

Happy New Year

2020

Thank you to all of our customers, industry partners and employees. May you all have a wonderful holiday season!



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PRESIDENT'S HOLIDAY MESSAGE



The holiday season always reminds me of great times, laughter, family and the warmth of friendship. It is a time to celebrate with family and friends, to enjoy past traditions, and to create new ones. The holiday spirit involves caring for others, taking time to be present with one another, giving, expecting, believing, and embracing the magic of the season.

As I reflect over the 35 years since joining NTN Canada, I can't help but feel very grateful. Grateful for being given the opportunity to join this organization and guide its growth. Grateful for being surrounded by so many passionate employees and reps who go to work with a kick in their step and who are enjoyable to be with. And grateful for having the privilege to consider so many NTN customers good friends. Our success, this year and always, is ultimately due to our customers and the trust placed in our products and in us.

As we take stock this holiday season of our good fortune, we should not forget those without homes, struggling to pay their bills or facing serious or life-threatening health challenges. This is the time of year to be thankful and mindful of those less fortunate — to offer them a helping hand. For NTN Canada, the holiday season is a time when we take pride in the

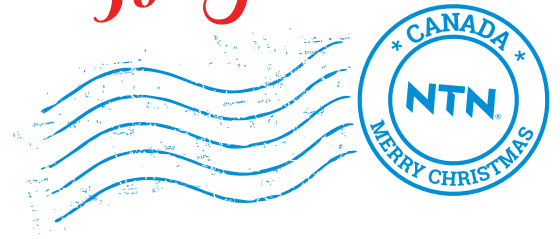
impact of our collective efforts, of both staff members and industry partners, who have volunteered their time to help those in need in our communities. I thank everyone who contributed to our collection for the Christmas Family Sponsorship Program and applaud those who volunteered at Eva's Home for Life Auction in support of young people building futures free of homelessness. And I am equally proud of our volunteers who have collected a wide range of donations, from coats and mittens to food items which will be packaged and given to help people in need stay warm this holiday season and beyond. Together with our associates and customers, we hope to donate an abundance of clothing to help keep the homeless warm at Christmas.

In closing, thank you to all of our employees, industry partners and customers and may you all have a wonderful holiday season. I look forward to an exciting year of growth and opportunities for all of us, together.

A handwritten signature in black ink, appearing to be 'P. All'.

PRESIDENT & CEO OF NTN BEARING CORPORATION OF CANADA

From Our Family To Yours



Seiji Shimamoto

EXECUTIVE
VICE PRESIDENT

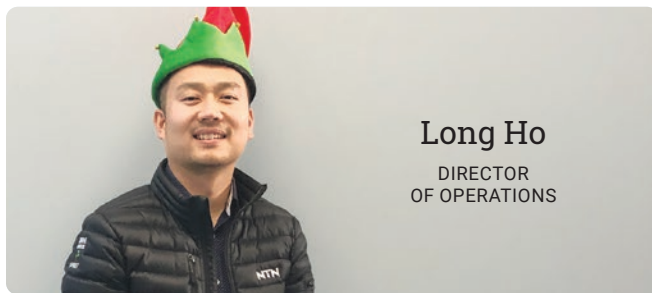
Happy Christmas! I appreciate your effort this year and wish for everyone to spend Christmas and New Years day with your family and friends. I am looking forward to meeting with you next year. Thank you very much.



John Silva

DIRECTOR OF FINANCE

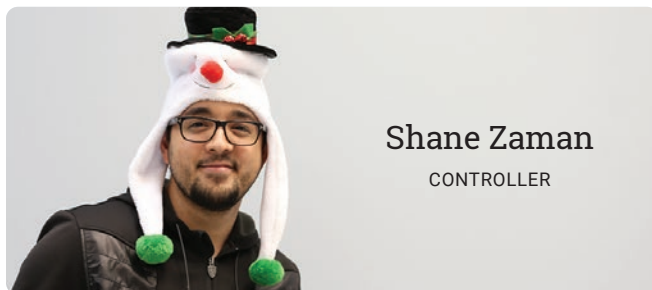
Merry Christmas and a Happy New Year to all NTN staff! Best wishes to you and your family over the holiday season and may it be filled with happiness and cheer.



Long Ho

DIRECTOR
OF OPERATIONS

The end of the year brings no greater joy than the opportunity to express to you season's greetings and good wishes. May your holidays and new year be filled with joy. Merry Christmas and have a happy New Year.



Shane Zaman

CONTROLLER

I would like to wish the NTN family a Merry Christmas and happy holidays! Please be safe, be merry.



Phil Schmidts

DIRECTOR OF INDUSTRIAL
AFTERMARKET

I would like to extend a heart felt holiday season greeting to our industry partners. I hope you all have the opportunity to spend the Christmas break with friends and family and get some much needed R&R.



Peter Vorvis

SALES MANAGER, LINEAR
AND AUTOMATION

At the close of another year, we gratefully pause to thank our customers and staff for all their kindness and support. I would like to extend my warmest greetings to you and your families during the holiday season.



David D'Atri

PLANT MANAGER

I would like to thank everyone for your hard work and commitment to continuously improving. Together we can make a difference. I would also like to wish you, your family and friends a happy holiday season. Be safe and see you in 2020.

The holiday season brings thoughts of joy and gratitude, and there's no better time to thank all of you for everything you do to make us successful. May the holiday season only bring happiness and joy to you and your loved ones.

- Andrew Gidge, Vice President of Manufacturing

I would like to take this opportunity to wish our industry partners and their families, a very happy Christmas and a prosperous new year. I hope that you all manage to find some time to spend with those people who mean the most to you. Thank you for your commitment and for serving our business so well. May your Christmas be filled with cheer, warm memories, and happiness. Take care and have a peaceful Christmas.

- Jean-Sebastien Lavigne, Vice President of Sales & Marketing

On behalf of our customer service team I would like to wish you and your families a very Merry Christmas and Happy New Year filled with lots of love, laughter & happiness. Best wishes for a safe and healthy 2020!

- Loren Almeida, Customer Service Manager

The end of the year brings the opportunity to express to you season's greetings and best wishes. After a good year may your holidays and new year be filled with health, peace, and happiness.

- Jarek Matuszewski, Production Control Manager

A little piece of advice for everyone at Christmas, don't open presents unless you know who sent them. Just delete them. On behalf of your IT team I would like to wish you and your loved ones a happy holiday season!

- John Westerhof, Information Services Manager

May this Christmas season fill your hearts with love, joy, and harmony! As we welcome the coming year, may we hope to look forward to better things ahead of us. Merry Christmas and a blessed New Year to come!

- John Dela Cruz, Purchasing Manager



Andrew Gidge



Jean-Sebastien Lavigne



Loren Almeida



Jarek Matuszewski



John Westerhof



John Dela Cruz

Merry Christmas an



Sylvia Silveira



Rita Payne



Daniel Negrea



Marcus Wickert



Joe Kosichek



Christian Oteiza

May the warmth of your loved ones keep you safe and sound this Christmas season. Let there be health, happiness, peace and prosperity in your homes! From my family to yours we wish you all a Merry Christmas and a prosperous new 2020!

**- Sylvia Silveira, Vice President,
Human Resources & Operations**

Make every day a dream come true this holiday season as you celebrate with a thankful heart and a joyful soul. Sending greetings of peace, joy and love to you and your loved ones from the Marketing team.

- Rita Payne, Director of Marketing & Communications

2019 is almost gone and what a fantastic year it was! Wishing you and your family all the warmth of the holiday season, Merry Christmas and a Happy New Year!

- Daniel Negrea, Quality Manager

During this special time of year, enjoy your well-deserved rest and special moments with those that mean the most to you. Merry Christmas and Happy New Year to all as we celebrate another successful year and look forward to 2020!

- Marcus Wickert, Director of Engineering

In the most appropriate way possible, and with neither preference nor favouritism, I love you, my immediate NTN family and my extended circle of friends among clients, suppliers and associates. I wish you safe and restful holidays. See you next year!

- Joe Kosichek, Director of Strategic Accounts

Christmas is the season to wish one another joy, love and peace, especially the elderly and those in need. From my family to yours, we wish you a Merry Christmas and a new year full of happiness and good health!

- Christian Oteiza, Warehouse & Logistics Manager

and Happy New Year



“Let’s keep them warm for Christmas” care bag campaign to benefit homeless

As the weather gets colder, the need for more shelters, beds and warm clothing is dire for the homeless in every community. According to a report from the Globe and Mail, thirty-five thousand people in Canada experience some form of homelessness every day.

This year as part of our corporate social responsibility program, NTN Canada and Applied Industrial Technologies (Central Canada Region) have collaborated as a group to make care bags for homeless people. Our combined volunteer groups have collected coats, hats, socks, mittens, scarves and food items which will be packaged and given to help people in need stay warm this holiday season and

beyond. On December 19, NTN and AIT representatives will be distributing 100 care packages to the homeless on the streets of Toronto to provide caring support.

It will be about giving the homeless simple, everyday products to help them better live out on the streets, to be cleaner, drier, healthier, and fed. The care bags will contain items for battling cold weather and providing nutrition. Just the smallest acts of kindness can really make a difference...sometimes all a homeless person wants is a hug, hand-shake and someone to talk to.

Together with our partners we hope to donate an abundance of clothing to help keep the homeless warm and comfortable. Thank you to

our employees and industry partners who will be volunteering their time to help us create and deliver the care bags. With your help we can keep the homeless warm at Christmas.

Special thanks to the employees at NTN Canada and Applied Industrial Technologies who stepped forward to donate clothing and food items. We are also grateful to Boaden’s Banquet Hall for lending generous support by donating meals to feed the homeless, and to Dr Joyce Lui, Dentist, who donated toothbrushes, tooth paste and floss to our care packages. The clothing drive was also generously supported by Arrow Marketing, CMYK Global Group of Companies and SVS Marketing.



TAKE OUR KIDS TO WORK DAY

NTN Canada proudly welcomed a group of Grade 9 students to our offices on November 6, 2019 for the National Take Our Kids to Work Day. Our student guests had the opportunity to step into their future for a day and get a glimpse into the working world, enjoying a variety of events and presentations. It was great to see proud, smiley faces - both adult's and children's all around the office and our manufacturing facility.

The day involved students in Grade 9 spending the day in the workplace of a parent, relative, friend or volunteer host, where they experienced and learned about the world of work. It was heartwarming to see so many parents proudly showing off what they do all day to their bright-eyed and excited children.

We were able to take a group tour of our NTN Canada manufacturing facility and enjoy lunch together as a family. Having a moment to share our sense of team, our focus on fun, and our passion for bearings – is always a delight, but especially when it builds a connection to the future.

Thank you

to all the engaged, eager,
and super-fun students that visited
NTN Canada & thank you
to all the impressive
ever-awesome Parents/Partners
that hosted them!



TEAM MEMBER SPOTLIGHT

Sean Barron

Territory Manager



Meet Sean Barron. He's a high-energy team member on our Business Development team. Throughout his four years as an NTN Territory Manager, Sean has become an essential member of our sales department. Outside of work, Sean enjoys cycling. As a former national champion of the Canadian mountain-biking downhill racing series, Sean is always pushing his limits to find ways to go faster. "Pushing past your limits means taking on newer, progressively harder challenges. I have been competing in sports all my life from wrestling and skiing to diving and motocross, and I've been an avid mountain biker, racing for over 30 years. I've ridden through the alps and all across the country. I even do all of the bearing installations on my gear myself. When you are doing what you love, it's a life-long dedication that gets you there."

Sean is most often complimented on his determination to resolve issues. "There is always a solution, you just have to look for it," he says. His determination has proved to be a major benefit to all on our team, as well as to our customers, and it all stems from his passion for racing. "I've been racing my entire life. It's not just about going out there and biking. It is knowing what type of equipment to use; It's not about driving better than someone else; it's knowing your bike better." This "know better" mentality is evident

in the way Sean manages his Territory and supports his customers. As a driven and attentive individual, Sean applies his competitive spirit and attention-to-detail to decipher, plan, and execute the successful delivery of NTN bearing solutions to meet customer needs. "Everyday, as a Territory Manager it is important to think 'outside the box', in order to identify areas of improvement for our client's operations. Our customers want machines that run faster, longer, cleaner and more safely. Success with a customer is based on providing a superior solution that creates more value," says Sean.

Sean also attributes his success to the friendly, passionate environment at NTN. "Our business development team is close-knit and shares a passion and dedication for helping customers. We're a mini support system, encouraging one another to thrive. NTN is constantly growing and the management on my team is constantly mentoring, coaching, and motivating their employees to go above and beyond."

Thanks Sean for all that you do to deliver the Ultimate Bearing Experience at NTN.

[WATCH SEAN'S VIDEO ONLINE](#)



ntn.ca/company/news/



NTN Canada Announces Authenti Bear App

RECOGNIZE FAKE BEARINGS
IN JUST SECONDS





ULTAGE[®]

SPHERICAL ROLLER BEARINGS

Combining premium-grade materials, optimized design and precision manufacturing, ULTAGE is the new generation of high-performance bearings from NTN that delivers unmatched service life, the highest limiting speeds and the best load capacities on the market to maximize the productivity of your equipment.

Manufactured in state-of-the-art facilities that maintain consistently tighter tolerances through production, ULTAGE spherical roller bearings combine cutting-edge product research, premium-grade materials, and an optimized internal and external design to greatly extend bearing life. These bearings incorporate an optimized surface finish and a high-performance, window-type pressed steel cage for higher rigidity, stability, and better lubrication flow throughout

the bearing. All these design features allow for 20% higher limiting speeds when compared to conventional designs, reducing operating temperatures that extend lubrication intervals and keep production lines running longer. The result is greater profitability for our customers thanks to improved uptime and productivity.

Additionally, ULTAGE spherical roller bearings are made from premium-grade steel and contain larger rollers, providing a 65% increase in capacity compared to a conventional bearing and thus resulting in up to five times longer service life. In addition, ULTAGE spherical roller bearings provide up to 35% greater basic static load rating compared to conventional bearings.

Furthermore, our special heat treatment process allows for dimensional stability of the bearing up



to 200°C (392°F), all while maintaining high hardness. The combination of high temperature stability and high hardness allows the bearing to achieve a longer life, thus reducing down time and increasing production.

To learn more about the ULTAGE spherical roller bearing product line, please contact your NTN sales representative or visit www.ntn.ca



NTN CANADA TO HOLD ROLLER BEARING APPLICATION & MAINTENANCE SEMINAR

The Winter Session of NTN Canada's Roller Bearing Application and Maintenance Seminar will take place February 4-6, 2020, at the company's headquarters in Mississauga, Ont.

This intensive, 3 day course on the design, application and maintenance of anti-friction bearings is presented using lectures and hands-on workshops. The workshops have been selected to highlight common maintenance problems that result in premature bearing failure.

In conjunction with classroom lectures, the participants will learn the correct procedures for mounting the following types of bearings:

- › large bore spherical roller bearings (including the use of hydraulics)
- › tapered roller bearings (mounting and setting end play)
- › deep groove ball bearings
- › cylindrical roller bearings
- › bearing units
- › small bore spherical roller bearing pillow blocks

Participants also will learn the fundamentals of current bearing technology including:

- › bearing design and materials
- › cage configurations and materials: features and benefits
- › extra precision: what is required
- › bearing life: theory vs. reality

The program is ideally suited to anyone involved in the maintenance of machinery and specifically, those with duties that include the installation and maintenance of anti-friction bearings. The program is structured so that it is not specific to any industry.

**For more information contact your local NTN representative
or visit www.ntn.ca**





NTN's ULTAGE® spherical roller bearing triples uptime of paper machine couch roll

A major Canadian producer of container board was experiencing catastrophic failures of the spherical roller bearings on the large suction couch roll in the wet end of their paper machine. Failures were occurring every two months resulting in the mill shutting down its sole paper machine for over six hours each time it needed repair.

NTN's applications engineering team conducted a detailed bearing failure analysis of the couch roll and discovered multiple reasons for the failures. First, loose housing fits allowed the bearing's rotating outer rings to move relative to the housings during operation. This resulted in heavy outside diameter wear, fretting corrosion and cracking. Additionally, evidence of thrust load was observed and could be linked to a tight inner ring

fit that did not allow for proper shaft expansion. Finally, moisture from the wet operating environment was getting into the bearings past the brass spacer rings and significantly degraded the lubricant and bearing performance.

The NTN Solution

NTN's team recommended the correct press fit for the bearing's rotating outer ring and loose inner ring fit for the stationary shaft. NTN engineering also recommended a new design for the brass spacer rings being used to remove a keyway slot that was an open channel for water to get into the bearing. Lastly, NTN advised the mill to use a higher viscosity grease with water inhibiting characteristics to better withstand the wet conditions.

The Result

The NTN solution lasted three times longer, operating for six months between roll rebuilds. The mill has been completely satisfied and specifies NTN ULTAGE® spherical roller bearings for this demanding application.



VALUE ADDED BREAKDOWN

Increased Productivity
\$150,000*

Increased Bearing Life
\$15,480*

Documented Cost Savings
\$165,480*

Annualized Cost Savings
\$165,480*

* All monetary amounts listed in Canadian dollars

NTN CANADA AND SHERIDAN COLLEGE UNVEIL NEW PROGRAM AIMED AT TACKLING SKILLS SHORTAGE



WATCH THE INDUSTRIAL DISTRIBUTION PROGRAM VIDEO ONLINE



ntn.ca/company/news/

Sheridan's Continuing and Professional Studies division is pleased to announce a partnership with power transmission leaders to offer an intensive 16-week, Industrial Distribution Program (IDP) focused on the distribution of bearings, power transmission products and other industrial parts. The program comprises 8 weeks in class, followed by an 8-week paid work placement.

The Sheridan IDP will be sponsored by an industry sector educational partnership with the following leading manufacturers and distributors of premium power transmission products: NTN Bearing Corporation of Canada, Tsubaki of Canada Ltd., Continental, Regal Beloit Corporation and BDI Canada Inc. Instructors from each organization will present workshops as part

of the IDP Curriculum.

"NTN has a long-standing commitment to corporate social responsibility and always takes an active role in the communities in which we do business," says Paul Meo, President and CEO, NTN Bearing Corporation of Canada. "We are excited about the opportunity for NTN to partner with power transmission industry leaders in Canada to enable students at Sheridan College to advance quickly from the Industrial Distribution Program into a career in the bearing transmission industry."

Courses will focus on the key functional disciplines relevant to distribution, giving students the opportunity to link classroom instruction with hands-on training in a company within the industrial machinery segment. Course workshops will feature

distribution management, territory sales, marketing, negotiation skills, inventory management, sales management, human resources, leadership and information technologies.

"Sheridan has long recognized its role in preparing graduates who can meet the emerging needs of industry," says Ms. Hazel McCallion, Chancellor of Sheridan College. "We're committed to engage with employers and our communities to strengthen learning-integrated work, and co-create new approaches for hands-on learning and continual development. The Industrial Distribution Program is a perfect example of this commitment in action. It also exemplifies the agility and capacity of our Continuing and Professional Studies team to work effectively with industry partners to meet their reskilling, upskilling and employment pipeline needs."

Upon completion of the program, students will have the opportunity to apply for 8-week paid work placements with leading manufacturers and industrial parts distributors of bearings and mechanical power transmission products. The unique curriculum offered at Sheridan College will be designed to provide students with the information, knowledge and skills that are highly valued by potential employers in the industrial distribution and manufacturing sector.

The program will be delivered at Sheridan's Davis Campus in Brampton, commencing on January 6, 2020.

Sheridan

WITH THE SUPPORT OF





NTN is proud to support the Dixie Bloor Neighbourhood Center & Eden Food for Change

Our family culture encourages a generous spirit because we believe in making a difference in the communities where our employees live and work. This holiday season, the staff at NTN Bearing Corporation of Canada have partnered with the Dixie Bloor Neighbourhood Centre to provide Christmas for less fortunate families in Mississauga.

The Dixie-Bloor neighbourhood is one of the areas where Mississauga's low-income and impoverished residents live. Through the Christmas Sponsorship Program, NTN sponsored 7 families and raised \$4,670 which was used to purchase toys, books, household items and warm clothing.

Our staff at CMF participated in the Eden Food for Change Thanksgiving Food Drive generously donating 380 lbs of food. Eden Food for Change serves the community of western Mississauga by providing emergency food relief to up to 500 hungry families a month. As well, community groups are able to come in and work as a team to prepare, cook and package healthy food to be distributed through this food bank making us very proud to be able to support such a great cause.

We thank our NTN donors for their contributions. Your generosity will provide hope and dignity, and an improved quality of life to those in need.

HER IMPERIAL HIGHNESS PRINCESS TAKAMADO VISITS THE CITY OF MISSISSAUGA



► Photo 1

On August 24, NTN Canada's CEO Paul Meo joined other Mississauga business leaders to welcome Her Imperial Highness Princess Takamado during the Japan Festival Canada held at the City of Mississauga's Celebration Square.

Her Imperial Highness was hosted by Mayor Bonnie Crombie at a gathering of local business and cultural leaders to celebrate the 90th Anniversary of Canada and Japan's diplomatic relations. Over the years, the City of Mississauga has developed rich cultural and economic ties with Japan and is the home to the highest concentration of Japanese companies in Canada. With the last visit taking place 15 years ago, it marks the first time a member of the Japanese Imperial Family has visited Mississauga.

"Our relationship with Japan is one that Mississauga is very proud of," says Mayor Bonnie Crombie. "Over the years, we have

developed rich cultural and economic ties with Japan. In fact, our only sister-city relationship is with Kariya, Japan — a 38-year old friendship that we value deeply."

NTN Canada received the honour of being part of a very special luncheon, hosted in honour of Her Imperial Highness Princess Takamado, and participated in the Japan Festival Canada celebration to mark the 90th Anniversary of our diplomatic relations. This occasion was a great honour as it marked a pivotal moment in our city's history and served as a symbol to our rich cultural and economic ties with Japan.

The luncheon reception was attended by approximately 35 representatives from Japanese businesses headquartered in Mississauga, along with City Councillors and the Honourable Chancellor Hazel McCallion, who served as Mississauga's Mayor for 36 years until 2014. Her Imperial Highness spent a fruitful time discussing various topics with the guests in attendance.

Her Imperial Highness also took part in the opening ceremonies of Japan Festival Canada, at Celebration Square adjacent to Mississauga City Hall. In a video message, the Right Hon. Justin Trudeau, Prime Minister of Canada, welcomed Her Imperial Highness and extended congratulations on the 90th anniversary of Canada-Japan diplomatic relations. Her Imperial Highness spoke to the crowd of about 3,000, extending her own congratulations on the 90th anniversary and expressed hope for further strengthening of Japan-Canada relations in the future. Her Imperial Highness spoke on her family's close ties with Canada, which began with His Imperial Highness the late Prince Tamakado's period of study at Queen's University. She also expressed her hope that Japan-Canada relations will continue to be full of goodwill, receiving a standing ovation from the guests.

► Photo 2



Photo 1: Paul Meo, CEO of NTN Bearing Corporation of Canada with Her Imperial Highness Princess Takamado

Photo 2: Mayor Bonnie Crombie, Councillor Ron Starr, and Councillor Pat Saito with Her Imperial Highness Princess Takamado, Ms. Takako Ito, Consul-General of Japan in Toronto, Mr. Kimihiro Ishikane, Ambassador of Japan in Toronto, Mr. Paul Meo, CEO of NTN Bearing Corporation of Canada with other members of the Japanese business community in Mississauga.



NTN BEARING MANUFACTURING CANADA ADDS TENTER CLIP BEARINGS PRODUCT LINE

Beginning on December 16, 2019 NTN Bearing Manufacturing Canada will add a new product line for tenter clip 6202-40 bearings. Sharing the same internal design as the 6202 bearing, tenter clip bearings have an outer diameter that is 5mm thicker and are used in tenter clip film stretching machines for receiving and gripping thermoplastic films. A tenter clip is the mechanism that clamps onto the edges of the plastic sheet as it travels through the transverse direction orientation used to produce plastic items such as shrink sleeve films.

To set up the tenter clip bearing production system for maximum efficiency, one option under consideration was to change over the existing E-Line at NTN Bearing Manufacturing of Canada, also known as our 6202 bearing production line, to accommodate the fabrication of

this new bearing. Given that the outer diameter of the tenter clip bearing is 5mm larger, it was found that this approach would require extensive modifications to the machining and material handling processes with an anticipated change over time frame of at least one week to complete.

An alternative solution would be to change over the F-line, also known as the 6203 bearing production line, as this bearing shares the same outer diameter as the 6202-40 bearing. Consequently minimal changeover would be required to adapt the existing machining and material handling systems to accommodate the new product.

A plan was finalized to construct the inner rings using the 6202 inner ring E-line production process, while utilizing the F-line to produce the new bearing's outer rings. Final assembly of the tenter clip bearing would take place on the

F-line assembly system. And to realize further efficiencies with the changeover, existing assembly equipment was rebuilt and integrated into the F-line to accommodate the 6202-40 tenter clip production line to further reduce the changeover period from one week to one shift. The manufacturing efficiencies realized with the production of the 6202-40 tenter clip bearing will help cut costs, improve throughput and reduce environmental impact.



ALWAYS EFFECTIVE AND RELIABLE IN EXTREME CONDITIONS



ULTAGE®

PRODUCTS

- **EMA and EF800** (spherical roller bearing) for vibrating applications: proven reliability benefiting from the new ULTAGE design
- **AGR insert bearing** for conveyor: service life lubrication and perfect resistance to shocks
- **Complete kit solution** for conveyor: to ease customers' daily work

ENGINEERING SERVICE

- Dedicated applications engineering team
- Mobile Technical Training Unit
- On-site technical assistance
- Bearing failure analysis

ADVANTAGES

- Dedicated range to meet productivity, performance and reliability requirements
- Cost optimization thanks to extended maintenance intervals

LATEST INNOVATIONS

- Kit concept, all you need for your conveyor in one box
 - Easier to order (one part number)
 - Easier to manage (turn key solution)
 - All in one (fixed or floating mounting)
 - Cost savings solution



Stay Connected