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Momentum

THE BOSSARD MAGAZINE

BEYOND
CATALOG



ENGINEERED PRODUCTS

BEYOND CATALOG



Tee Bin Ong

The Bossard catalogs, also known as the “Blue Bible,” are legendary in the fastening industry. They combine more than 70,000 types of standard fasteners with detailed data and application do-how. As we continue to create success with our standard products, we are also an expert in providing engineered products that are beyond catalog. What does this mean?

Our customers want to make their products best-in-class in their industries. Product designers and engineers are expected to come up with designs and technologies that provide better features and stand out. When it comes to assembling the components, standard fasteners may not exist or they may not meet the technical requirements.

For example, a world leader in children's safety required specially designed spindles and lock nuts that met the European standard for child safety barriers for a safety gate. Bossard did it, and this is just one among 600,000 customized solutions that we provide.

In this edition of Momentum, we would like to demonstrate how Bossard's technical expertise and supply chain network come together to create engineered solutions that are beyond catalog.

A handwritten signature in black ink, appearing to read 'Tee Bin Ong', written in a cursive style.

Tee Bin Ong
Vice President Sales & Marketing

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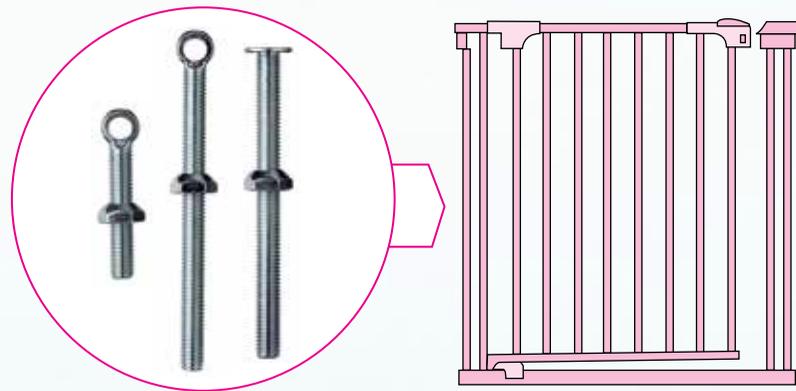
THE RATTLE TEST

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Toddler-proof products are in demand. Babies have a firm grip that places extreme stress on even the smallest parts, such as the fasteners of child safety gates.

THE ENGINEERED PRODUCT

Baby Dan (DK) develops and produces textiles and baby furniture as well as baby gates. As a world leader in child safety, Baby Dan has a seat on the European Committee that deals with the development of new standards. Bossard Denmark supplied different types of spindles and lock nuts for installing the gate at home. Important details, such as geometric tolerances and material and surface treatment specifications, were added to the technical drawings for this purpose. Baby Dan has already placed a new order for another engineered product.



The spindles and lock nuts (left) for tightening the gate (right) are made of steel in the property classes 4.6/4.8, with a zinc-plated surface. In compliance with the Restriction of the Use of Certain Hazardous Substances 2002/95/EC (RoHS), the product contains no chromium trioxide.

“Our customers expect our products to meet the strictest safety standards. With Bossard as our supplier, we are on the safe side.”

Henriette Haugan
Purchase Manager Baby Dan A/S,
Låsby, Denmark



EN1930:2011

This new European standard specifies the safety requirements and methods for testing child safety gates in the home. The gates must be fastened to openings in a way that prevents children up to two years old from getting past them. Bossard conducted the required rattle test for the fasteners, using a special test device in which a basketball simulates the load.



ON GOOD TERMS WITH THE CARETAKER

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School caretakers don't have it easy. Bossard and Embru-Werke AG, a long-established and leading Swiss manufacturer of school furniture, are making life easier for them.

30,000

This is the number of chairs of the relevant models that Embru-Werke AG (CH) produces each year. The new screws make it unnecessary to manually adjust the five rubber feet.

THE CHALLENGE

Chairs that permit a lot of movement are in vogue. Even in schools. And yet teachers are not the only ones who would prefer that students focus more on intellectual pursuits. Caretakers

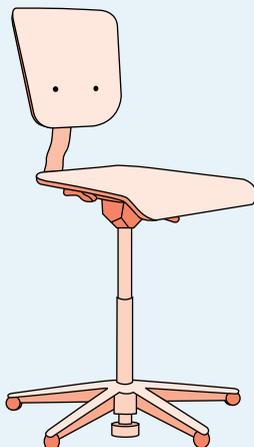
were faced with the problem that the rubber feet on Embru chairs became loose when students rocked their chairs back and forth, and these feet in some cases had to be tightened. Quite often, the entire base of the chair had to be replaced because the threads were stripped. The screws used as fasteners were unreliable and less than optimal. With these screws, the rubber could not always be snugly fitted during assembly. Working together with Embru's production manager and design engineer, Bossard came up with a solution that did not require changing the chair's design.



The finished product delivered by Bossard is a specially made screw that has a thread diameter of 4.5 mm. It cuts the thread the first time it is inserted and it comes with a special supporting shank. The Torx® drive prevents damage to the screw head at high torques. The underlying round flange holds the chair parts together securely.

BOSSARD ANALYTICS

Bossard tested the new fastening elements for the rubber feet in its test lab. The lab is a recognized ISO/IEC-accredited test lab, equipped with cutting-edge instruments. The test results demonstrated the reliability of the new screws.



“Thanks to Bossard, we can give our customers the option of having the new screws already fitted in delivered products.”

Michèle Steiner
Purchasing, Embru-Werke AG, Rütli,
Switzerland

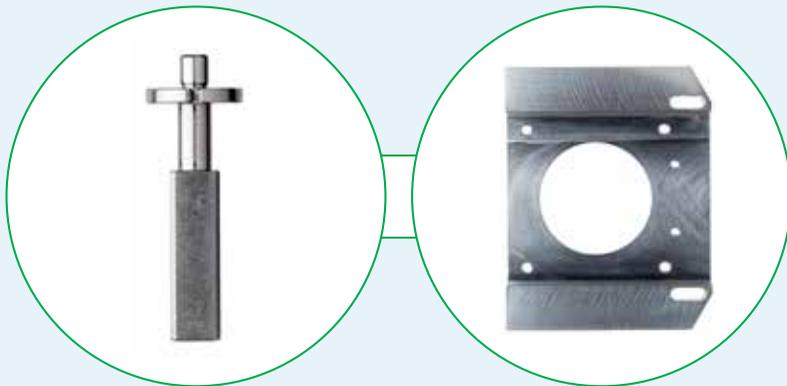
embru
möbel ein leben lang



NO MARGIN FOR ERROR IN BLOOD ANALYSIS

BEYOND CATALOG

A leading medtech company must be able to count on Bossard. Devices for medical diagnostics require mechanical components that operate with the utmost precision.



Two of the many parts that Bossard procures for its client. To the left, the initial bolt. To the right, the part that secures the position of the motor on the analysis module. Due to high temperatures in the analysis module, these parts are made of high-precision steel.

THE BENEFITS

The customer has taken advantage of Bossard's C-parts management service for several of its devices. Bossard coordinates about 120 suppliers of engineered products and saves the diagnostic solution provider the need to process 4,000 to 5,000 orders per year, including incoming goods inspections.

Because of its experience with C-parts management, Bossard has become this customer's preferred partner. The customer indicated that choosing Bossard had been the best decision it could have made. It is already considering expanding its collaboration, says the managing buyer.

THE ENGINEERED PRODUCT

The initial bolt procured through Bossard ensures ultra-precise centering of the needle for pipetting reagents from the various cartridges. Reagents are agents that can identify a substance in the blood. The bolt is used to configure the position of the draw-off needle before the analysis run.

THE END PRODUCT

The engineered product is part of a blood analyzer for clinical chemistry and immunology in labs. The machine is used to analyze just a few specimens or to perform several hundred tests per hour, depending on the model.

0.03^{mm}

The bolt height should not exceed this tolerance. The perpendicularity of the square head and the slot size are also important. The bolt is made of high-precision steel.



FACTS AND FIGURES

BEYOND CATALOG

Ten interesting facts about engineered products

>600,000
units

The number of engineered products processed and requested globally in 2012. Engineered products inquiries and orders are processed in close cooperation with sales and the regional companies that benefit from the service.

0.5
millimeters

The minimum diameter of custom-turned parts that Bossard can deliver is not much thicker than a razor blade. Bossard can process all machinable steels, including non-ferrous metals, plastics and special steels.

20
percent

The chromium content of nimonic, a specialty material with an extremely high thermal stability, which is why it is used for components such as aircraft parts.

-90
percent

The amount by which production waste is reduced thanks to the use of reliable screws; for example, in hearing aid micro-production.

23,110,000

units

The number of blind rivets specifically produced for a Danish client in 2012.

+/- 1

µm tolerance

100 times smaller than human hair: that is the accuracy of the Micro-Vu Vertex Multisensor Measuring Center that Bossard lab technicians use to measure parts with complex shapes.

3,000

metric tons

Quantity of specialty parts that Bossard delivered to customers in Switzerland alone in 2012. Many of these parts are used in mechanical engineering, equipment manufacturing and the medical industry. The lightest specialty part weighs about 0.05 grams and the heaviest about 18 kilograms.

500,000

units

Bossard can supply custom hot/cold-forged parts in volumes of 50,000 to 500,000 or more. In addition to screws and nuts, this includes more complex parts that are produced cost-efficiently in a multi-stage extrusion process.

1st

place

Bossard has earned recognition as a Partner-level supplier for 2012 in the John Deere Achieving Excellence Program. Partner-level status is Deere & Company's highest supplier rating in recognition of the provision of quality products, service, and commitment to continuous improvement.

10

accredited test laboratories

In Europe, America, and Asia, Bossard runs ten laboratories that have been accredited by the regional authorities and which ensure reliable quality assurance and flawless product quality.

PRODUCT HIGHLIGHTS

BEYOND CATALOG

Bossard not only procures C-parts, but each part is manufactured according to the customer's individual specifications.



Turned/milled part made of aluminum
→ \varnothing 80 mm



Milled part made of aluminum,
with anodizing
→ \varnothing 40 mm × 11 mm × 44 mm



Turned part with inner bore made
of stainless steel
→ \varnothing 100 mm × 25 mm



Plastic milled part, POM, black
→ 35 mm × 24 mm



Turned/milled part made of
stainless steel
→ \varnothing 32 mm



Turned/milled part made of high-quality stainless steel
→ Ø 15 mm × 68 mm



Turned part with laser engraving
→ Ø 10 mm × 15 mm



Stainless steel bushing
→ Ø 62 mm / 47 mm × 66 mm



Turned/milled part made of brass
→ Ø 35 mm × 40 mm



Turned part made of stainless steel with 6 holes
→ Ø 70 mm



Extruded part made of a high-temperature material
→ Ø 10 mm × 30 mm



Turned parts made of PMMA plastic
→ Ø 30 mm × 31 mm



Turned/milled part made of brass, nickel-plated
→ Ø 60 mm × 72 mm



Spindle made of stainless steel
→ Ø 8 mm × 150 mm



Turned/milled part made of free cutting steel with square head
→ Ø 25 mm × 65 mm



Milled part made of aluminum
→ 170 mm × 25 mm



Milled part made of aluminum with colorless anodizing
→ 33 mm × 50 mm

*ZNÜNI WITH...

BEYOND CATALOG



Daniel Stutz (43) heads the engineered products purchasing department for Bossard Central Europe. Having joined Bossard in 2001, Mr. Stutz has a background in industrial business and a degree in purchasing management. He leads a team of 14 specialists who procure hundreds of customized solutions for our customers each year.

We have heard success stories about how your team provides customized parts that sometime don't look like a normal nut or bolt. Could you share with us a typical workday?

I'm at the office by 7:30 a.m. and look at my e-mail. Our suppliers in the Far East are up to seven time zones away and a lot of messages arrive overnight. After that, I have a look at our open and due supplier orders. It is absolutely crucial for our industrial clients that we keep up with delivery times: Bossard is on time, every time. Then I will analyze the business development trend based on open inquiries from customers, orders placed with suppliers and procurement costing. This helps to identify potential areas for optimization. Like our customers, Bossard has set itself the goal of minimizing stock on hand while remaining ready to deliver at any time. Communication is the alpha and the omega of our job. That is why plenty of meetings and conferences are part of my daily routine.

What are the main challenges you and your team encounter? In providing individual solutions, understanding our customer's technical requirement is very important. This enables us to find the right supplier that can meet the quality and functionality we expect. And also the production capacity; for example, the technical design may come from Germany, the production is in Asia, and the finishing process is in Eastern Europe. Dealing with this is an enormous challenge. There is no "one size fits all" solution.

What is the most complex part you and your team have ever produced?

Complexity often derives from unpredictable incidents. I remember one customer, who specialized in medical devices,

was looking for a special part made of aluminium. Some kind of spots started to appear after surface treatment. These spots were unacceptable for the application since the aluminum surface was visible in the assembled device. After investigation, we resolved the problem by applying additional grinding and brushing in the manufacturing process.

What do you value in a supplier?

We evaluate suppliers from the process capability, quality control, technical support and cost competitiveness. There are times when a tool in the press breaks, for example, and the shipment is delayed. When this happens, we expect the supplier to discuss such issues openly and help us come up with solutions. In principle, we cultivate firm but fair business relationships with our partners.

Many players in the fastening industry now provide non-standard screws or parts. What differentiates Bossard from its competitors?

Our solid expertise combined with our vast experience makes sure that the right manufacturing capability matches the right job. Our corporate culture shapes our understanding of quality and our purchasing policy. We cultivate relationships with our suppliers and aim for long-term cooperation. This also means that we have to work together with the suppliers to find solutions in order to quote the best market prices. For that reason, all our buyers must have a technical background. In the end, it is about achieving the optimum total cost of ownership.

Last but not the least, what gives you most the satisfaction in what you do?

My team and I always find great joy when the solution we provide demonstrates outstanding performance and is accepted by our customer. For us, every day is different, which is why we enjoy our work with Bossard.

* Znüni is a Swiss expression for a morning snack break



Top: Judit Paczona, expert for engineered products, discussing a customer project with Markus Baumann, Head of the technical inspection department
Center: Peter Kűng, Application Engineering, testing fastener assembly
Bottom: Multisensor measuring of complex shapes

MORE THAN NUTS AND BOLTS

BEYOND CATALOG

When unique parts are wanted, industrial clients can count on Bossard.

Experienced procurement experts around the globe can find the right manufacturing capability from a huge supplier base. The range of additional services for engineered products leaves nothing to be desired.

B

ossard defines engineered products as components designed and procured specifically for customers. They are not listed in Bossard's catalogue since the sizes and shapes are unique. They are usually manufactured according to the customer's specifications and drawings. The production process of a special part can involve precision turning or milling,

stamping or bending, and hot or cold forging. In short, engineered products are more than just nuts and bolts. As the examples on page 4 show, ranging from child safety to medical technology industries, Bossard often receives requests for engineering services for designing and creating customized solutions.

SUPPLIER BASE INTELLIGENCE

Bossard has access to a very large number of qualified suppliers throughout the world. "This gives our customers a kind of extended workbench," says Daniel Stutz, head of the engineered products purchasing department in Zug. The number of suppliers grows along with the number of customers and their projects. Bossard continuously identifies and develops potential manufacturers.

In the course of time, Bossard has developed an extraordinary supplier base intelligence. Manufacturers all over the world are entered into a database along with the relevant service details. Based on the type of manufacturing, they

are divided into three main groups: turned and milled parts, cold/hot-forged parts, and stamped/bent parts. Thanks to the continuous influx of new suppliers and research by the internal procurement market research department, the database is always up to date, and Bossard keeps up with the latest trends in the worldwide procurement markets.

"Bossard combines solid expertise with vast experience..."

Among other things, Bossard's code of conduct, technical expertise, quality assurance, and plant capacities play a role in evaluating suppliers. For security reasons, Bossard pursues a policy of ordering each product from two or more suppliers. This is more important than ever before, since risk management is becoming an ever higher priority in all companies.

SOLID EXPERTISE AND VAST EXPERIENCE

Thanks to their solid expertise and vast experience, Bossard's purchasers are able to match the right manufacturing with the right job. Certain materials are not always easy to obtain. Some brands of rust- and acid-resistant steel alloys are hard to find in a number of Asian countries. In these cases, Bossard encourages its suppliers to keep an eye out for sources of the relevant materials or to propose suitable alternatives. In rare instances, Bossard has even brokered materials. Purchasing faces a special challenge when appearance aspects unexpectedly come into play (see interview with Daniel Stutz on page 14).

THOROUGH QUALITY ASSURANCE

Bossard's quality assurance practices are particularly stringent when it comes to engineered products. A sample of each shipment is tested in one of the ten Bossard laboratories around the world. Specialists weigh the goods and test their mechanical and material-specific properties. Instruments for examining hardness, tensile strength, corrosion resistance and for determining the thread pitch of screws are available for this purpose. Test documents accompanying the delivery are examined by experts. A multi-sensor measuring device makes it possible to precisely inspect thin, elastic parts or those with variable dimensions. Bossard also conducts customer-specific spectral analyses, which involves irradiating materials in order to clearly identify them. When needed, experts also test the coefficient of friction of fastening elements. Shipments of parts intended for automatic processing remain unopened. In this case, the supplier guarantees the purity of the "bulk material" under ISO 16426 and ensures that the material contains no impurities that could cause malfunctions in the machinery.

A team of seven performs inspections in Zug. Two more employees handle application-specific tests. Bossard works with Sulzer Innotech to diagnose an item's functional reliability under load—for example, with the help of thermal shock tests.

The most important factor in the quality checks are the people involved. All team members have completed basic training in the industry. Their practical experience and customer knowledge enable them to evaluate the parts for the requirements to be met, even beyond the specifications in the technical drawings.

...to find the right manufacturing capability for any job at any time."

MORE VALUE ADDED WITH C-PARTS MANAGEMENT

The lion's share of costs (85 percent) goes to development, procurement, inspection, warehousing, and assembly logistics – and not to the materials of the C-parts. Bossard therefore focuses on lowering the total operating costs of its customers through assembly process improvement and C-parts management, which include engineered products. It is for this reason that Bossard introduced the Next Generation

service. Bossard Next Generation is a comprehensive service for design and process optimization focused on boosting manufacturing productivity and lowering total cost of ownership (TCO) using value stream analysis.

Bossard's C-parts management service provides a wide range of advantages for standardized products. And it also benefits customers who purchase non-catalog products from a single source. Bossard aims for close cooperations with customers who manufacture engineered products and fosters long-lasting partnerships. This approach creates synergies with other Bossard services, such as design and process optimization – in keeping with Bossard Next Generation. And it benefits Bossard as well.

NATIONALLY RECOGNIZED TESTING CENTER

The authoritative certification agencies have attested to Bossard's compliance with numerous standards. The most important one for Bossard is the company's status as a recognized testing center for mechanical fasteners under ISO/IEC 17025, according to Markus Baumann, who heads the technical inspection department. This certification is granted by the Swiss Accreditation Service (SAS).



Johnny Koh

Purchasing Engineered Products Asia-Pacific,
with Bossard for 4 years

“We offer an enormous range of C-parts from a single source.”

Engineered products are often needed in small quantities and yet must meet strict requirements. Finding the right supplier can therefore be quite a challenge. In China, many of them are fast and flexible, but less focused on consistency. In India, lead time and payment are the main criteria.



Curtis Brustkern

Purchasing Engineered Products North America,
with Bossard for 16 years

The first and most important step is to understand our customers' expectations: When do they want the product, what are the quality requirements, and what documentation is needed? With specials, you take away the commodity aspect of the fastener – you are actually providing an engineered solution.

“For me, the most desirable outcome is when a client no longer judges our product on its unit price but rather on the total value of the services Bossard provides.”



Pia Larsen

Purchasing Engineered Products Denmark,
with Bossard for 14 years

Many companies in our region buy engineered products on their own account. They will come to Bossard only if we can do this better than they can. To gain new customers, we continuously expand our supplier network and thus also our range of products for additional applications.

“Our database contains thousands of suppliers.”



We have many competitors in France. Fast response and a large service portfolio are determining factors in our success. We have to meet customer requirements by offering quality and competitive prices. That is why we buy mainly from France, particularly for our customers in the rail industry.

“Thanks to our expertise, we are competitive in purchasing complex parts.”



Joël Vogel

Purchasing Engineered Products France,
with Bossard for 17 years



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