



100%
eXtrusion
CAST FILM LINES

HYGIENE FILM

LINES FOR HYGIENE BACKSHEET FILMS



Hygiene backsheet films are a functional component of baby diapers, sanitary napkins, incontinence pads, changing pads and protective clothing.

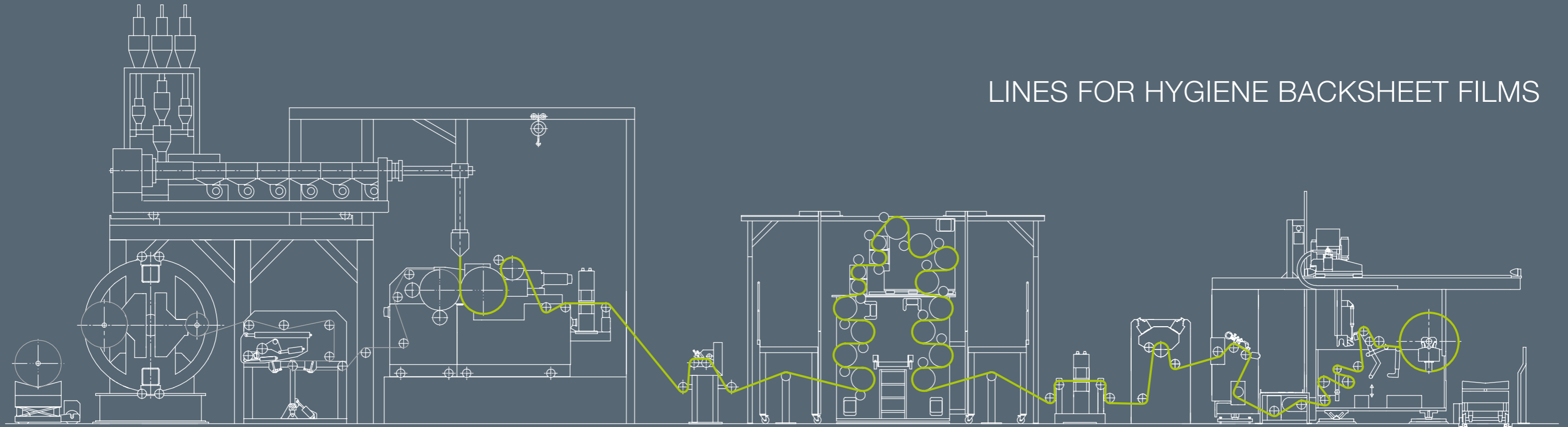
Since 1999, SML has developed hygiene film lines in close cooperation with its customers.

SML offers highly customised systems for three different types of hygiene film: **breathable films, melt embossed films and cloth-like laminates**. Due to the modular design of the lines, SML implements “all-in-one” solutions that cover all these types of hygiene film in one system. SML has accumulated decades of experience in designing excellent MDO units, which is a key component in every breathable film line. In addition, SML’s hygiene lines allow the straightforward integration of units for processes such as lamination, printing or slitting.

Hygiene film lines are comfortably operated and controlled by SML’s advanced machine control system SMILE. bitWise, SML’s data collection and analysing tool, allows data-based optimisation of production processes.



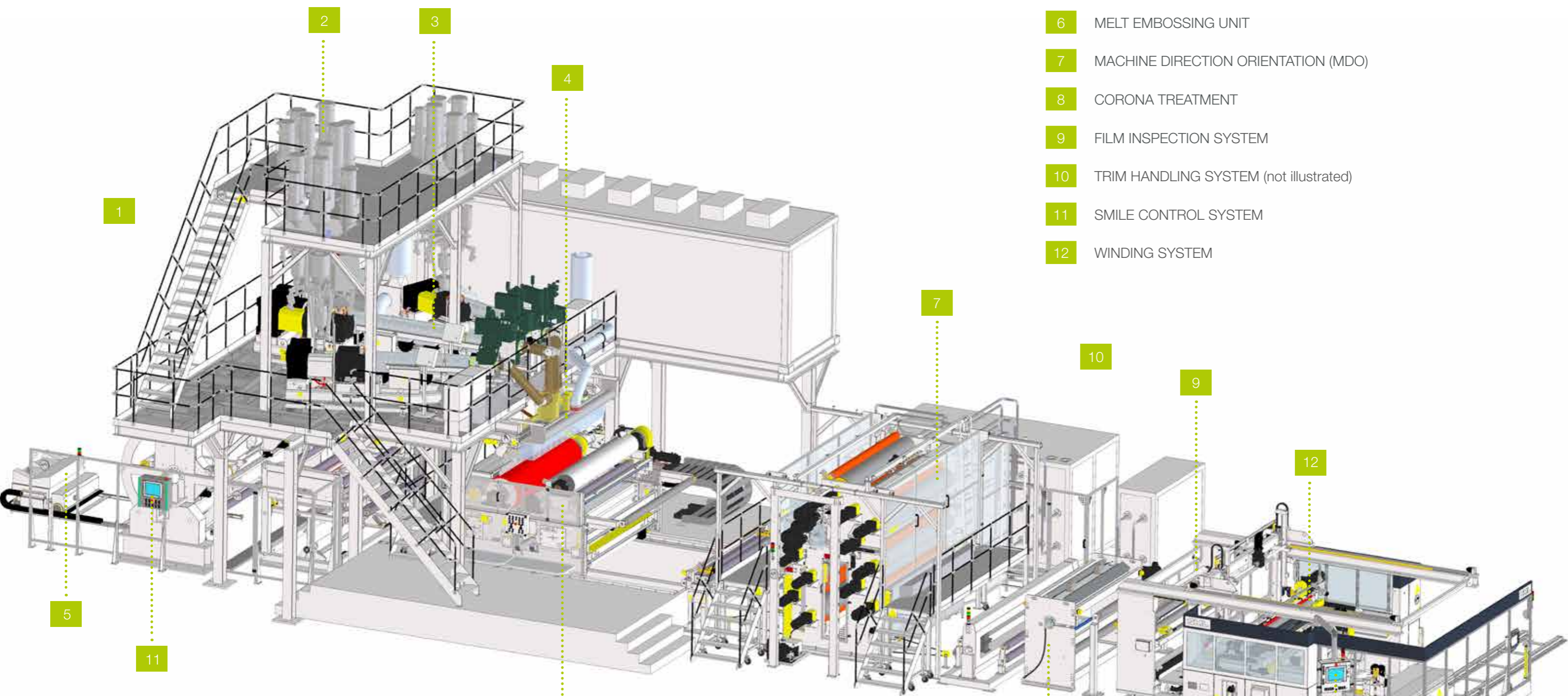
LINES FOR HYGIENE BACKSHEET FILMS



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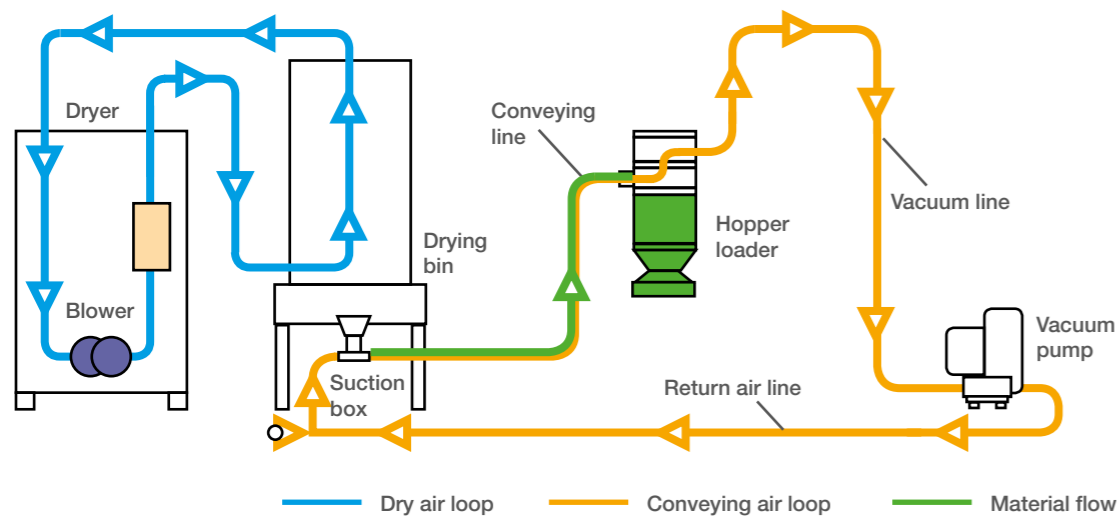
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DRY AIR DRYING SYSTEM ▲

1 Raw material drying system

Compounds with a high CaCO₃ content are used for breathable hygiene films. The mineral fillers are hygroscopic and must be dried prior to the extrusion process. SML employs economical and highly energy-efficient dry air systems for this purpose. After drying, the material is fed to the extruders by dehumidified air, which guarantees that the material does not reabsorb moisture. This system consists of two dryers – one for virgin material and the second for recycled material. Adequate drying is a precondition for a good film quality.



MULTILAYER EXTRUSION UNIT ▲

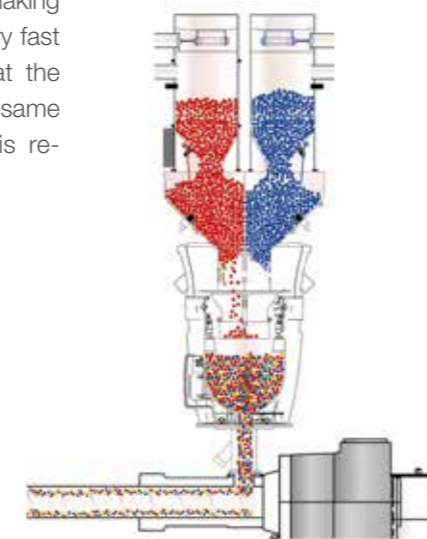
2 Raw material feeding and dosing

SML's gravimetric batch blenders and continuous gravimetric feeders guarantee material blending accuracy and a very simple repeatability. If required, they are perfectly suited to high-temperature polymer processing. Up to six components per extruder can be processed, providing a maximum of flexibility.

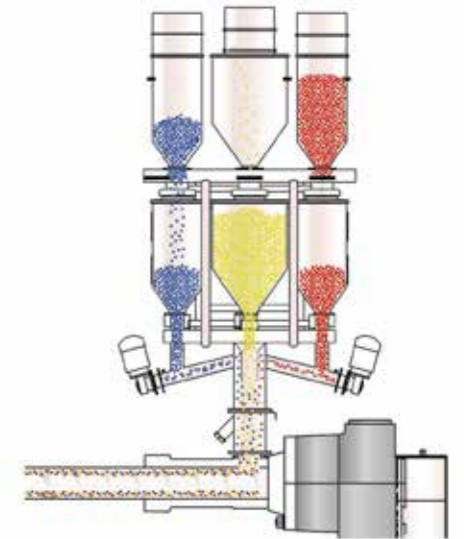
SML's complete dosing system, as well as all the material supply vacuum pumps, filters and valves are fully integrated in the SMILE machine control system. This allows recipes to be run, making changes in production very fast and easy to implement at the operational level. At the same time, waste production is reduced to a minimum.

Your Advantages

- ✓ Highest material blending accuracy
- ✓ Up to six different components per extruder
- ✓ SMILE control system for fast and efficient product changes



Gravimetric batch dosing system



Continuous gravimetric dosing system



EXTRUSION TOOL UNIT ▲

3 Extrusion equipment

SML extruders for hygiene films are of universal design and suitable for all relevant polymers and compounds which are used in this market. A selection of standard versions is available, with screw diameters ranging from 60 to 150mm. As a rule, the extruders with a 33 L/D ratio and bimetallic barrels are powered by energy-efficient, low-maintenance and water-cooled AC motors.

INCREASED SERVICE LIFE

In SML's hygiene film lines, all the extrusion screws have armoured flights, in order to increase their service life. This is extremely important, due to the high mineral filler content of the compounds used. The screws also have a special design to improve the mixing of the different raw material used for hygiene films.

ADVANCED HEATING SYSTEMS

All extruder barrels are heated using the SML advanced heating system. A gravity-closing flap prevents the escape of hot air from the system, thus retaining the heat in the barrel. Effective melt filtration, for the removal of impurities, unmelted or cross-linked particles, is most important for outstanding product properties.

EXTRUDER CHARACTERISTICS

Extruder size	60/33	75/33	90/33	105/33	120/33	135/33	150/33
PE+CaCO ₃ -compounds for breathable film [kg/h]	135	235	330	500	600	700	900
LDPE/HDPE/PP-blends for melt embossed film [kg/h]	125	210	300	420	550	650	800

SML installs hydraulic piston filters in its hygiene backsheet lines. Optionally, all the adapters can be equipped with insulation between the extruder and the feedblock.

Your Advantages

- ✓ Screw diameters from 60 to 150mm as a standard
- ✓ Special screw design for hygiene films
- ✓ Highly effective melt filtration



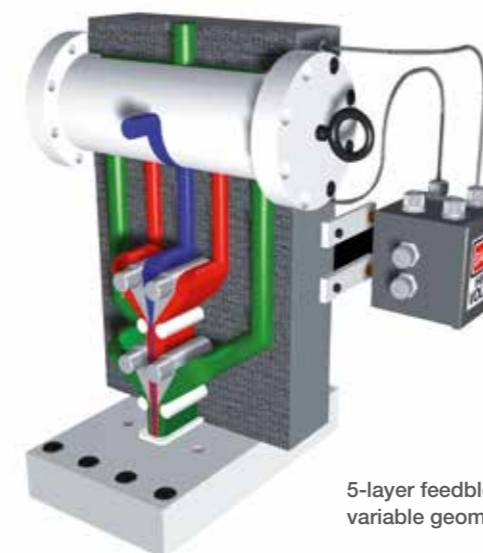
SML's advanced barrel heating systems



SML DIE SPLITTING SYSTEM ▲

4 Feedblock and flat die

As the leading supplier of hygiene film lines, SML relies exclusively on respected partners for its feedblocks and flat dies.



5-layer feedblock with variable geometry

5-LAYER FEEDBLOCKS FOR MELT EMBOSSED FILM

A 3-layer feedblock with two extruders is standard for the production of breathable film, while a 3-layer feedblock with three extruders is needed for cloth-like laminates. In the past, the melt embossed film had a 3-layer structure. In order to allow the down-gauging of the film weight and to achieve enhanced film

properties, SML generally installs 5-layer feedblocks with three extruders.

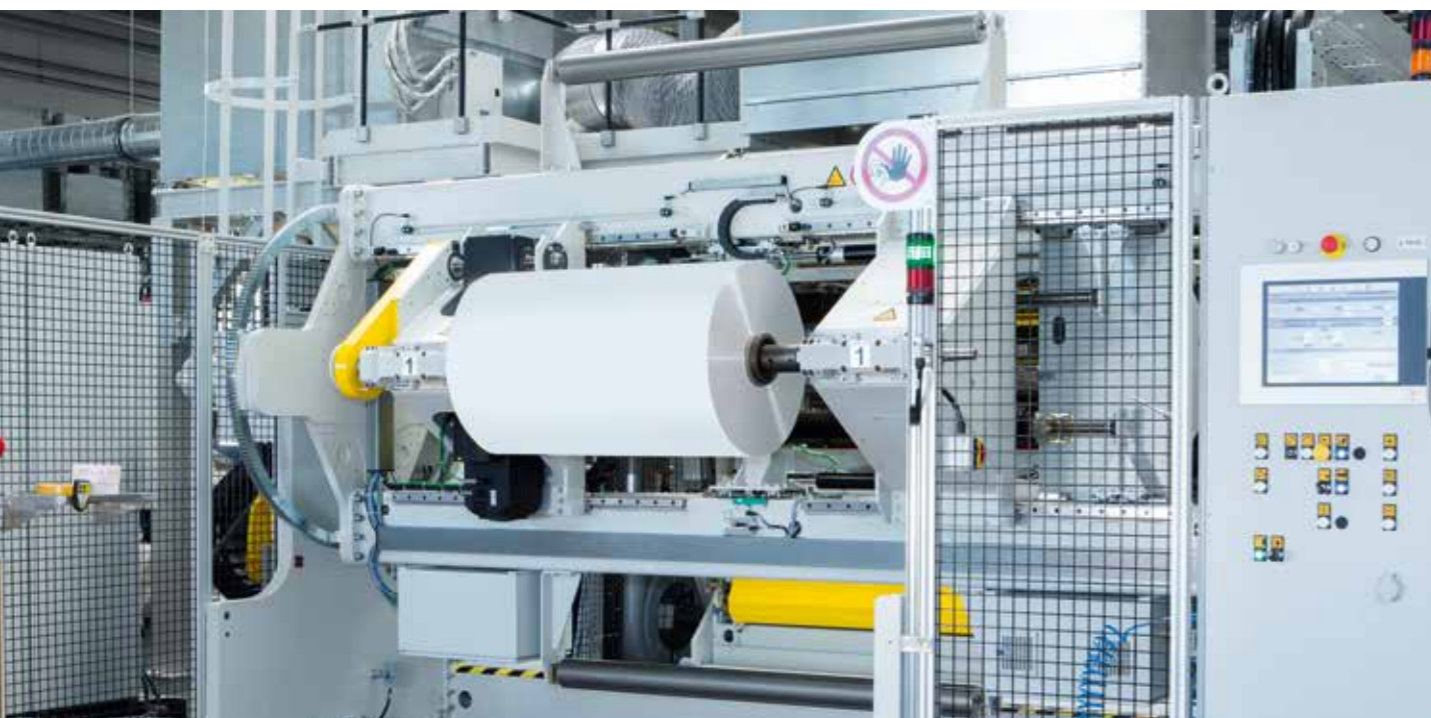
SML's co-extrusion flat dies with a T-shape channel are capable of incorporating fixed or variable internal decking systems. This feature facilitates the efficient variation of the net film width. Depending on the manufacturer, dies are either chrome or nickel-plated, but in both cases automatic die-control via electrically heated bolts is standard.

DIE SPLITTING SYSTEM

The die splitting system enables quick and safe die opening for cleaning purposes. The die remains in its original position, the machine continues to be heated.

Your Advantages

- ✓ Top quality feedblocks and flat dies from reputable partners
- ✓ Automatic die-control via electrically heated bolts
- ✓ Advanced die splitting for quick and safe cleaning



UNWINDER FOR NONWOVENS ▲

5 Unwinder for nonwovens

For the production of cloth-like laminates and nonwovens, a fully automatic turret unwind is integrated in the design of SML's hygiene film lines. It can be used for substrates with a maximum roll diameter of 1,500mm.

MINIMUM CHANGEOVER TIME FOR ROLL HANDLING

Core clamping is done without a shaft, with pneumatic, actuated chucking heads, which can be equipped with adaptors for all common core diameters. For loading and unloading, integrated lifting tables are employed, which allow for maximum flexibility and minimum changeover time for roll handling.

SPLICING AT FULL LINE SPEED

An ultra-lightweight carbon-fiber dancer roll controls the unwinding tension, while the nonwoven roll is center-driven by an AC servo motor. For the splice, the new roll is automatically synchronised to line speed. Splicing is done with a driven bump roll and a pneumatically operated chopping knife. With a defined splice geometry and a position detection, the splice length is minimised.

Each unwinding position is motor-positioned in cross direction. To avoid additionally required guiding equipment, it can be linked to an edge guiding system for appropriate positioning.

Your Advantages

- ✓ For substrates with a maximum roll diameter of 1,500mm
- ✓ Shaftless core clamping with pneumatic, actuated chucking heads
- ✓ Unwinding position is motor-positioned in cross direction



MELT EMBOSSING UNIT WITH THICKNESS MEASURING FRAME ▲

6 Melt embossing unit

Apart from the extrusion section, the melt embossing unit has a significant influence on the final product quality.

SML USES THE DRY EMBOSSING PROCESS, WHICH OFFERS NUMEROUS BENEFITS IN COMPARISON TO THE WET PROCESS:

- No water on the surface of the silicone roll
- Lower embossing pressure => long service life of the silicone roll
- Less maintenance
- No water treatment required
- No water sediments in the line and on the product
- Uniform of the film coefficient of friction (COF)

SML's melt embossing unit consists of a silicone pressing roll, an embossing roll and a post-cooling roll, which are all equipped with separate water temperature control systems and AC drives. The surface of the silicone pressing roll is contact-cooled by two steel support rolls. The pattern on the embossing roll is imprinted on the film surface and determines the gloss and roughness.

QUICK-CHANGE SYSTEM FOR EMBOSSING ROLLS

Both the embossing and the silicon pressure rolls are equipped with a quick-change system, that facilitates fast roll changes for different end product surfaces. The nip pressure between the rolls is individually adjustable on both sides and thus guarantees the uniform embossing of the film across its entire width.

MELT EMBOSSING FOR BREATHABLE FILMS

For the production of cloth-like laminates, a nonwoven reel is unwound and coated with an extruded film in the melt embossing unit. For breathable film production, the melt embossing unit allows higher production speeds. This results in softer films, which are required i.e. for baby diapers. The complete melt embossing unit can be adjusted both in the horizontal and vertical direction. The actual position of the unit is displayed in the control station of the line and stored in the protocol of the SML's SMILE machine control system.

ONE LINE FOR THREE TYPES OF PRODUCTS

The unique design of SML's melt embossing unit enables the production of the three main back-sheet products for the hygiene industry on the same line!

Your Advantages

- ✓ Melt embossed film
- ✓ Cloth-like laminate
- ✓ Breathable film



CLOTH-LIKE PRODUCTION ▲



MDO UNIT ▲

THE ADVANTAGES OF USING THE MELT EMBOSSED UNIT FOR THE PRODUCTION OF BREATHABLE FILM ARE:

- Softer film
- Lower gloss
- Higher production speed
- Lower stretch ratio for the same WVTR-value

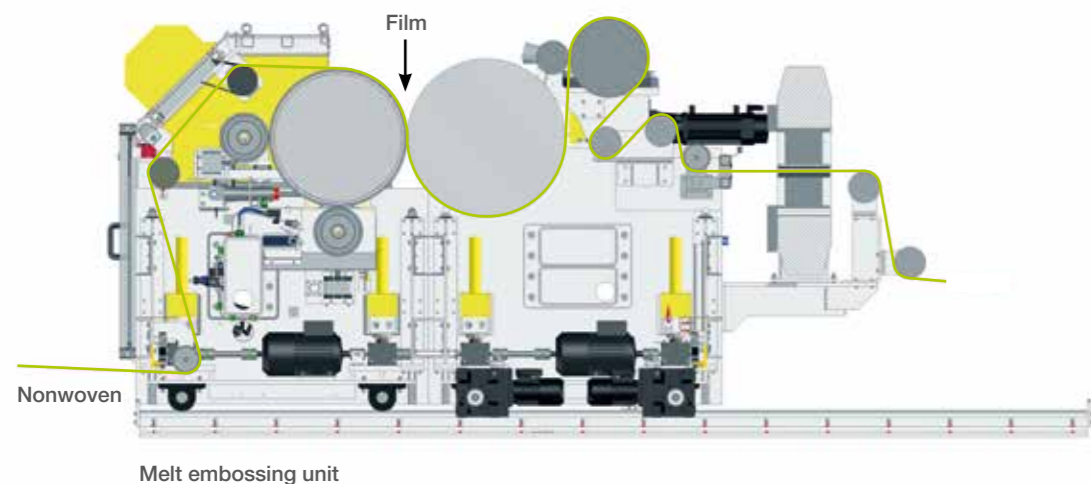
ACCURATE FILM THICKNESS REGULATION

SML places the thickness gauge unit directly on the chill roll frame behind the last chill roll for the production of melt embossed film and cloth-like laminate, to achieve the shortest possible distance from the extrusion die to the measuring point. This results in minimum

space requirements and a very accurate film thickness regulation. If the line is equipped with a machine direction orientation unit (MDO unit) the thickness gauge is placed after the MDO unit and the thickness gauge after the melt embossing unit can be omitted. SML supplies automatic gauging systems with beta-ray sensors.

CUT-RESISTANT GUIDING ROLLS

After leaving the melt embossing unit, the film is guided to the winder via cut-resistant guiding rolls. These have a specially hardened surface for a high film grip and long service life.



7 Machine direction orientation (MDO)

SML has accumulated more than 45 years of experience in the stretching of films and has designed excellent MDO units for a wide range of applications. The MDO process creates micro-pores in the film, which makes it breathable. The water column and the water vapour transmission rate (WVTR) can be adjusted by means of the recipe and the stretching ratio.

THE MDO UNIT FOR BREATHABLE FILM CONSISTS OF A MASSIVE MACHINE FRAME THAT INCLUDES:

- Preheating section
- Stretching section
- Annealing and cooling section

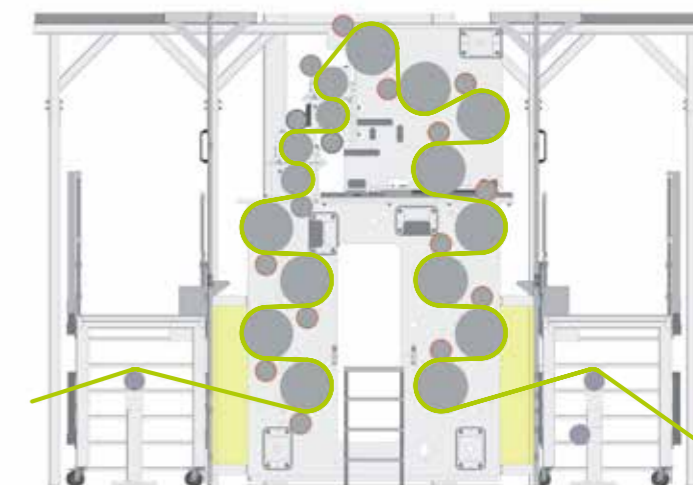
EXCELLENT PREHEATING AND ANNEALING

In SML's MDO units, all of the rolls are separately driven and temperature-controlled. Excellent film preheating and annealing are fundamentally important with regard to mechanical and thermal properties for the further production steps for hygiene products. The MDO is equipped with an adjustable stretching gap, which gives more flexibility regarding the process parameters. Further, the modular design of the MDO allows the retrofitting of preheating or annealing rolls.

For a comfortable line start-up, the unit is equipped with an automatic film feeding device.

Your Advantages

- ✓ Wide range of applications
- ✓ All rolls separately driven and temperature-controlled
- ✓ Modular design allows the retrofitting of preheating and annealing rolls



MDO unit for breathable film



CORONA ▲

8 Corona treatment unit

In order to prepare the films for subsequent offline-printing processes, it is necessary to install a corona treatment unit. The corona treatment units are equipped with an electrically driven, water-cooled treatment roll and a nip roll to avoid the backside-treatment of the film.

9 Film inspection system

An optical film inspection system facilitates quality and process control for all hygiene products. The system is installed directly in front of the winder and consists of an illumination bar and cameras. The measurements of the inspection system are displayed on a separate screen and can be stored for documentation and quality control.



TRIM HANDLING ▲

10 Trim handling system

On SML's hygiene film lines the edges of the film are first trimmed before the stretching or the corona unit, and a final trim is cut directly at the entrance to the winder. Naturally, all the edge trims can be re-fed into the main extruder, which ensures the cost efficiency of the production line.

BLOWER SYSTEM FOR MOVING EDGE TRIMS

The edge trims are transported to the agglomerator of the recycling unit by a blower system. Afterwards, the recycling unit melts and re-pelletises the edge trims, which are then dried and sucked to the dosing station of the main extruder.

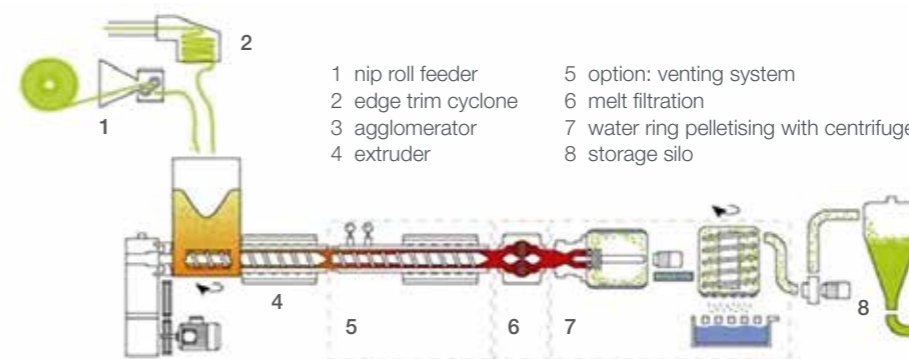
FLEXIBLE RECYCLING UNIT

The recycling unit offers a high flexibility with regard to the use of recycled pellets on different extruders. In addition, it is the most

efficient solution as far as product changes during film production and the re-use of waste and off-spec rolls are concerned. If the line is also designed for breathable film, the recycling unit is equipped with a venting unit at the barrel.

Your Advantages

- ✓ Efficient and eco-friendly edge trim recycling
- ✓ Straightforward and fast product changes
- ✓ Zero-waste for all products



Edge trim recycling unit



E-CONTAINER ▲

11 SMILE® control system

SMILE is SML's generic machine control and operation concept. It stands for all-encompassing automation, providing machine control systems with the highest usability in combination with outstanding capacities for profound process management and monitoring.

The end-to-end integration of third-party systems, overall line effectiveness, operator-friendliness as well as tailor-made and flexible software solutions are the key elements of SMILE.

SMILE is developed as a whole in-house and is integrated one hundred percent in SML's extrusion lines. It is the highly precise, centralised control and synchronisation of all components in an extrusion system, which is blazing the way to new manufacturing concepts as well as delivering product properties, line efficiency and output volumes.

INTUITIVE MACHINE CONTROL CONCEPT

SMILE is an integral part of SML's coherent and user-friendly over-all line concept; machine control and operation is highly intuitive and self-explanatory:

- A central control station system for the highest operating comfort and the visualisation of all processes
- Reduced training efforts and error rates at operator level, less personnel required
- Remote control, remote update and remote service for minimised maintenance-costs, multi-client / multi-user capability

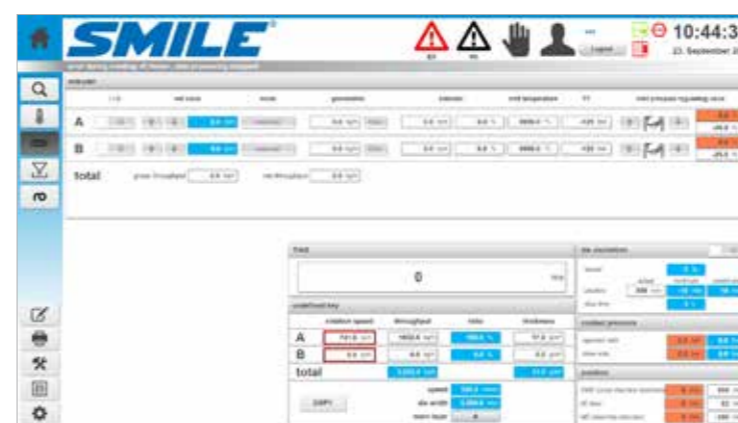
OPTIMISED PRODUCTION EFFICIENCY

One key purpose of SMILE is the increase in the Overall Equipment Effectiveness (OEE) through optimised production processes.

- Optimised use of raw materials, preventing waste
- Faster start-up of production
- Minimised times for product change-overs – customisable assistant for product changes



Control panel



SYSTEMATISED QUALITY CONTROL

In close interaction with SML's data collection and analysis system bitWise, SMILE is an efficient tool to keep output quality stable and to optimise output properties.

- Formula recipe system to copy production parameters
- Documentation and detailed reporting of production processes
- Automatised alarm functions via e-mail or text message for quick debugging

INTERCONNECTIVITY AND THIRD-PARTY INTEGRATION

SMILE has open interfaces that allow the web-based data exchange with third-party machines and systems.

- Open to interconnecting with systems like Enterprise Resource Planning (ERP), Quality Assurance (QA) or SML's data analysis tool bitWise
- Based on open standards like HTML5 and UPC-UA
- Complete end-to-end process control beyond SML extrusion lines

INTEGRATED ALL-IN-ONE CONCEPT

It is SMILE's all-in-one concept that helps to create completely new types of extrusion solutions, making one single operator-friendly step out of the most complex production processes. The control of temperatures, speeds and pressures on SML extrusion lines is highly centralised. All of the line modules and motors are perfectly interconnected and synchronised with each other.

CENTRAL CONTROL STATION SYSTEM

SMILE's central control station system allows the management of all of the production processes from the wide touch screen attached to the line. As SMILE is web-based, all of the production and maintenance processes can be entirely remote controlled, i.e. from a PC or even a smartphone. The system is fully multi-client and multi-user capable, different types of users can log-in simultaneously.

OPEN FOR CUSTOMISATION

Developed in close consistency with the hardware components of SML's extrusion lines, SMILE is highly customisable. It is SML's flexibility that offers a wide range of opportunities if customer-specific solutions are required.

SOFTWARE 100 % DEVELOPED IN-HOUSE

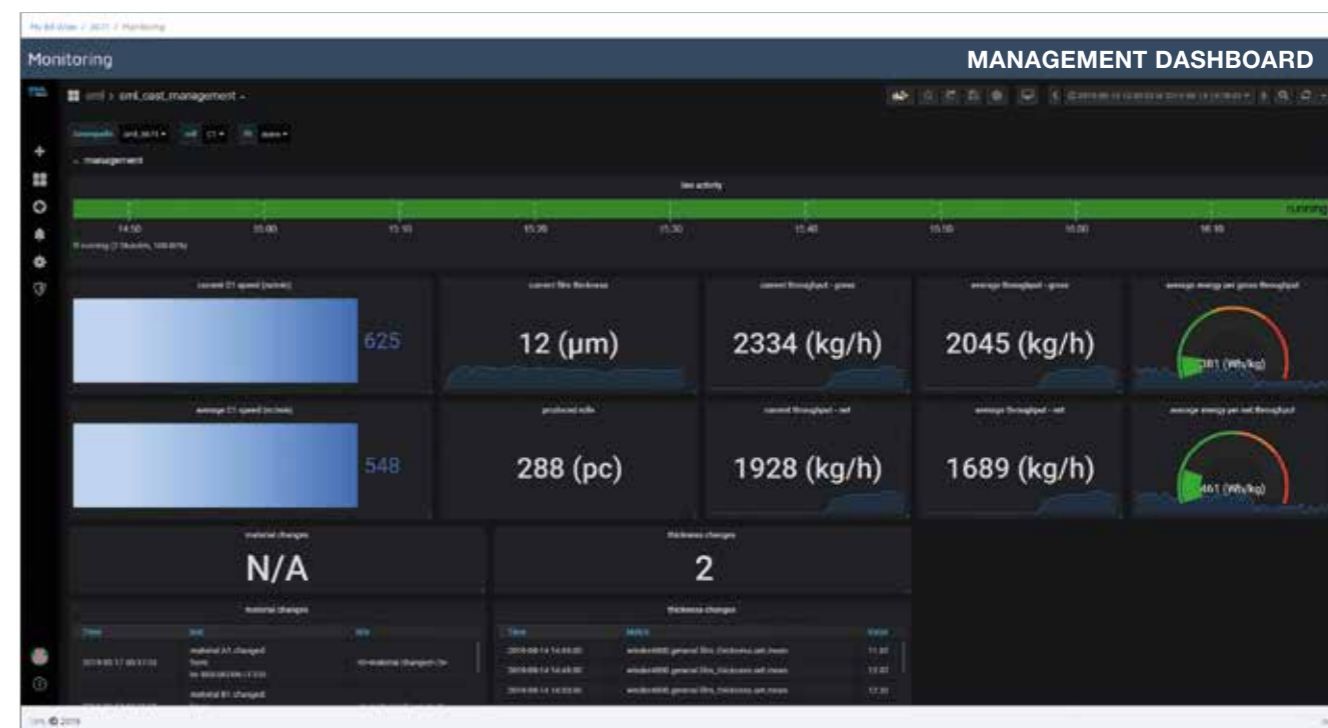
Above all, it is SML's long-standing in-house competence in the field of automation and machine control that provides loads of innovative functions tailored to specific customer requirements. In-house developed, state-of-the-art and dynamic controller systems always allow running the machines at their very best performance-level – considering both economic and environmental aspects. All of SMILE's software solutions are developed by SML technicians. Last but not least, it is SML's concentrated know-how in any aspect of automation, that helps to create the extrusion solutions of tomorrow.

SMILE SOFTWARE FEATURES

- ▶ Central control station system for all production processes
- ▶ Full interconnectivity – global UPC-UA, programmed on HTML5, open interface to other machines and systems
- ▶ Remote access for operators and service teams – worldwide via the internet, from any PC, laptop or most smartphones
- ▶ Multi-client / multi user capability – simultaneous access for different type of users, simple assignment of permissions
- ▶ Highest comfortability – visualisation of all production processes on a wide screen
- ▶ Worldwide possibility of remote update for customisation and technical support

SMILE HARDWARE FEATURES

- ▶ The hardware components of SMILE are supplied by B&R Industrial Automation GmbH, a member of the ABB group, a global leader in automation.



bitWise data analytics

bitWise is SML's digital transformation solution for extrusion lines. It breathes life into the buzzword **"Industry 4.0"**. bitWise provides for a wide range of entirely new opportunities for data driven decisions with a clear focus on the optimisation of production processes and the final product. Completely developed in-house, it incorporates SML's decades of experience in automation with the latest technologies in data analytics and visualisation.

IN-DEPTH PROCESS INSIGHTS

SML extrusion lines are equipped with hundreds of data-generating sensors. Following the principle of **"stop guessing – start knowing"**, bitWise collects, records and visualises this data up to 10 times per second. This gives manufacturers a 360 degree in-depth view of all of the details involved in a production process, both in the present and in the past.

OPTIMISING QUALITY

bitWise is a powerful tool to optimise any aspect of the production process with a direct effect on product quality.

- In-depth monitoring of all quality-related process parameters, allowing quick corrective action
- Comprehensive tracking and documenting of product quality
- Making quality reproducible

3871
qhObwH

Position:	B4_1
Width:	500
Weight:	17.6
Diameter:	234
Endtime:	10.9.2019, 15:55
Length:	2665
Length difference:	0
Rolls:	4
Order Nr.:	bitWise
Quality:	excess length
Recipe:	12mic_K-Show
Shaft:	4
Shift:	KW37
Starttime:	10.9.2019, 15:51
Station:	B
Tags:	show, lab
Thickness:	12.6
Trial:	K-SHOW_12mic
Trigger:	meter

SHOW METRICS

GENERATE A REPORT

MAXIMISING OUTPUT

Data recorded, aggregated and visualised by bitWise helps to raise overall line utilisation and deliver a faster return on investment (ROI).

- Discovering hidden or unused output capacities
- Preventing downtimes by detecting potential problems at an early stage
- Minimising maintenance times through optimised scheduling and structured access to documentation and service support

MINIMISING PRODUCTION COSTS

bitWise is the central tool to measure and visualise all production-related costs. It forms a strong and reliable basis for the continuous cost-optimisation of production processes.

- Detailed monitoring and reporting of energy and raw material consumption
- In-depth optimising, tracking and reporting of Overall Equipment Effectiveness (OEE)
- Full end-to-end cost transparency through third-party integration

ON-PREMISE SOLUTION

bitWise is a 100 % on-premise solution. Your data stays in your company, on dedicated and secured hardware, no cloud services required.

CUSTOMISATION AND RETRO-FIT

As with most technologies developed by SML, bitWise is highly customisable. bitWise can be retro-fitted to many existing SML extrusion lines optimising production processes, cutting costs, raising the OEE and ROI of existing investments.

OPEN FOR VERTICAL INTEGRATION

Extrusion lines are a key part in a wider production chain. For end-to-end optimisation, bitWise supports data exchange and vertical integration with third-party systems, e.g. Manufacturing Execution Systems (MES), Enterprise Resource Planning (ERP) or Quality Assurance (QA).



12

Winding Systems

focused on
film producers
and their
customers

SML offers different types of winders for the production of hygiene films and laminates, such as turret winders for mother rolls and horizontal sliding winders for slit roll production.

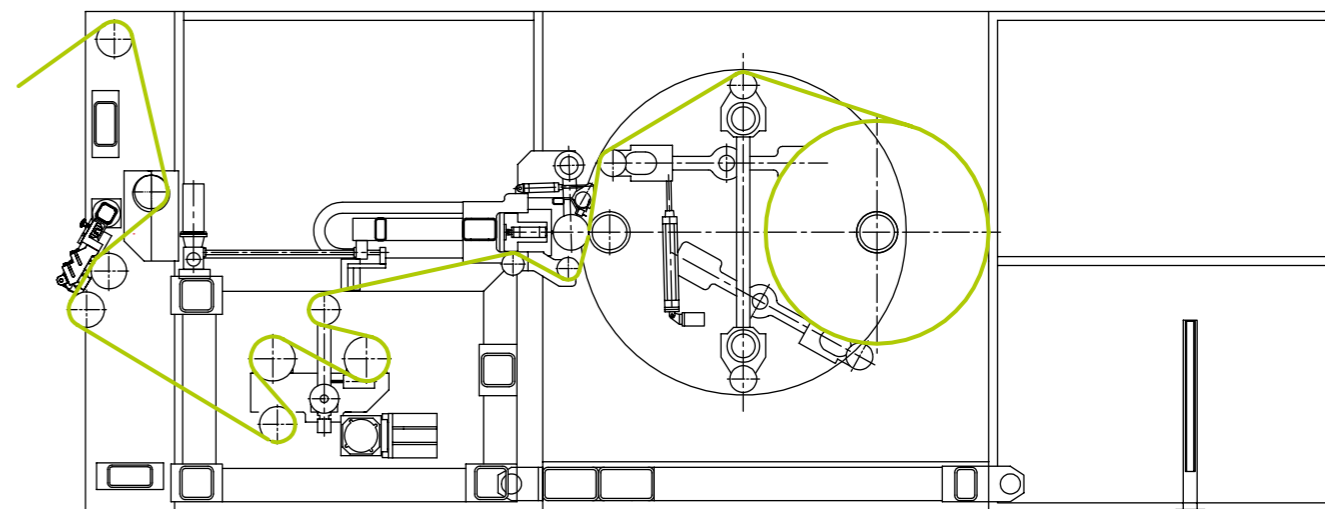
Based on long-standing experience, substantial R&D efforts and constant in-detail innovation, SML is the recognised technology leader in the field of winding systems. Every new product, idea or requirement, which is spotted in the market, or is the subject of a customer inquiry, is passed on to the R&D department. Following a detailed evaluation, SML then upgrades its winders with corresponding new features.

SPECIFIC WINDERS FOR HYGIENE FILMS

For the production of hygiene film, SML has developed a choice of winding systems that focus entirely on the demands of film producers and their customers. All of these winders have a solid, vibration-dampening steel frame construction, which is able to resist the dynamic forces that are generated at high production speeds.

ADVANCED CONTROL SYSTEM

Directly attached to SML's winders is a wide touch screen for winding parameter adjustment and for maintenance work. Additionally, all the winders on SML's hygiene film lines can be comfortably controlled from the line's central control station with SML's operator-friendly SMILE system.



Winder W1050

The winder W1050 is the basic turret winder for the production of thin cast film mother rolls on 6-inch shafts with a maximum winding diameter of 1,000mm. An ultra-lightweight dancer roll controls the film tension, while the shaft is center-driven and the film is wound onto the roll in either a gap or contact mode.

FILM CROSS-CUTTING AS A STANDARD

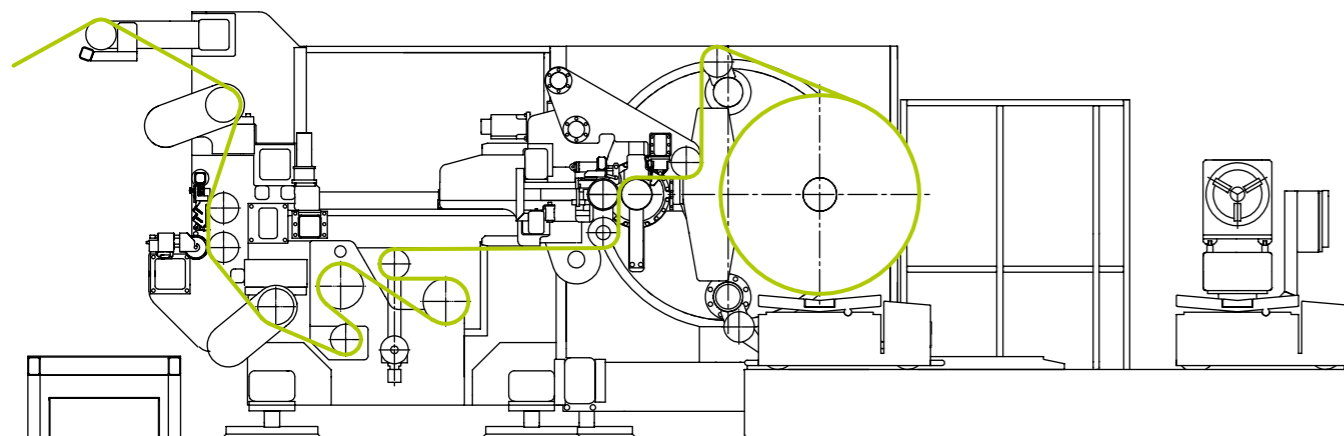
Film cross-cutting is performed by a twisting knife and in a standard configuration, the new winding core is prepared with double-sided adhesive tape. As an option, the film can be fixed onto the new winding core by means of electrostatic charging, thus making core preparation unnecessary.

INDEXING WITH AUXILIARY CONTACT ROLLS

When indexing, the incoming film is attached to the surface of the finishing roll by an auxiliary contact roll. The finished roll is removed by a semi-automatic trolley. As an option, this winder W1050 is also available in a shaftless version.

Your Advantages

- ✓ Ideal for thin cast film mother rolls on 6-inch shafts, diameters up to 1,000mm
- ✓ Film tension control with an ultra-lightweight dancer roll
- ✓ Shaftless version as an option
- ✓ Electrostatic fixing of the film as an option



Winder W1200

ELECTROSTATIC FIXING OF THE FILM ON THE NEW CORE

An ultra-lightweight dancer roll controls the film tension, while the shaft is center-driven and the film is wound onto the roll in contact mode. Film cross-cutting is performed by a twisting knife. As the film is fixed onto the new winding core by means of electrostatic charging, no core preparation is necessary.

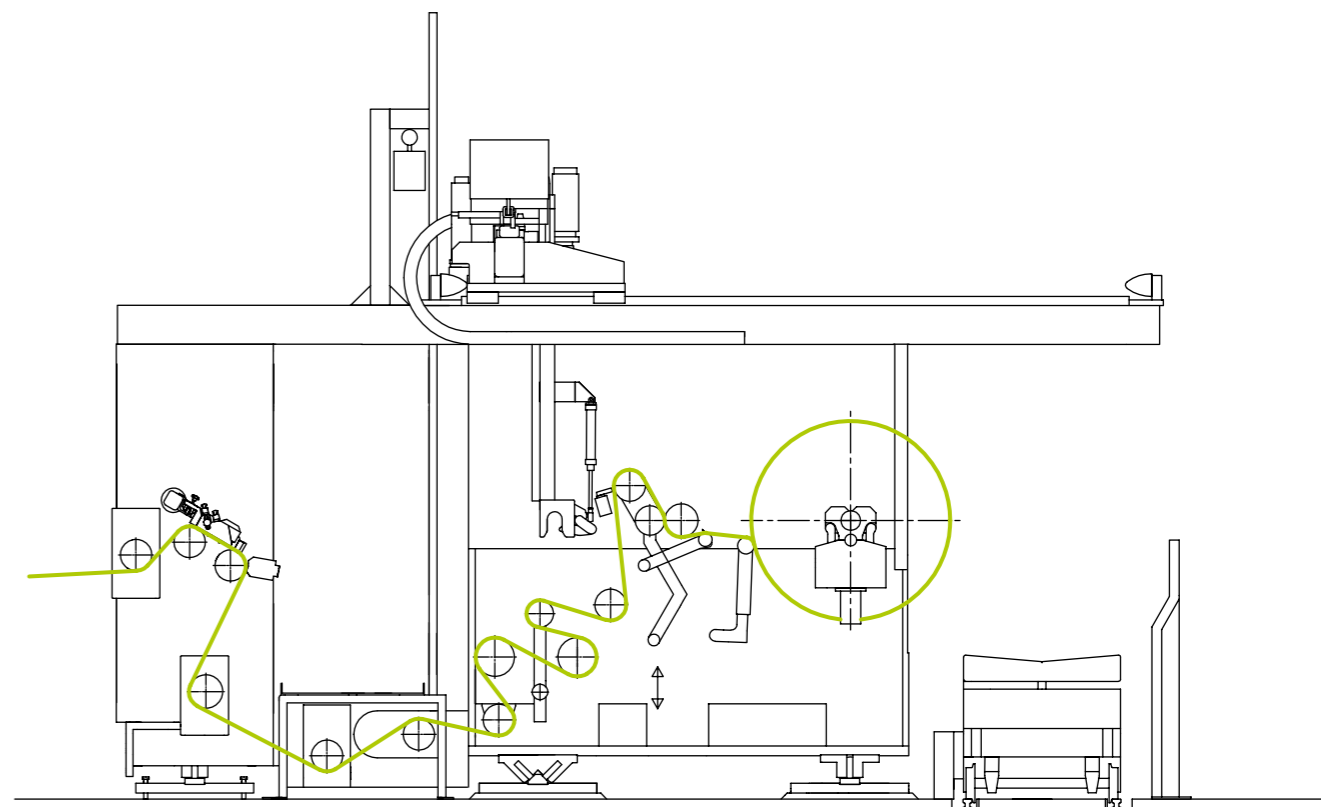
OPERATION WITH SHAFTS OR SHAFTLESS

When indexing, the incoming film is attached to the surface of the finishing roll by an auxiliary contact roll. This winder with steel winding tubes can either be operated with winding shafts or shaftless. A semi-automatic trolley, together with a shaft pulling device, is available as an option for the handling of heavy rolls or shafts.

Your Advantages

- ✓ Thin film turret winder for large widths of up to 4,500mm, roll diameters up to 1,200mm
- ✓ Film cross-cutting with a twisting knife
- ✓ Heavy roll handling with semi-automatic trolleys and a shaft pulling device, as an option

The winder W1200 is the thin film turret winder for large widths of up to 4,500mm and maximum roll diameters of 1,200mm.



Winder W2000 aerofilm

ESPECIALLY DESIGNED FOR THIN HYGIENE FILMS

The winder W2000 aerofilm is designed especially for the winding of thin hygiene films and laminates. It is equipped with a twisting knife and an ultra-lightweight dancer roll, for sensitive tension control. The film is fixed onto the new winding core by means of electrostatic charging and therefore no core preparation is necessary. A satellite roll optimises the entrance angle of the film to the roll, which minimises air entrapment between the layers.

NO BLEED TRIM CUTTING

The slitting process is completed without bleed trim cutting, adjustable banana rollers separate the inline slitted rolls. Depending on the product, slitting stations with razorblades or circular knives are integrated at the winder entrance.

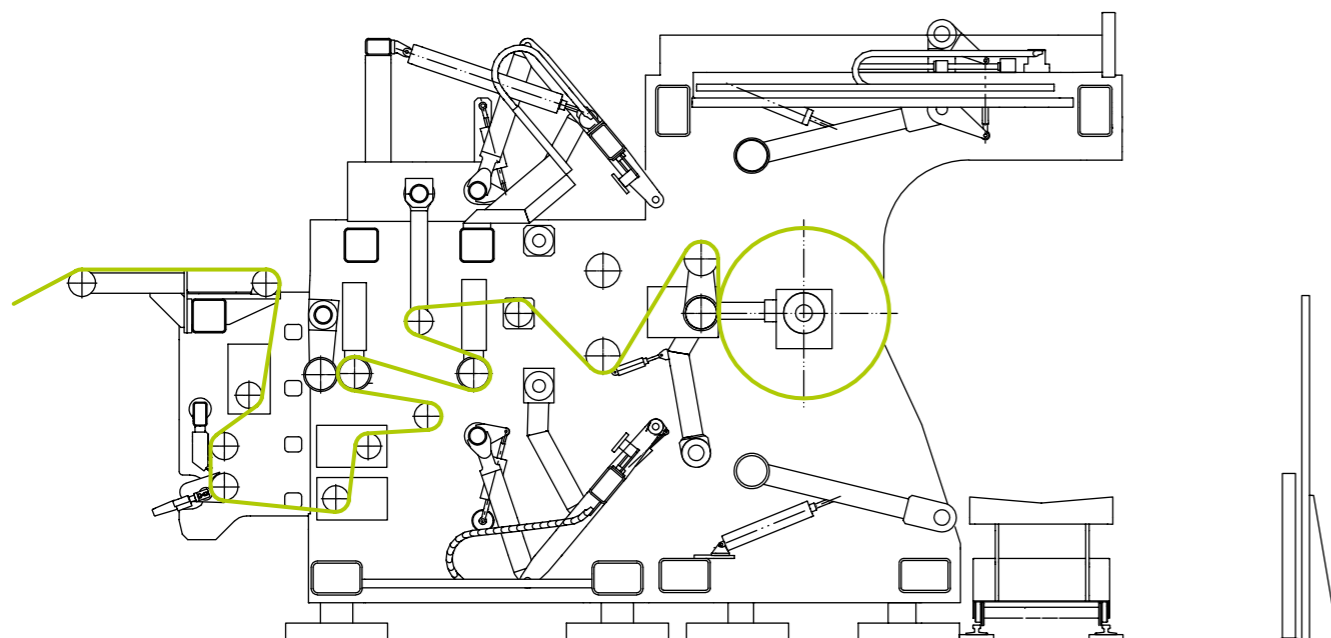
FULLY AUTOMATIC ROLL AND SHAFT HANDLING

The finished rolls and the winding shaft are transported onto a moveable lifting table by an overhead robot, which pulls the rolls from the clamped shaft. The complete roll and shaft handling process is fully integrated in the automatic mode of the winder.

Your Advantages

- ✓ Ultra-lightweight dancer roll for sensitive tension control
- ✓ Film fixing to a new winding core by electrostatic charging
- ✓ Slitting stations with razorblades or circular knives at winder entrance

The winder W2000 aerofilm is a horizontal sliding winder for the inline-slitting of part rolls to narrow widths. With over one hundred units running in the field, the winder W2000 is the most popular and proven winder for cast film. Owing to the principle of horizontal shaft movement, the roll remains in an optimum winding position until the very last moment before cross-cutting, thus guaranteeing a perfect winding quality up to the last layer on the roll.



Winder W5000

SML's advanced winder W5000 is a linear turret winder (LTW), which combines the advantages of a horizontal sliding and a turret winder – setting a global benchmark for the winding of cast and hygiene film. Prior to cross-cutting, the winder W5000 reduces the free length of the web to a minimum by means of individually moveable winding stations. This guarantees a perfect winding quality up to the last layer on the roll.

FILM GUIDANCE VIA AUXILIARY CONTACT ROLL

Before roll changes, the active roll moves horizontally into the centre of the turret. This prevents any further movement while the new shaft is turned into the cutting position by the turret. As soon as the roll leaves the stationary main contact roll, an auxiliary contact roll guides the film.

HIGHER LOADS, LESS DEFLECTION

The film is cross-cut by a twisting knife. After cross-cutting, the finished roll is again moved horizontally from the central to the outer removal position and is then pulled from the shaft by a lifting trolley. The winding shaft constantly remains fixed on one side of the winder, which allows a higher load and less deflection as compared to conventional winding systems. In particular, larger diameters can be achieved for inline slit rolls.

ADDITIONAL CUTTING UNIT FOR WINDING IN BOTH DIRECTIONS

Another feature of the winder W5000 is the possibility to install an additional cutting unit, which then provides the ability for winding in both directions. If 3 inch shafts are used on a large width, a centre support with adjustable positioning can be installed.

FULLY INTEGRATED ROLL HANDLING PROCESS

Inline slitting can be carried out without bleed trim and, depending on the product, slitting stations with razorblades or with circular knives are integrated at the winder entrance. The complete roll handling process is fully integrated in the automatic mode of the winder.

Your Advantages

- ✓ Maximum winding diameter of up to 1,600mm
- ✓ Inline slitting without bleed trims
- ✓ Clockwise and counter-clockwise winding direction
- ✓ Auxiliary contact roll for perfectly finished rolls
- ✓ Center support for increased winding diameter on 3 inch cores



Winding	winder W1050	winder W1200	winder W2000	winder W5000
Film weight range	12 - 100 g/m ²	12 - 100 g/m ²	10 - 100 g/m ²	10 - 100 g/m ²
Maximal mechanical speed	400 m/min	400 m/min	500 m/min	500 m/min
Maximal winding width	2,800mm	5,200mm	2,800mm	6,200mm

Winding on 3 inches	no	no	yes	yes
Winding on 6 inches	yes	yes	yes	yes
Max. mechanical diameter ¹	1,000mm	1,200mm	1,300mm	1,600mm
Winding direction	top outside	top outside	top inside	both

Winding tension	10 - 100 N/m	10 - 100 N/m	10 - 100 N/m	10 - 100 N/m
Contact roll pressure	30 - 100 N/m	30 - 100 N/m	30 - 100 N/m	30 - 100 N/m

Roll handling	semi-automatic	semi-automatic	automatic	automatic
Oscillation	frame	frame or winder	frame or winder	frame or winder

¹ Depending on end film width and product

HIGHEST QUALITY PRODUCTS



NOTES:

SML

EXTRUSION LINES – ENGINEERED TO PERFORM ▶

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