

EXPANDING BOUNDARIES



Getting an absolute bearing on market developments this past year is an exercise in higher mathematics, considering the effects of exchange

rate fluctuations, volume growth in some sectors and slackening demand in certain geographical areas. Overall, however, we can state that 1998 has been a good year for Höganäs, and that 1999 will be even better.

Why? Developments – both product and market.

From a product prospective, several initiatives are beginning to show their worth – including Warm Compaction, SMCs and Astaloy CrM. In all but the last case, developments have now become actual production.

Market developments proceed steadily too, despite the macroeconomic adjustments of the last 18 months. By far the most exciting news for Höganäs is the acquisition by GKN North America Inc. of Interlake, which is parent company to Hoeganaes Corporation. The purchase highlights the need for an independent global powder manufacturer. This is a role which Höganäs is both suited and prepared to fulfill, and we have already begun to participate more actively in the North American market.

Look forward to more news about America in the months ahead, and enjoy this issue of Powder News, which brings you up to date on current developments at Höganäs.

Sincerely,
Claes Lindqvist
CEO

HTQ is the springboard to long-term profitability

Ensuring the high quality of products and services is no longer carried out primarily to satisfy the demands of customers or regulatory authorities, it is now an indispensable means of survival in a tough business environment. Höganäs is securing its future as the leader in metal powders through its Total Quality approach, which is implemented to maintain long-term customer loyalty.

In a nutshell, Höganäs Total Quality (HTQ) ensures the reliable supply of products and services of correct and consistent quality to customers at the lowest total cost. And the man with responsibility for making sure this continues to happen throughout all Höganäs companies is Jari Aaltonen, the Corporate Quality Assurance Manager. Jari accepted this post in 1995, after serving as President of Höganäs Japan for six years.

“It was a big challenge to go direct from being in charge of marketing in Japan to being head of quality for the worldwide Höganäs organization,” says Jari. “Whereas marketing was a front-end job on the customer side, quality management involves everything along the chain from our suppliers to our customers. Moreover, I am responsible for the quality system covering the manufacture of iron powder by Höganäs, and also for the development and implementation of our corporate QA system and our HTQ philosophy globally.”



A very intensive period

Höganäs Gas Atomized Powder was awarded ISO 9002 certification in December '92, Coldstream S.A. in 1993, and Höganäs India in 1995. Höganäs AB gained both ISO 9001 and Ford Q101/Q1 in 1993. Since Jari took control of quality, he and his team have been busy extending ISO certification to all Höganäs companies and introducing the new, more stringent QS 9000 standards.

“After our main manufacturing sites were ISO-certified, our next target was the UK and Japan,” continued Jari. “Together with staff from the UK office, we put a lot of effort into building up a correct ISO system that would suit primarily a sales company, so that it could serve as a basic model for other relevant companies around the world. Because many of our sales companies also have storage facilities for metal powder products, and certain companies incorporate processing, ISO 9002 systems had to be tailored according to the structure of the companies involved.”

IN THIS ISSUE:

Quality – all in all
Global Surfacing Supplier
Progress updates
Y2K

Höganäs (Great Britain) Ltd. and Höganäs Japan KK received ISO 9002 certification in '97 and '98 respectively. These were followed by Höganäs companies in France, Spain, Italy and Germany, all of which received ISO certification during 1998. Korea/Taiwan is expected to follow suit this year, and work on an ISO system will soon begin in China.

"Right from the start in 1995, the job has been really intensive," Jari points out. "So many things were happening simultaneously, with setting up ISO systems in six different countries. Parallel to this, we were getting to grips with the new QS 9000 system and implementing that as well!"

Quality is an everyday activity

Höganäs Total Quality involves a continuous process of change and improvement in collaboration with customers and suppliers. It is supported by five cornerstones, as seen in the diagram, all of which interact to the benefit of customers. An important result of HTQ is that the sum of all costs involved in producing a product or service is minimized. The ultimate goals are to achieve long-term growth and profitability for customers, suppliers and ourselves, to increase the use of metal powders in new and exciting applications, and to contribute to the advancement of PM technology.

"The attitude to quality has gradually evolved throughout the whole organization over the past years," adds Jari. "Now that the ISO and QS standards have pervaded every aspect of our operations from supplier intake right through to customer delivery, every staff member is aware that quality now forms a natural part of his or her everyday activities. And that's how it should be."

QS demands a lot more

The new QS 9000 system derives from the automotive quality standards and the ISO 9000 system. It was developed by the "Big Three" US automotive manufacturers Chrysler, Ford and General Motors as a common quality standard for internal and external suppliers of production and service parts and materials. To give an idea of how rigorous QS 9000 is, the number of mandatory "shall" regulations it contains is about double those in ISO 9000.

"We began teamwork with QS 9000 in 1997," continues Jari. "I was appointed Project Leader and coordinated the activities of three Project Groups formed to implement the QS standard in Höganäs AB, division Höganäs Gas Atomized Powder and Coldstream S.A. respectively."

"The work was partially motivated by the fact that we have Ford as a customer in Germany. We also weighed up the pros and cons for introducing QS in the whole company,

and the pros won even though it meant a lot of extra effort. Nevertheless, the effort paid off, with QS certification of Höganäs AB in October '98, followed by Gas Atomized Powder in December. In the same month, our German subsidiary gained a statement of compliance, and Coldstream was awarded QS status pending formal approval in February this year."

"One big difference from our side is that QS puts greater demands on management from a strategic point of view. It has become mandatory that we be able to demonstrate continuous improvement. This entails more comprehensive quality reviews by management. A very positive outcome of our QS work is that it has revitalized our whole quality mentality, despite the fact that ISO 9000 is always ongoing"

A hectic future

As far as the future is concerned, quality activities will proceed at an intensive pace, since this is the name of the game. For instance, during 2000 the existing ISO 9000 systems will be revised, and it may well be that an attempt will be made to harmonize different existing automotive standards, as well as harmonize automotive standards with ISO 9000 standards.

Jari Aaltonen has two outstanding highlights regarding HTQ. "Actually my first highlight goes back even further to when I first joined Höganäs as a member of the R&D Department in February 1979. This means that it is now my 20th birthday with Höganäs. The other highlight is a recent one that gives me a great deal of personal satisfaction. When we were being audited first for QS certification, the auditors said that it was very difficult to be awarded QS certification at the first attempt as there was bound to be some nonconformity along the quality control chain. Five days later we successfully completed the QS audit, with Gas Atomized Powder, Germany and Coldstream later attaining the same achievement!"

Congratulations Jari and your team on your magnificent efforts. May HTQ continue to thrive under your leadership.



Jari Aaltonen

Coldstream to attain QS 9000 in April

Henri Jonniaux, Quality Manager of Coldstream, Belgium, is delighted that Coldstream is following in the footsteps of Höganäs AB. "Not only do we expect QS 9000 certification in April, but we were also warned by the auditors that they had never granted it at the first attempt, only to do exactly this a few days later," says Henri. "This is the best proof of the excellent teamwork in Coldstream and the good coordination between Höganäs and Coldstream."

"Although we are not a first-tier supplier to the automotive industry, QS 9000 prepares us for the future in that many of our present customers will no doubt be demanding compliance to QS in the years ahead, especially as ISO 9002 is now being revised to make it more stringent," points out Henri. "Moreover, we must not forget that QS 9000 includes requirements on the impact of manufacturing and materials on the environment. As we are now planning work towards gaining ISO 14001 certification before the end of year 2000, this means that we are involved with environmental activities in parallel for both management systems."

Good for all concerned

"Our QS 9000 system complies with the tougher third edition. Unlike the second edition, "should" requirements are now mandatory – just like "shall" regulations! This no longer gives us the discretion to interpret "should" regulations in our own way."

"Implementing QS 9000 has meant that we had to reorganize our quality system completely, which entailed a lot of hard work and a further change of attitude. However, it has benefited us greatly by impressing upon us the necessity of quality procedures as a competitive factor, which we can pass on to our customers in the form of improved products and services. And that's good for all concerned," concludes Henri.

Product progress updates

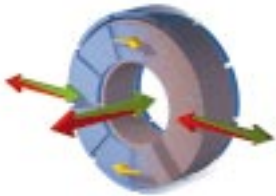
Metal powder and application developments are moving vigorously forward on all fronts at Höganäs. Here's a rundown on three of our hottest areas just now...



Astaloy® CrM

Our new press powder was warmly received at the PM 98 conference in Granada last October. More than 70 customers have taken samples for testing, and two have already scheduled component production start for Spring 1999.

Höganäs development support for Astaloy CrM comprises both theoretical and practical components, with initial visits and discussions followed by theoretical development support and, ultimately, practical testing to verify correct sintering conditions.



Soft Magnetic Composites

Bringing a new technology to market often requires changing the market's way of thinking. Höganäs SMCs have gathered momentum since 1996, and electric motor developments are now approaching commercial viability in several applications.

Apart from the 3-D electromagnetic advantages which SMC materials offer, their benefits are clear in another perspective – recyclability. An EU-sponsored development collaboration that includes Höganäs is near to production of a small electric motor which offers high recyclability of copper and iron parts.



Warm Compaction

Since we last reported its status in 1997, Warm Compaction has become a respected and accepted technology for production of P/M components that require higher strength, density and durability. Around the world, nearly 3 dozen companies are now involved in commercial production of over 125 different components, ranging from small power tool parts to turbine hubs weighing over 1 kg. Total output has grown to about 20 million units per year.

For Höganäs customers, interest has been particularly strong for different Distaloy mixes, and mixes of molybdenum-prealloyed powders, because they facilitate production of high-performance components at reduced cost. Global warm compaction output is estimated to continue to grow at a rate of more than 20% annually.

GAP signs global supplier agreement with Eaton

Eaton Corporation is one of the world's leading manufacturers of automotive engine components, with annual sales exceeding USD 6.6 billion.

With production at 155 sites in 25 countries, Eaton is a truly global company. One of its core strategies is to develop tighter cooperation with suppliers, with the overall aim to source better products at a lower total cost. Central to this strategy is Ideas Cooperation – to find, together with the supplier, better and more cost-effective ways to achieve desired goals.

For many years, Höganäs has supplied Eaton with gas atomized powders for production of valves. Today Höganäs is one of Eaton's 30 major suppliers, just as Eaton is one of Höganäs largest customers.

Effective this year, Höganäs has been appointed Global Supplier for Eaton's valve plants in the USA, Brazil, Italy, Spain, Germany, Poland, India and China. One major reason for making Höganäs a Global Supplier is to standardize materials used in the different plants around the world. This will secure quality at the same time it ensures lowest total cost for Eaton – a development well in line with the Höganäs Total Quality concept.

Y2K?

Yes. We're ready.

by Arne Lundin,
Year 2000 Project Manager

The subject of Y2K preparedness has received so much notice that one can almost be lulled into a false sense of security.

That's why Höganäs has chosen to document its Y2K efforts in accordance with the AIAG methodology (Automotive Industry Action Group). The AIAG survey includes 24 critical questions, the answers to which are followed up and amended continuously by us.

We have been working actively with the question since early 1997. Systems have been tested repeatedly, both internally and externally, and all work is complete, or scheduled to be finished by end-June 1999.

In a distilled form, our deadlines look like this:

Item	Corrective measures completed
Business computer systems	Q1 1999
Manufacturing, warehousing & servicing equipment	Q2 1999
Technical infrastructure	Q1 1999
End-user computing	Q2 1999
Suppliers, agents and service providers	Q2 1999
Environmental operations at plants, offices & other sites	Q2 1999
Dedicated R&D test facilities	Q2 1999
Contingency plans	Q3 1999

The last item – Contingency plans – acts to 'head off' or preclude any unforeseen results of the millenium change. Contingency plan preparedness deals with unforeseen potentialities; i.e. what to do if a systems breakdown dictates major personnel increases, what sort of reserves should we hold, etc.

Höganäs won't be caught off-guard by Y2K. Be sure of it.



Don't miss HIPIH '99

The Höganäs Iron Powder Information Hub (HIPIH) has become an important tool for Höganäs customers. Offering extensive metal powder know-how on an easy-to-use CD ROM, it's a handy way to get information about Höganäs products and applications.



In February 1999, we introduced the latest version of HIPIH. It's now even easier to use, and functional enhancements include:

- The CASIP (Computer Aided Selection of Iron Powder) section has been totally reworked, to help you more effectively select the right powder for a given application.
- The product data section has been updated to include Astaloy CrM and other new Höganäs products.
- The sintered data section has been altered, to make it easier and faster to select the cor-

rect product. The result is presented in new, more exact diagrams.

- The reference library has been augmented with some 50 articles written during 1998.
- The PM School now includes all 5 books in the 'Höganäs Handbooks for Sintered Components' series. Some of the books are also available in German, French and Spanish.

Have you received HIPIH '99? If not, please let us know. We will send you a copy free of charge.

The Höganäs Chair in Powder Metallurgy

Höganäs AB has signed an agreement on scientific development collaboration with three different European universities for research work in the field of powder metallurgy. Leading the program at their respective universities will be:

- Prof. José Manuel Torralba, Universidad Carlos III de Madrid, Spain,
- Prof. Alberto Molinari, Università di Trento, Italy, and
- Prof. Herbert Danninger, Vienna University of Technology, Austria.

During the term of the agreement, Höganäs will sponsor the work for a Ph.D. thesis at each site, as well as the organization of powder metallurgical seminars and programmes.

Initial discussions took place during the PM '98 World Congress of Powder Metallurgy in Granada, followed by a meeting at the Höganäs R&D facilities, in Sweden, in December 1998, where participants developed a number of plans and guidelines.

For 1999, activities organized by the Höganäs Chair in Powder Metallurgy include:

- PM School, to be held in Madrid during July,
- Seminars in Austria in September, and Italy in November, on Sintering Atmospheres, and Surface Heat Treatment of Sintered Steels respectively.

If you are interested in any of these events, please contact your local Höganäs representative or the respective university. You can also log onto the Höganäs website <www.hoganas.com>, where a special page will be devoted to activities relating to the Höganäs Chair in Powder Metallurgy.

POWDER PEOPLE

Caroline Lindberg is a familiar figure to many of our readers. Toste Jonsäter isn't, but he will be soon (so we must learn to pronounce his name).



Caroline, who came to Höganäs fresh from the Swedish Royal Institute of Technology in 1988, has served in product development and, since 1994, in P/M sales and marketing – for Sweden, Denmark and Japan successively. She now leaves the latter position to become product manager for Astaloy CrM.



Toste (pronounced 'toss-tay yawn-setter') takes over the role of technical customer support for the important Japanese market, effective immediately. He brings a similar expertise to his work, having taken his M.Sc. in Materials Science from the Royal Institute of Technology in 1994. Before joining Höganäs in 1997, Toste served nearly four years at Fagersta Stainless, working in technical market support and product development.



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