



[-] Jumbo Compounding

- Polyolefin Compounding
- ABS/POM
- Devolatilization



[-] Polymer Compounding

- Color/filler and functional MB
- Engineering plastic reinforcement
- TPE/TPR/TPV
- Cable compounding



[-] Polymer Foam Extrusion

- CO₂ foam XPS board
- Graphite EPS beads pelletizing
- PET Foam Core
- PLA Foam Beads pelletizing
- XPE Foam Sheet



[-] Direct Extrusion

- EVA/POE solar film
- UHMWPE battery separator film
- BOPET/BOPA/BOPP film extrusion
- Steel pipe coating



[-] PET Recycling & Extrusion

- Bottle flakes recycling (BTB)
- PET fiber/film recycling
- Undried PET sheet extrusion
- PSF/POY direct extrusion

Specializing in PP / PS / PLA / PBAT / PHA Sheet Extrusion & Technology



■ plastic pellets



■ sheet roll



■ thermoformed products



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Walk The Talk



USEON has been pushing the boundary of China-made twin screw extruders. Since the first set of China-made high torque twin screw extruder installed in 2007 at USEON, there has been more than 4000 sets of USEON-made high-performance twin screw extruders working worldwide. Over the years, SAT series have stood the test of time. Now the brand-new SAT series redefine the art of the state.

S-Safety—stability creates productivity. Safety provides stability. SAT series are designed on the basis of sufficient safety protection both in mechanical and electrical ways.

A-Accuracy—accuracy means accurate control that is supported by high precise mechanical parts, ingenious design and reasonable electrical program control. The high precise screw and barrel provides excellent self-cleaning capability, as well as accurate residence time control.

T-Torque—increasing specific torque ratio without compromising safety factor, newly SAT has brought the specific torque factor up to 13 Nm/cm³ that can make the polymer extrusion process with less energy, yet better quality.



Key Technologies for PP / PS / PLA / PBAT / PHA Sheet Extrusion Processing

- 1 | **High-Torque Extruder**
Low Temperature & Low Speed Operation
- 2 | **High-Fill-Ratio Feeding System Maximised**
Throughput Rates
- 3 | **High-Vacuum Degassing System**
Superior Color Retention
Minimal IV Drop
- 4 | **Highly Optimised Screw Configuration**
Optimal Plasticising Intensity &
Enhanced Molecular Weight Distribution
- 5 | **Fully Automated Winding System**
Superior Operator Experience

PP PS PLA PBAT PHA Sheet Extrusion Line :



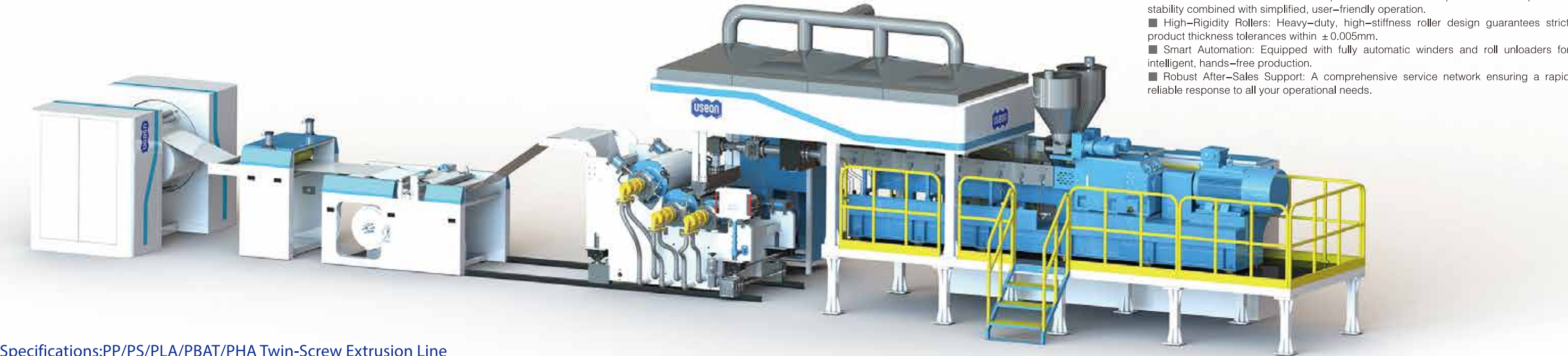
Useon engineered PP / PS / PLA / PBAT / PHA sheet extrusion lines are highly versatile and designed to meet diverse production needs. Standard configurations include single-layer and 3-layer co-extrusion systems, with fully customizable multi-layer co-extrusion lines available to seamlessly match your specific application requirements.

Main Applications:

- Thermoforming & Packaging: Premium thermoforming sheets ideal for food packaging and anti-static electronic component trays.
- Blister Packaging Solutions: Encompassing single-layer, bi-color co-extruded, and ultra-high-clarity transparent sheets tailored for the thermoforming and blister packaging industries.
- Stationery & Office Supplies: A wide range of PP stationery sheets, including highly transparent, frosted/matte (with fine or coarse textures), and bi-color options.
- Highly Filled Sheets: PP compounded with high percentages of calcium carbonate (CaCO₃) or talcum powder, engineered specifically for rigid food containers and lunch boxes.
- Bio-Based Eco-Sheets: Sustainable extrusion solutions compounding PP with natural fillers such as corn starch or bamboo powder for eco-friendly applications.



PP PS PLA PBAT PHA Sheet Extrusion Line:



Technical Features & Advantages

- Tailored Extrusion Solutions: Customized processing and screw configurations engineered specifically for your raw material formats and unique processing requirements.
- Energy-Efficient Drive: Equipped with Permanent Magnet Synchronous Motors (PMSM) to maximize energy efficiency and operational stability.
- High-Vacuum System: Delivers highly stable vacuum levels (consistently maintained at -0.1Mpa to minimize intrinsic viscosity (IV) drop and polymer degradation.
- Advanced Barrel & Screw Geometry: Redesigned configuration ensures superior venting and devolatilization performance.
- Precision Co-Extrusion System: Integrated with premium feedblock and extrusion dies from JC Times, ensuring highly stable melt flow, uniform layer distribution, and precise control over individual layer ratios.
- Siemens Servo & Dual Closed-Loop Control: Delivers exceptional extrusion pressure stability combined with simplified, user-friendly operation.
- High-Rigidity Rollers: Heavy-duty, high-stiffness roller design guarantees strict product thickness tolerances within ±0.005mm.
- Smart Automation: Equipped with fully automatic winders and roll unloaders for intelligent, hands-free production.
- Robust After-Sales Support: A comprehensive service network ensuring a rapid, reliable response to all your operational needs.

Specifications:PP/PS/PLA/PBAT/PHA Twin-Screw Extrusion Line

Model	Single-Layer Line			Co-extrusion Line		
Raw material	PP.PS.HIPS.PLA.PBAT.PHA					
Extruder Spec.	SAT75	SAT85	SAT95	SAT75 / SAT52	SAT85 / SAT52	SAT95 / SAT65
Power	160KW	220KW	355KW	160KW / 45W	220KW / 45W	355KW / 75W
Thickness	0.15–3mm					
Width	600–3000mm					
Max.Output	500–700kg/h	600–800kg/h	800–1200kg/h	500–700kg/h	700–900kg/h	900–1500kg/h

Specifications: PP/PS/PLA /PBAT/PHA Single-Screw Extrusion Line

Model	Single-Layer Line			Co-extrusion line		
Raw material	PP.PS.HIPS.PLA.PBAT.PHA					
Extruder Spec.	TDD120	TDD130	TDD150	TDD120 / TDD65	TDD130 / TDD75	TDD150 / TDD90
Power	132KW	160KW	200KW	132KW / 45W	160KW / 55W	200KW / 75W
Thickness	0.15-3mm					
Width	600-3000mm					
Max.Output	350-450kg/h	500-600kg/h	600-800kg/h	350-450kg/h	500-600kg/h	600-800kg/h

PMSM + High-Torque Gearbox + Safety Coupling

A Next-Gen Powerhouse Safeguarding Your Extruder

We utilize Permanent Magnet Synchronous Motors (PMSM) as the primary drive, seamlessly integrated with Useon’ s proprietary high-torque gearbox. Engineered with an uncompromising safety factor, this advanced drivetrain ensures significantly lower energy consumption, minimized material shear rates, and higher screw filling degrees—ultimately delivering superior end-product quality. To maximize protection, a highly responsive safety coupling instantly disengages the drive upon torque overload, isolating shock loads to safeguard the entire core drivetrain from damage.

Precision Filtration. Constant Flow. Perfect Shaping.

The Ultimate All-in-One Solution for High-End Extrusion

- Continuous Melt Purification: Delivers nonstop melt filtration to completely eliminate downtime and associated production losses.
- Constant Pressure Delivery: Utilizes a precision melt pump to balance flow rates and pressure differentials, ensuring stable, surge-free extrusion.
- Accurate Die Shaping: Employs premium extrusion dies to guarantee ultimate dimensional accuracy and flawless product profiling.
- One-Stop Downstream Solution: An integrated melt-delivery system engineered to build extrusion lines with low pulsation, maximum yield rates, and extended continuous runtimes.



High-Precision 3-Roller Calender

The sheet forming process utilizes an L-type 3-roller calender configuration, where Roller 1 and 2 are aligned horizontally and Roller 2 and 3 are positioned at a 45° incline. This horizontal arrangement of the first two roller enables vertical die extrusion, which facilitates effortless commissioning and rapid start-up for finished product output.

■ **Premium Bearings & Zero-Clearance Fit:** Equipped with world-renowned bearings (NSK / SKF) to guarantee a roller runout accuracy of <0.005mm during operation. The bearings are mounted using a shrink-fitting process, ensuring a completely zero-clearance fit between the bearing and the shaft.

■ **Siemens Synchronous Multi-Drive:** Driven by high-performance Siemens servo motors, ensuring precise speed synchronization across all three rollers. This completely eliminates surface defects such as chatter marks or ripples on the finished sheet.

■ **Zero-Backlash Gearboxes:** Utilizes international top-tier reduction gearboxes, guaranteeing zero backlash within the internal gear trains for extremely smooth torque transmission.

■ **High-Pressure Hydraulic Clamping:** Roller clamping is actuated by heavy-duty hydraulic cylinders. Each cylinder delivers up to 10 tons of clamping force with zero pressure fluctuation during production, ensuring optimal flatness and consistency of the sheet.

■ **Thin-Wall Rollers with Ultra-Mirror Finish:** Features 15 mm thin-wall rollers to optimize heat transfer, boosting cooling efficiency by 15% to 30% compared to traditional thick-wall designs. The roller surfaces are hard-chrome plated and polished to a surface roughness of Ra0.015um. This ultra-mirror finish guarantees a flawless, high-gloss sheet surface.

■ **High-Strength 42CrMo Alloy Steel:** The outer shell of the rollers is fabricated from high-grade 42CrMo alloy steel. Its superior surface strength and hardness prevent any scratching or denting caused by high-stiffness sheets.

■ **Monoblock Spiral-Groove Core:** The internal core is integrally machined with a milled spiral flow channel. This structural design provides robust support to the outer roller shell, preventing any bending or deflection under high calendering pressures.

■ **Shrink-Fitted Core & Outer Shell:** The internal core and the outer shell are assembled via a shrink-fitting process. This eliminates internal gaps, reinforcing the roller assembly so the wall will not collapse or dimple under localized pressure.

■ **High Precision:** With roller runout strictly controlled within 0.005mm, the final extruded sheet thickness tolerance is guaranteed to be within $\pm 0.005\text{mm}$.



USEON -- Your Reliable Partner

Only with customer's support and trust, can we achieve more. A good strategic relationship can put both parties in win-win position, yet it can contribute to the industry. Many of our improvements were the result of working with customers, in this course, we witnessed the growth each other.

Cooperation Begins Understanding - Welcome To Consult Us

If you are a rich-experienced user of twin screw extruder, you could purpose any possible requirements on equipment and USEON will carry out your idea with our optional equipment. We can discuss further to determine the final solution.

If you have no professional know-how on extruder, our experts would like to share our expertise and knowledge with you to get the most reasonable solution and equipment. Our team will help you complete the whole project in a turn-key way.

In addition, our well-equipped lab center is open for you. We welcome you to test your new material, new recipe, new process and new ideas before you make decision. Our professionals are here for you.

How To Select A Suitable Extruder

Learn comprehensively about processing characteristics of your raw material and identify which type of screw extruder is suitable for your case.

Determine the main parameters, i.e. L/D, screw diameter, driving motors, screw speed according to throughput and process.

Select the auxiliaries, i.e. material loading, feeding, vacuum units, screen changers and pelletizing units according to the process purpose. Whether you purchase single set of extruder or a complete project, our experts will give you professional advice.

