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Technology Motion Knowledge

01 ■ 2018
No 14



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YourTube
Technology Motion Knowledge

Nr. 1 (14)

Ianuarie 2018

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Printed at Tipografie Gabriele

Publication is registered with the
Federal Oversight Authority for
Communication, IT and Mass Media
16+

Certificate of publication
No. FS77-40128 of June 11, 201

lyudiepeople

Distributor: GC "LYUDIEPOPLE"
129085, Moscova, Bulevardul Zvezdny, 21, clădirea 1, birou 18 Telefon:
+7 (495) 988-18-06. vashagazeta.com
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TMK EUROPEAN OFFERING

Adrian Popescu, CEO of the European Division of TMK, discusses the promising markets, investment strategy, and plans of TMK in Europe in the following YouTube interview.

Mr. Popescu, this year TMK's Romanian production sites will complete another stage of an ambitious investment program. It is the critical culmination point of the last several years of efforts by those plants. What advantages has this given the European Division in its competition for consumers?

With the completion of the first stage of the investment program we have been able to achieve two key objectives. First, TMK-ARTROM and TMK-RESITA have become a single end-to-end metallurgical facility that transforms feedstock into high-tech products. Second, we have secured a leading position in the European pipe manufacturing market, especially as regards seamless pipes for industrial applications. Competition for customers in the European market is intensifying, and the TMK product line is evolving in line with market trends. We continue to increase the proportion of high-tech products for the mechanical engineering industry. In the second stage of the investment program, by 2015 we started making new kinds of steel and alloys with greater added value and launched the production of new premium products for hydraulic and telescopic cylinders. TMK-ARTROM is currently near the end of preparations to put a product heat treatment bay into service. The new line will apply heat treatment

to long pipes up to 250 mm in diameter with walls up to 60 mm thick. Virtually no other European manufacturer can offer this. Pipes are mostly cut into lengths before undergoing heat treatment. The new equipment enables us to offer customers substantial cost savings on pipe purchases and make their businesses more profitable. And in turn, we will increase the proportion of premium products in our order portfolio.

How did you decide which areas TMK's European production facilities would specialize in, and what was the path that led to the premium segment?

After the plant joined TMK in 2006, we needed to decide its role and significance within the group's structure, avoid any production overlaps, and predict market growth trends. That was when we decided that TMK-ARTROM should become a producer offering mechanical pipes for the widest possible range of applications with fast and flexible delivery tailored to customers' individual needs. To achieve this, we had to change our way of thinking, adapt

our technology, and seek the support of potential customers. Our investments in production sought to achieve two primary objectives. The first involved ensuring proper quality, stepping up production, and expanding the product mix. We installed a second rolling line that virtually doubled the plant's production capacity. We also implemented a quality control process and automated our Assel hot rolling line. These transformations resulted in our current annual output of 200,000 tonnes of hot-rolled pipes. We raised the bar even higher at the second stage: to turn TMK-ARTROM into a manufacturer of products for industrial applications with a high added value. Up to the beginning of 2018 our plant implemented several major investment projects to propel TMK-ARTROM products into the premium segment. When it comes to mechanical pipes, the "premium" tag is extremely important. Premium products include pipes offered not just as hot or cold rolled products, but as products that have undergone additional processing after the steelmaking and rolling stages. Such pipes are

Competition for customers in the European market is intensifying



effectively finished products intended for use by our end buyers. With a focus on the most profitable market niche segments, in 2015 we launched capacities that make different kinds of pipes for the mechanical engineering industry, including for manufacture of hydraulic and telescopic cylinders, as well as products for automotive applications and other industries. One of the projects launched in 2017 involves making vehicle components for the Renault Group. We have already started making products for five Renault models. All these steps have brought about a change in our profile and market status. While prior to 2017 TMK-ARTROM specialized in general-purpose mechanical pipes with a tiny proportion of premium products, now we are in the category of premium product manufacturers with a small share of general-purpose pipes.

What are the specific considerations of working in the mechanical engineering segment? What are the challenges?

The philosophy of vehicle manufacturers is very different from the practices of metals industry companies. Before joining this business, we needed to go through an engineering stage and become a part of the company's design process. We began by selling regular mechanical pipes without premium processing to several companies that make automotive components. Three to four years later we developed an understanding of this

business and its concept. We then decided to adapt our production to the needs of vehicle manufacturers. Our new production facilities sometimes have little in common with a metals industry plant. They sooner resemble a factory that makes vehicle components that are then sent directly to the assembly line of automotive plants. This story illustrates our path to the new market.

How do you manage your customer relations faced with stiff competition in the European market?

Our division has over 600 customers

in Europe and another 60-plus in the USA and Canada. Most of them are end buyers with rapidly changing needs, which introduces additional specific considerations to our workflows. Many buyers put forward their own requirements for pipes, pipe quality, prices, and delivery terms. And we have to ship those orders meeting their quality expectations on time. Specialist personnel in TMK's European Division carefully study the needs of every customer. We then adapt our technologies, production processes, and logistics to their needs. TMK-ARTROM launched the new pipe heat treatment bay as a result of our communication with customers. Management and engineers transformed their wishes and suggestions into the technologies currently in place at our plant. The logic of our customer relations revolves around becoming closer to customers, turning them into our partners rather than just product buyers, and moving forward with them. After all, it is our buyers who generate new ideas for us and help us grow our business.

TMK-ARTROM – the forefront company of the European Division – marked its 35th anniversary in September 2017. What are its achievements at this milestone? What accomplishments are you particularly proud of?

Those have been very interesting years. Looking back, I can say proudly that this Romanian company has been growing vibrantly all that time. In 2006 it joined TMK, and eight years later TMK's European Division was established on its basis to amalgamate the production assets of TMK-ARTROM and TMK-RESITA. The trading companies TMK-Europe and TMK-Italia were established later. Last year we expanded to ano-

TMK-ARTROM is currently one of the largest suppliers of steel pipes in the European market.

ther continent by opening our sales division, TMK Industrial Solutions, in North America.

My personal biggest achievement over those years is the creation of a strong and professional team capable of doing business not just in Europe, but in other parts of the world.

Another achievement is that we have created an end-to-end production chain at the two manufacturing sites. After an ambitious investment program, TMK-RESITA turned around from a bankrupt operation into a modern efficient company producing high-quality pipe billets. Today it is a completely different plant with advanced equipment. This has in turn benefited TMK-ARTROM, which makes industrial pipes from TMK-RESITA billets. As you know, the smallest defect in the billet can impair the quality of the resulting pipe. This synergy helped us achieve high quality metrics for our products. The European Division in general and TMK-ARTROM in particular are currently known in Europe as a flexible and dynamic manufacturer capable of supplying pipes to customers even one week from the order day, if needed. This became possible precisely by making changes to our way of thinking and choosing a new evolutionary path for both plants.

What are the current results of the European Division's performance in the market?

In 2017, the European Division increased shipments of metallurgical

products (pipes and billets) by 32% to about 620,000 tonnes. We also expect to post appreciable annual growth. TMK-ARTROM is currently one of the largest suppliers of steel pipes in the European market. Only 15% of our products are sold in Romania, the remaining 85% being shipped to other European countries, Africa, North America, and South America. We shape our sales strategy based on these statistics.

The division has achieved solid results in the American market. In 2016, TMK management decided to found TMK Industrial Solutions to market the European Division's products in North America. TMK Industrial Solutions offers the entire range of tubulars produced by the European Division, primarily pipes for industrial applications such as mechanical, boiler, power equipment, and stainless steel pipes. We record month-to-month growth in our sales despite tough competition in this market.

The division is expanding business in South America in the same fashion. In 2018, we intend to market our tubular goods more aggressively in the North and South American markets with their high profit margins, while closely focusing on the mechanical pipe segment. The completion of our investment program, increased production output quantity and, more importantly, quality, and expanded presence in various markets have laid a solid groundwork for active marketing of TMK products and a growing bottom line of the European Division. ■

MODERNIZTION AT TMK-ARTROM AND TMK-RESITA (2007–2018)

- Modernization
- New Equipment

TMK-ARTROM
Hot Rolling Line
- CPE



TMK-RESITA
Vacuum
Degassing



2007

TMK-ARTROM
Size mill
EZTM



2008

TMK-RESITA
Electric Arc
Furnace
(EAF)



2009

TMK-ARTROM
Magnetic Powder
Control

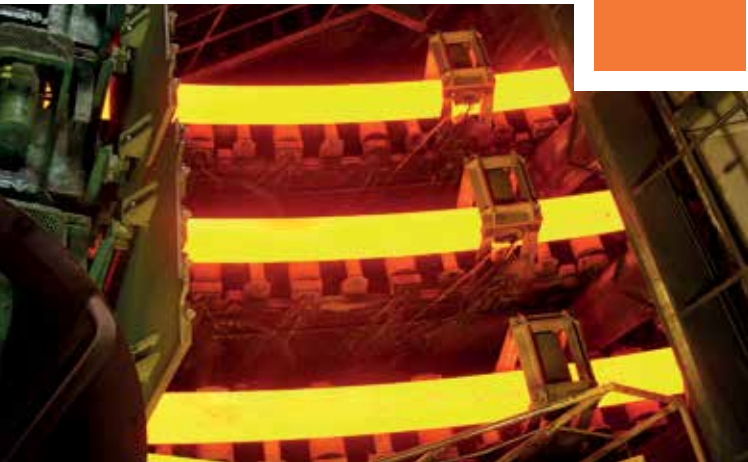


2011

TMK-RESITA
Continuous
Casting Machine
New diameters of
billets

2012

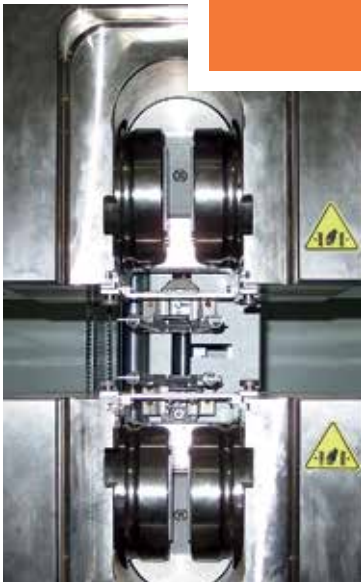
TMK-RESITA
Continuous Casting
Machine



TMK-ARTROM
Magnetic Powder
Control



TMK-ARTROM
Materials Testing
Machine Z 600 E



TMK-ARTROM
Eddy Current
- surface non-
destructive control



TMK-RESITA
Static VAR
Compensators
(SVC) at Steel
Plants



TMK-ARTROM
New premises
of WSN⁵ ACH



TMK-RESITA
Dedusting
System of
EAF&LF



TMK-ARTROM

■ Ultrasonic Equipment



2013



TMK-ARTROM

■ Induction pipe reheating installation

TMK-ARTROM

● Mandrel Rolling line



TMK-ARTROM

■ Tubes Cutting Machine

TMK-ARTROM

■ Cracks Detecting equipment for pipes' ends



2014



TMK-RESITA

● New Scrap yard



TMK-ARTROM

■ Varnishing Machine

TMK-ARTROM

■ Skiving and Roller Burnishing machines



2015



TMK-ARTROM

■ Centerless OD grinding machine

TMK-ARTROM

■ Bandsaw cutting machine



2016

2017

2018



TMK-RESITA

■ Bridge Cranes for Steel Plant

Premium Tehnologies

TMK-ARTROM (Romania) is finishing preparations for the launch of a seamless pipe heat treatment line. This represents yet another step toward strengthening the company's position in the segment of premium products for mechanical engineering.

After the fundamental modernization of steel smelting and pipe rolling operations at TMK plants, the company's investment activity is aimed at developing pipe finishing capacities: heat treatment, upsetting, coating, and cutting. Additional finishing provides enhanced product properties in line with the growing customer expectations. This offers

manufacturers an opportunity to expand their product mix with high added value. TMK-ARTROM made the first important step in this direction in 2015 by launching its seamless pipe finishing shop – Workshop No. 5 (auto parts and hydraulic cylinders shop). The advanced equipment installed here performs inside surface boring and thread rolling and cuts the pipes for

manufacturing precision tubular goods. The resulting products are virtually ready-made goods used in mechanical engineering to manufacture hydraulic and telescopic cylinders, in automotive construction, aviation, and other industries. The next stage of the process of augmenting the finishing capacities involves building an integrated heat treatment line for seamless pipes. This investment project, much like a

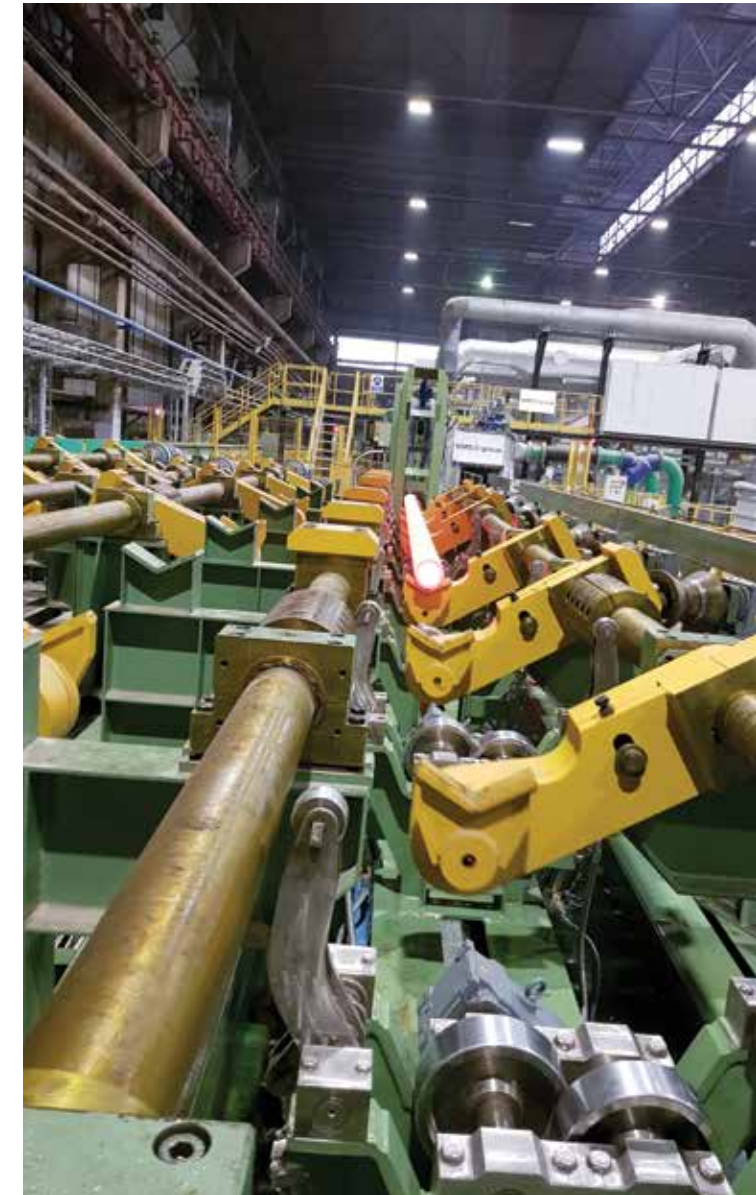
similar project underway at Seversky Pipe Plant (STP), is one of the company's largest ongoing projects. The heat treatment bay will be launched at the Russian plant in 2019. Hot tests on the new line at TMK-ARTROM were completed as early as December 2017. The equipment for these projects is manufactured and supplied by SMS Group. Heat treatment of pipes, which is essential to their high strength

properties, is increasingly becoming a mandatory requirement on the part of customers. The need for this operation is either expressly stated in the order or becomes obvious during analysis of the product's requested mechanical properties. In 2017, up to 75% of TMK-ARTROM products passed at least one heat treatment operation using just the existing heat treatment capacities. Yet the plant

did not have enough capacity to perform tempering and quenching. The existing heat treatment facility at TMK-ARTROM uses three furnaces for pipe normalization, tempering, and annealing, but their capacity, gas consumption, and temperature maintenance precision fall short of modern requirements. Plus the furnaces, which were installed in 2003, were not designed for heat treatment of

EQUIPMENT OF THE NEW HEAT-TREATMENT LINE:

- Hardening Furnace**
- Quenching Unit**
- Tempering Furnace**
- Water Treatment Plant**
- Hot Straightening Machine**
- Handling Equipment**
- Equipment of Non-destructive Control**





thick-walled pipes, which substantially limits the portfolio of orders. These problems will be resolved by replacing the old heat treatment equipment with a modern facility. The new line will perform all the essential types of heat treatment: tempering and quenching, normalization, soft annealing, and warm straightening. Unlike the existing heat treatment process, the new facility will also allow warm strai-

ghtening to be performed within the continuous process flow. "Uninterrupted movement of the treated pipes with minimal handling will enable us to process up to 120 pipes an hour, while the warm straightening machine integrated into the process flow will solve the problem of residual stress and the need for additional heat treatment to relieve the stress," says Cristian Drînciu, Chief Operations Officer of

TMK-ARTROM and TMK-RESITA. The use of high-tech equipment will enable us to achieve high quality heat treatment, the desired homogeneity, and high martensitic conversion, providing our products with improved mechanical properties. The line offers high-precision monitoring of the heat treatment process and tracking of the individual pipe processing parameters. "One of the key advantages for the

plant with the new heat treatment line is the expanded range of product sizes that can be tempered and quenched, including thick-walled pipes," says Cristian Drînciu, adding: "The ability to treat pipes 60 to 273 mm in diameter with walls 5 to 60 mm thick gives us a substantial competitive edge in the segment of premium products for mechanical engineering with a high added value."

In addition to improving product quality and productivity in contrast with the existing capacities, the new heat treatment bay will significantly reduce natural gas consumption and the environmental footprint. The modern equipment will greatly reduce emissions of nitrogen oxides and carbon dioxide. The new furnaces will be certified under API 6A, SAE AMS-H-6875B, and SAE AMS 2750E.

The new heat treatment bay has a floor space of more than 12,000 square meters. It consists of the main line in Assel Workshop No. 1, a water treatment plant, and a main power plant housed in separate enclosures next to the Workshop building. The facility is designed to handle 165,000 tonnes of pipes per year irrespective of the combination of heat treatment operations. ■



» COMMENTARY

CRISTIAN DRÎNCIU
Chief Operations Officer
TMK-ARTROM and TMK-RESITA:

Construction of the new heat treatment bay is an ambitious project that has been a long time in the making. We may have taken too much time to finally get down to embarking on the project, but the results lived up to our expectations: advanced equipment and superior control of all process parameters, delivering the best results. The project team, equipment supplier, and construction company worked tirelessly and effectively within an extremely tight timeframe. This gives us every reason to believe that the transition to commercial production will go smoothly.

FROM COMMODITIES TO PREMIUM

Europe is one of the most challenging markets, with its countless competitors, demanding consumers, stringent regulations, and far from encouraging growth trends in recent years. On the other hand, it is one of the largest economically developed regions of the world, where winning brings prestige and is highly lucrative. TMK's European Division has successfully retained its market share for several years, gradually expanding its geographic reach and product offerings.

The European market remains one of the key regions for TMK. The company enjoys a confident presence in the industrial seamless pipe segment, holding around 7% of the market according to 2017 forecasts. Last year the division reported 175,000 tonnes in tubular sales to various economic sectors. Notably, TMK has been actively updating its product lines year by year to follow customer needs.

MARKET OFFERING

TMK-ARTROM historically specialized in the manufacture of pipes for general engineering purposes used in the automotive industry, construction, energy sector, and other

industries. However, cutthroat competition in this segment of the European market presented by imports from countries with cheaper workforces and resources and lax environmental protection standards drove the European Division to look for new ways to retain and strengthen its market position through better product offerings. The European Division is expanding the manufacture and distribution of premium products that meet comprehensive customer specifications in terms of size tolerances and mechanical characteristics. "Five years ago the TMK-ARTROM plant decided to develop a range of heat treated seamless steel pipes for industrial applications







and cold-worked pipes used in the manufacture of hydraulic cylinders and equipment for the automotive industry," says Constantin Neacsu, TMK-ARTROM Managing Director. TMK-ARTROM currently produces seamless steel pipes with O.D.'s of 15.88 mm to 250.825 mm and wall thicknesses of 1.5 to 60 mm for various applications in the mechanical engineering, automotive, chemical engineering, oil refining, and construction industries wherever the operating conditions involve extreme loads. Virtually all its pipes are designed for mechanical engineering applications. Design capacity of the plant is 220,000 tonnes a year. TMK-RESITA is the primary source of billets for TMK-ARTROM and

fully meets TMK's requirement for rolled pipe production in Romania. TMK-RESITA offers billets for the production of 177, 220, 280, and 350 mm diameter pipes and 260 x 340 mm diameter blooms. The trends and structure of sales in the European market are constantly changing. "For example, sales of TMK commodities in Germany have declined over the last five years due to mounting competition from manufacturers in Ukraine and Central Europe," says TMK-ARTROM Commercial Director Costinel Barbulescu, adding: "Instead of low-margin products, we are offering heat treated pipes on the German market." During the same period, TMK-ARTROM's total sales in Italy

increased somewhat due to a push by distributors, who managed not only to achieve sales growth on the Italian Peninsula, but also expand their presence to the markets of North Africa and Asia. TMK-ARTROM saw its sales on the domestic Romanian market decline 2% between 2012 and 2016. This was attributable to the fact that the company recently started selling more products to customers directly, bypassing the distributors. While five years ago the company's partners shipped TMK products to neighboring Bulgaria, Hungary, Serbia, and Turkey, direct shipments to buyers have now increased substantially. "For example, we shipped 107 tonnes to Turkey in 2012, while our direct sales to

TMK European division accounts for 25% of the East European market

Industrial pipes TMK-ARTROM

Mechanical application		Machinery building Auto industry Construction Chemical Industry
Tubes for boilers and high temperatures		Energy Chemical Industry Oil & gas
Commodities		Residential construction and utilities
Precision pipes		Machinery building Auto industry
For telescopic cylinders Skived & roller burnished For O.D.-polished pipe for hydraulic cylinders		Machinery building Auto industry
Pipes cut at fixed lengths		Machinery building Auto industry (equipment)
Other		

Turkey in 2017 will exceed 4,500 tonnes. We shipped a little over 1,800 tonnes to Hungary in 2012 versus more than 4,000 tonnes this year, and so forth,” Costinel Barbulescu says.

The division accounts for 25% of the East European market, and TMK predicts it will be able to retain at least this share for the next few years.

Shipments to North America and a number of other markets have remained fairly stable over the last five years.

The product structure of the division’s sales over the past five years reflects the management’s strategy of increasing the proportion of premium products. There was an appreciable growth in market demand for pipes for mechanical engineering and energy applications intended for construction of boilers, high-temperature installations, and heat exchangers. During this period, TMK-ARTROM increased its output of heat treated alloyed and low-alloy steel products and launched the manufacture of products from new steel grades such as 10CrMo9-10 and P11.

Combining the product lines of its divisions, **TMK comes up with a package offering.**

“As predicted, there was a considerable decline in the market for line pipes to build water and gas lines. This market is known for its stiff competition from European manufacturers as well as companies from Ukraine and India. But the Assel WS No. 1 is not designed to make line pipes. Manufacturing line pipes for us is more expensive and less productive than for our competitors whose production facilities are designed for line pipe production. TMK-ARTROM does, however, continue to make these types of pipes as part of the comprehensive services it offers its customers,” Mr. Barbulescu said. There has been a noticeable increase in OCTG sales – mostly heat treated, tempered, and quenched alloyed steel pipes. But insufficient capacity of the existing heat treatment line still prevents us from achieving substantial sales growth.

IN THE GLOBAL MARKET

Pipes made by the TMK’s Russian plants are an integral part of the European Division’s product lineup: bearing tubes; corrosion-resistant pipes for boilers and installations in the oil refining and food industry; precision pipes for the automotive and power engineering sectors; mechanical pipes and tubes for manufacture of fittings, pipe bends, adapters, etc. By combining the product lines of its Russian, American, and European divisions, TMK has been able to come up with a package offering for existing and potential customers in the EU and beyond. The launch in 2016 of TMK Industrial Solutions, a new business unit of the European Division tasked with marketing pipes for industrial applications in the American market, has opened up new opportunities for TMK. The company’s European plants are

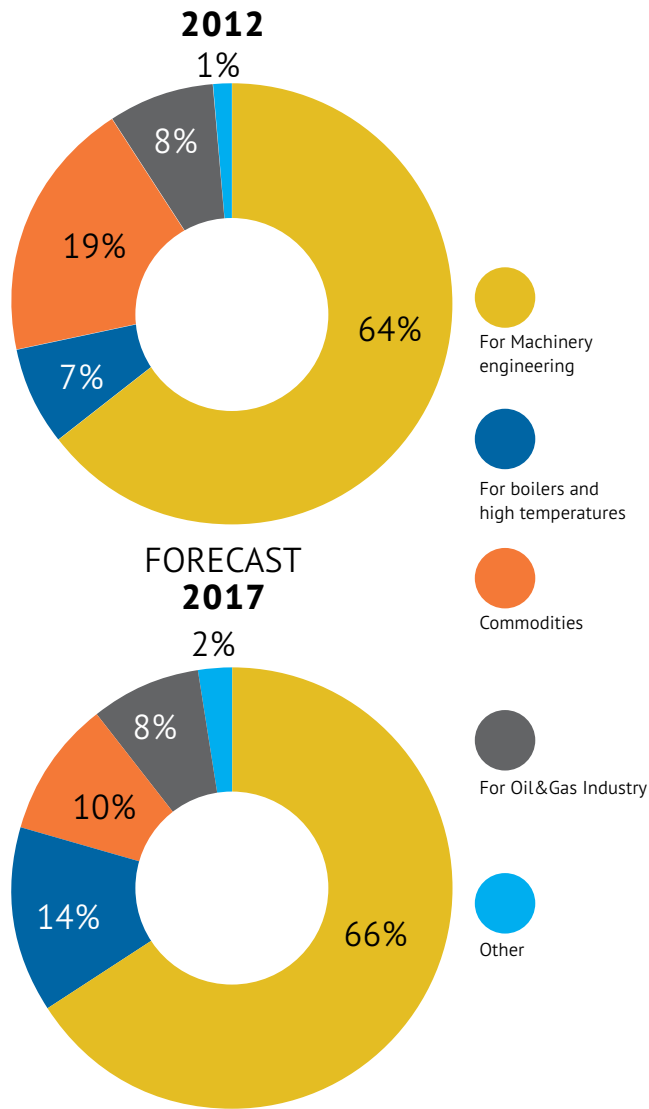
already selling their products in North and South America. The company now has several customers in Brazil, for instance, that receive regular shipments of pipes for mechanical engineering purposes and pipes that have been bored and thread rolled. “I am certain that we will expand our presence in that part of the globe together with our colleagues at TMK Industrial Solutions,” Mr. Barbulescu said. Another aspect of marketing TMK products and services involves securing the status of authorized supplier to key consumers in the EU and beyond, particularly the USA. TMK-ARTROM has a successful track record of business partnership with leading automotive manufacturers. The plant is an authorized supplier of Dacia (part of Renault Group), including for the new Dacia Duster 2017 project to be launched late this year. TMK-ARTROM products have been certified by Toyota, and a product certification process at Mitsubishi is underway. The plant also ships its products to Branto Bucuresti, which has been certified up to 2022 as the official supplier of

pipes for German vehicle maker Daimler AG.

AHEAD OF THE UPGRADE

Part of TMK Strategy is for the European Division to strengthen its European market position by offering customers unique innovative products in the industrial segment. This will become possible with the launch of the new modern heat treatment bay (see page 18 for details) at the TMK-ARTROM plant and the upgrade of equipment in WS No. 5 of TMK-ARTROM, which will allow additional operations to be performed according to customer specifications such as high-precision cutting of pipes to length with a limited tolerance of 1-2 mm; boring and thread rolling of the inside surface; polishing of the outside surface of pipes; and the drilling of holes in the pipe wall. “This approach has already given us a wider customer reach. Our new customers include vehicle, agricultural machinery, and truck makers, hydraulic cylinder manufacturers, and others,” Costinel Barbulescu says.

STRUCTURE OF SALES OF TMK EUROPEAN DIVISION PIPE PRODUCTS



Geography of sales of TMK European Division

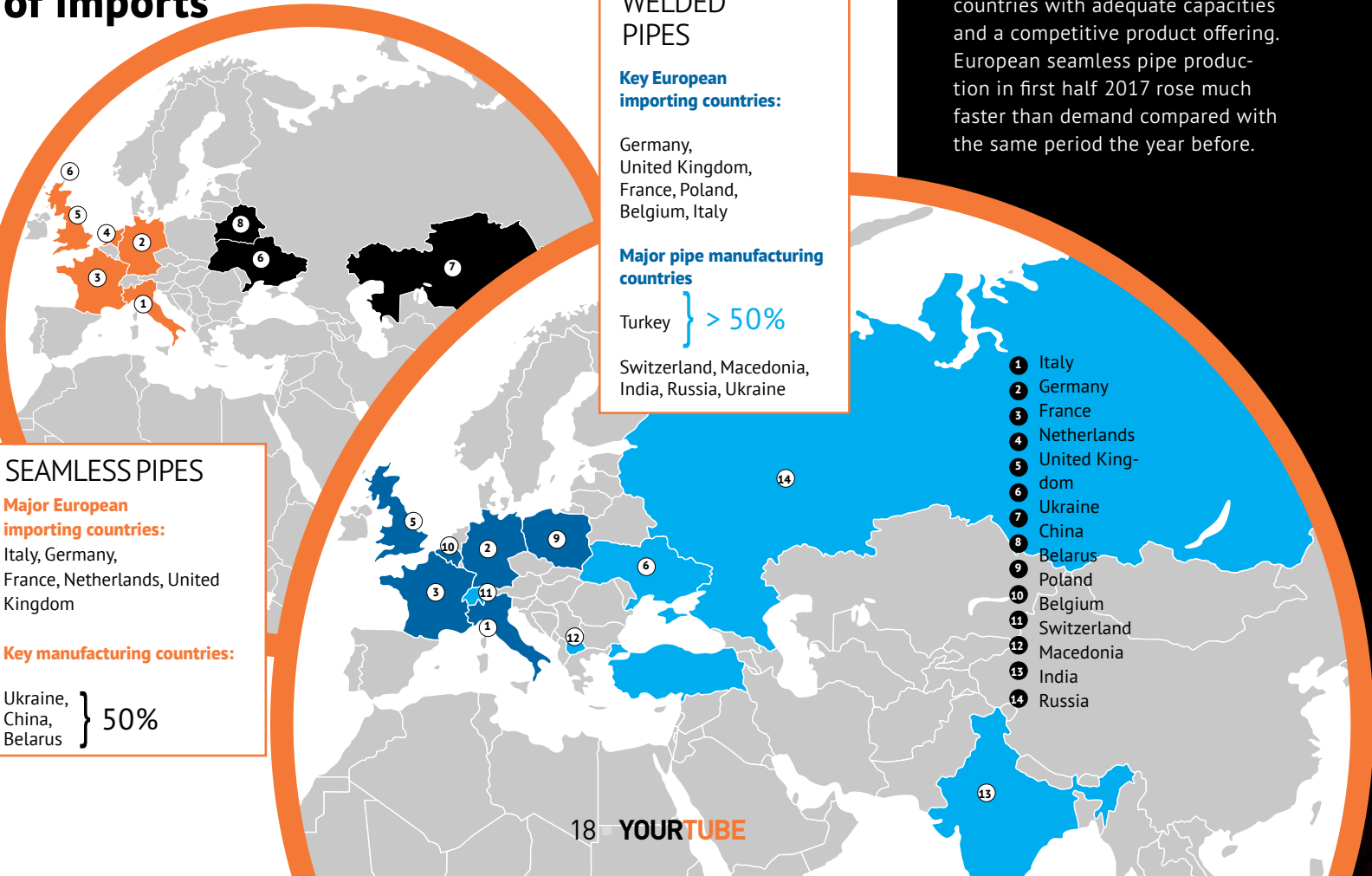
Countries & regions	2012	2017
Germany	22,2	18
Italy	14,5	20
Romania	17,6	15
Bulgaria, Poland, Netherlands, Spain & Turkey	15	15
France, Hungary, Belgium, Czech Republic, UK & Greece	14,3	12
Rest of Europe	3	5
TOTAL (Europe)	86,6	85
North America	12,8	13
Other countries (South America, Middle East, Northern Africa, CIS)	0,6	2



Europe Gains Momentum

The European pipe market surprised many with a steady upward trend in 2017. A confluence of factors drove European companies to step up production while turning the favorable market situation to their advantage. Experts predict continued growth in 2018 albeit at a slower pace.

Geography of imports



American Factor

After several years of lackluster performance, in 2017 the European market demonstrated appreciable growth across multiple segments. The recovery of the American market covered in the previous issue of YourTube, chiefly in the OCTG segment, on the back of rising hydrocarbon output and revival of the regional petroleum industry in the wake of a series of destructive hurricanes, prompted most Western and Eastern European manufacturers to repurpose their capacities for overseas exports of seamless pipes. The rising tubular demand on the US market toward the end of 2017 translated into optimal utilization of the production capacities of European seamless pipe makers, with shipping times of 3-4 months from the order date versus 1-2 months at the beginning of the year. The resulting vacant share of the European market was gradually filled by other EU manufacturers as well as those from neighboring countries with adequate capacities and a competitive product offering. European seamless pipe production in first half 2017 rose much faster than demand compared with the same period the year before.

The American factor was not the only growth driver for European manufacturers. Major pipeline projects underway in the EU fueled additional demand for tubular goods, according to a report published by the European Steel Association (EUROFER). Companies based in the EU profited from multiple European projects, including Nord Stream 2. A European address offers an immediate advantage over foreign competitors due to the absence of excise duties, taxes, and charges, all shipments within the EU market being treated as domestic sales. Trade barriers curtailed exports of Chinese products, which were replaced by goods from European and other manufacturers. According to the EUROFER report, a production spike was recorded as early as 2nd quarter 2017. The output of steel pipes in the EU during this period rose 7% over the same period in 2016. Overall output growth in 1H 2017 was 9% year-over-year. German, Spanish, and French manufacturers were the biggest contributors. This situation prompted the traditionally cautious and conservative European players to stock up on their inventory in order to stay competitive. Feedstock costs rose against the backdrop of growing demand for seamless pipes, leading to higher prices for tubular goods. These trends had no effect on manufacturers and sellers of precision and cold-worked seamless pipes, which customers usually buy under long-term contracts. This arrangement protects end users against abrupt price fluctuations.

9%
Overall
steel pipes
output growth
in EU in 1H
2017

The demand for small- and medium-diameter welded pipes in 1H 2017 also increased on the back of a recovery in mechanical engineering and construction. This was attributable to overall economic growth in the Eurozone. The European Commission revised its 2017 GDP growth forecast to 2.2% from 1.7% predicted in May 2017, and from 1.8% to 2.1% for 2018.

Return to Stability

EUROFER experts believe the European market is unlikely to keep this trend up in 2018. EU output of large-diameter steel pipes is expected to decline slightly due to market saturation and stabilization of demand for products on the part of pipeline construction project operators. Meanwhile, the demand for small-diameter welded pipes will continue to rise. One of the contributing factors is the relatively good market situation in the primary processing and sales industries that rely on tubular goods. Overall pipe output in the EU in 2018 is expected to remain at the same level, give or take some minor fluctuations. The European market has formed and is evolving chiefly under the influence of industrial pipe consumers catering to the high-tech industries of the leading EU nations. Although OCTG pipes are in less demand here, even Europe has demonstrated an overall spike in activity in this sector.

According to a forecast by Spears & Associates (Drilling and Production Outlook, December 2017), after a three-year decline in the European drilling sector during which drilling operations were scaled back by more than 35%, the number of active drilling rigs will increase 5% by end 2017 (to 70). Drilling volumes are expected to remain at the same level with a slight increase in offshore drilling. Exploration and development of onshore shale gas deposits is still limited to just a few wells. Development of shale gas deposits in Poland is expected to be scaled back. As for the internal structure of the pipe market, its evolutionary path will see a greater customer focus among producers with offers of bespoke tubular solutions. Most of the product sales in the EU are currently through distributors, who are the major players in this market. Direct shipments by manufacturers to end buyers account for a smaller fraction. Most of such deliveries come as part of highly customized orders and chiefly from domestic pipe manufacturers. Experts estimate that this is where tubular goods acquire the greatest added value through additional processing. ■

EVERY CUSTOMER COUNTS

In summer 2016 TMK announced the launch of TMK Industrial Solutions (TMK IS), 100% owned by TMK-ARTROM trade company with the task to promote and sell industrial pipe in the American market.

In six months of 2016, TMK IS secured orders for more than 28 thousand tons and in 2017 placed over 70 thousand tons of orders at TMK mills in Romania, Russia and the U.S. Industrial steel pipe is used in chemical, petrochemical, food, and nuclear industries, as well as in the manufacture of steam boilers, bearings, parts and assemblies for various machines and mechanisms. This is one of the key TMK products; last year, the share of seamless industrial pipe in the company's portfolio was 14% while welded industrial products comprised 7%.

Exporting best practices

One of TMK's main production sites is an integrated industrial complex consisting of the TMK-ARTROM pipe mill and the

TMK-RESITA metallurgical plant, both located in Romania. These enterprises dedicated to production of industrial seamless pipes are the core of TMK's European division, which also includes sales offices in Germany and Italy. In June 2016, the commercial services of the European division were expanded, and TMK IS was born.

So why is the European division responsible for selling products to the Americas when TMK has its own American division, TMK IPSCO? "The answer is quite simple," says Adrian Popescu, the head of the European Division. "TMK IPSCO serves primarily the

oil and gas industry, while the European division has accumulated vast experience in dealing with other industries, such as the automobile manufacturers." Just last year, TMK-ARTROM products passed qualification tests at Toyota. Currently, the Romanian plant is actively developing cooperation with Renault's Dacia and is involved with the Dacia 2017 – 2018 projects.

"The concept of selling pipe to various industries is very different from marketing pipe specifically to the oil and gas sector," –explains Popescu. "We often deal with a lot of orders that are small in volume but diverse in terms of pipe types and specifications. The task of the seller in this situation is to determine precise technical and commercial needs of each customer."

TMK IS offers products from the Russian, Romanian, and American plants

»» REFERENCE

TMK INDUSTRIAL SOLUTIONS:

- Coupling stock
- Mechanical pipe
- I.D. -machined and O.D.-polished pipe for hydraulic cylinders
- Heavy-wall pipe and "green" tube
- Boiler pipe
- Pipe for heat exchangers and condensers
- High and low temperature nickel alloys
- Billets

mer and to find the best solution. That's why we named ourselves Industrial Solutions."

For the European Division, the American market is hardly new – TMK-ARTROM first entered it 20 years ago. The plant's products are well known to large U.S. and Canadian distributors who work with customers in the manufacturing sector, including automotive and other mechanical application of pipes.

The European Division supervises the sales of industrial pipes in the American market, while TMK IS acts as its agent. This arrangement allows working in a flexible way, responding effectively to customer requests and changing market conditions. „Long experience of co-operation between TMK-ARTROM and TMK European trade houses confirmed the efficiency of agent scheme based relations of agent agreement as the response to the volatile market. TMK IS means exporting good practices over the ocean and bringing them into ac-

» TMK IS led by Adrian Popescu (left) and Mike Christopher (center)



TMK IS delivers products to more than 900 U.S. cities

cordance with the local legislation", - says Adrian Popescu.

Offer "in a package"

The CEO of TMK industrial Solutions is Mike Christopher, a seasoned professional with vast

manufacturing experience in Japan, the U.S. and Europe. The main office is located in Houston, Texas, alongside TMK IPSCO and TMK's R&D Center, where technical customer support and field services are based.

"Customers welcomed our new company. Many saw it as another step towards meeting their needs," says Christopher. "The majority of them are familiar with the Russian and the European divisions and their products. But there are other companies looking for an opportunity to diversify their supply sources in tough market conditions. Every month we add new names to our portfolio." In just six months of 2016, TMK IS secured orders for more than 28 thousand tons of industrial pipes. In 2017 sold over 70 thousand tons and the plans for 2018 are even more ambitious.

TMK Industrial Solutions is already working with 65 companies

The American industrial pipe market is recovering. According to estimates, in 2018 about 500-700 thousand of metric tones of pipes will be used. „We are among top 5 suppliers in the North American market, including domestic and foreign players," - explains Mike Christopher. In addition to marketing its Romanian pipe, TMK IS also sells products from Russian (VTZ, SinTZ, TAGMET, STZ, TMK-INOX) and American (Ambridge, Koppel) plants of the TMK Group. According to Mike Christopher, one of the reasons for a growth in sales is commissioning of a

new heat treatment facility at the TMK-ARTROM. Presentations were well received by many of the customers, that anticipate and welcome possibility to buy more seamless products with up-to-date heat treatments.

The motto of TMK Industrial Solutions is "Every customer counts". The team in Houston strives to do everything possible for its customers to understand what makes TMK the global market leader and how they can benefit from it. ■

TMK Industrial Solutions is already working with 65 companies and delivers products to over 900 U.S. cities.



Revamped Strategy

At its fifth annual investor meeting in London, TMK unveiled its Corporate Growth Strategy to the Year 2027.

Like the previous year, Investor Day was hosted by the London Stock Exchange (LSE). The event drew some 40 investors and analysts from investment banks such as Barclays Capital, Macquarie, Morgan Stanley, and JP Morgan. Some 50 other participants joined the live audio broadcast on the company's website.

The Investor Day agenda included speaker presentations and a Q&A session. At the event, TMK top managers gave interviews for leading business and industry news agencies such as CNBC, Financial Times, and Bloomberg. Informal communication continued at the business lunch. Guests assembled in the atrium were also shown a unique multimedia expo of the Volzhsky pipe plant titled Symphony for Pipe. The investment community members were addressed by a TMK top management team consisting of TMK Board of Directors Chairman Dmitry Pumpysky, Board Director Alexander Pumpysky, Vice President for Strategy and Growth Vladimir Shmatovich, TMK IPSCO Board of Directors Chairman and CEO Piotr Galitzine, and TMK Marketing Director Sergey Alexeyev.

In unveiling the new strategy, Dmitry Pumpysky underscored that over the next decade TMK aims to maintain its high production and financial performance and grow its business while pursuing long-term value creation for shareholders and debt reduction. The company plans to retain its position as a leading supplier of tubular goods for the Russian oil and gas industry in the OCTG and line pipe segments and to remain one of the top three leading OCTG manufacturers in the USA. Industrial safety, caring for the environment, introducing the latest digital techno-

logies aimed at providing customers with integrated solutions, and enhancing operational performance will be the priority areas for TMK Group's development.

In assessing the economic factors impacting TMK performance, Vladimir Shmatovich emphasized that the company's growth strategy factors in growing rates of power generation from renewable energy sources. Still, the hydrocarbon market will retain its promise for the coming decades, and hydrocarbon consumption will increase. Drilling volumes in Russia rose 6.9% between 2010 and 2016, while the North American market is recovering rapidly, he pointed out. Oil production calls for using ever more complex technologies under harsh climatic conditions, which results in heightened requirements for tubular goods. In light of this, TMK is looking to increase the share of its high-tech products in Russia to 50% of its revenue stream by 2022 and generate an additional \$100 million in extra revenue from innovative product sales. TMK is a world leader in terms of tubular goods shipments. Over the next decade the company intends to reinforce its position as one of the top two global pipe manufacturers in terms of financial performance, enhance the vertical integration of its business to further cut costs and increase profitability, and expand its line of products and services. These plans call for developing integrated engineering solutions for customers based on state-of-the-art digital technologies and the use of high-tech TMK products. He continued that over the next 10 years TMK will endeavor to dominate the market without major capital investment: "We intend to improve our financial performance, maximize cash flows from operating activities, and reduce our debt burden."

Event Participants Show Active Interest in TMK Performance in Various Markets

Another aspect of innovation at TMK involves developing a sales system that relies on cutting-edge distribution technologies. In 2017, the company already launched its electronic marketplace, called TMK eTrade. Alexander Pumpysky underscored that TMK is willing to enter into strategic partnerships and alliances with other market players with a view to creating new products and services for customers, while also striving to digitize its business to the maximum extent possible and generate unique product solutions. This is the mission of TMK's two R&D centers: the RosNITI tubular industry research institute in Chelyabinsk, Russia, and the R&D center in Houston, Texas, USA. TMK is also building an R&D center in Skolkovo outside Moscow, which is scheduled to open its doors in 2018.

After presenting the Corporate Growth Strategy, the TMK executives discussed key trends in the company's operations. In his report, Sergey Alexeyev observed that TMK currently dominates the Russian pipe market and specializes in products for the petroleum industry.

The event was attended by about 40 investors and analysts of investment banks

Capital Markets Day 30 October 2017 London



The use of enhanced oil recovery (EOR) techniques at mature fields means an increased proportion of directional drilling, which has already reached 40%. Meanwhile, implementation of new production projects will fuel demand for tubular goods for both traditional and unconventional drilling techniques. This will in turn generate long-term demand for TMK premium services involving pipe operation during

TMK Top Management Unveils Corporate Growth Strategy up to 2027

the oil and gas production process. In the first 9 months of 2017, TMK had a 64% and 81% share of the Russian market for seamless OCTG pipes and premium connections, respectively. TMK plans to continue expanding its development and shipments of innovative premium products while focusing on increasing its deliveries of OCTG seamless pipes and pipes with TMK UP premium connections.

The European market remains one of the core markets for the company. TMK looks to shore up its position in this region and plans to offer unique innovative products in the industrial segment while focusing on the manufacture of high-tech premium products. Over the past three years, TMK has substantially increased its share of products with high added value in the MENA (Middle East and North

Africa) market, holding 4% of the OCTG segment. "While in 2015, high-tech products accounted for only 18% of total sales by our Middle East Division, this figure has now reached 50%," Mr. Alexeyev said. TMK GIPI plans to actively step up sales in its domestic region and globally as a strategic supplier of PDO – Oman's leading hydrocarbon exploration and production company. In evaluating the US market situation, Piotr Galitzine pointed out that TMK IPSCO continued to demonstrate solid performance: stable sales growth, higher EBITDA and EBITDA margin. It is forecast that in 2017 the average number of drilling rigs in North America will grow 70% year-on-year. According to Spears & Associates, the compound annual growth rate (CAGR) in drilling volumes per rig was 11% over the past six years. In October 2017, the proportion of directional drilling projects reached 93%, almost doubling over the past ten years. Demand for oil and gas and hydrocarbon exports is growing. Their prices over the course of the year remain at a level sufficient to support profitable production. Experts estimate that owing to these factors, annual growth in overall OCTG demand will be close to 6% in 2017-2020. Against this backdrop, TMK IPSCO remains one of the top three leading OCTG suppliers in North America and is building up its market share, which currently stands at 15%. The

American Division is actively increasing its purchase order portfolio. Since January 2017, new customers account for 19% of the division's current customer base in the OCTG segment. The division also continues to focus on increasing its profitability and cost effectiveness, and is poised to report a 100% increase in 2017 production volumes year-on-year. All these factors should contribute to growing capitalization and reducing

40%
THE
PERCENTAGE
OF DIRECTIONAL
DRILLING
PROJECTS
IN RUSSIA

the net debt to EBITDA ratio to 3.0 by the end of 2019 and to 2.5 by the end of 2021. According to TMK top management estimates, the anticipated reduction in this indicator will be achieved through maximization of cash flows from operating activities in the Russian division and improvement of the EBITDA of TMK's American division. After their presentations, the TMK executives answered questions from the investment community. ■



TMK's Six Priority Strategic Goals

1

BUILDING ON OUR LEADERSHIP IN THE KEY SEGMENTS AND EXPANDING TO NEW PRODUCT NICHES

2

ACHIEVING COST SAVINGS AND EXPANDING OUR LINE OF PRODUCTS AND SERVICES BY OPTIMIZING VERTICAL INTEGRATION

3

DEVELOPING THE SALES SYSTEM AND USING THE GLOBAL REACH OF TMK

4

INNOVATING AND ADOPTING DIGITAL TECHNOLOGIES

5

IMPROVING OPERATIONAL PERFORMANCE

6

IMPROVING FINANCIAL PERFORMANCE AND INVESTMENT ATTRACTIVENESS

TMK2U

CROWTH TOOL

TMK launched the company's corporate university, TMK2U, in November 2017. The opening ceremony took place at the modern Professional Training Center at Seversky pipe plant (Polevskoy, Sverdlovsk Oblast).

IN LINE WITH THE TIMES

The opening ceremony was attended by TMK Board Directors, top managers, the winners of TMK's 13th youth research-to-practice (R2P) conference, and Sinara Group personnel. It was streamed in real time to TMK plants, enabling managers and employees to attend the event virtually. RosNITI CEO Dr. (Eng.) Igor Pyshmintsev is the University president and academic supervisor, while Elena Pozolotina, Director of TMK Personnel Development Projects Directorate, is the TMK2U principal. "The corporate university was not just suddenly created. It represents a symbiosis of all the competencies that we have acquired and cultivated over many years," TMK and Sinara Group Board of Directors Chairman Dmitry Pumpyansky said,

adding: "Today we officially bring our entire system of social ladders and career ladders together into a uniform standardized methodology, as we launch the fusion of research with production technology improvement programs across different levels. All of this will be working in sync. This is very important." As Alexander Shokhin, TMK Board Director and President of the Russian Union of Industrialists and Entrepreneurs, put it, the Corporate University is in line with the times. "A vibrant high-tech company like TMK can no longer exist without these kinds of educational technologies. This is a contemporary phenomenon, and we will soon begin quantifying the returns from this project in the form of profit, technology, and time saved training the professionals we need," Mr. Shokhin said.

PRIORITY DIRECTIONS

TMK2U

COMPETENCE
MANAGEMENT OF THE
CORPORATE EMPLOYEES

CORPORATIVE
CONSULTING

IDENTIFICATION AND
ORIENTATION OF
TALENTED YOUTH

CORPORATE UNIVERSITIES

The Engineering and Management Institute established by General Motors back in 1927 is generally considered the first corporate university. The opening of the McDonald's Hamburger University was a real breakthrough, with branches appearing throughout the world. Their heyday was in the 1990s, when experts estimate that they quadrupled in number, from 400 to 1,600. The first corporate universities in Russia were launched by Western companies such as Coca-Cola, McDonald's, and Motorola. The first Russian company to establish a corporate university was VimpelCom in 1999. This trend did not pass unnoticed in the metals industry. Almost all the key market players, such as ArcelorMittal, Tenaris, Vallourec, POSCO, and the Russian companies UGMK, Severstal, and NLMK, now have their own corporate universities or are contemplating opening one. Manufacturers use them to not only fill gaps in the education system, but also to introduce

best manufacturing and management practices, accumulate new technologies, facilitate change management, and support innovation. Their functionality is diverse and is constantly expanding. For example, Tenaris University, the corporate university of Tenaris pipe company, is responsible for strategic integration of the company's business units and knowledge transfer across all levels. Training is based on analysis of the company's existing and future needs. As soon as an important problem or promising work stream has been identified, university staff begin gathering the essential knowledge in order to respond to this need for education appropriately, then format this knowledge in the form of an educational program, and relay the information to employees. Much of the learning takes place remotely. The university's main campus in Argentina brings together interns from all over the world for full-time training and to meet the company's top managers as part of educational programs.

According to New Standards The name of the Corporate University – TMK2U – stands for “TMK to you”, which conveys the essence of the continuing education system for all TMK employees across the world. Its campus will be the TMK R&D center at Skolkovo, which is scheduled for completion in 2018. Other TMK2U sites will include the training centers of TMK plants at STZ, VTZ, SinTZ, TAGMET, and OMZ. The integrated computer-assisted training platform and distance learning methods will give employees at all levels and all TMK divisions the chance to pursue continuing education irrespective of their time zone. TMK2U management expects up to 4,000 employees a year to study full time and up to 25,000 a year in the distance learning programs. “We currently face the task of recruiting reputable faculty staff and cooperating with other educational institutions,” says Igor Pyshmintsev, adding: “There are also plans to get all company managers and executives involved in university programs. This will help trainees and executives alike to gain a fresh perspective on their range of job tasks and why they matter to TMK. Ideally we hope to arrange direct communication between, say, the company's chief specialist and an employee in a related position at the plant or aspiring workers.” According to Igor Pyshmintsev, TMK2U will not be an alternative to higher or secondary vocational education. Its purpose is to become an effective tool for creating an integrated information space for company employees and a center for spreading academic knowledge throughout TMK. TMK2U is currently developing a pool of educational programs: in 2018 their number is expected to increase by at least 30 and before the end of 2020 by 100. The core areas are engineering and technologies, management and business education, training programs for sales departments, sales, and procurement. The corporate university will put in place an end-to-end system for managing the competencies of TMK

employees. “TMK is introducing uniform competency standards for different occupations with a focus on three critical aspects: product sales; customer relations, which includes not just sales but also technology development; and new product development partnerships,” says Dmitry Pumpyansky. Competent personnel are a key asset for the company. “When personnel meet business requirements, are capable of achieving ambitious tasks, respond flexibly to changes as they occur, and acquire competencies as the need arises, this ultimately helps increase the value of the business as a whole,” says Elena Pozolotina, adding: “The sooner we build on our competency potential, the more effective our company will be in the

face of competition for customers. We become faster, more convenient, and more helpful for our customers.” In the context of competency management, in addition to educational programs TMK2U will compile internal corporate standards setting forth requirements for employee qualifications and competencies, handle the recruitment, onboarding, and certification of employees, and take part in career management. TMK2U will also be actively involved in providing in-house corporate advisory services. The first project in this area is a program to support the transition of Russian Division plants to the Uniform Salary System (ESOT). The new system calls for the introduction of general wage-setting principles and a uniform salary

✎ The opening ceremony of the company's corporate university at the modern Professional Training Center at Seversky pipe plant

system across an entire division, which should bring about qualitative changes in the bonus system, improve employee engagement, and make the salary system more transparent. The Corporate University has developed a program to support implementation of the Uniform Salary System that is aimed at cultivating change management skills in employees involved in the project. This program also calls for monitoring the social and psychological climate at plants and taking corrective action as appropriate. Another aspect of TMK2U's activities is career guidance. Here it is important to handle the complete chain of identifying, supporting, and facilitating the adaptation of young talents. This involves active cooperation with

partner schools, secondary vocational schools, and higher educational institutions such as the Urals Federal University and the Sirius Educational Center in Sochi. TMK2U aims to create modern educational products based on digital technologies that have already proven their effectiveness. “The overriding goal is to make the programs more accessible to students, optimal in terms of resources used, and, most importantly, replicable among company plants and divisions. For example, international divisions can benefit from access to professional training programs,” says Elena Pozolotina, adding: “It is also important for TMK2U to provide training for employees willing to take on cross-functional tasks.”





ADRIAN POPESCU,
CEO of the
European Division

1. With an early morning cappuccino and checking my email from the USA.
2. Always sleep on an important decision.
3. My father in professional and family life.
4. Discussions with my daughter in our garden on weekends.
5. Close partners and friends from Romania, Germany, Italy, and the USA. We will discuss our families, primarily our children.
6. Dan Brown's novel Origin.
7. Italian. Grilled sea food.
8. My trips to faraway northern countries (Lapland) with their silent majestic forests, untamed nature, and high living standards.
9. One of the untouched islands in Indonesia with its indigenous population.
10. Houston. For me it embodies freedom of living, thinking and expression.
11. I would ban weapons and wars.
12. My professional home and family.

1. How do you begin your work day?
2. Any job superstitions?
3. What past or present personality is a particular inspiration for you?
4. Favorite habits, rituals?
5. Whom would you invite to a dinner party? What would you like to talk about?
6. Name the last book that impressed you.
7. Your favorite ethnic cuisine or dish.
8. Your strongest recent impression?
9. What is the most interesting place on Earth that you visited?
10. Your favorite city? Why?
11. If you could change just one thing in this world, what would it be?
12. What does TMK mean to you? Describe it using three words



LUCA ZORZI,
CEO
TMK Italia

1. Reading my mail, checking my schedule, and prioritizing tasks for the day.
2. Don't have any.
3. My father, a big-hearted and stalwart man. Also Julius Caesar as a great strategist and catalyst for change.
4. An espresso early in the morning with my colleagues and assistants – the best way to begin a work day, by communicating and swapping ideas.
5. The Pope. I would discuss my attitude to the church with him.
6. The motivational book Who Moved My Cheese? by Spencer Johnson.
7. No doubt - parmesan cheese.
8. "We have orders for 4 months ahead" – something I was unable to say for many years.
9. All places on Earth are magical, but Italy remains my favorite.
10. Paris, historical and romantic.
11. I would like cancer to be wiped out.
12. World leader in pipe production, big family, fantastic melting pot of ethnicities.

TMK Sales & Marketing



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Трубная
Металлургическая
Компания

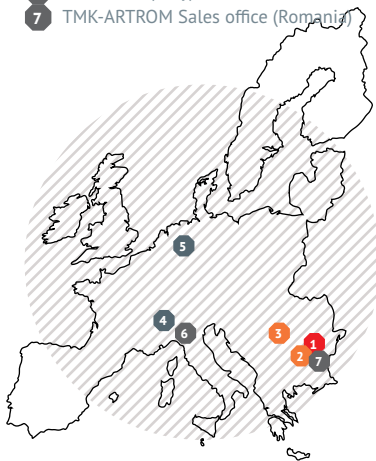


Трубная
Металлургическая
Компания

TMK global pipe producer and supplier

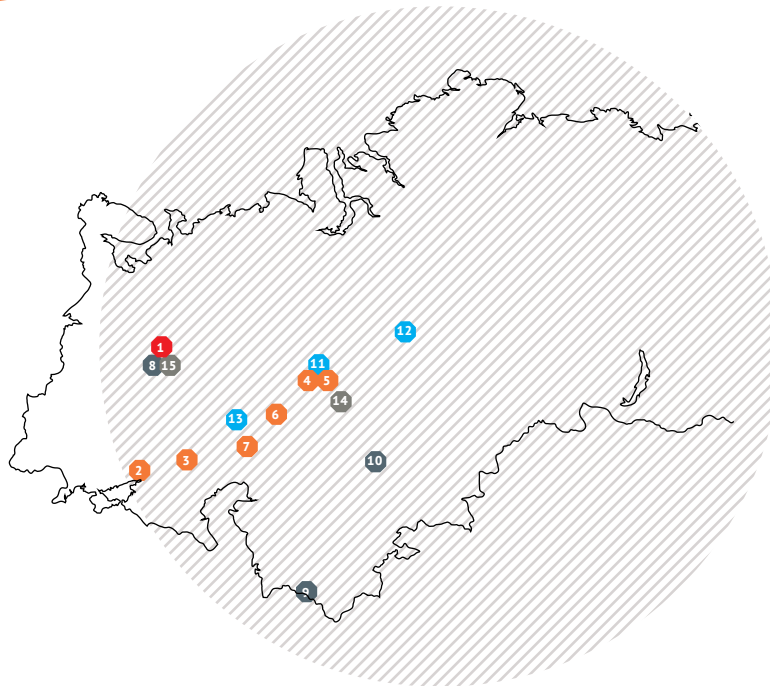
EUROPE

- 1 Headquarters TMK-ARTROM (ED TMK)
- 2 TMK-ARTROM
- 3 TMK-RESITA
- 4 TMK Global (Switzerland)
- 5 TMK Europe (Germany)
- 6 TMK Italia (Italy)
- 7 TMK-ARTROM Sales office (Romania)



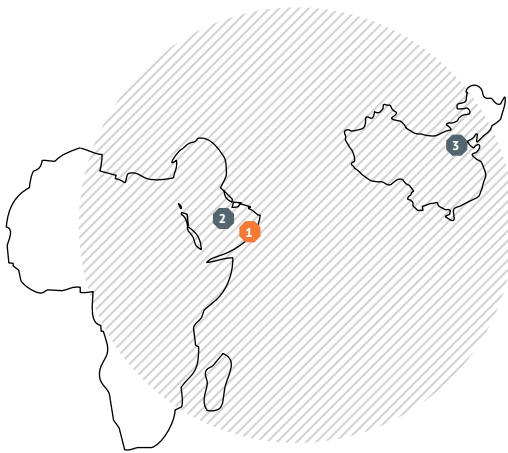
RUSSIA&CSI

- 1 Headquarters TMK
- 2 TAGMET
- 3 Volzhsky Pipe Plant
- 4 Seversky Pipe Plant, TMK-CPW
- 5 Sinarsky Pipe Plant, TMK-INOX
- 6 OMZ
- 7 TMK-Kazrubprom
- 8 Trade House TMK
- 9 Representative office of Trade House TMK in Turkmenistan
- 10 TMK-Kazakhstan
- 11 TRUBOPLAST
- 12 TMK NGS-Nizhnevartovsk
- 13 TMK NGS-Buzuluk
- 14 RosNITI
- 15 Research & Development Center Skolkovo



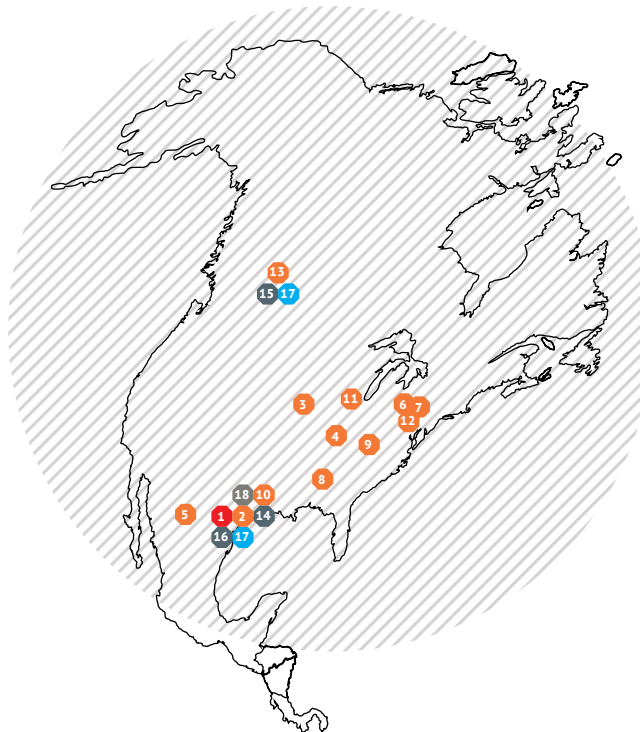
MIDDLE EAST, ASIA and AFRICA

- 1 TMK GIPI (Oman)
- 2 TMK Middle East (UAE)
- 3 Representative office of Trade House TMK in China



NORTH AMERICA

- 1 Headquarters TMK IPSCO
- 2 Houston-TMK Premium (Houston, SUA)
- 3 Geneva, NE
- 4 Catoosa, OK
- 5 Odessa-TMK Premium, TX
- 6 Brookfield-TMK Premium, OH
- 7 Koppel, PA
- 8 Blytheville, AR
- 9 Wilder, KY
- 10 Baytown, TX
- 11 Camanche, IA
- 12 Ambridge, PA
- 13 Edmonton
- 14 TMK IPSCO US Sales Office (Houston, USA)
- 15 TMK IPSCO Canada Sales Office (Calgary, Canada)
- 16 TMK Industrial Solutions
- 17 TMK Completions
- 18 Research & Development Center (Houston, USA)



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