APPLICATION NOTE

Early warning of defects in blown film

Avoid compromising the blown film extrusion process. This critical stage of upstream production defines the composition of plastic film, whether you're making a sturdy shopping bag or a crystal-clear electronic display. But achieving thin, flexible, and durable film is complex, and it's easy for defects to creep in as air inflates the plastic like a balloon.

Tearing and warping can cost you more than just wasted material. It can ultimately disrupt production time, increase operational costs, and risk your customer relationships.

Temperature measurement is key to getting it right. To optimise a film's thickness, optical quality, and mechanical strength, you need to better track the cooling rate from the die to the frost point, where the plastic solidifies.

See degrees differently.

HIGH-DEFINITION TEMPERATURE MONITORING FOR EXTRUSION

See the full picture

Get a detailed view of your film's surface temperature with the LSP-HD 60. This linescanner covers a range from 20 to 250 °C (68 to 482 °F), collecting 1,000 high-resolution samples per line. This detailed view means you can detect temperature changes as small as <0.5 °C. The pixels also overlap, so there are no gaps in your data. You can also monitor the temperature in real-time with scan speeds up to 150 Hz, setting an industry benchmark for process imaging. The result is a high-definition, heat map, allowing you to accurately identify and plot the temperature drop over time and distance. This lets you spot uneven cooling early, fine-tune process parameters, and ensure a consistent frost point.

Monitor end to end

For even greater control, pair the LSP-H60 with the SPOT+ M3-5. This IIoT-enabled pyrometer targets low temperature ranges from 0 to 500 °C (32 to 932 °F). Its compact, wireless design makes it easy to deploy throughout your extrusion line. Use the M3-5 at the die exit for initial temperature checks, or at the collapsing frame to detect late-stage anomalies. This combined approach provides complete thermal visibility. Empowering you to act fast, work more cost-effectively, and deliver the reliable quality the market demands.

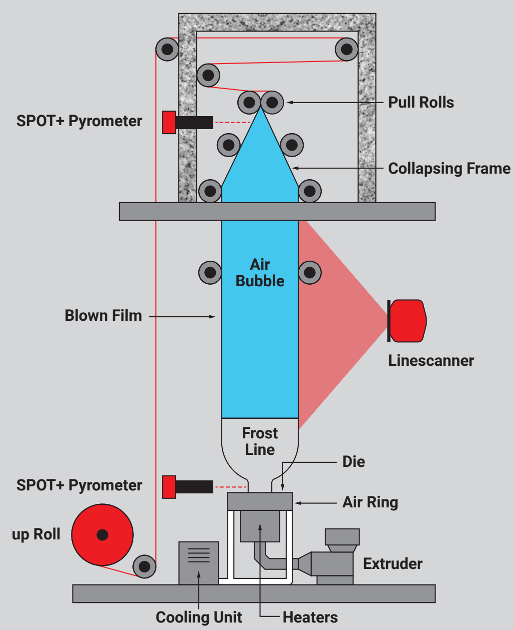
Monitor blown extrusion from top to bottom

1. Die exit
Check molten plastic temperature and flow consistency as it first emerges from the circular die with a SPOT+ M3-5 pyrometer.

2. Bubble expansion
Monitor the cooling rate as compressed air expands the molten plastic tube with the LSP-HD 60, so you can ensure uniform stretching and molecular alignment.

3. Frost line
Precisely track temperature as the plastic solidifies, determining the final film's opacity, thickness, and strength with the LSP-HD 60.

4. Collapsing frame
Further monitor temperature during flattening and shaping, to ensure consistent film width and prevent late-stage defects with another SPOT+ M3-5.



KEY FEATURES EXPLAINED

Precise temperature detection

Measure even small temperature differences thanks to a high-definition scanner with 150 Hz scan speeds.

Quick connection

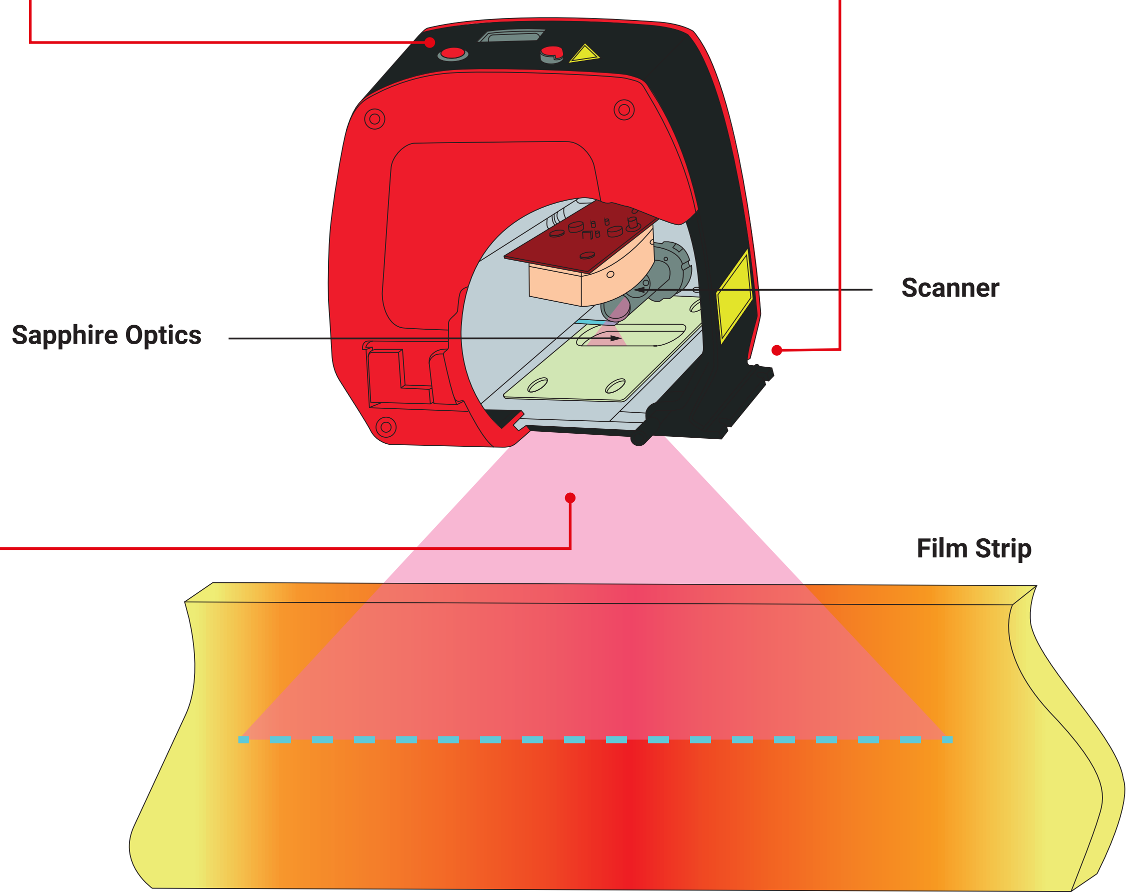
Simplify installation to save time and money with a single Ethernet cable connection for both power and data transfer. Remove and reattach the scanner with a quick-release mechanism – no tools needed. Plus, it's backward compatible with previous LAND linescanners.

PC-free processing

Connect the scanner directly to your process systems digitally or use advanced LAND LSPro software for fast configuration and detail-rich, animated 3D visualisations. There's no need for a separate PC with built-in signal processing.

Durable design

Rely on lasting accuracy in harsh industrial environments up to 100 °C (212 °F) with integrated laser alignment verification, scratch-resistant Sapphire protection window, and robust IP-65-level housing.



LSP-HD 60 and SPOT+ M3-5

AMECARE®
PERFORMANCE SERVICES

Our global service centres provide after-sales services to ensure you get the best performance from your system. This includes technical support, certification, calibration, commissioning, repairs, servicing, preventative maintenance and training. Our highly trained technicians/engineers can also attend your site to cover planned maintenance schedules and repair emergency breakdowns.

FIXED THERMAL IMAGERS & PYROMETERS

LSP-HD 60


LAND AMETEK

LSP-HD

Non-contact Infrared Linescanners

FEATURES & BENEFITS

See degrees differently.

Ensure product quality and better process control with this high-definition 150 Hz thermal imager for the blown film extrusion process. It can detect minute temperature changes, so you can act fast to prevent defects from developing.

SPOT+ M3-5


LAND AMETEK

SPOT+

Smart high-precision pyrometers

FEATURES & BENEFITS

See degrees differently.

Monitor the extrusion process beyond the line of sight of the linescanner with the SPOT+ M3-5. This low-temperature pyrometer has a 30:1 field of view, and a 10 ms response time. It also uses internal temperature for background compensation.

LAND® AMETEK®

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