

CEMENT PACKAGING SOLUTIONS

PRODUCT PORTFOLIO OF THE W&H GROUP FOR THE
INDUSTRIAL PACKAGING INDUSTRY



www.wuh-group.com



WINDMÖLLER & HÖLSCHER
PASSION FOR INNOVATION

www.ximang.vn - www.cement.vn

WINDMÖLLER & HÖLSCHER



- World market leader offering sophisticated solutions for flexible packaging - extrusion, printing, conversion
- More than 50 different machine types
- Headquarters in Lengerich, Germany
- Founded: 1869
- Legal form: Limited partnership
- Turnover approx. 650 Mio. Euro



W&H ASIA-PACIFIC

- Asia-Pacific regional Headquarters in Bangkok, Thailand
- Additional offices in Australia, China and Taiwan
- Sales, Service, Spare Parts stock in Asia
- After-Sales service throughout the region by dedicated field service
- Qualified and experienced local technicians in all countries (Rieckermann).



EXTRUSION | PRINTING | CONVERTING

CEMENT PACKAGING SOLUTIONS



CEMENT SACK TYPES (I) – K.P.K.

- K.P.K. (or K.P. or P.K.) cement sack
 - Outer ply paper (**K**raft)
 - Center ply wPP (**P**P)
 - Inner ply paper (**K**raft)
- The plies are **laminated** together.
- Valve sack with **sewn** closure top & bottom, „pillow shape“.



CEMENT SACK TYPES (I) – K.P.K.

- **Advantages of the KPK cement sack:**
 - **STRONG!!**
 - wPP fabric can be produced inhouse.
 - High protection level, also against moisture
 - Good manual handling
 - Good haptics



CEMENT SACK TYPES (I) – K.P.K.

- **Weakness of the KPK cement sack:**
 - High spillage & dust
 - Complex & slow production process – no modern machines!
 - Recycling?!
 - Weight – 200 to 220g!
 - Poor automated handling
 - Poor palletizing – „pillow“ form
 - High price



CEMENT SACK TYPES (II) – AD PROTEX

- **AD PROTEX** block bottom valve cement sack
- 1 ply sack from tubular fabric
- 2 ply sack from flat fabric – outside wPP, inside paper
- wPP and paper are **NOT** laminated, but only loosely attached!
- Heat seal technology – no sewing, no glue!
- Valve sack with block bottom!



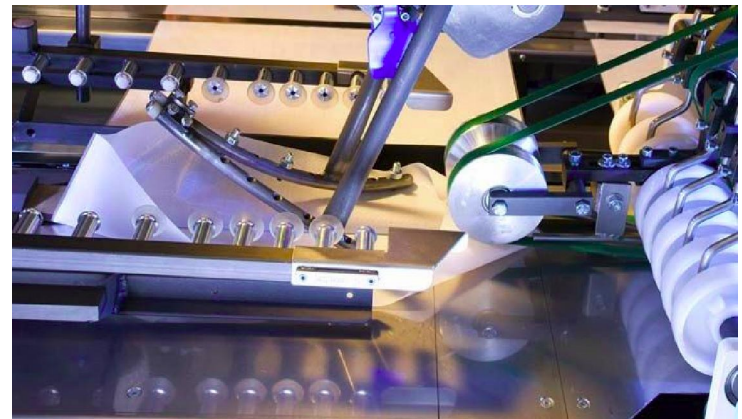
BSW MACHINERY

MEMBER OF W&H-GROUP

Competence in woven bags

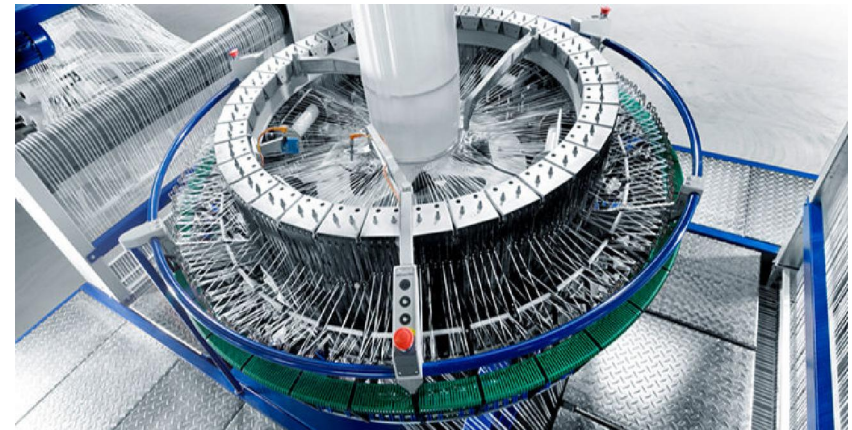
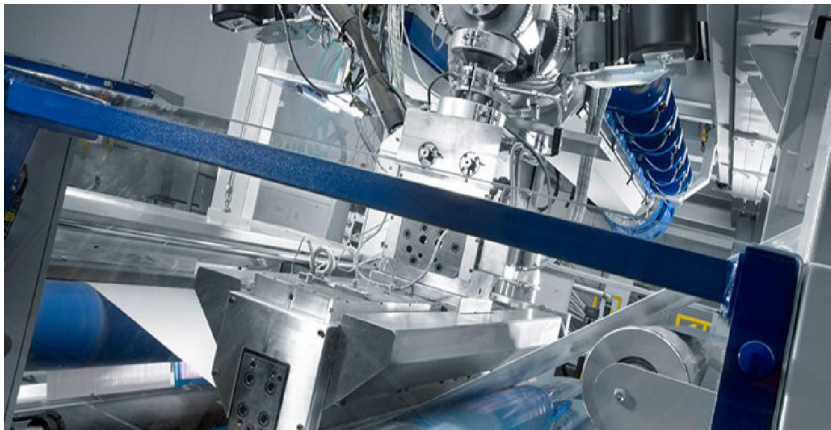
CEMENT SACK TYPES (II) – AD PROTEX

- **Advantages of the AD proTex cement sack:**
 - **STRONG!!** High protection level with low material weight!
 - Very low dust level, minimum spillage
 - Good moisture protection combined with good de-aeration values
 - Nano-Perforation
 - 2-ply configuration
 - Manufactured on modern state-of-the-art machines
 - Good for automatic handling!
 - Good haptics
 - Good recycling!



CEMENT SACK TYPES (II) – AD PROTEX

- High output tape line **tiraTex** (700kg/hr)
- High speed circular looms **advanTex** (1200ppm)
- High speed coating lines **ecoTex** (230m/min)



CEMENT SACK TYPES (II) – AD PROTEX

- NEW **tiraTex** processing technology for light weight fabric
- **LIGHT & STRONG** – safe material without sacrificing strenght
- **Revolution for tape tenacity! Lighter cement sacks with same strengths!**
- Lighter fabric - high energy & material savings – sustainable production!

3 – 4 g/den

FOR STANDARD APPLICATIONS

5 – 6 g/den

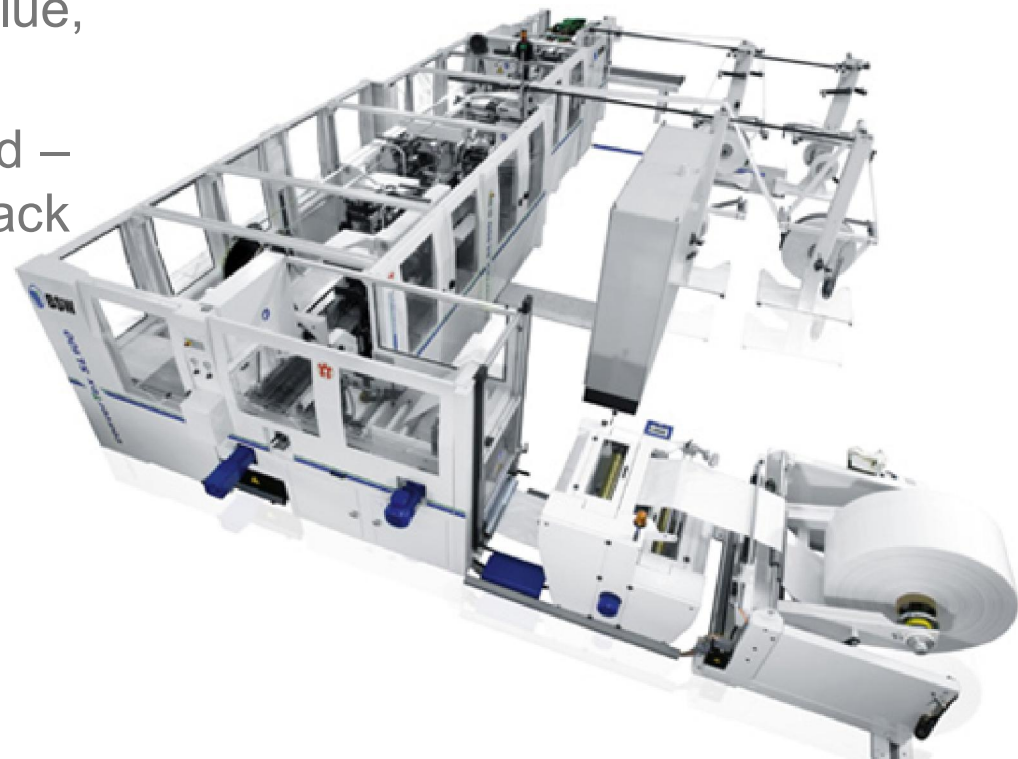
FOR HIGH QUALITY APPLICATIONS

7 g/den

NEW **tiraTex** PROCESSING TECHNOLOGY

CEMENT SACK TYPES (II) – AD PROTEX

- **AD Convertex** block-bottom valve bottomer
- Heat seal technology – no glue, no sewing
- Fastest bottomer in the world – 120 sacks/min for cement sack



CEMENT SACK TYPES (II) – AD PROTEX

- **Weakness of the AD proTex cement sack:**
 - Not possible to apply paper ply to the outside.
 - No „ears“ at top and bottom for easy grabbing the individual sack (compared with KPK sack).
 - Less Friction than paper (but ... can be increased with perforation!).
 - Various production step for wPP, labour intense (but ... today also high level of automation is available!)



■ TURNKEY PLANTS FOR THE PRODUCTION OF AD PROTEX SACKS



BSW MACHINERY

MEMBER OF W&H-GROUP

Competence in woven bags



WINDMÜLLER & HÖLSCHER

CEMENT SACK TYPES (III) – PAPER SACK

- Since 1905, cement and building materials became the biggest consumers of paper sacks worldwide.
- 65% of all world-wide manufactured paper sacks are for cement and building materials (approx. 15.6 billion sacks/a)
- Since 1980s, the paper sack is in South East Asia.
- Today, the usage of high performance paper allows the usage of 2-ply light weight paper sack is the common solution.



* Critical cartoon from the magazine "Rock Products", September issue, 1905

CEMENT SACK TYPES (III) – PAPER SACK

- **Advantages of paper sack:**
 - Sustainability – fully degradable and re-newable resources!
 - Highest machine productivity, least amount of operators.
 - Good moisture barrier – when adding a PE film, even higher protection!
 - Consistent quality – perfect for high speed filling
 - Costs!
 - With high-end kraft papers – excellent de-aeration and strength!



CEMENT SACK TYPES (III) – PAPER SACK

RE-DESIGN OF THE TRADITIONAL SACK DESIGN

- More competitive design:
 - Reduction from 3 or 4-ply 90gsm natural kraft to 2-ply 75gsm high performance
 - From stepped-end to flush cut with printed patches
 - From simple, all-paper to complex construction with PE free film



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► better web tension, glue application and vacuum control



► flush-cut with bottom patch unit with patch printers

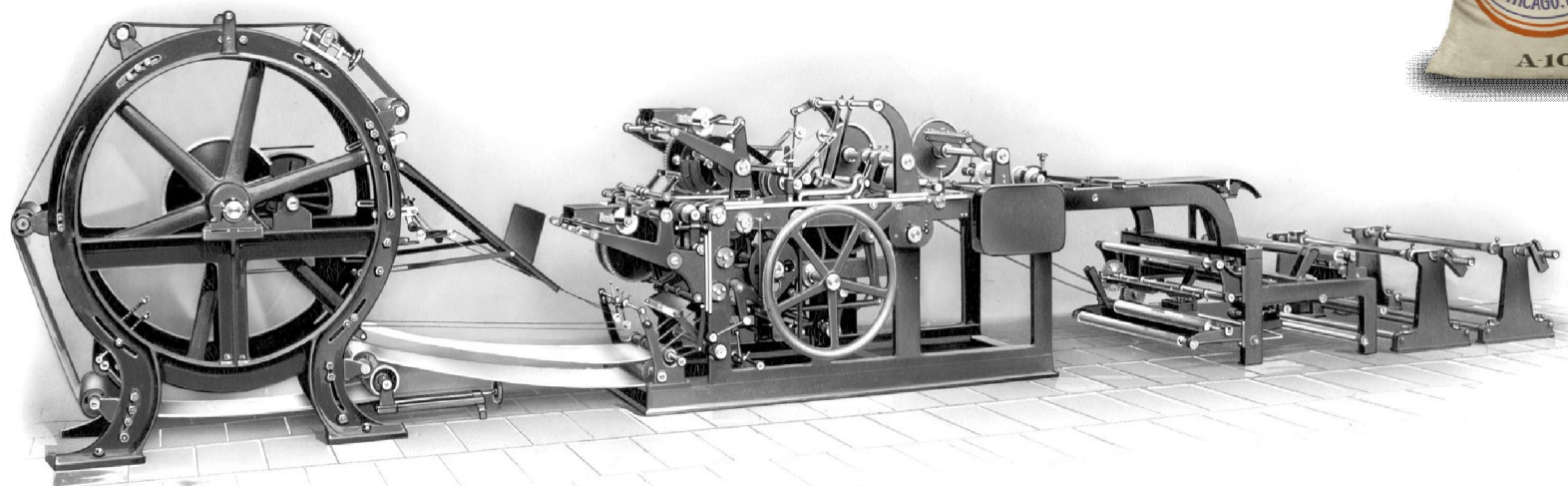


► 4-Q-drives, perforation, PE deviating rollers, belt snatch



1914 & 1915

CEMENT SACK MACHINE “DF”



W&H Cement sack machine “DF”

- **TODAY** high speed cement sack line with up to 360 bags/min
In other words....more than 100 Mio. + sacks/a!



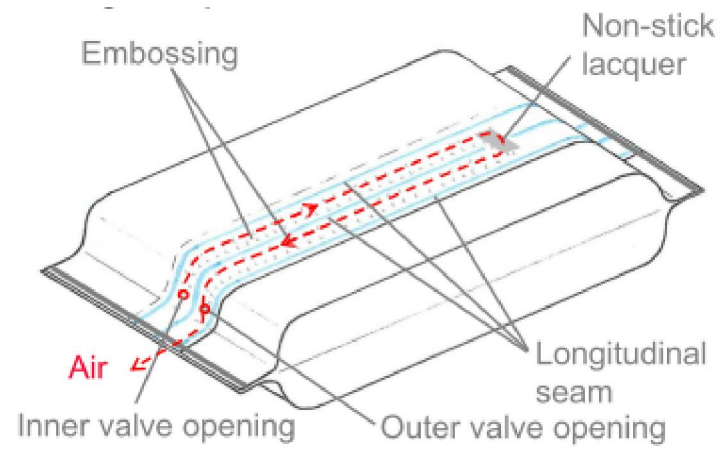
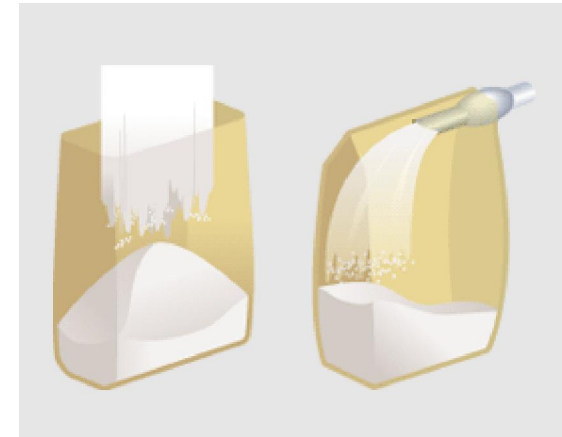
CEMENT SACK TYPES (III) – PAPER SACK

- **Weakness of the paper cement sack:**
 - Strength – extreme handling (slings, nets, hooks)!
 - Not water repellent - less moisture protection.
 - No possibility to produce paper „inhouse“.



CEMENT SACK TYPES (IV) – PLASTIC FILM SACK

- Cement sacks made from plastic film for
 - FFS filling technology (Form-Fill-Seal)
 - Valve sack filling
- Made from Polyolefin based coextruded film
- Tubular film material for sophisticated de-aeration concepts



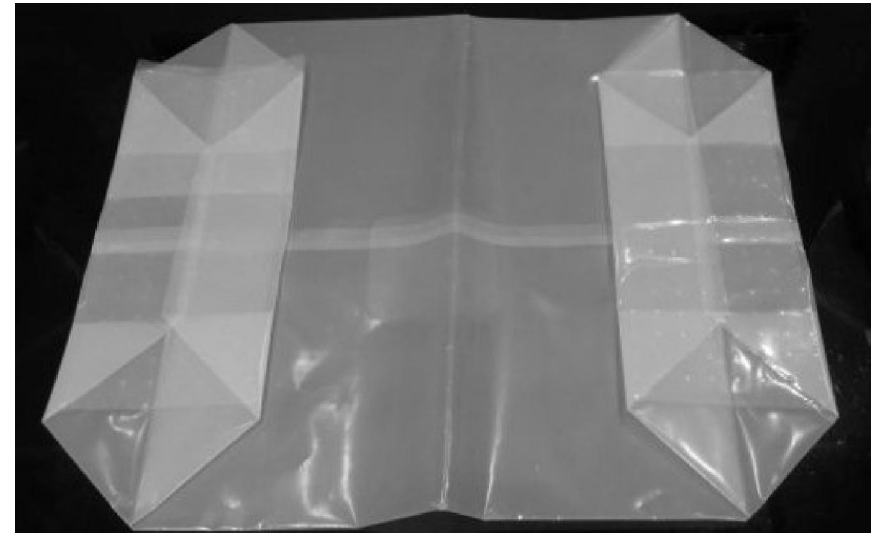
CEMENT SACK TYPES (IV) – PLASTIC FILM SACK

- **Advantages of the PE/PP film cement sack:**
 - Very good optical appearance – „clean“ image.
 - Ideal for niche and strongly consumer oriented packaging due to high-end optical appearance.
 - Up to 8-color surface printing!
 - Good strength and high protection level.
 - Water- and Weatherproof.
 - Manufactured on modern state-of-the-art machines
 - 100% recycling!
 - As a valve sack – can be used on existing valve packers.



CEMENT SACK TYPES (IV) – PLASTIC FILM SACK

- **Weakness of the Polyolefin-film based sack:**
 - Plastic based packaging.
 - Different production process – coextrusion & high end printing.
 - High costs for high-end product.
 - Reduced filling speeds – for FFS up to 2.000bph.
 - For FFS (Form-Fill-Seal) – different packaging machine is necessary.



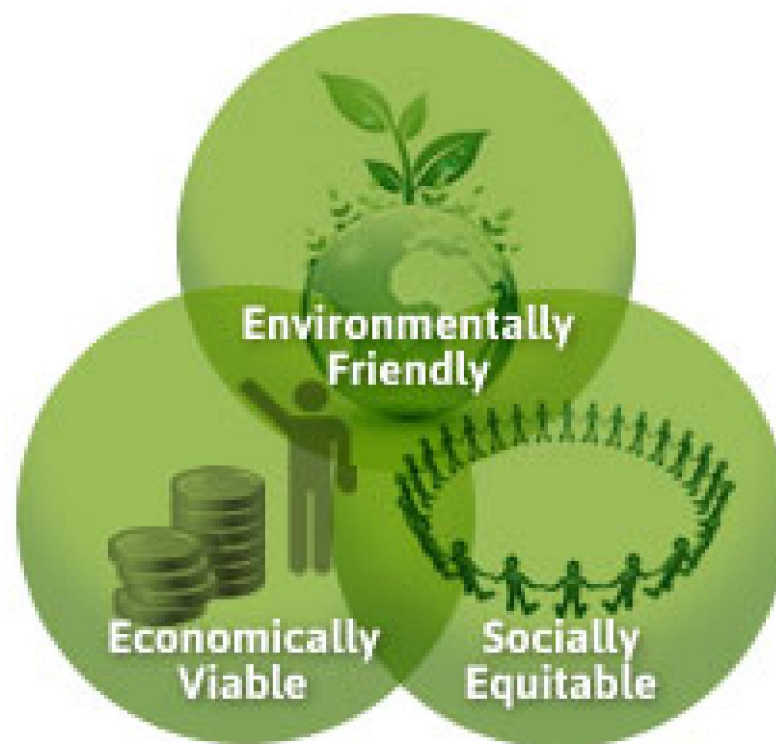
EACH PACKAGING HAS A REASON ...

- The strength of wPP cement sack in Asia is still required! But is the KPK sustainable...?
 - The manufacturing of KPK sacks is not economically enough – high costs.
 - The cement plants focus on efficiency & automation – higher filling speeds, automated truck loading, sack palletizing!
 - Cement companies want recycable products.
 - Logistic infrastructure in Asia is improving – high populated areas, „Mega-Projects“, better Road networks.
- The AD proTex sack is the ideal replacement for the KPK sack!
- Whereever the infrastructure and distribution network allow the usage of paper – it is being used!
- Polyolefin based packaging of cement and building material is a „niche“ also in EU/US – good oportunity for diversification for consumer oriented speciality products.

REQUIRED RESOURCES FOR CEMENT SACKS

Assumption: Consumption of 100.000.000 sacks/a – 50kg per sack

- **KPK sack:** typical configuration: K (90gsm), P (60gsm), K (90gsm) – total 240gsm or 210g/sack
- TOTAL 21.000 tons of PP/PE and paper consumption
- **AD proTex 2-ply:** 70gsm fabric, 60gsm paper: 130gsm resp. 115g/sack
- TOTAL 11.500 tons of PP/PE resin and paper consumption.
- **AD proTex 1-ply:** 70gsm or 60g/sack
- TOTAL 6.000 tons of PP/PE resin consumption.
- **2-ply 80gsm Paper sack:** 130g/sack or 13.000 tons of **paper** from renewable sources only per year.



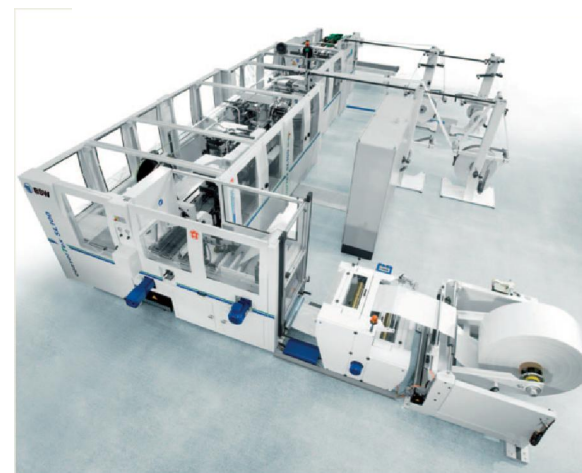
DO YOU ONLY THINK & TALK ABOUT SAINABILITY?!

CONCEPTS & SYSTEMS

W&H GROUP OFFERS COMPLETE PRODUCTION LINES FOR **WOVEN POLYPROPYLENE SACKS**

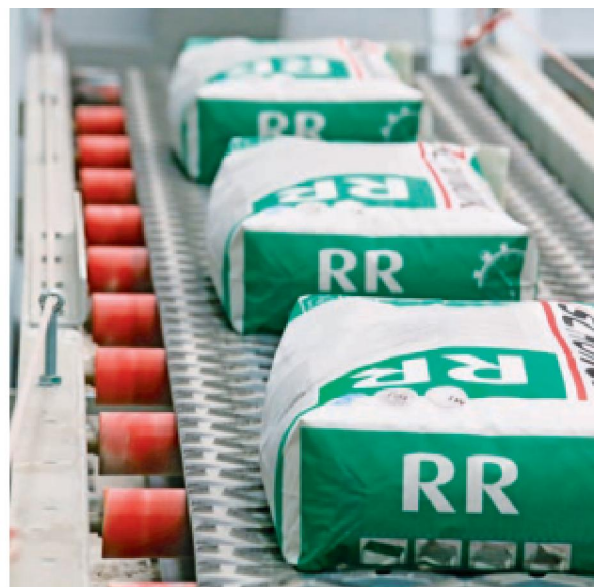


■ TURNKEY PLANTS FOR THE PRODUCTION OF AD PROTEX SACKS



CONCEPTS & SYSTEMS

W&H GROUP OFFERS COMPLETE PRODUCTION LINES FOR PAPER SACK



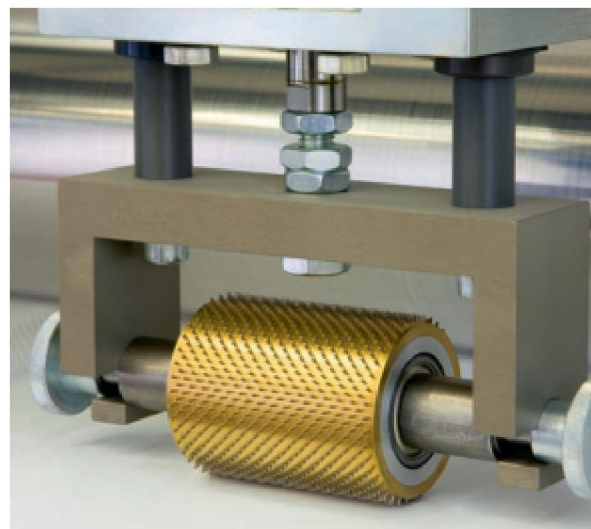
EXTRUSION | PRINTING | CONVERTING

TUBER, BOTTOMER, AUTOMATION



CONCEPTS & SYSTEMS

W&H GROUP OFFERS PRODUCTION SOLUTIONS FOR FFS FILM FOR CEMENT PACKAGING



- **VAREX & OPTIMEX** BLOWN-FILM LINES FOR POLYOLEFIN BASED FILM PRODUCTION AND **POLYTEX** TUBE FORMER FOR FILM, WOVEN PP & PAPER CONVERTING



EXTRUSION | PRINTING | CONVERTING

CONCEPTS & SYSTEMS

W&H GROUP OFFERS VARIOUS SOLUTION FOR **HIGH-END PRINTING**
EQUIPMENT – INLINE OR OFFLINE



- Every packaging has its reason to exist – your product has to be protected with the adequate solution!
- It is ***your choice*** to find the right packaging material for a sustainable solution! W&H can assist you in making a decision.
- Whatever the choice will be – the WINDMÖLLE & HÖLSCHER Group will support with the right machinery for your needs!



THANK YOU VERY MUCH FOR YOUR KIND ATTENTION!!

Live at our
W&H in-house EXPO!
10 – 11 June 2015 in Lengerich!



W&H GROUP
YOUR PARTNER FOR SMARTER
CEMENT PACKAGING SOLUTIONS!