göttingen, the team was reinforced by three additional industrial trainees. The training spectrum at Pfeiffer Vacuum ranges from commercial and industrial professions to dual study programs in various fields.

Vocational training in information technology and digitalization is currently the focus for the coming years at Pfei-

ffer Vacuum. "Pfeiffer Vacuum is a company with high-tech products. Topics such as Industry 4.0, the Internet of Things, Big and Smart Data, Cyber Security and Time-to-Market are issues for our customers and suppliers as well as ourselves and pose new challenges," said Nathalie Benedikt, CFO at Pfeiffer Vacuum Technology AG.

A particular highlight of a vocational training at Pfeiffer Vacuum is the opportunity to work abroad. We currently have exchanges going in the USA, France, China and Singapore.

Language courses in French and English, offered by the company for all employees, provide good preparation for this.

While the new junior staff are starting their professional lives, the application period for the training year 2019 has already begun. Pfeiffer Vacuum will be offering the following vocational training and degree majors in the coming year: industrial clerk, industrial mechanic, warehouse technician, industrial business engineering/engineering specializing in mechanical engineering, software technology and business informatics. For more information about vocational training and all open positions, go to: <https://group.pfeiffervacuum.com/en/careers/>.



*Talitha Hedrich,  
former trainee  
and now sales  
support worker  
in Asslar*

■ Pfeiffer Vacuum GmbH  
www.pfeiffer-vacuum.com  
visit [www.pfeiffer-vacuum.com](http://www.pfeiffer-vacuum.com)

## New Anti-Fog Masterbatch for PE



■ Tosaf announced the launch of AF7380PE, a newly-developed anti-fog masterbatch. When packaged goods are stored in a refrigerator, water droplets tend to appear on the surface of the packaging film, obscuring the contents from view and seriously degrading overall product quality. To avoid this unwanted result, the surface properties of the film must be altered. The most common way of doing this is through the use of migrating additives.

In over 30 years of working closely with its customers, Tosaf has developed an innovative range of anti-fog masterbatches that help reduce the harmful effects of water drops on packaging film. A wide range of solutions have been developed to suit different applications, for example refrigerated and hot meals packaging, greenhouse films and industrial packaging.

Anti-fog additives for plain polyethylene (PE) films are well known and widely used. However, as film structure becomes more complex and film producers require the same anti-fog masterbatch for a variety of production processes, demand has grown for new solutions and more sophisticated formulations.

Tosaf presents its novel 3rd generation anti-fog masterbatch for polyethylene films, AF7380PE. This masterbatch combines the company's broad experience working with the most sophisticated anti-fog materials with its profound understanding of the market's needs.

AF7380PE is suitable for a wide range of production processes, from laminated polyethylene films, multi-layer co-ex barrier films produced by blown and cast extrusion, and oriented films produced by double- and triple-bubble production technology.

■ Tosaf  
[www.tosaf.com](http://www.tosaf.com)



PP Honeycomb Board Extrusion Line



Double Wall Corrugated Pipe Extrusion Line



SPC Calcium-plastic Environmental Floor Extrusion Line

**SHANGHAI JWELL MACHINERY CO.,LTD.**  
Add:No.111 Chun Yi Road,Jia Ding District., Shanghai  
Tel: 86-21-69591818 69591111

[www.jwell.cn](http://www.jwell.cn)  
[sales@jwell.cn](mailto:sales@jwell.cn)



## Continued growth for Solids & Recycling-Technik

■ The trade show duo Solids and Recycling-Technik Dortmund will open its doors on the 7th and 8th November 2018. The show for recycling technologies will feature national and international exhibitors demonstrating the latest trends in the industry. Together with Solids Dortmund, the show for granules, powder and bulk material technologies, more than 500 exhibitors will present their companies and offerings across four exhibition halls. The organiser expects over 7000 visitors to attend, attracted by both the exhibition and its comprehensive supporting program.

*Themed show days offer guidance for visitors*

The 7000+ expected visitors will be offered an overview of the latest solutions and trends in the fields of granulates, powders and bulk materials, as well as recycling technologies. The 100-plus lectures, presented on the five stages of the InnovationCenter, and the topically oriented guided tours through the exhibition will offer visitors ample opportunities to learn and exchange knowledge with professional peers. The themed days – “Food” and “Building Materials Recycling” on 7 November and “Packaging Recycling” and “Commercial Waste Ordinance” on 8 November serve as further reference points. Providing information on these subjects are experts from, among others, the DGAW, Fraun-



hofer IML, Grüner Punkt, Hochschule Ostwestfalen-Lippe, Institut für Angewandte Bauforschung Weimar GmbH (IAB), vero e.V., the Confectionery Academy (ZDS) and the Central Packaging Register (ZSVR).

For the second time at the show, an international cooperation exchange – Matchmaking Recycling Technology 2018 – will take place at the WFZruhr community stand in Hall 7. It was created in cooperation with Enterprise Europe Network, Zenit GmbH and WFZruhr. The two shows will also be augmented by the 4th German Fire and Explosion Protection Congress of the IND EX® e.V and the 8th URBAN MINING® Congress; the conferences will run in parallel at the congress facility of the Messe Dortmund.

Easyfairs Deutschland GmbH  
[www.recycling-technik.com](http://www.recycling-technik.com) and [www.solids-dortmund.de](http://www.solids-dortmund.de)

## World-record BOPP line is now running in Bulgaria

■ *Highest speed and energy efficiency ever*

Bulgarian Plastchim-T is one of the leading privately owned European manufacturers of biaxially oriented polypropylene films (BOPP), cast polypropylene films (CPP) and flexible packaging products. Recently, the company broke several records with their latest investment, a 10.4m wide Brückner film stretching line for the manufacture of high-quality BOPP packaging films. The speed mark of 600m/min was cracked for the first time ever and the hourly output above 7,600 kilo is also a new benchmark in the world of oriented film production. Besides this, the line's specific energy consumption per kilogram produced film is the lowest ever measured.



Plastchim-T's Owner Aydan Faik says: “The new line was originally meant as an investment in the future. Speeds of 600 m/min were only expected within the next two years. But the future is already now! Our staff and Brückner's specialists managed to reach this milestone in a much shorter time than we ever expected. We are very happy about this, not only for the speed's sake, but for an efficient film production in both respects, energy consumption and productivity.”

The outstanding performance has been achieved by dedicated new line components such as a high speed machine direction orienter (MDO), a new sliding chain track system, a tailor-made surface treatment system and a special winding concept. Together with numerous other innovative technical features an excellent running stability and a top line availability at highest speeds is guaranteed. The line has also proved its suitability for the manufacture of value-added specialty films – such as films for metallization – at speeds above 500m/min.

Brückner Maschinenbau GmbH & Co. KG  
[www.brueckner.com](http://www.brueckner.com)



# Quality and Sustainability Go Hand in Hand

■ BST eltromat International will be part of the special show "Marketplace for Sustainability & Plastics" at FachPack 2018 and is thus making its debut as an exhibitor at Nuremberg's packaging exhibition. The company will use its information stand to highlight some current requirements that the industry has for solutions in the areas of web guiding, layer thickness and basis weight measurement, as well as web inspection and video-based web monitoring. BST eltromat offers systems for quality assurance in the manufacture of printable packaging materials, such as foils for flexible packaging. The company provides its customers with both individual solutions and complete solutions from a single supplier – solutions that match their individual requirements perfectly.

Many manufacturers within the global plastics industry that use web-oriented production processes put their trust in BST eltromat systems when it comes to quality assurance. In roll-to-roll processes, these systems satisfy the industry's technical and economic requirements almost seamlessly, while also being very

convenient to use. They also offer a particularly high standard of reliability.

BST eltromat will show a CompactGuide with a wide-array sensor in Nuremberg; this system has been chosen to represent the company's entire range. This web guiding system for narrow and medium web widths is available in six sizes. Thanks to its modular construction, it can be configured flexibly for individual requirements and can be equipped with different sensors and controllers. The particularly economical web guiding system EcoGuide for narrow-web applications and the SmartGuide for wide-web applications complete BST eltromat's range here. The web guiding systems satisfy practically all possible requirements for the manufacture and converting of (packaging) foils.

Visitors to BST eltromat's booth at FachPack can also find out more about the solutions offered by the business unit BST ProControl. This business unit's range includes standalone systems, but also integrated solutions with radiometric, non-radiometric and optical sensors, for example. These solutions carry out a wide range of quality assurance tasks within the production of packaging foils. For example, sensors developed by BST ProControl use various processes to measure (layer) thicknesses and basis weights with the greatest precision and at production speeds of up to 800 m/min. Special software captures and evaluates the measurements and presents it to the user in a simple and easy-to-understand way. BST ProControl also uses innovative technology to minimize the consumption of raw materials and the waste rate by means of the control systems, allowing customers to improve both production quality and profitability.



■ BST eltromat International  
[www.bst.group](http://www.bst.group)



## GEAR PUMPS, FILTRATION, PELLETIZING AND PULVERIZING SYSTEMS

MAAG – 4 STEPS AHEAD FOR YOUR SUCCESS

Visit us at  
Fakuma:  
Hall A6,  
Stand 6202



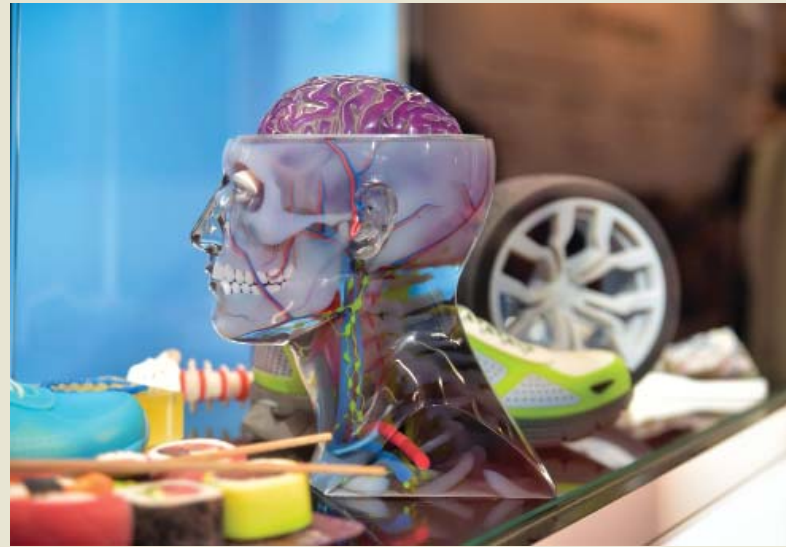
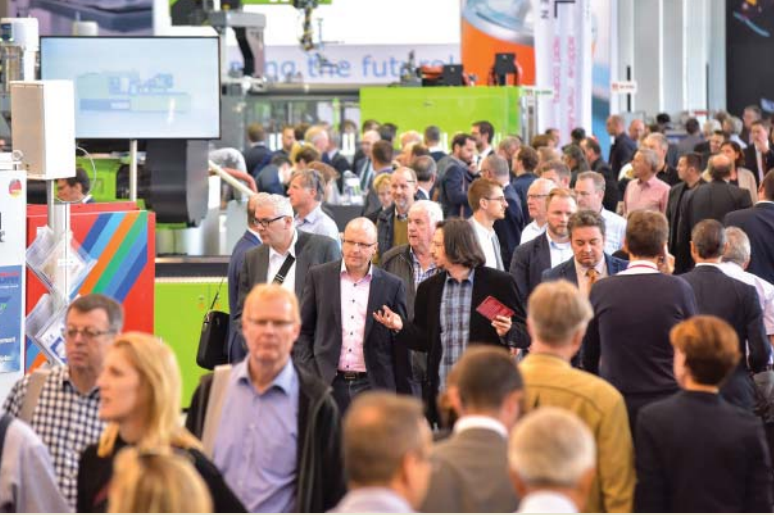
An aerial photograph of a city and airport. In the foreground, there are several large, white, arched industrial buildings. Behind them is a large green field, likely an airport tarmac or runway. The city is visible in the middle ground, with various buildings and roads. In the background, there are snow-capped mountains under a clear blue sky. The text 'FAKUMA 2018' is overlaid in large red letters across the top of the image.

# FAKUMA 2018

**More than 1800 exhibitors** will present their international offerings on the world's leading technical event for industrial plastics processing.

Fakuma will take place in Friedrichshafen Exhibition Centre from 16 to 20 October 2018.

Attention will be focused on the **latest technologies** which promise highly advantageous benefits, as well as processes and tools for efficient plastics processing by means of injection moulding, extrusion, thermoforming and 3D printing.



# Trade Fair for Everyone

## *New Materials, High-Tech Processing*

However, not only the latest materials and their possible uses are showcased in Friedrichshafen. The propensity to invest in new machines and systems remains high, which is making itself apparent in the unbroken interest in manufacturing components and peripherals in the plastics sector. Expert visitors, specialists and decision-makers journeyed to the last event in 2017 from more than 120 countries. 48,375 expert visitors accepted the invitation of the roughly 1900 exhibitors to attend the event in Friedrichshafen on Lake Constance where Germany, Austria and Switzerland meet – and the numbers continue to rise. In addition to innumerable participants from Germany and elsewhere in Europe, above all the number of visitors from Asia is increasing.

## *Lightweight Design Solutions*

Continuous fibre reinforced, functional plastic components with high load carrying capacities offer tremendous lightweight-design potential for the automotive and aviation industries, as well as numerous other sectors. Whether FRP, FFRP or CFRP is involved – solutions for the production of rugged, lightweight components will be presented at the Fakuma international trade fair for plastics processing in Friedrichshafen from the 16th through the 20th of October, 2018.

## *High Strength with 25% Less Weight*

There's good reason for increasing demand for plastic components with continuous fibre reinforcement: they offer high mechanical strength with up to 25% less weight than metal components. As a result, economic production of such parts is the focus of a diverse range of research projects. Whereas FFRP components with a thermoplastic matrix are already being industrially manufactured and utilised, developers are currently involved with injection moulding processes for continuous fibre reinforced, lightweight components with a thermosetting matrix. Due to their greater resistance to cold, as well as their greater mechanical and thermal load capacities, thermosetting plastics or superior to thermoplastics in some applications.

## *Injection Moulding Permits Extensive Component Complexity*

Fakuma sees itself as the number one technical event for injection moulding. Numerous technology leaders in this sector will be on the scene at this world-class trade fair in Friedrichshafen. The injection moulders with their flexible options and ever more efficient processes are clearly in the majority as compared with 3D printing, foaming, extruding and thermoforming.



## Friul Filiere

# A new downstream to celebrate its 40th anniversary

Friul Filiere Spa was established as a manufacturer of dies for the extrusion of plastic materials. Nowadays the company sells complete, turn-key systems all over the world to anyone looking for high-quality performance when manufacturing pipes and profiles, from technological extrusion lines and toolings, fully customized and guaranteed 100% Made in Italy.

This year Friul Filiere is celebrating its 40th anniversary and FAKUMA 2018 will be a great opportunity to celebrate its 40th anniversary showing the latest technological developments, first of all among them, the brand new downstream Futura40. Its name wants to pay homage to this event. Its modern and appealing design states 4 decades of technological values, finding roots in the past but looking to the Future.

#### *Futura40 highlights:*

- Attractive and ergonomic design
- Energy savings
- Perfect alignment
- Invisible wires and connections
- Easier man-machine interface
- Motorized movement of the calibrating table
- Process data control
- Simplified maintenance
- Remote assistance service
- Higher safety standards
- Low noise pollution

*Moreover, FUTURA40 meets Industry 4.0 requirements, such as*

- process data control
- remote assistance service
- PLC (Programmable Logic Controller) control
- Simple and intuitive man-machine interface
- Latest safety standards
- Predisposition for telediagnosis
- connection to the Smart Factory system
- Separation between the network for remote assistance and the network for data interconnection

During Fakuma exhibition 2018 Friul Filiere will show a single screw extruder Omega60, equipped with a dedicated screw designed by Friul Filiere and with a special tooling for the production of TPU profiles. It combines energy savings and high output rates (160 kg/h) thanks to specific technology that reduces power absorption.

But there will be many other news. Currently, Friul Filiere is the only company in Europe able to provide the customer with complete process know-how for the production of Resysta® composite profiles: extruders, toolings, calibration systems, extrusion lines and auxiliary finishing machines. The sustainable material Resysta® consists of approx. 60% rice husk, is 100% recyclable and absolutely water-resistant. Therefore, features are excellent eco-balance and impresses under harshest weather conditions. Resysta® looks like wood, it feels like wood - but it can do much more.

The commitment of Friul Filiere to research is straight and steady, also prompted by ambitious requests for applications in the most different sectors. This is witnessed by a series of new technologies:

Extruders, extrusion lines, toolings and process know-how for the production of

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

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 non 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.



Hall A6, Booth 6111

Friul Filiere S.p.a.  
www.friulfiliere.it

## CPM EXTRICOM EXTRUSION

## LOCAL SERVICE GLOBAL REACH



PROVIDING THE BEST OVERALL VALUE TO OUR COSTUMERS WORLDWIDE

- > COMPOUNDING SYSTEMS
- > TWIN SCREW EXTRUDERS
- > RINGEXTRUDERS
- > REPLACEMENT PARTS
- > APPLICATION EXPERTISE
- > SERVICE & SUPPORT

For further information visit [www.cpmextrusiongroup.com](http://www.cpmextrusiongroup.com)



**EXTRUSION GROUP**  
Local Service Global Reach

# Gneuss

## Further Development of Rotary Filter for Plastic Melts

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



*The patented Gneuss 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 appli-

cations and highest quality requirements. Screens can be automatically re-used up to 400 times and filtration finenesses below 10 microns/1200 mesh are available.

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 Processing Unit GPU with unmatched devolatilization and decontamination performance**

The Gneuss Processing Unit (GPU) has been available for several years now and has proven itself for the reprocess-

ing 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 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 in is 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



Sheet extrusion line with Multi Rotation Extruder MRS, Rotary Filtration System RSFgenius, and Online Viscometer VIS

reduction of 50 % can be extruded (depending on the process) with a consistent foam structure and mechanical properties. And this from up to 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.

#### Customer-focused sensor technology

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.



Hall A6, Booth 6501

Gneuss Kunststofftechnik GmbH  
www.gneuss.com

## Getecha

# Innovative granulators - Individualisation is the key

Getecha has long since evolved from specialist for the granulation of plastic waste to one of the leading suppliers of whole recycling lines. However, at the core of these highly automated systems are always customer- and project-specifically optimised hopper or infeed granulators from the RotoSchneider portfolio of the company. "The customised individualisation has now become a central topic for our work in engineering and development. At this year's Fakuma, we will demonstrate how such tailored solutions can look in practice based on current granulators", says Burkhard Vogel, Managing Director of Getecha. For this purpose, the plant engineering company from As-

chaffenburg in Germany will present its clean room granulator GRS 180 and GRS 300 at its stand. These remarkably slim beside-the-press and central granulators are designed for use in plastic technology production lines, which are subject to increased requirements of cleanliness and hygiene. They granulate up to 35 kg (GRS 180) or 80 kg (GRS 300) of material per hour, and hardly release any particles (<1,0 µm) due to integrated extraction equipment and special technical sealing solutions.

*Photo 2: Getecha Managing Director Burkhard Vogel: "The customised individualisation has now become a central topic for our work in engineering and development. At the Fakuma we will show how such customised granulators look in practice"*



### A granulator with many options

Due to its low-height design, the GRS 180 (type A 5.10.9) has a total height of only 1,050 mm and can be easily positioned under drop chutes, separating drums or large injection moulding machines. Amongst others, an extremely flat special hopper forms the constructive basis for this innovative granulator design, in which an automatic dual slide valve system ensures feeding of sprues and scraps without splash back. Here, the gateway function can be designed appropriately in three different cycle versions by means of a toggle key and an integrated easy control.

The hopper of the GRS 180 (type A 00246) at the Fakuma stand of Getecha is also equipped with this flexible gateway function. Here, loading can be performed for example with



*Photo 1: Powerful and quiet: The central granulator 45090 for throughputs of up to 900 kg/h is one of this year's highlights at the Fakuma stand of Getecha in Hall A3 (stand 3210)*

a sprue picker from the portfolio of Getecha. The feeding process including the gateway function is regulated by a higher control in this case. "This exhibit at our stand is thus also an illustrative example for integration of a hopper granulator into the automated system environment of a customer", says Burkhard Vogel. The same applies to the third representative of this RotoSchneider series, which Getecha will show at the Fakuma: A GRS 300 (type A 00169) for material throughput (sprues, small parts) of up to 80 kg per hour.





*Photo 3: Space-optimised: At the Fakuma 2018, Getecha will show amongst others the clean room granulator GRS 180 with low-height design. It has a total height of just 1,050 mm*

### Super tangential inlet

The RS 2404 B1 is designed for a significantly higher hourly throughput of up to 160 kg and can be seen at the stand of Getecha. It is a hopper granulator, which is specifically tailored to the use in blow moulding plants – the B in the product name is representative for this. Burkhard Vogel explains the technical special features of this exhibit: “At customer’s request, this granulator was equipped with a stronger drive (now 7.5 kW), a segmented die-cast rotor with 3 x 2 rotor blades in offset arrangement as well as a super tangential housing feed. It is thus perfectly equipped for the granulation of large-volume blow-moulded parts like for example 5 litre bottles.” The fans integrated in the hopper thus cause an additional air flow in the grinding chamber and make sure that the spray arresters remain closed and no ground material splashing back can escape.

### Material from all directions

Getecha will present its central granulator RS 45090 as a clearly visible eye-catcher at its Fakuma stand in Hall A3. This powerful standard machine is suitable for throughput rates of up to 900 kg/h and works with a



*Photo 4: The RS 2404 B1 is designed for an hourly throughput of up to 160 kg and can be seen at the Fakuma stand of Getecha. This hopper granulator of the mid-market range is tailored to the use in blow-moulding plants*

granulator housing which is characterised by very effective sound insulation. However, despite its additional insulation, it is very compact due to its drive, which is repositioned at the top and integrated into the housing, and only requires a small footprint. In Friedrichshafen, Getecha shows the RS 45090 with a feeder at the rear consisting of two rollers rotating in opposite directions for pulling in entire sheets, blanking skeletons and edge trims. “This means that the customer can feed foil from the unwind stand of the granulator as well as missing parts via the hopper”, Burkhard Vogel explains. Furthermore, visitors of the Fakuma exhibition will learn that this granulator can also be upgraded with a second bypass hopper attached to the side for feeding tubing and profiles as well as with a third bypass hopper for the plate material feed. Equipped like this, a single RS 45090 can cover the workload of three smaller granulators. In addition to the sturdy statics of the granulator, the basis for this performance capacity is its powerful 5-blade rotor and the usage of two



*Photo 5: With the fast sprue picker GETpick 500 from Getecha for sprues weighing up to 250 g, extraction cycles of less than 1.5 sec can be realised*

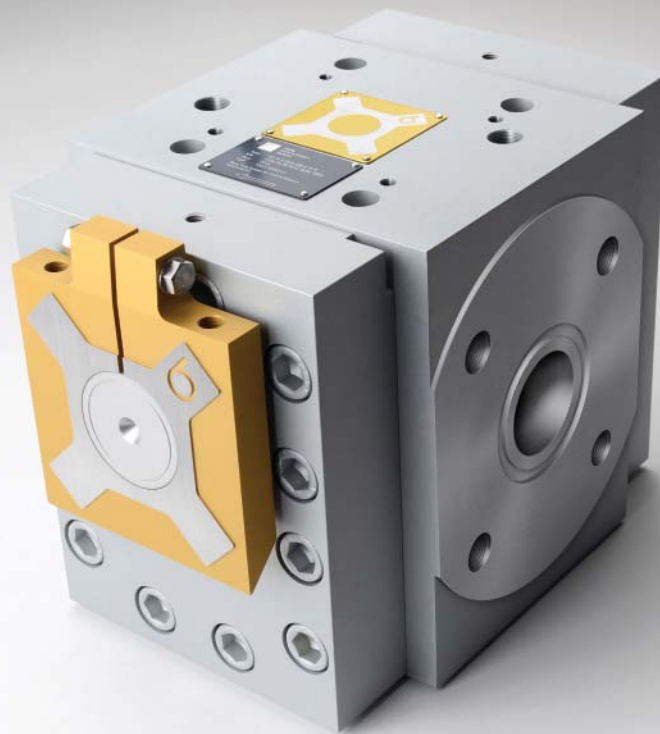
stator blades in the grinding chamber. Not least, this granulator sets standards also with regard to maintenance: A hydraulic opening mechanism provides easy access to hopper and screen rocker, and an electrically monitored rotor locking guarantees maximum safety during routine blade changes.

### Speedy removal

The plant engineering company from Aschaffenburg will show its solutions again for automated extraction technology at this year’s Fakuma. This time, the fast sprue picker GETpick 500 for sprues weighing up to 250 g will be exhibited amongst others. Extraction cycles of less than 1.5 sec. can be realised with this. The GETpick 500 from Getecha has a light carbon fibre tube in the Y-axis and provides three operating programs.

**Hall A3, Booth 3210**

**Getecha GmbH**  
[www.getecha.de](http://www.getecha.de)



*Maag's extrex6 gear pump for plastic- and elastomer processing*

## Maag

# From raw material production through to recycling systems – extrusion-related products from a single source

Maag, a global leader in the manufacture of gear pumps, pelletizing and filtration systems as well as pulverizers for high-end applications, will be exhibiting examples of its broad-ranging portfolio of extrusion-related systems on own stand at Fakuma 2018. For the first time at Fakuma, Maag will be sharing a stand with filter manufacturer Ettlinger, which joined the group in January this year. As a result, Maag will be offering products for applications from raw material production, through compounding, to recycling, all from a single source. The range of products shown will extend from a gear pump for high pressures, through a dry-cut strand pelletizer and an underwater pelletizing system for the production of spherical pellets ending with a high-performance

melt filter with an extra-fine filtration grade for bottle-to-bottle PET recycling.

Maag gear pumps, now available in an x6 class version, are designed for particularly high melt pressures, and suitable for a wide range of viscosities. While the focus in developing the EP and EV types was on maximizing pressures and volumes, the model being presented at Fakuma forms part of the more in demand GU line of products. As generally for the x6 versions, Maag has completely revised all its components, from the gears and shafts to the bearings and seals, and has optimized the functional interaction of the components in order to enhance product quality, volumetric efficiency and the consistency and safety of the production process even further.

At Fakuma, Maag will also be presenting a PRIMO 200 E model pelletizer from its WSG dry-cut strand pelletizing systems range for the reliable production of high-quality cylindrical pellets or micro-pellets ideally suited to further processing. Like all the models in the PRIMO E family, it features a variable system configuration for the processing of soft, brittle or abrasive polymers. Quick tool and roller exchange enables flexible adaptation to specific production demands, delivering optimum flexibility for product changes. The pellets created by this system can be infinitely adjusted in terms of weight and length to the specific task at hand. With a 200 mm draw-in width, it is designed for draw-in speeds up to 120 m/min and a maximum throughput rate of 1500 kg/h.

The PEARLO® 160 being presented at Fakuma 2018 forms part of a new family of Maag high-performance underwater pelletizing systems. This product line was developed for the production of spherical plastic pellets. It combines technologies from Gala and Automatik for highly efficient and flexible deployment in high-end applications at throughput rates starting in the single-digit range and extending up to 36,000 kg/h (the 160 model being presented in Friedrichshafen achieves 1,000 kg/h to 6,000 kg/h). Compact and modular in design, they require only a very small footprint in production. The electroni-

cally controlled EAC technology ensures precise positioning of the pelletizing knives during operation, and hence long runtimes free of interruptions with consistently high pellet quality. Typical applications also include the production of wood- and natural fiber-filled compounds, thermoplastic elastomers, rubbers, and hot adhesives.

The ECO 200 high-performance melt filter from Ettlinger being presented at Fakuma 2018 is – like the larger ECO 250 version – designed for very free-flowing materials such as PET and PA with pollution severities up to 1.5 %, but is also suitable for polyolefins and polystyrenes. Typical applications are compounding and filtration of gels and agglomerates, in particular of aluminum, paper, silicone or PVC constituents from recycled PET bottles. The now available extra-high filtration grade of 60 µm is ideal for bottle-to-bottle recycling, with its extremely high quality demands. Thanks to their efficiency, the ECO melt filters can be integrated directly into PET thermoforming lines, where their throughput rates of up to 1000 kg/h (type 200) and 3000 kg/h (type 250) help to improve machine availability and enhance cost-effectiveness.

**Hall A6, Booth 6202**

Maag Pump System  
[www.maag.com](http://www.maag.com)

## WE DRIVE THE CIRCULAR ECONOMY.



VISIT US:  
**FAKUMA**  
Friedrichshafen / Germany  
15 – 20 October 2018  
Hall 6, Booth 6314

Whether it is inhouse, post-consumer or bottle recycling: you can only close loops in a precise and profitable way if machines are perfectly tuned for the respective application. Count on the number 1 technology from EREMA when doing so: over 5000 of our machines and systems produce around 14 million tonnes of high-quality pellets like this every year – in a highly efficient and energy-saving way.

That's Careformance!

**CAREFORMANCE**  
We care about your performance.

**EREMA**  
PLASTIC RECYCLING SYSTEMS

# Gamma Meccanica SpA

## The growing success of the GM Tandem lines

The first half of this year was very positive for Gamma Meccanica SpA, an Italian company specialized in the production of lines for the regeneration of plastic materials. The recent events in which the company participated at NPE 2018 in Orlando (Florida) and Plast in Milan, proposing as our main topic the new series of GM Tandem regeneration lines, have brought many interesting prospects and confirmed the growing interest in this type of technology. Gamma Meccanica has been operating in the plastic recycling machinery sector since 1987. The Tandem technology has been delivered for many years and recently has been redefined. The most recent systems delivered are the result of continuous technological improvement with a high level of automation, maximum quality of the recycled product (granules) and tremendous energy savings.

Thanks to GM Tandem technology it is possible to recycle heavily printed, high humidity and highly contaminated plastic materials.

The line is composed of a COMPAC unit equipped with the Ecotronic® system, a primary extruder, primary screen changer, a connection neck with a special degassing chamber, a secondary extruder and, as an option, a second screen changer for finer filtration / purification of the melt and then the pelletizing system. The ECOTRONIC® system, by increasing the number of revolutions above the nominal speed of the motor, allows to control the temperature without adding water and to process materials with a high percentage of humidity. Ecotronic guarantees a notable energy savings (up to 40%).

An Italian customer has recently installed GM Tandem 160 line for the recycling of milled HDPE. The choice of the customer was determined by the need to recover parts of agricultural plants, in particular irrigation pipes, with high level of contamination from the ground and other residual materials. The material to be recycled is sent to the Tandem regeneration line directly from the washing plant with humidity rate of approximately 8%. Thanks to the patented and innovative degassing system, 10 times more efficient than traditional systems, humidity is expelled directly during the extrusion phase. The double filtration up to 100 microns, guarantees the removal of even the smallest parts of contaminants. The production capacity of this Tandem line and with this type of material is 1200 - 1400 Kg/hr.

Another recent case is the GM Tandem 180, purchased by a North American customer for the regeneration of non-woven PP, raffia bags in PP, BOPP heavily printed film and PE film. These are post-consumer and post-industrial wastes with a high



rate of contamination like paper, aluminum, PET, PA and sand. In this case the GM Tandem 180 line has the primary extruder of Ø 180 and the secondary extruder of Ø 210. The guaranteed production is 1500 - 1700 kg/hr.

Given the success of the Tandem lines and the growing interest of recyclers, the company is committed to developing new models. The next line that will be created is GM Tandem 210, composed of two extruders: the first one with Ø 210 and the second extruder of Ø 250, with a production capacity starting from 2000 kg/hr.

Gamma Meccanica has always been aware of the importance of recovering such a precious resource as plastic. For this reason, in addition to offering continuous improvement of the performances of its lines for the regeneration of plastic materials, together with a group of Italian companies that have been active for many years on the recycling machinery market, and the European association of plastic recyclers (PRE), it is participating in the project "Are you R". This project's aim is to raise awareness among the European people on the importance of plastic recycling. The goal is to spread the culture of recycling. Through a number of documents, photographs and funny animation films, the project reveals the advantages of plastics and explains how its impact on the environment could be reduced if correct behaviors were maintained. This will be one of the topics of the next "Packaging and Recycling" convention in Milan (26-27 September) at which Gamma Meccanica is a sponsor.

**Hall A6, Booth 6218**

**Gamma Meccanica SpA**  
[www.gamma-meccanica.it](http://www.gamma-meccanica.it)

# Brabender Technologie

## When speed matters: Easy Change version of FlexWall® Plus



The trend in many industries is customization – customers can configure their own products. This can start with the granola they have for breakfast and extend all the way to purchasing a car, a process that now involves selecting many different features including engine performance and paint colour. For manufacturers that require flexible processes involving a wide range of raw materials, Brabender Technologie has developed a quick solution for bulk materials – the Easy Change version of the popular FlexWall® Plus model.

A feeding exchange module enables users to substantially reduce downtimes during product changeovers. One module will be in production while the other is being cleaned. This allows further quick product changeovers once the dry and wet cleaning process has been completed. “This smart solution minimizes cleaning times, accelerates bulk material changeovers and makes more formulations feasible with less equipment”, says Bernhard Hüppmeier, Head of D/A/CH Sales, in summary. The Easy Change design version of the FlexWall® will be one of the exhibition highlights at FAKUMA from October 16 to 19, 2018 in Friedrichshafen.

*Just open the quick-release clamps and replace the hopper along with the screw unit*

The Brabender FlexWall® Plus feeder is an all-purpose loss-in-weight feeder for practically any free-flowing bulk materials like powders, pellets or flakes. Its flexible polyurethane hopper

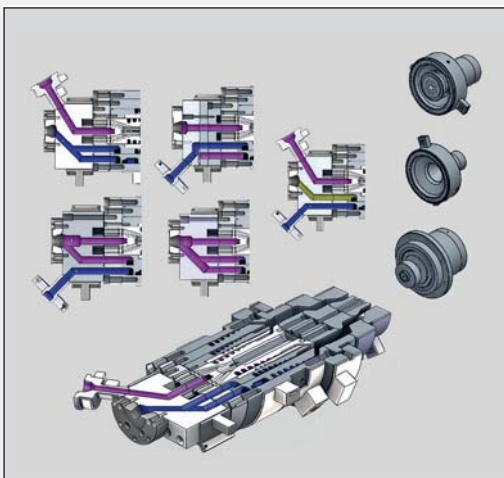
features lateral massage paddles, which gently stir the bulk material and ensure mass flow without degradation. Different replaceable screw profiles are used depending on the bulk material handled and the performance range required. The Easy Change version includes the hopper, screw, screw tube and housing as a single unit. Quick-release clamps secure this unit to the chassis and drive mechanism. They only need to be released to enable any residual bulk material to be removed.

*Second exhibition highlight: the FiberXpert*

Also showcased at the exhibition is the FiberXpert fiber feeder, which Brabender Technologie unveiled last year. It has now been proven in a range of different industries and is one of the specialties in Brabender Technologie’s product portfolio. “We created this feeder for difficult-to-handle, fibrous materials”, Bernhard Hüppmeier explains. “These include, for example, shredded film strips, wood shavings, carbon fibers or carpet offcuts. Activating these materials without destroying their structure is extremely tricky. Our FiberXpert is capable of this, not just in laboratory conditions, but in an real production environments too.”

**Hall A6, Booth 6213**

Brabender Technologie GmbH & Co. KG  
[www.brabender-technologie.com](http://www.brabender-technologie.com)



## You want to produce different co-extruded pipes just with one co-extrusion tool?

To make more pipe structures – without rearranging extruders – with one pipe head. **Then you need a new concept with adapter block technology.**

*SIKORA presents at its exhibition booth at Fakuma innovative systems for quality control during the extrusion of hoses and tubes as well as for the inspection, sorting and analysis of plastic materials*

*SIKORA confirms at Fakuma 2018 its claim "Technology To Perfection" with innovative measuring, control, inspection, analysis and sorting devices. At the SIKORA booth, visitors can expect a comprehensive portfolio of systems for quality control, process optimization and cost savings for the hose and tube as well as plastics industries.*



## SIKORA

# Premiere of the PURITY CONCEPT V for optical offline inspection and analysis of plastic material



*The PURITY CONCEPT V for optical offline inspection and analysis of plastic materials celebrates its premiere at Fakuma. By analyzing the recorded images, contamination such as "black specks" inside transparent pellets as well as on the surface of opaque and colored material are automatically detected, visualized and evaluated*

For the very first time, SIKORA presents the PURITY CONCEPT V at Fakuma, an optical offline inspection and analysis system for sample testing or incoming goods inspection of plastic material. Material samples, placed on a tray, are moved through the inspection area. Within seconds, the material is inspected automatically by a color camera and a projector marks the contaminated material directly on the tray. By analyzing the recorded images, contamination on the surface of transparent, diffuse and colored material are automatically detected, visualized and evaluated. A clear allocation of the contamination and

follow-up inspection are possible at any time. The system is more accurate, more reproducible and more reliable than human, eye and manual light table, determines the size of contamination, and thus, contributes significantly to quality control and process optimization. Furthermore, SIKORA offers systems for offline inspection and analysis based on X-ray technology that detect and analyze contamination inside of plastic materials.

For online inspection and sorting of plastic material, the PURITY SCANNER ADVANCED is perfectly suited. The system combines X-ray with optical technology and detects contamination inside plastic pellets as well as on their surface. Perfection in detection provides the adaptive camera concept, where up to three optical cameras are used, depending on the expected contamination and application. For example, an X-ray camera detects metallic contamination inside pellets, optical cameras identify yellow discolorations as well as "black specks" inside transparent and opaque pellets, whereas color deviations are detected by color cameras. Contaminated pellets are sorted out automatically. The interaction of online and offline inspection, sorting and analysis enables, for example, complete 100% quality control as well as sample testing of the material cleanliness and the establishment of a database in order to improve processes and to avoid further contamination.

For 100 % quality control during the extrusion of pipes, SIKORA presents the CENTERWAVE 6000. Millimeter waves technology precisely measures the diameter, ovality, wall thickness and the sagging of the product. The measuring principle does not require any coupling media, is not influenced by temperature or the plastic material and measures precisely without the need of any calibration. A presetting of the product parameters is not required. Easy operation and precision lead to the highest quality of the final product as well as cost savings and optimal efficiency.

The X-RAY 6000 PRO is a further highlight for measuring the wall thickness, eccentricity, the inner and outer diameter and the ovality of hoses and tubes. Hereby, the thickness of up to three different material layers is measured. Furthermore, SIKORA presents diameter measuring systems of the LASER Series 2000 as well as LASER Series 6000, which also offer lump detection in addition to diameter measurement. SIKORA's presentation in Friedrichshafen is completed by reliable lump detectors that detect irregularities on the product surface.

Hall A6, Booth 6110

SIKORA AG  
www.sikora.net



## Temperature control made simple

Feeling the heat? Relax, we've got it covered. Flexible, reliable and ready-to-use, our Modular Process Control Platform makes process heating and cooling incredibly effortless. Based on your injection molding or extrusion requirements, we configure a solution that's utterly reliable: temperature-resistant up to 200°C (392 °F), no moving parts, and a dynamic range of 1:200. Benefit from a complete control loop manufactured by fluid experts – it saves you valuable engineering and assembly time. Leave temperature control to us, and take it easy.

Want to know more? Contact us: +49 (0)79 40 10-0

[www.burkert.com/extrusion](http://www.burkert.com/extrusion)

**burkert**  
FLUID CONTROL SYSTEMS

## DREYPLAS

# Unique UHMW-PE can be processed directly in injection moulding and extrusion

Due to their high molecular mass and the resulting viscosity, ultra-high molecular weight polyethylenes (UHMW-PE) can only be processed mechanically with a high degree of expense. However, the Japanese company Mitsui Chemicals has developed a special UHMW-PE as a granulate – brand name: LUBMER – which can be turned into a flowing form and can therefore be directly processed in injection moulding or extrusion processes. Costly reworking and deburring operations are no longer necessary. Various new applications for UHMW-PE have already been developed in cooperation with the distribution partner DREYPLAS GmbH. The product variants retain their ultra-high-molecular properties even after processing and, due to their mouldability, allow for the produc-

*There is now a UHMW-PE suitable for injection moulding thanks to LUBMER: The ultra-high molecular properties of the plastic as well as its abrasion resistance and heat deflection temperature are comparable to those of conventional UHMW-PE*



tion of finished parts in large series. All LUBMER variants will be presented by DREYPLAS at FAKUMA in Friedrichshafen.

“Ultra-high-molecular-weight polyethylene as a powder must first be pressed before the desired components can be mechanically worked out from blocks or ring moulds, all at great expense,” explains Dipl.-Ing. Norbert Hodrius, Product Manager at DREYPLAS GmbH. “Due to their high molecular mass and the resulting high viscosity, these polyethylenes are unsuitable for injection moulding and extrusion in principle.” This is now possible with the LUBMER-type UHMW-PE: Through changes in the polymer structure, the plastic is adapted in such a way that very good flow properties are achieved. This ensures an even distribution in the injection mould and prevents defects such as surface roughness. However, the basic properties of the plastic, such as its sliding capacity, abrasion resistance and heat deflection temperature, remain unchanged.

Thanks to the improved sliding properties, more finished parts can be produced in series from this durable plastic: Several components can be injection moulded from one mould with short cycle times using multi-cavity tools. Post-processing or chippings, as is the case when using UHMW-PE semi-finished products, are eliminated. Despite the special production process, the variants L3000, L4000 and L5000 have a very high wear resistance and impact durability, whereby the L5000 is especially suitable for extrusion. They also behave like standard polyolefins, which is evident in their favourable chemical resistance and electrical properties. “We offer comprehensive technical advice as well as laboratory analyses prior to project planning,” adds Hodrius. The customers benefit from the distributor’s experience. DREYPLAS offers its customers not only logistics and quality-tested goods but also just-in-time delivery and worldwide access to high-performance polymers and additives.

**Hall B1, Booth 1004**

**DREYPLAS GmbH**  
[www.dreyplas.com](http://www.dreyplas.com)



# plasticWOOD

## The green concept for extrusion and injection moulding

plasticWOOD works in full awareness and respect for protection and safeguarding of the environment. We look for those, like us share this concept by creating innovative, ductile and sustainable product for the market. For this reason we combined natural fibers with thermoplastic polymers creating unique compounds. The wood that we use come from selected production scraps avoiding any tree-chopping.

We usually use fir wood flour, although our interest in research and development has lead us to also test rice and corn straw, apple peel production waste, olive stones and many other vegetable fibres available in the agricultural sector, which being waste products makes the LCA of our product even more positive.

This wood type having been selected for its very light colour, which makes it possible to assure production continuity, avoiding colour variations of the natural fibre as much as possible.

It is important emphasize the complete recyclability on the production chain of our compounds. One of our focus is to produce solution that respect the environment.

What shape has innovation? The one you want..Our secret? The know-how to dose the right ingredients to make products with alternative tactile and aesthetic fellings. Our products have something more compare to traditional thermoplastics. The percentage of wood which enriches the polymer allows to obtain original and natural finishing, together with the finished product scent. WPC products have the qualities of wood, without the defects: so that these materials are particularly appreciated for their resistance to the elements, corrosion and mould, and for their capacity for retaining their mechanical properties through time.

It is important to consider that our compound fits your existing process-

ing technologies for traditional thermoplastics. In addition unlike the composites with mineral fillers, the plasticWOOD compound minimize the wear of the machinery. To obtain a very good result we suggest a drying pre-treatment process before processing in order to improve the final aesthetic effect and to avoid any surface scarfing, caused by any eventual humidity residue. The sole critical variable during the moulding stage is the temperature, which is not adjusted correctly, may result in a considerable change in the colour: the natural component in fact tending to degrade and darken.

Hall B2, Booth 2123

plasticWOOD.it Srl  
www.plasticwood.it

plasticWOOD WPC PHYSICAL PROPERTIES	
Specific weight at 23 °C ISO 1183	31,064 g/cm <sup>3</sup>
MVR index (190/10) ISO 1133	10-29 cm <sup>3</sup>
Water absorption D1037 (ASTM)	less than 1%
MECHANICAL PROPERTIES	
Flexural modulus (2 mm/min) ISO 178/A/2	3,490 MPa
Flexural yield	60 MPa
Tensile modulus (ISO 527-2/1A/1)	1,740 MPa
Maximum load	32 MPa
Deformation at break	5%
Charpy test without notch at 23 °C ISO179-1 1 and KU	13 m <sup>2</sup>
MOULDING CONDITIONS	
Press head temperature	approx. 160 °C;
Temperature on the injection point	approx. 175-180 °C;
Mould temperature control range	40-60 °C;
Screw temperature	approx. 160/165 °C



## FEDDEM

# More than just extruders

At Fakuma 2018, machine manufacturer FEDDEM GmbH & Co. KG from Sinzig/Germany will present its compact FED 26 MTS extruder and an overview of innovative accessories developed in-house. These accessories will provide considerable added value to customers.

The FED 26 MTS extruder is particularly well suited for product developments and as a pilot plant in production. The 34 kW motor is water-cooled and has a torque limiting clutch and high-torque transmission that ensure top performance. With a base length of 42 L/D and a 10 L/D module to extend the processing length to 52 L/D, this extruder can also be used for products requiring a longer dwell time.

The extruder barrel and screws feature high-strength wear-protection. Two versatile FSB side feeders can be adapted to enable feeding of powdery additives and/or glass fibres at up to 4 side openings. "The power electronics and control unit for the entire line are located in one control cabinet, which is built into the base frame of the extruder", notes Klaus Hojer, Business Development and Project Manager at FEDDEM, referring to the compact design. "The 15-inch touch screen operator panel with a pivot arm makes it possible to control the line centrally".

For every compounding application, whether engineering plastics compounds, masterbatches or biocompounds, FEDDEM has just the right machine in its product range. FEDDEM's standard MTS range offers sizes between 26 and 82 mm and a product-dependent

*The newly developed cleaning brush from FEDDEM. A (rod-shaped) shaft is connected to the distribution gearing and then connected to a hand-held electric drive (similar to a boring machine)*



*The FED 26 MTS extruder will be on exhibit at Fakuma 2018*

throughput range between 40 kg/h and 4 t/h. Extruders with a larger Do/Di and a screw diameter up to 135 mm are also available to manufacture high-filled plastics compounds. FEDDEM's newly developed LFT-PT lines for manufacturing long-fibre pellets round out the range in the direction of special pellets.

Yet another useful accessory offered by FEDDEM is a reliable strand breakage monitoring system using infrared sensors. "The system is reliable and is not affected by steam or splash water in the extruder's strand die area", says Hojer.

The company also has a special dual cleaning brush with a drive system for cleaning the figure-8-shaped barrel bore in a hot extruder during product changes, leading to a significant reduction in required cleaning times. "These brushes are customised according to centre-line distance and bore diameter, based on the customer's extruder dimensions", Hojer explains.

According to the machine constructor, the brush system is already in use at a number of customers' sites, where it contributes to significant time savings in the cleaning process. The brushes are currently available for extruder sizes with a screw diameter of 50 mm and greater.

**Hall A6, Booth 6217**

**FEDDEM GmbH & Co. KG**  
[www.feddem.com](http://www.feddem.com)

# WIWOX


## Cleaning concepts for plastics production




Hall A7, Booth 7108

WIWOX GmbH Surface Systems  
[www.wiwox.de](http://www.wiwox.de)

WIWOX GmbH presents the current product range for tool and mould cleaning in plastics production at the upcoming Fakuma in Friedrichshafen, Germany. The highlight this year is the movable conveyor system for semi-automatic extruder screw cleaning. The contaminated screw is placed on the conveyor system and transported through the blasting cabinet. The fast and gentle decoating is carried out by the operator using the proven duroplast blasting process. The cleaned screw can then be removed on the second conveyor. Furthermore, new series of automatic ultrasonic cleaning systems for high-quality injection moulding tools and pyrolysis ovens without approval according to BimSchV for overmoulded nozzles, filters, hot runners, and many more will also be presented. The combination of mechanical, aqueous and thermal cleaning processes makes WIWOX a competent partner for tool and parts cleaning. Customers benefit from the know-how of a coordinated delivery range of cleaning systems, spare and wear parts, service and maintenance. In addition to cleaning tests in our own Laboratory, customers have the choice between purchasing and renting a system. Contract cleaning services are also offered.




**ERGE Elektrowärmetechnik**  
 Franz Messer GmbH  
 91220 Schnaittach · Hersbrucker Straße 29-31  
 Tel. +49 9153 921-0 · Fax +49 9153 921-117-124  
[www.erge-elektrowaermetechnik.de](http://www.erge-elektrowaermetechnik.de)



**ERGE MEFLEX Ceramic Heaters**  
 20% more heating surface  
 30% better heat conductance

Together with the energy optimized ERGE WDG Heat Insulation Jacket the ultimate energy saving solution!

**NEW • BETTER • FOR WINNERS ONLY**



**QUALITY PRODUCTS SINCE 1927**

FRANZ MESSER  
 ELEKTROWÄRMETECHNIK

JiaXing ERGE Electric Heat Technology Co. Ltd.  
 211 Yan Bei Road, Haiyan, Zhejiang, China, Postcode 314300  
 Phone +86 (573) 86 16 00 66 · [www.ergechina.com](http://www.ergechina.com)

Besuchen Sie uns in Halle A6, Stand 6301

# FB BALZANELLI

## Automatic coiler for PE pressure pipes up to 10" (250 mm)



FB Balzanelli has been a leading manufacturer of automatic coilers for many years. The latest milestone reached by FB Balzanelli is the realization of the FB ML7 5200 model.

This model is specifically designed to coil smooth HDPE pipes SDR11 up to 10" (250mm), in coils with an outer diameter of 17' (5200mm), a width of 8' (2400mm) and 10 tons heavy.

With these technical features the FB ML7 5200 presents itself on the market as the largest fully automatic coiling machine ever built: the coiler is able to secure the pipe to the reel, coil it, execute intermediate and final strapping and off load the coil without the need of any operator supervision.

Being as this the coiler can offer the market coils of pipe which are up to 10 times longer than standard coils, and it will considerably reduce installation time and costs. FB Balzanelli, now structured as a group, designs and manufactures all of its machines and mechanical components in its

companies, and is specialized in manufacturing coilers for flexible pipe as well as packaging and palletization systems. Today the company has nearly 1,000 of its systems installed around the world, most of which belong to the EXCELLENCE series, a coiler with two opposing reels which can be customized to meet the specific needs of the production. Alongside this EXCELLENCE series there are two more like the SMART and the PREMIUM series as well as a whole new series of palletizing systems, for both small and large coils.

**Hall A6 , Booth 6304**

**FB BALZANELLI**  
[www.fb-balzanelli.it](http://www.fb-balzanelli.it)



## Moretto

# Concept of Efficiency 4.0

Moretto's solutions, result of a continuous investment on technological innovation, are distinguished by being efficient and low energy consumption machines, conceived with the criteria of Industry 4.0 and based on the respect for environmental needs.

Injection, Extrusion, injection molding and PET processing are characterized by specific complexities and high levels of performance, in which production and energy efficiency play key roles. In order to remain competitive, plastic processors need to equip themselves with high performance plants in terms of energy efficiency and quality of the final product.

### *Efficiency 4.0*

At Fakuma 2018, Moretto presents his concept of "Efficiency 4.0", essential for the factory of the

future. For Moretto, "Efficiency 4.0" means a plant made up of advanced machinery and solutions, connected and integrated with each other by a supervision system that guarantees total control of the process.

With a broader view, Moretto aims to support customers by providing experience, technologies and services which meet the needs of the global market. On the 4.0 factory, machines can be remotely managed, they are able to supply and exchange information, to self-program and to provide frequent reports on production. The data obtained are used to modify the process parameters to monitor the performance of the machines, thus optimizing the efficiency of the entire plant.

### *The Moretto's 4.0 automations*

Moretto shows its latest innovation with "Efficiency 4.0". Moretto offers a range of products that satisfies the entire preparation process of the plastic material, from its storage in the silos until the injection moulding machine. The range also includes technologies and machines, de-



veloped to guarantee adequate levels of dehumidification, granulation and dosage of the polymer. These are ideal conditions to allow processors to obtain a high quality final product.

Everything under control of Mowis 3, the integrated self-configurable supervision system with intuitive object programming, developed by Moretto for the connection and control of the whole automation chain in plastics processing plants.

Mowis 3 overcomes the barriers of traditional supervision by adapting to the needs and the qualitative, productive and managerial objectives of every customer. It's a modular software with unique, auto-configurable and user friendly interface which allows immediate display of the system status. With Mowis 3, the integrated process control is easily managed from any location, on-site or remote. Based on SCADA system, Mowis 3 allows a safe and immediate exchange of data between standard modules, tailor-made modules and the customer management system.

Moretto's drying solutions are suitable both for complex models such as multi hopper systems and for the dehumidification of small quantities of technical materials, like X Comb mini dryers, designed to meet the requirements of the most demanding sectors such as the medical, without the use of compressed air. X Comb guarantees maximum efficiency and reliability thanks to the zeolite technology, the powerful turbo compressors, the exclusive OTX hopper and the dew point equalizer (up to -52°C).

The compact dryers of the X Dry Air series, equipped with a double-bed system with zeolite technology and a transparent OTX Pyrex hopper, ensure even higher performance by reaching dew point values up to -70°C.

For multi hopper plants, the best drying solution is the revolutionary EUREKA PLUS system, "the most advanced low consumption drying system available on the marketable to reduce energy consumption by 56% compared to conventional drying systems. Eureka Plus consists of four Moretto-patented technologies:

- X MAX, the only high performance multi-bed modular dryer

- FLOWMATIK, a dynamic airflow management system,
- OTX, innovative hoppers with an exclusive internal geometry
- MOISTURE METER MANAGER, the revolutionary device which measures polymer residual moisture in-line and adapts the drying system operations.

By working together, these four automations provide an "on demand" self-adjusting, modular and energy-saving drying system.

Moisture Meter Manager, thanks to the sophisticated Box, Crown and Control devices, can detect in-line the intrinsic moisture in the polymer with an extraordinary level of precision: from 3,000 up to a minimum of 15 parts per million (ppm), with a degree of precision of  $\pm 3$  ppm and a temperature range from 20 to 180°C.

Moisture Meter Manager is a real "intelligent" device, it automatically directs the drying system to adjust its drying parameters to match the drying requirements, assuring that material is perfectly dried using the minimum amount of energy. With Moisture Meter Manager we talk about "drying on demand" by targeting the actual moisture levels of the resin and not simply providing the same drying heat and airflow for all conditions.

At Fakuma great attention is also dedicated to the dosing phase, with the presentation of DPK, the new compact loss-in-weight dosing unit, suitable for intermittent or continuous dosing of small quantities of color or additives into a flow base material, that solves the problem of overdosing with an extremely precise control. Thanks to the exclusive vibration immunity system, the machine control algorithm and the hopper removeable from the dosing unit, DPK achieves a dosing accuracy up to  $\pm 0,03\%$ , allowing processors to avoid unnecessary wastes of expensive additives.

Among Moretto's innovations presented at Fakuma 2018, there are certainly three new types of maintenance hoppers, valid solutions for the containment of plastic granules on the processing machines.

The TM hoppers made of stainless steel and with a characteristic cone shape, guarantee an optimal flow of any material, and are suitable to accept single-phase, three-phase and receivers for centralized conveying systems.

The TMC hoppers are used for the treatment of dried hot materials. Realized in stainless steel, they feature the double-wall insulation with removable cone that avoids heat loss by creating a process constancy.

Krystal maintenance hoppers (TMK) are made of transparent shockproof acrylic material, they ensure an effective containment of plastic granules and offer a great visibility allowing the operator to immediately verify the level of material.

The Dolphin distribution manifolds, the Kruse Kontrol speed control and the suction units with cyclone filter are all machines controlled by the One Wire 6 software, the "intelligent conveying system" developed by Moretto.





“Intelligent” because it is able to automatically handle the demands of the individual receivers, to adapt to the changes and manage the entire process with maximum efficiency, without resorting to manual settings.

The large amount of energy required for the cooling process in the transformation of plastic material, requires very effective and extremely flexible systems, such as the new RC Mini chillers, which inherit the characteristics and performance of the superior series of modular air coolers RCV X COOLER. The chillers of the RC Mini series, characterized by cooling capacities from 6.8 to 26.2 kW, are made of stainless steel, and are compact and practical machines easy to install in the department. RCV X COOLER is the new modular cooler that inherits the X MAX spirit of EUREKA as it develops into a concept of great efficiency (cooling power up to 900 Kw), modularity and easy expansion over time (up to 6 units). X COOLER is equipped with: screw compressors with variable flow, high efficiency evaporators, centrifugal fans and electronic expansion valves that, even in this case, guarantee high level of C.O.P. They are characterized by being suitable even for the most demanding applications, they are ideal allies to optimize productivity, minimize energy consumption, increase the profitability of the entire process, guaranteeing high quality production. Towards increasingly “sustainable and 4.0” refrigeration! Moretto chillers use low GWP refrigerating gases (Global Warming Protection and ODP (Ozone Depletion Potential), as established by the EU517 / 2017 regulation for the reduction of the greenhouse effect.

Te-Ko temperature controllers (water, oil or pressurized) complete the displayed range of products, they ensure absolute efficiency and precision in the automatic temperature control both in the moulds of the injection moulding machines and in the cylinders and rollers of the extruders.

*Moretto’s projects for the future: continuous innovation, energy saving and sustainability.*

Moretto looks to the future by investing in innovation, energy saving and sustainable projects. The intent is to

sublimate the plastic such as “raw material” which is essential and irreplaceable in the lives of each of us and to focus on eco-sustainable activities and new materials such as bioplastics. The green project “BE TOMORROW” born from the company’s need to spread awareness, information and responsibility towards the environment. A long-term project oriented to safeguard the world of tomorrow, that of our children.



Hall B3, Booth 3208

MORETTO S.p.A.  
www.moretto.com



**A COLOUR IDENTITY**  
LIQUID COLOURS AND ADDITIVES FOR EXTRUSION



## AKRO-PLASTIC

# Focusing on plastic-metal composites and alternatives to PA 6.6 for lightweight construction

The new development from AKRO-PLASTIC with regard to a PA 6.6 substitution is called AKROMID® B+. Reinforced with 50 % glass fibres, this compound achieves the same strength at 80 °C as a conditioned PA 6.6 GF50 (115 MPa breaking stress). The stiffness of the conditioned material achieves as well almost the level from PA 6.6. A portfolio with 30 to 50 % glass fibre reinforced AKROMID® B+ compounds is already available for sampling, a grade with 60 % glass fibres will follow shortly.

For some time now there has been a development partnership with Plasmatreat with regard to material development relating to plastic-metal composites. The AKROMID® PST which has resulted from this, in combination with stainless steel, for example, achieves a tensile shear strength of well over 50 MPa. After intensive additional development of these compounds, we now have excellent adhesion to aluminium. This is over 30 MPa with an overlap area of 12.5 x 25 mm.

As an alternative to hydrolysis-stabilised polyamide, AKRO-PLASTIC now presents with the compound AKROMID® A3 GF 30 4 L black (4678) a new material with outstanding mechanical properties and hydrolysis resistance. The blend from PA 6.6 and PP provides excellent hydrolysis properties. The proportion of PA 6.6 is significantly reduced here and the material is also optimised for density and thereby provides an additional weight advantage.

*Tensile shear test specimen according to DIN EN 1465; AKROMID® B3 GF 30 PST (6647) with aluminium 6016; fracture in aluminium, compression shear test according to ISO 19095-3*



*Cooling water pipe PA6.6/PP-Blend, AKROMID® A3 GF 30 4 L black (4678)*

BIO-FED, a branch of AKRO-PLASTIC GmbH, produces and markets biodegradable and/or bio-based plastic under the brand name M-VERA®. In order to meet the legal requirements in France and Italy, among other countries, BIO-FED provides compounds with a correspondingly high proportion of renewable raw materials (bio-based carbon content over 40%) and variable "end-of-life" scenarios such as OK compost INDUSTRIAL, OK compost HOME and OK biodegradable SOIL, which will also be presented to German-speaking trade visitors at Fakuma. AF-COLOR, also based in Niederrissen, is another branch of AKRO-PLASTIC and the specialist for color and additive master batches. It will inform the trade fair visitors about new chemical injection fluid agents for use in thin-walled packaging applications, which are produced in multilayer production processes or used in technical and structural applications. AF-COLOR will also present its new additive portfolio for PET packaging applications.

**Hall B2, Booth 2209**  
(together with sister company K.D. Feddersen)

AKRO-PLASTIC GmbH  
[www.akro-plastic.com](http://www.akro-plastic.com)



# FKuR

## Heat-resistant PLA compounds and versatile bioplastics for extrusion, injection molding and thermoforming

FKuR will be presenting its broad portfolio of bio-based thermoplastics for injection molding, thermoforming and extrusion, including the advanced injection molding grade Bio-Flex® S 7514 as well as bio-based TPE and PP grades for a variety of applications.

### *Improved flowability and heat resistance*

Bio-Flex® S 7514 is a biodegradable compound based on polylactic acid (PLA), which has been optimized by FKuR for particularly comfortable and efficient processing. Thanks to its good flowability (MFR = 27 g/10 min), it is also suitable for use in multi-cavity molds and the production of parts with longer flow paths. The high heat resistance (Vicat A = 110° C), which is achieved without hot tool, allows for

shorter cycle times. Typical examples of use are catering applications such as cutlery. Bio-Flex® S 7514 has a bio-based content of 75% and is available in both natural and white. Other colors can be achieved by using a multiplicity of masterbatches.

### *Bio-based TPE and PP grades*

The variety of bioplastics from FKuR also includes bio-based thermoplastic elastomers (TPE) as well as compounds based on polypropylene (PP). Terraprene®, the bio-based TPE compounds for extrusion and injection molding, have a bio-based content of 40% to 90%. They offer the same mechanical properties as their fossil fuel based counterparts and can be processed on existing production equipment and tools. It is also possible to produce complex components using 2K injection molding.

Terralene® PP is a PP compound with a bio-based carbon content of approximately 35% (ASTM D 6866). In injection molding and in profile extrusion, it is a true drop-in solution because its performance and processability are comparable to those of conventional PP grades.

### *360 degree service*

As a full-range supplier with a broad product portfolio, FKuR also advises on the selection of the most suitable bioplastics for specific requirements and offers extensive technical support, from the project implementation phase through to advice on marketing, with special consideration of the bioplastic aspect.

**Hall B4, Booth 4404,  
Hall A5, Booth 5211**

FKuR Kunststoff GmbH  
[www.fkur.com](http://www.fkur.com), [www.fkur-polymers.com](http://www.fkur-polymers.com)

*Typical applications of the Bio-Flex® S 7514 PLA compound, which has been optimized for flowability and heat resistance, include catering items such as cutlery. Image © FKuR*



## **PLASTICO**

*Supplier of new and used plastic processing machines*

**Compounding & Recycling Lines  
Single and Twin-Screw Extruders**

**Laboratory machines, Shredder-Pelletizer-  
Granulators, Dosing equipment & Accessories  
Screen-pack-changer, Injection Moulding Machines**

**near Airport Düsseldorf International  
PLASTICO TRADING GmbH & Co. KG  
Vohwinkeler Str. 173 • D-42329 Wuppertal (Germany)  
Email: [service@plasticotrading.de](mailto:service@plasticotrading.de)  
[http: www.plasticotrading.de](http://www.plasticotrading.de)**

# Ettlinger

## Melt filtration in challenging applications, smaller screen size for PET recycling

*The Ettlinger exhibit at the upcoming Fakuma will focus primarily on melt filters that meet even the most extreme requirements for continuity and product quality. Thanks to the even smaller 60 µm screen size which is now available for the ECO series, these filters are ideal whenever 100% PET bottle flake is used in thermoform sheets, packaging tape or staple fiber plants. © Ettlinger*



Ettlinger, a Maag Group company, will take advantage of Fakuma 2018 to show high performance solutions in the field of melt filtration involving different levels of contamination. The exhibit will focus particularly on Ettlinger's ECO filter systems, which were originally developed for compounding and filtering gels and agglomerates, among other things, but are meanwhile very popular in PET applications for removing aluminium, paper, silicone or PVC from bottle regrind. 100%

PET bottle flake is increasingly preferred to virgin material – creating a need for ultra-fine filtration if the end products are transparent. To meet this demand, ECO melt filters are now available with a 60µm screen size. Together with the ERF filter series – the version for higher contaminant levels – this product family enhances the Maag Group's broad portfolio, which also includes pumps, strand and underwater pelletizing systems and pulverizers.

The melt filters in Ettlenger's ECO series are mainly designed for very easy-flowing materials such as PET or PA containing up to 1.5% contaminants but are also suitable for polyolefins and polystyrenes. Depending on the size, they achieve a maximum throughput of 1000 kg/h or 3000 kg/h. Their typical applications include the manufacture of PET packaging tape, films and sheets as well as fiber production and the rapidly expanding PET bottle recycling sector. The new, extra-fine 60 µm screen size, which will be released to coincide with Fakuma, is even better adapted to the exceptionally high quality requirements of bottle-to-bottle recycling – as the new industry benchmark for laser screening. It is also a financially attractive option when it comes to filtering the small fines that are created in significant quantities as the second fraction in addition to the actual flake when PET bottles are recycled. ECO melt filters are highly efficient and can be directly integrated into PET thermoforming lines, where they contribute to a decisive improvement in availability and cost effectiveness.

This combination of ultra-pure filtrate and high efficiency is the outcome of the special principle on which all Ettlenger filters are based. The central component is a continuously rotating, cylindrical filter screen with millions of conical holes which is driven by a servo motor. When melt flows through these holes from the outside to the inside, any contaminants retained on the filter surface are continuously removed by a single, easily replaceable scraper. Gels or agglomerates are reliably separated from virgin material in this way, as are the black specks which can form during the extrusion process. Through their continuous operation, the ECO systems simultaneously prevent such specks from occurring in the filter itself, because the screen change intervals are very long and the resulting lack of exposure to oxygen means there is no risk of the melt oxidizing. Thanks to the special purge discharge method, the ECO melt filter has the lowest melt losses in the industry. This leads to low operating costs and hence a rapid return on investment.

The melt filters in the Ettlenger ERF family differ from the ECO series in that – although designed with the same working principle – they are specially adapted for polyolefins and polystyrenes as well as styrene copolymers, TPE and TPU containing up to 18% contaminants. They are typically used to treat post-consumer plastic waste, convert recycled automotive plastics or recycle refrigerator and electronic waste. They can be supplied in three different sizes with a maximum throughput of 6000 kg/h. The ERF350, with a throughput of up to 3800 kg/h, was unveiled only last year as the first model in a new, performance enhanced generation. Several proven field applications will highlight Ettlenger's universality and efficiency at the upcoming Fakuma 2018.

Hall A6, Booth 6202

Ettlenger Kunststoffmaschinen GmbH  
www.ettlinger.com

REQUEST YOUR FREE SAMPLE:  
WWW.VELOX-ASACLEAN.CO.UK

**VELOX**  
Specialities in Motion

**VELOX**  
EXPERT IN PURGING  
COMPOUNDS

**ASACLEAN™**

- For injection moulding and extrusion
- Different grades from 160°C - 420°C

**CLEAN PLUS**

- For extrusion and partly injection moulding
- Different grades from 140°C - 240°C

- ✓ FAST COLOUR AND MATERIAL CHANGE
- ✓ REMOVES BLACK SPOTS
- ✓ REDUCES SCRAP & WASTE
- ✓ SUITABLE FOR HOTRUNNERS
- ✓ IDEAL FOR SEALING

**You produce - we take care of the cleaning.**  
**Save time and money by using the purging compounds and increase your efficiency!**



**16-20 OCTOBER**  
Friedrichshafen, Germany  
Hall B5 · Booth 5001

**25**  
YEARS  
IN MOTION FOR  
YOUR SUCCESS

**ENNO STAPEL**  
Productmanager Purging Compounds  
E-Mail: stapel@velox.com  
Tel.: +49 (0)40 369688-46

**VELOX.COM**



## PIOVAN GROUP

# Features from Piován, Aquatech and Fdm brands

*At Fakuma, the Piován Group will feature its Piován, Aquatech and Fdm brands. While Piován and Fdm are specialized in material handling systems and advanced solutions for plastics processing - with Fdm more focused on the extrusion process - Aquatech specialises in industrial cooling and temperature control technology.*

In fact, will be the chance to present Easytherm by Aquatech. It's about the new temperature control line, "Industry 4.0 ready" thanks to the integrated OPC-UA protocol, which includes a range of versatile units allowing smart energy use management. Another solution from Aquatech is Flexcool, a system which allows utmost efficiency and flexibility of application, whose core is the thermochiller Digi-tempEvo.

Piovan will show its Winenergy and Winfactory 4.0 supervision software which will be featured on touchscreens. Winenergy is the energy use monitoring and analysis system comprising proprietary software that is connected to a series of measuring devices – which acquire data about a variety of physical parameters including power, electricity, thermal energy and temperature. It can be installed on its own or in combination with Winfactory 4.0, to maximise system control and efficiency.

By Piovan, as the ideal solution for the fully automatic material supply to the processing machines, there will be the model EL20 of the Easylink+ line, featured by a state-of-the-art pipe cleaning proce-

dure, which guarantees the absence of cross-material contamination.

Easylink+ will be in operation together with the Modula series auto-adaptive dryer and the Pureflo filterless granule receivers.

Moreover, for the first time at Fakuma, Piovan Quantum E gravimetric batch blender with continuous extrusion control will be exhibited, equipped with its 15" touch-screen panel control.

A big-size granulator will complete the product display under the Piovan brand.

Fdm will showcase a gravimetric dosing system of the GDS series, featuring Siemens control, designed for the needs of pellet, flakes, regrind, additives and powder treatment.

**Hall A7, Booth 7201**

**PIOVAN S.p.A.**  
www.piovan.com

**NGR**  
PLASTIC RECYCLING TECHNOLOGIES

Working for a better future

www.ngr-world.com

MEMBER OF NEXT GENERATION GROUP

Customized recycling technology for the plastics converting industry. It will not only satisfy, but also inspire.

**FAKUMA**  
16.-20.10.2018  
Hall A5, Booth 5108

**S:GRAN SHREDDER-FEEDER-EXTRUDER COMBINATION**

# Exhibitor's notes

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

NB	NB	NB	NB
----	----	----	----

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

NB	NB	NB	NB
----	----	----	----

# Exhibitor's notes

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

Date	Booth N	Company	Contact Person
NB	NB	NB	NB

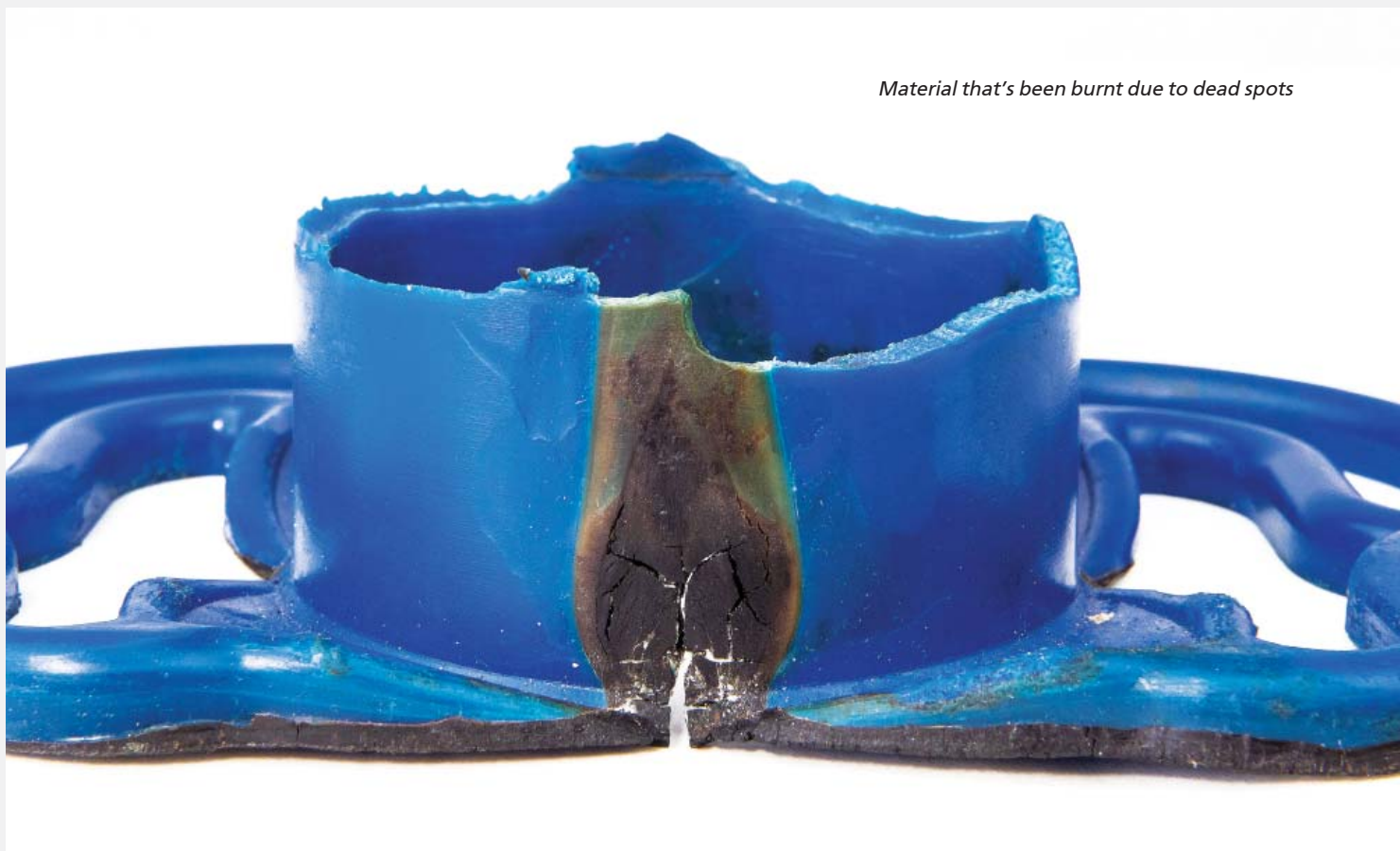
NB	NB	NB	NB

# Flow Dynamics of Extrusion Tooling\*

By Denis Finn, Product Development Engineer

Guill Tool & Engineering, West Warwick, RI

*Material that's been burnt due to dead spots*



*Information presented in this article was derived from a recent conversation between Denis Finn and Bill Conley, Guill National Sales Manager, at company headquarters. Denis Finn discusses several problems that can affect the flow of polymers in an extrusion system. Among these are the strict product acceptance criteria, material degradation caused by several factors, differences in temperature between the thermocouple and the polymer, and other process issues.*

*\*Please keep in mind that the information contained in this article applies only to thermoplastics.*



The extrusion process brings with it several challenges, product quality being the frontrunner in many industries especially with extruded medical products. Medical tubing and jacketed products must be produced to conform to very tight tolerances, often wall thickness(es) and diameter(s) being inspected to tolerances lower than 0.0004"/.01mm. Polymers used in the medical industry may also be extremely expensive. The entire extrusion system must be carefully controlled and tuned to produce these demanding products in a cost efficient manner. This is especially important for multi-layer and/or multi-lumen constructions.

The flow channel geometry the polymer flows through is a critical component of a well-designed extrusion system. Residence time, or the amount of time the polymer flows through the die assembly, should be considered in an effort to avoid burning and stagnation issues. Channels that are too large means the polymer's exposure time to processing temperatures could begin to degrade the polymer. Too restrictive of a geometry often means the system will run at high pressures, often limiting production speeds. Along with this, users can encounter dead spots that prevent the material from flowing freely. If this is not corrected, we can run into material that's been completely degraded. (See photos.) While these situations can occur with all polymers, this becomes a serious problem in the medical industry due to the usage of expensive materials. Also, medical products commonly use barium sulfate, a radiopaque substance which allows the finished product to be visible on x-ray scans. When barium sulfate is co-extruded with high temperature materials like fluoropolymers, the flow channels must be engineered to ensure the barium sulfate does not degrade. Dead spots and high residence time will cause the barium sulfate to yellow and ruin the product.

The sensors and feedback the system provides should be checked and



*Burnt material that is due to excessive residence time in the die assembly*

doubled checked to ensure the polymer is being properly processed. The temperature of the polymer flowing the die cavity could differ greatly from the thermocouple reading. As we know, the thermocouple is a sensor that measures the temperature of the die assembly. In most cases the sensor is not directly reading the temperature of the polymer but is installed on the outside housing of a die assembly. A considerable thermal gradient can occur between the polymer and the thermocouple, giving false confidence that the polymer is being properly processed. Since the polymer temperature could actually be colder or hotter than what is indicated, it is imperative to take physical measurements from the melt stream when working with fragile materials or establishing recipes for the line. To do this, you should take the measurements while at production speed. As the polymer begins to travel through the restrictive flow channels, it will develop heat from viscous dissipation. The faster you go the more heat the polymer's flow will contribute to the system, if everything else stays the same. Close monitoring is critical for many thermally sensitive materi-

als like ethylene vinyl alcohol (EVOH), where gels and other degradation may occur. For example, you might look at the thermocouple and see 300°C but measure the direct temperature and get 330°C. In this case, you need to adjust the thermocouple settings to get the right melt temperatures. Materials may also be prone to melt fracture, a phenomenon that produces an unsatisfactory surface finish on the product. Utilizing proper tooling sizes and processing parameters will avoid these troublesome issues.

According to Bill Conley, our National Sales Manager, if the extruder is running very slowly, we can also offer dual, triple or quadruple output dies. Instead of getting another line, you are effectively doubling the extrusion system to double or even quadruple your production. In this way, you save a lot of money on equipment and processing personnel.

► For more information, please contact:  
 Denis Finn, Guill Tool & Engineering  
 10 Pike Street, West Warwick, RI 02893  
 (401) 823-7600  
 www.guill.com  
 dfinn@guill.com

*The Die Head Service at W&H cleans old die heads and eliminates signs of wear - the die heads work like new again*



## Die Heads will be fit again

*From old to new - Windmüller&Hölscher is the only machine manufacturer with a whole team exclusively concerned with the overhaul of old die heads. Contamination and signs of wear are removed by professional cleaning.*

*A completely overhauled die head then works again with the output and quality of a new one. The result: For the customer, the Die Head Service is an efficient plug & play solution to increase the performance and quality of their lines in use. Since the end of 2017, W&H has increased the capacities with a new hall for the Die Head Service at headquarters in Lengerich with more than 1,000 square meters.*

*The capacities of the W&H Die Head Service were further increased with a new hall covering more than 1,000 square meters*



Die heads form the heart of an extrusion line: their condition has a decisive influence on quality and productivity. Even the smallest impurities and irregularities can have a considerable influence on the quality of production. Regular cleaning and maintenance of the die head therefore is essential.

Cleaning is carried out exclusively by experts: Industrial mechanics with further training as die head cleaning specialists ensure professional basic overhaul. The new hall is equipped with the latest technology: At five cleaning stations and two pyrolysis furnaces, more than 200 die heads are cleaned each year without damaging the material. All processes in the new hall are coordinated for particularly fast throughput times. Depending on the number of layers, the high-performance die head is back in production after only one to two weeks.



**All our magazines at the  
26th International trade fair for plastics processing**

## **FAKUMA 2018**

**16. – 20. October 2018, Friedrichshafen, Germany**

**Visit us at International press stand!  
Entrance West / Foyer / FW01**

## An interview with Philipp G. Weber, Hch. Kündig & Cie. AG: “We want to make sure it’s our customers that come back to us and not our products.”

*“We have three main objectives with our products,” says Philipp G. Weber, Managing Director and current owner of Hch. Kündig & Cie. AG. “Production should increase; there should be fewer rejects and quality should be meticulously monitored.” Kündig, established in 1868, decided in 1972 to branch into process control systems and started Kündig Control Systems. Since the beginning this new department has always been “at the cutting edge” with its most innovative measuring and control equipment for the film extrusion market throughout the world. Equipment that facilitates the production of even thinner and simultaneously superior plastic film, thereby saving on raw material and producing less waste. Therefore, it is not only an economical choice to use our products, but also an ecological investment.*



*Philipp G. Weber  
(All images:  
Hch. Kündig & Cie. AG)*

*Who buys your measuring and control equipment?*

**Philipp G. Weber:** Our customers include machine manufacturers producing complete film extrusion plants which are then sold to plastic film manufacturers. We also sell to plastic film manufacturers directly. The machine manufacturers integrate our products into their offerings. The plastic film manufacturers upgrade or retrofit our measuring and control equipment to their existing manufacturing plants.

We have a particularly strong presence in the blown film lines market. Nearly every well-known end product manufacturer of blown film throughout the world uses at least one of our products.

High-quality blown film lines with machine direction orientation units use up to four of our inline measuring devices. We also sell the Filmtest 3G offline thickness gauge to film manufacturers and processing firms for quality control and process optimization. This means that films are measured with exactly the same high-precision measuring equipment at both ends of the supply chain. Unlike our competitors’ products, the Filmtest 3G also measures sheet weight simultaneously with each thickness measurement; eliminating the time and investment required for additional equipment to complete the weighing process.

*What do your customers particularly value in addition to your high-precision work?*

**Weber:** We take great pleasure in meeting customers’ specific requirements and are also happy to take suggested improvements into consideration. We have a particularly close working relationship with machine manufacturers and OEMs throughout the world. Many ideas for product improvements and additional functionality have resulted from joint meetings.

There are only three hierarchy levels at Kündig. This means that we have an extremely short decision-making process and our customers benefit from quick answers to their technical or commercial queries.

*More and more industrial companies are now manufacturing in cheaper overseas countries to keep costs down, but you have kept your production facility in Switzerland. Does that make economic sense?*

**Weber:** Switzerland stands for precision. High quality products from Switzerland have an excellent reputation throughout the world. After all, we all know the phrase “as accurate as a Swiss watch.” Our trademark is high-precision work. All our development work and production takes place in our own plant, which means we can guarantee extremely high quality. Many customers buy from us because of our excellent image and reputation, which our company has gained over the years. All our products are tested meticulously before they leave the plant. We want to make sure it’s our customers that come back to us and not our products.



*What is it that you do better than others?*

**Weber:** Thanks to our extensive know-how and many years of experience, we are able to offer comprehensive and complete measuring and control technology solutions. Our products can be easily integrated into other systems. We do not engage in narrow-minded competitiveness. If necessary, our engineers work hand in hand with our competitors' development teams. This open business model brings us a great deal of goodwill and many new customers.

*How does your customer service work?*

**Weber:** Our internet platform GaugeCloud® went live three years ago. This platform provides our customers with access to documentation, technical drawings, lists of available spare parts and much, much more information on their Kündig Control Systems products, irrespective of our office hours. We have three chat groups – Spares/Repair, Support and Retrofit – which allow customers to communicate with the relevant specialist team on specific points.

We are also able to monitor our products when required – regardless of our customer's global location. Remote access is via either a customer-specific access point or our own 'Internet of Gauges'.

If problems cannot be resolved via remote access, our service engineers are available to visit the customer. All employees at Kündig are fully aware that customer service is our number-one priority. In the event of complicated service requirements, we quickly convene a meeting with members of our service, production, development and sales departments and combine our skills to establish the quickest possible solution to the problem.

*Every business has its own ethos. What is yours?*

**Weber:** Our strengths lie in our flexibility and supplying our equipment on time. Success is our motivation. We are always working on even better products and testing out new scientific findings as well as developing new technologies. Where we do not have the knowledge and expertise in-house, we work with suppliers, consultancies, institutes of higher education and universities. The aim is always the same: even better quality, more accurate sensors, shorter measuring intervals, and market-oriented selling. We are constantly expanding our product range. This ensures we are always offering our customers the most up-to-date and innovative measuring and control equipment.

*Can you give us an example?*

**Weber:** One example is the K-500 contact capacitive film thickness gauge with extremely low-wear sintered ceramic surfaces.

When combined with our patented rotational scanner, the Rotomat KT, a transversal thickness profile can be measured within 36 seconds, without any losses in the measuring accuracy.

Our FE-8 width gauge is also worth a mention. Two identical half bars can be assembled with corresponding connecting materials for measuring different film widths using plug-and-play technology.

*What are you particularly proud of?*

**Weber:** Leading a company with a tradition that goes back 150 years, but also maintaining the mentality and the inventiveness of a start-up business and keeping up with market demands in terms of the products and services we offer. None of this would be possible without our exceptional, highly-motivated employees. Kündig owes them a huge vote of thanks.

I would also like to take this opportunity to thank all our customers for their excellent cooperation and many years of loyal collaboration.

*Thank you very much!*

Hch. Kündig & Cie. AG  
www.kundig-hch.ch

**ATLANTIS**<sup>®</sup>  
RE-ATLANTIS ENTERPRISE CO., LTD.

**Pragmatism Win-win Innovation**

+886-2-28203405    +886-2-28203406

ben@atlantis.com.tw  
gauge@atlantis.com.tw  
gauge2@atlantis.com.tw

*Primac, brand of the Dosi group and sister company of Baruffaldi Plastic Technology, proud of its 60 years of experience in the field of manufacturing of machines for processing smooth and corrugated pipes in PP, PE and PVC, reached another important goal in the last year. The R&D activity has improved and enhanced the productivity and quality of the process of two of its best sellers.*



Primac Planetary-cutting-unit

## Primac once again hits the mark

The first case study has as its object the already known S.R.M. 400/1200, the patented rotary pipe-to-coupling welding machine for corrugated pipes. Based on specific customer requests, a European group leader in the production and marketing of double-wall corrugated pipes, the machine has undergone an upgrade that has allowed it to increase and make it more productive. The new model has been added to the range of rotary welders produced so far. It can process PE and PP pipes with a diameter from 200 to 1400 mm, with a standard length of 3, 6 or 12 m.

The welding process is obtained by adding some material between the PE or PP socket to the corrugated pipe of the same material.

The head unit, controlled by an electronically controlled motor, advances automatically reaching the welding position, by blocking the pipe against the socket.

The pipe and the coupling rotate to execute the welding operations, controlled by a PLC and an operative keyboard with processing recipes for the different types of pipes. Once the welding operation ends, the welding head comes back to the initial position, the mandrel unblocks the pipe and the coupling, so the head comes back in position for a new coupling loading.

During this process there is no loss of speed on the extrusion line, as well as no production waste and no problems of ovality. The new concept of cutting device, designed ad hoc to solve a specific production need of an important company operating in the extrusion of coextruded plastic profiles of pipes, takes the technical name of TVP/60 or rapid planetary cutting unit for rapid cutting of PE, PP and PVC pipes with a diameter from 5 to 60mm.

The carriage, managed by a brushless motor, synchronizes with the extrusion speed at the cutting signal, and the blade rotates around the tube cutting it, without any removal of material.

The rotational speed of the rotor unit is controlled by a brushless motors for the optimization of the number of revolutions, speed of penetration of the blade into the tube and therefore of the cutting speed.

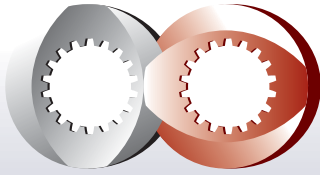
The cutting system of the TVP / 60 is absolutely innovative thanks to the implementation of a brushless motors system that allows to reach the best precision, reliability and flexibility, as well as tight tolerances on short cutting lengths. The advanced electronics of this new machine, versatile and compact, controls cycle times, in order to optimize the production process as much as possible. In addition to the features described above, the machine is also characterized by silent process and energy savings. Thanks to the different requests and needs of the market, Baruffaldi Plastic Technology develops customized projects and technologies in step with the times, suitable to meet even the most particular production needs of its customers with modular and highly reliable solutions.



Baruffaldi  
S.R.M.



Baruffaldi Plastic Technology s.r.l.  
Via Walter Tobagi, 13,  
48032 Fusignano RA, Italy  
[www.baruffaldi.eu](http://www.baruffaldi.eu)



# 17TH INTERNATIONAL CONFERENCE Extrusion Russia 2019

**29th January 2019**  
under Interplastica show  
Registration opens at **10:00**



**Moscow, ExpoCenter**  
Cocktails Hall in the gallery between  
Halls 2 and 8, lower level



## Topics for discussion

- ▶ Equipment for various extrusion segments: film, tube, sheet, cable, as well as geosynthetics
- ▶ Key components of an extrusion line (filters, melt pumps, degassers, etc.)
- ▶ Tooling (dies, heads, calibrators, corrugators), quick change and cleaning solutions
- ▶ Peripherals for material preparation, transport and dosing
- ▶ Downstream equipment (orientation systems, withdrawal and cutting devices, winders, laminators, markers, packers)
- ▶ Automation tools for extrusion lines
- ▶ Special material grades, additives and fillers for extrusion
- ▶ Compounding and pelletizing of composites and masterbatches
- ▶ Special aspects of twin-screw extrusion
- ▶ Quality control of raw materials and final product parameters
- ▶ Flat-die extrusion, extrusion blow molding, thermoforming
- ▶ Extrusion in recycling of industrial and household plastic waste
- ▶ Engineering and optimization of extrusion processes

## Contacts

[extrus.plastics.ru](http://extrus.plastics.ru)

### in Russia

☎ +7 (846) 276 40 45

✉ [reklama@plastics.ru](mailto:reklama@plastics.ru) (for speakers)

[conference@plastics.ru](mailto:conference@plastics.ru) (for visitors)

### in Germany

Alla Kravets

☎ + 49 2233/9 49 87 93

✉ [a.kravets@vm-verlag.com](mailto:a.kravets@vm-verlag.com)

## Organizers



**EXTRUSION**

When deciding about investing in a measuring device, one of the main factors – besides the costs – usually is which device is the “best”. Characteristics where “more” or “less” is considered as “better” are seemingly easy to be compared. This simplification, however, bears risks. In digital photography, for instance, the size of the sensors and, thus, of the individual pixel in general, is more important than the total number of pixels. The pixel count however is commonly the relevant sales argument. For that reason, it makes sense to question the characteristics of a measuring device, as well as their definition and interaction. Often further information about the conditions under which these characteristics are valid such as temperature, position dependency etc. are missing.

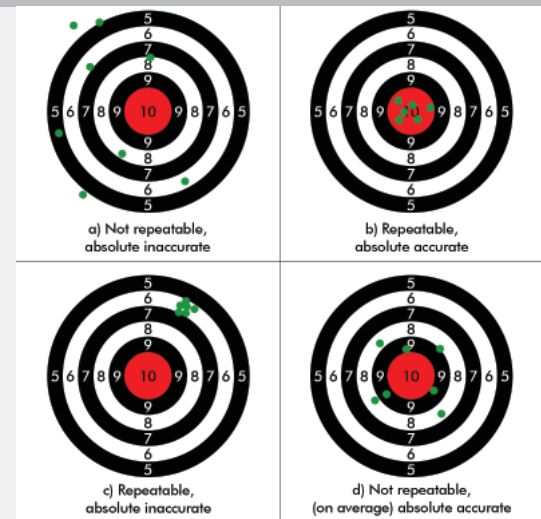


Figure 1: Absolute accuracy and repeatability based on the example of a shooter

## Meaning of “measuring rate”, “averaging” and “accuracy” when investing in a measuring device

### Choosing the optimal measuring device for the extrusion line

Specifications usually contain the following characteristics:

- “Measuring range”
- “Absolute accuracy” (also “correctness”)
- “Repeatability” (also “precision”)
- “Measuring rate”

“Measuring range” indicates minimum/maximum object sizes that are measurable. Sometimes, the visual range is specified instead, meaning: the overall range in which the objects to be measured are allowed to move. Occasionally, information about the minimum and /or maximum measurable size is missing too.

The colloquial meaning of “accuracy” is the total of all measuring errors. However, for the evaluation of a measuring device, it has to be differentiated: “absolute accu-

racy” means the comparison of a mean measuring value with a certified standard value. “Repeatability” is defined as the scattering of the measuring values under the same conditions and, therefore, a characteristic of the measuring value noise of the device itself.

The sole specification of only a numerical value for “repeatability” is not sufficient. It might be that one supplier indicates the standard deviation of single values, whereas another calculates those based on a sequence of averaged values.

A common visualization of the definitions “absolute accuracy” (also called “correctness”) and “repeatability” (also called “precision”) is shown in Figure 1.

The “measurement rate” of a measuring device is the number of measurement values generated per second. This is a further important comparison criterion where “more” is seen as “better”. For an objective comparison, however, the knowledge of the interdependence between measurement rate and absolute accuracy and repeatability of a single measurement is crucial. It may be the case that a measuring device with a higher measurement rate, but lower single value precision is less suitable for controlling or characterization of a process than a device with a lower measuring rate but higher single value precision. For example, this is the case when a long averaging time is necessary due to a lower single value precision. Then, there is a risk that actual product variations, which occur within this averaging time are levelled out

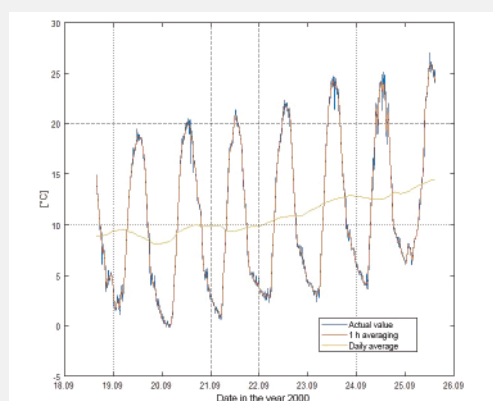


Figure 2: Temperature profile as example



while really present. In the worst case, the specifications might even be violated without this being signaled by the measuring device.

The following example of a temperature profile taken over a week in September 2000 shows to which extent averaging of a measuring value can influence the perception (Figure 2).

The displayed "real value" results from single measurements taken in ten minute intervals. Averaging over a period of one hour only smoothes the extreme values. When averaging the varying temperature for more than 12 hours, the changes in temperature are displayed lower than they actually are. Furthermore, if the mean value is generated over an entire day, the information about the daily temperature variations is completely lost. A device that needs the latter averaging depth will not be suitable for a process where an alarm has to be raised or an adjustment has to be made depending on the temperature range.

A practical example taken from the cable production process is the diameter measurement based on the shadow projection method with rotating mirrors. Often high measuring rates are indicated, which result from the rotation rate multiplied by the number of mirrors' facets (Zanoni, 1973), (Vossberg, 1981). The specification of accuracy, however, usually is based on mean values of up to one second due to a relatively poor single value precision. This has various reasons: Each single measurement is done with a different mirror facet. Product movements during measurement increase or decrease the product diameter - depending on the direction of movement - as the

Photo 3: Line sensor technology for diffraction analysis in a SIKORA diameter gauge head

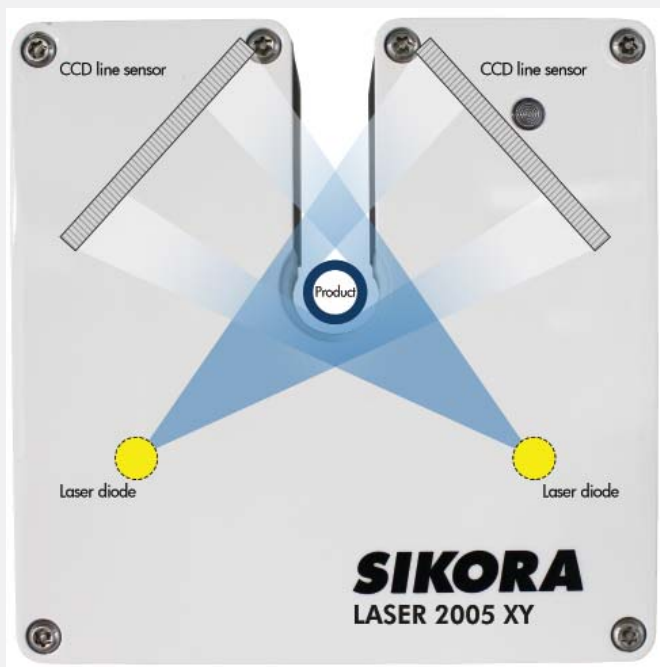


Photo 4: LASER Series 6000 from SIKORA – absolutely accurate and repeatable

measurement of both product edges is not done simultaneously but sequentially. Lastly, the diameter information is only derived from the very transition from dark to light and light to dark. The rest of the time, the information content of the measurement signal is zero.

In contrast to this, for other measuring techniques such as the diffraction method (Blohm, Sikora, & Beining, 2005), (Blohm & Sikora, 2017), line scan cameras are used (photo 3 and photo 4). On the one hand, product edges are recorded simultaneously – so product movement is not an issue.

On the other hand, each single pixel in the diffraction seam outside the product shadow can be directly linked to the product edges, giving hundreds of reference point per line camera image instead of just two. This leads to a much higher single value precision and consequently, the measuring value has to be averaged nowhere near as long to be used for controlling or characterization of a production process. A mere comparison of measuring rates without considering these circumstances is obviously not sufficient.

Hence, for an objective comparison of two measuring devices, first, it is important to clearly define the requirements of the process. Also, the catalog details given by the manufacturer should be taken into question and brought to a comparable basis using the information needed, so that the investment in a new measuring device leads to an increase in quality, process optimization as well as cost savings.

**Author: Dr. Hilmar Bolte, Research & Development / Head of Analysis SIKORA AG**

SIKORA AG  
Bruchweide 2, 28307 Bremen/ Germany  
www.sikora.net

# Paves the Way to Plastics' Future

*CHINAPLAS 2019 (The 33rd International Exhibition on Plastics and Rubber Industries) will rotate back to China Import & Export Fair Complex, Pazhou, Guangzhou, PR China on 21 – 24 May 2019. The show is expected to occupy more than 250,000 sqm exhibition area with 3,400+ exhibitors, featuring a full spectrum of exhibits in seamless connection with "Smart Manufacturing", "Innovative Materials" and "Green Solutions".*

The latest trends on the market are here at CHINAPLAS 2019. CHINAPLAS 2019 is going to exhibit the most ground-breaking plastics and rubber technologies and a wide array of raw materials to be in line with the government policies and the latest trend. Accompanied by 11 countries and region pavilions, including Germany, Austria, Italy, Switzerland, Taiwan, Japan, Korea and USA, CHINAPLAS will continue to provide the platform for plastics and rubber industries to tap into the markets of China and Asia.

There will be 18 theme zones in the show, namely Injection Molding Machinery, Extrusion Machinery, Plastic Packaging Machinery, Film Technology and Rubber Machinery Zones; 3D Technology, Smart Manufacturing Technology and Recycling Technology Zones; Auxiliary & Testing Equipment and Die & Mould Zones, Chinese Export Ma-

chinery & Materials Zone, as well as Chemicals & Raw Materials Zone, Composite & High Performance Materials, Bioplastics, Additives, Thermoplastic Elastomers & Rubber, Colour Pigment & Masterbatch Zones and Semi-finished Products Zone. Exhibitors can demonstrate their various solutions through this unparalleled platform.

*New record for both exhibition space and visitor number*

In last few editions, CHINAPLAS recorded constant record-breaking number of visitors, as well as exhibition space. It is believed to be an indicator of industry boom. CHINAPLAS 2018 attracted 180,701 professional buyers. The number of overseas visitors totaled 47,900, accounting for 26.5% of the total. They came from 150 countries and regions, including Hong Kong, India, Indonesia, Iran, Italy, Japan, Korea, Russia, Taiwan, Thailand,



Visitors will see a full spectrum of smart manufacturing solutions at CHINAPLAS



Green solutions for packaging industry



Application of innovative materials in the automotive industry incredibly contributes to vehicle lightweighting

Turkey, the U.K., Vietnam, and United States, among others.

*New visions - concurrent events*

In rapid-changing macro-environment, CHINAPLAS will keep acting as the indicator of the industry's development by delivering concurrent events with topics related to Industry 4.0, circular economy, recycling, medical plastics and product design. Stay tuned to explore the new direction of the plastics and rubber industries, together with the Asia's no. 1 trade show – CHINAPLAS!

An estimated 3,400 exhibitors from 40 countries and regions will showcase their advanced exhibits on an over 250,000sqm of exhibition area.

Adsale Exhibition Services Ltd, Beijing  
Yazhan Exhibition Services Ltd  
[www.ChinaplasOnline.com](http://www.ChinaplasOnline.com)

	CHINAPLAS 2018	CHINAPLAS 2017	CHINAPLAS 2016
Exhibition area (sqm)	340,000	250,000	240,000
Total no. of visitors	180,701	155,258	148,575
No. of overseas visitors	47,900 [26.5%]	40,048 [25.8%]	39,454 [26.6%]

# asiamold

Guangzhou International Mould & Die Exhibition  
广州国际模具展览会

**Premier platform for mould, additive manufacturing  
and forming technologies**

**10 – 12 March 2019**

China Import and Export Fair Complex  
Guangzhou, China

4 Thematic Zones

- Mould making and Die Casting
- 3D Printing, Additive Manufacturing
- Laser
- Metal working

**[www.asiamold-china.com](http://www.asiamold-china.com)**



**Chinaplas® 2019**  
国际橡塑展

The 33<sup>rd</sup> International Exhibition on Plastics and Rubber Industries

# Smart Manufacturing · Innovative Materials · Green Solutions

@The World's Leading Plastics & Rubber Trade Fair

## 2019.5.21-24

China Import & Export Fair Complex, Pazhou, Guangzhou, PR China

- Exhibition area 250,000+ sqm
- 3,400+ global exhibitors
- 3,800+ sets of machinery on display
- 11 country/region pavilions



@CHINAPLAS

@chinaplas\_1983

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



ORGANIZER



CO-ORGANIZER SPONSOR



OFFICIAL PUBLICATIONS AND ONLINE MEDIA



Tel : 852-2811 8897 (Hong Kong)

Email : [Chinaplas.PR@adsale.com.hk](mailto:Chinaplas.PR@adsale.com.hk)

Adsale Plastics : [www.AdsaleCPRJ.com](http://www.AdsaleCPRJ.com)

Adsale Group : [www.adsale.com.hk](http://www.adsale.com.hk)