



**Reifenhäuser**

CAST SHEET COATING

**CSCourier**

Newsletter  
March 2016

The Extrusioners

# Coffee capsules made of plastic An ingenious high-tech product with growth potential

In 2014, every German consumed 162 liters of coffee on average. Meanwhile, coffee from a capsule has become cult. The pre-portioned small, colored capsules allow to brew a single cup of coffee with an always good, fresh aroma since the coffee inside the capsule is protected from air. Page 2 →

## Editorial



Dear reader,  
Proximity is extremely important to all of us. Be it a bakery or cultural offer - we like to have things just around the corner, in our proximity. The same goes for people we care about. Our professional environment does not make an exception either. In this issue you can read how we will optimize our closeness to you in the future. Whether by providing local sales and service structures or by making available real-time information in our Service Portal.

Another topic is focusing on one of the most favorite beverages in the world: coffee. Presently, there is a tremendous change in our consumption habits. The market for coffee capsules is booming. This high-tech product is produced to a large part on Reifenhäuser MT polishing stacks. Learn about the structure and production process of these capsules. In this issue you can also learn how to adjust lamination processes in sheet lines, independent of machine characteristics such as gap width, polishing force, melt temperature and layer structure.

Enjoy reading.  
Ulrich Reifenhäuser



Customers enjoy this advantage: While sales of roasted coffee and coffee pads are declining for years, the capsule business is booming more than before. Especially after the patent of market leader Nespresso was declared void early in 2015 the way was cleared for me-too products and ever new capsule varieties. It can be assumed that also tea, cacao and softdrinks will increasingly be available in capsules in the future. Producers who want to stay competitive in this strongly growing market should pay attention to some important influencing factors. After all, the simple-looking small capsule is a true high-tech product, especially when made of plastic.

the refeeding of edge trims and web scrap produced in the thermoforming process and the addition of diverse color batches.

**Ideal applications**

- PET film < 150 µm for display packaging and blister
- Barrier lid film for food packaging
- Lamination film in a thickness range from 30 to 60 µm

**Up to nine layers for perfect aroma protection**

A superior quality film of up to nine layers reliably preserves the aroma inside the capsule. An EVOH layer ensures the durability of the coffee powder whereas a PE top layer allows the lid film to be laminated upon after the coffee has been filled in. Other layers are used to ensure the adhesion between the different polymer layers. They also permit

**Low tolerances of individual layers for high efficiency**

Due to the high product requirements, it is necessary to use high-quality and hence relatively costly raw materials in the production of capsules. Therefore, it is indispensable for producers to lay stress on minimum tolerances of the individual layers if they want to achieve high quality beside high efficiency. The best solution for this task is offered by the coextrusion feed blocks of the specially designed Reicofeed 2.1 model type: The technology enables the adjustment of all individual layers and, in contrast to other feedblock systems, also the core layer which in the case of coffee capsules is normally made of the very expensive and sensitive EVOH raw material. A further pluspoint of Reicofeed 2.1 is the possibility to adjust the layer thicknesses during running production which makes costly machine downtimes superfluous.

### **Highest surface quality through precise polishing**

The polishing quality of the web is a decisive factor in the downstream thermoforming process of a multilayer film. A particularly reliable and efficient solution for this are the new MIREX-MT polishing stacks of Reifenhäuser Cast Sheet Coating since they allow to adjust the polishing nip more precisely by a factor of 10 and, in contrast to conventional polishing stacks, nip adjustment can be effected fully automatically even during running production. Thus, the intended film quality can be achieved within the shortest possible time after a production start or change which reduces rejects of expensive raw materials to a minimum.

### **Clean room conditions fulfil strict hygiene requirements**

The new polishing stacks of the MT product range offer a further advantage in the production of coffee capsules: Because hydraulic systems are dispensed with in the Reifenhäuser polishing stacks and mechatronic nip adjustment systems are used instead, clean room conditions can be met. This may be essential for the production of films for the food industry.

### **Positive growth in the future**

Coffee capsules are a very sophisticated high-end product. Philip Neumann, sales director at Reifenhäuser Cast Sheet Coating, is convinced that it makes sense to enter this market just because of this reason: "The expansion of beverage capsules is an ongoing trend worldwide and the development is far from

complete. We expect that the requirements will still become more complex in the future. Therefore, we have already prepared line concepts for films of 11 to 13 layers. I consider it a clear competitive edge for our customers in this strongly growing market that not everyone is able to produce these films."

#### **Contact:**

Mark Borutta  
T +49 2241 481-842  
mark.borutta@reifenhauser-csc.com



# New lamination station launched

## Reproducibility and higher production reliability for PET/PE film structures

Times in which minced meat had to be processed on the day of production are gone. Today, minced meat bought in a supermarket can be stored in the fridge for up to eight days. This is made possible by Modified Atmosphere Packaging (MAP) - a hi-tech product which is able to prevent or slow down physical, chemical, enzymatic and microbial deterioration processes of fresh and minimally processed food.

### It's all a matter of bonding

Crucial for the function of this packaging is the reliable bonding of tray and lid film. It has to prevent modified atmosphere from escaping the pack and ambient air from getting into the pack. Due to the fact that trays are increasingly produced from PET, a sealant has to be applied on the tray to ensure safe bonding between tray and lid. For cost saving reasons, the current trend is away from adhesive bonding towards in-line lamination of PE film in the PET extrusion line.

#### **Problems in the past**

Following this trend, different processes have established themselves in the market. But none was able so far to combine the high demands for quality lamination with the high demands for production reliability and operating safety. Poor accessibility and safety risks in the operation of the line, in addition to film elongation and web break as well as insufficient adhesion led to production problems time and again (see info box "Advantages and disadvantages of different processes").

### Heat roll lamination: the Reifenhäuser solution

Reifenhäuser Cast Sheet Coating has developed, in collaboration with a European film producer, an innovative laminating station that eliminates the negative effects of previous processes. The so-called heat roll lamination uses a heated roll that transfers heat into the PE film from the rear side. The highlight here is that a defined roll temperature can be adjusted and thus optimally adapted to the respective production parameters. The activated film is then applied on the PET web in the haul-off unit of the extrusion line.

#### **Production stability**

Mark Borutta, sales manager at Reifenhäuser Cast Sheet Coating, says: "Customers who work with established processes have often told us that their processing window was relatively small. PE films would often break and adhesion was insufficient since there was no possibility to influence the thermal input. Therefore, we have developed a solution that

allows the customers to exactly determine the input of heat being the decisive process parameter for a higher flexibility and stability in the production.“

**Operating safety**

A special focus of the developing engineers was on the operating safety which is often given too little attention. Mr Borutta explains: “With our new lamination station, no one has to feed the film into the polishing nip while the machine is running, or has to introduce the film web below the rotating rolls of the polishing stack and find the correct point of contact in this inaccessible area. Now the operation is easy, but above all it is safe.“

**Compatibility**

The new laminating station is already successfully being used by customers. It is available for all new lines, but can also be retrofitted to all existing MIREX lines and to many lines of other manufacturers.

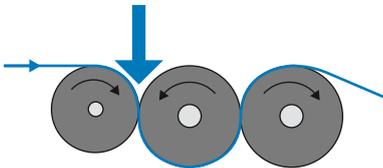
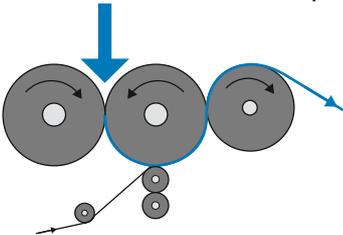
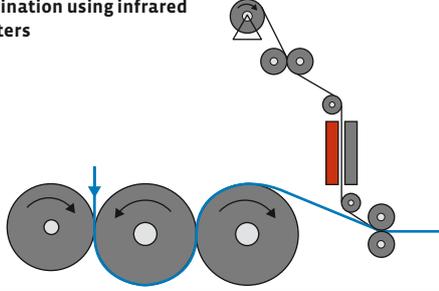
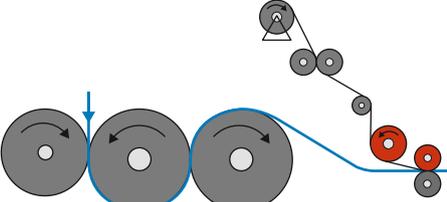
**Test now**

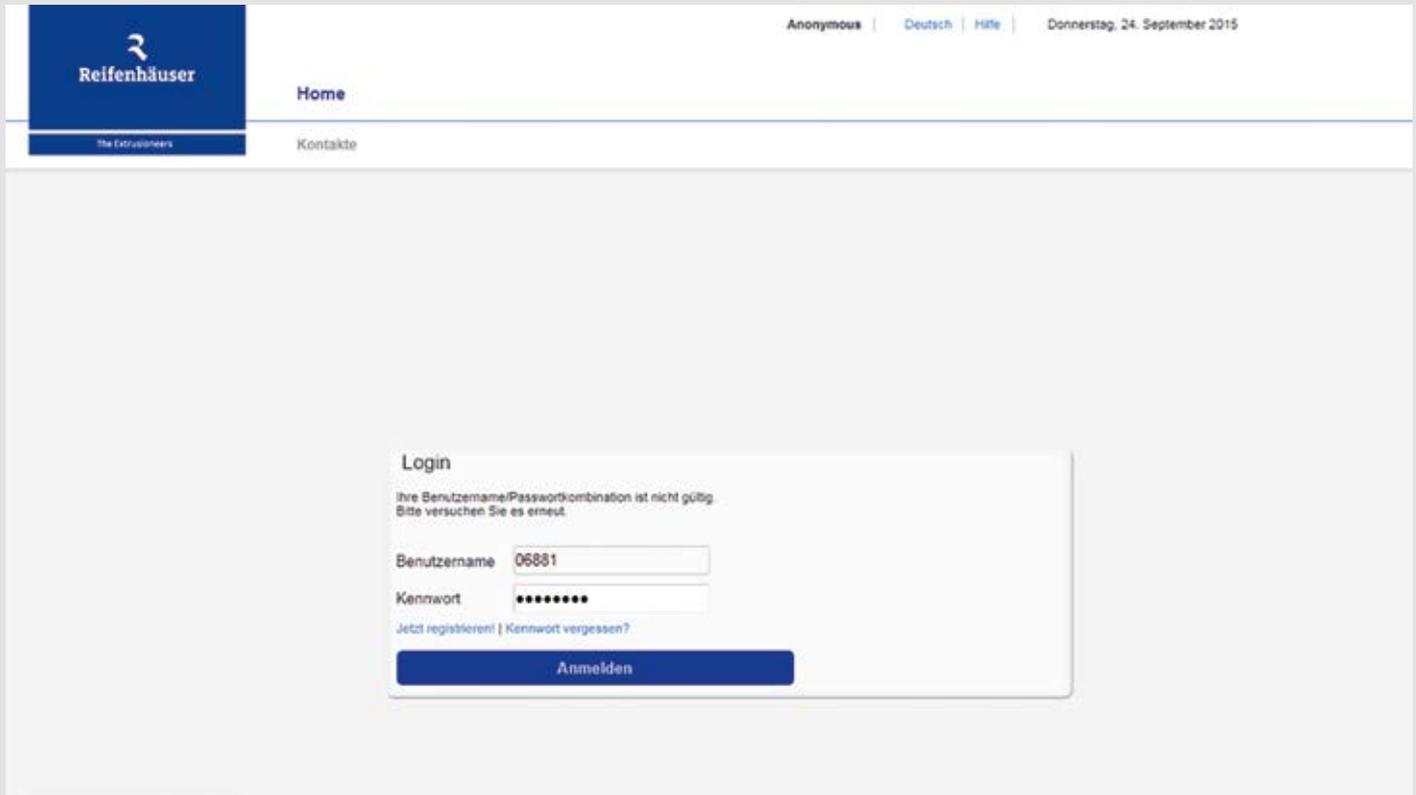
You want to see for yourself the advantages of heat roll lamination in field tests? Make an appointment in our Technology Centre.

**Contact:**

Mark Borutta  
 T +49 2241 481-842  
 mark.borutta@reifenhauser-csc.com

**Advantages and disadvantages of different processes**

Process	Advantages	Disadvantages
<p>Lamination using adhesives</p>	<ul style="list-style-type: none"> <li>- Excellent adhesion of layers</li> <li>- Broad processing window</li> </ul>	<ul style="list-style-type: none"> <li>- High production costs</li> </ul>
<p>Lamination in the polishing nip</p> 	<ul style="list-style-type: none"> <li>- Excellent adhesion of layers</li> <li>- Low investment costs</li> </ul>	<ul style="list-style-type: none"> <li>- Low operating safety: the PE film has to be fed into the nip while the machine is running</li> <li>- Low process safety: wrinkles and elongation of the film due to high thermal stress, therefore high risk of web break</li> </ul>
<p>Lamination on the rear side of the middle polishing roll</p> 	<ul style="list-style-type: none"> <li>- Good adhesion of layers</li> <li>- High operating safety</li> <li>- Low investment costs</li> </ul>	<ul style="list-style-type: none"> <li>- Poor accessibility</li> <li>- Strongly limited processing window</li> </ul>
<p>Lamination using infrared heaters</p> 	<ul style="list-style-type: none"> <li>- No introduction of film into the polishing stack</li> <li>- Relatively cost-effective</li> </ul>	<ul style="list-style-type: none"> <li>- The thermal input cannot be controlled, therefore risk of elongation, wrinkles and web break</li> </ul>
<p>Reifenhäuser solution: Heat roll lamination</p> 	<ul style="list-style-type: none"> <li>- Good adhesion of layers</li> <li>- Precise adjustment of roll temperature</li> <li>- No neck-in or wrinkles thanks to controlled, constant web tension</li> <li>- High operating safety</li> <li>- Very good accessibility</li> <li>- Reproducible process parameters</li> </ul>	<ul style="list-style-type: none"> <li>- Higher investment costs</li> </ul>



# The new Reifenhäuser Service Portal Well informed at any time

If you want to know the status of your service request, view stock levels or access line documentations, you can do this straightaway, at any time and from anywhere in the world. Reifenhäuser Cast Sheet Coating has set up a web-based service portal to offer customers true added value through an additional channel of communication beside the proven email and phone media.

“Good service is fast, reliable and transparent“, says Markus Schroeder, head of service at Reifenhäuser Cast Sheet Coating. “When I start a service request, I want to be updated regularly about the current status. This happens to me when I take my car to a garage, and so it does when our customers place an order, for example, for a spare part.” Exactly this transparency is offered by the

new Service Portal of Reifenhäuser Cast Sheet Coating: Customers now have the opportunity to access on their own all information about a current request or order via a web portal, irrespective of the time of day and availability of service staff. This includes delivery dates, shipping information and tracking. But the portal still goes one step further. Coupled to Reifenhäuser’s EDP system,

the portal is supplied with up-to-date data in real time. All information placed by a Reifenhäuser employee is directly available to our customers. Entering the material number, they can immediately obtain information on the availability of spare parts and start a request with a few clicks directly via the portal. The system also allows to retrieve the documentations for all machines manufactured since 2000. However, according to Mr Schroeder, the portal does not replace the traditional communication channels phone and email. He explains: “The portal is a useful addition to the existing communication media. It makes our customers a bit more independent of us and can speed up service as a whole. Of course, our customers can still contact us directly – if they want also via the service portal. For us, good service means personal advice and trusting cooperation. The different channels now available complement each other in an ideal way.”

### Register now

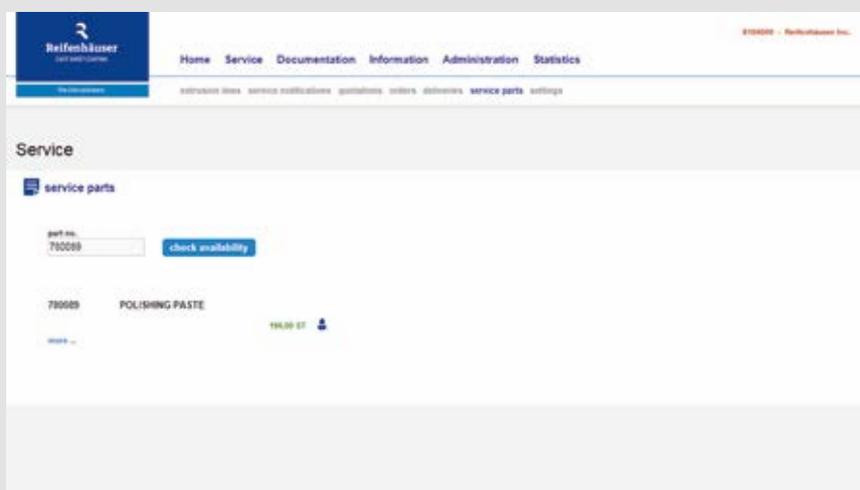
The service portal can be used free of charge by all customers of Reifenhäuser Cast Sheet Coating. Register now under <https://portal.reifenhauser.com/rqs> and get your personal login data.

### Contact:

Markus Schroeder  
 Head of Service  
 markus.schroeder@reifenhauser-csc.com  
 T +49 2241 481-167

### Your benefits:

- Checking spare parts availability
- Tracking service requests
- Tracking deliveries
- Initiating service requests
- Viewing line documentations



service no.	type	status	line no.	customer's line no.	description	start	end
300021838	ZK	completed	Ru0700176		replacem breaker plates f screen-changer	14.09.2018	14.09.2018
300021796	ZK	completed	Ru1000572		heaters f screen-changer DSG-006	11.09.2018	11.09.2018
300021281	ZK	completed	Ru0800485		ExDichtungskette für Drehrichtung T51128	02.08.2018	02.08.2018
300021227	ZK	completed	113128226	T 1	replacem decking f vacuum box 1750	02.08.2018	02.08.2018
300021182	ZK	completed	113128226	T 1	spares for double vacuum box	28.08.2018	28.08.2018
300020991	ZK	completed	Ru0200187		replacem temp. controller 629916	18.08.2018	18.08.2018
300020663	ZK	completed	Ru1000572		modification 5-layer coasts to 7-layer	30.07.2018	30.07.2018
300020648	ZK	completed	Ru0300238	W/ 4	replacem accumulator motor for winder	23.07.2018	23.07.2018
300020433	ZK	completed	Ru0700823	KV2	replacem safety switches-helges	17.07.2018	17.07.2018
300020431	ZK	completed	Ru1000572		replacem blowers 816983	17.07.2018	17.07.2018
300020365	ZK	completed	Ru0610574	TEXAS 3	locking ringnut f rotary union T53126	16.07.2018	16.07.2018
300020018	ZK	completed	Ru0200211		replacem adjoined struts f winder	29.06.2018	29.06.2018
300019908	ZK	completed	Ru0700176		replacem motor with pump f heat a coil	02.06.2018	02.06.2018
300018494	ZK	completed	Ru1000572		fix inductive prox switch+cross grip	02.06.2018	02.06.2018
300018471	ZK	completed	Ru0610574	TEXAS 3	safety light grid top roll released	01.06.2018	18.08.2018



Daniele Cerizzi is the managing director of the office in Italy



Uyen Le is the managing director of the office in Vietnam

# New Reifenhäuser offices opened in Italy and Vietnam

Two countries at a time can benefit now from an enhanced onsite support for cast film lines, sheet lines, extrusion coating lines and blown film lines: In April 2015 Reifenhäuser opened new sales and service offices in Sumirago, Italy, and Ho Chi Minh City, Vietnam. With this step Reifenhäuser strengthens the commercial and technical onsite customer service and meets the increasing investment needs in both countries.

Daniele Cerizzi, an Italian native, is the managing director of the new office in Italy. In the past years, he worked in Sales at Reifenhäuser Cast Sheet Coating after holding various positions in the plastics extrusion industry. The office in Vietnam is headed up by Ms. Uyen Le who has been working for many years in the plastics extrusion industry. Vietnam and Italy are now the eighth and ninth regional sales and service offices around the world, following Chile, China, India, Manila, Russia, Singapore and USA.

Reifenhäuser Italia  
Via Pirovano, 22  
21040 Sumirago (VA)  
Italy  
T: +39 0331 909 535  
F: +39 0331 909 020  
M: +39 346 25 50 997  
daniele.cerizzi@reifenhäuser.com  
italy.reifenhäuser.com

Reifenhäuser Private Ltd. Vietnam Office  
Ms. Uyen Le  
9th Fl. Maritime Bank Tower  
180-192 Nguyen Cong Tru  
Nguyen Thai Binh Ward, Dist. 1  
HCM City, Vietnam  
+84 8 6287 9137 – 3080  
+84 9 7605 9171 (M)  
+84 8 6288 4691  
uyen@reifenhäuser.com.sg  
asiapacific.reifenhäuser.com

## Trade shows

**Plastics & Rubber**  
01. - 03.03.2016  
HCMC, Vietnam

**Plastimagen**  
08. - 11.03.2016  
Mexico City, Mexico

**Iran Plast**  
13. - 17.04.2016  
Tehran, Iran

**Chinaplas**  
25. - 28.04.2016  
Shanghai, China

**Plastpol**  
17. - 20.05.2016  
Kielce, Poland

**K-2016**  
19. - 26.10.2016  
Düsseldorf, Germany

## Amazing Facts Would you have guessed that?

>13% savings in raw material can be obtained with 0.15 millimeter thick film produced on a MIREX-MT polishing stack using X-Crossing.

**70 kilometers** of a 15 micrometer thick film can be wound on a single reel of 1.200 mm diameter and an outer core diameter of 180 millimeter.

**Publisher:**  
Reifenhäuser Cast Sheet Coating  
GmbH & Co. KG  
Spicher Straße 46  
53844 Troisdorf / Germany  
T +49 2241 481-0  
info@reifenhäuser-csc.com

**Responsible for the content:**  
Markus Schroeder  
T +49 2241 481-167  
markus.schroeder@reifenhäuser-csc.com