YOUTTUDE Technology Motion Knowledge

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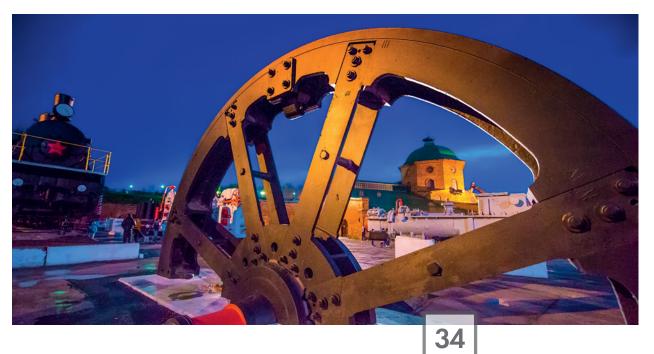




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PRIORITY FOR NOVATEK

TMK currently supplies the full range of premium pipe products to the gas company

INDUSTRIAL SAFETY
FOR A SAFE METAL INDUSTRY

TMK on track for its best health and safety performance in the aftermath of fourth Steel Safety Day

COMMUNITY
METALS INDUSTRY HITS THE NIGHT SCENE

Demiurges, talking walls, unique metal collections and other surprises from STZ at the "Museum Night"

EXPRESS Q&A 38





№2 (36) DECEMBER 2019

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BROOKFIELD, GENEVA AND BAYTOWN ACHIEVE SAFETY MILESTONES

SAFETY FIRST ENVIRONMENT ALWAYS IPSCO

Geneva and Baytown facilities reached new milestones in safety. In October, Geneva accomplished 13 years of operation without a recordable incident, while Baytown has operated without a recordable for 2 years. Safety teams from both plants have been previously recognized for their achievements through the Living our Values program. Geneva's team won in the Safety & Sustainability category and took the TMK IPSCO Way! award in 2016. Baytown won

in the same category in 2018. It is reassuring to see that this positive trend in safety is sustained and that the "ZERO is Achievable" philosophy has become an ingrained element in the workplace culture of both plants.

Brookfield employees celebrated 2,000 days without a recordable incident in July. This is a remarkable achievement for a plant that opened in 2010 and operated incident-free eight out of ten years.





WELL CASING DESIGN SERVICES LAUNCHED ON IPSCO.COM

In August, TMK IPSCO expanded its service offerings by launching a well casing design services page, which allows customers to download company's proprietary casing and connection catalogs to be imported directly into Landmark's Engineer's Data Mode (EDM™) software. It also invites potential customers to utilize TMK IPSCO's engineering talent to validate string design. By doing so, the company can assist customers in evaluating alternate design options including pipe and connection selection, thus driving commercial sales of IPSCO products. The well casing design services page is available at https://ipsco.com/services/wellcasing-design/



IPSCO PARTICIPATES IN CORPORATE 5K RUN

TMK IPSCO team participated in the Hess Houston Corporate Run 5K for the first time this year. Almost 50 employees from the Houston Corporate Office, R&D Center and Baytown completed the run on Wednesday, October 23 in the Memorial Park, Houston. Over 160 other companies representing a variety of industries from the Houston area also participated. "We believe that events like this are not only good team-building but very beneficial and help to reinforce the Company's support of health and wellness," said TMK IPSCO's VP and CHRO Peter Smith.

Team TMK IPSCO before 5K Run

MyADP BENEFITS PLATFORM IS LIVE

In July, TMK IPSCO announced the launch of the new MyADP Benefits platform. The new portal offers employees improved access to their benefits, as well as the ability to make changes based on life events. MyADP can be accessed through Pipeline or directly at https://online.adp. com/portal/login.html. The platform also offers a mobileenabled interface. The MyADP app can be downloaded through the Apple App Store or the Google Play Store. Once downloaded, users can sign in with the same username and password they use to access MyADP through the browser. With questions, please reach out to your local HR contact or email Benefits@tmk-ipsco.com



TMK IPSCO team on track in Memorial Park during 5K Run

NEWS 06



Sinarsky Pipe Plant (SinTZ) hosted festivities to mark the 85th anniversary of the plant. The list of attendees included regional Minister of Manufacturing Industry and Science Sergey Perestoronin, TMK Senior Vice President and Chief Engineer Vyacheslav Popkov, SinTZ Managing Director Vyacheslav Gagarinov, representatives of regional legislative and executive authorities, plant employees and veterans.

As part of the anniversary festivities, 55 employees of SinTZ and related

enterprises received ministerial, industry, and corporate awards, including titles of "Honorary Steelworker" and "Meritorious Worker of TMK."

The plant also hosted a conference attended by buyers of SinTZ tubular goods to discuss future cooperation. Forum delegates toured the production sites of SinTZ and TMK-INOX, a specialized enterprise making tubular goods from stainless steels and alloys, which is operating on the premises of SinTZ.

SAFETY AWARD

Taganrog Metallurgical Plant (TAGMET) has won the Health and Safety Russian national competition for the second year in a row.

The plant was awarded a silver medal and diploma in the Safe Working Conditions Monitoring and Assurance Techniques category. The award was presented for development of a procedure for new-hire training in occupational safety and accident prevention with follow-up testing.

Last year, TAGMET won the competition for best innovative project that integrated the experience of implementation and operation of the Safe Workspace system. Its goal is to create safe working conditions in industrial workplaces. The competition was conceived in 2005 to popularize the most outstanding achievements in creating safe working conditions and preserving the health of employees.



VISIT TO SKOLKOVO

Arkady Dvorkovich, Skolkovo Foundation Chairman, toured the construction site of the TMK R&D Center in Skolkovo in early June. The visit came ahead of the full-scale launch of the center, as TMK residents are expected to move in this fall.

The R&D Center will soon begin developing new products using advanced technology. State-of-the-art research equipment allows conceptualization and image generation of an actual object or product, virtually simulating its behavior in the well based on such parameters as internal and external pressures, temperature and peak mechanical load. The new capabilities also allow creating digital copies of various products and processes, thereby delivering cost and time savings. Over a dozen R&D Center laboratories are expected to employ up to 200 company workers, researchers and scientists.

TMK: 2Q and 1H 2019

Total pipe shipments in 2Q increased chiefly owing to an increase in deliveries of welded large-diameter pipe in the Russian Division (+54%) and welded pipe for industrial applications in connection with

the start of the construction season in Russia.

Shipments of OCTG pipe decreased due to a reduction in the volume of shipments by the American Division, whereas OCTG shipments in the Russian Division remained at the level of the previous quarter against the backdrop of rising demand for hi-tech products. Shipments of OCTG seamless pipe by the Russian Division rose 9% in the 1st half of the year from the comparable period in 2018.

Declining shipments by the American Division due to a continuing slowdown in the North American market affected the overall volume of TMK pipe shipments in the 1st half of the year.

Shipments of premium threaded connections continued on an upward trend. Their total shipments in the 1st half of the year rose 4% year-over-year to reach 201,000 tonnes, with shipments by the Russian Division up by 17%.

Shipments of tubular goods (thousands of tonnes)

Products	Q2 2019	Q1 2019	Change, %	H1 2019	H1 2018	Change, %
Seamless	680	672	1	1352	1393	(3)
Welded	343	294	17	637	662	(4)
Total	1023	965	6	1989	2056	(3)
Including OCTG	467	481	(3)	948	952	0

Financial performance (USD million)

			-			
	Q1 2019	Q1 2019	Change, %	H1 2019	H1 2018	Change, %
Renevue	1307	1257	4	2564	2628	(2)
Gross Income	248	235	5	483	471	3
Adjusted EBITDA	195	175	11	370	357	4
Adjusted EBITDA profit marjin (%)	15	14		14	14	

JAPANESE PARTNERS AT SINTZ

Sinarsky Pipe Plant (SinTZ) hosted a delegation of Japanese companies JFE Steel Corporation and Metal One Corporation. The visit came as part of the companies' collaboration in engineering and production of new types of tubular goods.

Japanese peers toured production sites of the OCTG shop and inspected the plant's insulated lift pipe production operation.

TMK, JFE Steel Corporation and Metal One Corporation also discussed the current status of the project to manufacture 13Cr steel pipe for the Russian market: SinTZ is threading premium connections on this pipe.



NEWS

ROAD TO THE FAR EAST

TMK sponsored the fifth Eastern Economic Forum 2019 (EEF) that took place in Vladivostok in early September on the premises of the Far East Federal University campus. The delegation was headed by Dmitry Pumpyanskiy, Chairman of the TMK Board of Directors and Sinara Group President. The tagline of this year's forum is "Far East Development Horizons". The forum featured a panel discussion themed "Business

discussion themed "Business Transformation Through Development of Business Ecosystems" under the auspices of TMK. In his presentation, CEO Igor Korytko said that the understanding of the business ecosystem has changed substantively over recent years. Due to heightened product quality requirements and growing product complexity, large businesses have essentially become a magnet for all the essential competencies for product and solution engineering and production setup. In this context, importance is attached not just to ties with vendors but also to educational functions, a vibrant social environment and comfortable conditions for employees.

"At TMK we began our business transformation by forming an ecosystem. This approach is successive in nature. Specifically, when it comes to the digital transformation, we began with employee training: with the help of the TMK2U Corporate University



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we formulated training programs and got employees involved. We are also launching our own R&D Center at Skolkovo and forming a comfortable environment for our employees. As a result of creating the ecosystem, we achieved explosive growth in the number of projects generated by our people, and the ecosystem is currently propelling our business forward. We are creating an environment within and without our company and developing everything that we and our people need. Yet we are not alone in this world, so it's very important for our peers - small, medium, and large companies – to adhere to more or less the same approach, and for the public authorities to support us and share our approach," Igor Korytko said.

The panel discussion was attended by TMK General Director Igor Korytko, STM General Director Viktor Lesh, as well as leaders of the Skolkovo Foundation, Rostec, Societe Generale SA, SAP CIS, and UrFU.



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NEW NONDESTRUCTIVE INSPECTION LINE



Pipe Mill Shop No. 3 (T-3) of Sinarsky Pipe Plant has put into operation a modern automated nondestructive test line, LKT-STTZ with a capacity of at least 60 pipes per hour.

The line uses ultrasonic and magnetic flux techniques of nondestructive testing. The former helps detect pipe wall thickness deviations, while the latter detects metal uniformity defects that affect pipe quality, reliability and service life.

YMCA OPERATION BACKPACK

For the fourth year in a row, Houston employees provided their enthusiastic support to the YMCA Operation Backpack by collecting enough backpacks and school supplies for 25 students. Hundreds of Houston area companies and countless individuals donate the tools students need to succeed at school. Almost 120,000 children have benefited from the initiative in 2019 alone. TMK IPSCO has organized the collection of donations at the Houston R&D Center, but individuals can also donate at any Greater Houston area YMCA. To find the location closest to you, please visit https://www.ymcahouston.org/ operation-backpack

OPERATION STOCKING STUFFER IS A RESOUNDING SUCCESS

Toys for over 50 underprivileged children were collected by Houston corporate office employees as part of the Operation Stocking Stuffer. TMK IPSCO has been supporting the initiative, which was launched by the Houston Fire Department since 2013. While the organizers have set the target of providing Christmas presents to 30,000 children in 2019, the actual number could far exceed expectations. In 2018, the initiative serviced approximately 50,000 children.



Toys distribution center; Donated bicycles are waiting for a new owners

DETAILS 10

Living our Values

2019 TMK IPSCO NOMINEES

Raymond Luna, Chris Gonzales, Jacob Smith, Larry Simonds, Casey Eilers, Tyler Stafford, Juan Zarate, Luis Calderon, Greg Dominguez, Eric Gomez and Rosa Reyna worked together to ensure the safety of Midland employees, both those on duty and those at home, during the recent mass shooting in the Midland/Odessa area. The team, which was nominated in the Safety & Sustainability category, communicated with local law enforcement and cascaded directions to plant employees. The team also ensured the physical safety of employees by putting the plant on lockdown during the day shift and cancelling the night shift and instructing staff to remain at home.

Paula Waslo and Dave Cindrich of the Ambridge plant have been nominated for the Living our Values award in the People category for their work on the CIP implementation at the Ambridge and Koppel facilities. Dave and Paula volunteered for this assignment while continuing to perform 85% of their regular job duties. In the course of the project, they developed training materials, installed and maintained computer equipment and trained 34 salaried and 50 hourly employees.

Gabe Rudek, Terry Turner and Ruth Honacki have been nominated in the Business Savvy category for the successful renegotiation of the Harsco contract at the Koppel Melt Shop for slag processing, scrap receiving, scrap yard management, railway maintenance and mobile equipment. The team gathered a substantial body of data and performed a gap and strength analysis in the run-up to the negotiation process. This effort helped to achieve estimated \$1.1 million in annual savings starting October 2019.



Mihai Radu, Eduardo Neri, Ken Pedersen, Bob Anderson, Silas Savage, Hemant Rawat and Paul **Sollberger** from the Catoosa plant have been nominated in the Business Savvy category for redesigning and rebuilding the existing UT Gantry inspection system, thus reducing reliance on OSPs for third-party inspection by approximately 50%. The project has the potential to save the company upwards of \$850,000 per year. At present, Catoosa is the only ERW facility where all NDT systems are fully qualified to satisfy the requirements of applicable API specs.

Craig Ross, Jeremy Silman, Hemant Rawat, Larry Tilley, Heath Martin and Rich Hamstra have been nominated in the Outstanding Quality category for the successful completion of NDT capability studies at Blytheville under a very tight schedule. The studies and resulting actions have enabled the plant to pass the API audit and bring the process in alignment with product specifications. The team also brought all post-NDT prove-up work in-house, saving the plant approximately \$70,000 per month in OSP-related costs.

Kent Worrell from Camanche, Ben Rice from Koppel, Joseph «Ernie» Wellman from Catoosa and Carl Dyer from Wilder have been nominated in the Customer Focus category for successfully coordinating the installation and launching the new phone system. It was rolled out in an orderly fashion across all the facilities in conjunction with employee training sessions. The project has been a massive undertaking and has delivered a new, more advanced phone system with expanded functionality without any adverse impact on company operations.

Jeff Doran of the Brookfield plant has been nominated for the Living our Values award in the Innovation category after implementing an impressive cost-saving project on the Okuma belt system and its links. He designed, fabricated and installed a new rail support system that significantly reduced the wear and tear of equipment, with potential annual savings of \$28,000 in parts and 100 hours in downtime.

Rich Hamstra,

Quality Manager at Blytheville, and **Ken Pedersen**, Quality Manager at Catoosa, have been nominated in the Outstanding Quality category for executing the API and PG&E audits respectively at the Camanche plant. They stepped up to run the audits on short notice after an unexpected departure of the Camanche plant manager and coordinated local teams to bring the audits to a successful close.

We also would like to use this opportunity to thank Rich Hamstra for his 40 years of service at the Blytheville plant, which he is celebrating this year! He exemplifies our company's values, as he delivers outstanding quality for our customers day in and day out.



A cross-functional team of employees from Midland, Edmonton, Catoosa, Brookfield and Houston R&D Center was nominated for Living our Values in the Customer Focus category. Pedro Lopardo, Kunal Harit, Terry Archibald, Raymond Luna, Jacob Smith, Larry Simonds, Casey Eilers, Tyler Stafford, Juan Zarate, Paul Sollberger, Chris Phillips, Caleb Quigley, Joe Sloan, Ken Ward, Alejandro Juarez, Ian Carillo, James Pittinger, Therese Ikladious, Sam Hughes and Steve Green were nominated for developing the accessories business in-house. The employees went above and beyond their planned goals and objectives to develop and implement new processes for goods and services which the company had not provided in over 5 years. By working together, this team ensured that all products were produced and delivered to customers without incurring any down charges or claims.

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DRONE TECHNOLOGY IN SERVICE OF PIPE INDUSTRY

A student project of SAP Next-Gen Lab, a laboratory created by TMK and SAP in collaboration with the Ural Federal University (UrFU), was presented at the SAP Forum Moscow 2019 in April.

TMK and SAP partnered up to open an innovative SAP Next-Gen Lab at the Ural Federal University (UFU) in 2018. The goal has been to offer opportunities for practical training to students with a focus on actual business objectives of a major company. For its part, TMK is looking to deploy modern digital technology and ideas of Generation Z to optimize production processes.

"The company is interested in seeing how the young generation goes about solving the problems. They are not new to these technologies. It is something they were born with," says Yuriy Kupriyanov, PhD in technical sciences, who heads the SAP Next-Gen academic program and the SAP university alliance in Russia and the CIS, adding: "We provided technologies and methods and are moderating student brainstorming sessions to help them arrive at unconventional solutions."

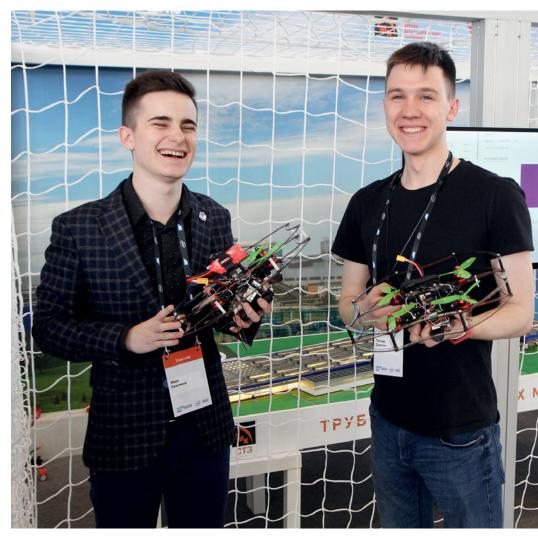
Last fall, TMK experts came up with a list of tasks for students. Most of them have to do with production. Students were asked to find and elaborate solutions using new technologies: blockchain, machine learning, computer vision, big data analysis and augmented reality.

Students received eight cases

relating to a variety of processes, including scrap metal quality control, accident prevention, equipment downtime reduction, pipe traceability, and energy consumption monitoring and analysis. Over the course of three days, project teams along with TMK experts developed new approaches to different operational tasks and evaluated their cost effectiveness.

The booth featured a model of the drone inspecting the roof of STZ, Mill 1





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Although SAP stages regular sessions at the nation's top universities, this competition centered on metals industry topics and featured so many cases for the first time ever. Sergey Krysin, SAP Key Account Manager, discussed the unique nature of the project and the opportunities it opened up for students and the company alike:

"As part of cases presented by TMK for elaboration, we can see applications for new digital technologies. These solutions call for using new technologies that have not been implemented anywhere on a commercial scale to this day. I am certain that through this collaborative effort we will be able to implement on a commercial scale those technologies that will help bring about an industrial revolution in this sector."

The best design solutions were handpicked as having potential for implementation at SAP Next-Gen Lab and for subsequent integration into TMK operations.

In the lab project presented

at the SAP Forum, students showcased their solution themed "Analysis of the condition of production shop roofs and modeling of surface deterioration and repair of defects with periodic drone-enabled inspections." The solution calls the app activates an interface for repair order creation in the SAP S/4HANA system. Data acquired using drones will subsequently be used to generate a digital copy of the roof to predict the propagation of defects and damage so they can be rectified in a timely manner.

Project authors jokingly nicknamed this smart drone "the Eye of Sauron". The booth for visitors featured a model of the drone inspecting the roof of Seversky Plant Pipe Mill 1, a physical model of the actual shop.

Data acquired using the industrial drone help to detect heat losses and damaged roofing. Production shop roof repair is a capital-intensive process that is difficult to control. The company will be able to achieve appreciable cost savings by prioritizing repairs correctly, evaluating their feasibility and monitoring repair quality over a long enough time horizon.

The next stage of student practical training involves the team visiting one of the TMK

Inspector drone operation will be tested in real-life conditions of a TMK plant

for using a drone to analyze the condition of production shops with infra-red imaging. Data with the results are relayed to an app developed with the use of SCP and HANA, in which the image is analyzed by artificial intelligence for any deviations. When anomalies are detected,

plants, where quadcopters are already being used extensively to monitor the plant perimeter. Students will further develop their model and continue automatic drone navigation experiments in real-life conditions. YT

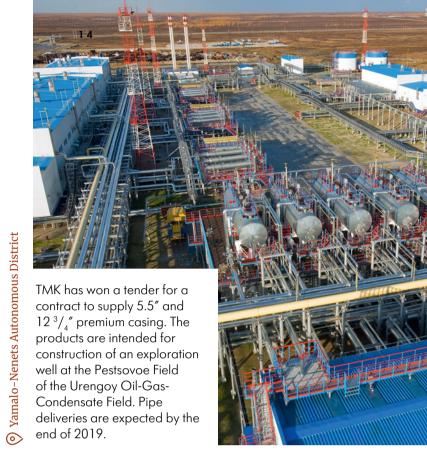
NOVATEK

/JULY - SEPTEMBER/

Yamalo-Nenets Autonomous District

TMK has inked long-term contracts for premium pipe supplies for two LNG projects: Yamal LNG and Ob LNG. The contracts are in effect until the end of 2023.

rgazprom dobycha Urengoy







EUROTECH-YUGRA

/SEPTEMBER/

Khanty-Mansi Autonomous District – Yugra



SAKHALIN ENERGY
/SEPTEMBER/

O Northeastern Shelf of Sakhalin Island

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CUSTOMER-FOCUSED COMPANY

THE SECRET TO SUCCESSFUL PARTNERSHIPS LIES IN UNIQUE PRODUCTS, INTEGRATED SOLUTIONS FOR THE MOST CHALLENGING APPLICATIONS AND AN EFFECTIVE SYSTEM OF CUSTOMER COMMUNICATIONS. BELOW IS AN INTERVIEW WITH VLADIMIR OBORSKY, SENIOR VICE PRESIDENT AT TMK.

Vladimir, what is your assessment of the situation in the tubular goods market? What are your expectations for 2019?

High as it is now, market competition further intensifies as the number of tubular goods producers increases and existing players ramp up their capacities. Meanwhile, we are witnessing waning demand in the core sales markets. The rig count is declining in the USA, which exerts downward pressure on consumption, our products

included. A stagnant EU market can also affect the performance of TMK's European Division this year. Demand in the Russian market remains unchanged from last year.

Hi-tech products, including pipe with premium connections, is the only segment that we view with restrained optimism. This is primarily due to new complex infrastructure projects being developed by oil and gas companies both onshore and offshore.

What new products has the company unveiled recently?

Customers are looking for 13Cr pipe in grades L80SS, T95SS and C110, which is suitable for corrosive environments, such as carbon dioxide and hydrogen sulfide. The TMK-S chromiumnickel alloy is also used in wells with a high concentration of both CO2 and H2S.

TMK has made great progress in developing its premium line threaded connections. In 2019, we began commercial deliveries of casing with the new TMK UP

CENTUM connection to Arcticgas and Gazprom for the Kovykta Oil-Gas-Condensate Field. TMK also continues to supply casing with the GREENWELL dry coating. In addition to new products, we also offer oil and gas companies innovative solutions adapted to the needs of production companies. Supplying pipe alone is an outdated practice. Advanced practices involve integrated deliveries of tubular solutions complete with services and inventory management. We also continue to qualify our products with ExxonMobil, Shell and Total. As we develop our production processes, we are able to reduce the lead time.

What products are supplied to overseas markets?

Russian pipe exported to North America is mostly larger diameter seamless casing and line pipe. Deliveries to the Middle East, Northern Africa and India are focused on pipeline construction projects.

Who are the primary buyers of TMK? How is your cooperation evolving?

The key buyers of TMK products are oil and gas companies. In Russia, in addition to major domestic oil and gas companies, TMK has been working with Sakhalin Energy, a joint venture between Shell, GAZPROM, Mitsui and Mitsubishi.

The major end buyers of our products overseas are ONGC, Saudi Aramco, Shell, ExxonMobil, Petrobel, Anadarko and Occidental. We strive to expand our international pool of customers. We are now actively acquiring new customers in Africa, Latin America and Asia where we see potential for growing our presence.





What is the TMK sales system like?

The leading positions of TMK serve as proof of the viability of the existing sales system. We use best international sales practices, including ABC principles, at the customer, regional, and product levels. TMK uses various sales channels: a customer-based sales system and a product-based sales system. Meanwhile, globally the market is also segmented based on geography.

To offer a format of cooperation most convenient for customers, we have set up sales offices in the regions where the company's active presence is needed for effective customer interactions. A customer-oriented approach is an important factor in the sales system. In order to meet specific customer requirements for hi-tech products, TMK has formed professional teams of engineering specialists and three R&D centers: Houston R&D Center, RosNITI and the R&D Center at Skolkovo. Customers also pay ever more attention to product life cycle evaluation – the integral value of products, including - on top of the cost of production - expenses for maintenance, repairs, inspection, preparation of pipe, and supervision during operation.

We will develop a network of service centers both in Russia and globally in order to provide these services at an even higher level.

Neftegazservice – the service division of TMK – is operating in Russia.

The system of key account managers has been implemented for dealing with major players. It enables us to increase the scope of services provided to a



particular customer. Of course, we also compete in direct tenders of both local players and major private and state oil and gas companies.

What are your approaches to sales in regional markets?

Several sales channels are in place to reach a vast customer base of TMK in the regions (over 2,000 customers): end-users outreach, a dealership network and online store. We currently have 81 regional representatives in Russia and the CIS. Each one of them has specific volume and TMK product promotion targets. The TMK eTrade electronic marketplace has become one of the primary sales channels in the regional market.

When choosing a partner or supplier, consumers at the regional level increasingly focus on the service component. They want to make purchases remotely, want to receive realtime feedback on their online orders and a convenient logistical interface. To this end, we have adjusted our approaches to sales in the regional market by focusing on the electronic marketplace. In 2018, we sold 309,000 tonnes of tubular goods using this tool. Our plan for 2019 is 350,000 tonnes.

We are also changing the format of customer communications: we are transitioning from a product-based principle of responsibility allocation to a customer-based principle. We are setting up the Urals sales center where buyers will be able to collect pipe from all plants in one place. Sales will focus on developing relationships with end-users. A new CRM

system will take care of the digital transformation of the sales process. A pilot version of this system will be tested at this sales center. The launch of the sales center is scheduled for November.

Do you plan to develop the e-store further?

Our assessment of the e-trading experience is positive. The effectiveness of this channel for promotion of our products is evidenced both by the growing number of customers and the growing number of our electronic sales.

Without a doubt, we look to develop this marketplace. Quite recently we updated the design of the online store, making it more convenient and intuitive for the user. Stainless steel pipe can now be bought as well. We plan to connect the CIS market to online sales next year. The TMK eTrade development program is now pending approval. It proposes to make unsold stocks of our dealers available to all users.

TMK holds regular conferences with buyers. Have such meetings become less relevant in the face of allpervasive digital technologies? No advanced digital technology can replace live communication with consumers. Such conferences offer an opportunity to learn opinions on products firsthand. Informal interviews make it easier to gain insights into evolving needs of customers in order to incorporate them in our solutions. The digital format of smartphone apps that help buy and use pipe is being implemented and gaining popularity, but personal contacts are still relevant. YT

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SAY "Hi" TO IPSCO'S HIGH-TORQUE CONNECTIONS

Alejandro Juarez and Gary Durbin discuss the development, launch and market response to the TORQ family, as well as SPWedge, the newest addition to the product line.



The development of the original three TORQ connections took approximately 2 years from concept to commercialization. The idea of creating high-torque connections was market-driven, as customers started to request an operating torque at the top end of company's ULTRA connections. For a time, the SF connection was enough for the market. However, as laterals grew in length and wells became more complex, SF alone could no longer meet all the customer requirements.

Initially, IPSCO began to pursue a different concept, in which the connection combined both the wedge thread and a conventional thread. However, in 2016 the company decided to go with the full wedge concept.

Research and development were done fully in-house. The Houston R&D has all the capabilities necessary for connection development. The metallurgy lab checks the material mechanical properties in order to enable testing at the actual yield strength. The CNC machine threads the samples to extreme tolerances for worst case tolerance scenarios. The horizontal make-up unit can conduct make and breaks on everything from tubing to surface casing. The state-of-the-art load frames have the capabilities to test tubing and casing to API 5C5 CAL IV without limitations.

"Over the years, IPSCO has developed FEA scripts that allow us to automate and expedite the design process," said Alejandro Juarez, Director of Product Development at IPSCO.

When the TORQ connections were rolled out in early 2018, the market responded with enthusiasm. Over thirty existing customers quickly switched to IPSCO's TORQ family after its launch. As a result, company's new connections are now run in every major shale play in the United States – Haynesville, Marcellus, the Rockies, Mid-Continent, Northeast and the Permian Basin.

The development and commercialization of the TORQ family helped IPSCO to retain existing customers, while also gaining new ones. "Over the past five years, dozens of new vibrant oil and gas companies were started," pointed out Gary Durbin, Deputy Chief Commercial Officer. "Many of them have become important customers and active users of TORQ connections."

The company continues to educate customers about TORQ through the joint efforts of its Commercial Sales, Technical Sales and Communications teams. Many of IPSCO's salespeople have technical degrees or are engineers themselves. In their interactions with customers, they involve members of the Technical Sales Department, who in turn follow up with engineers and operators at the rigs. High-torque connections are also highlighted at key industrial conferences and trade shows with the help of the Communications Department. For example, IPSCO's booth at the DUG Eagle Ford conference, which took place in late

September in San Antonio, TX, was designed around the TORQ logo and manned by technical and commercial specialists who are intimately familiar with the company's high-torque connections.

All three TORQ connections - DQW, SFW and QXW underwent extensive testing to meet customer requirements, most of it at IPSCO's Houston R&D Center, TORQ DQW and SFW, which have the highest operating torque in the industry, were tested for fatigue and according to the API 5C5 CAL IV Series B protocol, while ExxonMobil Connection Evaluation Program (EMCEP) and API 5C5 CAL IV were used in the testing of QXW. TORQ SFW and QXW have been certified by

ExxonMobil in sizes 5 $^{\prime\prime}$ 17 lb/ft and 6 $^{5}/_{8}$ $^{\prime\prime}$ 24 lb/ft respectively for use in the Sakhalin-1 project.

The TORQ family continues to expand, as IPSCO is preparing to launch its newest semi-premium connection. SPWedge was designed for oil and low-pressure gas shale formations with slim hole high-torque requirements. The semi-flush semi-premium connection with low thread count per square inch provides extreme torque and rugged performance.

With the production trial scheduled for the second half of December, the connection should be ready for sale on January 1, 2020. "We hope that customers will be as excited about the newest addition to the TORQ line of connections as we are," shared Mr. Juarez.***

TMK IPSCO booth at the DUG Eagle Ford Conference







Experts predict that Russia, Saudi Arabia and the USA will compete for leading positions in the oil market. First, the Americans will develop their deep-water export terminals in the Gulf of Mexico, which will enable the USA to increase its influence on global prices in the future. Second, development of shale oil and gas production technologies will help the United States strengthen its positions.

Meanwhile, Russia also has potential. It sits on some of the world's largest shale oil and gas reserves, virtually none of which have been developed today. Russia alongside Qatar, Australia, and the USA continue to lead in terms of natural gas output. While the US is expected to exceed its gross natural gas export targets by 30% this year, Russia expects a breakthrough in gas relations with China: the launch of the Power of Siberia gas pipeline is slated for late 2019.

WHAT DOES THE FUTURE HOLD?

Analysts believe that demand for oil will continue to grow over the next 10-20 years, but certain changes will happen. According to Vladimir Derbentsov, BP Russia Vice President and Chief Economist, they will be brought about by an energy transition. For the oil market it means a reduction in the market share of oil and a diversification of energy sources in general.

"We expect demand for liquid fuels to grow by 10 million bbl/day over the next 15 years," says Vladimir Derbentsov, discussing the baseline scenario of BP, adding: "Demand will shrink in developed countries and continue to grow in emerging economies. Growth in demand will be met by increases in production by 5 million bbl/day in the US, 4 million bbl/day in the OPEC countries, 2 million bbl/day in Brazil, and 1 million bbl/day in Russia."

While the transport industry is currently the biggest consumer of liquid fuels, the petrochemical industry will take over this role by 2035 when growth in demand for oil will slow down.

The gas industry situation is more optimistic. According to Georgy Nozadze, Director of Business Development Strategy at NOVATEK, we have been witnessing enormous growth in gas consumption over the past two years. While the gas market itself has grown by 20% over the last 8 years, the LNG sector has expanded by 40%. This is an emerging market where all players have yet to occupy their positions. Notably, gas prices are falling as competition among producers intensifies and new plants are built.

"We believe that continued low gas prices will promote growth of the entire natural gas market and the LNG market in particular," Mr. Nozadze is confident: "It is very important for Russia to set specific goals in this growing market. We have gas reserves that are among the cheapest to recover. We have technologies that allow achieving the lowest possible cost of liquefaction. We need to develop equipment for our LNG lines, which will become a key driver."



Analysts believe that demand for oil will continue to grow over the next 10-20 years, but certain changes will happen.

DIGITAL IS KING

The forum also touched on technology trends that are revolutionizing the market. The chief trend is the digital transformation of the industry. Recent years have seen a rapid development of a technology-centered economy. Out of the entire range of opportunities, last year experts picked IT companies and oil futures.

The market's technological transformation has also had an impact on oil companies. The breakthrough has been made possible by the declining cost of technologies. For example, since the beginning of this century the price of a drone has decreased by 100 times, while the cost of an average well is down 3-fold. The cost of technological tools is expected to decline as their selection broadens.

"In the future, the cost of production of one barrel of oil from a shale formation may decrease by 28% by 2050, and by 35% in the Arctic shelf, whereas the cost of production from

Experts predict that Russia, Saudi Arabia and the USA will compete for leading positions in the oil market. mature onshore fields will decrease by 10%," Alexey Loza, Head of Fuel and Energy Sector Services Department at EY, quoted the findings of the BP study, adding: "The effect from the use of cutting-edge technologies will be less pronounced but just as important. Gas production costs in the Arctic shelf may decrease by 28%, shale gas extraction costs – by 22%, and the cost of production from conventional onshore fields – by 13%. Technological advancements may bring about a possible reduction in oil and gas production costs by 30% on average."

Artificial intelligence tools make the greatest contribution to the development of oil and gas industry technologies. They are followed by cloud computing and the Internet of Things with the development of robotics rounding off the four top factors. Digital transformation has an impact on the entire value chain in the industry. Management of assets and infrastructure facilities, field development, geophysical services, pipelines and processing are among the most promising segments for transition to digital technologies.

PREMIUM CONNECTIONS FOR MULTI-FRACKING Capabilities of Russian companies to supply oil and gas industry operators with everything they need to implement the most challenging projects were discussed as part of a roundtable discussion titled "Exploration and Development of Hard-to-Recover and Unconventional Hydrocarbons". Albert Agishev, head of well design department at TMK Premium Service, discussed TMK UP premium threaded connections that can be used for casing and tubing strings in directional and horizontal ERD wells. Among other things,



while retaining its operational integrity," he commented. Meeting participants believe that demand for hi-tech products for the oil and gas industry will grow, considering the growing complexity of production conditions. Meanwhile, engineering and technology innovations offer greater opportunities and expand the scope of operations of oil and gas companies. According to RPI, while in 2010 the share of horizontal drilling in Russia was 11%, it increased fourfold to 43% by 2018. Forecasts indicate that horizontal drilling will account for 50% of all drilling by 2030.

INDUSTRY WILL SURVIVE

If forum discussions are any indication, the expectations of industry representatives are generally optimistic. "Even if the rate of growth in demand for oil begins to decline, this does not mean that oil will not be consumed," says Pavel Sorokin, Deputy Minister of Energy of the Russian Federation, adding: "We simply need to be more efficient. I think that we should not paint apocalyptic scenarios and rush headlong into alternative technologies. We need to evaluate the situation soberly and make the most of what we have."

According to the official, Russia needs to make maximum use of its competitive advantages: fairly cheap-to-recover reserves amounting to 29.5 billion tonnes of oil.

"We are now working as part of a roadmap for stimulation of production in order to start developing these reserves," Pavel Sorokin summarized, adding: "This is our potential. Unlike the majority of producing countries, we have a margin of safety. Even if the price drops to 50-60 dollars per barrel, the Russian oil industry will still survive."

he emphasized connections used in multi-fracking and in-situ combustion processes, which are the primary methods of development of Bazhenov Suite fields.

The representative of TMK Premium Service pointed out that the design evolution of premium threaded connections reflects the evolution of the well drilling and completion technologies. TMK as a leading producer of premium connections in the Russian market offers cuttingedge products. "Heightened requirements apply to casing connections as the length of the horizontals increases in the production well. The connection must withstand a 100% load relative to the pipe body when exposed to both tensile and compressive loads as well as ensure high operating torque



YURIY SAMOLGO/TASS

TMK is a leading producer of premium connections in the Russian market

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PRIORITY FOR

THE STRATEGIC PARTNERSHIP
AGREEMENT SIGNED BY TMK AND
NOVATEK AS PART OF SPIEF-2019
BECAME A NEW MILESTONE IN THE
HISTORY OF THE TWO COMPANIES'
SUCCESSFUL COOPERATION.

he global tubular goods manufacturer and Russia's largest independent natural gas producer began cooperating in 2008 when TMK

cooperating in 2008 when TMK won a number of NOVATEK tenders. The company was awarded contracts for the supply of 16 "x 0.433" and 16 " x 0.472" K52 line pipe as well as 6 5/8" x 0.352" N80-Q casing TMK FMC premium threaded connections. The products were intended for development of the Yurkharovo Oil-Gas-Condensate Field in the Yamalo-Nenets Autonomous District, one of the most challenging assets in the company's portfolio.

That same year the companies entered into a strategic partnership

agreement to produce and supply tubular goods with premium threaded connections, with TMK winning recognition as the priority supplier of tubular goods for NOVATEK. This became a major victory for TMK: the company became the only Russian producer of pipe with premium threaded connections whose products were given preference over foreign-made equivalents. Status as a priority supplier for the gas company confirmed the capability of TMK to offer premium products on par with the largest global producers in this segment.

TMK has agreed to supply its partner with integrated tubular solutions including manufacture, delivery and maintenance of pipes with gas-tight premium threaded connections as well as training of specialists and monitoring during string makeup.

Casing with
TMK UP
CENTUM was
first used at the
Salmanovskiy
Oil and Gas
Condensed
Field





Another unique project that involved running the casing string into a well at the Yurkharovo Field from the shore under the bottom of the Kara Sea was implemented in early 2013. A string of 204 casing joints with TMK PF premium threaded connections made by TAGMET was run to a depth of 19,200 feet. At the time it was the deepest well to use premium TMK casing. All runs were supervised by company specialists.

In addition to supplying products for well completion, TMK participated in a project to build a booster compressor station for the Yurkharovo Oil-Gas-Condensate Field, which was needed to maintain the maximum level of gas production at the field. In 2014, the company sent a shipment of largediameter pipe for construction of the third stage of this facility. The delivery scope included 40" and 48" K60 welded line pipe rated for an operating pressure of 11.8 MPa, which were made by Volzhsky Pipe Plant.

The first long-term supply contract was signed in 2014 with Yamal LNG as part of one of the biggest NOVATEK projects, development of the South Tambey Field. Close to 45,000 tonnes of premium pipe have been shipped under this contract to date.

TMK pipe has been used at

virtually all NOVATEK fields for well completion, specifically Evoyakha, Urengoy, East Tarko-Sale, South Khadyryakha, Yaroyakha, Samburg, Termokarstovoe, Yarudey, Beregovoe and others. Over the past three years, NOVATEK took delivery of over 180,000 tonnes. STRATEGIC AGREEMENT
Successful cooperation between
the two companies was taken
to a new level by the signing
of an agreement on strategic
partnership and cooperation
until the end of 2023 on the
sidelines of the 23rd St. Petersburg
International Economic Forum.

TMK pipe has been used at virtually all NOVATEK fields

New stage: strategic partnership agreement up to 2023

In 2017, TMK developed a new threaded connection— TMK UP CENTUM



TMK supplies the entire range of premium tubular goods to NOVATEK.

TMK Board of Directors Chairman Dmitry Pumpyanskiy and NOVATEK Management Board Chairman Leonid Michelson signed off on the document.

The agreement outlines the core principles and approaches to shipments of premium casing and tubing made by TMK for NOVATEK. The agreement provides for formulabased pricing that will ensure effective production and timely and reliable deliveries. YT



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"ZERO IS ACHIEVABLE" IS AT THE CORE
OF TMK IPSCO'S OPERATIONS. YEARLY
PARTICIPATION IN STEEL SAFETY DAY (SSD)
UNDER THE AUSPICES OF THE WORLD STEEL
ASSOCIATION HAS BECOME A PERMANENT
FIXTURE ON THE CORPORATE CALENDAR.

3 1



With this year's focus on process safety, all the North American plants held employee events to discuss safety performance, report key findings from safety audits and conduct a variety of safety demonstrations on topics ranging from fire prevention to tool safety.

Members of the executive leadership team went to the plants to personally deliver the main message of SSD-2019 on process safety management led by Chairman and CEO Piotr Galitzine's address at the Houston R&D Center. Process safety is one of the five leading causes of accidents at metallurgical plants, as identified by WorldSteel. However, process safety is often more challenging to conceptualize than the other four main contributors to industrial incidents: on-site traffic, moving machinery, falling objects and working at heights. In relation to TMK IPSCO's facilities, process safety has particularly important implications in the prevention of releases of hazardous materials, including liquid metal, and energy.

Safety is a mindset that must extend beyond the walls of the workplace. With that in mind, TMK IPSCO plants emphasized the issues surrounding personal and home safety, emergency readiness, safe handling of household tools and fire prevention. The Baytown plant went a step further and made SSD a family day, with employees encouraged to bring their families. Having a real playground set up on plant arounds ensured that the event was a hit with children.

CORPORATE EFFORTS

SSD was observed throughout TMK, including its Russian Division. Multi-year efforts are paying off, as the accident rate at the company decreased by 11% and by 33% in the Russian Division in 2018 compared to 2017. Meanwhile, in 2019 TMK Group is on track for its best health and safety performance.

According to World Steel Association, the greatest cause of concern at metallurgical companies are risks associated with collapsing structures, explosions, fires, toxic emissions caused by fuel leaks, chemical spills or liquid metal release. While actions needed to bring emergencies under control involve engineering solutions, organizational processes and management, emphasis should be on prevention. WorldSteel stresses that in safety practices, companies should base their strategy on risk mitigation and not on formal compliance with legislative requirements.

Preparations for SSD 2019 at TMK's Russian Division began long before the target date, just like in previous years. All the plants were audited to make ensure that their workplaces conformed to occupational health and safety requirements. The audit findings were reflected in reports and meetings were held to discuss ways to further minimize risks and improve the existing approaches to creating a comfortable and safe work environment for employees. A team of inspectors that included company executives visited all production sites.

"SSD is not a one-time event for TMK. Creating safe working conditions is about

Extensive work was carried out at the plants to eliminate safety risks

daily systemic work by all company employees," says Vyacheslav Popkov, TMK Senior Vice President and Chief Engineer. "We prepare on a year-round basis, which enables us to achieve significant results. The overriding goal is to make workplaces as safe as possible for our personnel. We need all of our employees to return

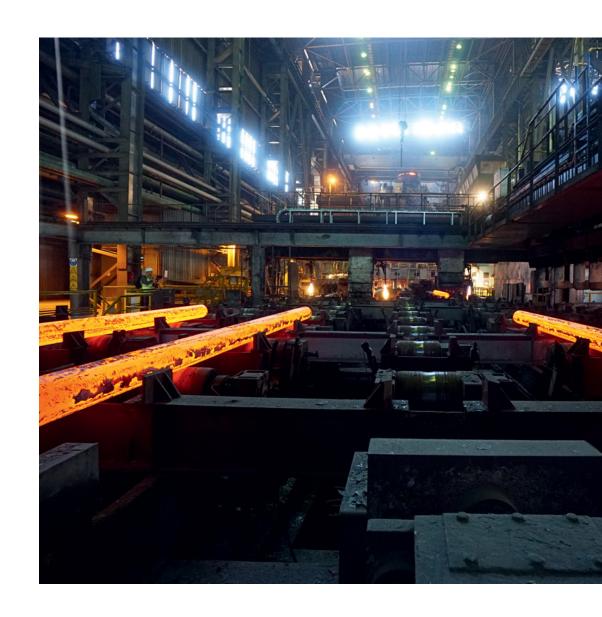
home alive and healthy and willing to work for the benefit of the company and their families."

ADJUSTMENTS IN TIME FOR SSD

Process safety management measures implemented at TMK's Russian plants included a noise insulation screen installed between the coupling threader and the pipe delivery table at SinTZ's shop T-4. At shop T-3, aluminum insulated glazed units and air conditioning systems were installed in crane cabs, windows were replaced in the casting shop and lighting was upgraded in multiple work areas. At TAGMET, exhaust ventilation was installed at the stretch-reducing mill; shops were made more orderly: work area surfaces were cleaned and spaces between columns were uncluttered.

Risk mitigation measures at the plants covered all primary and auxiliary units and areas. They included installation of protective barriers around

Hazardous processes are an integral part of steel production and require special attention when it comes to managing them safely. According to World Steel Association, the greatest cause of concern are risks of accidents with severe consequences such as collapsing structures, explosions, fires, toxic emissions associated with fuel leaks, chemicals or molten metal.



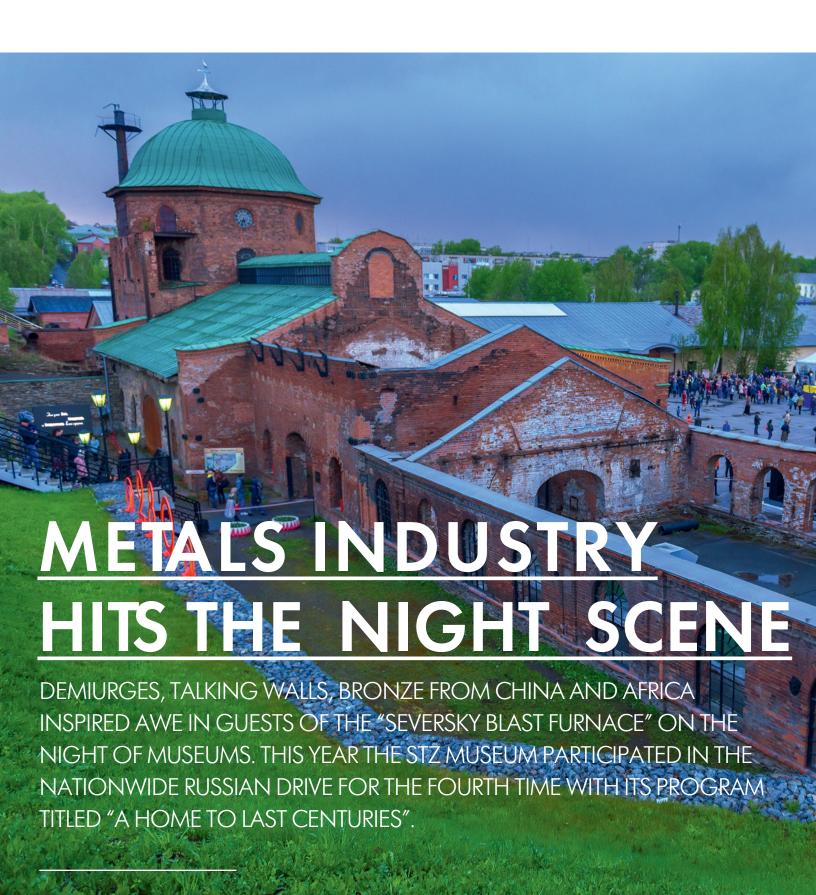


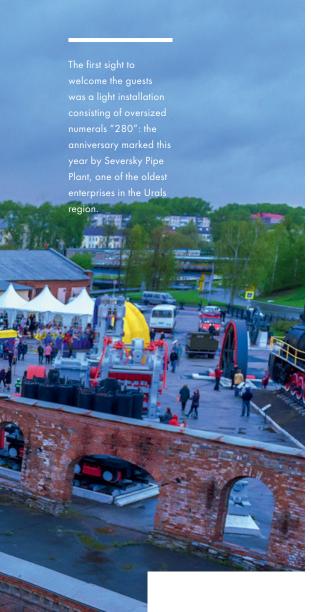


danger zones; marking of safe passages; installation of light and sound signals on moving objects; procurement of personal protective equipment to protect workers against falls from a height (fall arresters); zoning of sites serving different purposes taking into account safety requirements; repair of roads used by special-purpose equipment and installation of road signs; using warning colors to show vehicle clearance dimensions; restoration of floor coatings in shops.

Piotr Galitzine, Chairman & CEO TMK IPSCO, addresses Houston based employees during the Steel Safety Day

"Our plants have hi-tech equipment operated daily by thousands of employees daily. With this in mind, care for worker safety will always be among the key objectives of our company. We will achieve even better results when safe work practices become ingrained and when these issues are paid attention to on a daily basis," TMK Board of Directors Chairman Dmitry Pumpyanskiy pointed out in his speech as he addressed employees on the occasion of SSD.YT







The collection of demiurges and avatars ncluded both famous historical figures and rank-and-file artisans his year the STZ museum participated in the nationwide Russian drive for the fourth time with its program titled "A Home to Last Centuries". The event drew over 2,000 guests from different Russian regions, Kazakhstan and Germany. Many of them were

returning guests.

"I think that every guest who came here discovered for themselves yet another aspect of the history of our famous plant. It is wonderful in terms of both its past and present: this history is being written by the modern generation of steelworkers," says STZ Managing Director Mikhail Zuev.

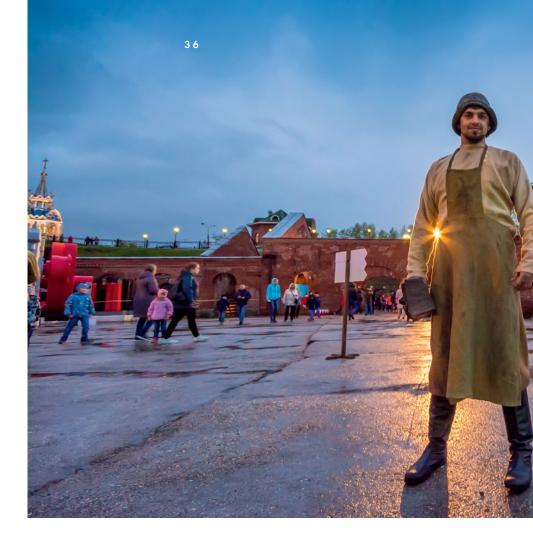
The very title of the program on billboards, "A Home to Last Centuries", was intriguing. The play of shadows made the words come alive: at one angle the title read "Blast Furnace of the Century", at another angle you could see the Seversky Blast Furnace itself – a unique monument of 19th century industrial architecture, and at yet another angle the title changed

The Severksy blast furnance suprised its night visitors this year again



Famous collector Vladimir Pelepenko displayed his collection titled "Metal as Art". This collection of copper, bronze, and iron artworks from different ages and countries is one of the world's rarest





Historical figures descended from old paintings and photograps

to "A Home to Last Centuries," an homage to the plant as our common home.

The first sight to welcome the guests was a light installation consisting of oversized numerals "280": the anniversary marked this year by Seversky Pipe Plant, one of the oldest enterprises in the Urals region. Guests then walked down a flight of stairs to see the first open-air exhibit: life-size painted demiurges, who personified artisans of the Urals region in different ages. A demiurge (from Greek "demiurgos") means a creator, he who makes things, an artisan. Images of 10 demiurges representing the history of the Urals metals industry from the Itkul culture to contemporary traditions were designed by famous Yekaterinburgbased artist Alexey Ryzhkov. This unique collection includes both famous historical figures such as Count Vasiliy Tatishchev and rank-and-file artisans, blacksmiths, stone cutters and steelworkers.

True to tradition, the main site of the night was the 19th century blast furnace shop, where the Memory of the Place installation awaited guests on the brick masonry walls. Owing to the interior mapping technology, the walls of the old blast furnace shop began to speak, and brick masonry came alive to

tell the story of Seversky Plant. The unique acoustic setting of the blast furnace shop made the sound accompaniment of the 3D video projection onto the blast furnace and brick masonry even more realistic. The appearance of human actors in the finale was yet another striking touch of this mini performance in the blast furnace shop.

A literary and musical soiree was arranged for guests on the bottom platform of the museum complex. Teams of the STZ community center performed skits from a play about the plant's history along with musical compositions. The main hall of the museum complex hosted a concert by the jazz band Bulgakov in Jazz.

Several exhibits at once were on display in the hall of the museum complex. An exhibition by Polevskoy-based blacksmith Viktor Slepukhin was set up next to the anvil. The attention of guests was drawn to a gigantic flywheel straight from the cover of Alexey Ivanov's book "Gornozavodsk Civilization". Passages from this book appeared on age-old bricks next to this unusual exhibit.

Famous collector Vladimir Pelepenko displayed his collection titled "Metal as Art". Guests had a chance to admire a hundred or so metal casting artworks from Russia, India, Africa and China. This collection of



copper, bronze and iron artworks from different ages and countries is one of the world's rarest. During the nighttime exposition of the Seversky Blast Furnace, guests could see copper articles made by ancient metallurgists, highly artistic and ornately decorated bronzes from China, deities and idols of African tribes.

The room of the steam bellows machine served as a venue for an exhibition of statues by Alexey Potoskuev, a famous blacksmith from Sverdlovsk Oblast, which the artist created especially for the nighttime expo.

"On this special night, museums, exhibitions, and galleries all over the world open their doors: it is a veritable international holiday, a celebration of the love of history and art, and in our case, also of metal," says Anna Trepalova, Director of the Seversky Blast Furnace museum complex, adding: "Hence the origin of our original exhibitions: 'Metal as Art', 'I Am Metal', 'Blacksmith Artisan', 'Iron Cause', 'Demiurges - Creators'. We wanted to convey a thought that anybody can become a demiurge in what he or she does." YT

The main site of the night was the 19th century blast furnace shop, where the Memory of the Place installation awaited guests on the brick masonry walls



Several exhibits at once were on display in the hall of the museum complex



ALEJANDRO JUAREZ

DIRECTOR OF PRODUCT DEVELOPMENT TMK IPSCO

- 1. Planning my day while brewing my first cup of coffee.
- 2. I don't believe in superstitions.
- 3. My father has been my utmost inspiration.
- 4. I try to develop professionally through books and by learning from coworkers that I admire.
- 5. Elon Musk. It would be interesting to hear his vision of the future of technology.
- 6. Extreme Ownership by Jocko Willink and Leif Babin.
- 7. Seafood, steaks and home-made Mexican food.
- 8. War. Iraq 2003.
- 9. Can't decide between Chichen Itza in Mexico and Petra in Jordan.
- 10. Banff, Canada; nature at its best.
- 11. Invent a monopole magnet to provide infinite amount of selfsustained energy.
- 12. One word, Pride.

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- 1. How do you begin your work day?
- 2.Professional superstitions?
- **3.** Who in the past or present particularly inspires you?
- **4.** Favorite habits or rituals?
- 5. Whom would you invite to a dinner party? What would you like to talk about?
- **6.** The last book that thrilled you?
- **7.** Favorite cuisine or dish?
 - **8.** Most memorable impression recently?
- **9.** What is the most interesting place in the world that you've visited?
- **10.** Your favorite city, and why?
- 11. If you were given the chance to change just one thing in the world, what would it be?
- 12. What does TMK mean to you? Describe it in just three words.

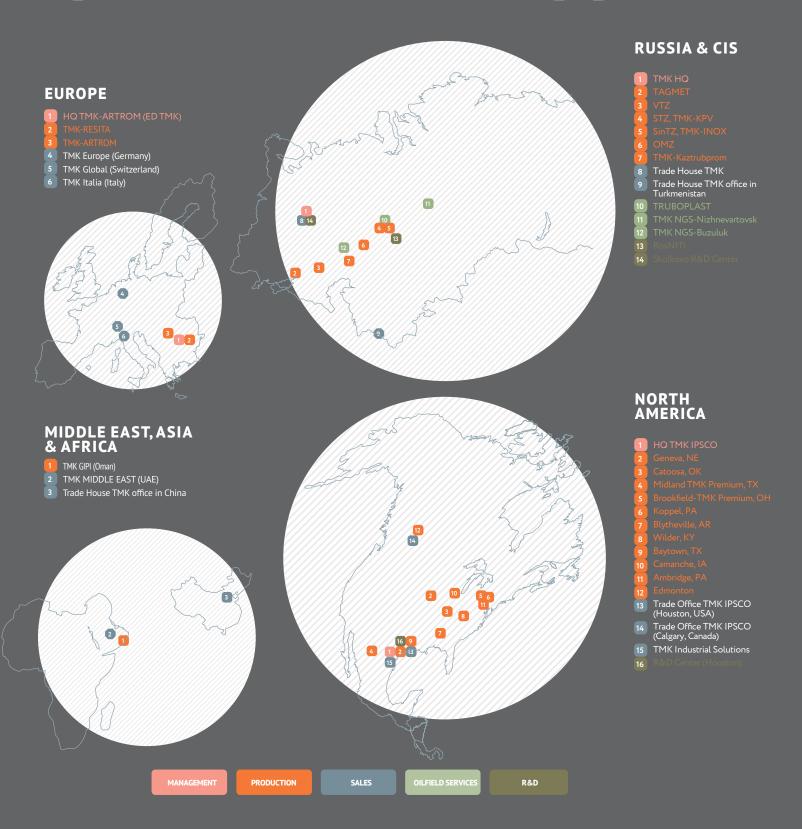


GARY DURBIN

DEPUTY
CHIEF COMMERCIAL OFFICER
TMK IPSCO

- 1. My day starts with coffee and a check through booking emails.
- 2. Always be on time and dress professionally.
- 3. My father he was raised during the Depression in Western Pennsylvania. His parents emigrated to the USA from Austria with very little money and big hopes of a better life.
- 4. Enjoy getting up early in the morning to start the day.
- 5. Arnold Palmer talk about his amazing life and how he has influenced so many lives in and around golf.
- 6. Bible.
- 7. Seafood from the Gulf Coast and a great tomato salad.
- 8. The incredible work ethic employees at TMK IPSCO continue to exhibit.
- 9. Moscow, Russia.
- 10. San Francisco, the beauty of the area is amazing.
- 11. Increase kindness and respect for others in the
- 12. Proud, Strong, Reliable.

TMK global pipe producer and supplier





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> www.ipsco.com Making Pipe for the World



Only at TMK IPSCO

Engineered to meet today's onshore drilling challenges caused by high dogleg severity, higher pressures and longer laterals, TORQ connections deliver a superior level of performance you can count on to land casing faster and ensure quality cementing downhole. From the speed of the QXW to the strength of the SFW and the highest torque rating on the market of the DQW, nothing connects better than TORQ.