Cherepovets pipe-rolling plant

Project on production reorganization with attraction of funds at ICO

2017

ЧЕРЕПОВЕЦКИЙ ТРУБОПРОКАТНЫЙ ЗАВОД

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Introduction

The Vologda Region is located in the north of the European part of Russia, in a moderately continental climate zone, 500 km away from Moscow. It is one of the largest regions of the Russian Federation by area and makes almost 1% of its territory (145.7 thousand sq. km). The greatest distance from north to the south makes 385 km, from west to east - 650 km. Vicinity of large industrial centres, transport highways connecting the Central Russia with Urals Mountains and Siberia enables to develop effective business relations with other regions of Russia and foreign countries. The transport complex of the Vologda Region includes automobile, railway, river, and air transport.

Cherepovets is the largest industrial city of the region, enjoying a favourable economic and geographical location and having extensive transport infrastructure, which is the decisive economic development factor. The city is located 620 km away from Moscow, 475 km - from St.-Petersburg. Besides, Cherepovets is a large industrial port on Rybinsk reservoir and a passenger port on the river Sheksna. A system of Volga-Baltic waterway connects the city with five seas: White Sea, Baltic Sea, Caspian Sea, Black Sea, and the Sea of Azov. Thus, water transport system connects Cherepovets with northern, southern, and western regions of Russia. The federal highway A114 (Vologda - New Ladoga) goes through Cherepovets and connects the city with Vologda and St.-Petersburg. Cherepovets - Sergiev Posad motorway connects the city with Yaroslavl and Moscow.

Cherepovets railway interchange located on St.-Petersburg - Vologda railway is the largest in the Northern railway. More than 120 freight trains, 20 passenger trains, and up to 30 rolling stock to the industrial giants of Cherepovets - PAO "Severstal" and PAO "Fosagro" go through it daily. International airport "Cherepovets" offers internal and international regular and charter flights across Russia, CIS countries and Europe.

Today Cherepovets is the largest industrial city of the Vologda Region. Its economy is decisive for social and economic position of the entire region. Economic potential of the city, where metallurgical and chemical industry prevail, exceeds national gross product of many countries of the world and makes about 1% (in 2013) of the total gross domestic product of Russia. The level of industrial production per capita traditionally exceeds the general Russian indicator (in 2013 - more than 6 times).

1. Brief of the project

Modernization of existing production facilities and creation of new ones in two most promising directions are carried out in the city of Cherepovets, Vologda Region, in the territory of production site of LLC "ChPRP". These processes include several stages and development vectors:

- manufacture of electric welded pipes within the scope of TESA 25-57 tube mill reconstruction. Implementation of the project includes creation of modern production complex for manufacture of a wide range of metal products - shaped and round tubes of various diameters and shape sizes made of zinc-coated cold-rolled workpieces.
- purchase and commissioning of high-efficiency TESA 10-60 tube mill.
- modernization of production site manufacturing large-diameter pipes (LDP) by creation of preparation park and increase of the park of processing (bending and forming) equipment of high efficiency, which will enable to expand the range of produced goods and to increase the volume and enhance the quality of products to be made on their basis. Implementation of the project includes creation of a modern industrial complex producing pipes of various diameters and shape sizes made of ordinary and alloyed steel grades, as well as of non-ferrous metals and titan.
- arrangement of production of elliptic, spherical dish-shaped and conic bottoms and fittings.

1.1 Enterprise description

The enterprise includes:

- administration and amenity complex - 1044 sq.m;
- production and technological department – 4641,3 sq.m;
- storage terminal – 4073 sq.m.
- plot of land with general area of 10183 sq.m.

Administration and amenity complex includes:

- boiler premise;
- switchboard and server premise;
- office premises;
- conference hall;
- personnel facilities;
- laboratory premise.
- archive premises.
- auxiliary premises;

Production and technological department includes:

- site for preparation of raw materials:
- cross cutting unit APR - 1250;
- cross cutting unit APR - 460;
- cross cutting unit APR - 1500;
- air-plasma cutting site ("Flagman-PPlKts-3,0" unit with numerical program control for automatic air plasma and oxygen cutting of metals);
- premachining site:

- hydraulic cutting machine of column type HVS-375A);
- machine for processing of edges before welding CHR-21G, CEVIZA $
- shell bending site:
- 4-rolls hydraulic bending machine AHS 35 x 3100, KNUTH;
- 4-rolls hydraulic bending machine 4R HSS 280 SAHINLER;
- 3-rolls mechanical bending machine IB 2222;
- assembly site:
- welding stand with automatic rotator;
- welding site:
- semi-automatic welding in protective gas;
- automatic hidden arc welding;
- site for manufacture of electric welded straight-line-seam pipes:
- electric welding pipe unit TESA 25-57;
- repair&mechanical site:
-contour band saw, turning machine, mill, flat surface grinder, grinding machine, drilling machine, and other types of equipment;
- load-lifting mechanisms - 2 bridge cranes with load carrying capacity of 10 t.

Storage terminal includes:
- storage yard;
- indoor storage facility;
- premise for raw materials storage;
- premise for finished goods storage;
- load-lifting mechanisms - 2 bridge cranes with load carrying capacity of 10 t and other equipment.

A railway dead-end siding is located in the territory of production base and goes to indoor storage facility, with loading/unloading front - 3 cars. There is a specific gas boiler-house for heating of industrial premises and AAC. Protected territory of the production base is fenced and equipped with video surveillance cameras.

1.2 Project prerequisites

The following factors are key prerequisites of the presented investment project:
- perspective product markets;
- opportune location and well-developed infrastructure;
- raw-material base and qualified personnel;
- availability of operating manufacture in this segment of products;

1.3 Raw material base and qualified personnel:

Direct vicinity of facilities producing raw materials - metal-rolls. The main supplier is JSC "Severstal" the products of which are applied for manufacture of cold-rolled pipes, cold-rolled pipes with zinc coating for TESA 25-57 and TESA 10-63 units, as well as thick-walled large-diameter pipes and various bottoms for manufacture of capacities and tanks.

Qualified personnel and experts in the field of metal pressure processing, welding and metal-working manufacture, possibility to arrange professional training in vocational training system;

1.4 Product markets

Manufacture of large-diameter thick-walled pipes (LDP) is the key direction of LLC "ChPRP" production. These products are widely used in the industry and in economic activities. They are applied for general-purpose pipelines, various capacities and tanks, cases of mains, bridge supports, bored piles, etc. Unlike large manufacturers of pipes our enterprise is able to produce also small batches of products with the help of our technology and equipment, which reduces commissioning terms Consumer's sites and their cost significantly.

Flexible technological process enables to adjust equipment quickly for manufacture of pipes of any non-standard diameter according to Customer's needs. Development of the Northern regions and, particularly, regions of the Northern seaway (NSW), the Far East and Siberia offer good prospects to increase the volume of non-standard products manufacture. Construction of liquefied natural gas (LNG) production plant with capacity of 16,5 million tons of LNG annually on resource base of the South Tambejsky deposit with proved and probable gas reserve of 907 bln cubic m assumes creation of a transport infrastructure including seaport and airport around Sabetta settlement (northeast of Yamal peninsula). The project is implemented by JSC "Yamal SPG" which shareholders currently are JSC "NOVATEK" - 60 %, French company "Total" - 20 %, and Chinese company "CNPC" - 20 %.

Implementation of this project presuppose a large volume of hydraulic engineering works with key focus on construction of ice protection structures that are a part of the general objects of Sabetta seaport under construction and are intended for protection of moorages and port operations against negative ice influences.

Southeast ice protection structure is structurally divided into 5 sites. Construction's root part consists of 4 bank protection sites with the total length of more than 2,8 km and deep-water part with length of 773,8 metres. Northwest ice protection structure is structurally divided into two sites: - a root part with length of 760 metres and a deep-water part with length of 510 m. Design of both deep-water ice protection structures has a form of pile basis built from a row of steel pipes sunk with 3,2 m spacing and two rows of pipe piles with welded connectors sunk with 1,6 m spacing.

2. Plant's history

The economic potential of Russia is secured not only by oil and gas; the second constituent of the Russian export by volume is metal. The metallurgy share in the country gross national product makes about 5% (http://www.metalinfo.ru/). Russia is the second country in the world by metal export. Tons of nickel (the first place in the world), aluminium and titan (second place), steel (fourth place among all world exporters) are exported from Russia daily. Despite impressive figures of metal products production in the country, there was still a shortage of metal roll in Russia in 2006 (internal consumption of steel pipes in 2006 increased by 27,6 % - to 7,7 million t compared to 2005 (according to data of the Ministry of Industry and Energy of the RF)). Increase in production of pipes by the leading piping enterprises of the RF compared to 2005 made: JSC "Vyksunsky metallurgical works" - 154,7 %, JSC "Chelyabinsk pipe-rolling plant" - 125,7 %, JSC "Seversky pipe plant" - 107,5 %. The total manufacture of steel pipes in 2006 made 7879 thousand tons, or 117,7 % compared to the level of 2005. Total deliveries of pipe products to the industrial enterprises of Russia exceeded 1,1 million tons. Hence, the demand of domestic market has grown by 32% in comparison with the year 2005.

Against this background, the management of Commercial and industrial company "AVEONA", which has been selling metal-rolls in domestic and international markets successfully since 1995, decided ro create a production platform with further production of pipes in order to increase a range of proposed products. That was a "foundation stone" of the future enterprise - LLC "Cherepovets pipe-rolling plant". It was decided to ground the plant in immediate vicinity to the main raw materials supplier - Cherepovets metallurgical complex (PAO "Severstal").

Erection of production facilities began in 2006 - design works and works of zero cycle were performed, the first bases of production and storage buildings and administrative and amenities complex were laid.

Active stage of the building process started in 2007; the first metal structures of future constructions were installed, utility lines were connected, transport and storage terminals were built.

Erection of production facilities and infrastructure units was finished in 2008. Commissioning permit for the whole site was received on June, 10th, 2009.

On June, 30th, 2009 LLC "«Cherepovets pipe-rolling plant" was registered by the State bodies and started production activity. A team of experts was gathered, required equipment was purchased and mounted cross cutting unit APR1500, electric welding pipe unit TESA 25-57, other production equipment, starting-up and adjustment works were performed, contracts for delivery of semi-finished rolled products for production of pipe were concluded, and the first products were manufactured.

In 2009, the products of LLC "ChPRP" "Electric welded pipes GOST 10704-91, steel electric welded direct-seam shapes TU1373-001-75128143-2005 made of structural cold-rolled workpieces" have passed voluntary certification of "International quality association" - "SovAsK". Certificate of conformity No. SSAQ 012.1.4.1008.

New equipment - hydraulic 4-rolls bending machine AHS 35 x 3100 of the German brand KNUTH in a set with welding complex for manufacture of large-diameter pipes (LDP) was purchased in 2010. Experts of the enterprise have developed Specifications which serve as a basis for production of large-diameter pipes today.

In 2010 products of LLC “ChPRP” – “Electric welded steel pipes made of shells with diameter of 630-4500 mm of general purpose, acc. to TU1381-001-34271686-2011” have passed certification in “Certification system GOST R of the Federal agency on technical supervision and metrology”. Certificate of conformity No.ROSS RU/VN 42Y00055.

In 2010 products of Cherepovets pipe-rolling plant (“Large-diameter shaped rectangular pipes of various diameters, shaped oval pipes of various diameters, round pipes of various diameters”) were awarded as "The best product of the year SZFO-2012". Certificates were issued by Autonomous non-profit organization research institute "STSTEKSPERT" on March, 22nd, 2012.

In 2012, the enterprise became the winner of all-Russian Economic Award "Company of the year" in "Industry and production" nomination within the scope of the Third Awards ceremony of all-Russian project "Financial and economic Olympus" founded by Inter-regional financial and economic union and held under support of State Duma of the FA RF, Federation Council FS of the FA RF, Ministry of economic development of the RF, Ministry of Energy of the RF, and Ministry of Agriculture of the RF.

LLC "ChPRP" was certificated as enterprise meeting requirements of GOST ISO 9001:2011 (ISO 9001:2008) by "System of voluntary certification of works and services, "GLOBAL-TEST"

management system in 2013. Certificate of conformity No. ROSS RU.3662,04SGTO/SMK.372-13 as of 28.11.2013

"Laboratory of non-destructive control" that was created at the enterprise in 2015 has passed certification by "Independent body on certification of laboratories of non-destructive control of Joint-stock company "AGROMASH", certification warrant No. 64A050569 as of 29.07.2015, which enabled to enhance quality of manufactured products significantly.

Life does not stand still, new technologies, new materials, new high-efficiency equipment appear. Despite decrease of demand for metal rolls today the enterprise personnel is confident about company future and demand for plant's products. Development of the Northern seaway, construction of new petrochemical and gas processing facilities in the Northern regions, Siberia, and the Far East set the direction of further development and show good prospects of increase in manufacture with cutting-edge hi-tech equipment.

3. Main stages of reconstruction and production modernization

3.1 First stage ~ 3 191 400$

1. Purchase of equipment set for manufacture of bottoms;
2. Designing and production of outfit, preparation of production facilities;
3. Purchase of required additional equipment;
4. Installation of equipment;
5. Starting-up and adjustment, commissioning.

3.2 Second stage ~ 5 413 000$

1. Purchase of plate-bending equipment;
2. Purchase of required additional equipment;
3. Preparation and reconstruction of production facilities;
4. Installation of equipment;
5. Starting-up and adjustment, commissioning.

3.3 Third stage ~ 3 615 800$

1. Purchase of high-rate TESA 10-60 unit;
2. Purchase of metallizing gun for processing of welds on zinc-coated pipes;
3. Purchase of a vertical storage capacity;
4. Preparation and reconstruction of production facilities;
5. Installation of equipment;
6. Starting-up and adjustment, commissioning.

3.4 Fourth stage ~ 4 980 000$

1. Purchase of equipment set for robotized automatic welding;
2. Purchase of high-precision equipment for cutting of metal rolls on preparation site;
3. Purchase of required additional equipment;
4. Preparation of production and storage sites, installation of equipment;
5. Starting-up and adjustment, commissioning.

Duration of every stage - 1 year. Stages can be carried out simultaneously and independently from each other.

4. First stage. Products and production facilities

The enterprise's experts have analyzed a promising direction on development of large-diameter pipe production site and defined it as the first stage in increase in plant's production facilities. It is expected to buy a set of equipment for manufacture of various bottoms (elliptic, spherical, disk-shaped, conic), which will allow to expand the range of products produced at LDP site essentially, since this will provide a possibility to manufacture various capacities and tanks on the basis of large-diameter pipes.

Industrial metal tanks are widely applied. They are used everywhere, from agriculture to petrochemical and gas processing sectors. Tanks of this kind may be of various volumes and designs and have specific features related to their field of application and climatic conditions. This type of tanks includes railway tanks with various specification, volume, and purpose:

- for transportation and storage of oil, gasoline, diesel fuel, and other oil refining products;
- for transportation and storage of chemically active and aggressive substances, like alkalis, acids, and other complex chemical liquids.

Railway tanks can be applied also for transportation of liquefied gases (propane, butane, oxygen), potable water, milk, and other foodstuff. Special-purpose railway tanks are applied for transportation of loose products, like flour, cement, etc.

Another one kind or version of tanks is called silo. Silo is a special capacity for storage of loose products. Silos are widely applied in various sectors - from agriculture to manufacture of building materials. Silo has a form of vertical capacity equipped according to specific application field. Despite similar design and common properties, different silos have different characteristics and are intended for storage of certain loose materials, i.e. silo that is intended for storage of cement cannot be applied for storage of grain crops.

4.1 Planned targets of investment appeal of the first project stage

1. Total sum of investments **~3 191 400$** including:
- estimated cost of equipment and materials ~1 848 000$;
- installation and starting-up and adjustment works ~ 101 900$;
- project's payback term - 4 years;
- annual profit at current production volume in the 5th year ~ 950 000$;

2. Structure of required expenses:
- payment for design works ~ 18 200$;
- payment for installation and mounting works with bottom production equipment ~ 227 400$;

- purchase of required additional equipment ~ 471 400$;
- target advertising and organization of sales ~ 26 000$;
- expenses for production preparation (designing and manufacture of outfits, preparation of production facilities) ~ 466 900$;
- miscellaneous expenses ~ 31 600$

5. Second stage. Production of large-diameter pipes

The key basic element of our enterprise's development is manufacturing of thick-walled large-diameter pipes. We produce shells, cones and pipe bends, electric welded steel pipes made of shells with diameter from 250 mm to 4500 mm and wall thickness from 2,0 mm to 50,0 mm, with width up to 3000 mm according to TU 1381-001-34271686-2011. Thin-walled shells are made by rolling on hydraulic 3-rolls bending machine IB 2222 produced in Russia, thick-walled shells - on hydraulic 4-rolls bending machine AHS 31-35 x 3100 of the German brand KNUTH, which enables to guarantee high efficiency and accuracy of geometrical parameters of shells.

At initial pipe production stage, sheet metal rolls are fed into premachining installation for sawing and cutting to desired size on plasma cutter, whereupon they are transported to delivery table of the bending machine for further rolling into shells. At the following production stage, produced shells are welded with longitudinal seams at a special assembly stand by welding semiautomatic devices, in carbon dioxide or inert gas medium, or by automatic hidden arc welding (depending on technical project).

Then shells are subject to precheck of geometrical parameters, welds quality, whereupon they are calibrated. The next production stage is assembly of shells into a pipe. Shells are attached from several products with width from 200 mm to 3100 mm and welded together with ring butt welds at the assembly stand. Quality of welded joints and geometrical parameters of ready-made pipes are checked by experts of non-destructive control laboratory and Quality Department, whereupon they get certificate of conformity.

5.1 Products and production facilities

The next stage for increase of plant's production capacities is manufacture of thick-walled large-diameter pipes produced by rolling of hot-rolled sheet workpieces. Pipes of this kind are applied in machine-building, petrochemical, metallurgical, mining, gas producing, and other industry sectors. The key difference from mass production of this kind of pipes is the fact that these pipes can have non-standard thickness and diameters, which gives them indisputable advantage for manufacture of products with special requirements to dimensions, strength, application methods, etc. Field of application: general-purpose pipelines, hydraulic structures, punctures under roads, slurry pipelines, sludge pipelines, bored pile covers, capacities for storage and transportation of oil products, etc.

Within the scope of the programme for increase of product quality, growth of production volumes, and promotion of labour efficiency, investment plan providing further machine park modernization and improvement of professional skills of the personnel. To provide production of new product kinds it is proposed to purchase new hi-tech equipment of the European brands, whose three- and four-shafts hydraulic bending machines are considered to be most advanced

and precise in the field of sheet metal bending for today. Two rolls with hydraulic drive and clamping pressure control system provide smooth run of the sheet that is pressed and fixed between the upper and lower rolls (4-rolls machines), which enables to avoid its sliding during operation (in 3-rolls machines, a sheet is supported by one of side rolls, so there is always a threat of slipping). Delivered equipment comes with rolls of various lengths, which allows producing shell pipes with length up to 12 m and wall thickness from 2 mm to 50 mm (currently the enterprise produces pipes with length up to 3m). The machine is supplemented with auxiliary devices for feed and support of sheets, cone bending system, digital indication of roll position. This equipment enables to perform hot bending and bending of profiled rolled metal.

These user-friendly machines are the most reliable and quick among equipment of this type, currently presented in the international market, since low-efficiency systems (reducers, bronze plain bearing liners, belt drives, cardans, rectilinear guides) are replaced by new, highly effective design solutions: hydraulic planetary drive which is connected with the roll directly, through splined joint, hinged guides and self-adjusting double rolling bearing with conic rollers, which eliminates gaps and friction causing energy loss. This equipment is supplemented with hi-tech structure for bending rolls, which does not require any maintenance or greasing during the whole service life of the machine. Introduction of this equipment into production cycle will significantly expand the product range, since there will be a possibility to produce new standard sizes of pipes and to broaden their geometrical parameters (thickness and length).

5.2 Planned targets of investment appeal of the second project stage

1. Total sum of investments **~ 5 413 460 $** including:
- estimated cost of equipment and materials ~ 3 717 960 $;
- starting-up and adjustment works ~ 172 400 $;
- project's payback term - 4 years;
- annual profit at current production volume in the 5th year ~ 1 680 000 $;

2. Structure of required expenses:
- payment for design works ~ 21 900 $;
- payment for works on installation and mounting of 3-rolls hydraulic machine and additional equipment ~320 600 $;
- purchase of required additional equipment ~ 687 000 $;
- target advertising and organization of sales ~26 000 $;
- expenses for production preparation (designing and manufacture of outfits, preparation of production facilities) ~ 414 000 $;
- miscellaneous expenses ~ 53 600 $

6. Third stage. Production of electric welded pipes at TESA25-57 unit

6.1 Production of electric welded pipes

LLC "ChPRP" produces electric welded pipes acc. to GOST 10704-91, GOST 8639-82, steel electric welded straight-seam shaped sections acc. to TU-1373-001-75128143-2005 of square, rectangular, semi-oval, flat-oval sections intended for production of furniture and metal structures of various purposes on TESA 25-57 unit. The process of electric welded pipes production on electric welded pipe machine consists of the following technological operations:

1. Rolled steel comes from storage warehouse to premachining site, where quality and quantity of arrived rolled stock is checked, whereupon it is cut into strips by length cutting unit (LCU). Original workpiece for manufacture of pipes is cold-rolled or hot-rolled etched rolled steel acc. to GOST 19903-90, GOST 19904-90, GOST 16523-97, of St.10PS, St.08PS grades, chemical composition according to GOST 1050-88 and ordinary-quality steel of general purpose St.1PS, St.2PS grades, chemical composition according to GOST 380-2005, category - 2,3,4, surface finish group - III-IY (ordinary). If agreed with the customer, pipes can be produced of steel of other grades.

2. Strips are transported to uncoiler for further uncoiling and winding on storage device to welding and butt weld dressing.

3. Then strips are fed by rollers from storage device to forming stands, where strips are rolled into a round pipe.

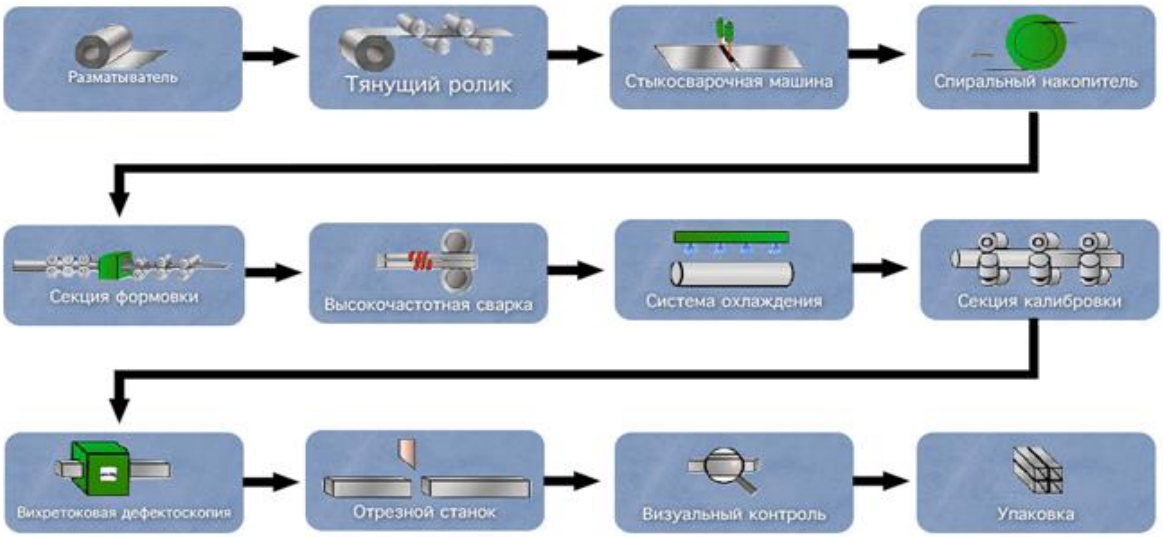
4. Rolled round pipe is fed through a block of welding rollers to high-frequency welding zone, where edges of rolled strips are heated to required temperature and pressed in seam-squeezing stand, which form a firm welded joint long the whole pipe workpiece.

5. Weld surface is dressed at burr-grinder that removes excess burrs formed at welding with the help of a cutter. Then the pipe is cooled in a cooler and fed to a group of calibrating stands.

6. Geometrical dimensions of the pipe are brought to parameters established by specifications on calibration site.

7. After the calibration, the pipe is fed to cutting zone and is cut to required size length-wise by "flying saw" and comes to "pocket" storage devices through receiving roller conveyer.

8. In the "pocket" storage device, the pipe is subject to quality check, laid, packaged, weighed, marked, and transported to finished goods warehouse.



Uncoiler – Draw roller – Butt welding machine – Spiral storage device – Forming section – High-frequency welding – Cooling system – Calibration section - Eddy current testing – cutting machine - Visual inspection - Packing

6.2 Products and production capacities of the third stage

Priority investment project of the enterprise's development strategy till 2020 is modernization of electric welding pipe site. It includes installation of the unit for application of anti-corrosive coat on the pipe weld and replacement of two barrel-type storage devices by loop-type vertical storage device for strips.

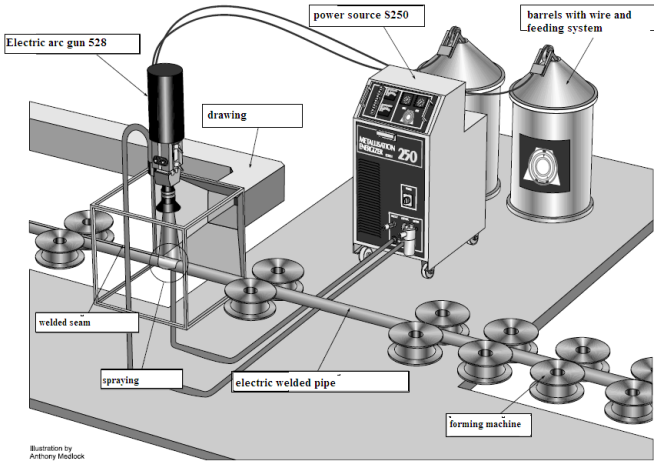
Electric welded pipes are produced by high-frequency welding. This is a continuous process that includes pressure welding of preheated edges of pipe workpiece with formation of a longitudinal weld. To produce corrosion-resistant pipes with this method strips (workpiece for electric welded pipes manufacture) undergoes previous galvanic treatment, during which anti-corrosive coat is applied on cold-rolled strip surface. This can be zinc coat (hot zinc-coating), aluminium coat, or zinc/aluminium alloy coat. Heat developed during welding of pipe edges in the welding zone and further machining (removal of burrs) destroy external anti-corrosive layer of heat-affected zone, which results in further corrosion of metal in this area.

Application of protective layer on the weld zone of any of above listed metals, depending on requirements and pipe application field, helps avoid this problem. In the past, gas-plasma spraying was used for solving of this problem. But a number of arc spraying advantages made this method the most wide spread. The key advantages of this anti-corrosive treatment are as follows:

- energy saving. Power consumption of electric arc spraying makes only 1/10 share of power consumption by gas-plasma system. This is explained with the fact that the energy is applied only at feeding of wire, while gas-plasma spraying requires constant combustion of fuel;
- safety of the process. Electric arc spraying is quite safe process for metal coat application, since is does not entails formation of explosive compounds or application of explosive gases.
- better quality of the layer.

Parameters of coat application can be preset, which ensures superior quality of the item's surface.

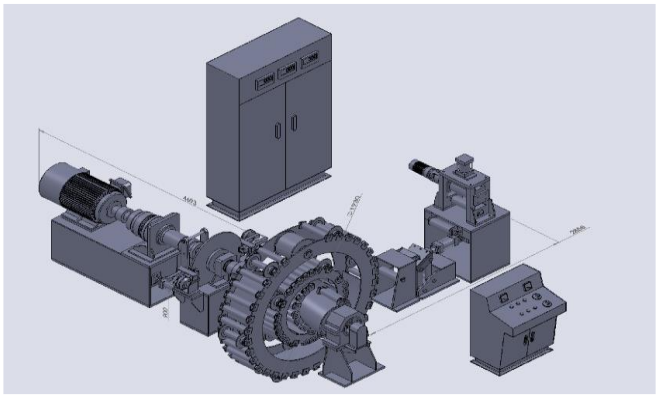
Material consumption rate may be changed irrespective of the coat diameter, which provides concordance of arc spraying system rate with linear speed of the mill.



Equipment from Metallization (Great Britain) company was chosen for this operation, since it allows to attain set objectives fully and has proved to be reliable in the market of this type of equipment. The main advantages of this equipment are reliability, excellent performance, and easy maintenance.

All parts of thermal spraying unit are subject to profound incoming inspection at the manufacturer, which ensures high quality and performance.

The second investment's object is modernization of barrel-type storage device block TESA 25-57. In the existing system, storage device has a form of two parallel barrels. During production of pipe, the strip is unwinded from one barrel into forming block of the machine, while the second barrel is filled with strips. Once strips are unwinded from one barrel and the second barrel gets filled, the machine stops. With the help of rotary mechanism barrels are interchanged changed over, front end and back end are welded together, and the machine is started again (Photo No.12). Barrel-type storage devices should be replaced by loop-type vertical devices to shorten machine stops and reduce the amount of production waste formed at each stop. The key feature of loop-type vertical storage device is winding and unwinding of strips without technological stops, as in a case of barrel-type device in continuous mode.



Equipment modernization will allow to increase the volume of manufacture essentially; thus, new products will meet the highest requirements to quality of applied anti-corrosive coat.

The next object of investment programme of small-section pipe production site is purchase of high-efficiency machine TESA 10-60 manufactured in South Korean for increase of the product range.

6.3 Planned targets of investment appeal of the third project stage

1. Total sum of investments **~ 3 615 800 $** including:

- estimated cost of equipment and materials ~ 2 580 000 $;
- reconstruction and starting-up and adjustment works ~ 292 000 $;
- project's payback term at current production volume – 4 years;
- annual profit at current production volume in the 4th year ~ 1 120 000 $;

2. Structure of required expenses:

- payment for design works on reconstruction of TESA 25-57 machine ~ 8000 $;
- manufacture, tests, and certification of test models ~ 2000 $;
- certification of workplaces ~ 4000 $;
- target advertising and organization of sales ~ 14000 $;
- expenses for preparation of batch production of products of various standard sizes (designing and manufacture of outfits, purchase of required equipment and raw materials, preparation of production facilities) ~ 680 000
- miscellaneous expenses ~ 35 800 $;

7. Fourth stage. Robotized welding

The next stage of production development at LLC "ChPRP" is a logic plan for construction of LDP assembly site with application of hi-tech equipment for plasma and laser cutting with robotized welding site.

Robotized welding is fully automated process performed by special manipulating robots and another welding equipment. The main advantages of robotized welding are ultimate quality of finished goods and excellent performance of welding. Same as any modern and hi-tech production robotized welding has a plenty of important peculiarities which allow to attain the best possible results and to arrange a really safe and highly effective welding process.

The key advantage of robotized welding is high accuracy: specifications of up-to-date welding robots ensure high accuracy of weld gun positioning of about 0.03-0.05 mm, which is enough for the majority of welding tasks. However, a drawback of the robot consists in the fact that, unlike person, it cannot change trajectory independently and cannot find correct point for welding if the part was not positioned exact enough. Therefore, the error of positioning and assembly of the workpiece should not exceed 0.5 mm. If it is impossible to ensure this positioning accuracy, correlation methods of welding trajectories should be applied. For example, laser system of seam control can be applied. Trajectory correction enables to keep high quality of the welded product, but can also result in reduction of productivity up to 30%. Since welding robots are modern, high-precision, and hi-tech equipment, they should work with workpieces meeting strict requirements, so that the corresponding equipment should be applied at all pre-welding stages. An excellent solution for cutting of metal sheets for further processing by automated welding is application of modern plasma and laser cutting machines with numerical control. Experts of the enterprise have developed the main principles for application of robotics at existing manufacture and have proven its high performance in this technological chain.

7.1 Planned targets of investment appeal of the fourth project stage

1. Total sum of investments **~ 4 980 000 $** including:
- estimated cost of equipment and materials ~ 3 950 000 $;
- starting-up and adjustment works ~ 110 000 $;
- project's payback term - 4 years;
- annual profit at current production volume in the 4th year ~ 1 810 00 $;

2. Structure of required expenses:
- payment for design works ~ 18 000 $;
- payment for works on installation and mounting of robotized complex ~ 60 000 $;

- purchase of required additional equipment ~ 430 000 $;
- target advertising and organization of sales ~ 13 000 $;
- expenses for preparation of production (designing and manufacture of outfits, preparation of production facilities) ~ 360 000 $;
- miscellaneous expenses ~ 39 000 $.

8. Marketing and organizational measures

Manufacture of test batches of new range products has enables to research and master peculiarities of production operations, to get new work skills, to carry out test sales of small batches of goods in order to research demand from consumer. Within the scope of new products sale, the enterprise will adhere to market entry price strategy and will set the lowest price for the goods, which will allow to reach a certain sales volume within the short period. This strategy can be applied in mass market with price-affected buyers and decreasing costs of manufacture and marketing of the goods, while sales volume increases. Pricing policy is based on a principle of market's share takeover. It is planned to cooperate with several main buyers constantly. The enterprise has already got in touch with a number of companies that are already interested in products planned to be produced by the enterprise. Databases of potential customers in printed mass-media and Internet (mass mailing with information on new kinds of products) are used for search for the new buyers. Already established connections and personal contacts are applied as well. It is planned to participate in all trade fairs and exhibitions held in the region, in St.-Petersburg and Moscow, etc. actively

The major factors promoting increase in demand for products of LLC "Cherepovets pipe-rolling plant" are:

- medium prices and high quality;
- availability of sufficient amount of finished goods in stock;
- possibility to buy various products in small batches;
- short terms of equipment readjustment for timely manufacture of the necessary products that are not available in stock;
- flexible system of discounts depending on volume of purchased goods, various payment methods.

Development of investment project took into account essential factors, like logistic availability of production raw materials, developed transport infrastructure allowing to deliver plant's products with various modes of transport especially to the Northern regions, sufficiency of resource basis for achievement of set goals, and possibility to involve qualified personnel from the region.

Organizational plan of the enterprise consists of several stages, the first one of which (preproduction) includes:

- negotiations with contractors and suppliers and conclusion of agreements for manufacture, delivery, and installation of equipment;
- examination of initial material market behaviour, conclusion of agreements with suppliers for delivery of raw materials for further processing;
- examination of product market, advertising, negotiations with customers, conclusion of agreements for delivery of finished goods with them;
- development of manufacture technology for products of new standard sizes.

9. ICO

Cherepovets pipe-rolling plant attract investments by issue and sale of tokens. Token name - Zavodcoin (in abbreviated form ZVD). Token will be issued on WAVES platform.

Zavodcoin Token (ZVD) grants the right to get a share of revenue* at the rate of 40 % from plant's net profit. Payment term for investors makes 2 months after audit data. Zavodcoin can be bought for bitcoins, etherum and bank payment in euro and dollars.

ChPRP uses attracted means within the scope of development plan. ChPRP will organize storage of attracted funds and distribution of created tokens among investors.

Start of ICO - October 13th, at 10:00 Moscow time (UTC+3).
End of ICO - November 16th, at 23:00 Moscow time (UTC+3).

9.1 Base cost

Cost of 1 ZVD token makes 1$.

9.2 Quantity

Final quantity of tokens will be defined upon completion of fund raising campaign. The quantity of generated tokens depends on quantity of attracted funds during the whole campaign. The quantity of tokens will be final, without possibility of additional tokens issue.

9.3 Buy-back

ChPRP undertakes to buy back a certain volume of tokens at the price that is not below the annual average price. Every year, the company announces volume and price of purchased tokens.

9.4 Token distribution

Investors: 82 % of tokens
Plant: 15 % of tokens
Additional bonuses: 3 % of tokens

9.5 Investment structure

Estonian company CTPZ Invest OÜ (Reg. nr. 14337080) raises funds. This company owns 90% of shares of LLC "ChPRP", LLC "BSK", and LLC commercial and industrial company "Aveona". 10 % of shares of the company belong to chief executive, Smirnov Aleksandr.

LLC "ChPRP", LLC "BSK", LLC CIC "Aveona" have industrial, office and storage premises, equipment, raw materials, and infrastructure. In addition, LLC CIC "Aveona" sales manufactured products.

All funds raised during ICO will be owned by CTPZ Invest OÜ company. All activities related to fund-raising and further implementation of means will be carried out according to requirements and regulations of the European Union. Reporting of CTPZ Invest OÜ is carried out according to regulations and rules of the Estonian law on book keeping.

9.6 Bonuses

At participation in 1-3 day: discount of 25 % of token price
At participation in 4-10 day: discount of 20 % of token price
At participation in 11-17 day: discount of 15 % of token price
At participation in 18-24 day: discount of 10 % of token price
At participation in 25-31 day: discount of 5 % of token price
In other days: discount of 0 % of token price
All sold tokens are considered for 82 %. Proceeding from these data, 15 % of tokens will be kept for the plant and 3 % - for additional bonuses.

ChPRP will launch discount system for investors. The amount of discount depends on the day of joining. The company reserves the right to introduce additional bonuses for investors (but no more than 3 % of cold token quantity). The information on new bonuses will be available in FB of the company or at zavodcoin.com

9.7 Additional bonuses

10% Like and repost in Facebook
10 % Like and repost in Vkontakte
10 % Following and repost in Twitter
15 % Change of signature in Bitcointalk
15 % Joining discussion in Telegram
40 % Special support

* proceeding from accounting report after audit

10. Team

Director of LLC “Cherepovets pipe-rolling plant”, **Smirnov Aleksandr Valerianovich** was born on October, 7th, 1960, in Cherepovets, Vologda region. Aleksandr graduated from "Physical-metallurgical department" of M.I.Kalinin polytechnic institute of Leningrad (today - St.-Petersburg state polytechnic university) with degree in "Pressure processing of metals" in 1988. He started his career as a master of site at metal-working enterprise and received technical skills and initial experience of manufacture organization, which enabled him to found own business in the field of recycling and sale of rolled metal - LLC "Commercial and industrial company "AVEONA" in 1995. Industrial enterprise on production of electric welded pipes of round and shaped sections and thick-walled large-diameter pipes, LLC "Cherepovets pipe-rolling plant" was founded on the basis of "AVEONA" in 2009.

The chief engineer of LLC "Cherepovets pipe-rolling plant" **Krylov Pavel Evlampievich** was born on August, 11th, 1960 in the city of Nizhny Novgorod, Gorki region. Pavel graduated from Gorki polytechnic institute with a degree in "Technology of inorganic matters" in 1985. He started his work activities at JSC "Ammofos" as supervisor, whereupon he worked at various production departments of the enterprise. Since 2007 Pavel is the head of LLC TIC "AVEONA" and has been heading the engineering service of LLC "Cherepovets pipe-rolling plant" since 2012.

DeCrypto FUTURE FINANCE

Funds are raised with consulting and technical support of DeCrypto OÜ company. Employees of the company are experts with a long-term experience in crypto-currency field. The company is the operator of Bitcoin ATM network and advises on start up and development of projects in the field of crypto-currency.