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## «PATON» INDUSTRIAL PARK

At the current stage of development of Ukrainian economy there are urgent tasks to improve the efficiency of Ukrainian manufacturing plants, as well as attracting investments to provide the conditions for sustainable growth. One of the tools for solving these problems is establishing and developing industry parks — special territories with the required transport-engineering infrastructure, as well as buildings (production, storage, administrative and other premises), which are designed for accommodating and servicing various manufacturing and other plants. Use of a common infrastructure, services of managing company and possibilities for cooperation with other park participants allow reducing the administrative and infrastructure costs, thus increasing the effectiveness of their operation and competitiveness of the manufactured products.

Creation of industry parks in Ukraine opens up new prospects for regional development, has a positive impact of financial activity of local manufacturing plants, that allows establishing business contacts in the «investor – local government organs – business» chain.

This is exactly why both in the developed countries of the world, and in the post-Soviet space one can see increase in the number of industry parks that is attributable both to the growing demand for high-technology products, and activation of investment processes in the market.

In Ukraine the process of creation of industry parks is regulated by the Law of Ukraine «On Indus-



Central building of PWI PPWE

trial Parks» of June 21, 2012, No.5018-VI. This Law specifies the legal and organizational fundamentals of creation and functioning of industry parks in the territory of Ukraine, with the purpose of ensuring the economic development and improving the competitiveness of the territories, activation of investment activity, creating new jobs, development of modern manufacturing and market infrastructure.

Guided by the abovementioned advantages, at the end of 2020 the PWI Pilot Plant of Welding Equipment initiated creation of «PATON» Industrial Park, which was included into the Register of Industrial Parks. The new Industrial Park will be located in the



Kyiv District, Fastiv region, near urban-type settlement Glevakha.

*«The main purpose of creation of the industry park is development of manufacturing of welding equipment and consumables, attracting investments, required for development of the region, creating new jobs, introduction of advanced technologies into industrial production and enhancing economic development of the territory»* — noted Anatolii Stepakhno, Head of PWI PPWE Management.

The objectives set by the initiators of establishing the «PATON» Industrial Park are quite ambitious, in particular, creating favourable conditions for initiating and further development of industrial production; new approaches to manufacturing, and production process control, introduction of advanced technologies; development of communal infrastructure; increasing the power capacity of the region; attracting foreign and local investments into the regional economy; filling the state and local budgets; creating new jobs, including highly-qualified ones; promoting medium-business development; international activity; filling the market with national high-quality products and increasing export outside the country.

The functional purpose of «PATON» Industrial Park is establishing industrial production of modern high-quality welding equipment for various purposes and welding consumables; manufacturing various-purpose packing for leading Ukrainian and foreign plants; complex services on warehouse storage of goods, logistics, etc.

The Park will take up an area of more than 17 ha, 43 km from the capital, near international highway E95 in the direction of Odessa. The convenient location of «PATON» Industry Park is due to its closeness to the capital of Ukraine (20 min by car) and to the main transport arteries (international highway and railway), customs terminal (2.5 km) and international airports (Kyiv — 27 km, Boryspil — 59 km).

The project of «PATON» Industrial Park envisages creating up to 2000 new jobs, building its own sys-

tems of power and water supply, and heating systems, construction of modern production, office and warehouse premises and other facilities.

Successful realization of the project will have a positive impact on the economic and social development of the adjacent towns and Fastiv region of the Kyiv district as a whole: it will promote investment activity of both the local and foreign plants, that will allow faster realization of the strategy of import substitution, will have a positive impact on development of infrastructural objects of the region, will improve the effectiveness and coordination of contacts with local authorities, will promote strengthening of economic potential of territorial communities, will ensure development of small and medium business that, in its turn, will increase the number of newly created jobs with competitive salary and high standards of social guarantees.

*«An indubitable advantage of the local legislation is the fact that the State, while funding the development of infrastructure of such industry parks, can be an additional source of investments for them, lowering the actual business expenses, and can favour creation of attractive investment climate both for local and foreign investors. Owing industry parks to functioning in Ukraine, the State can influence not only restoration of the competitiveness of local manufacturing plants, but also introduction of national high-technology products into the global investment market»* — Anatolii Stepakhno comments on the project capabilities.

In keeping with the data of the Ministry of Economy, as of 28.12.2020, 45 industry parks were included into the Register of Industrial Parks, 23 of which already have managing companies, and 10 parks have already involved their first participants. Such data are indicative of the still early phase of development of such a tool of economic advancement as industry parks as a whole, and of great prospects for new projects in this field.

Pilot Plant of Welding Equipment of the E.O. Paton Electric Welding Institute is a leading manufacturer of welding equipment in Ukraine, and also one of the leaders in the market of welding equipment and consumables in the territory of CIS countries. The plant was established in 1959 as a unit of the E.O. Paton Electric Welding Institute. As of 2021, the Plant serially produces a wide range of welding equipment and consumables under PATON™ trade mark, which are supplied to more than 30 countries all over the world, besides Ukraine.





*Continuous path to improvement for more than 60 years*

## A NEW STAGE IN DEVELOPMENT OF PATON TRADE MARK

Development of welding equipment manufacture in Ukraine has almost a century of history, of which 62 years are closely connected with the activity of PWI Pilot Plant of Welding Equipment, which was founded at PWI in January of 1959 to implement new developments of PWI and PWI EDTB specialists. During the entire period from its establishment and up to now the Plant has manufactured hundred thousands of welding equipment units for enterprises of different profile almost on all the continents of the world. At present PWI PPWE is a major manufacturer of welding equipment in Ukraine and one of the market leaders in the post-Soviet space. Owing to proprietary developments, high production standards and considerable experience of the Plant specialists, the welding units and electrodes under PATON™ trade mark are highly evaluated by welding experts both in Ukraine and far beyond its borders.

Expansion of export markets for sale of its products is one the highest priorities of the Plant development strategy. At present PATON™ products are supplied to more than 50 countries all over the world: from Latin America to the Far East. And the list of these countries is constantly growing! Just from the beginning of 2021 it was complemented by a number of European (Denmark, Great Britain), African (Kenya) and Middle East countries (Saudi Arabia, Bahrain).

The Plant management took a decision on updating the Company name and changing it to PATON INTERNATIONAL, exactly to enhance the export



vector. It is anticipated that such a step will allow emphasizing for the users and partners of the Plant the international focus of the business, which has long overgrown the limits of Ukrainian market, and will facilitate promotion of the PATON™ brand in the world. As it often happens, the need for such changes was dictated by the market itself, as in modern realities even the company name should meet certain user requirements: simplicity, conciseness, comprehensibility and clarity.

Some time ago the Plant, together with its partners, initiated the process of establishing representative offices in those countries, where the largest quantity of products are exported. The main purpose of creating



such offices is to ensure effective operation of the Plant in the local market and to provide high-quality support to local users. Later on it is planned to unify the names of the offices, using a common trade mark — PATON Poland, PATON Great Britain, Paton Denmark, PATON Egypt, PATON Georgia, PATON South Korea, and more than 20 other offices. And just the current name of the main company with experimental-design base and production facilities located in Ukraine, enables logically uniting all the offices within a single business — PATON INTERNATIONAL. This is exactly the name that will be equally understandable for users and partners of the Plant in any country and will promote formation of trust in the Ukrainian brand.

The Plant has an impeccable reputation of a reliable manufacturer and supplier of high-quality welding equipment and consumables and it is committed to maintaining its reputation at such a high level. Owing to the Plant cooperation with the leading Ukrainian and international certification bodies, PATON™ products meets all the necessary requirements and is certified on a regular basis. In order to strengthen its positions in the international market, as well as minimize the risks of export activity, the

Plant has signed a cooperation agreement with an export-credit agency. Such cooperation opens up possibilities of extended insurance of international shipments of the Plant products, additionally guaranteeing fulfillment of shipment conditions by all the parties in this process. During the short period of this agreement existence, the Plant has already used it during recent deliveries to Burkina Faso, Nigeria, South Africa and Kenya. Use of this additional insurance mechanism has the purpose of further improvement of the image of PATON INTERNATIONAL Company as a reliable international trade partner and strengthening the position of PATON™ products in the global market.

Owing to the above measures, the Plant continues to move towards the posed goals: ensuring stable development of its research and production potential, increasing its production of high-quality welding equipment and consumables and advancing PATON™ products among the greatest possible number of welding specialists from different countries, thus enhancing its own contribution to development of the Ukrainian manufacturing industry and popularization of «MADE IN UKRAINE» brand among consumers around the world.



E.O. Paton Electric Welding Institute of the NAS of Ukraine  
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## IN MEMORY OF S.I. KUCHUK-YATSENKO



Serhiy Ivanovych Kuchuk-Yatsenko, the first Deputy Director of the E.O. Paton Electric Welding Institute of the NAS of Ukraine, Academician of the National Academy of Sciences of Ukraine passed away **on March 22, 2021**.

After graduating from the Kyiv Polytechnic Institute, Serhiy Ivanovych was assigned to work at the E.O. Paton Electric Welding Institute, where he passed a glorious working path from a young expert engineer to professor, doctor of technical sciences, chief of one of the leading departments, first Deputy Director of the Institute on research work, Academician of the National Academy of Sciences of Ukraine. In 1960, S.I. Kuchuk-Yatsenko defended a candidate and in 1972 a doctoral thesis. In 1978 he was elected a corresponding member and in 1987 a full member of the National Academy of Sciences of Ukraine.

The research activity of S.I. Kuchuk-Yatsenko is associated with studies of physical and metallurgical processes in welding of different materials in a solid phase. In particular, he obtained new data on the peculiarities of producing joints with the formation of a thin layer of melt on the contact surfaces of parts to be welded, its behaviour under the action of electrodynamic forces and features of its interaction with the gaseous medium in the contact zone. It was for the first time shown that the state of the melt during deformation of parts to be welded has a dominant effect on the formation of metal bonds between the contact surfaces and the formation of chemical heterogeneity in the joint area. The influence of oxide structures in the melt on the quality of joints was studied in detail and the ways of minimizing oxidation processes in the specified welding period were determined. Along with the mentioned studies, S.I. Kuchuk-Yatsenko for many years had been carrying out specifically-targeted studies of transient processes of heating and damage of single contacts at high energy concentrations. A number of new regularities, characterizing the energy indices of the process of contact fusion of metals, determined the ways of automatic control of the basic parameters of the process in order to obtain the most favourable conditions for heating and deformation of parts to be welded.

As a result of the mentioned fundamental studies, S.I. Kuchuk-Yatsenko developed new methods

of flash butt welding by continuous, pulsed, pulsating melting, patented in the leading countries of the world. Based on them, S.I. Kuchuk-Yatsenko together with the staff colleagues developed the technologies of welding for different products, control systems and new models of welding equipment that have no analogues in the world practice. The equipment is featured by a high efficiency, the minimum consumed power and weight, provides a stable and high quality of joints. These advantages are the most significant during welding of parts of a complex configuration with large cross-sections. Research and engineering activity of S.I. Kuchuk-Yatsenko was characterized by a comprehensive approach to solving the set problems. His basic investigations were accompanied by the development of original welding technologies, automatic and recently computerized control of the welding process and the creation of modern welding equipment.

With his direct participation, industrial production of new welding equipment and its mass implementation into production was organized. Here are some of the most significant stages of activity of S.I. Kuchuk-Yatsenko.

For more than fifty years, S.I. Kuchuk-Yatsenko dealt with works on welding rails. Due to the technologies and equipment for rail welding, developed with his active participation and supervision, for the first time in the world practice it was possible to use a highly efficient flash butt welding in field conditions, which greatly contributed to the transition of railways to seamless tracks. With an active participation of S.I. Kuchuk-Yatsenko, on the terms of the PWI documentation, the serial production of such equipment was organized at the Kakhovka Plant of Electric Welding Equipment, which in the 1970s became a world exporter of such equipment. Over the past years, more than ten generations of rail welding machines were created and are still used in many countries around the world. S.I. Kuchuk-Yatsenko took an active part in the improvement of this equipment and welding technology, which allows maintaining its high competitiveness. In recent years, new generations of welding machines were created that allow welding rails of infinite length during the repair of seamless tracks with the simultaneous stabilization of their stress state. In 1966, for the development and implementation of a machine for flash butt welding of rails in the repair and construction of seamless railway tracks, as a member of the author's team S.I. Kuchuk-Yatsenko

was awarded the Lenin Prize. He was awarded the title of «Honorary Railwayman of the USSR».

The developments of S.I. Kuchuk-Yatsenko and his colleagues were also successfully used in machine-building plants in the manufacture of circumferential billets, shafts and billets from dissimilar materials. The use of multiposition flash butt welding was especially effective, which allowed welding large-sized parts simultaneously in several places (engine bodies, radiators of powerful transformers). The introduction of one installation in the production line of crankcases of powerful diesel units at one of the locomotive plants allowed increasing the labour efficiency by 70 times and releasing 380 welders. A significant effect was also obtained as a result of multiposition welding at the Zaporizhzhya Transformer Plant in the manufacture of transformer radiators. In 1976, as a member of the author's team S.I. Kuchuk-Yatsenko was awarded the State Prize of the Ukr.SSR for creation and industrial implementation of the new technology and highly-efficient assembly and welding complexes for mass production of large-sized structures from unified elements. For the first time in the world practice, S.I. Kuchuk-Yatsenko with a group of staff colleagues developed an original technology of flash butt welding of products of a complex shape and a large cross-section of high-strength alloys based on aluminium, which provided producing joints with the strength almost equal to the strength of the base metal. Based on it, the production of unique equipment was developed and mastered, which is used in the manufacturing of space technique at Ukrainian plants. In 1986, as a member of the author's team S.I. Kuchuk-Yatsenko was awarded the USSR State Prize for the creation of the technology and equipment for flash butt welding of structures made of high-strength aluminium alloys. S.I. Kuchuk-Yatsenko made a significant contribution to the technology and equipment for flash butt welding of pipelines of different purpose. With his active participation, the technologies, control systems and equipment for flash butt welding of pipes with a diameter from 60 to 1400 mm were developed and its large-scale implementation at the construction of pipelines on the territory of the former USSR was performed. With the use of FBW, more than 70000 km of different pipelines were welded, including 4000 km of the most powerful pipelines in the Far North. The use of FBW allowed increasing labour efficiency and providing the reliability of pipelines. This work was also awarded the Lenin Prize in 1989.

Under the supervision of S.I. Kuchuk-Yatsenko and with his direct participation, the works on the creation of pressure welding technologies for stationary joints of pipes for different purposes continued. For the first time in the world practice, the technologies and equipment for press welding with the use of magnetically impelled arc heating were developed to join pipes with a diameter of up to 300 mm and a wall thickness of 5–15 mm, which were characterized by a high efficiency with a minimal energy consumption of the process.

S.I. Kuchuk-Yatsenko took an active part in all stages of implementation of the mentioned works. In 1998 he was awarded the title of «Honoured Worker of Science and Technology of Ukraine» and in 2000 he received the E.O. Paton Prize for the research work «Welding in solid phase». S.I. Kuchuk-Yatsenko is the author of more than 700 scientific publications, including 10 monographs, 350 author's certificates, as well as more than 300 Ukrainian and foreign patents, many of which were purchased by foreign companies under license agreements.

Academician S.I. Kuchuk-Yatsenko dealt with current problems in the field of welding, creation of advanced technologies for joining hard-to-weld materials. He headed one of the leading scientific departments of the E.O. Paton Electric Welding Institute. For a long time S.I. Kuchuk-Yatsenko fruitfully cooperated with the Kakhovka Plant of Electric Welding Equipment, one of the leading manufacturers of welding equipment in Ukraine. He took an active part in the organization of serial production of machines for flash butt welding of railway rails and pipes.

S.I. Kuchuk-Yatsenko was the Deputy Chairman of the Academic Council of the PWI, a member of the Editorial Board and the editor-in-chief of the «Paton Welding Journal». He trained more than ten candidates and doctors of technical sciences. He was elected the first President of the Society of Welders of Ukraine, was a member of its Board, a member of the Society of Welders of the USA and Great Britain.

For his merits the scientist was awarded two Orders of the Red Banner of Labour, the Order of the Badge of Honour, the Order of Prince Yaroslav the Wise and different medals.

The talent of the scientist and the chief, warm-heartedness and kindness gained S.I. Kuchuk-Yatsenko the authority and respect of the welding community. Friends, colleagues and students are deeply saddened by this loss, and the memory of Serhiy Ivanovych will remain forever in their hearts.

*Team of the E.O. Paton Electric Welding Institute,  
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