



New Hampshire Ball Bearings, Inc.
— A Minebea Company —

inside track

Richard Bardellini Named Vice President of Manufacturing

New Hampshire Ball Bearings, Inc. has promoted Richard Bardellini to Vice President of Manufacturing. Formerly the Operations Manager for the Astro Division, in his new role Mr. Bardellini will guide NHBB's three divisions—Astro, HiTech and Precision—through the continued development of their production processes and capabilities.

"Astro's manufacturing operations have been strengthened by Rich's technical and organizational leadership and by his many successful improvement initiatives," says NHBB's President, Gary Yomantas. "And I am confident that, due to his unique ability to serve as a catalyst for change, Rich will strengthen our position as a top-tier custom bearing manufacturer."

On April 1, 2007, Mr. Bardellini assumed the role held by Richard Flecok, who has



Richard Bardellini, NHBB's New VP of Manufacturing

stayed on part-time as an advisor before his eventual retirement.

As the corporate leader of manufacturing, Mr. Bardellini will serve as a key strategist for all production operations. His responsibilities will involve the selection and allocation of manufacturing assets

in ways that maximize the company's production capacity. Mr. Bardellini plans to facilitate the adoption of best practices, such as Lean Manufacturing, Six Sigma and work-cell development, throughout each division. And utilizing his combined experience in Lean Manufacturing and global sourcing, he is expected to augment NHBB's production capabilities by coordinating resources with its parent company, Minebea Co., Ltd., a global leader in bearing manufacturing.

"I am excited to serve NHBB in this new, expanded capacity," says Bardellini. "While our collective capability and resolve are second to none, we need to continually improve our performance in response to an ever-increasing globally competitive environment."

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Astro Fills Key Roles

Richard Bardellini's promotion and a couple of other changes opened up pivotal roles in manufacturing, product engineering and customer service. To fill the positions, NHBB implemented its formal succession plan, a process designed to ensure a smooth transition of leadership during times of change. What follows is a brief description of some recent moves:

New Operations Manager Chosen

On April 1, 2007, Jim St. Pierre succeeded Richard Bardellini to become the new Operations Manager of the Astro Division. In his new role, Jim is responsible for improving productivity, maintaining product quality, and aligning Astro's manufacturing capabilities with the ever-changing needs of NHBB's aerospace and industrial customers. To achieve these



Jim St. Pierre, Operations Manager

objectives, Jim plans to facilitate Lean Six Sigma initiatives and best practices throughout all departments. "Taking over where Rich left off, I hope to serve as a catalyst for improvements that keep Astro a world-class manufacturing company," says Jim. During his 33 years with Astro,

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Divisions Expand Environmental Programs

HiTech Publishes Its First Sustainability Report

In January, HiTech published the most thorough account of its business practices it has ever released to the public. The Sustainability Report is a comprehensive description of HiTech's



HiTech's Sustainability Report is a wide-angle yet detailed account of the division's performance.

economic, environmental and social performance, and is intended for employees, community residents, suppliers and customers.

"The report reflects our long-standing commitment to initiatives that are vital to our community's quality of life," says Operations Manager, Dick Reynells. "By making this information available to the public, we hope to shed light on our present challenges and future prospects."

The fifteen-page document contains written statements backed by verifiable metrics on over seventy different performance indicators, including such programs as waste management, pollution prevention, employee health and safety, community involvement, capital investment and business growth. "The information is both wide ranging and balanced," says Patti Carrier, Facilities Manager and Chairperson of the report's steering committee. "We report not only the good news, we highlight areas of our business that need improvement as well."

HiTech followed a reporting framework created by CERES, developers of the

Global Reporting Initiative on Sustainability. The initiative's mission is "to develop a generally accepted facility-level economic, environmental and social sustainability reporting framework." The reporting process was lengthy, and involved employees and individuals from the community, environmental groups, and

state and federal government agencies. Working together, the steering committee assisted HiTech with selecting information relevant to the community's interests and concerns.

"HiTech is a role model for organizations that want to be more resource efficient," says Jim Hassinger, participant and member of the Peterborough Town Energy Advisory Group. "We appreciate their leadership in addressing important issues

such as energy conservation and global warming."

To view a copy online, please visit nhbb's website, www.nhbb.com.

Astro Earns Another Rebate for Energy Efficiency Projects

In January, representatives from the power company PSNH dropped by to present Astro with two rebate checks worth \$23,950. Astro earned the rebates

by completing two additional equipment upgrades, which are expected to lower the facility's energy consumption by over 414,000 kWh per year and its CO2 emissions by 622,326 lbs per year.

For the first project, Astro replaced the motor drives on eight swage presses with variable speed drives. The new drives vary a motor's speed in response to a machine's workload and are more efficient during start-up. "A typical 40hp motor costs approximately \$18,000 a year to operate," says Facilities and Environmental Manager, Herb Parkhurst. "By installing the variable speed drives, we can lower that to almost \$9,000 a year."

Next, Astro installed a new make-up air system above the facility's liner production room. The liner room must be kept at a constant temperature and humidity whether occupied or not. "When the room is unoccupied for a given length of time, a sensor turns off an exhaust fan and the air from the make-up unit is redirected to the manufacturing space," says Parkhurst. "This allows us to relieve negative pressure in the building and help condition the entire facility."

Before getting started, Parkhurst enrolled the two projects in PSNH's NHSaves initiative, an energy-reduction incentive program for industrial customers.

"NHSaves is a great way for us to make necessary changes to our facility while keeping our costs in line with our annual operating budget," says Parkhurst.

"Ultimately, every project we undertake to save energy helps us keep our prices competitive as well."



Representatives from PSNH present a rebate check to Astro's Facilities and Environmental Manager, Herb Parkhurst (center).

According to Parkhurst, these initiatives were not the first and only such projects the division has undertaken. "In 2005, we implemented a complete lighting retrofit that is saving 876,403 kWh of electricity annually," says Parkhurst. "And next year, we plan to implement additional projects that reduce our consumption of energy even further."

It's Sweet Sixteen for Precision's Van-pool Service

The Precision Division's environmental initiatives extend beyond the factory walls to include the highways on which employees commute to work. Since 1991, a growing number of employees have participated in two alternative transportation programs, the van-pool service and bus pass reimbursement program. Combined, these two programs have taken up to forty cars off the road during the morning and evening commutes, a reduction which has contributed to lowering the region's fuel consumption and greenhouse gas emissions.

Because of these programs, the Precision Division originally qualified to receive subsidies from the EPA. Today, the programs are seen by many employees as an invaluable benefit.

Currently, the van-pool program serves approximately thirty-eight first- and



Precision plans to expand the van-pool program by adding an additional six-passenger van. Shown here are first-shift employees who ride together in Van #1.

second-shift employees who live in the Palmdale/Lancaster area. Instead of driving their own car the fifty or so miles to Chatsworth, participants meet at a local park-and-ride to board the vans, which are driven by employees. Although employees pay a fee to ride, the Precision Division covers half the costs, which include the van rental, maintenance and

gas. Precision plans to expand its ride-share program, which turns sixteen next month, by adding an additional six-passenger van.

Kathleen Newcomb, who has served as a van driver for many years, was one of the first participants. "Through this service the company qualifies as a participant in California's air-quality initiatives," says Kathleen. "It has also enabled our employees to save money on gas, cut down on emissions, and because we do not have to drive through heavy traffic every day, reduce our stress level, too."

Currently, five employees participate in the bus-pass reimbursement program. "We reimburse participants up to 75% of the bus fare," says Operations Manager, Paul Spencer. "In addition to helping the environment, this significantly reduces the cost of getting to work for some of our employees who most need it."

The Precision Division Recognized for Outstanding Service



Kaman Aerospace Corporation, Fuzing Division, presented its Supplier Excellence award to New Hampshire Ball Bearings Precision Division. Kaman Fuzing recognized the Precision Division for 100% quality and 100% delivery performance during all of 2006. "With this award, we hope to convey our sincere appreciation for the excellence that New Hampshire Ball Bearings displays, not only in quality and delivery performance, but also in the day-to-day interactions that have helped form our business relationship," says Kaman Fuzing's Purchasing Agent, Bill Daniel. Kaman Fuzing is a leader in the development and manufacture of safe/arm devices, fuses, motor igniters and flight termination devices for the ordnances and other industries. Its products are found on many of the U.S. Military's missile and bomb systems.

Presenting the award for Kaman Fuzing are Purchasing Agent, Bill Daniel (far left), and Manager of Quality Assurance, Joe Klish (far right). Receiving the award on behalf of NHBB and the Precision Division are Senior Account Representative, Jim Oechler (middle left), and Eastern Region Sales Manager, Mary Beth MacKenzie (middle right).

NHBB Exhibits at Pacific Design & Manufacturing West

The Pacific Design & Manufacturing West (Medical Design Show) took place February 13-15, 2007 at the Anaheim Convention Center. Tending to business are (from left to right) Alan Paynter, Sales Manager, Precision Division; Carroll Purvis Product Specialist, Precision Division; and Josh King, Senior Field Sales Engineer, Central Region. At the show NHBB promoted its complete line of ultra-precision miniature and instrument bearings for medical and dental applications.



NEW HOURS

for the Precision Division's Sales Department

7:00 am to 4:00 pm (PST)

To better serve its customers, the Precision Division has adjusted its customer service schedule. The sales department's new hours are 7:00am to 4:00pm (PST). To reach the Precision Division's sales department, please call 818.993.4100.



New Hampshire Ball Bearings, Inc.

A Minebea Company

www.nhbb.com



Richard Young

Inside Sales Rep,
Astro Division,
Laconia, NH

Started February 12, 2007

NHBB in Person

Richard supports distributors and OEM customers located in New York State and on the West Coast. His responsibilities include handling inquiries, issuing quotations, processing purchase orders and monitoring orders from manufacture to delivery.

Prior to NHBB, Richard was a Senior Account Manager in the thermal management industry where he developed critical OEM and end-user relationships within the defense, semiconductor, photonics and pharmaceutical industries. As an industry team leader for Defense and Aerospace, he secured and managed several key accounts, including Airborne Laser (ABL), Joint High Powered Solid State Laser (JHPSSL), Global Hawk, and ATFLIR. Richard has also served as an officer in the United States Army.

"Having just started, I sense the position will be dynamic and rewarding. The work is fast paced and extremely customer service oriented. I believe my experience working in the DPAS and defense program environments will help me to quickly grasp NHBB's business and the needs of our customers."

Astro Fills Key Roles

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Jim has served as a Senior Applications Engineer, Engineering Manager and Six Sigma Manager. Most recently, he was Manager of Quality Assurance, Production Engineering and the Tool Room. "Jim brings a wealth of organizational and technical knowledge to the operations role," says Richard Bardellini. "I look forward to helping Jim and his management team guide Astro to the next level."

Manufacturing Manager Named

Bob Hammond has been promoted to Manager of Manufacturing while retaining his current position as Continuous Improvement Manager. Bob now leads the departments directly involved in production and supervises a staff of CI engineers, tool designers and CNC programmers that supports the shop floor. "This dual role will enable me to better coordinate activities that improve lead times, preserve product quality and eliminate waste," says Bob. Since joining Astro as a draftsman in 1973, Bob has worked as a



Bob Hammond

Tool Designer, CNC Programmer, Process Engineer, Senior Manufacturing Engineer and Manufacturing Engineering Supervisor. "With his combined expertise in process engineering and lean manufacturing concepts," says Richard Bardellini, "Bob is well equipped to lead manufacturing at Astro to new heights of excellence."

New Product Engineering Manager

The Astro Division has promoted Paul O'Brien to Manager of Product Engineering. Paul now oversees the Product Engineering department, which serves as a liaison between Astro and its customers' product design groups and the R&D/Test Lab, which investigates new materials and processes that may eventually lead to new products. According to Astro's Product Sales Manager, Gino Crecco, Paul has been an asset to Astro since joining the company in 1993. "Paul has always done an excellent job of supporting our customers' requirements," says Gino. "He brings to the position his considerable knowledge of both bearing manufacturing and application design and his dedication to Astro's continued success in the markets we serve."



Paul O'Brien

Another important change has taken place in customer service: **Dianne Flanders** has been promoted to Import R & S Coordinator, and taking her place in customer service is **Richard Young** (see NHBB In Person).

Bardellini's Promotion

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During Mr. Bardellini's 14 years with Astro he has occupied increasingly responsible leadership positions. Since joining the company in 1993 as a Research and Development Engineering Technician, Mr. Bardellini has subsequently held the positions of R&D Engineer, Manufacturing Unit Manager, Continuous Improvement Manager and Manufacturing Manager, before becoming Operations Manager in 2003. During his tenure as Operations Manager, Mr. Bardellini focused on promoting continuous improvement throughout all departments.

Mr. Bardellini holds a Bachelor of Science Degree in Mechanical Engineering Technology from the University of New Hampshire and a Master's Degree in Business Administration from Southern New Hampshire University. He is also a certified Six Sigma Black Belt.

Machined Retainers: Critical Components in Ultra-High-Speed Bearings

The Precision Division recently surpassed yet another manufacturing milestone by shipping a record number of M&I bearings with machined retainers, a product category that now represents approximately fifty percent of Precision's manufacturing capacity. This development is the result of the Precision Division's increased focus on designing and manufacturing components for ultra-high-speed bearing applications.

Typically, ultra-high-speed applications operate from 75,000 rpm to as much as 500,000 rpm in some dental handpiece designs. In order to perform at speeds in excess of 1250 revolutions per second, even in harsh conditions, bearing components must be manufactured to extremely tight tolerances and be made from the best available materials.

Unlike fabricated cages, Precision's high-speed retainers are precision-machined to tolerances much tighter than are possible through molding or stamping. Cage diameter, ball pocket location and piloting land interfaces are held to .002" or less, resulting in superb dimensional accuracy.

Precision manufactures machined retainers using a variety of specialized materials, including phenolic and the polyamide-imide compound, Torlon®. Phenolic materials are light yet strong, and generate less friction than other materials, principally because phenolic's porosity allows it to be vacuum impregnated with oil. This added lubricity helps counteract the effects of marginal lubrication. Torlon® exhibits lower thermal expansion, excellent chemical resistance and enhanced lubricity with the inclusion of graphite and PTFE. Torlon® is used in higher-temperature situations and is the material-of-choice for applications requiring autostability.

Since each material has distinct performance characteristics—lubricity,



operating temperature, friction coefficients, etc.—the appropriate choice will depend on the specific requirements of the application.

Machined Metal-Polymer Retainer

For applications requiring even more performance, Precision has developed a number of proprietary cage options. Its patented composite metal-polymer retainer, for example, is made of polyamide-imide polymer coated with a layer of pure silver. The durable silver coating retains lubricants, acts as a solid film lubricant and strengthens the retainer's ability to withstand repeated autoclaving cycles. And thanks to silver's antimicrobial properties, the retainer also provides a layer of defense against infection in certain medical applications.

According to Precision's Sales Manager, Alan Paynter, this highly specialized retainer increases operational life by up to 70% in applications requiring reliable, maintenance-free operation in extreme environments. "By offering continued product innovation and unsurpassed quality in products and services," says Alan, "we have been successfully designed into more FDA-approved applications than any other bearing manufacturer."

R&D Test Lab

The Precision Division develops and tests these products in its cutting-edge R&D laboratory. Here, NHBB researchers validate new products and new designs by simulating actual operating conditions. They test a range of variables affecting operational life, starting and running torque and vibration, and evaluate the performance of new materials, coatings, platings and lubrication options. Ultimately, the test lab reflects Precision's commitment to extending the operational life of ultra-high-speed bearings beyond today's known limits.



In its state-of-the-art R&D Test Lab, Precision's engineers simulate a broad range of applications to ensure optimized bearing performance.

To explore the advantages of machined retainers or other specialized components, such as ceramic balls and dry-film lubricants, please contact the engineers at the Precision Division—your ultra-high-speed bearing specialists.