



WOJSKOWE ZAKŁADY LOTNICZE NR 1  
SPÓŁKA AKCYJNA

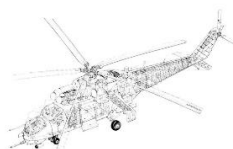
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sekretariat@wzl1.mil.pl  
www.wzl1.mil.pl

**OFFER**  
**for**  
**REPAIRS, MODERNIZATION & MAINTENANCE**  
**of**  
**MI HELICOPTERS**

**WOJSKOWE ZAKŁADY LOTNICZE NR 1 S.A.**



POLAND, ŁÓDŹ, FEBRUARY 2017

Wojskowe Zakłady Lotnicze Nr 1 S.A.  
Kapitał zakładowy: 58.108.350 zł | Kapitał wpłacony: 58.108.350 zł | NIP: 724-000-41-59 | REGON: 000173278  
Konto Bankowe: Bank Pekao S.A. 30 1240 5585 1111 0000 4886 6224  
Sąd Rejonowy w Łodzi, XX Wydział Gospodarczy Krajowego Rejestru Sądowego KRS: 0000295398



POLSKA GRUPA ZBROJENIOWA



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Dear Sirs,

Wojskowe Zakłady Lotnicze No. 1 S.A. (WZL-1) presents herein the portfolio of its services dedicated to Mi-family helicopters.

### 1. GENERAL INFORMATION

Wojskowe Zakłady Lotnicze No. 1 is one of the leading companies of Polska Grupa Zbrojeniowa (PGZ). For more than 70 years we have been strictly connected with aviation and for more than 50 years we have been specializing in the maintenance and overhaul of helicopters. We perform the services both for the Polish Armed Forces Aviation and foreign business partners. Our basic and key activity covers:

- general repairs/overhaul, maintenance and modernization of: Mi-2, Mi-8, Mi-14, Mi-17, Mi-24, W-3 Sokół and SH-2G Kaman helicopters;
- general overhaul of aviation engines: SO-3/W and TW3-117 (III s. M, MT, W) family engines;
- general overhaul of aggregates and equipment of PZL-130 „ORLIK”, MiG-29, TS-11, SU-22, An-2;
- periodic maintenance of TS-11 „ISKRA”.

WZL-1 is situated in the centre of Poland next to the international W. Reymont Airport in Łódź and near the junction of two highways north-south and east-west. The branch of WZL-1 is situated in Dęblin.



Approximately 700 employees work for the company. 35% of them are white collars and 65% blue collars and direct production staff.

Apart from helicopters overhaul and modernization services the company is also involved in the production of composite materials, mechanical components, glass from organic glass, electrical harness, galvanic and painting coatings, metrology, CNC products, non-destructive tests and many more ([www.wzl1.mil.pl](http://www.wzl1.mil.pl)).

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## 2. REPAIRS/OVERHAUL

A standard technological overhaul, repair, maintenance process of Mi family helicopters, their units, systems, aggregates and installations performed by WZL-1 consists of the following stages supervised by the company's Quality Control:



Mi - 8



Mi - 14



Mi - 17



Mi - 24

- 1) Receipt, acceptance of the helicopter and/or aggregate from the customer, signature of the Receipt Protocol by the representatives of WZL-1 and the customer – the traceability process of all units, aggregates and a helicopter starts with the signature of the above mentioned protocol until the acceptance of the repaired, overhauled equipment by the End User together with the signature of the Acceptance Protocol. Every single component and each helicopter has its certificate of origin and logbook as far as a helicopter is concerned. They are filled during the repair, maintenance and modernization process;
- 2) Disassembly of the helicopter, unit and aggregate;
- 3) Verification of the airframe, unit, disassembled installations, aggregates and their labelling depending on the service – repair, overhaul, replacement etc.;
- 4) Transfer of the airframe, unit, disassembled installations, aggregates to dedicated departments responsible for their repair, assembly, verification etc.;
- 5) The process of the repair, overhaul, maintenance, replacement, purchase of the airframe parts, disassembled installations and aggregates;
- 6) Depending on the service (repair, overhaul, maintenance, replacement, purchase), the assembly of the airframe, parts, disassembled installations and aggregates;
- 7) Verification, test, calibration and adjustments of the helicopter and its systems;
- 8) Testing and ground tests;



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9) Painting of the helicopter and final assembly;

10) Flight Tests;

11) The acceptance of the equipment after its overhaul/repair takes place in WZL-1 for helicopters (acceptance flight at the customer's is also acceptable) and for aggregates we send the repaired equipment together with its documentation filled during the technological process to the address indicated by the customer.



TW3-117



SO-3/W



TS-11 ISKRA



PZL-130  
ORLIK

All stages of works performed in WZL-1 are transparent and documented in accordance with standards being in force at the Polish Armed Forces Aviation. Thanks to these undertakings our customer has a possibility of tracking the process of accomplished service at its every stage.

The standard overhaul of 1 helicopter lasts from **8** to **10** months and in case of 2 simultaneous overhauls **12** months. WZL-1 can overhaul **12** helicopters annually bearing in mind the 1-month interval between deliveries of further helicopters. The standard overhaul does not cover the modernization and additional works exceeding the range of the standard repair.



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### 3. MODERNIZATION AND MAINTENANCE



Wojskowe Zakłady Lotnicze No. 1 offers periodic and special maintenance of fixed-wing and rotary-wing aircraft as well as performs the process of technical calendar service life extension.

When Poland joined NATO structures in 1999, Wojskowe Zakłady Lotnicze No. 1 started the project of modernization/upgrading of overhauled Mi-family helicopters. We equipped them with modern communication, navigation and identification units enabling them to fulfil NATO requirements and cooperate with allied forces.

As far as the adaptation of helicopters to NATO standards is concerned, WZL-1 cooperated with the western companies which equipment was installed on Polish platforms. The helicopters were equipped with modern units such as transceivers, NVG, passive and ballistic self defence system and many more listed below. They enabled the crews the interoperability with NATO forces and participation in combat missions in Afghanistan, Chad and Iraq.

All projects were developed by WZL-1's specialists and some of them were reserved as utility designs by the Polish Patent Office.



The list of the upgrading projects and equipment installed on Mi family helicopters in the process of their modernization:

**1. INSTALLATION of:**

- VHF, UHF, HF transceivers (Radmor, Bendix King, Sailor, Thales, Talon, Rockwell Collins, Rohde&Schwarz, Harris) (*Mi-2, Mi-8, Mi-14, Mi-17, Mi-24*)
- altimeters (Bendix King, Honeywell) (*Mi-2, Mi-8, Mi-17, Mi-14*)
- GPS – Garmin (*Mi-2, Mi-8, Mi-14, Mi-17, Mi-24*)
- ELT emergency receivers (HR SMITH) (*Mi-17*)
- SO121 ice detection sensor (*Mi-8, Mi-17, Mi-24*)
- VOR/TAC/MKR navigation systems (Bendix King) (*Mi-8, Mi-14, Mi-17, Mi-24*)
- KT-76 identification friend or foe system (Bendix King) (*Mi-2*)
- SC-10d2 identification friend or foe system (Radwar licenced by Thales, Bendix King) (*Mi-8, Mi-14, Mi-17, Mi-24*)
- FLIR observation head (FLIR) (*Mi-8*)
- SX16 searchlight (Spectrolab) (*Mi-8, Mi-17*)
- S2-3a digital flight data recorders (ITWL) (*Mi-8, Mi-14, Mi-17, Mi-24*)
- CVR AR-30 digital voice recorder (Bendix-King) (*Mi-8*)
- integrated communication system (ITWL) (*Mi-8, Mi-17, Mi-24*)
- CYKLOP head-up display (ITWL, PCO, WZL-1) (*Mi-17*)
- Intercom (Bendix King) (*Mi-8*)
- ŁPG 300 winches with SŁG-350 airborne hoist (*Mi-14*)
- 96379-040 hoist (Goodrich) (*Mi-8/17*)
- Composite armour of the cockpit, cargo section and the most critical areas of a drive system (Maskpol, TenCate) (*Mi-17*)
- side stands for landing troops with the rappel rope (*Mi-8, Mi-17*)
- rear stands for landing troops with the rappel rope (*Mi-8, Mi-17*)
- self-defence system (Terma) (*Mi-17, Mi-24*)
- EWU exhaust gass diffusers (*Mi-17, Mi-24*)
- ADROS infra-red suppressors (*Mi-17, Mi-24*)
- side and rear shooting stands (*Mi-17*)
- side and rear shooting stand dedicated to the machine gun M136 system by GATLING (Works11) (*Mi-17*)
- BURAN-A weather radar (*Mi-14*)
- APS system for track and drop of MU-90 torpedo (Eurotorp) (*Mi-14*)
- MU-90 torpedo (Eurotorp) (*Mi-14*)
- active sonar (*Mi-14*)
- floating beacon system (PCT) (*Mi-14*)
- MAD magnetic anomalies detection system (Sonel, Gdańsk Technical University) (*Mi-14*)



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- ŁEBA (link) tactical data transfer system (Przemysłowe Centrum Telekomunikacji) (*Mi-14*)
- air-conditioner of cargo section (*Mi-17*)
- adaptation of the airframe and installation of TW3-117WM engines (*Mi-24W*)

## 2. ADAPTATION

- of Mi-8 helicopter to SAR missions (*Mi-8P*)
- of Mi-14 helicopter SAR missions (*Mi-14PŁ/R*)
- of Mi-14 helicopter for detection and antisubmarine operations (*Mi-14PŁ*)
- of Mi-17 helicopter to MEDEVEC missions (flying hospital) (*Mi-17 AE*)
- of Mi-17 helicopter to CASEVEC missions (*Mi-17 T/U*)
- of helicopters external, internal lighting and their equipment to NVG (*Mi-2, Mi-8, Mi-14, Mi-17, Mi-24*)

## 4. CERTIFICATES

Wojskowe Zakłady Lotnicze No. has the following certificates and permissions:

- 1) ISO 9001:2008
- 2) AQAP 2100:2009
- 3) ISO 14001:2004
- 4) PN-N 18001:2004
- 5) BS OHSAS 18001:2007
- 6) NCAGE 0521H NATO Commercial and Government Entity
- 7) W-112/7/2015 Internal Control System (WSK) for special turnover with foreign countries
- 8) PART-145
- 9) AKZO NOBEL AEROSPACE COATINGS
- 10) MSWiA Concession No. B-017/2003
- 11) II Degree Industrial Protection Certificate 16/II-91/T/WIII/2013
- 12) I Degree Industrial Protection Certificate 17/I-66/PF/WIII/2013
- 13) III Degree Industrial Protection Certificate 18/III/ - 16/NS/WIII/2013
- 14) III Degree Industrial Protection Certificate 19/III – 12/UES/WIII/2013
- 15) O6V/MVZ – 2012 Mil Moscow Helicopters Plant Certificate

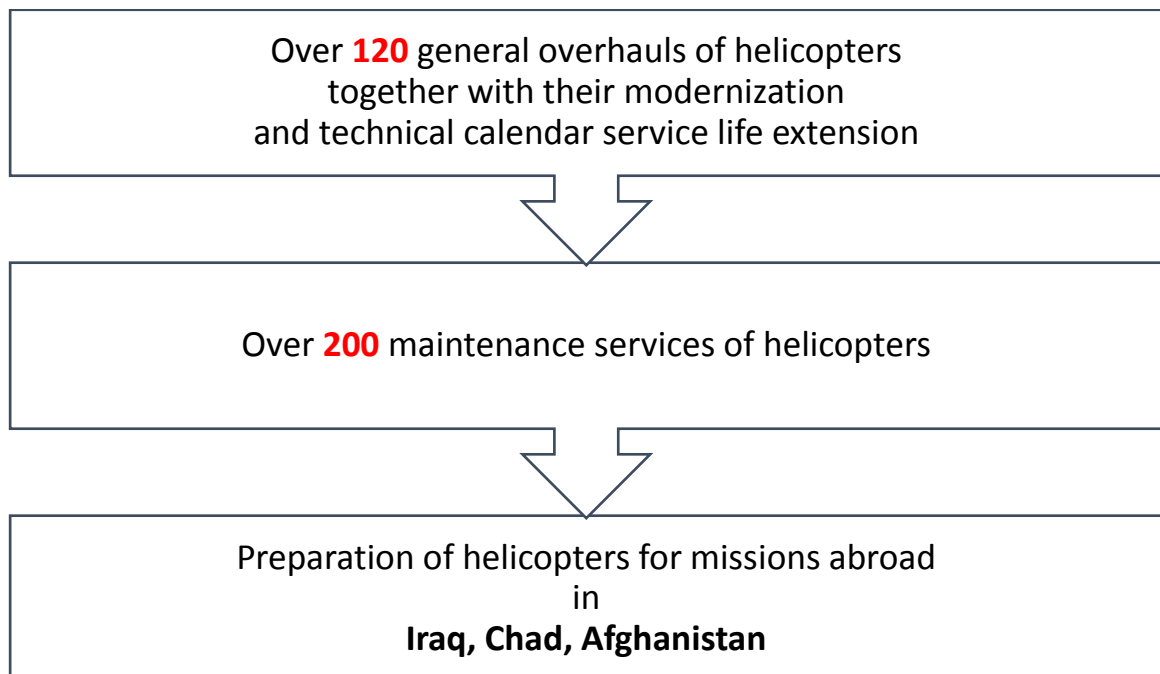


## 5. EXTENSION of TECHNICAL CALENDAR SERVICE LIFE

In cooperation with Air Force Institute of Technology, Wojskowe Zakłady Lotnicze No. 1 developed the procedure of the extension of technical calendar service life of overhauled helicopters.

<b>Mi – 8</b>	<b>more than 45 years</b>
<b>Mi – 14</b>	<b>up to 38 years</b>
<b>Mi – 17</b>	<b>up to 44 years (depending on the version)</b>
<b>Mi – 24</b>	<b>up to 50 years</b>

## 6. EXPERIENCE – SERVICES ACCOMPLISHED in 2005 – 2017







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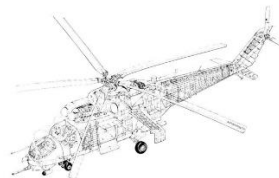
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Modernization services are performed in accordance with the requirements of our customers and depending on their needs. The overhaul and maintenance services are follow the standards being in force at WZL-1 and the Polish Armed Forces.

Should you find the offer of Wojskowe Zakłady Lotnicze No. 1 interesting and you would like to start the commercial discussions and in consequence the cooperation with us, please contact the manager of marketing department at WZL-1 Mrs. Agnieszka TIELE: [a.tiele@wzl1.mil.pl](mailto:a.tiele@wzl1.mil.pl); +48 697 100 015.



**With Best Regards,**

Prepared by: Agnieszka TIELE

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