

**QUALITY
CONTROL
SYSTEMS**
**FOR PLASTICS
NONWOVENS
RUBBER AND
ALUMINUM SHEET
PROCESSES**

Sheet Manufacturing

Honeywell

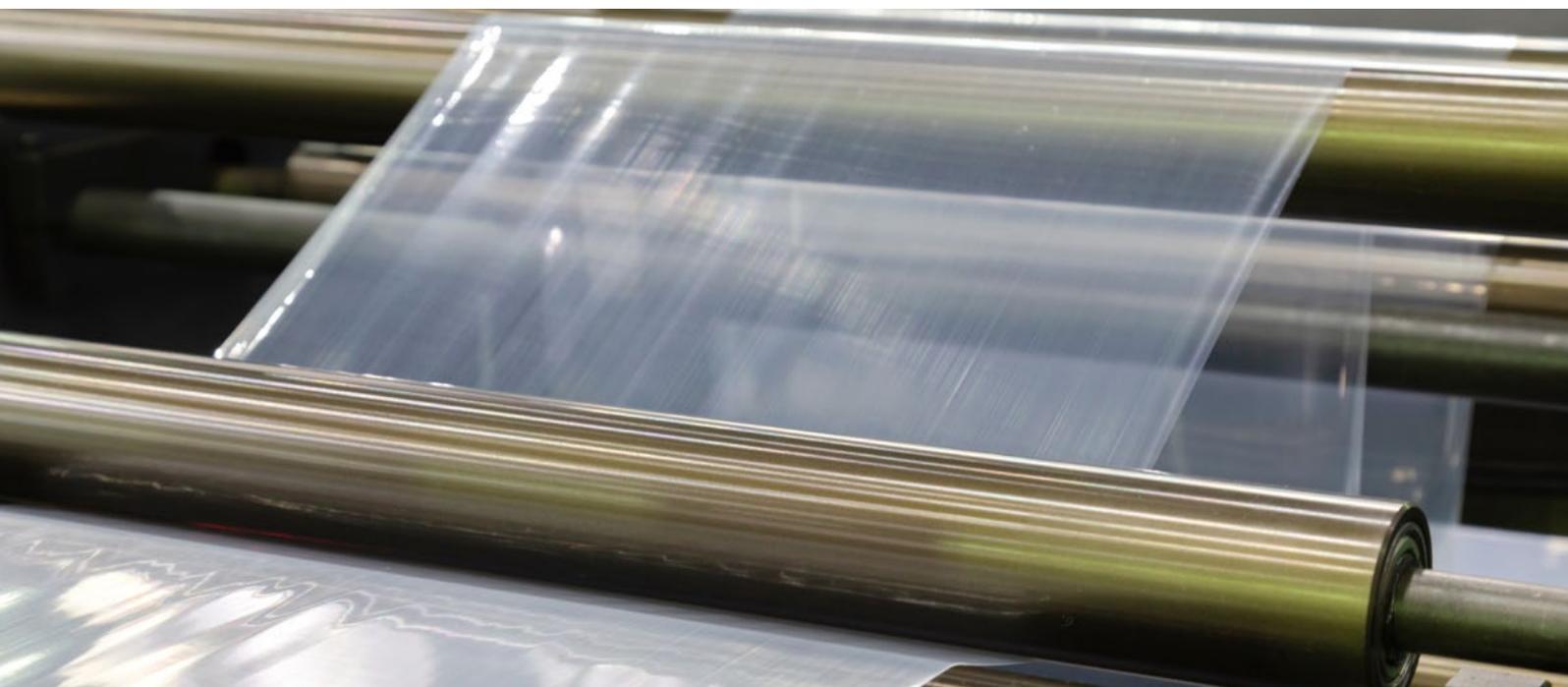
AN INDUSTRY LEADER IN MORE WAYS THAN ONE

Honeywell differs from other technology providers by offering purpose-built solutions for continuous web and sheet operations. In addition to industry-leading DCS and QCS platforms, we provide hardware and software solutions that are specific to plastics, films and metals applications for greatest business value. Honeywell's comprehensive, integrated automation portfolio contrasts with point solution suppliers, whose systems are often isolated islands of automation, with higher lifetime cost of ownership. We provide a complete line of out-of-the-box measurement and control solutions supported by 50+ years of industry experience and know how.

MEASUREMENT EXCELLENCE

Accuracy and speed of online measurements are the foundation for results. Honeywell's Precision measurement technology offers new benchmarks for speed, precision and reliability. The MXProLine™ platform offers a broad range of online scanners and sensors so you can select the measurement system best suited for your application. Features include:

- Low noise and fast measurement response for faster startups and improved streak resolution
- Advanced optics and sensor geometry concentrate measurements over a smaller area, for fast, precise measurement with less noise
- Patented UniCal calibration for accuracy and repeatability, insensitive to composition and formation
- Patented three-point standardization and two internal standardization flags ensure long-term measurement repeatability



AN APPROACH THAT YIELDS RESULTS

The Right Knowledge at the Right Time is Key to Making the Right Decisions

Experion® Process Knowledge System (PKS) is a secure, scalable platform unifying business and manufacturing intelligence designed to improve your business performance and peace of mind. The Experion PKS architecture offers a choice of a fully integrated system with the MXProLine Quality Control application or an independent, standalone system to meet the needs of plant-wide operations.

Process Performance

Experion addresses your entire manufacturing process to find ways to safely achieve peak performance. Honeywell can help take advantage of hidden opportunities in your system, optimizing quality, productivity and profitability. By actively managing and raising process performance through Experion, you'll maximize the return on your investment.

Asset Effectiveness

Manage your assets in real time. Experion's process-centric approach helps discover assets most critical to performance; from a control loop to an entire process unit, helping to avoid downtime and costs of unscheduled replacement.

Business Agility

Experion helps your facility prepare for changing conditions. With our business agility applications, interfaced with business software, you have access to real-time performance data to capitalize on opportunities faster and more intelligently.

People Effectiveness

Your people are the best source of knowledge for improving business performance. Experion gives your people access to the data they need to succeed.

Better Technology Turns Resources into Results

Quality Control

Integrated with Experion PKS, MXProLine is the industry's leading Quality Control System with fast scan speeds, high accuracy, low noise and fine resolution. MXProLine delivers the product to specification and optimizes quality in the shortest possible time. MXProLine supports online quality measurements including weight, coat weight, moisture, thickness, density, color and opacity.

Distributed Control

Experion provides unprecedented connectivity through all levels of process and business operations, including process control, machine control, drive control, extruder temperature control, oven temperature control, winder control, gravimetric blending and batch processing.

Business Solutions

OptiVision® business execution applications provide planning and scheduling, quality historian and trim optimization solutions, all efficiently integrated with your business management systems. Honeywell has solutions to meet your needs and help improve business performance through process visibility, manufacturing optimization and improved asset utilization. Integration with your ERP system provides enterprise-wide visibility, getting knowledge to people who need it, in real time.

QCS 4.0

Honeywell QCS 4.0 provides the ability to fully capture information from an on-premises QCS and deliver it to the Honeywell Forge.

Through comprehensive analysis and reporting of a broad spectrum of process operation and quality data, this solution delivers actionable insights to improve system reliability, sensor accuracy, control performance, and overall product quality.



FOR YOUR BUSINESS

PLASTIC SHEET, FILM AND CONVERTING

MXProLine solutions are available for a variety of plastics processes:

- Calendered sheet and film
- Cast and oriented films
- Extruded coatings, foam and sheet
- Downstream coating and converting
- Numerous specialized applications, including lithium electrode coaters and battery separators

Our portfolio of measurement capabilities is the most extensive in the industry. MXProLine offers exceptional flexibility, scalability and customizable features. MXProLine's proven automation solutions include:

- Average weight (machine direction)
- Coordinated speed change
- Target adaptive
- Multi-zone calenders
- Throughput optimization
- High-performance cross-directional

(CD) controls include:

- Control of either mono- or multilayer products
- Extrusion dies (thermal, motorized, piezoelectric and thermo-viscous)
- Coaters (thermal and mechanical roll, blade or knife)
- Moisture control (via sectionalized heaters, steamboxes or sprays)
- Advanced application support includes model-based controllers, automated mapping utilities and live, on-screen tuning

NONWOVENS

MXProLine provides solutions to roll-goods manufacturers worldwide, including the prevalent forming and bonding processes such as spunbond, airlaid, meltblown, SMS composite, hydroentangled (or spunlaced), wetlaid, carded, needlepunched, calendered and high loft. CWS systems are also used on numerous downstream converting processes including coating/laminating, composite extrusion and off-machine calendering. MXProLine sensors provide a variety of online quality measurements, including weight, thickness, moisture, coat weight, composition (such as bicomponent fiber, latex, LOI, synthetic fiber differentiation), ash, color, formation and temperature.

RUBBER

MXProLine means improving quality and saving raw materials for tire components through total quality control solutions for all types of rubber calendering and extrusion processes, including tread extrusion, innerliner, gum, textile and steel cord calenders, whether Z-, Inverted L- or tandem 3-roll. MXProLine measurements are fast and precise for consistent roll-to-roll quality.

MXProLine's wire calender measurement uses a narrow-aperture sensor, high-speed data acquisition and advanced spatial detection algorithms to give you visibility into the sheet of the precise position and spacing of every wire. Defect tracking provides intuitive and precise analysis of any defective material in the wound rolls, allowing efficient removal of off-spec material from downstream tire production.

ALUMINUM

MXProLine serves aluminum sheet and foil processes worldwide, including aluminum cold rolling, foil rolling and continuous casting processes.

BENEFITS INCLUDE:

- Accurate non-contacting, real-time measurements
- Dynamic models of process behavior to correct for environmental factors such as air gap temperature
- Low noise electronics for a stable and repeatable measurement
- Fast sensor response for precise high-speed feedback, feed-forward and mass flow control
- Calcoil induction heating actuators for precise control of cold rolling edge flatness and continuous cast sheet profiles



OUR DIFFERENCE IS YOUR ADVANTAGE

A Global Leader in Technology, Quality and Domain Expertise

Honeywell created the first digital measurement and control systems for flat sheet products in 1968, deployed the first hybrid control system (PlantScape) and rolled out the world's first Process Knowledge System (Experion PKS). Everything we invent, across the entire spectrum of Continuous Web Solutions lifecycle, is geared toward creating tangible customer results. From the sensors, to the control room, to the board room, only Honeywell brings all the intelligence you need together into a real-time system that helps you manage your whole business, not just components and parts.

Service and Support

Better lifecycle support aligns you with continuous evolution. Honeywell's comprehensive support services are a valuable asset to your operation. With Honeywell, the information or support you need is as close as a web browser or a telephone call. And with industry-specific offices in dozens of countries, we're always within reach. With Honeywell, you can upgrade to newer technologies when it makes sense for you. Comprehensive support is available for system migration options and parts. Honeywell's Solution Enhancement Support Program (SESP) offers many benefits:

- Increase automation ROI
- Maximize control system performance
- Optimize production processes
- Improve product quality
- Enable preventive and corrective maintenance
- Keep systems current
- Protect your investment in capital assets and intellectual property

Better Delivery Means Quicker Startup and Immediate Benefits

When it comes to rapid, safe, and successful deployment of integrated control solutions, Honeywell is unsurpassed. Our more than 3,000 worldwide services professionals in over 90 countries ensure that you get expert, experienced people who are focused on delivering results with an impressive 98 percent on-time, on-budget record.

For more information

To learn more about Honeywell's solutions for the continuous web process industries, visit <https://hwl.co/SheetManufacturing> or contact your Honeywell account manager.

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**THE
FUTURE
IS
WHAT
WE
MAKE IT**

Honeywell