

FROST & SULLIVAN  
**BEST PRACTICES**



2026

GLOBAL POSITION AND  
DISTANCE SENSORS

**COMPANY OF THE YEAR**



**Baumer**

Passion for Sensors

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## Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each recognition category before determining the final recognition recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Baumer Group excels in many of the criteria in the position and distance sensors space.

| RECOGNITION CRITERIA                          |                               |
|-----------------------------------------------|-------------------------------|
| <i>Visionary Innovation &amp; Performance</i> | <i>Customer Impact</i>        |
| Addressing Unmet Needs                        | Price/Performance Value       |
| Visionary Scenarios Through Megatrends        | Customer Purchase Experience  |
| Leadership Focus                              | Customer Ownership Experience |
| Best Practices Implementation                 | Customer Service Experience   |
| Financial Performance                         | Brand Equity                  |

## The Transformation of the Position and Distance Sensors Industry

The position and distance sensors industry enters a new phase shaped by smart industrial automation environment, mobile machinery, electrified mobility systems and energy infrastructure such as wind turbines. Across these domains, customers still require reliable sensing components, but the value equation has expanded. Machines now require precise measurement, richer field-level data, easier integration, and faster adaptability across increasingly fragmented applications. Meanwhile, commodification and low-cost competition continue to pressure standard sensor categories, making catalog availability and basic detection performance insufficient sources of differentiation.

These shifts are reshaping customer expectations for sensing suppliers across smart factory automation environments, off-highway equipment, e-battery manufacturing ecosystems and energy systems. Beyond individual sensor performance, buyers increasingly require solutions that can integrate into broader system architectures, adapt to diverse application requirements, and deliver usable data that supports system-level decisions. As a result, differentiation is moving away from component specifications toward application understanding, engineering depth, and solution-level engagement.

Within this environment, Baumer Group (Baumer) operates with a model built around application expertise, proprietary engineering, and close customer engagement. The company positions sensing as an engineering enabler across mobile machines, energy systems, electrified mobility platforms, and industrial automation architectures, rather than as a standalone catalog component. The company helps customers identify the real automation challenge, select the right sensing principle, and develop practical solutions that improve machine performance. This approach connects customer discovery, technology

vision, product leadership, execution discipline, business performance, price/performance value, and customer experience into a coherent operating model.

### Solving the Real Application Problem Behind the Sensor Request

Baumer addresses unmet needs by focusing on the customer's operating challenge before narrowing the discussion to a product. In a market shaped by commodification, low-cost competition, and "good enough" alternatives, many customers across smart industrial automation, mobile machinery, electrified vehicle systems and wind turbines applications need more machine information but hesitate to absorb added cost or complexity. Baumer closes that gap by helping customers define what the machine needs to detect, measure, communicate, or control.<sup>1</sup>

*"Industrial sensing is no longer defined by specification superiority alone, as differentiation increasingly depends on how effectively suppliers translate application uncertainty into better sensing decisions. Vendors that fail to operate at this level risk becoming interchangeable component providers in an increasingly commoditized market."*

**- Kiran Unni,  
Vice President, Industrial GOA Practice**

This approach is especially relevant across diverse application environments, from precision inspection tasks in production lines to positioning and motion control in off-highway vehicles and structural monitoring in energy systems, where customers need more intelligence without building a complex vision system. Baumer's smart 2D profile sensors address this need by integrating measurement functions and live analyses directly into the sensor. In floor-plank production, the sensors check the dimensional accuracy of tongue-and-groove joints, giving customers an efficient way to perform inline quality control without moving immediately to a more

complex industrial-camera installation.<sup>2</sup>

In parallel, similar principles apply in mobile machinery and energy applications, where sensing must remain robust under vibration, environmental stress, and dynamic operating conditions. Baumer turns unmet customer needs into growth opportunities by helping equipment builders specify the right level of sensing performance, avoiding solutions that either limit machine performance or add unnecessary cost through overengineering.

The company also helps customers uncover hidden requirements before those requirements become integration failures, downtime risks, or quality problems. In a sensor market where many standard products face price pressure, Baumer creates differentiated value by solving the application problem behind the part number.<sup>3</sup> Industrial sensing is no longer defined by specification superiority alone, as differentiation increasingly depends on how effectively suppliers translate application uncertainty into better sensing decisions. Vendors that fail to operate at this level risk becoming interchangeable component providers in an increasingly commoditized market.

<sup>1</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

<sup>2</sup> <https://www.baumer.com/us/en/product-overview/smart-vision/profile-sensors/c/41517> (Accessed May 2026)

<sup>3</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

## Preparing Field-Level Sensing for the Next Automation Era

Baumer incorporates long-range automation scenarios directly into its innovation strategy. Artificial intelligence (AI), digitalization, flexible production, and connected machines all increase the importance of sensor-level information. As industrial systems become more adaptive, sensors must move beyond basic detection to generate usable data, support smarter control decisions, and fit into digital engineering environments.<sup>4</sup>

Baumer advances future-ready innovation by embedding AI into camera systems, introducing AI-enabled products built on its own processor intellectual property, and applying AI algorithms to optimize production quality. It also enables digital twin information that customers can use for virtual machines, training, design, and simulation. These capabilities demonstrate how Baumer connects sensing hardware to the broader software-defined automation environment.<sup>5</sup>

A parallel shift toward edge-based intelligence is further redefining sensor architecture in the industry. Instead of transmitting raw data to centralized systems, industrial sensors are increasingly expected to process information at the edge, enabling faster response times, reduced data load, and more resilient machine control. Baumer supports this transition through intelligent sensing architectures that integrate data processing, analysis, and communication capabilities directly within the sensing layer.

The company's position becomes especially relevant as mobile and off-highway equipment moves from operator assistance toward higher autonomy. Skilled operator shortages are increasing the need for machines that can automate more functions while preserving productivity, safety, and work quality. Baumer addresses that shift through sensing solutions for boom and bucket positioning, hydraulic fluid monitoring, structural strain, and damage monitoring in construction equipment. These applications show how megatrends become practical engineering requirements: machines need reliable feedback on position, orientation, fluid condition, and mechanical load before autonomy can advance in demanding outdoor environments.<sup>6</sup>

Baumer's role sits at the practical layer where these megatrends become operational: the sensor, the signal, the parameter change, and the machine's ability to adapt. Baumer therefore positions sensing infrastructure as a foundational layer for autonomous and software-defined industrial systems.

## Building Market Trust Through Engineering Depth and Recognized Innovation

Baumer builds leadership through internal engineering control, broad position-sensor coverage, and sustained customer trust. The company designs and develops 99% of its products internally, with only limited exceptions across its extensive part-number base.<sup>7</sup> This level of control strengthens Baumer's ability to customize, miniaturize, optimize, and differentiate its sensors for demanding applications. It also creates a barrier to competitors that rely more heavily on private-label products or externally defined designs.

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<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> <https://www.baumer.com/us/en/solutions/mobile-machines/sensors-construction-equipment-mobile-machines/a/sensors-construction-equipment>. (Accessed May 2026)

<sup>7</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

The company strengthens its position through one of the broadest and highest-performing position-sensor portfolios in the market. Its “toolbox” approach gives customers access to the right sensing technology for varied applications rather than forcing a narrow product answer. This breadth matters because industrial automation does not converge around a single universal sensor. A packaging line, battery manufacturing system, wind turbine, machine tool, off-highway vehicle, and medical device each require different tradeoffs across accuracy, speed, size, connectivity, and operating environment.<sup>8</sup>

*“As automation systems scale globally, performance consistency has become as critical as sensor precision. Even minor unit-to-unit variation can compound into significant operational inefficiencies at scale, making manufacturing discipline and repeatability a core differentiator in industrial sensing leadership.”*

**- Subha Krishnan,  
Best Practices Research Analyst**

Baumer’s brand equity builds on this technical foundation. The company operated as an innovation leader for more than 70 years and maintains a global footprint of approximately 2,800 employees across 39 development centers, production sites, and sales units in 19 countries. This combination of longevity, scale, and technical specialization gives customers confidence that Baumer can support demanding automation needs across regions and product generations.<sup>9</sup>

Customer recognition further validates Baumer’s brand strength. John Deere recognized Baumer as one of its top three innovation drivers from the supplier side, and Siemens China honored Baumer with a supplier award. Baumer also works with leading companies such as Heidelberg and many others. These relationships reinforce a brand associated with trusted engineering performance.<sup>10</sup> These accolades are recognition of Baumer’s customers as the leading partner in off-highway vehicles, e-batteries, and wind turbines applications.

### Scaling Precision Through Repeatable Global Execution

Baumer turns innovation into repeatable performance by treating consistency as an engineering discipline. The company begins new product development with global applicability in mind, gathering standards across application fields and regions before finalizing design parameters. This approach helps Baumer build products that can perform reliably across international markets, varied machine environments, and different customer requirements.<sup>11</sup>

Baumer places particular emphasis on unit-to-unit consistency, ensuring that customers can expect every sensor in a production run to behave the same way. The company places particular emphasis on unit-to-unit consistency. Their core principle is that when Baumer produces 1,000 sensors, customers should be able to expect those sensors to behave identically. That discipline matters because even a low-cost sensor can become an expensive problem if inconsistent behavior interrupts a machine or production line. This repeatability enables uniform sensor behavior across large production volumes and international deployments.<sup>12</sup> As automation systems scale globally, performance consistency has become as critical as sensor precision. Even minor unit-to-unit variation can compound into significant operational

<sup>8</sup> <https://www.baumer.com/us/en/products/distance-measurement-solutions/a/distance-measurement?>. (Accessed May 2026)

<sup>9</sup> Baumer Group’s Technical Report Shared with Frost & Sullivan (May 2026)

<sup>10</sup> Baumer Group’s Discussion with Frost & Sullivan (May 2026)

<sup>11</sup> Baumer Group’s Discussion with Frost & Sullivan (May 2026)

<sup>12</sup> Ibid.

inefficiencies at scale, making manufacturing discipline and repeatability a core differentiator in industrial sensing leadership.

Accurate light-beam positioning shows how Baumer turns best-practice engineering into practical customer value. When customers mount a photoelectric sensor, they need confidence that the light beam appears in the expected position every time. Variation across units can complicate installation and reduce deployment consistency. Baumer's focus on precise and repeatable beam placement helps customers deploy sensors with confidence and reduces the operational uncertainty that often accompanies high-volume automation environments.<sup>13</sup>

The company does not rely only on product concepts or isolated technical achievements. It embeds quality into design practices, production expectations, global standards awareness, and the details that determine whether sensors perform consistently in real machines. Baumer's best practices allow it to scale precision without losing reliability, which is essential for customers who depend on sensing accuracy across many units, facilities, and applications.

### Growing Through Diversified Demand and High-Value Specialization

Baumer demonstrates strong financial performance through a balanced model of diversified demand, direct customer engagement, and high-value specialization. The company serves a wide range of industrial applications, including factory automation, packaging, battery manufacturing, wind energy, machine tools, mobile machinery, and off-highway equipment. This breadth reduces dependence on any single end market and gives Baumer multiple avenues for growth as automation expands across industries.<sup>14</sup>

Baumer also manages its channel mix with discipline. Distribution accounts for 25% of current sales, primarily in the spare-part business.<sup>15</sup> This structure allows Baumer to support recurring installed-base needs through distribution while preserving direct relationships with original equipment manufacturers' customers for higher-value technical collaboration. The result is a balanced commercial model: efficient reach for standard demand and close technical engagement where customers need consultative sensing expertise.

The company's financial profile reflects strategic clarity. Baumer protects performance by avoiding a race to the lowest sensor price and by focusing on specialized industrial positioning, customer proximity, and specialized industrial value. This approach supports revenue resilience and margin discipline in a market where price pressure remains intense. Baumer's financial strength, therefore, comes not only from scale but from its ability to grow through diversified markets and higher-value sensing opportunities.

### Delivering Higher Measurement Performance with Lower System Burden

Baumer delivers strong value by using compact precision sensing to replace more complex and expensive measurement approaches. Its AlphaProx inductive sensors measure distance with precision down to 5 micrometers and resolutions up to 4 nanometers, allowing customers to solve demanding measurement

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<sup>13</sup> Baumer Group Discussion with Frost & Sullivan (May 2026)

<sup>14</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

<sup>15</sup> Ibid.

tasks with small, industrial-grade devices. This capability gives customers more than a sensor upgrade. It gives them a different economic and technical path to machine measurement.<sup>16</sup>

In parallel, industrial customers are increasingly prioritizing energy-efficient and resource-optimized system design. Compact, high-precision sensors contribute to this shift by reducing mechanical complexity, lowering material usage, and supporting more efficient machine architectures that align with sustainability goals in industrial automation.

The gantry-crane application provides a clear example. Heavy-duty cranes in steelworks and shipyards often carry loads weighing several tons, yet customers must measure those loads with precision down to only a few kilograms. Traditional weighing systems must withstand extreme tension stress, which makes them heavier and more expensive as the weighing range increases. Baumer enables a smarter alternative by using AlphaProx sensors to measure crane boom deflection indirectly. Because this deflection occurs in the micrometer range, the application requires highly precise sensing.<sup>17</sup>

The resulting customer economics are compelling. Baumer's approach can support weight measurement with a deviation of only 0.05%, depending on the weighing range. The cost comparison reinforces the value: approximately \$11,700 for a high-load crane weighing system versus about \$350 for an AlphaProx precision inductive sensor. Baumer therefore delivers value not by reducing performance expectations, but by achieving the required performance with a simpler and lower-cost sensing method.<sup>18</sup>

AlphaProx also supports applications such as machine-tool chip detection, cutting-blade sharpness monitoring, wind-turbine blade strain measurement, and prosthesis angle measurement. These use cases demonstrate that Baumer's product strength extends beyond unit cost. The company helps customers reduce system complexity, create new design options, and achieve high measurement performance with less equipment burden.<sup>19</sup>

### Reducing Friction Across the Full Customer Lifecycle

Baumer strengthens customer experience by digitizing interactions across procurement, configuration, and lifecycle management. The purchase experience begins with convenient access through the myBaumer customer portal, which provides product information, ordering, and invoicing in a streamlined digital environment. Baumer pairs this convenience with technical guidance, giving customers a clearer path from product search to solution confidence.<sup>20</sup>

Ownership value grows through Input/Output Link (IO-Link) enabled lifecycle efficiency. In press-fitting applications, Baumer combines force sensors and laser distance sensors to create force-displacement information that shows whether force remains within tolerance or whether a component tilts during the process. Quasi-real-time data transmission helps engineers identify the optimum machine configuration

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<sup>16</sup> Baumer Group's Technical Report Shared with Frost & Sullivan (May 2026)

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

more easily. Once validated, saved setup configurations for sensors and actuators can move 1:1 into series production, reducing time loss between development and manufacturing.<sup>21</sup>

Baumer Sensor Suite strengthens the service experience. The software gives users a clear overview of sensor data and helps them see what the sensor sees, making parameterization of connected sensors and actuators easier. It supports IO-Link sensors from Baumer and other brands, which reflects the mixed-vendor reality of many industrial environments. More than 14,000 registered users rely on the software frequently, showing that Baumer has turned service know-how into a scalable digital support layer.<sup>22</sup>

As industrial systems become increasingly connected, cybersecurity and data integrity requirements are emerging as critical considerations in sensor deployment. Secure communication protocols, device-level authentication, and reliable data transmission are becoming essential to ensure trustworthy operation in digitally integrated manufacturing environments.

This lifecycle model reduces friction at each customer touchpoint. Digital access simplifies purchase. Configuration transfer improves ownership. Sensor visualization and mixed-vendor support improve service. Baumer therefore delivers customer experience as an integrated capability rather than a reactive support function. Customers gain the confidence to evaluate, configure, scale, and maintain sensing solutions with greater operational continuity and efficiency.

## Conclusion

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Baumer Group (Baumer) operates a cohesive model for competing in a sensor market shaped by commodification, increasing automation complexity, and rising demand for field-level intelligence. Its strength lies in translating unmet application needs into engineered sensing solutions, anticipating the requirements of data-driven and software-enabled automation, and sustaining differentiation through deep internal engineering capabilities combined with disciplined global execution. This strategic foundation is reinforced by strong business performance across diversified industrial markets and a focus on higher-value specialization. Baumer's value advantage lies in reducing system complexity without compromising precision, while its customer experience extends that value across procurement, deployment, and lifecycle management through digital tools and integrated support. Together, these elements create a consistent value chain from product design to operational use. Rather than operating as a traditional sensor supplier, Baumer functions as an integrated sensing partner where engineering depth, application understanding, and execution reliability reinforce one another. This alignment enables the company to deliver scalable, precise, and adaptable sensing systems that support the next generation of industrial automation.

With its strong overall performance, Baumer Group earns Frost & Sullivan's 2026 Global Company of the Year Recognition in the position and distance sensors industry.

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<sup>21</sup> Baumer Group's Technical Report Shared with Frost & Sullivan (May 2026)

<sup>22</sup> Baumer Group's Discussion with Frost & Sullivan (May 2026)

## What You Need to Know about the Company of the Year Recognition

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Frost & Sullivan's Company of the Year Recognition is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

### Best Practices Recognition Analysis

For the Company of the Year Recognition, Frost & Sullivan analysts independently evaluated the criteria listed below.

#### Visionary Innovation & Performance

**Addressing Unmet Needs:** Customers' unmet or under-served needs are unearthed and addressed to create growth opportunities across the entire value chain

**Visionary Scenarios Through Megatrends:** Long-range scenarios are incorporated into the innovation strategy by leveraging megatrends and cutting-edge technologies, thereby accelerating the transformational growth journey

**Leadership Focus:** The company focuses on building a leadership position in core markets to create stiff barriers to entry for new competitors and enhance its future growth potential

**Best Practices Implementation:** Best-in-class implementation is characterized by processes, tools, or activities that generate consistent, repeatable, and scalable success

**Financial Performance:** Strong overall business performance is achieved by striking the optimal balance between investing in revenue growth and maximizing operating margin

#### Customer Impact

**Price/Performance Value:** Products or services offer the best ROI and superior value compared to similar market offerings

**Customer Purchase Experience:** Purchase experience with minimal friction and high transparency assures customers that they are buying the optimal solution to address both their needs and constraints

**Customer Ownership Excellence:** Products and solutions evolve continuously in sync with the customers' own growth journeys, engendering pride of ownership and enhanced customer experience

**Customer Service Experience:** Customer service is readily accessible and stress-free, and delivered with high quality, high availability, and fast response time

**Brand Equity:** Customers perceive the brand positively and exhibit high brand loyalty, which is regularly measured and confirmed through a high Net Promoter Score®

## Best Practices Recognition Analytics Methodology

### Inspire the World to Support True Leaders

This long-term process spans 12 months, beginning with the prioritization of the sector. It involves a rigorous approach that includes comprehensive scanning and analytics to identify key best practice trends. A dedicated team of analysts, advisors, coaches, and experts collaborates closely, ensuring thorough review and input. The goal is to maximize the company's long-term value by leveraging unique perspectives to support each Best Practice Recognition and identify meaningful transformation and impact.

| VALUE IMPACT |                               |                                                                          |                                                    |
|--------------|-------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|
| STEP         |                               | WHAT                                                                     | WHY                                                |
| 1            | <b>Opportunity Universe</b>   | Identify Sectors with the Greatest Impact on the Global Economy          | Value to Economic Development                      |
| 2            | <b>Transformational Model</b> | Analyze Strategic Imperatives That Drive Transformation                  | Understand and Create a Winning Strategy           |
| 3            | <b>Ecosystem</b>              | Map Critical Value Chains                                                | Comprehensive Community that Shapes the Sector     |
| 4            | <b>Growth Generator</b>       | Data Foundation That Provides Decision Support System                    | Spark Opportunities and Accelerate Decision-making |
| 5            | <b>Growth Opportunities</b>   | Identify Opportunities Generated by Companies                            | Drive the Transformation of the Industry           |
| 6            | <b>Frost Radar</b>            | Benchmark Companies on Future Growth Potential                           | Identify Most Powerful Companies to Action         |
| 7            | <b>Best Practices</b>         | Identify Companies Achieving Best Practices in All Critical Perspectives | Inspire the World                                  |
| 8            | <b>Companies to Action</b>    | Tell Your Story to the World (BICEP*)                                    | Ecosystem Community Supporting Future Success      |

\*Board of Directors, Investors, Customers, Employees, Partners

## About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

## The Growth Pipeline Generator™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fueled by the Innovation Generator™.

[Learn more.](#)

### Key Impacts:

- **Growth Pipeline:** Continuous Flow of Growth Opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



## The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

### Analytical Perspectives:

- **Megatrend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

