OPERATION MANUAL

HYDRAULIC POWER UNIT, TYPE AH300RR

VAH300RR090216

Producent / Producer / Производитель

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Dziękujemy za zakup naszego urządzenia.
Prosimy o uważne przeczytanie instrukcji użytkowania oraz zaleceń eksploatacyjnych.

Thank you for buying our product.
Before using this equipment, please carefully read the user and the maintenance manuals.

Благодарим за покупку нашего оборудования.
Просим внимательно прочитать инструкцию пользователя, а также рекомендации по эксплуатации

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* Firma ERKO sp.j. zastrzega sobie prawo do wprowadzania zmian konstrukcyjnych wynikających z modernizacji wyrobów.
*** ERKO** has the right to introduce construction modifications due to equipment modernization.
* Фирма ERKO sp.j. остовляет за собой право для введения конструкционных изменений вытекающих из модернизации изделий.

АЮ 89 007

ISO 9001
ISO 14001

VAH300RR090216

Before using this equipment, please read the user and the safety manuals.

1. TECHNICAL DATA

Dimensions (l x w x h)	470 x 340 x 390 mm
Weight	26 kg
Design rating	0.64 dm^3/min
Working medium	hydraulic oil L-HM 22
Oil tank volume	2.5 dm^3
Oil working volume	1.5 dm^3
Working pressure	630 bar
Supply voltage	3x230/400 V AC, 50 Hz
Control voltage	24 V DC
Electric engine power	0.55 kW
Supply plug	16A 400V 3P N+E IP44 (PCE 015-6v)
Work type	S3- 40%
IP protection degree	40
Supply cord length	3 m
Control cord length	3 m
Work temperature	-30÷40℃

2. APPLICATION

The hydraulic power unit is a portable, electric powered equipment designed for driving the type GR1and GRM1 head.

The manner of operation of the AH300RR hydraulic power unit, with the GR1 and GRM1 head, is specified in the relevant user manuals of external equipment.

3. INSTALLATION

In order to work properly, an AH300RR type power unit requires five-line electrical network – L1, L2, L3, N, PE – in any sequence of phases.

4. CONSTRUCTION

The power unit has a compact design based on a frame with a built-in hydraulic supply unit and an electric supply-control system. The following cords exit the power unit: the power supply cord which connects the power unit with an electrical socket [6], the control cord terminated with buttons [8] to be mounted on the GR1/GRM1 head and two high-pressure hydraulic cables with appropriate quick couplers PM and ZM [7].

CONTROL PANEL

The control panel of the power unit is equipped with:

- **Main switch [1]:** it is used to supply/cut off the supply of the control system. Upon its enabling a “Supply control lamp” lights up.
- **Supply control lamp [2]:** indicates that the power unit is ready to work (when lit up the power unit is ready to work).

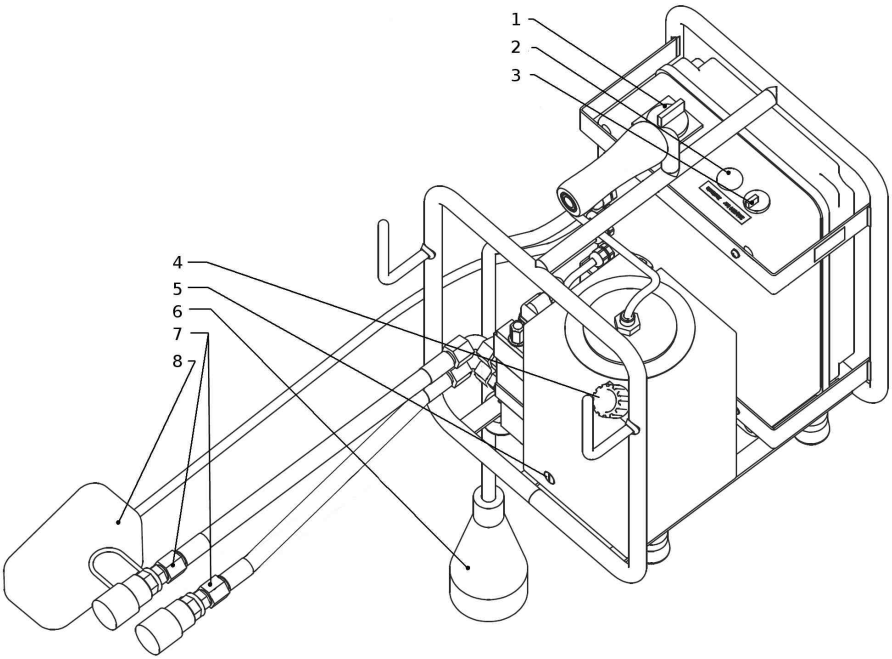

Fig. 1. Construction of the power unit.

ELECTRICAL SYSTEM

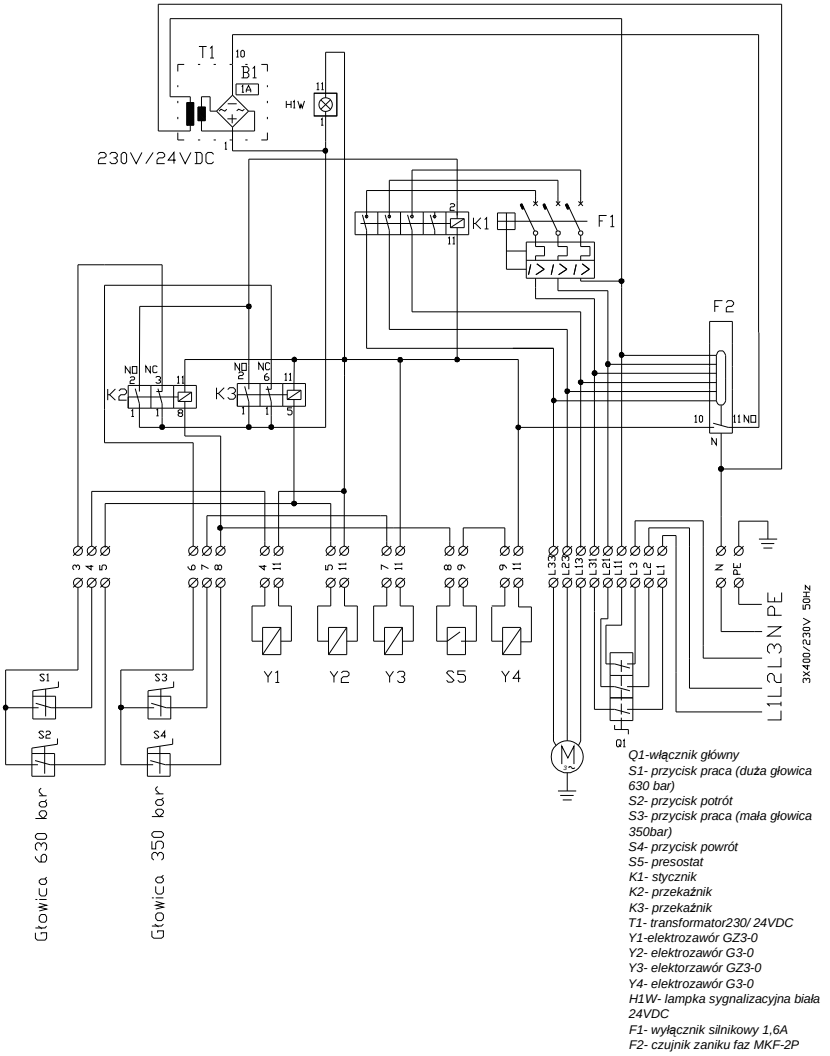

Fig. 2. Electrical system of the AH300RR power unit.

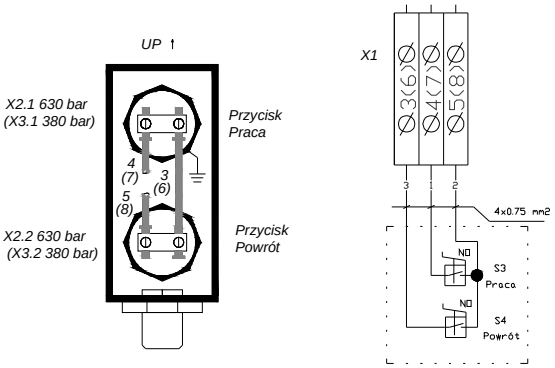

Fig. 3. Electrical diagram of the connection of control buttons (24V DC)

HYDRAULIC SYSTEM

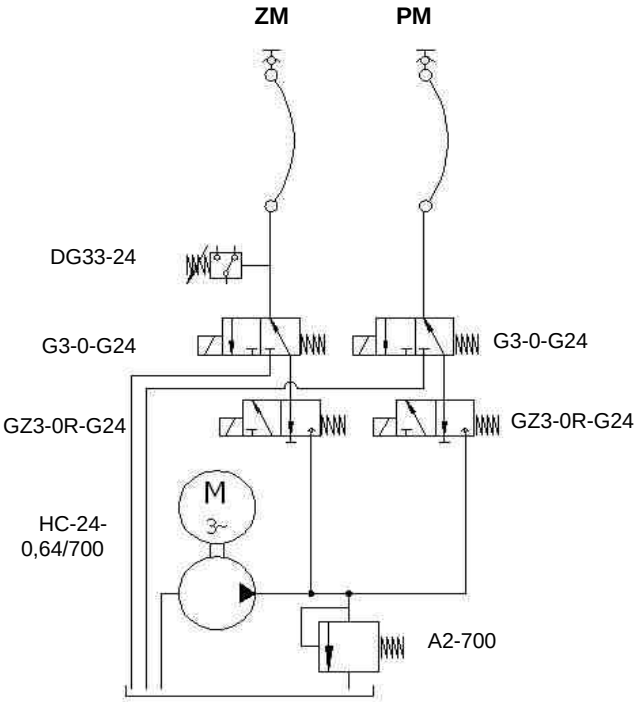

Fig. 4. Hydraulic system.

5. OPERATION PRINCIPLES

1. Before starting up the power unit the operator should inspect the exterior of the unit for any mechanical damage.
2. Oil level should be checked, it should be between 5÷15mm from the upper edge of the pipe of the oil level indicator. If it is below the required level, it should be refilled.
3. Connect the GR1, GRM1 head to the high pressure pipe (a PM quick coupler works only with a PT quick coupler and ZM with ZT quick coupler in an external device).
4. Connect the equipment to the electrical power source.
5. Set the main switch in the “I” position. A lit lamp on the control box indicates that the generator is ready for work.
6. Press the button in the control box in order to start up the power unit.
7. Release the button in the control box in order to stop the power unit.
8. Pressing the button will make the piston rod withdraw to its starting position.
9. Before disconnecting the external equipment from the power unit make sure that the equipment has returned to the main position.
10. After disconnecting the external equipment from the power the quick couplers PT , ZT of the device and the PM, ZM of the power unit should be immediately covered.
11. After the end of work, switch off the electrical supply with the “Main switch” and disconnect the power supply of the entire equipment.

6. WORK WITH QUICK COUPLERS

To connect an external equipment follow the instructions below.

- Remove covers from the PT and PM quick couplers.
- Fit the plug part of the quick coupler into the appropriate quick coupler until they close (the rotation of the PM coupler ring).

To disconnect:

- Turn the bushing of the PM quick coupler so that the bushing socket is aligned with the ball on the body.
- Pull the bushing in the direction shown by an arrow in Fig. 5 until the quick couplers disconnect.

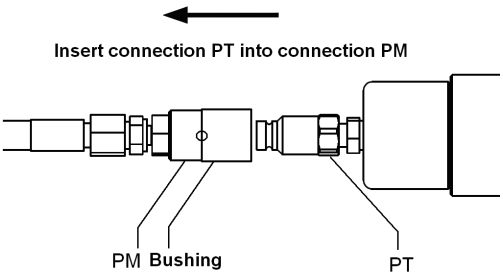

Fig. 5. Work with quick couplers.

7. MAINTENANCE AND OPERATION RECOMMENDATIONS

1. The power unit should always be placed vertically (acceptable deviation ±15°) in rooms with air circulation.
2. After falling, the power unit should be placed in the working position. Wait for approx. 1 min until the oil stabilizes. Check oil level and refill if required.
3. Switch off the electrical power supply when carrying out any maintenance work; the hydraulic system should be unloaded.
4. The supply generates high pressures. Any pressure leak may result in unforeseen consequences. Exercise special caution when operating the equipment.
5. **Upon releasing the seals the operator loses the guarantee for the entire hydraulic system.**
6. The maximum working pressure was set by the manufacturer at the overflow valve at 630 bar and is not subject to adjusting throughout the operation period (sealed).
7. The oil should be changed every 12 months. Oils should be in conformity with DIN 51524 part 1 to 4, class HLP or ISO 6743/4 class HM, of the viscosity ISO VG 22,32.
   Hydrol® L-HM 22 is recommended.
   Oil is available from ERKO: package of 1dm^3- order code OLEJ_HYDR_1, package of 5 dm^3 – order code OLEJ_HYDR_5.
8. A tank cleanliness check, tank washing, oil change and hydraulic system inspections are recommended. Every 12 months by servicemen.
9. Maintaining oil purity and periodical oil exchanges have a great effect on the durability of the hydraulic unit and considerably prolong their performance and reliability. Required oil purity: class 9 (recommended class 8) according to the NAS 1638 norm.
10. Remove air from the pump after an oil refill. To do so:
    - Fill the entire system, together with the hydraulic pipe, with oil until it overflows. Connect the quick coupler to the pipe.
    - Connect the receiving device,
    - Place it below the power unit level
    - Start up the pump in short cycles (2 sec.) until the equipment servomotor sticks out to the maximum position.
    - Then, gradually increase the load until the maximum working pressure is obtained (oil overflows the overflow valve) and the pump is working evenly and quietly.
    - In the case of the power unit loud and uneven work and no power, the air removal operation should be repeated.

    NOTE: Skipping this procedure will prevent obtaining proper working pressure level and in extreme situations will result in pump seizure.

11. When operating the power unit, check the system leak-tightness every day and regularly remove any leaks of oil and check its level in the tank.
12. In the case of a power unit failure, switch off electrical power supply and contact the specialized service. Repairs within the guarantee period can only be carried out by the manufacturer or its authorized representatives.
13. Protect the equipment against the influence of atmospheric factors, corrosion, debris and mechanical damage.
    If the power unit becomes wet, it should be dried and when it becomes dirty, it should be dry-cleaned. When not used for longer periods, store the equipment in a clean and possibly dry place.

    Proper maintenance and operation considerably extends the life of the power unit.

8. TROUBLESHOOTING

Problem	Cause	Action required
The system has insufficient power	The hydraulic unit is not free from air. Oil level too low. Pumping piston is damaged. Overflow valve is damaged. Overflow valve is overregulated. Pressure control is damaged. Pressure control is overregulated. Leak.	Remove air from the system. Refill oil. Select the required oil pressure setting. Contact the service.
Leak in the hydraulic system.	The system is leaky. Overflow valve is overregulated.	Contact the service.
Interrupted work of the power unit.	Problems with the supply. Engine switch is damaged. Contactor is damaged.	Check the power supply. Contact the service.
The power unit does not work, the black light lights up indicating no phase.	Contactor is damaged. Engine switch is damaged.	Contact the service.
The power unit does not work, the red light lights up indicating no phase.	Lack of one or two phases of supply.	Check the power supply.
After correct connection to the power supply and switching the main switch, the power unit does not start up and the power supply lamp is not lit, there is no signal on the no phase sensor	No power supply. Transformer fuse is damaged. Transformer is damaged.	Connect the power supply. Replace the fuse. Contact the service.
The power unit pumps the oil but does not supply it to the head	Electrical valve is damaged. The system has insufficient power.	Contact the service.

9. NOTES

Application of higher pressure in external equipment than that specified in the technical and operational documentation may result in damaging the equipment.

10.DISPOSAL

After the end of the exploitation period, utilize or recycle the particular elements of this equipment according to the regulations in force.

"According to the regulations on ZSEiE it is forbidden to dispose of the worn out equipment labeled with the crossed basket with other waste.
In order to dispose of electronic or electric equipment, users are obliged to deliver it to a specialized center of collecting worn out equipment.
The above regulatory responsibility was introduced in order to limit the amount of waste of worn out electric and electronic equipment and to ensure the relevant collection, retrieval and recycling levels. Such equipment does not contain dangerous components that would have a particularly negative effect on the environment and health."

11. WORK SAFETY AND HYGIENE MANUAL

1. An AH300RR hydraulic power unit may be operated by a person at least 18 years old, who has been informed about the contents of the Operation Manual and has been trained in the work safety principles for the work stand.
2. Proper positioning of the operating elements should be checked prior to starting the power unit.
3. The equipment can be operated only when at full technical performance.
4. Prior to starting up check the following:
   - condition of electrical system
   - oil level in the hydraulic supply unit
   - state of mobile elements (tools powered by the power system)
   - condition of the hydraulic system
5. Electrical power should be disconnected during daily checks and repairs in order to prevent accidental machine starting.
6. Personnel should wear adequate protective gear while operating the equipment.
7. The power unit may only be used for its intended use.
8. Prevent debris collection around the machining station. If dust concentration is high, cover the equipment.
9. **Never start the equipment while completing any maintenance work (assembly, disassembly, positioning the machined materials).**
10. **Switch the generator on only after making sure that the preparation has been completed and there is no danger of damaging the equipment or wounding any body parts.**
11. In emergency situations follow the plant emergency procedures.