



EXALO

GRUPA PGNiG



MECHANICAL WORKSHOPS

www.warsztatymechaniczne.exalo.pl/en





Mechanical Workshops

Exalo Piła

Mechanical Workshops located in Piła is part of Exalo Drilling S.A., a company established in 2013 as a result of the merger of five companies from the PGNiG group.

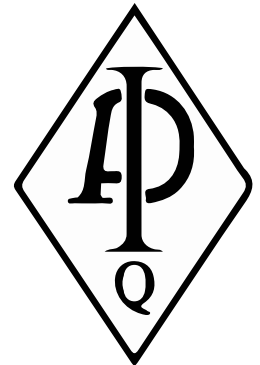
Workshops in Piła launched its activity more than 60 years ago, as the technical support for the Poszukiwania Nafty i Gazu NAFTA Piła (Oil and Gas Drilling Company).

Currently, its team of over 100 employees use their extensive experience while performing services for the oil industry, both domestically and abroad.

As a company, we have functioning quality, environmental and safety management systems, which comply with the following standards:

**ISO 9001:2015,
ISO 14001:2015,
ISO 45001:2018.**

In addition, we have an API certificate for products manufactured in accordance with the standards **API Spec 7-1, API Spec 7-2 and API 6A, and we meet the requirements of API Spec Q1**. This Certificate gives us the right to mark the products with the API Monogram (quality mark).





Mechanical **Workshops** **Offer**

**DRILLING & SERVICES
MUD SYSTEMS**

BOP EQUIPMENTS

**MANUFACTURING
DRILL SUBS**

HARDBANDING

MACHINING

**FLANGE SPOOLS
AND ADAPTERS
TEST FLANGES
WELD-NECK FLANGES
BLIND FLANGES**

REPAIRS
AND INSPECTIONS OF MACHINES
FOR HEAVY INDUSTRY

**NON-DESTRUCTIVE
TESTING
AND GEOMETRIC
MEASUREMENTS**

WELDING





Drilling fluid **Mud circulation systems**

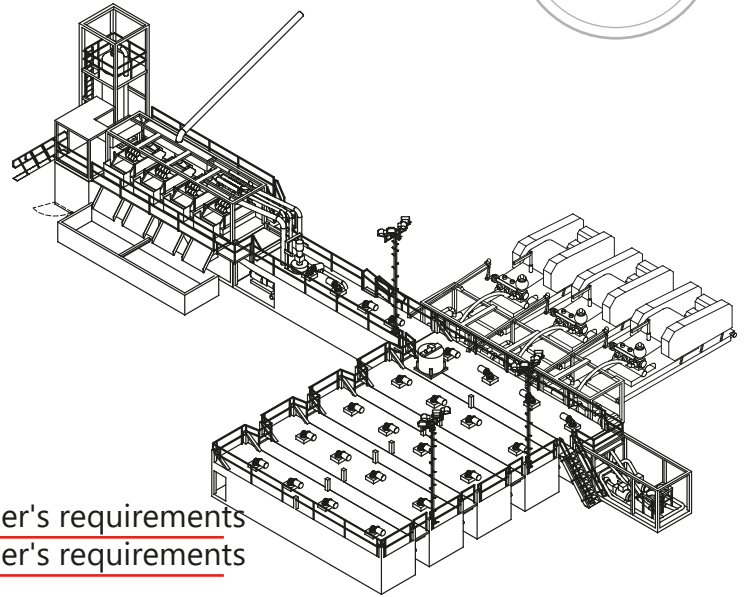
Mechanical Workshops Exalo Piła is a designer and manufacturer of modular systems for cleaning the mud, solid controls, preparation and storage of drilling fluid. Our systems configuration, we can adopt to each clients requirements. The whole system includes a set of mud tanks functionally connected.

The standard system configuration is as follows:

- Settling tank containing a 7 m³ sand trap, and a 13 m³ trip tank with a centrifugal pump,
- shale shaker container with 4 shakers, where one is designed as a mud cleaner (desander and desilter)
- intermediate tank containing two chambers of 18 m³ each, centrifugal degasser, and two centrifugal pumps for charging desander and desilter

- suction tank with two chambers with a total active capacity of 40 m³, from which the drilling mud is taken and pumped into the hole by a mud pumps
- four or more storage tanks with a capacity of 40 m³ each, for storage and preparation of drilling fluid,
- a mud hopper unit equipped with two centrifugal pumps for preparing and pumping the drilling fluid between the chambers of the mud system tanks.



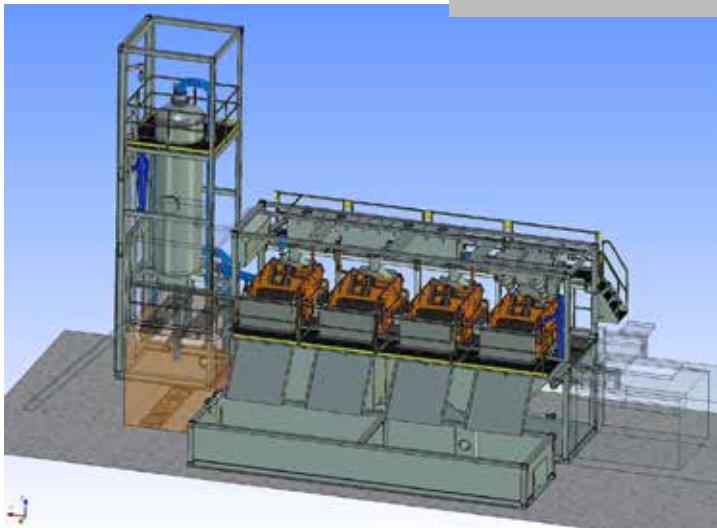


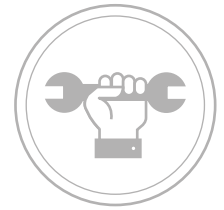
Total capacity	depends on customer's requirements
Trip tank capacity	depends on customer's requirements
Agitators	4 pcs per tank
Mud guns	4 pcs per tank
Mud hoppers	2 pcs Mi Swaco Hi Ride Mixer 175
Shale shakers	4 x Mi Swaco Mongoose PT
Tank dimensions	High Cube Container
Mud cleaner and hopper pumps	4 x MM 8 x 6 x 14
Trip tank pump	MM 4 x 3 x 13
Degasser	Mi Swaco CD-1400
Water tanks	2 x 55m ³
Water pumps	2 x MM 3 x 2 x 13
Mud cleaner	1 x Mi Swaco installed on the Mongoose PT shaker





Drilling fluid **Mud circulation systems**





BOP Equipments

We carry out inspections and repairs of:

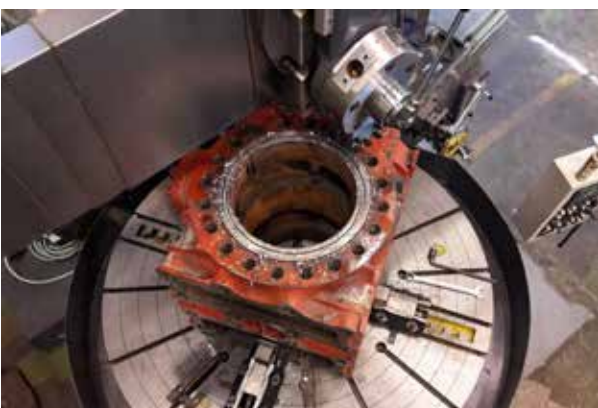
- preventers,
- standpipe manifolds,
- choke and kill manifolds
- high pressure gate valves,
- ball valves,
- BOP control units,
- high pressure test units.

We assembly manifolds using certified gate valves and flanges.

We manufacture:

- flange spools and adapters according to API 6A – PSL3,
- blind and test flanges according to API 6A – PSL3,
- drilling fluid pressure sensors,

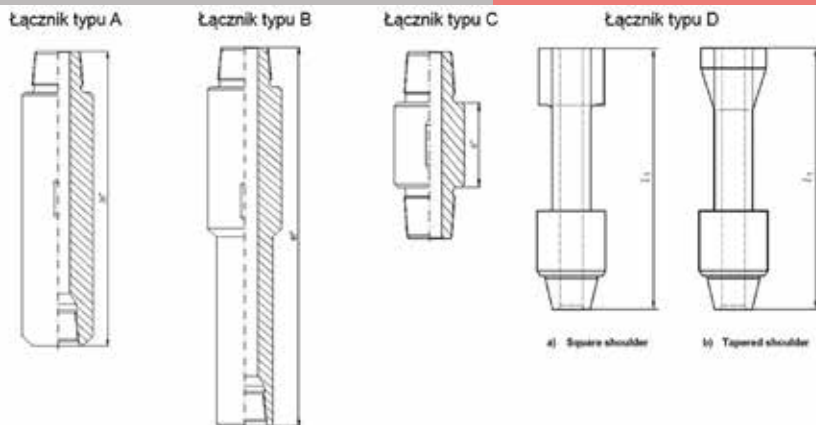
All repaired and manufactured equipment is pressure and NDT tested and certificate of conformity is prepared.





Manufacturing subs for drill strings

We manufacture and repair A, B and C-type rotary subs and D-type lift subs, in accordance with API-7-1/ISO 10424-1. We make and recut threaded connections of NC, REG, FH-type, in accordance with API-7-2/ISO 10424-2, and connections of casing and drill pipes, according to customer's requirements. Our products are marked with an API Monogram. We also offer phosphating of threaded connections.





Manufacturing flange spools and adapters, test and blind flanges

We manufacture flange spools and adapters, as well test and blind flanges at the PSL 3 level, up to maximum pressure of 15,000 PSI, according to **API 6A**.

The API 6A certifications allow the Mechanical Workshop in Pila monogrammed above-mentioned parts, recognized around the world.





Hardbanding

We are equipped with the SKYE HB 101 device, designed for hardbanding tool joints of drill pipes, heavy weights and drill collars with diameters between 3 1/2" and 8 1/2".

Our Workshop has been certified and licensed for removal and re-application hardbanding with Duraband NC or Tuffband NC.

The **DURABAND NC** is a 100% crack-free hardband that provides maximum protection of the tool joint. This chemistry ensures a non-cracking hardband with excellent wear resistance in open hole drilling as well as being casing friendly.

This results in a more reliable hardband when compared to other materials and reduces the cost of re-coating by 80%. The use of a machine also allows us to remove the old and cracked layers and after that rebuild the tool joints.





Advantages of using the DURABAND NC hardbanding method:

- excellent abrasion resistance,
- ability to protect the tool joint throughout its working live,
- low friction cause 50% less wear of the tool joint when compared to a solution without hardbanding,
- lower friction in the well reduces torque on the drill string, what cause 30 % reduction of energy necessary to rotate the drill string.



Machining

We are equipped with:

- drilling and milling machine CNC DEFUM WFM 110E, with load capacity of 4000 kg, and maximum machined detail dimensions up to 1400 mm x 1000 mm, and the height of 1200 mm,
- CNC lathe with a capacity of 2000 kg, and hollow spindle of 340 mm,
- oil country lathes with a capacity of 6000 kg, and a lathe bed length of 3000 mm
- industrial grinding machines:
 - for shafts with a capacity of 400 kg, and dimensions of grinded detail up to 1471 mm in length and 500 mm in diameter,
 - for surface with the table dimensions of 600 mm x 200 mm,
- different type of CNC and conventional processing tools: milling machines, lathes,

- LV5125 vertical turning and boring lathe with the working table diameter of 2000 mm, max. turning diameter of 2500 mm, max. workpiece height of 1600 mm, max.

We provide the following services:

- repairing and manufacturing of spare parts for oil and heavy industry according to our or client documentation
- machining large-size details
- threading long shafts and pipes with a diameter of up to 300 mm,
- manufacturing various types of threaded connections, including API standard.





Overhauling, repairs and inspections of machines

We carry out inspections, repairs and overhauling of equipment used in oil and heavy industry.

We are specialize in repairing equipment's and machines such as:

- centrifugal and piston pumps,
- Caterpillar engines and generators,
- hydraulic power systems: cylinders, control sets,
- travelling and crown blocks
- drawworks, rotary tables, swivels, mud
- pumps,
- TOP DRIVE
- mud mixers and agitators
- special-purpose machines and equipment.





Non-destructive testing and **geometric measurements**

The personnel of the Inspection and Non-destructive Testing Department is certified in accordance with the PN-EN ISO 9712 standard, has a second level of competence in the following test methods:

- visual (VT),
- penetration (PT),
- magnetic-particle (MPT),
- ultrasonic (UT).

We provide services in the following areas:

- continuity of materials (detecting cracks and other hidden defects), by means of ultrasound methods using the Olympus Epoch 1000 flaw detector and magnetic and white beam and ultraviolet light
- measurements of geometry of spatial structures of large dimensions (measurement accuracy ± 0.07 mm) with the mobile measuring arm "Stinger II" checking torque wrenches with the Dremotest Tronic 8612 device within the range from 20 to 1000 Nm,
- measuring the wall thickness of pipelines, tanks and other closed structures, within the range from 0.1 to 600 mm,
- measurements of surface roughness of steel elements according to the Ra and Rz parameters with a Mitutoyo mobile device,
- inspection, control and non-destructive testing of components of a drill string, according to the API RP 7G-2 and DS.-1 regulations.





Welding

Welding works are based of the approved procedure of the Welding Procedure Qualification Record, according to PN-EN ISO 15614-1, and include groups 1; 5; 8; 9; 10, according to PN-CR ISO 15608.

Welding methods according to PN-EN ISO 4063 are:

- 111 – manual metal arc welding (MMA),
- 135 – semi-automatic welding (shielded-metal arc welding),
- 141 – TIG welding,
- 311 – gas welding (oxy-acetylene).

We fully comply with the quality requirements for welding according to EN ISO 3834-2 and EN 1090-1 – steel structural components.

Basic welding activities include:

- repair and manufacture of steel structures,
- repair and manufacture of fluid tanks and heavy containers,
- repair and manufacture of high-pressure pipe lines,
- rewelding of specialized technological tools by flood welding of hard layers and soldering of sintered carbides,
 - regeneration of pump castings, impellers, components, spare parts, high pressure pump's modules and equipment
 - repairs and modernization of fluid tanks, industry containers, pipelines.

Welding services are provided at our workshop, as well as in customer location.





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