

**G-PROFI** EXPERT CENTER

# EXPERT CENTERS

OF GAZPROMNEFT-LUBRICANTS



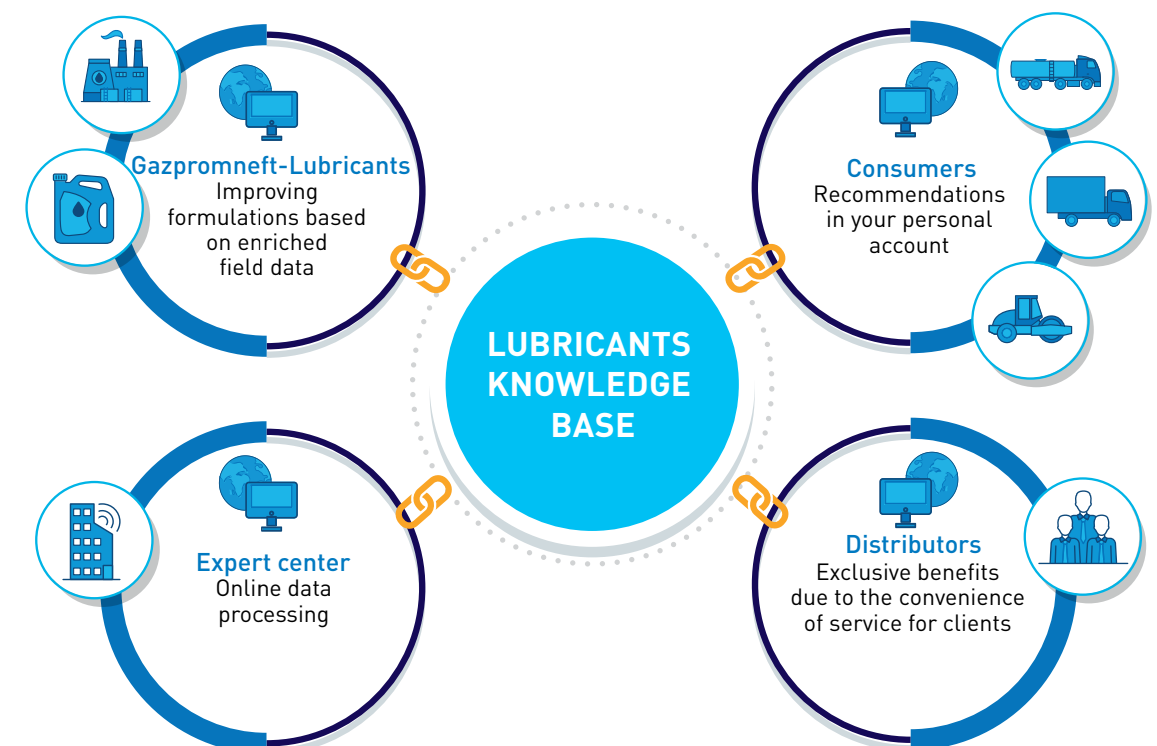
## EXPERT CENTER

Technical support center for issues related to the use of lubricants manufactured by Gazpromneft-Lubricants, consisting of a dedicated certified specialist and modern mobile diagnostic equipment.

## TASKS

1. Improving the efficiency of lubricant use through advanced methods of assessing their condition.
2. Selecting the optimal product based on the operating conditions of the equipment.
3. Increasing the level of knowledge in the field of lubricants among employees, partners and end customers.
4. Collecting and systematizing technical information on the operation of lubricants.

## POSSIBILITY OF CONTINUOUS MONITORING OF TECHNICAL AND COMMERCIAL INDICATORS OF THE PRODUCT



## PRACTICAL VALUE OF TECHNICAL SERVICE PROGRAMS FOR CLIENTS OF EXPERT CENTERS:

1. Reducing the cost of maintaining units of equipment.
2. Identification of deviations in the operation of units at early stages.
3. The need for oil change is determined not by the machine's operating time, but by the reserve of its operational properties depending on the operating conditions, and can be adjusted both upwards and downwards.
4. Reduction of equipment downtime.



Optimization  
of oil costs



Reducing  
repair costs



Improving  
the reliability  
of equipment

## SERVICES AVAILABLE TO THE CLIENTS OF EXPERT CENTERS

### OIL TESTING SERVICE (OTS)

1

#### Technical audit OTS Screen

Technical audit  
of lubricants and  
machines during  
operation

2

#### Operational Monitoring OTS Monitoring

Monitoring the condition  
of lubricants and  
equipment during operation

3

#### Analysis of operational situations Oil Expert Service (OES)

Expertise and analysis  
of operational  
situations

## TECHNICAL AUDIT

### OTS-SCREEN

Express audit of the use of lubricants at the enterprise.



#### PURPOSE OF THE SERVICE

Evaluation of the efficiency of lubricant application by consumers using mobile diagnostic equipment.

#### COMPANY EMPLOYEES CONDUCT

The evaluation of the conditions of storage, distribution and use of lubricants. The current state of equipment is also assessed for the working lubricant. Sampling of working oil is carried out during the working day, on equipment of different service life. Sample analysis is carried out using mobile diagnostics during work at the enterprise.

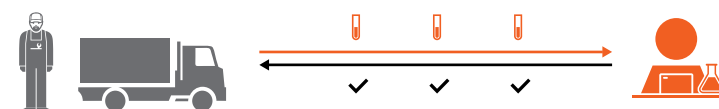
#### THE SERVICE ALLOWS YOU

To evaluate the operation of the oil system, the current state of the equipment and the compliance of the established oil change intervals with the operating conditions.

## OPERATIONAL MONITORING

### OTS MONITORING

Operational monitoring of products manufactured by Gazpromneft-Lubricants Ltd.



#### PURPOSE OF THE SERVICE

An additional means of monitoring the condition of the enterprise's equipment through express analysis of the lubricant used.

#### COMPANY EMPLOYEES CONDUCT

Long-term monitoring of the use of Gazpromneft-Lubricants Ltd. oils. Samples of used oil are taken from a wide selection of equipment in the company's fleet after each replacement during maintenance. Samples are tested using a mobile laboratory. Data on the results of tests for each machine are uploaded to the personal account provided on the service portal.

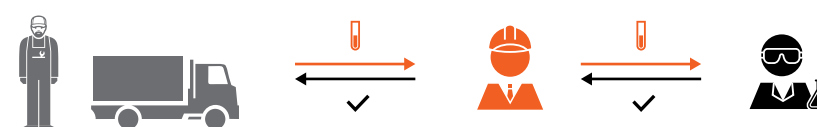
#### THE SERVICE ALLOWS YOU

To carry out operational monitoring of the condition of lubricants and equipment, to adjust replacement intervals depending on operating conditions.

## ANALYSIS OF OPERATIONAL SITUATIONS

### OIL EXPERT SERVICE

Expertise and analysis of operational situations.



#### PURPOSE OF THE SERVICE

Resolution of controversial operational situations that arise during the use of Gazpromneft-Lubricants products.

#### COMPANY EMPLOYEES CONDUCT

Assessment of the condition of the working lubricant and the material from the factory packaging. The study of samples is carried out by means of mobile diagnostics. If necessary, an independent testing center is involved.

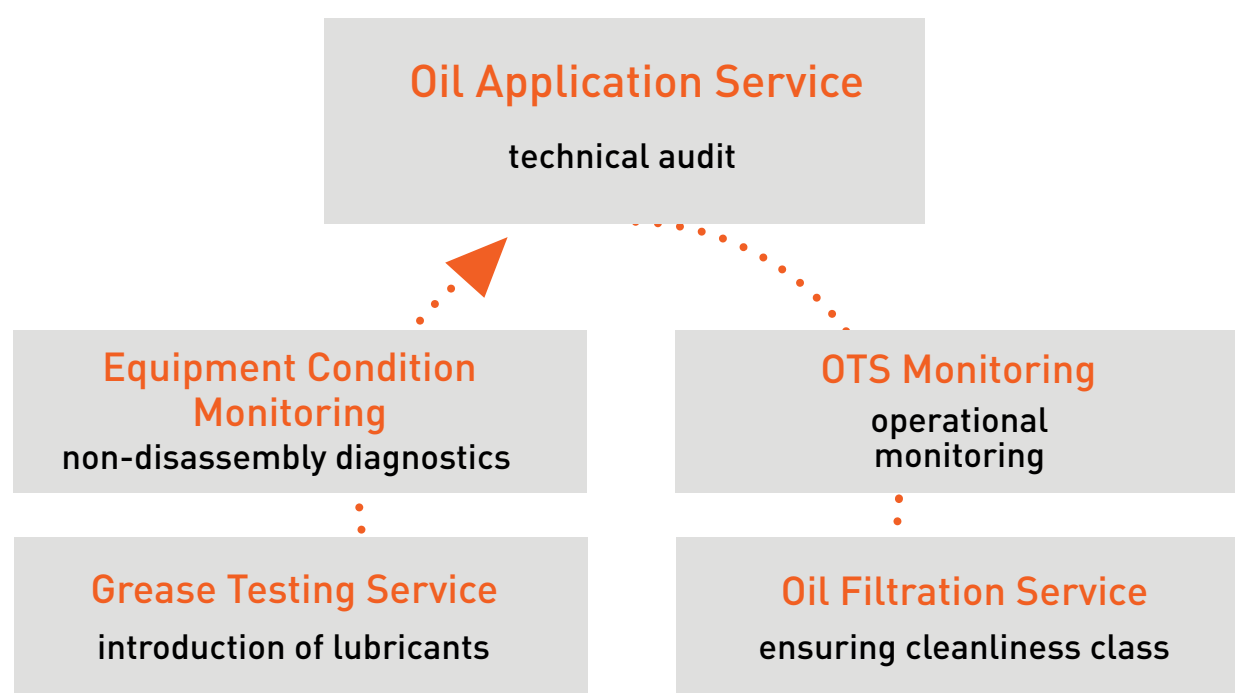
#### THE SERVICE ALLOWS YOU

To detect the most probable cause of the malfunction.





## TECHNICAL SERVICES FOR CLIENTS IN THE INDUSTRIAL SECTOR



## STANDARD OIL DIAGNOSTIC EQUIPMENT

**IR spectrometer**  
FluidScan Q1000



**Analyzed parameters:**

- Oxidation
- Nitration
- Sulfation
- Water content
- Coolant contamination
- Soot content
- Antiwear additive depletion
- Base number

**xRF-spectrometer**  
Spectro xSORT Combi



**Analyzed parameters:**

- Content of heavy elements (Fe, Cu, Pb, Sn, Mo)
- Content of light elements (Al, K, Ca, Mn)
- Pollution by atmospheric dust (silicon)
- Sulfur content

**Viscometer**  
Minivisc Q3050



**Analyzed parameters:**

- Measurement temperature  $40 \pm 1^\circ\text{C}$
- Measurement range 10–350 cSt
- Conversion to 100 °C by viscosity index
- Compliance with ASTM D8092 method

## DEVICES FOR IN-PLACE DIAGNOSTICS OF EQUIPMENT

**Vibrating pen**



**Analyzed parameters:**

- Vibration velocity
- Envelope acceleration

**Thermal Imaging Camera**



**Analyzed parameters:**

- Measurement of the temperature of the object in the focus area of the thermal camera

**Stroboscope**



**Analyzed parameters:**

- Object rotation frequency
- Visual inspection of chips, cracks and other defects

**Electrical discharge detector**



**Analyzed parameters::**

- Passage of electric current through the bearing housing installed on the electric motor to prevent electrical corrosion

COMPARISON OF THE CAPABILITIES OF MOBILE AND STATIONARY LABORATORIES

|                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                    |  |  |  |  |  |
| INDICATORS                                         | STATIONARY LABORATORY                                                             | MOBILE LABORATORY (PORTABLE DEVICES)                                              |                                                                                    |                                                                                     |                                                                                     |
| Viscosity at 40 °C, mm²/s                          | +                                                                                 |                                                                                   |                                                                                    | +                                                                                   |                                                                                     |
| Viscosity at 100 °C, mm²/s                         | +                                                                                 |                                                                                   |                                                                                    | +                                                                                   |                                                                                     |
| Alkaline number, mg KOH/g                          | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Acid number, mg KOH/g                              | +                                                                                 | +/-                                                                               |                                                                                    |                                                                                     |                                                                                     |
| Oxidation, A/mm                                    | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Nitration, A/mm                                    | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Sulfation, A/mm                                    | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Soot content, %                                    | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Water content, %                                   | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Ethylene glycol content, %                         | +                                                                                 | +                                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Contents of wear elements (Fe, Al, Cu, Pb, Sn, Cr) | +                                                                                 |                                                                                   | +                                                                                  |                                                                                     |                                                                                     |
| Content of additive elements (Ca, P, Zn, Mo)       | +                                                                                 |                                                                                   | +                                                                                  |                                                                                     |                                                                                     |
| Content of pollutant elements (K, Si)              | +                                                                                 |                                                                                   | +/-                                                                                |                                                                                     |                                                                                     |
| Sulfur content in fuel                             | +/-                                                                               |                                                                                   | +                                                                                  |                                                                                     |                                                                                     |
| Purity grade                                       | +                                                                                 |                                                                                   | -                                                                                  |                                                                                     | +                                                                                   |
| Flash point, °C                                    | +                                                                                 |                                                                                   | -                                                                                  |                                                                                     |                                                                                     |

CURRENT NETWORK OF EXPERT CENTERS



DISTRIBUTOR CONTACT DETAILS

FOR NOTES

**Gazpromneft-Lubricants Ltd.**

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[www.g-energy.org](http://www.g-energy.org)