

# FUSION

MAGAZINE #1 2026



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# FUSION



---

3 **DTC:**  
Our new catalogue

---

4 **FORMULA ONE:**  
Obsessing over the smallest details

---

5-6 **CONSUMABLES:**  
Reducing consumable waste without compromising performance

---

7-8 **AI & AEROSPACE:**  
Reshaping the future of structural modelling

---

9 **3M:**  
The most versatile spray gun in the industry

---

10 **DEFENCE:**  
Borrowing from commercial industry

---

11-12 **STORAGE:**  
How DTC Containers keep operations moving with on site storage

---

13-14 **CONSUMABLES:**  
Why one size fits all consumables no longer work

---

15 **BAXT:**  
Ready for the real world



---

16 **INDUSTRY INSIGHT:**  
Why calmer environments perform better

---

17-18 **ELECTRIC VEHICLE COMPOSITES MARKET:**  
Driving the next decade of lightweight innovation

---

19 **DTC HUB:**  
One location where consumable usage, stock movement, and accountability actually need to live

---

20 **RESPIRATORY PROTECTION IN PAINTSHOPS:**  
Are you actually compliant?

---

21-22 **CONSUMABLES:**  
The rise of intelligent consumable management

---

23-24 **MANUFACTURING:**  
The anatomy of a live build environment

---

25 **AUTOMOTIVE INDUSTRY:**  
Why airbags are no longer a background feature

---

26 **MEET THE TEAM:**  
Goods In

---

27-28 **INDUSTRY INSIGHT:**  
The paper trail that could ground your fleet

---

29 **AERONIX:**  
Carbon neutral vacuum bagging film low temperature

---

30 **MANUFACTURING:**  
Modern manufacturing is getting harder, not faster

# IT'S HERE!

## THE NEW DTC CATALOGUE, ISSUE 18

Our new catalogue has landed, bringing together over **360 pages of proven products** trusted by professionals across aerospace, automotive, marine, composite, and defence sectors. From abrasives and PPE to tools, paintshop and cutting solutions – every page reflects over 30 years of experience in sourcing the best for our industries.

**You can now browse the full catalogue online, download a copy, or request a free printed edition via our website**



# Obsessing over the SMALLEST DETAILS

*“ Mistakes are expected because people are human. The system exists to prevent those mistakes from becoming failures. ”*

As the new Formula One season approaches, the spotlight naturally falls on drivers, cars, and championship predictions. Inside the garages, however, attention is fixed elsewhere.

At the sharp end of modern motorsport, performance is no longer defined by bold innovations or dramatic breakthroughs. Margins are too tight for that. Instead, advantage is built through relentless attention to detail. Tiny improvements, repeated flawlessly, under extreme pressure.

A tenth of a second here. A smoother handover there. A tool placed centimetres closer to where it is needed. **At this level, nothing is accidental.**

## Why small things decide big outcomes

When margins are measured in thousandths of a second, the smallest disruption can undo months of preparation.

A misplaced wheel gun. A delayed signal. A moment of uncertainty.

These are not dramatic events. They are mundane ones. And that is precisely why Formula One teams obsess over them. They understand that reliability under pressure is not created on race day. It is built quietly, through thousands of controlled repetitions, long before the lights go out.

## Lessons beyond the track

This obsession with detail is not unique to motorsport.

The same principles apply wherever complex work must be delivered safely, repeatedly, and to a high standard. Whether on a production line, in a paintshop, or within a regulated environment, outcomes are shaped by the smallest daily decisions.

Where materials are placed. How tasks are supported. Whether people trust the systems around them. Individually, these details seem insignificant. Collectively, they define performance.



## Precision is not about speed

It is easy to assume that Formula One teams succeed because they work faster than everyone else.

In reality, they work **with less friction.**

Pit crews are not chasing speed in isolation. They are designing environments where hesitation is removed. Every movement is rehearsed. Every tool has a defined position. Every task has a clear owner.

The objective is not to rush. It is to make the correct action the easiest action. Mistakes are expected because people are human. The system exists to prevent those mistakes from becoming failures.

## The detail behind the drama

From the outside, Formula One looks fast, loud, and chaotic. Inside the operation, it is calm.

Teams spend more time preparing for what might go wrong than celebrating what might go right. They assume that plans will be challenged. Conditions will change. Something unexpected will occur.

The difference is that nothing is left to chance.

The environment is designed so that when pressure peaks, performance does not collapse. It holds.

## Why this matters now

As industries face tighter margins, higher compliance expectations, and constant change, there is less room for error. The organisations that succeed will not be the ones chasing headline-grabbing transformation.

They will be the ones who quietly remove friction. That design environments for reality. That understanding performance is built long before pressure arrives.

Formula One does not win races on Sunday afternoon. It wins them in the details that most people never notice.

# Reducing Consumable Waste Without Compromising Performance



Every year, paintshops and marine coating facilities discard thousands of consumables that were never needed. The instinctive response is to negotiate harder, switch suppliers, or chase lower unit costs. But the real culprit is not on the invoice. It is on the shop floor.

Waste is rarely driven by the product itself. It is far more commonly the result of how materials are specified, applied, stored and managed day to day. Reducing waste without compromising performance is therefore less about buying cheaper consumables and more about operational maturity. Organisations that approach the issue this way consistently achieve better quality outcomes, greater consistency, and lower total costs over time.

## The real culprit: shop floor habits, not invoice prices

Across paint and composite environments, the most significant sources of consumable waste hide in plain sight. Over-application is one of the most common contributors, often driven by a belief that using more material improves finish quality or durability. In practice, excessive use frequently leads to rework, longer cure times and inconsistent results, sometimes increasing material use by twenty to thirty per cent with no performance benefit.

Poor or inconsistent training also plays a role. When operators are not aligned on correct usage rates, application techniques or product purpose, variation increases.

This is compounded when standards are undocumented, unclear or interpreted differently across shifts or teams. The result is waste driven by habit rather than necessity.

Inefficient sequencing can further inflate consumption. Using the wrong abrasive grade at the wrong stage, applying protection materials too early, or opening consumables long before they are needed all increase unnecessary waste and disposal costs.

Waste is rarely a cost problem. It is usually a process problem.

## The hidden cost of disposal and rework

Consumable waste has consequences beyond the price of the material itself. Disposal costs, particularly for contaminated or hazardous waste, continue to rise. Environmental compliance adds further pressure, with increasing scrutiny on how materials are used, stored and discarded.

Quality impact is another overlooked factor. Inconsistent consumable usage can lead to surface defects, adhesion failures and finish variability. These issues often trigger rework, which can double the consumable cost of a job, along with lost production time and increased disposal costs. The original waste problem is amplified rather than solved.

## Reducing waste without sacrificing results

The good news is that manufacturers that successfully reduce consumable waste do not rely on sweeping policy changes. They focus on a small number of practical, operational improvements.

Clear standards are the starting point. Defining approved products, correct usage rates and application methods removes ambiguity and reduces variation. When these standards are supported by practical training rather than assumptions, operators are better equipped to work efficiently without compromising quality.

Process alignment is equally important. Ensuring consumables are introduced at the correct stage, in the correct quantity and for the correct task prevents overuse driven by habit or guesswork.

Visibility also plays a role. When teams understand what is being used, where and why, waste becomes measurable rather than assumed. This allows organisations to address root causes rather than symptoms.

***“ manufacturers can reduce environmental impact, control costs, and maintain the high standards expected in paintshop and marine environment ”***

## A performance led approach to waste reduction

Reducing consumable waste does not require cutting corners, lowering specifications or risking finish quality. In fact, the most effective waste reduction strategies are often those that improve performance consistency and operator confidence.

By reframing waste as an operational issue rather than a purchasing one, manufacturers can reduce environmental impact, control costs, and maintain the high standards expected in paintshop and marine environments.

Waste reduction, done properly, is not about using less. It is about using materials with precision, purpose and zero compromise on quality.



# RESHAPING THE STRUCTURAL

*“AI can act as a practical partner in modelling – enhancing, not replacing, physics-based design”*

**Prof. Wenbin Yu,  
Purdue University**

*Artificial intelligence is transforming aerospace engineering – not by replacing physics-based models, but by strengthening and accelerating them.*

### **A new era in structural design**

Artificial intelligence (AI) is steadily changing how engineers design, test, and optimise the structures that keep aircraft aloft. Traditionally, aerospace modelling has relied on detailed physics-based frameworks to

predict how components perform under extreme conditions. These models remain the backbone of safe and efficient design – but they are also time-consuming and computationally demanding.

According to Professor Wenbin Yu of Purdue University, speaking during a recent AIAA Journal

webinar, AI can act as a practical partner in the modelling process. Rather than replacing established methods, it enhances them – filling knowledge gaps, reducing computational load, and making advanced simulation workflows more accessible to engineers across the sector.



# FUTURE OF MODELLING

## From physics to intelligence: the mechanics of the structure genome

At the heart of Professor Yu's research lies a framework known as the Mechanics of the Structure Genome (MSG). This multiscale modelling approach takes a top-down view of structures such as beams, plates, and shells, identifying a minimal "structure gene" that captures essential physical behaviour. By mapping material properties into this reduced description, engineers can predict performance accurately while avoiding unnecessary computational cost.

MSG has proven versatile – capable of modelling everything from classic laminates to advanced metamaterials. By linking structural mechanics with micromechanics, it bridges the gap between material innovation and system-level design, a crucial step for modern composite structures used in aerospace applications.

## Why AI matters

Professor Yu identifies four major constraints on traditional structural modelling: computing power, knowledge gaps, integration challenges, and accessibility. AI provides tools to overcome each of these.

**SPEED:** Neural networks trained on high-quality simulation data

can act as instant "surrogate models," reproducing complex multiscale analyses in seconds rather than hours.

**INSIGHT:** Machine learning can uncover unknown relationships within materials, inferring hard-to-measure behaviours from limited experimental data.

**INTEGRATION:** Large language models can orchestrate multiple simulation tools through natural-language interfaces, helping engineers streamline cross-disciplinary workflows.

**ACCESSIBILITY:** By simplifying advanced computational processes, AI makes high-fidelity modelling achievable even for teams without specialist coding expertise.

Yu's team has demonstrated that deep-learning surrogates can replicate thermal-conductivity simulations of woven composites almost instantly – a leap that opens new opportunities for design iteration, uncertainty quantification, and digital prototyping.

## The rise of hybrid modelling

The next frontier is not pure AI, but hybrid physics-AI modelling. This approach combines the predictive rigour of traditional mechanics with the adaptability of data-driven methods. In practice, that means using physics-based models to generate reliable training data, then

deploying AI to accelerate and extend those insights.

This synergy is already shaping tools such as Composites AI, an emerging expert system that can interpret models, automate workflows, and even perform optimisation studies autonomously. It represents a step towards intelligent simulation environments capable of learning from past analyses while maintaining physical accuracy – a development that could redefine design efficiency in the aerospace sector.

## Balancing rigour and innovation

Despite rapid progress, Professor Yu stresses that physics must remain the foundation. "AI is pragmatic," he notes. "Use physics to produce trustworthy data, and then apply AI where it adds value." This pragmatic balance between theory and computation ensures that future models retain scientific rigour while embracing the speed and flexibility that AI enables.

For aerospace engineers, the message is clear: the future lies in partnership, not replacement. By uniting data-driven intelligence with decades of physical understanding, the industry can achieve breakthroughs in safety, efficiency, and innovation – ushering in a new paradigm of intelligent structural design.

*"Use physics to produce trustworthy data, then apply AI where it adds value"*

Prof. Wenbin Yu,  
Purdue University

## AT A GLANCE: AI IN AEROSPACE MODELLING



Accelerates simulation workflows



Improves data integration



Enables hybrid physics-AI design



Expands accessibility for engineers

# One for All

The most versatile spray gun in the industry.

Introducing our next generation –  
the 3M™ Performance Spray Gun 2.

It's more than just a spray gun – it's  
an application tool with precision  
performance you can rely on.

It allows you to spray virtually all  
common automotive coatings.  
Just by changing the nozzle,  
you can switch material within  
seconds from a heavy textured  
rocker guard coating to the finest  
clear coat atomisation.

Use it with 3M™ HVLP or Fine  
Finish Atomising Heads ranging  
from 0.9 to 2.0 sizes – the choice  
is yours.

[3M.co.uk/spraygun](https://www.3m.co.uk/spraygun)



# DEFENCE IS BORROWING FROM COMMERCIAL INDUSTRY

## *A Selective Adoption of Proven Models*

Defence manufacturing is often seen as operating in isolation, shaped by unique constraints, assurance requirements, and long programme timelines. In reality, some of the most meaningful changes underway are being borrowed from the commercial industry. Not copied directly but adapted carefully.

One of the clearest shifts is in supply models. Defence environments are increasingly moving away from store-led, request-based issuing towards line-side availability models that are common in automotive and high-volume aerospace. Vendor-managed inventory, point-of-use replenishment, and task-aligned stock placement are becoming more prevalent, particularly in sustainment and modification environments where responsiveness matters more than rigid forecasting.

These models reduce reliance on manual requisitioning and informal workarounds, while improving availability where work actually happens. The emphasis is less on optimising stock levels in isolation and more on maintaining readiness at the point of use.

Alongside this, defence organisations are adopting commercial-style inventory control systems, though often with higher levels of governance layered on top. Barcode-driven issue and return, real-time usage capture, and centralised stock visibility are replacing spreadsheet-based tracking and fragmented local records. The objective is not automation for its own sake, but consistency and traceability across sites, shifts, and teams.

A naval maintenance facility recently moved to line-side consumable kitting, reducing requisition delays from hours to minutes while maintaining full traceability. It is a small operational change with significant impact, delivering faster turnaround, fewer stockouts, and improved compliance documentation without adding administrative burden.

Digital platforms that consolidate ordering, usage data, compliance documentation, and reporting into a single environment are also becoming more common. In the commercial industry, these systems are often justified by efficiency and cost control. In defence, their value lies in assurance. Being able to demonstrate what was used, where, and under which controls is now as important as the work itself.

What is notable is the selectivity of this adoption. Defence is not chasing every commercial trend. It is choosing approaches that improve resilience, reduce dependency on individual knowledge, and strengthen control without adding friction to already complex operations.

This quiet convergence reflects a broader reality. Many of the challenges defence faces today around complexity, uncertainty, and accountability are not unique. They have already been addressed in other industries operating at scale. The opportunity lies not in reinventing solutions, but in applying proven models intelligently and to a higher standard.



# HOW DTC CONTAINERS KEEP OPERATIONS MOVING WITH ON SITE STORAGE



A busy manufacturer of luxury yachts, our customer needed to keep a large amount of consumables on site and in stock to keep operations moving but were facing increasing challenges over storage space.



## The space challenge

Valuable workshop space was being continually eroded by the need to store materials and tools essential to keep production moving. Deliveries were not always aligned to the demand, creating the risk of out of stock items creating bottlenecks and delays in manufacturing, especially challenging with demanding timescales and constant workloads. Yet there was not the space to increase storage at the expense of production space.

## The container solution

We supplied secure, branded containers delivered to the customer's site, fully stocked with all the right consumables needed for their operation.

At the same time, this additional stock room was integrated with the DTC HUB for easy replenishment and rapid ordering, simplifying their stock management and also ensuring all products are available onsite when they are needed.

## Bridging the supply gap

Having a dedicated, flexible storage space for consumables on site acts as an extension of our warehouse end ensures the operations team can always access the products they need, when they need them.

This has led to a reduction in downtime due to out of stocks and also simplified the management and ordering of products. In addition, the branded container is a clear visual signpost to the additional storeroom.

**DTC Containers are an excellent way to increase storage space for consumables, ensuring essential items are always available whilst maximising workshop and production spaces. Contact us to find out more.**



## Why One Size Fits All Consumables No Longer Work

**“ High performing operations do not reduce complexity by ignoring it. They manage it through smarter specification and process design. ”**

In many manufacturing organisations, consumables are still treated as interchangeable commodities. Standardisation is often pursued in the name of simplicity, cost control, and supplier rationalisation.

While this approach can work in stable and uniform environments, it increasingly falls short in marine and paintshop operations where conditions, processes, and performance demands vary significantly.

Marine and paintshop environments are inherently complex. They expose materials and processes to factors that are far less predictable than those found in controlled assembly settings. Humidity, temperature fluctuation, airborne contamination, salt exposure, and cure sensitivity all play a critical role in determining whether a consumable performs as intended. Applying a single specification across such varied conditions introduces risk that is often only recognised once defects, rework, or premature failure appear.

### Environmental reality versus specification simplicity

Marine environments are defined by constant exposure to moisture and salt-laden air. These conditions accelerate corrosion, affect adhesion, and shorten the working life of many surface preparation and protection products. A consumable that performs well in a dry indoor workshop may degrade rapidly when used in dockside or open-yard conditions. Storage conditions, handling time, and sequencing between preparation and coating become just as important as the product itself.

Paintshops face a different but equally demanding set of variables. Coating systems are highly sensitive to contamination, surface condition, and environmental stability. Temperature and humidity directly influence flash-off times, cure quality, and final finish. A standardised consumable selection that does not account for these variables can introduce inconsistency into what should be a tightly controlled process.

In both cases, the issue is not product quality in isolation. It is the mismatch between the specification and the operating environment.

### The hidden cost of over-standardisation

Over-standardisation rarely fails loudly at first. Instead, its impact is gradual. Slight increases in rework rates. More frequent surface defects. Reduced coating lifespan. Increased touch-ups. These issues are often addressed locally through workarounds, additional labour, or informal process changes, masking the root cause.

Over time, this leads to a higher total cost of ownership. Labour time increases. Material usage rises due to rework and overapplication. Schedules become less predictable. In marine applications, premature coating failure can result in costly downstream maintenance and reputational risk.

From a quality perspective, inconsistent consumable performance undermines process repeatability. This makes it harder to establish reliable standards, train new staff, or maintain consistent outcomes across shifts or sites.



### Different environments demand different thinking

The assumption that fewer product lines always equal better control is increasingly outdated. Modern operations require specification strategies that reflect real world conditions rather than theoretical efficiency.

In marine environments, this may mean differentiating consumables based on exposure level, whether work is carried out indoors or outdoors, and how long surfaces remain untreated between stages. In paintshops, it often involves aligning consumables more closely with specific coating systems, airflow conditions, and contamination risk profiles.

This does not mean abandoning control or simplicity. It means applying control intelligently. Clear specification boundaries, defined use cases, and disciplined process integration matter more than minimising SKU counts.

### Process first, product second

High-performing operations increasingly view consumables as part of a broader process system. Selection decisions are made alongside considerations such as storage, handling, sequencing, environmental control, and operator training.

When consumables are specified with the process in mind, performance becomes more predictable. Waste is reduced not because products are cheaper, but because they are used correctly and consistently. Quality improves because the process is designed to support the material rather than fight against it.

This shift also supports resilience. As skills shortages continue to affect the marine and coatings industries, reliance on informal knowledge and experience becomes a risk. Well-defined, environment-appropriate specifications help reduce reliance on individual judgment and lead to more repeatable outcomes.

### Rethinking specification as a strategic decision

One-size-fits-all strategies are appealing on paper, but they rarely reflect the operational realities of marine and paintshop environments. As manufacturers and refit operations face increasing pressure on quality, cost, compliance, and sustainability, consumable specification needs to be treated as a strategic decision rather than an administrative one.

The most effective organisations are those willing to accept that complexity already exists on the shopfloor. The challenge is not to eliminate it artificially, but to manage it intelligently through better-aligned specifications, clearer processes, and a deeper understanding of how the environment shapes performance.

In marine and paintshop operations, fit-for-purpose is no longer optional. It is fundamental to quality, safety, and long-term efficiency.

# BAXT

## READY FOR THE REAL WORLD

THE LATEST **BAXT** VIDEO is a straightforward look at the brand in action



WATCH OUR  
LATEST VIDEO  
ON YOUTUBE



It brings together PPE, abrasives, and finishing consumables as they are meant to be seen. In real working environments. In real hands. Supporting real jobs. Rather than explaining what BAXT does, the video shows it. Products working as part of everyday processes, not staged demonstrations.

The focus is on reliability, consistency, and suitability across demanding applications. From preparation through to finishing, BAXT is shown as a brand built around practical performance and dependable results, day after day.

**This is BAXT as it is used. Established, professional, and ready for the realities of modern industry**

# Why calmer environments perform better

In many industrial settings, pressure has long been treated as a sign of productivity. Busy environments, constant urgency, and rapid decision-making are often seen as evidence of hard work. Yet across aerospace, defence, automotive and marine sectors, a different picture is emerging. Some of the highest performing teams now operate in environments that appear noticeably calmer.

This calm is not a lack of pace or ambition. Instead, it reflects predictability, clarity and confidence. When processes are understood and roles are clear, teams spend less time reacting and more time executing. Fewer interruptions mean fewer mistakes, and fewer mistakes reduce the need for rework or correction.

Psychological safety plays a growing role in this shift. In environments where individuals feel confident raising concerns or asking questions, issues are



*“In high-performing environments, calm is not the absence of pressure. It is the result of control.”*

identified earlier and resolved more effectively. This is particularly important in regulated or high-risk sectors, where minor errors can carry significant consequences. Calm settings encourage measured decision-making rather than rushed judgment.

Predictability is another defining factor. When teams know what to expect from their day-to-day operations, cognitive load is reduced. Technicians can focus

on the task at hand rather than anticipating the next disruption. Over time, this consistency supports higher quality outcomes and more reliable performance.

There is also a link between calm environments and retention. Constant urgency can contribute to fatigue and disengagement, especially in technically demanding roles. Organisations that design operations to be stable rather than reactive often find they retain experience more

effectively and maintain higher morale across their teams.

As industries continue to face skills shortages and increasing complexity, the ability to create calm, controlled environments is becoming a quiet marker of operational maturity. Performance is no longer defined by how much pressure teams can absorb, but by how well systems support people to work with confidence and precision.

# DRIVING THE NEXT LIGHTWEIGHT INN

The global market for electric vehicle composites is projected to reach USD 40 billion by 2035, expanding at a CAGR of 17.1%. As automakers accelerate their shift towards sustainability, the demand for lighter, stronger materials is reshaping how electric vehicles are designed and produced.

## A market in motion

The Electric Vehicle (EV) Composite Market, valued at USD 7.05 billion in 2024, is forecast to grow rapidly over the next decade, reaching USD 40 billion by 2035. This remarkable trajectory reflects the automotive industry's continuing transformation towards sustainable, high-performance mobility.

As manufacturers face mounting pressure to extend driving range and reduce emissions, composite materials such as carbon fibre and glass fibre are becoming integral to vehicle construction. Their lightweight nature and superior strength help offset the considerable weight of electric powertrains, improving overall efficiency without compromising durability or safety.

Composites are now found throughout EVs, from body panels and chassis components to battery enclosures, interior structures, and even powertrain housings. This growing versatility underscores their importance in enabling the next generation of cleaner, more intelligent mobility.

## The forces behind the growth

Several converging factors fuel the EV composites boom. Consumer awareness of sustainable transport continues to rise, while stringent emission regulations and government incentives worldwide are encouraging automakers to invest in lighter, more efficient vehicle designs.

At the same time, technological advances in manufacturing processes – including automated fibre placement and 3D printing, are helping reduce production costs and broaden adoption. These advances make composite materials increasingly viable for large-scale vehicle manufacturing, bridging the gap between performance and affordability.

Another key development is the growing adoption of thermoplastic composites. Unlike traditional thermoset materials, thermoplastics are recyclable, easy to mould, and well-suited to the high production volumes associated with mainstream EV models. Combined with the emergence of bio-based and recyclable composites, this trend supports the global automotive industry's sustainability objectives.

## Challenges along the road

While the outlook is positive, the path to widespread adoption is not without obstacles. High material costs, particularly for carbon fibre, and complex fabrication processes remain barriers for lower-cost EV manufacturers. Recycling and end-of-life management of composite components also present ongoing challenges.

However, industry research and development are steadily addressing these concerns. Efforts to improve resin systems, develop hybrid materials, and automate production are making composites more accessible. The introduction of smart composites, materials embedded with sensors to monitor performance and structural integrity, is another example of how innovation is helping overcome current limitations.



# DECADE OF OVATION

## Global landscape and regional insights

The Electric Vehicle Composite Market is highly competitive, with global players including Toray Industries, SGL Carbon, Hexcel Corporation, Teijin Limited, and Mitsubishi Chemical Corporation. Many are forming strategic partnerships with leading automakers to accelerate the integration of composite materials into mainstream EV production.

North America and Europe currently lead the market, supported by established automotive industries and early adoption of electric mobility. Europe's stringent emissions policies, alongside ambitious net-zero targets, are particularly influential in driving innovation in composite materials.

Meanwhile, Asia-Pacific – led by China, Japan, and South Korea - is expected to experience the fastest growth through 2035. Expanding EV production facilities, coupled with strong government support and ongoing materials research, are solidifying the region's dominance in this space.

## The road ahead

Looking forward, the global shift towards electrification will continue to rely heavily on advancements in composite technology. As manufacturers strive to balance performance, cost, and sustainability, composite materials will play a pivotal role in defining the future of vehicle design.

Collaboration between composite producers, OEMs, and research institutions will be key to standardising practices, improving efficiency, and accelerating innovation. From lightweight carbon fibre frames to recyclable thermoplastic structures, composites form the foundation for the next generation of electric vehicles – cleaner, lighter, and more efficient than ever before.

***“Collaboration between composite producers, OEMs, and research institutions will be key to standardising practices, improving efficiency, and accelerating innovation.”***



# ONE LOCATION

Where consumable usage, stock movement,  
and accountability actually need to live.

Fragmentation does not cause failure.  
It causes blind spots.

An insight enabled by visibility through the

**DTC** **HUB**

## Are You Actually Compliant?

Most paintshops still treat masks as generic PPE. HSE doesn't, and the consequences of getting it wrong go far beyond a warning notice.

Walk into any paintshop and you'll likely see the same thing: workers grabbing whatever mask is available, wearing it until it's uncomfortable, then moving on. But when solvents, isocyanates, and coating vapours are in the air, that casual approach creates legal exposure, operational risk, and real health consequences.

Here's what compliance actually looks like.

### RPE is your last line of defence – not your first

COSHH regulations are clear: respiratory protection should only be used when other controls fail. HSE expects you to eliminate hazards, substitute safer materials, or engineer controls before issuing masks.

If you're reaching for RPE without exhausting those options first, your risk assessment is incomplete.



### One mask does not fit all tasks

Particulate filters don't protect against solvent vapours. Organic vapour filters may be inadequate for isocyanates. Confined marine spaces often require air-fed systems, not standard negative pressure masks.

Using the wrong mask isn't a minor error. It's a control failure. And if an incident occurs, "we didn't know" won't stand up.

### Face fit testing is mandatory, not optional

Tight-fitting masks require face fit testing. This is a legal requirement under COSHH, not a recommendation.

Without proper fit testing, even the highest-spec filter provides limited protection. Facial hair, weight changes, and switching mask models all affect seal quality, and all require retesting.

### Training and maintenance aren't afterthoughts

Selecting the right mask is only half the job. Filters expire. Masks degrade. Poor storage compromises performance.

Workers need to understand why a specific mask is required, how to fit it correctly, and when not to use it. Uncomfortable or poorly chosen equipment leads to non-compliance, especially in hot, demanding environments where shortcuts become tempting.

### The real cost of non-compliance

Getting respiratory protection wrong doesn't just invite enforcement action. It causes immediate health effects, long-term occupational illness, compensation claims, and the loss of skilled workers.

Operationally, incidents disrupt production and undermine workforce trust. From a leadership perspective, inadequate protection represents a fundamental failure of duty of care.

### What compliance actually looks like

High-performing operations build respiratory protection into process design from the start:

- Task-specific risk assessments that match hazards to protection levels
- Documented face fit testing with regular review schedules
- Proper maintenance, storage, and replacement protocols
- Comprehensive training that explains the "why," not just the "what"

In environments where coatings and surface preparation are critical to quality, protecting the people doing that work isn't optional.

HSE requirements are clear. The challenge is applying them consistently and with the seriousness they deserve.

*“Respiratory protection is not the first line of defence - it's what you use when everything else has been tried.”*

### Your respiratory protection program may be failing if:

1. Workers are using the same mask type for multiple different tasks.
2. Face fit testing hasn't been done in the past 12 months.
3. Filters are being used beyond their service life or "until they smell bad".
4. Facial hair policies aren't enforced for tight-fitting masks.
5. Workers can't explain why they're using a specific mask for their task.

### NEED TO REVIEW YOUR RPE PROGRAM?

Start with your COSHH risk assessments. Are they task-specific? Do they consider all exposure routes? Have controls been prioritised correctly, with RPE as the last resort?

If you're unsure, it's time for an independent review.

# THE RISE OF INTELLIGENT CONSUMABLE MANAGEMENT

What it means for operational  
teams moving into 2026

As 2025 comes to an end and operational (ops) teams across all sectors prepare for the year ahead, many are taking this moment to assess performance, tighten processes and consider the trends that will shape their operations in 2026. One movement has become increasingly apparent throughout the past year. Ops teams are transitioning toward more intelligent consumable management. The way businesses track, order and replenish essential items has evolved rapidly during 2025 and is set to accelerate further as we enter 2026. Manual habits continue to decline as teams embrace intelligent digital systems that reduce errors, protect productivity and create a more streamlined working environment.

### The shift toward smarter workflows

Consumable management has traditionally relied on memory, manual checks and a reactive approach. Those days are fading. Rising customer expectations, tighter compliance standards and growing cost pressures mean businesses now recognise the value of clarity and control. This shift is encouraging ops teams to explore digital ordering, barcode scanning and data-driven stock reviews.

Intelligent workflows are no longer reserved for large organisations. Even small and mid-sized teams now use tools that give them real-time visibility of what they have, what they use and what they need. The result is fewer unexpected shortages, faster turnaround times and a calmer, more organised workplace.

### Industry trends driving the change

Several industry-wide developments are accelerating the move toward more intelligent control of consumables.

### Accuracy becomes essential

With more specialised products entering the market each year, choosing the wrong item can cause costly delays. Digital tools help remove that risk by guiding teams to the right consumables every time.

### Environmental responsibility rises

Waste reduction and improved traceability have become priorities across all sectors. Ops teams are now expected to minimise unnecessary disposal and maintain clearer records. Intelligent systems support these expectations by improving use visibility and reducing expired or forgotten stock.

### Compliance grows more complex

Regulatory requirements continue to expand. From chemical storage to audit trails, ops teams need reliable ways to demonstrate complete control. Digital platforms make compliance simpler by centralising critical information.

**“ choosing the wrong item can cause costly delays. Digital tools help remove that risk ”**

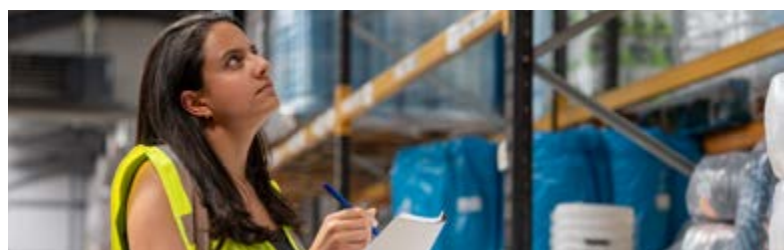
### The demand for efficiency

Shorter lead times, higher customer expectations and ongoing labour challenges mean every minute counts. Smarter consumable management removes manual tasks and gives teams more time for skilled work.

### How the mindset is changing

Ops teams are beginning to see consumable management not as a background task but as a strategic part of their operation. Many now understand that manual ordering often leads to oversights, duplication or inconsistent purchasing habits. A more intelligent approach brings consistency, structure and predictability.

Managers also appreciate the value of consolidated data. Understanding usage patterns helps them plan proactively and make informed decisions about budgeting, product selection and operational improvements.



### What this means for the year ahead

Looking ahead, ops teams will continue to adopt processes that improve clarity and speed. Barcode scanning, digital reporting, and streamlined ordering will become the norm. Stock rooms will become tidier and easier to control. Teams will feel more confident knowing exactly what they have available. Ultimately, customers will benefit from faster turnaround times and more reliable service.

For suppliers, the shift reinforces the importance of delivering not only quality products but also more innovative ways for customers to manage them. Organisations that guide their clients through this transition will stand out as true partners rather than just providers.

### What does this mean for 2026?

Intelligent consumable management is set to reshape workshop operations throughout the coming year. This change is driven by genuine industry pressures and a growing recognition that clarity, efficiency and digital tools create stronger workplaces. By embracing more intelligent systems, ops teams position themselves for a more organised, productive and sustainable future. This is the direction the industry is moving, and the teams that adapt early will feel the benefits first.

# MANUFACTURING

## THE ANATOMY OF A LIVE BUILD ENVIRONMENT

Where protection, access, materials, and time all compete for space.

23

### MULTIPLE TASKS, ONE SPACE

Different operations often run in parallel. Without control, materials overlap, stock duplicates, and accountability disappear.

### WASTE IS A VISIBILITY PROBLEM

When usage is unclear, excess becomes normal. Waste bins quietly reveal inefficiencies in the process long before reports do.





**ACCESS CHANGES EVERYTHING**

As builds progress, access requirements evolve. Protection, consumables, and tooling must adapt with them, not slow them down.

**PROGRESS DEPENDS ON FLOW, NOT SPEED**

Most delays are not caused by labour or skill, but by interruptions in the availability and readiness of materials.

**PROTECTION IS TEMPORARY, DAMAGE IS NOT**

Surface protection, packaging, and handling materials are often overlooked until rework is required.

Complex builds do not fail suddenly. They drift. Usually through small, repeated inefficiencies.

## Why Airbags Are No Longer A Background Feature



### Airbags rarely attract attention

They do not define a vehicle's character, nor do they feature heavily in marketing campaigns. Yet in the UK automotive industry, airbags have quietly become one of the most critical components in meeting modern safety expectations.

Over the next decade, demand for airbag systems is set to rise steadily, driven less by consumer choice and more by regulation, safety ratings, and the way vehicles are now designed.

### From optional extra to non-negotiable

There was a time when airbags were positioned as premium features. Today, they are fundamental to achieving vehicle type approval and to meeting independent safety assessments, such as those conducted by Euro NCAP.

Frontal airbags are now standard across virtually all passenger vehicles, while side, curtain, and knee airbags are increasingly expected in higher volume segments. Safety ratings influence purchasing decisions more than ever, making comprehensive airbag coverage a baseline requirement rather than a differentiator.

### Designed into the vehicle, not added on

Modern airbag systems are no longer standalone components. They are designed as part of an integrated safety architecture that works in conjunction with sensors, electronic control units, and advanced driver assistance systems.

This integration is becoming more complex as electric and hybrid vehicles gain market share. New powertrain layouts and sensor networks require airbag systems that respond accurately to a wider range of crash scenarios, while maintaining reliability over the vehicle's full lifespan.

In many cases, the challenge is not deployment speed, but ensuring the system responds correctly to increasingly detailed input data.

### Passenger cars drive the standard

Passenger vehicles remain the primary driver of airbag demand in the UK. Daily use, family transport, and urban driving place occupant protection under constant scrutiny.

As body styles such as compact SUVs and crossovers continue to grow in popularity, manufacturers are extending airbag coverage to accommodate different seating positions and cabin layouts. This shift reinforces airbags as a core safety expectation across mass market vehicles.

### Quietly raising the baseline

The most significant change in airbag demand is not innovation at the top end of the market, but rather standardisation across the market.

Regulatory frameworks are steadily raising minimum safety requirements, meaning airbags are no longer used to exceed expectations but to meet them. For manufacturers and suppliers, this creates consistent demand for reliable, compliant systems that integrate seamlessly into high-volume production.

Suppliers such as Autoliv play a key role in delivering systems that balance performance, durability, and scalability across diverse vehicle platforms.

### Why it matters

Airbags may never be headline-grabbing technology, but they sit at the centre of modern vehicle safety.

As the UK automotive industry evolves through electrification and regulatory change, airbags are no longer background features. They are foundational components, quietly ensuring vehicles meet the safety standards drivers now take for granted.

This will sit nicely without trying to steal attention from your opening feature.

***“the challenge is not deployment speed, but ensuring the system responds correctly to increasingly detailed input data.”***

# MEET THE TEAM

## GOODS IN

At the heart of DTC's warehouse operations is Goods In, the first point of contact for every delivery that arrives on site. It is here that attention to detail truly matters, ensuring stock is checked, processed and ready to move seamlessly through the building without delay.

This month, we sat down with Rich to gain insight into the role he plays in keeping our warehouse efficient, organised and prepared to support customers from the moment they place an order.

A massive thank you to Rich for allowing us a behind-the-scenes look at the work he does to keep stock flowing smoothly and our warehouse operating at its best.

*“The best part of my job is knowing everything is accurate and ready for the team to use.”*

*“Goods In is all about staying organised. If we get it right here, the whole warehouse runs smoother.”*



### Richard Smith (Rich) Goods In

#### How long have you worked at DTC?

“I have worked at DTC for 8 years.”

#### What is one thing people might not realise about your role in Goods In?

“It is a very multitasking role and it needs to be well organised. In Goods In you can go from replenishing stock to being out in the yard unloading lorries. We also assist customers if they come to DTC to collect their orders. It is a role I like and the day flies by.”

#### How do you help keep customer orders running smoothly?

“By getting items booked in fast and efficiently so our stock is ready to go.”

#### How do you help keep DTC reliable for customers?

“By treating every item like it is my own and ensuring everything is booked in on the same day so stock is available to our picking team.”

#### In your own words, why can customers trust the way DTC handles their orders?

“DTC always puts customers first and will always go above and beyond to ensure a good experience for them.”



# The Paper Trail That Could Ground Your Fleet



When Sarah Chen's phone rang at 2 AM, she already knew what it meant. A component had failed somewhere, and someone needed answers fast.

*"Crack in a landing gear assembly," the caller said. "Need to know which batch the titanium came from and every plane that got parts from that run."*

Five years ago, that question would have meant days of hunting through filing cabinets. This time, Sarah opened her laptop, ran three searches, and had the answer in twelve minutes. Twenty-three aircraft were affected. Full list sent.

That's the quiet revolution happening across aerospace, automotive and defence right now. Not flashy technology. Just the ability to find critical information before a small problem becomes an expensive crisis.

### When records disappear

Every component in regulated manufacturing has a history. The adhesive on that carbon panel came from a specific batch, was mixed at a particular temperature, and was applied by a specific person. The bolt in that engine mount can be traced back to raw materials, heat treatment specs, and inspection records.

For decades, that history lived in paper files scattered across different systems. It worked fine until someone needed to find something urgently.

Ask any quality manager about their worst day, and they'll describe the search. The batch number someone wrote illegibly. The filing cabinet that got reorganised. The retired contractor took all the knowledge with them. The auditor is asking for records from 18 months ago that no one can locate.

*"I spent three days trying to verify which supplier provided fasteners for one aircraft," says an automotive quality director. "We had the invoice, but the batch numbers didn't match our codes. Someone transposed the digits. By the time we found it, the customer had grounded their entire fleet."*

Cost in delays? Millions. The lesson? Paper breaks down when the stakes are this high.

### Why it suddenly matters

Digital traceability used to live on those “nice to have” lists that never got done. Then three things happened at once.

Regulations got stricter. Aviation authorities and safety boards stopped accepting “we’ll look into it” as an answer. They want complete documentation immediately.

Supply chains got complicated. One aerospace part might use Norwegian raw materials, German processing, Polish assembly, and UK integration. Paper records don’t track well across borders.

Failure costs went through the roof. A defective part doesn’t just affect one aircraft anymore. It triggers fleet inspections, regulatory action, and liability running into hundreds of millions.

Suddenly, digital traceability went from “eventually” to “right now.”

### What actually changes

The difference isn’t always visible. The factory floor looks similar. But watch what happens when someone scans a barcode on an adhesive cartridge.

The system logs which batch it came from, checks expiration, verifies storage temperature history, and records exactly where it’s used. The technician’s certification gets checked automatically. Real-time temperature and humidity log.

If that adhesive later shows problems, quality teams can instantly find every application from that batch, every affected aircraft, and every technician who needs retraining. Weeks of work now take minutes.

***“The real change isn’t having the data,” one operations manager explains. “It’s getting it instantly when something breaks. Things always break in manufacturing. The question is whether you respond before a small issue becomes a crisis.”***

### The part nobody mentions

The best reason for digital traceability has nothing to do with auditors. It’s catching problems early.

When every batch and process is logged, patterns emerge. Is that adhesive performing badly? You spot it after three uses, not three hundred. Is the technician needing more training? Their work stands out before defects ship. Is the supplier of declining quality? You see the trend months before it gets critical.

One car maker found they were replacing a specific seal way more than expected. Traditional records would have missed it because the issue spread across multiple lines over eighteen months. Digital systems flagged it in weeks. Turns out the supplier quietly changed their material. Caught early, fixed fast, disaster avoided.

Then there’s basic waste. Expired materials nobody knew were sitting in storage. Overordering because teams can’t see what stock exists. Process problems that only appear when you see the whole picture.

***“We were binning £40,000 of speciality adhesives every year because different teams didn’t know what others had,” admits one facility manager. “The digital system paid for itself in eight months just from better inventory.”***

### The human bit

Digital traceability is really about people, not tech.

When quality issues pop up, someone has to decide fast. Ground the fleet or keep operating? Recall products or add monitoring? Those calls depend on knowing exactly what you’re dealing with.

***“I’ve sat in rooms where executives debate a £50 million recall,” says one quality director. “Everything hinges on one question: are we certain which products are affected? With paper records, there’s always doubt. With digital tracking, you know.”***

***“The best reason for digital traceability has nothing to do with auditors. It’s catching problems early.”***

Customers expect that certainty too. When an airline asks which aircraft need inspection, they want immediate answers backed by complete records. Manufacturers who deliver that build trust. Those who can’t lose contracts.

### Where this goes

By 2026, digital traceability will no longer be optional in regulated industries. Not because it’s clever, but because the alternative stopped working.

Regulators won’t accept incomplete records. Customers demand instant visibility. Insurers adjust premiums based on traceability systems. The market is splitting into two groups: companies that can prove what they’ve done, and companies that hope they can.

“We’re past asking if digital traceability is worth it,” one consultant says. “The question is whether you can operate without it. When something goes wrong, and it always does eventually, the only thing that matters is responding with confidence.”

Sarah Chen knows this. That 2 AM landing gear problem? Sorted before the morning shift. Twenty-three aircraft flagged. Root cause found. Fix planned.

**Five years ago, they’d still be looking through files. Now, they’re already solving it.**





**aeronix**  
TECHNOLOGIES

Vacuum Bagging | Process Materials | Technical Partners

# Aeronix Carbon Neutral Vacuum Bagging Film Low Temperature

Used in a wide variety of composite manufacturing processes, vacuum bagging films' key function is to create a vacuum seal around the workpiece, utilising atmospheric or autoclave pressures to consolidate the laminate.

**best  
for** 

- **Vacuum infusion processes**
- **Resistant to traction**
- **Low humidity flexibility**

## Specification:

Thickness: 75 Microns

Material Type: Co-extrusion of polyethylene and nylon

Max Working Temp: 120°C

Tensile Strength: 36N/mm<sup>2</sup>

Elongation at Break: 380%

Widths: 500mm up to 8000mm



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# MODERN MANUFACTURING IS GETTING HARDER, NOT FASTER

From the outside, industrial environments look more advanced than ever.

Production lines are cleaner. Digital systems are widespread. Safety standards are higher. Automation continues to expand across automotive, aerospace, defence, marine, and composites manufacturing.

Yet inside these environments, work is not necessarily becoming easier.

In many cases, it is becoming more complex.

## Complexity has moved into the background

Modern manufacturing is no longer defined by a single process or discipline. It is the interaction between many.

Materials must meet tighter specifications. Safety systems are layered rather than standalone. Digital tools sit alongside manual processes. Compliance requirements shape how work is done at every stage.

Individually, each change makes sense. Collectively, they create environments where small misalignments have much bigger consequences than they once did.

A minor delay can disrupt an entire shift. A missing component can halt multiple operations. A small deviation can trigger rework, investigation, or audit.

The margin for error has narrowed.

## Why industry feels less forgiving

In earlier manufacturing models, variation was often absorbed through experience and flexibility. Skilled teams could compensate for imperfect systems.

Today, expectations are different.

Processes must be repeatable. Data must be traceable. Outcomes must be defensible.

This is particularly true in regulated sectors such as defence, aerospace, and automotive, where documentation, material control, and process discipline are as critical as output itself.

As a result, systems are expected to perform flawlessly, even when conditions are not.

## The growing gap between design and use

Many industrial systems are designed with compliance and optimisation in mind.

They look good on paper. They satisfy audits. They meet technical requirements.

But their real test is whether they support people doing real work, under real constraints, on real timelines.

When systems do not reflect how work actually happens, complexity increases. Workarounds appear. Visibility decreases. Confidence erodes.

Over time, this gap becomes one of the biggest hidden risks in modern manufacturing.

## Where the next gains will come from

The next phase of industrial improvement is unlikely to come from dramatic new technologies alone.

It will come from better alignment. Aligning systems to real workflows. Aligning supply to points of use. Aligning data to decision making. Aligning compliance with practicality.

Organisations that focus on this alignment tend to see improvements that are quieter, but more durable. Fewer interruptions. Fewer surprises. Better consistency across shifts, teams, and sites.

These gains rarely make headlines, but they compound quickly.

## Why this matters now

As industries continue to evolve, complexity is not going away. Electrification, digitalisation, sustainability pressures, and regulatory change will continue to add layers to already demanding environments.

The challenge is not to eliminate complexity, but to manage it intelligently.

The organisations that succeed will be those that recognise where complexity lives, and design systems that prevent it from overwhelming everyday work.

Modern manufacturing is not just about speed or scale. It is about control, clarity, and the ability to deliver reliably in environments that are only becoming more demanding.

That is where the real work now sits.



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