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K Show 2019: Welcome at the Home of Extrusion!

Finally; the K show is opening its gates again. From October 16th until October 23rd of 2019, more than 3.000 exhibitors from 60 countries will be waiting for your visit in Düsseldorf, Germany. It is obvious that KUHNE Group will not be missing.

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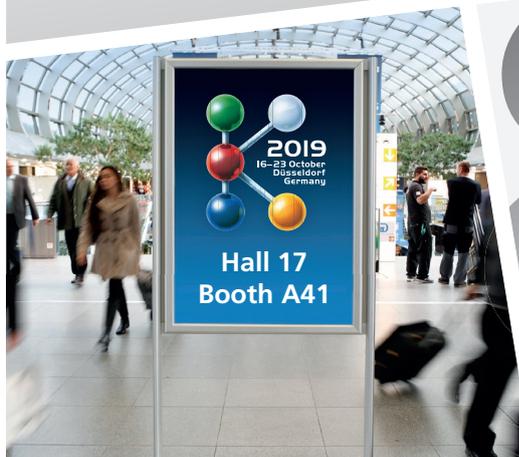
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Home of Extrusion

KUHNE in-house exhibition and K show 2019



With this year's slogan: "Home of Extrusion" we are looking forward to welcoming you at our booth to celebrate 85 years of KUHNE. You will find us – as always – in Hall 17, booth no. A41. We will show you that plastic is still better than its current reputation.

KUHNE in-house exhibition

Also in 2019 KUHNE Group will once again not only demonstrate interesting new developments at the K exhibition itself, but

we also invite you on four of the eight show days to our headquarters in Sankt Augustin to attend our in-house exhibition: On the 17th, 18th, 21st and 22nd of October, our KUHNE shuttle bus will bring you safely, but still with High Speed to our factory. Two running flat film extrusion lines with brand-new features will be waiting for you. One for the production of PET, the other for PP/PS/PE thermoforming barrier films.

... Read more on page 2



Better Engineering makes plastics recycling easier

During K-Show 2019 (October 17th, 18th, 21st and 22nd) KUHNE Anlagenbau GmbH will host an Open House at its site in Sankt Augustin, Germany to highlight the latest developments in its Triple Bubble[®] biaxially oriented blown film technologies.

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The PET line is able to control the IV value of the melt and even raise it by means of a LSP reactor system. It produces FDA and EFSA conform films for food packaging applications.

The barrier line produces 7-layer film combinations for long shelflife with excellent tolerances and outstanding layer distributions. During the K show, the production of a complete biological degradable barrier film will be shown. At the same time, the main high speed extruder saves space, energy, noise and spare parts.

In the blown film sector, KUHNE presents with a 13-layer Triple Bubble[®] line the production of of high-barrier food packages in form of stand-up pouches and a high-barrier shrink film for – among others – fresh meat or cheese packaging. Both films will, of course, be 100% recyclable.

Of course KUHNE Group will ease your stay in the Home of Extrusion with drinks and food and our shuttle bus will safely bring you back tp the K show afterwards.

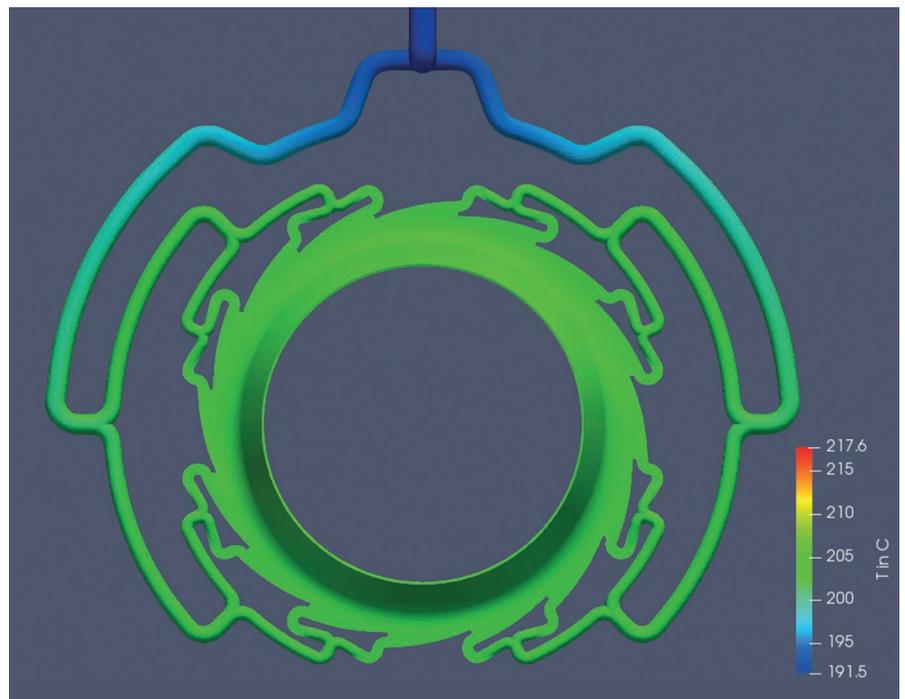
The showcased Triple Bubble[®] line will be designed for the production of very high barrier, shrinkable and non-shrinkable films, including barrier recyclable films. These films are typically used for food packaging, e.g. fresh meet, cheese and fish.

All 13 extruders are the same size and operate with melt pumps.

This allows them to process multiple types of materials, e.g. PET, PA, EVOH, PP, all types of PE's, EVA, EMA, Ionomers, COC, etc. The 13-layer blowing head is KUHNE's Mo-Con (Modular Concept) design, which has the flexibility to process different types of resins as well.

KUHNE has its cooperation with resin suppliers Dow and BASF with the focus of the use of Triple Bubble[®] technology for films of the future, the reduction of packaging waste, the possibility of chemical recycling and how Triple Bubble[®] films fit into the new European packaging strategy.

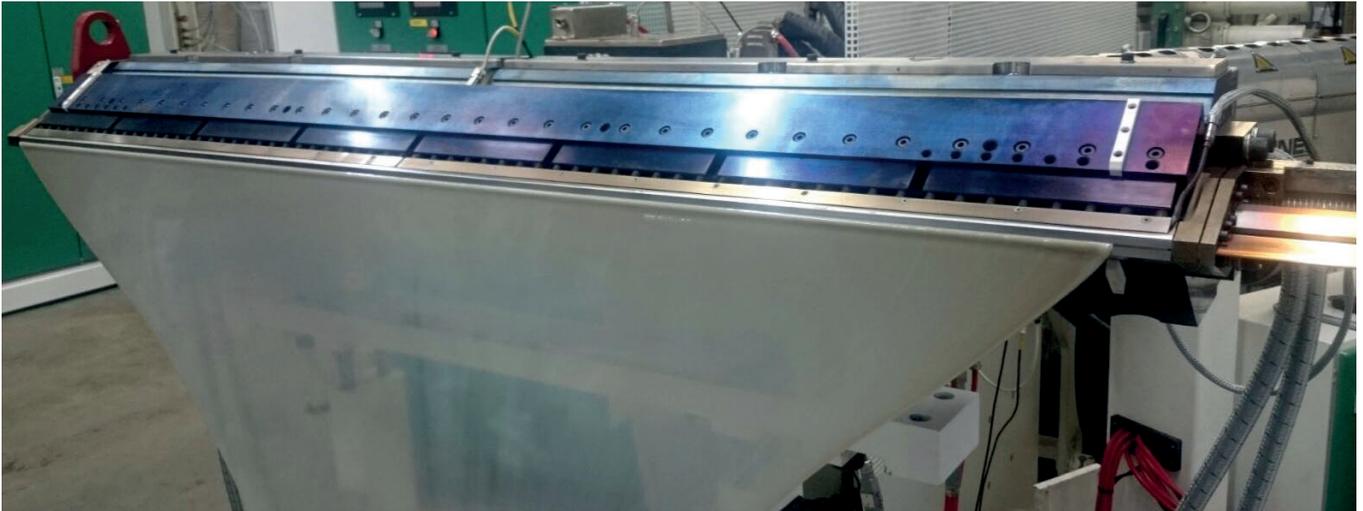
Picture showing the melt temperature distribution in a disc die



KUHNE at the K show 2019:
Hall 17, booth A41

KUHNE in-house exhibition:
at KUHNE headquarters,
Sankt Augustin, 17th, 18th, 21st
and 22nd of October 2019





KUHNE T-Die for PET processing with internal, adjustable decking device

Dr. PET

That expression does not describe the doctor for your cat or dog but a new and patented method of producing high-class PET films for thermoforming out of regrind with really bad initial properties.

All that can be done in only one turn-key extrusion line, which also guarantees outstanding, proven IV-values. The whole process is even certified according to FDA and EFSA norm.

With the latest order for such a turn-key extrusion line, KUHNE Smart Sheets® underlines its core competence in the field of PET and enters a new technology at the same time.

Compared to other market solutions with implemented reactor systems, the KUHNE concept includes a liquid phase reactor, the so called LSP. This reactor is not placed outside of the extrusion line – like in other machine configurations – but is located in between the hot extrusion part and the flat sheet die. The reactor is able to measure, control and even rise the IV value, which is crucial to the final quality of the film. It is possible to recover and raise the IV value up to 25 %.

The extrusion part can be equipped with a twin or single screw extruder, depending

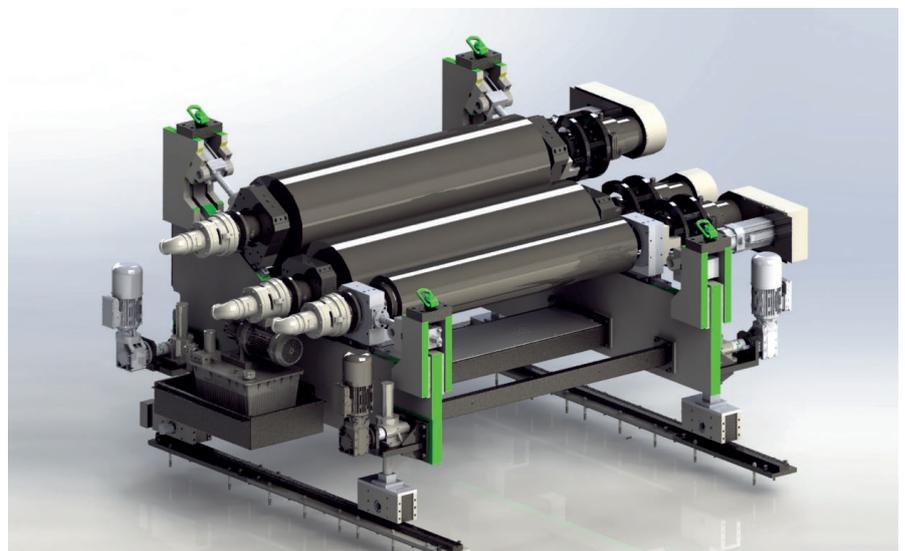
on the chosen solution, quality of used material and quality demand of final product. The specially for PET production designed T-channel KUHNE die with internal decking is produced inhouse by and at KUHNE. The same goes for the follow-up roll stack. It allows the production of PET films with a wide thickness range, starting from 150 micron and up to 1,8 mm. That roll stack is horizontal and equipped with a hydraulic roll gap adjustment. Features such as a silicone application unit or a thickness measurement / control system can easily be implemented in the roller conveyor. Finally, the

winding unit is able to work with up to 6 webs, depending on the net width.

KUHNE has already successfully implemented four of such turn-key PET extrusion lines with the LSP reactor system. The lines were installed in Europe and the US. The latest order is currently manufactured and will be delivered to East Europe beginning of 2020.

A similar line with the LSP reactor system will be presented live to the public during the K show in KUHNE headquarters in Sankt Augustin.

KUHNE Smart Sheets roll stack with hydraulic roll adjustment, horizontal design





Re-working of a feedblock bolt

KUHNE expands its machine fleet

Extensive service offer
for dies, feedblocks
and blown film heads

KUHNE's focus has always been to have the largest possible share of internal, inhouse production. That is why all key components of extrusion lines are not only self-designed and constructed, but also manufactured in our headquarters in Sankt Augustin.

Besides extrusion screws and barrels, patented feed blocks and dies, this also includes roll stacks, haul offs and film and foil winders.

KUHNE is manufacturing and building its own blown film heads in central and decentral versions for up to 13 layers, feedblocks for up to 11 layers as well as dies



FMT 4000 for drilling and milling

in coat hanger and T-design for a width of up to 4 meters. Screws and barrels are designed for a diameter from 25 to 250 mm.

With the latest acquisition of a FMT 4000 Bimatec Soralluce, KUHNE has widened its machine fleet in a logical and consequent way.

The multi-task machine can not only rotate up to a diameter of 1600 mm, but also mill on a 4 x 1,5 m large table. It can take on parts with a weight of up to 8 tons and possesses a swivel head, which enables milling in a universal way. The milling is done on two levels with a precision of 1/1000 degrees. The integrated tool

changer takes on up to 80 instruments and a high-speed spindle creates shapes with up to 30.000 revolutions.

This sophisticated tool machine is only one out of many helping KUHNE to offer numerous services around blown film heads, dies and feedblocks. These services clearly include machine parts from other brands.

Cleaning, maintenance and refurbishing of all parts in contact with the plastic melt extends their lifetime and ensures a continuous and highly efficient performance for our customers. A highly skilled service team guarantees a fast and uncomplica-

ted processing of our customers requests – also for preliminary checkup and inventory at the customer's site.



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The long Night ("Lange Nacht der Industrie")

On 11th of October 2018, KUHNE, together with more than 90 companies and institutions in the Rhine and Ruhr area, opened its factory gates for the 8th "Lange Nacht der Industrie" (Long Night of Industry). For the first time in 2018, the Bonn-Rhine Sieg region had also joined the event.



"Lange Nacht der Industrie" (Long Night of Industry) 2018 at KUHNE Sankt Augustin

The aim is to give interested people an exclusive look behind the scenes of the industry, that otherwise is very difficult to get, and to make industry live experienceable. The goal is to promote acceptance and enthusiasm for industrial companies with their diverse products and technologies. That is how curiosity and interest for a career in the industry is aroused in that night; mainly by personal, intimate and immediate impressions.

Participants must register online for the free tickets. From central starting points, the groups take buses to a large number of very different companies in the nearby region. Each participant experiences two

companies in one night. The tour partner of KUHNE was the company Viktor Baumann Schwertransporte from Bornheim. In addition to an introduction to the product range and development priorities, KUHNE offered its visitors an interesting tour of the company. Visitors were given a close insight view into tooling and machining, the construction and electrical workshop department. The highlight, however, was clearly to see a running blown film extrusion line live in the technical center.

At each station, experienced staff members as well as trainees eagerly waited to take visitors to the world of KUHNE. For example, work or production processes

were explained and training occupations were presented.

The common tour ended in a sociable get-together with snacks and drinks, while the KUHNE team was happy to answer questions while having further exchange.

The next Long Night of Industry will take place on 19th of September 2019. KUHNE's tour partner this year will be the continuing education company of the local chamber of commerce, IHK.



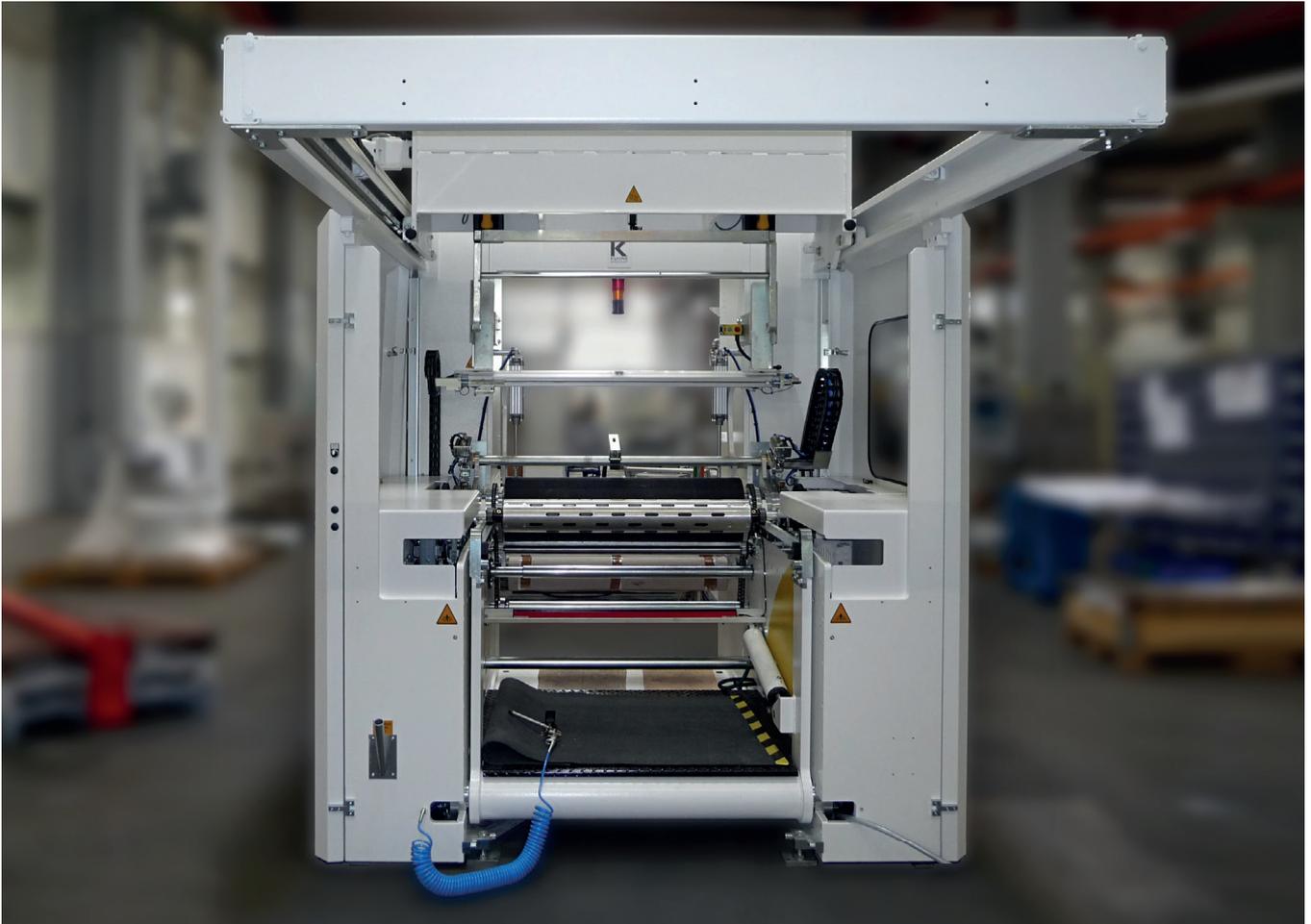
[www.langenachtderindustrie.de/
regionen/rhein-ruhr](http://www.langenachtderindustrie.de/regionen/rhein-ruhr)



Numerous visitors – also in the design department

LANGE NACHT DER INDUSTRIE

Rhine-Ruhr · 19th of September 2019



The FP508 KUHNE winder

Wind me up

The KUHNE winder FP 508

KUHNE Smart Sheets® has continued to raise its already high share of self manufactured and controlled machine parts over the last years. The latest example is the KUHNE winder FP 508.

Developed from the technology of KUHNE daughter company Anlagenbau, which is developing and selling highly sophisticated, complex blown film lines, the FP 508 is perfectly suitable for thinner thermoforming films up to a thickness of 1,2 mm.

Besides a very high maximum working speed of up to 200 m/min, the new KUHNE winder impresses with a very short overall length of less than 4 meters. An accumu-

lator can be spared completely and the FP 508 can be operated by only one person, even during the preparation and unloading of the rolls. The roll change is fully automatic, the same goes for the flying knives, which are responsible for the horizontal cutting of the sheet. The KUHNE team is continuously further developing the winder in order to be able to cut thicker films of up to 2 mm. Construction, design, assembly and start up are entirely done in our headquarters



in Sankt Augustin. To the benefit of our customers, this helps to keep know how, quality control and service inhouse. The same goes for the panel control and software. KUHNE Smart Sheets® has already sold and successfully installed numerous FP 508 winders.

KUHNE Anlagenbau

Flexibility without limits

Through our consistent increase and tracking of the manufacturing tolerances in the production process of extrusion components, in particular the film-blowing-heads, our customers achieve excellent film tolerances, film layflats and outstanding film qualities.

This quality level underlines our turn-key line-concept:

- **Modular:** With the development of the modular film-blowing-head system „Mo-Con“, for example 5-layer film-blowing-heads can be expanded to 7, 9, 11 or 13 layers.
- **Flexibility:** In addition, the modular concept offers a high degree of combination possibilities concerning film structures.
- **High Barrier:** Another unique selling point is our long-term experience in the field of raw materials for high-barrier-films. This KUHNE-Technology can be found in every system from Smart Bubble® to Cool Bubble® and Triple Bubble®.



If we have awakened your interest and you would like to find out more about our technology; we look forward to your visit on the K show.



K show 2019:
Hall 17, booth A41

Cheer – it's a 90!

KUHNE Smart Sheets® proudly announces the latest addition to its successful family of High Speed Extruders.

What has been started more than 15 years ago with a 60 mm Extruder and was followed up by a 70 mm one, has meanwhile proven its performance in the market and finds its temporary climax with the KHS 90EE-39 D.

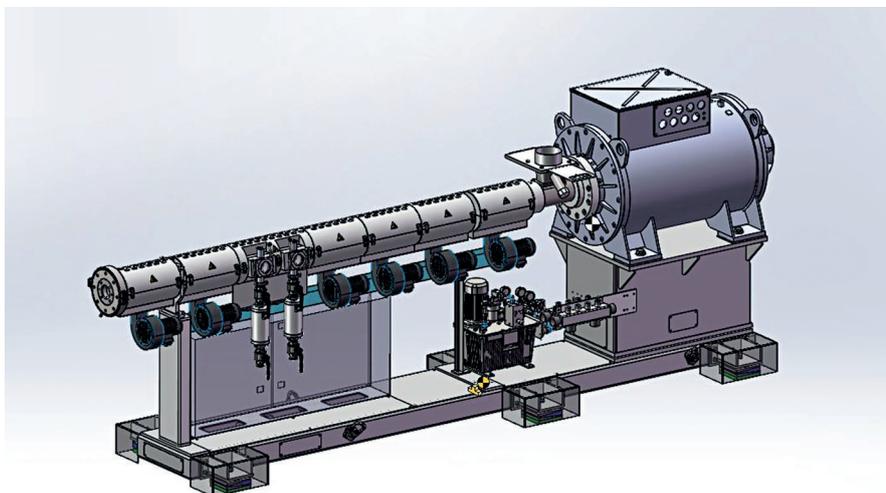
All known advantages of KUHNE High Speed Extrusion can also be found in the

new 90 mm machine: direct torque drive, water cooling, the absence of gearbox and belt – and as a result of that, savings in energy, space, noise and reduction of required spare parts and maintenance.

The KHS 90 extruder is equipped with a 495 kw strong drive, reaching an output of 2,6 t/h PS and 2,2 t/h PP easily

and can also process ABS. At the same time it also helps to save costs on the machine price, as a comparable K180 extruder with classical drive would be significantly more expensive.

KUHNE Smart Sheets® has already successfully implemented and started numerous KHS 90EE-39 D globally.



KHS 90EE-39 D – High Speed extrusion with direct drive technology

IMPRINT

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