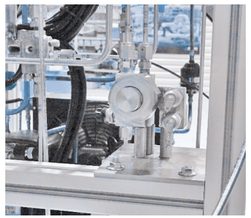
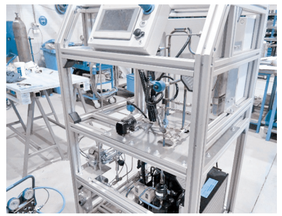
Project "Marta" and "Baby Demo"

These devices are intended for heat dissipation of electronic control elements in a controlled way, by using liquid CO_2 at the temperature of e.g. -40 ^{0}C, which flows through the nano-pipes placed in electronic systems absorbs the produced heat. The liquid CO_2 takes the heat and returns as vapour to the monoblock through the cable (transfer line), it is directed then to an exchanger, where it becomes condensed by a factor R407. In the liquid form, sucked up by the pump, it is pressed in to the installation again, through the monoblock (connection box) for cooling the electronics. Due to the fact that CO_2 occurs in liquid form, it is a closed system. The system uses throttle valves made of austenitic steel 1.4404, manufactured in our company, which find application in controlling the flow of liquid CO_2 at the temperature up to -600 ^{0}C.

"Marta" is a device which makes it possible to dissipate heat of 400W at using the liquid CO_2 and which will become almost a series product used for science institutes. The first presentation of the Marta project at the conference in Bonn raised considerate interest of many science institutes in Europe, carrying out research on decay of particles. The first presentation of Marta project during conference in Bonn raised considerate attention of many science institutes in Europe dealing with research on decay of particles.

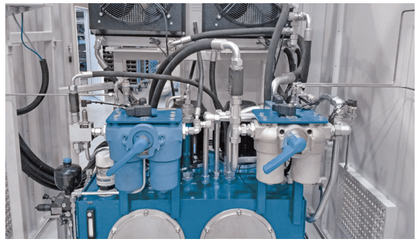
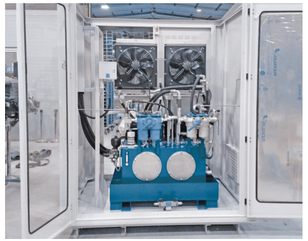
The second device developed for CERN is the so-called „Baby Demo" of heat power of 9200 W, which is currently in design stage. For building the elements of the "Monoblock", "Connection Box" and "Local Box" and elements of piping installation steel of austenitic structure 1.4404 was used. Product and design cooperation with CERN resulted in new products and technologies which will be used in the future projects of this institute.





Bearning lubrication and vanes control system of an exhaust fan

PONAR Wadowice has developed recently a system for lubrication of bearings and control of exhaust fan blades. At the joint oil tank a lubrication system and drive and control system of blades was built. The lubricating system provides oil of required parameters: temperature in the range of 40 - 50°C and flow rate max. 30 dm^3/min (adjustable). The lubricating system, due to safety reasons was doubled (the pump, sensors, filters, cooler, heater) to provide uninterrupted work. For the drive of vane cylinder a proportional directional control valve USAB6 was used. The whole system was delivered in a housing with a complete system of electric control.

PONAR Wadowice S.A.

- the largest producer of oil hydraulic elements and system in Poland
- a supplier of a full range of oil hydraulics
- modern machinery and production lines
- a reliable company offering cutting-edge solutions for all branches of industry
- a company with more than 50 years of experience in the industry
- a team of highly qualified professionals with many years of experience
- the owner of two large production facilities and many regional branches
- the owner of two large production facilities and many regional branches

Our reliable hydraulic elements and systems find a variety of applications:

- stationary machinery and equipment, machine building as well as plastic processing industry
- various mobile machines: agriculture, road building, construction, transport, lifts and mobile platforms
- heavy industry: mining, metallurgy
- ship building industry
- defence industry
- power industry
- machinery industry
- offshore and oil&gas industry
- aerospace industry

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The Company employs experienced engineers and technicians, and also a professional team of sales engineers, providing comprehensive service to our Customers and Partners. We employ more than 500 people, among them highly qualified engineers, working in the Research and Development, Construction Design, Service and Sales Department.

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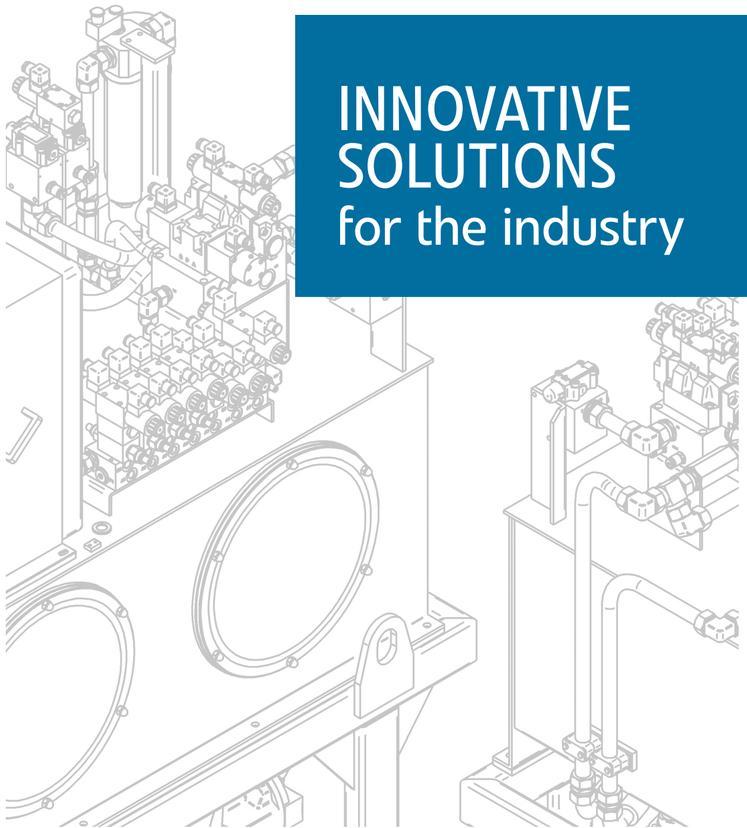
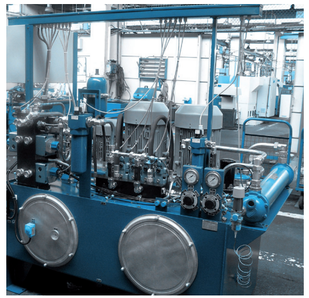
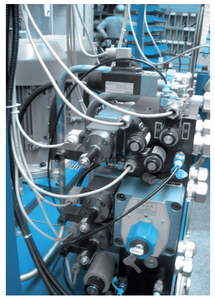


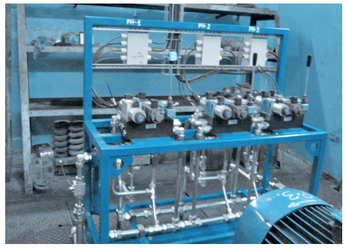
A system of proportional control of a turntable

In the process of production of construction elements (blocks) made of aerated concrete, it is necessary to provide a way of rotation of the concrete mass block, in order to make it possible to divide it into smaller pieces of certain dimensions. It is done by using a piece of machinery called “the cutter”. The uncured block (before autoclaving) is rotated for being properly cut, from horizontal to vertical position. After being cut down, in the form of “a puzzle” of blocks, rotated again to horizontal position. One need to provide a gentle start and soft stop of the rotated block as to avoid possible damages.
To provide proper control of the rotation we used proportional directional control valves USEB10 and digital current controllers 32RE21. The controlling signals from the rotary encoder are transferred to the 32RE21 controller via a dedicated driver. Proper setting of parameters of the controller provides a gentle start of rotation – with low speed allowing to spin up the rotated mass to high speed and gentle slowdown until it stops.


Modernization of control system of laddle furnace electrodes

PONAR Wadowice carried out a project of modernization of a ladle furnace electrodes. The hydraulic control system was modified by implementing proportional directional control valves type USAB6 due to small scope of motion of the hydraulic cylinders and the possibility of precise control over their ejection. Each of the electrodes is controlled individually by a proportional valve – which allows to keep constant value of current, that is, the so-called electric arc, independently from changing length of the melting electrode. A stepless control of the proportional valve spool position and in this way the control of the size of opening of the valve, in the function of the electric current results in obtaining the proper pressure keeping the electrode and the oil flow allowing the cylinder to keep up with the change of the distance from the electrode to the surface of the pig iron as it continues to melt.


Modernization of feed chopper

PONAR Wadowice S.A. carried out modernization and manufactured (including electrical control) a hydraulic system of a feed chopper. The machine is used for taking our steel feeds of 5-8 tons each from the furnace. Before modernization, the machine was equipped in a cylinder of the gripper and pneumatic hold and in an electrical drive of the cart.
The scope of the works included manufacture of a new hydraulic system based on a double piston pump, powering the control system which in turn powers the systems of receivers.
After modernization, the hydraulic system powers:

- the gripper's cylinder with a distance transformer, used for establishing the range of cylinder work
- the clamp and cart cylinder
- an emergency extraction of the cart from the furnace.

After opening the stove, a person operating the machine drives the gripper into the furnace, lowers the arm of the gripper, clamps claws on the feed. Next, takes it out from the furnace and puts the feed on the transporter. The drive system in order to provide soft motion is controlled by proportional directional control valve made by PONAR Wadowice. Installed in the system hydraulic accumulators make it possible to finish the work cycle in case of power failure. The modified by PONAR Wadowice suits perfectly requirements of the Customer and is known to ensure failure free and reliable work.


Hydraulic cylinders test stand

PONAR Wadowice designed and manufactured a mobile hydraulic stand for testing hydraulic receivers (e.g. hydraulic cylinders, hydraulic motors, valves, pumps).
The device is a mobile diagnostic stand for hydraulic systems, which consists of the following elements:

- pumps assembly 250 bar/35 lpm
- measuring system QpT (flow, temperature, pressure) at the supply thread
- measuring systems Qp at threads from the directional control valves block, in total 10 channels. It means that the Customer can check e.g. 5 cylinders or 5 hydraulic motors, or 10 other receivers
- a device for measuring cleanliness class of oil

For changing the direction of medium, for the first time a proportional multi-sectional directional control valve WREM was used. On a mobile unit a LCD panel was installed, where one can set the flow values, read all the QpT signals from the systems or check the cleanliness class of oil, acc. to norms: ISO, NAS, AS. The device was adjusted for continuous operation (installed heat exchangers) and within the temperature range -40°C to +60°C.

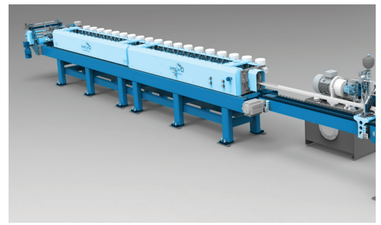
A line for profiling steel sheets

PONAR Wadowice took part in the project of building a fast-track for profiling metal sheets. The initial aims of the project were very strict - to provide possibility of cutting in time less that 0,1s. Thanks to comprehensive approach towards the project, many years of experience and knowledge of PONAR specialists, we were able to rise to the challenge and meet the Customer's expectations.
Among the machines delivered by PONAR Wadowice are:

- the pump unit, which its main element, a pump type MA10VSO
- elements linking the pump to the electric motor
- accumulator with safety valve type UZAE10
- 4WE6 valve powered with AC current
- in order to obtain correct thermal balance in continuous work, a heat exchanger was introduced. To ensure cleanliness of oil, MPT filters were used.
- accessories of the tank
- couplings.

The machinery is built of replaceable modules allowing for shaping various profiles of metal sheets, ranging from 20x20 mm to 70x100 mm. Thanks to applying a "flying guillotine", the line works with the speed of 130 m/min. It is the fastest line manufactured in our country for producing metal profiles.





Hydraulic and pneumatic system for an X-bow ship

The task of the works was to provide modernization and conversion of an x-bow type ship into a base unit for underwater operations, production of hydraulics responsible for opening 11 meters door of a hangar with underwater vessels.
PONAR Wadowice designed and manufactured 44 hydraulic cylinders for marine applications, all protected from uncontrolled motion with proper valves.
All the elements were powered with one hydraulic system placed under the main deck. Two pumps control the right and left door and can work changeably in case of a failure of one of them. The electrical control was based on PLC drivers. Hydraulic control is performed by using a portable control casette.
Many years of experience, the thorough knowledge of the industry allow us to be permanently present in almost all branches of industry. We are everywhere: from aviation to marine industry, from mining - to power industry, from defence industry to agricultural machines.