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Everything Under One Roof: How Integrated Superfinishing Enhances Process Reliability

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When Experience Retires, Industry 5.0 Provides the Answer

A quiet gap is emerging in many manufacturing facilities: with every experienced employee, accumulated knowledge disappears from the shop floor, i.e. the direct production level. What is lost is not labour, but the experiential knowledge built up over years: how to handle machinery, processes, and disruptions. At the same time, Generation Z, with its digital fluency and quick comprehension, encounters a production reality shaped by hands-on experience. This widens the gap between digital competence and lived process practice. New approaches aim to address this by systematically harnessing experiential knowledge and reintroducing it into daily production through digital assistance systems.

Recent developments in the UK labour market highlight this emerging trend. The PwC Global Workforce Hopes & Fears Survey 2025 reveals a Generation Z that is motivated and tech-savvy but holds higher expectations for development opportunities and workplace quality, whilst considering job changes more frequently. At the same time, the AI Labour Market Survey 2025 by the UK Department for Science, Innovation and Technology points to significant AI skills gaps in businesses, particularly in practical industrial applications.

Industry 5.0 directly addresses this challenge. Its focus is not on pure automation but on collaboration between humans and machines, where experience and technology reinforce each other.

BoomerZ: Preserving Production Knowledge

One such approach is BoomerZ, developed by DE software & control GmbH, a provider of production software and AI-powered shop floor systems. The project shifts knowledge transfer from theory into ongoing production, making experiential knowledge directly visible in the process. Experienced workers remain actively involved in manufacturing, while younger employees accompany them and digitally document processes.

The goal is not just to capture visible workflows but, crucially, implicit knowledge, e.g. how machines are adjusted in response to deviations, or which solutions have proven effective in practice. Artificial intelligence then structures this

information into usable knowledge blocks. From videos, speech, and observations, step-by-step instructions are created for future use.

Another objective is to foster mutual understanding between these very different generations, break down prejudices, and encourage learning from one another. BoomerZ facilitates interaction and exchange, allowing diverse experiences, perspectives, and skills to be shared – both professionally and socially.

Digital Assistance on the Shop Floor

To ensure that the knowledge of older workers directly impacts daily operations, workplace assistance systems are essential. One example is workstAItion 5.0, which supports Industry 5.0 directly in production. The system leverages existing work instructions and company knowledge, using AI to prepare and contextualise them. Employees receive task-, experience-, and language-specific information at their workstations – delivered as text, images, videos, or interactive queries.

This is complemented by AI-powered assistance functions that transform the workplace into an interactive knowledge hub. Employees can ask questions, clarify uncertainties, or provide feedback when the content does not match real-world conditions. This creates continuous exchange between production and the knowledge system. Combined with technologies like camera systems, pick-by-light, or digital verification mechanisms, errors can be detected early, and processes stabilised. Knowledge becomes available precisely when needed, directly within the workflow.

Conclusion

Industry 5.0 thus represents not so much a technological rupture as a shift in perspective. The decisive factor is not technology alone but the integration of experiential knowledge, digital competence, and AI-driven support into a unified production system.

https://www.de-group.net/en/worker-assistance/

Grinding Hub Everything Under One Roof: How Integrated Superfinishing Enhances Process Reliability

Industrial superfinishing is defined by a wide range of highly specialized processes – from grinding and honing to superfinishing, lapping, and polishing. With sister companies such as Nagel Technologies, Gehring Technologies, Gehring Diato, KADIA, FLP Microfinishing, O.ERRE.PI. and ELGAN, the Nagel Group brings together this full spectrum of technologies in a uniquely comprehensive portfolio.

In theory, this setup enables seamless coverage of the entire superfinishing value chain – from grinding and honing to superfinishing, lapping, and polishing. Tooling plays a pivotal role: companies such as Gehring Diato and ELGAN develop cutting and abrasive tools based on diamond, CBN, or ceramic materials, each tailored to the specific technology and machining task. The portfolio ranges from grinding wheels for machining hard-coated brake discs to advanced cutting materials designed to generate friction-optimized surfaces.

One roof, many technologies – and the freedom to choose the best solution

The real strength of the Nagel Group, however, lies not only in its technological breadth, but in the structured interaction between its sister companies. Machines, tools, process expertise, and component know-how remain integrated within a single system. For users working with sensitive components – in industries such as automotive, hydraulics, defense, e-mobility, and aerospace – this translates into shorter coordination paths, significantly reduced project complexity, and clear overall responsibility for the machining result, even across multiple technologies.

Process integration in practice: how users benefit from end-to-end solutions

How this technological breadth translates into real-world applications becomes particularly evident in implemented projects across various industries. What matters is not the individual technology, but the targeted combination aligned with specific component requirements.

A case from the aerospace sector illustrates this approach: an international airline group relocated the maintenance of selected axial piston pumps into its own production. The technical focus was on machining function-critical components, particularly the interaction between raceways and pistons. The solution was realized through the coordinated interplay of honing technology from KADIA and superfinishing processes from Nagel Technologies. By directly linking both processes, a stable and reproducible surface quality was achieved – without additional interfaces.

A comparable approach can be seen in the automotive sector at a leading manufacturer of automatic transmissions. Here, too, the process chain is based on the combination of KADIA honing and Nagel superfinishing. In addition to the precise alignment of machining steps, peripheral systems such as cooling and filtration technology were jointly utilized. This integrated process design enabled cost-efficient series production while meeting demanding requirements in terms of dimensional accuracy and surface functionality.

In the bearing industry, the breadth of the portfolio becomes particularly evident. Grinding processes from O.ERRE.PI. are combined with superfinishing technologies from Nagel Technologies to ensure reliable machining of critical components such as inner and outer rings. Additional process steps can be integrated within the group, enabling the mapping of nearly the entire mechanical process chain for bearing production.

Across all examples, one key insight emerges: technical performance is not the result of isolated processes, but of their intelligent integration – precisely aligned with the component, its function, and the production environment.

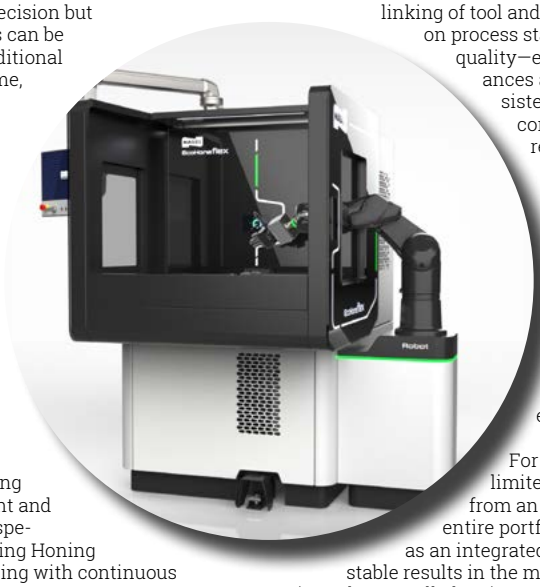
Technology Diversity as a Modular System for Precision Process Solutions

How this technological breadth translates into high-performance process solutions becomes evident at the machine level—and, above all, in the interaction of individual technologies:

FLP Microfinishing GmbH demonstrates at the GrindingHub, with its new HE series—particularly the HE540—how multiple superfinishing processes can be integrated into a single machine.

Fine grinding, lapping, and polishing are combined within a compact architecture specifically designed for thin-walled and geometrically demanding workpieces. By linking planetary processing systems with fine grinding technology, an exceptionally uniform material removal is achieved alongside superior surface quality.

For users, the decisive factor is not only precision but process stability: multiple machining steps can be realized within minimal space, without additional interfaces or part transfers. At the same time, the machine is fully geared toward connected production. End-to-end interfaces enable the acquisition and integration of process data across the entire machining chain. Combined with data-driven and AI-supported analytics, this creates a self-learning system that not only monitors processes but continuously optimizes them—a clear advantage for high-volume manufacturers with stringent requirements for transparency and reproducibility.



In the field of honing, Gehring Technologies presents the Deephone 2000, a horizontal honing machine designed for internal diameters ranging from 20 to 600 mm. The combination of internal cooling supplied directly to the point of engagement and in-process measurement—supported by a specially adapted control system (GHC – Gehring Honing Control)—ensures thermally stable machining with continuous process monitoring.

For large, repeatable production volumes, the adapter rod can optionally be equipped with an air supply system. In interaction with the tool, this enables continuous measurement via air back-pressure sensing, with real-time comparison against the honing control system and immediate corrective action where necessary. The key differentiator lies in the closed control loop: tool, machine, metrology, and digital analytics are seamlessly interconnected so that deviations are not only detected but instantly compensated. For users, this results in significantly reduced process variation and greater planning reliability in series production.

KADIA Produktion GmbH + Co. KG complements this spectrum with the second generation of the E line. This ultra-compact precision honing machine targets applications requiring economically efficient high-performance honing. At its core is the LH2x honing spindle with three direct drives, whose high rigidity enables both powerful and highly precise machining.

In combination with the HMC100 measurement and control technology, a fully regulated process is achieved, including continuous bore scanning. With up to 500 measurement values per millimeter, form deviations can be detected and compensated immediately. For users, this means high dimensional and geometrical accuracy alongside reduced cycle times and minimal tool wear. Expanded workspaces, integrated coolant systems, and optional additional processes such as deburring further enhance operational flexibility.

With solutions such as EcoHone flex, EASYHONE VRX, and the Na-Shaft Eco superfinishing platform, Nagel Technologies demonstrates how flexible manufacturing concepts can be implemented in practice. Modular machine architectures, standardized interfaces, and short setup times allow rapid adaptation to changing components and batch sizes. Adaptive process controls ensure consistently high surface quality while reducing friction, emissions, and energy consumption of the machined components—delivering clear benefits in both efficiency and sustainability.

In grinding, the sister company O.ERRE.PI. S.r.l. expands the portfolio with the MTD 610 DR-R double-sided surface grinding machine. The system operates with two opposing slides driven by Siemens brushless motors and guided on high-precision roller systems. The grinding spindles are powered by a 30 kW water-cooled asynchronous motor, ensuring constant power output with high thermal stability.

Flexible dressing systems and an automated loading solution guarantee consistent quality and continuous material flow. The Siemens One control system, featuring a large operator panel, is designed for reproducible processes—an essential factor in high-volume production with tight tolerances.

Tool technology plays a central role throughout the entire process chain. Sister companies such as ELGAN Diamantwerkzeuge GmbH & Co. KG and Gehring Diato develop and manufacture diamond and CBN tools as well as precisely matched interface solutions tailored to machine, material, and machining task.

These tools are not standard components but integral parts of the overall process solution. This close coordination creates a deep interlinking of tool and process, which has a decisive impact on process stability, repeatability, and component quality—especially in applications with tight tolerances and high production volumes. Across all sister companies, tools and cutting media are continuously refined and adapted to specific requirements.

The key point: these technologies do not exist in isolation. They can be selectively combined depending on the application—aligned with material, geometry, tolerance requirements, and production volume. "We don't have to sell a single product," explains Sören Pöhlsen of the Nagel Group. "Within the group, we select the solution that best fits the customer—both technically and economically."

For users, this means that instead of being limited to a predefined solution, they benefit from an optimized combination drawn from the entire portfolio. Machine, tool, and process function as an integrated system—an essential prerequisite for stable results in the micron range, high repeatability, and consistently controlled series production.

Manufacturing Expertise as the Key to Stable Series Production

A key differentiator compared to many market players lies in the consistent manufacturing expertise of the Nagel Group. Machines, tools, and cutting media are not merely supplied—they are specifically developed, adapted, and precisely aligned with the respective machining task. This provides customers with deep process know-how that extends far beyond the individual machine.

In practice, this advantage is most evident in process stability: variations are reduced, operator influence is minimized, and repeatability is significantly increased. At the same time, tools and processes can be rapidly adapted—for example, when introducing new components, changing materials, or meeting higher quality requirements. "Others adapt their process to an existing tool," says Sören Pöhlsen. "We can modify the tool so that it perfectly fits the process."

Especially in complex series production environments with tight tolerances, high volumes, and increasing demands for efficiency and sustainability, this capability creates a clear competitive advantage: processes become more robust, ramp-up phases shorter, and total cost of ownership sustainably reduced.

Clear Value for the Industry

For technical professionals, the benefit is clear: the Nagel Group combines technological diversity with deep expertise in precision and process engineering—exactly where it matters most in machining. The result is a coordinated portfolio that enables the realization of precisely the solution that makes the difference in each specific application.

The Nagel Group and its sister companies can be found at Grinding Hub, Hall 10, Booth C.40.

Hydroscand Announced It Has Implemented Akeneo Digital Showroom

Hydroscand today announced it has implemented Akeneo Digital Showroom to transform how it manages and distributes complex product information across its global markets.

Hydroscand is a leading provider of hydraulic and industrial hose solutions with a strong local presence supported by global expertise managing a catalogue of more than 30000 products. To minimize customer downtime in 20+ countries the requirement for accurate product information is critical.

Previously, product information was distributed across catalogues, PDFs and an eCommerce site, while service technicians in the field often relied on printed materials that were not always fully up to date. The approach created challenges around data accuracy, maintenance and speed when launching new products or updating technical specifications.

Hydroscand implemented Akeneo's Product Cloud to centralise product information and create a single version of the truth across all channels. As part of the project, Hydroscand worked closely with Akeneo on the development of its Digital Showroom solution, designed to make complex product discovery faster and more precise for sales teams, distributors and customers.

"Hydroscand's products are technically complex, which means precision is absolutely critical," said Linda Löfstedt Karlsson, Head of Product Information and System Owner for Akeneo at Hydroscand. "When a distributor, engineer or technician wants to find a product, they must be confident they have found exactly the right product. By working with Akeneo to build our Digital Showroom, we have created a platform where finding the correct product is now faster, easier and significantly more precise."

Using Digital Showroom, Hydroscand now manages all product information centrally, ensuring that product management, marketing and sales teams are working from the same dataset.

The system supports collaboration across internal teams and simplifies the process of enriching product information, managing translations and distributing consistent data across digital channels and partner ecosystems.

"Our collaboration with Akeneo has been a perfect journey," continued Karlsson. "The team has been incredibly open-minded when it comes to feedback and very fast to respond. That co-creation process meant we were able to build exactly what we needed rather than trying to force our processes into a rigid system."

The transformation also marks the end of Hydroscand's reliance on printed catalogues. With product information now centrally managed and continuously updated, the company plans to phase out catalogue production entirely, a move that will significantly reduce production time, costs and environmental impact while ensuring customers always access the most current information.

Hydroscand is also developing a mobile application to support technicians working in the field, enabling them to access accurate product information wherever they are.

"Industrial companies are under growing pressure to deliver the same level of product discovery and accuracy that customers expect in consumer eCommerce," said Romain Fouache, CEO of Akeneo. "The way Hydroscand is using Akeneo Digital Showroom shows how powerful that transformation can be when complex product data is properly structured and managed. With Akeneo as a single source of product truth, Hydroscand can provide faster search, consistent information across channels and a much stronger experience for distributors, technicians and customers worldwide."

"In the future we expect search to feel more like working with a knowledgeable colleague," said Karlsson. "AI will help us guide users more intelligently through complex product choices, making it even easier to find exactly what they need."

About Akeneo

Akeneo is the product experience (PX) company and global leader in Product Information Management (PIM); creating a world where every product interaction is an experience that guides consumers and professionals to the best purchase, anytime, anywhere. Akeneo empowers business leaders with software, education, and an engaged community all focused on the practice of product experience management.

Leading global brands, manufacturers, distributors, and retailers, including Chico's, CarParts.com, TaylorMade Golf, Rail Europe, Kering, and more trust Akeneo to scale and customise their omnichannel commerce initiatives. Using Akeneo's intelligent Product Cloud, companies can create elevated product experiences with user-friendly and AI-powered product data enrichment, management, syndication, and supplier data onboarding; as well as a comprehensive app marketplace and partner network to meet business and buyer needs.

For more information: www.akeneo.com

Climate Change And The High-Speed Door

The symptoms of Climate Change are still very apparent with increases in global temperatures, more frequent storms and flooding where they are not expected and overall changing weather patterns being some of the noticeable warning signs writes Chris Dobson.

Can industry help? Yes says Douglas Hart, chairman, Hart Door Systems. From manufacturing to storage across the Globe most conduct business with an ever-open doors policy with obvious, energy wastefulness. The result is the escape of costly heated air. Further temperature within the building drops requiring yet more energy to get back to an acceptable level.

For temperature control and energy management in these circumstances is Hart's Speedor. Its automatic, fast-action, is the perfect answer. With quality engineering and durability, Speedor high-speed doors will maintain temperatures within a building.

No matter the industrial classification, Hart can manufacture industrial door systems customised to meet specific needs. As an example the Speedor Storm variant is ready for anything the weather can throw at it, up to 'wind class 5' as defined by DIN EN 12424.

Whether it's access for deliveries, forklifts or people, there are far too many businesses that leave major entrances open for an unnecessary amount of time. The knock-on effect is wasted heating, higher costs and a less than optimal working environment.

Speedor Storm is designed specifically to take care of this. It can help with productivity because entering and leaving can be done more rapidly than non-automatic doors. Further it enhances the working environment because the high-speed operation.

In turn this lowers energy consumption, important at a time when the cost of energy shows little sign of improving and of course reduced energy use has a positive impact on Climate Change. In conclusion Hart Door Systems' Speedor range can make a very significant contribution to energy conservation and a carbon footprint.

Chris Dobson is a Fellow of the Royal Geographical Society

Babcock Wanson UK introduces Hybrid Add-on boiler to electrify steam systems without replacing existing plant

Industrial process heating specialist Babcock Wanson UK has launched a new Hybrid Add-on electric boiler to the UK market, designed to integrate seamlessly with existing gas or oil fired steam boilers, enabling customers to electrify their operations without making existing assets redundant.

Developed by Standard Fasel, part of the Babcock Wanson Group, the modular low-voltage Hybrid Add-on boiler provides an accessible and practical route to electrification. Rather than requiring full boiler replacement, the system connects directly into the existing installation, providing additional steam capacity using electricity while reducing fossil fuel consumption and associated emissions. This approach allows businesses to protect previous capital investment, minimise disruption, and take meaningful steps toward lower-carbon operation.

The Hybrid Add-on has been specifically designed to support long-term future proofing. By allowing operators to switch flexibly between fuel and electricity depending on energy prices and availability, the system supports resilience in an increasingly complex energy landscape. It can also utilise periods of surplus renewable electricity, helping organisations align with sustainability targets while contributing to smarter energy use.

Available in modular 200 kW, 400 kW and 800 kW versions, the compact units can be connected to a standard 400 V electrical supply and feature unlimited turndown, natural circulation with no pumps required, and minimal integration requirements. The design ensures fast, low-risk implementation with limited impact on existing boiler house infrastructure.

The launch builds on Babcock Wanson's wider strategy of supporting industrial customers through the energy transition with practical, engineered solutions. It complements the company's range of electric boilers and hybrid technologies, reinforcing its position as a partner for organisations seeking to decarbonise while maintaining operational performance.

"With many industrial sites, the challenge is not a lack of ambition around decarbonisation, but the fear of stranding valuable assets," said Etienne Fourie, Technical Sales Manager for Babcock Wanson UK's Process Engineering Division. "The Hybrid Add-on boiler addresses this directly. It enables businesses to electrify their steam systems in a pragmatic way, reducing emissions today while keeping their existing equipment productive and future-ready."

The new Hybrid Add-on boiler is available in the UK through Babcock Wanson. For more information and a copy of the new brochure, contact Etienne Fourie at Babcock Wanson at efourie@babcock-wanson.com or on + 44 (0)20 8953 7111.

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Fpt Enters The Top Three Of Europe's Certified High-Voltage Battery Producers With Tüv Süd Recognition

FPT, the Iveco Group brand dedicated to the design, production, and sale of low environmental impact powertrains, has obtained certification in accordance with European Regulation (EU) 2023/1542 (Batteries Regulation) as manufacturer of high-voltage batteries. In Europe, only three HV battery manufacturers, including FPT, boast this certification.

The subject of the audit, recently performed at FPT's carbon-neutral ePowertrain plant in Turin (Italy), was the complete design, development, and manufacturing process of the FPT eBS 37 EVO high-voltage battery for light commercial vehicles, minibuses, and pleasure boating applications. The highly qualified multinational delegation involved in the audit was made up of three auditors from TÜV SÜD Denmark ApS, three representatives from DANAK – the National Accreditation Fund of Denmark – and one representative from Accredia – the National Accreditation Body of Italy.

The overall feedback was very positive, and the auditors and observers were pleased with FPT's quality system and assembly line. For customers of FPT high-voltage batteries, this certification provides further assurance of the quality of both our product and its performance, as the entire process has been scrutinized down to the smallest detail, and fully certified. The brand's battery passport-ready high-voltage batteries give customers exactly what counts most: traceability, performance, durability, and above all trust. This audit will be mandatory for all European battery manufacturers when regulation EU 2023/1542 comes into full effect, but FPT has complied with it since 2024.

The FPT audit produced another remarkable result, since TÜV SÜD Denmark ApS obtained accreditation by DANAK according to European Regulation (EU) 2023/1542 (Batteries Regulation), allowing them to certify high-voltage battery manufacturers with a CE mark. This result places TÜV SÜD among the first three technical service providers in Europe to reach this milestone. Notably, TÜV SÜD chose FPT as a manufacturer of high-voltage batteries and IVECO Technology & Digital Validation & Homologation Vehicle & Battery Homologation, an Iveco Group body also responsible for type-approving FPT's high-voltage batteries, to demonstrate that they were capable of conducting an audit at a battery manufacturer in an appropriate manner. "FPT demonstrated strong readiness ahead of schedule by passing the audit," says Simone Gianoglio, Technology & Digital Validation & Homologation Vehicle & Battery Homologation for Iveco Group.

"This is all the more gratifying for us since we were specifically chosen by TÜV SÜD as a pilot audit. This prestigious certification testifies our commitment to reliable, high-performance electrification solutions, with our range of advanced battery management systems and innovative energy storage systems, designed to maximize battery life and efficiency across a wide range of mission requirements." "At FPT, we have seen a highly motivated and very professional team that has fully committed to embedding quality in the manufacturing process," says Yalcin Ölmez, Lead Auditor for the EU Batteries Regulation at TÜV SÜD Denmark. "What we have seen is battery production that meets the highest standards." eBS 37 EVO ENERGY STORAGE SOLUTION. THE CERTIFIED, HIGH ENERGY DENSITY BATTERY PACK WITH THE HIGHEST SAFETY STANDARDS The eBS 37 EVO, a 37 kWh Battery Pack for light commercial vehicles, minibuses, and marine applications, is a modular battery pack that incorporates cells and modules with unique NMC Lithium-ion technology for impressive energy density and depth-of-discharge (95%), with advantages in terms of reduced battery weight.

Thanks to its eBM 5 Battery Management System – entirely developed and produced by FPT – the eBS 37 EVO ensures an increased battery life according to mission requirements, while the special internal design allows the battery to meet the highest safety standards, ECE R100.4 & ECE R10. The eBS 37 EVO, like the other battery packs produced by FPT, is battery passport-ready. eBS 37 EVO Technical Specifications Cell Technology: Li-Ion Cooling system: Water cooled Multipack solution: up to 4 packs in parallel | up to 2 packs in series Nominal energy [kWh]: 37 Nominal voltage [V]: 355 Energy Density [Wh/kg]: > 140 C-rate (continuous): 1C (charge) / 2C (discharge) Cathode technology: NMC 811 Protection: IP6K9K / IP67 Dimensions [L x W x H, mm]: 925 x 854 x 310 Weight [kg]: 260 Life Cycle: 2500 BMS: FPT eBM 5 Regulatory Compliance: ECE R100.4 / ECE R10.6 FPT is a brand of Iveco Group N.V. (EXM: IVG), dedicated to the design, production, and sale of powertrains and solutions for on- and off-road vehicles, as well as marine and power generation applications.

Over 8,000 people across ten production sites and ten R&D centers work for FPT all around the world. Active in nearly 100 different countries, its global sales and its Customer Service department supports all Brand customers. The extensive product offering includes six engine ranges with power outputs from 30 hp to over 1,000 hp, transmissions with torque up to 500 Nm, and front and rear axles from 2.45 to 32 tonne GAW (Gross Axle Weight). FPT offers the most complete line-up of natural gas engines for industrial applications on the market, with power outputs ranging from 50 to 520 hp. A dedicated ePowertrain division is accelerating the path towards net zero-emissions mobility, with electric drivelines, battery packs, and battery management systems. This extensive offering, and its strong focus on R&D, makes FPT a world leader in industrial powertrains and solutions.

For more information, visit www.fptindustrial.com.

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Reliability, Sustainability and the Real Future of AI in Manufacturing

At the Food & Beverage Engineering 2026 and Sustainable Food Factory exhibition held at Derby Arena, industry professionals gathered to discuss the challenges and opportunities facing modern manufacturing. Among the experts sharing their insights was Andy Gailey, Managing Director of UPTIME Consultant Ltd, who highlighted the growing relationship between reliability, sustainability and operational efficiency.

The event, which brought together engineering and sustainability professionals under one roof, reflected a growing recognition that these disciplines are intrinsically linked. According to Gailey, sustainable manufacturing cannot be achieved without reliable assets and effective maintenance strategies.

"Reliability and sustainability are two sides of the same coin," he explained. "If you don't have a reliable plant, it becomes extremely difficult to achieve meaningful sustainability targets."

This connection is becoming increasingly important as manufacturers face mounting pressure to reduce energy consumption, minimise waste and improve overall operational performance. Equipment failures, unplanned downtime and inefficient processes not only affect productivity but also contribute to unnecessary energy use and increased environmental impact.

Drawing on more than two decades of experience within the food manufacturing sector, Gailey emphasised that maintenance and reliability professionals play a critical role in supporting sustainability objectives. By ensuring equipment operates consistently and efficiently, organisations can reduce their consumption of electricity, gas and water while simultaneously improving production output.

The discussion also explored the current state of the food and beverage manufacturing sector. While many businesses experienced a challenging and uncertain trading environment during the previous year, Gailey reported signs of renewed confidence across the industry.

As a specialist consultancy, UPTIME Consultant Ltd works closely with manufacturing organisations seeking to improve reliability and operational performance. Demand for these services has increased as businesses look for practical ways to enhance efficiency while controlling costs.

However, significant challenges remain. Rising employment costs, increased regulatory pressures and economic uncertainty continue to affect investment decisions across many sectors. Manufacturers are being forced to operate leaner than ever before while maintaining competitiveness in increasingly demanding markets.

One of the most discussed topics during the interview was artificial intelligence and its future role within manufacturing operations. While AI has become one of the industry's most widely used buzzwords, Gailey offered a more measured perspective.

Having spent several years studying machine learning and artificial intelligence technologies, he believes that many current applications fall short of the expectations often associated with true AI. He compared today's AI hype cycle to the early days of Industry 4.0, when numerous technologies were marketed under a broad and often misunderstood label.

Rather than relying solely on cloud-based systems and large-scale infrastructure, Gailey predicts that future industrial AI applications will increasingly move closer to the assets themselves. Manufacturers are likely to deploy smaller, site-based machine learning models that focus specifically on analysing plant performance, equipment condition and operational data within their own facilities.

This approach could offer several advantages, including improved data security, faster response times and greater relevance to individual operational requirements.

The interview reinforced a key message for maintenance and engineering professionals. Regardless of emerging technologies, the foundations of manufacturing success remain unchanged. Reliable equipment, effective maintenance practices and a commitment to continuous improvement will continue to underpin both sustainability and profitability.

As manufacturers navigate an increasingly complex operating environment, the organisations that successfully combine reliability, efficiency and innovation will be best positioned to meet future challenges while delivering long-term sustainable growth. **www.uptimeconsult.co.uk**

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Additure, Kingsbury, and ATLIX announce exclusive partnership for the UK, Ireland & GCC additive manufacturing markets

Kingsbury, one of the UK's leading CNC machine tool suppliers, Additure, the additive manufacturing specialists, and ATLIX, the newly independent 3D metal printing brand, formerly TRUMPF Additive Manufacturing, announce a strategic alliance that will position Kingsbury as the exclusive dealer of ATLIX machines and services in the United Kingdom, Ireland, and the GCC region.

Starting in January 2026, Kingsbury's additive manufacturing arm, Additure, will take on full responsibility for the sales, installation, service, and aftermarket support of ATLIX's industrial 3D metal printing systems in the designated territories.

This partnership marks a significant milestone for both companies: ATLIX strengthens its channel presence and market penetration in key geographies, while Kingsbury further enhances its additive manufacturing portfolio with a best-in-class machine tool brand and global backing.

Why this partnership works.

ATLIX, formerly the additive-manufacturing division of TRUMPF, has launched under its new brand as it enters a new chapter of market agility and growth.

ATLIX's new flagship system, the TruPrint 5000, is designed for large-format, automated metal 3D printing production.

Kingsbury and Additure have a proven track record as the UK and Ireland's additive manufacturing consultant and systems supplier, supporting a full end-to-end solution.

Together, the partnership offers customers in the UK, Ireland, and the GCC a one-stop channel, providing machines, installation, service, materials expertise, and aftermarket support from a single supplier.

What customers can expect.

From early 2026, customers across the United Kingdom, Ireland, and GCC regions will be able to:

See ATLIX systems (including TruPrint 5000) in operation via open house and demonstration initiatives.

Leverage ATLIX's industrial heritage and global machine tool portfolio, combined with Kingsbury and Additure's extensive customer and industry knowledge, and world-class support.

Access bundled offerings, including machine purchase/leasing and process support, process validation and more (further details to be confirmed via region).

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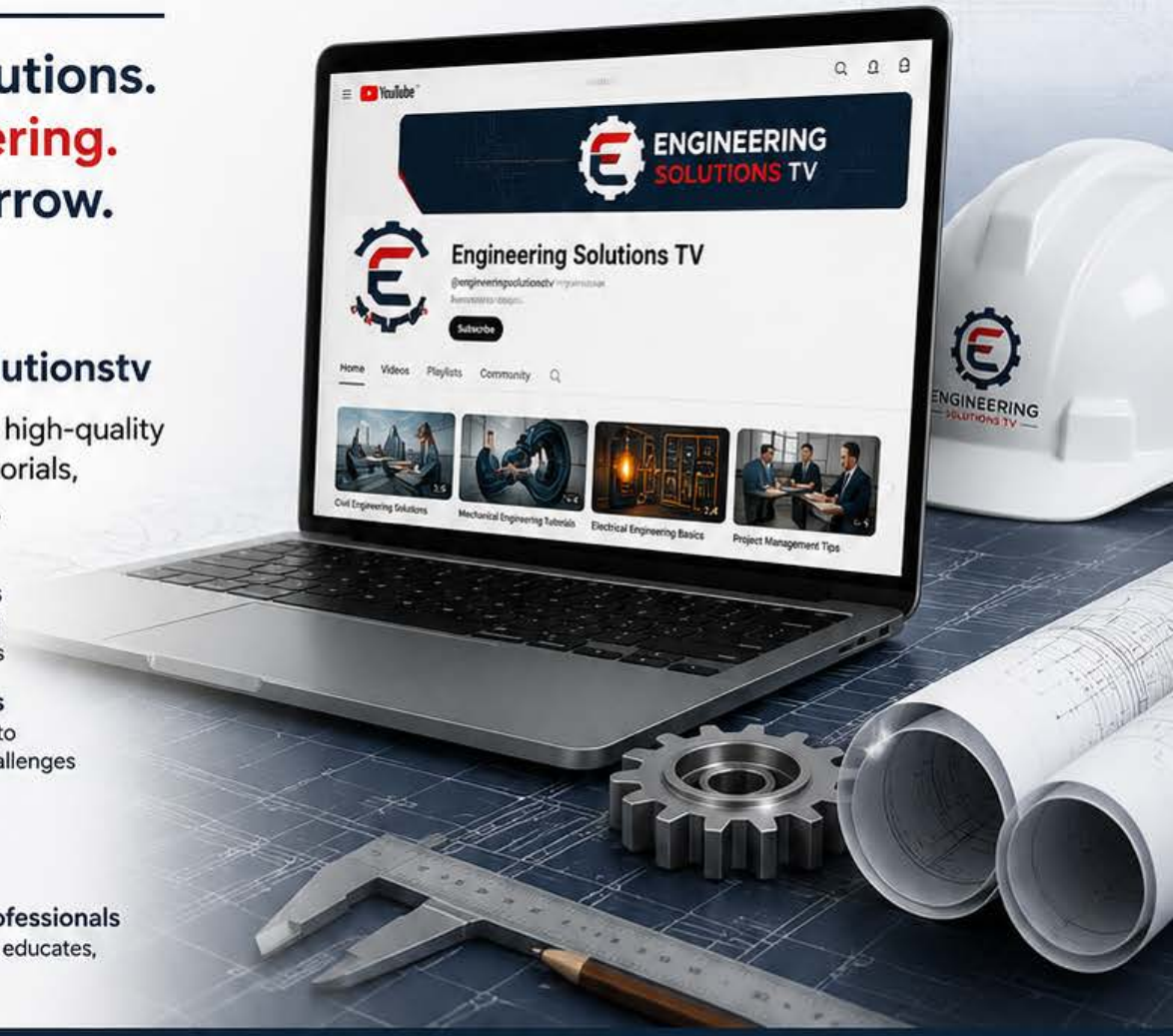

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Lake Fabrications Asset Sale Achieves 30% Above Expectations

The closure of Lake Fabrications Ltd. marked the end of an established fabrication and engineering business, with the company choosing BPI to oversee the sale of its complete workshop contents. With a mix of modern and well-maintained machinery on site, the vendor wanted a disposal route that would deliver both a smooth process and the best possible financial return.

The auction catalogue included standout assets such as a 2020 Ajan CNC Plasma, 2020 Morgan Rushworth PBS CNC Press Brake, 2020 Morgan Rushworth HSR 60/215 Hydraulic Section Rolling Machine, 2020 Morgan Rushworth HST 125 Hydraulic Steelworker, and a 2003 Hyster 2.50 Gas Forklift, alongside additional fabrication equipment.

The sale attracted nearly 200 registered bidders from across the UK, reflecting strong market demand for quality fabrication machinery. Competitive bidding drove the final result to around 30% above expectations and significantly higher than a dealer offer received prior to auction, leaving the vendor delighted with the outcome.

BPI's Industrial Specialist, Richard Travis, catalogued and produced video footage of the assets, while the wider team supported coordination with buyers and logistics. The team also assisted with a machine mover on site to ensure safe, efficient collections. As part of the project, BPI also managed the clearance of outstanding finance on several machines, ensuring the vendor could exit the business without complications. All assets were catalogued, sold, and cleared in just four weeks, with the auction live for two weeks and closing successfully at the end of August.

Richard Harriss, Owner of Lake Fabrications said: "BPI made what could have been a difficult process much easier. From start to finish, everything was handled efficiently and professionally, and I always felt supported along the way. The outcome was better than I expected, and I'm very grateful to the team for their help."

Jamie Senior, Associate Director at BPI, commented: "Although it's never easy to see a business close, it was rewarding to be able to deliver such a strong outcome for the client. Our process ensured the assets were given maximum exposure, and it was great to see that reflected in the final result."

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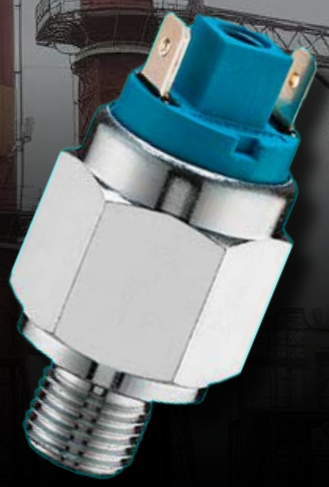

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Model 41 Pressure Switch

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Model 31 Pressure Switch

The Model 31 Pressure Switch is engineered for switching pressure ranges of up to 50 bar. It also provides options for normally open or normally closed contacts (SPST) and a range of adjustment settings: 0.1 – 1 bar, 0.2 – 2 bar, 1 – 5 bar, 1 – 10 bar, 10 – 20 bar, or 20 – 50 bar. With the ability to withstand a maximum working pressure of 150 bar and an overpressure limit of 300 bar, this switch is both robust and adaptable. It has a maximum switching voltage of 250 volts, an operating temperature range of -10°C to 120°C, and offers a Viton diaphragm as a standard option, although other diaphragm materials are available.

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Integrating Systems For Industry 4.0: A Roadmap For Manufacturing Managers

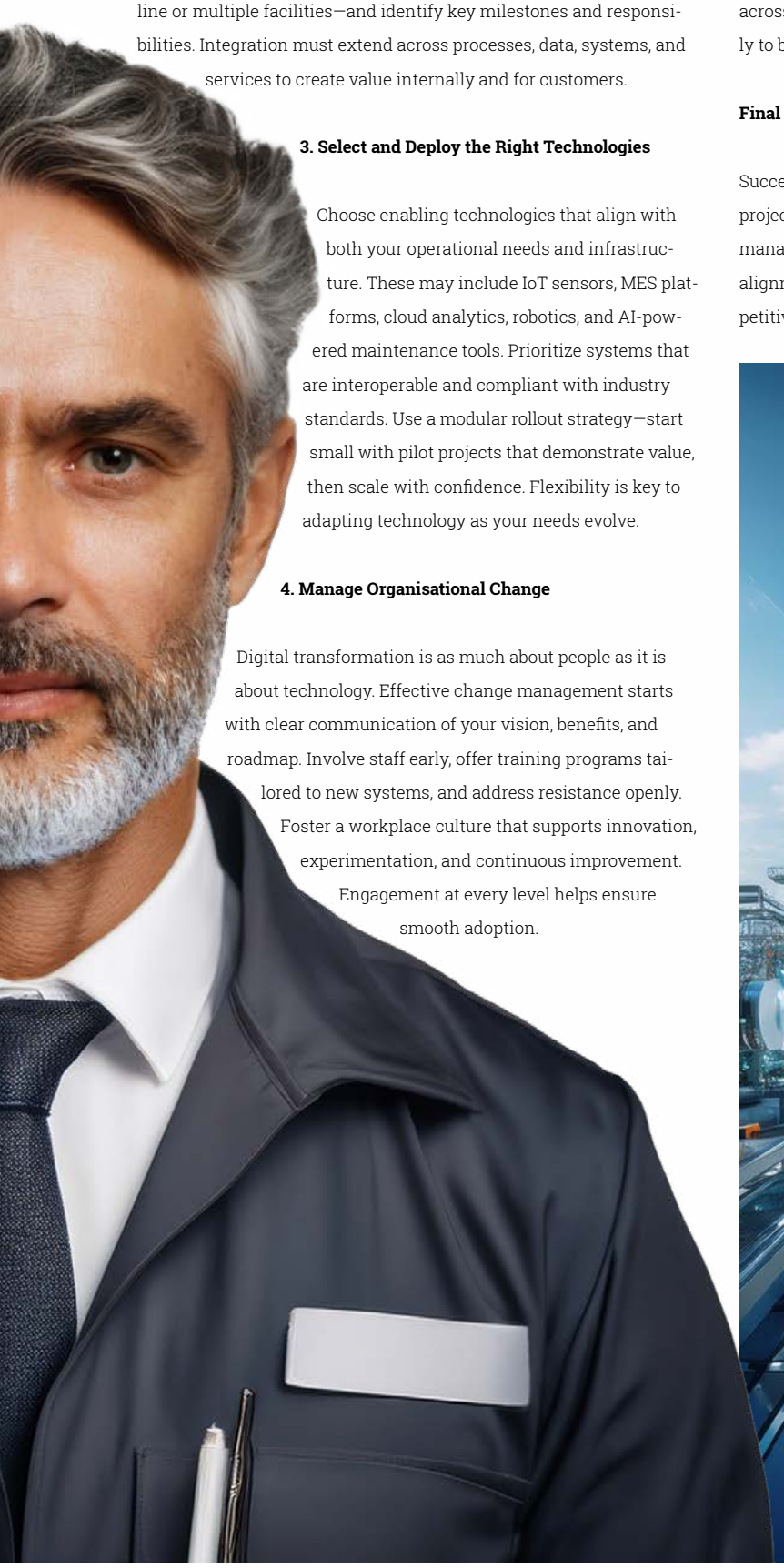
Industry 4.0 promises unprecedented connectivity, agility, and intelligence across the manufacturing value chain. However, for many plant and production managers, the challenge lies not in recognizing its potential—but in implementing it effectively. Here's a practical roadmap to guide the integration of systems in line with Industry 4.0 principles.

1. Start by Assessing Your Current State

Before embarking on any digital transformation, it's essential to evaluate where your operations currently stand. Assess existing systems, production workflows, digital maturity, and workforce capabilities. Benchmark your performance against competitors and industry best practices. This will help you pinpoint areas of strength, weakness, and opportunity, providing a clear foundation for prioritizing investment and aligning integration efforts with your overall business objectives.

2. Define Your Target State

What does success look like for your facility in the context of Industry 4.0? Clearly define your desired outcomes, supported by measurable KPIs such as OEE, downtime reduction, or lead time improvement. Determine the scope—whether you're integrating across one production line or multiple facilities—and identify key milestones and responsibilities. Integration must extend across processes, data, systems, and services to create value internally and for customers.



3. Select and Deploy the Right Technologies

Choose enabling technologies that align with both your operational needs and infrastructure. These may include IoT sensors, MES platforms, cloud analytics, robotics, and AI-powered maintenance tools. Prioritize systems that are interoperable and compliant with industry standards. Use a modular rollout strategy—start small with pilot projects that demonstrate value, then scale with confidence. Flexibility is key to adapting technology as your needs evolve.

4. Manage Organisational Change

Digital transformation is as much about people as it is about technology. Effective change management starts with clear communication of your vision, benefits, and roadmap. Involve staff early, offer training programs tailored to new systems, and address resistance openly. Foster a workplace culture that supports innovation, experimentation, and continuous improvement. Engagement at every level helps ensure smooth adoption.

5. Monitor, Evaluate, and Iterate

Track implementation progress and evaluate performance against the KPIs defined in your target state. Collect real-time data from your connected systems to inform decisions and adjustments. Look for opportunities to fine-tune processes and replicate successful pilots across your operations. Document lessons learned and share internally to build organisational knowledge and resilience.

Final Thought

Successfully integrating systems for Industry 4.0 is not a one-off project—it's an evolving journey of transformation. For manufacturing managers, a structured approach focused on readiness, technology alignment, and people empowerment can turn complexity into competitive advantage.

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The Future of Manufacturing: Automation, Robotics, and Human Collaboration

The manufacturing landscape is undergoing a seismic shift, driven by smarter automation, collaborative robotics, and deeply integrated digital systems. What was once a collection of standalone machines and isolated production cells is rapidly evolving into a connected, intelligent ecosystem. For industrial professionals, staying competitive now means understanding not only how these technologies function, but why they are transforming the very structure of modern enterprises.

At the heart of this transformation lies a strategic philosophy that goes far beyond individual machines. Computer Integrated Manufacturing, widely known as CIM, represents the blueprint for a fully connected enterprise. Rather than treating design, production, quality control, logistics, and business management as separate functions, CIM integrates them into a seamless digital framework. Information flows continuously from computer aided design systems through computer aided manufacturing platforms and into enterprise resource planning systems. This connectivity allows data generated on the shop floor to inform decisions in real time at management level.

The importance of CIM extends beyond operational efficiency. It is fundamentally a business strategy. By aligning engineering data, production scheduling, inventory management, and financial planning, organisations gain unprecedented visibility across their operations. Quality issues can be traced back to design parameters, production bottlenecks can be identified before they escalate, and supply chain disruptions can be mitigated through predictive analytics. However, implementing CIM is not without challenges. Legacy systems, data silos, cybersecurity risks, and cultural resistance can all slow adoption. Successful deployment requires careful planning, cross functional collaboration, and a clear understanding of long term objectives.

While strategy provides direction, execution determines success. The practical reality of automation lies in the hardware and software that power daily operations. Programmable Logic Controllers serve as the brains of automated systems, continuously monitoring inputs from sensors and triggering outputs to actuators. Supervisory Control and Data Acquisition systems provide higher level oversight, enabling operators to visualise processes, track performance metrics, and respond quickly to abnormalities. Human Machine Interfaces bridge the gap between complex control logic and user interaction, presenting data in clear and actionable formats.

For control engineers and technicians, this hands on knowledge is indispensable. Troubleshooting a production issue requires a deep understanding of signal flow, network architecture, and device configuration. Optimising cycle times demands familiarity with motion control systems and feedback loops. Even managers benefit from a practical grasp of automation fundamentals, as it supports more informed investment decisions and realistic project planning. Automation is not merely about installing equipment; it is about designing resilient systems that can adapt, scale, and deliver measurable returns.

As automation advances, the conversation inevitably turns to the role of people within increasingly digital factories. Contrary to early fears, the future is not defined by robots replacing humans. Instead, it is characterised by collaboration. Human Robot Interaction focuses on designing systems where machines and workers complement one another. Traditional industrial robots, often caged off for safety, are giving way to collaborative robots known as cobots. These machines are equipped with advanced sensors, force limiting technology, and intelligent control algorithms that allow them to operate safely alongside human colleagues.

The benefits of this partnership are significant. Robots excel at repetitive, high precision, and physically demanding tasks. Humans bring adaptability, problem solving, and contextual judgement. When combined effectively, productivity increases while workplace injuries decline. Designing such environments requires rigorous safety standards, intuitive interfaces, and ergonomic considerations. Training also plays a crucial role, ensuring workers feel confident and empowered rather than displaced.

The future of manufacturing rests on the integration of three interconnected pillars. Strategy through CIM provides the structural foundation. Execution through practical automation delivers operational performance. Collaboration through human robot interaction shapes a workforce model built on partnership rather than replacement. Mastery of any one element offers advantages, but true competitive strength emerges when all three are aligned.

For industrial professionals and organisations alike, the message is clear. The factories of tomorrow will not simply be automated. They will be intelligent, connected, and collaborative systems where technology and people evolve together. Those who understand this triad and act decisively will define the next era of manufacturing excellence.

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What variables contribute to the cost of Injection Mould Tooling?

Investment into mould tooling can be significant and with each project there are several variables that will impact on final mould tool costings. We often get asked for a ballpark estimation for the manufacture of a new product that is still in the early design phase of a project, this is not as straightforward a request as it may initially seem as there are a number of complex factors to take into consideration.

These include the number of impressions, Hot or Cold runner feeds, material choice of the mould tool and the complexity of the component to be manufactured. The complexity of a component will significantly affect tool costings with consideration to the following elements including multi-stage ejection, side actions, inclined ejectors, up and aways, over moulded inserts, unscrewing, collapsing cores, actuated cores, camming cores, in mould closing, interchangeable inserts, sacrificial inserts (in high wear or damage susceptible areas), fixed half ejection, air blast, air assisted ejection, cavity pressure sensors, valve gates, conformal cooling and hand loaded inserts.

As you can understand there are a number of contributing elements to the cost of a mould tooling solution which is why it is imperative to obtain 'like for like' quotations from your chosen suppliers.

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Securing Better CNC Machining Quotes: A Practical Guide for Manufacturing Buyers

Obtaining an accurate CNC machining quotation is one of the most important steps in the procurement process for custom manufactured components. Whether sourcing prototype parts, replacement components, or production volumes, the quality of the information provided during the quotation stage has a direct impact on pricing accuracy, lead times, and overall project success.

For manufacturing managers and procurement professionals, a quotation should be viewed as more than simply a price. It is an opportunity to assess a supplier's technical understanding, manufacturing capability, and ability to support the project from concept through to delivery.

The foundation of any accurate CNC machining quotation begins with clear technical documentation. Providing both detailed engineering drawings and three dimensional CAD models allows suppliers to understand the part geometry, critical dimensions, and manufacturing complexity. Industry standard formats such as PDF drawings and STEP files help eliminate ambiguity and enable manufacturers to evaluate machining requirements more effectively.

Material selection also plays a significant role in determining production costs and lead times. Different grades of aluminium, stainless steel, engineering plastics, and specialist alloys can vary considerably in price, machinability, and availability. Specifying the exact material grade ensures suppliers can provide realistic quotations while reducing the risk of unexpected cost increases later in the project.

Production volume is another critical factor that directly influences machining economics. The cost structure for a single prototype differs significantly from that of a repeat production order. Setup times, tooling strategies, inspection requirements, and machine utilisation all contribute to pricing decisions. Buyers who provide expected annual volumes or request quotations at multiple quantity levels often gain valuable insight into how costs can be reduced as production scales.

Tolerance requirements should be clearly defined, particularly for features that directly affect product performance or assembly. While precision machining can achieve extremely tight dimensional control, unnecessarily specifying stringent tolerances across an entire component can increase manufacturing costs substantially. Experienced manufacturers recommend applying tighter controls only where function demands it, allowing standard tolerances elsewhere to improve efficiency without compromising quality.

Surface finish requirements should also be communicated at the quotation stage. Many machined parts are supplied in their as-machined condition, while others may require anodising, polishing, bead blasting, powder coating, plating, or cosmetic finishing. These secondary operations can have a significant impact on cost and lead time. Clearly defining appearance expectations helps ensure quotations accurately reflect the complete manufacturing process.

Providing context about how a component will be used can also improve quotation accuracy. Suppliers are often able to suggest more suitable materials, finishes, or manufacturing approaches when they understand the application. A component destined for industrial automation equipment may require different considerations than one

intended for outdoor environments, medical devices, or consumer products.

Beyond pricing, manufacturing buyers should evaluate lead times, inspection capabilities, and packaging arrangements. Reliable suppliers will explain how components will be measured and verified, particularly for critical dimensions. Advanced inspection methods such as Co-ordinate Measuring Machine verification may be required for precision applications and should be discussed during the quotation process.

Packaging should not be overlooked. Even perfectly machined components can arrive damaged if they are not adequately protected during transport. Discussing packaging requirements early helps avoid costly issues and ensures components reach the production line in the required condition.

One of the most common mistakes buyers make is submitting incomplete requests for quotation and expecting precise pricing immediately. Missing details relating to materials, quantities, tolerances, finishes, or thread specifications often result in delays, clarification requests, and revised quotations. Consistency is equally important when requesting quotations from multiple suppliers, as meaningful comparisons can only be made when each supplier receives the same information.

Ultimately, an accurate CNC machining quotation begins with an accurate RFQ. By providing comprehensive technical information and clearly communicating project requirements, manufacturing organisations can reduce risk, improve supplier relationships, and achieve more predictable project outcomes. The quotation stage represents the first step in building a successful manufacturing partnership, making preparation and attention to detail essential for long term success.

What Manufacturing Leaders Should Look for in a CNC Machining Supplier

In today's highly competitive manufacturing environment, sourcing precision-machined components should be a straightforward process. With thousands of CNC machining companies operating worldwide and digital platforms making supplier discovery easier than ever, manufacturers might assume that finding a capable machining partner is simply a matter of requesting quotations and selecting the most competitive offer.

The reality is often very different.

Many manufacturing managers and procurement professionals have experienced the frustration of selecting a supplier based on an attractive quotation only to encounter delays, quality issues, communication challenges, and escalating costs once production begins. What initially appeared to be a cost-saving decision can quickly become a source of operational disruption, project delays, and customer dissatisfaction.

As global supply chains continue to evolve and product complexity increases, selecting the right CNC machining manufacturer has become one of the most important strategic decisions a manufacturing business can make. The quality of that decision can directly influence product performance, delivery schedules, customer satisfaction, and ultimately profitability.

The challenge lies in the fact that not all CNC machining suppliers are equal. While many companies advertise precision machining capabilities, the true measure of a manufacturing partner extends far beyond the equipment listed on their website or the price shown on a quotation.

One of the most common mistakes organisations make is focusing too heavily on purchase price. In an era where procurement teams are under constant pressure to reduce costs, the lowest quotation can appear highly attractive. However, experienced manufacturing leaders understand that the cheapest option often becomes the most expensive solution over time.

A significantly lower quotation frequently indicates that something has been overlooked or underestimated. This may involve material specifications, inspection requirements, finishing processes, packaging standards, or machining complexity. In some cases, suppliers intentionally quote aggressively to secure work and later recover margins through additional charges, engineering variations, or reduced quality standards.

The true cost of a machined component extends far beyond the initial purchase price. Rework, production downtime, delayed product launches, expedited shipping, additional inspections, engineering support, and customer complaints can quickly outweigh any savings achieved during the sourcing stage.

Manufacturing managers increasingly recognise that supplier selection should focus on total cost of ownership rather than simply comparing line-item prices. A supplier that consistently delivers conforming parts on schedule often provides significantly greater value than a lower-cost supplier that creates ongoing operational challenges.

Quality capability represents another critical factor that is frequently

misunderstood during supplier evaluation.

Many machining companies describe themselves as precision manufacturers, yet precision can mean very different things depending on the application. Producing a single prototype component that meets tolerance requirements is very different from maintaining those tolerances consistently across hundreds or thousands of production parts.

A truly capable CNC machining manufacturer demonstrates repeatability, process control, and measurement discipline. The ability to hold tight tolerances on a one-off sample does not necessarily indicate the ability to maintain those tolerances during long production runs or across multiple batches over an extended period.

For manufacturing businesses operating in sectors such as aerospace, medical devices, energy, automotive, electronics, and industrial equipment, consistency is often more important than achieving a specific dimensional target on a single component.

This is why quality documentation has become increasingly important during supplier selection. First Article Inspection Reports provide valuable insight into a supplier's measurement capabilities and attention to detail. Reports that include actual measured values rather than simple pass or fail assessments offer greater confidence in process capability.

Similarly, Coordinate Measuring Machine inspection capabilities, calibration procedures, material traceability systems, and documented quality management processes provide important indicators of a supplier's operational maturity.

The strongest machining partners typically view quality as a manufacturing process rather than a final inspection activity. They focus on preventing defects rather than detecting them after production has been completed.

Communication represents another area where many supplier relationships encounter difficulties.

Manufacturing projects are becoming increasingly complex, with sophisticated geometries, demanding surface finish requirements, intricate assembly interfaces, and stringent regulatory obligations. As a result, successful component production depends heavily on clear and effective communication between customers and suppliers.

Unfortunately, communication failures remain one of the most common causes of manufacturing problems.

Engineering drawings may contain ambiguous requirements, incomplete geometric dimensioning and tolerancing information, unclear surface treatment specifications, or missing material requirements. When questions arise, the response from the supplier can significantly influence project outcomes.

The best CNC machining manufacturers actively engage with customers throughout the quotation and production process. Rather than simply accepting drawings and issuing quotations, they review designs critically, identify potential challenges, and seek clarification where necessary.

This proactive approach often prevents costly mistakes later in the manufacturing cycle.

Manufacturing managers should view supplier questions as a positive sign. A supplier willing to challenge assumptions and request clarification is demonstrating engagement and technical competence. By contrast, a supplier that immediately agrees to every requirement without discussion may be overlooking important manufacturing considerations.

Design for Manufacturability discussions frequently reveal opportunities to simplify machining operations, improve consistency, reduce production costs, and shorten lead times. These conversations can create significant value before a single component is manufactured.

Pricing transparency has also become increasingly important as supply chains become more global and manufacturing projects become more complex.

Many buyers discover hidden costs only after production has begun. These may include programming fees, fixture development charges, tooling costs, inspection expenses, packaging fees, material surcharges, or minimum order requirements.

While such costs are not necessarily unreasonable, problems arise when they are not disclosed clearly during the quotation process.

Transparent suppliers provide detailed quotations that clearly identify one-time engineering costs, recurring production costs, material expenses, finishing operations, and inspection requirements. This enables buyers to make informed comparisons and avoid unexpected charges later.

Ownership of tooling, fixtures, and CNC programs is another consideration that deserves careful attention. Manufacturing companies should understand exactly what they are paying for and whether critical manufacturing assets remain their property if supplier relationships change in the future.

Delivery performance represents one of the most important indicators of supplier reliability.

In modern manufacturing environments, late deliveries can have consequences far beyond a single delayed component. Production schedules, assembly operations, customer commitments, inventory levels, and revenue forecasts can all be affected by supplier delays.

Most suppliers can provide an estimated lead time. The more important question is whether they can consistently achieve it.

Unexpected events occur in every manufacturing operation. Raw material shortages, machine breakdowns, labour challenges, subcontractor delays, and transportation disruptions are unavoidable realities of industrial production.

What separates exceptional suppliers from average suppliers is how they manage these risks.

Manufacturing managers should seek evidence of historical delivery performance rather than relying solely on promises. On-time delivery metrics, capacity planning processes, production scheduling systems, and escalation procedures all provide valuable insight into operational capability.

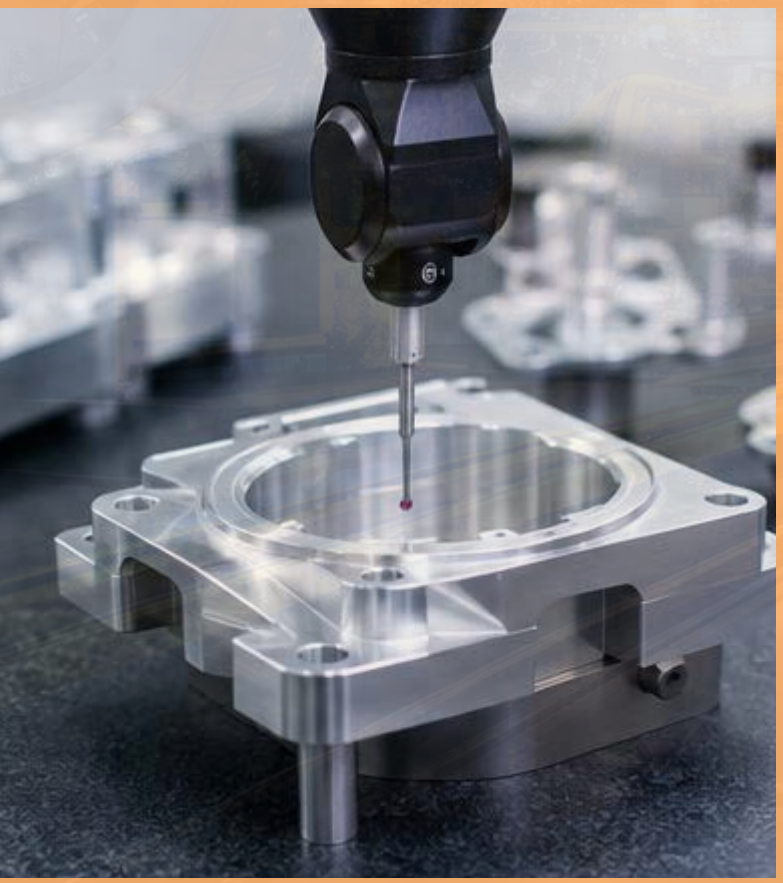
Suppliers that openly discuss potential risks and describe how they mitigate them typically demonstrate greater operational maturity than those that simply promise flawless performance.

Intellectual property protection has become another increasingly important consideration, particularly as companies collaborate across international supply chains.

Modern engineering designs often represent significant investments in research, development, testing, and innovation. Sharing technical drawings, CAD files, and manufacturing specifications inevitably creates exposure to intellectual property risks.

While confidentiality agreements provide an important foundation, effective protection requires more than legal documentation alone.

Manufacturing organisations should understand how suppliers store and manage technical information, who has access to proprietary data, and whether work is subcontracted to third parties. In regulated industries, compliance with export controls, security requirements, and industry-specific standards may also be essential.



Protecting intellectual property should not be viewed as a sign of mistrust. Rather, it represents responsible business practice in an increasingly interconnected manufacturing landscape.

Perhaps the most significant differentiator between average suppliers and exceptional manufacturing partners is their willingness to collaborate strategically.

Transactional supplier relationships focus primarily on fulfilling purchase orders. Strategic partnerships focus on creating mutual value.

The most effective CNC machining manufacturers engage early in product development, contributing expertise that improves manufacturability, reduces costs, and enhances product performance. Their experience across multiple industries and applications often enables them to identify opportunities that internal teams may overlook.

Design modifications that simplify machining operations, reduce material waste, improve tool access, or eliminate unnecessary secondary processes can generate substantial savings throughout a product's lifecycle.

In many cases, thoughtful Design for Manufacturability recommendations can reduce machining costs by twenty to forty percent while simultaneously improving quality and shortening lead times.

These benefits are rarely achieved through transactional supplier relationships alone.

Manufacturing organisations that involve suppliers early in development projects often achieve better outcomes because manufacturing expertise is incorporated into design decisions from the beginning.

As manufacturing technologies continue to advance, the role of the CNC machining supplier is evolving from simple component producer to strategic engineering partner.

Ultimately, selecting a CNC machining manufacturer should be viewed as a risk management decision rather than a purchasing exercise.

Price remains important, but quality systems, technical capability, communication practices, delivery performance, transparency, intellectual property protection, and collaborative culture often have a far greater impact on long-term success.

Manufacturing managers and directors face increasing pressure to deliver products faster, improve quality, reduce costs, and manage supply chain risk. Achieving those objectives requires suppliers that can be trusted to perform consistently under demanding conditions.

The most reliable CNC machining manufacturers welcome scrutiny. They provide evidence of capability, encourage technical discussions, share performance data, and demonstrate a commitment to continuous improvement.

Those are the partners that help manufacturing organisations grow, innovate, and compete successfully in increasingly challenging global markets.

Finding such a partner may be harder than it looks, but the effort invested in selecting the right supplier can deliver benefits that extend far beyond the next purchase order.

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