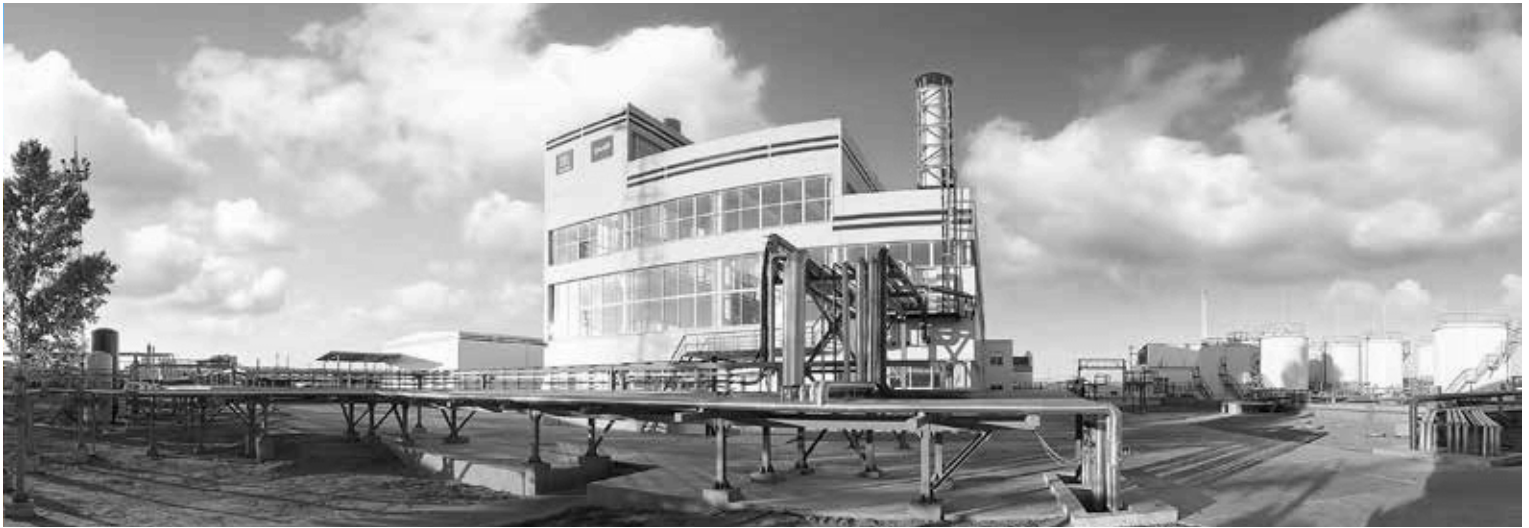




Consistent greases catalogue



Company information



„LUKOIL“ PJSC is acknowledged as the leader of Russia’s petroleum industry in the fields of crude-oil exploration, production and refining, as well as oil product distribution.

In order to both give a comprehensive approach to enhance business development of “LUKOIL” PJSC in the lubricants manufacturing and to supply “RZD” OJSC with the proper lubricants, the partners decided to establish a new modernly equipped enterprise to produce new-generation lubricants.

“RZD” OJSC is the largest national transport company providing infrastructure conditions to enable innovative development of the Russian economy, maintaining inland transport consistency and successfully meeting transportation services demand of the state and the society.

“INTESMO” LLC has the responsibility to satisfy the requirements of “RZD” OJSC for consistent lubricants that are needed to ensure unimpaired operation of the railway service system.

“INTESMO” LLC (Innovative Greases Technologies) was established in March, 2010 as a joint venture between “RZD” OJSC and “LLK-International” LLC (a 100% subsidiary of “LUKOIL” PJSC specializing in development, manufacturing and marketing of lubricants). The founding companies own 25% and 75% of its authorized share capital respectively.

“INTESMO” LLC is a high-technology enterprise accommodating the state-of-the-art equipment that allows to manufacture products according to the world quality standards and ensure environmental compliance.

The production facilities are located in Volgograd, on the site of the refinery “LUKOIL-Volgogradneftepererabotka” LLC.

The product portfolio includes high-efficiency advanced greases for various industries.

Engineering center of "INTESMO" LLC



Engineering specialists develop specialty greases according to the customer's technical requirements, using the most advanced knowledge and experience, and making ongoing efforts to improve lubricant technology.

The accredited laboratory implements multistage quality control, while the unique equipment of the engineering center allows carrying out a full range of the lubricant research.



Technical support technicians perform the lubricant selection, industrial tests and provide technical consulting services on the LUKOIL product application.

Explanation of symbols



High load-carrying ability, including shock loads;
contains EP-additives



Water-resistant



Anti-corrosion



Thermally-stable



For operation in a cold climate



For rolling bearings



For plain bearings



For plain ways



Sealing thread, for corrosion protection
of the thread, to facilitate fitting
and to seal thread connections



For open gears



Gearbox



Automotive



Marine



For centralized lubrication systems

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FLEX Series of consistent greases is characterized by enhanced performance. The greases provide a reliable wear protection and extend the service life of the equipment.

POLY
THERMO
CARBO
AQUA



ADVANTAGES:

- *Energy saving*
Due to enhanced tribological performance, energy consumption is cut significantly
- *Resources saving*
FLEX-greases allow extending the operational life of units and mechanisms significantly due to the excellent parts protection against shear, wear and corrosion.
- *Unification*
Versatility of the FLEX-greases allows a considerable reduce in the customer's lubricants stock assortment.
- *Reliability*
Equipment protection, mitigation of production risks

FLEX Series greases

LUKOIL POLYFLEX EP 160

Multipurpose grease used in a broad spectrum of equipment. Can be applied for lubrication of rolling and plain bearings, gears, couplings, chassis components and electric motors in industrial, mining and concentrating equipment, construction machinery and vehicles operating under elevated specific and shock loads. Manufactured from a mixture of high-quality mineral base oils thickened by lithium soap with an high-efficiency additive package. The grease has good tribological properties, can operate at elevated temperatures, loads, as well as under conditions involving water contact and high humidity.

ADVANTAGES:

- **Unification.** Universal applicability of the grease allows for reducing the lubricants stock assortment.
- **Corrosion protection.** Due to a special additive package it provides excellent corrosion protection of greased parts subjected to high humidity and water contact.
- **High load-carrying ability.** The grease has enhanced anti-wear and extreme-pressure characteristics contributing to a reliable equipment protection at high loads, due to the utilization of high-performant additive package.
- **Performance stability at low temperatures.** Due to the careful base oil selection the grease has a soft structure ensuring very good cold-temperature pumpability.



LUKOIL POLYFLEX EP

PROPERTY	00-160	0-160	1-160	2-160	3-160
NLGI consistency	00	0	1	2	3
DIN 51502 designation	KP00K-30	KP0K-30	KP1K-30	KP2K-30	KP3K-30
Color	From light yellow to brown				
Type of soap	Li	Li	Li	Li	Li
Type of base oil	Mineral				
Operating temperature range, °C	-30...+120	-30...+120	-30...+120	-30...+120	-30...+120
Kinematic viscosity of base oil at 40 °C, mm ² /sec	160	160	160	160	160
Dropping point, °C, or more	-	150	170	190	190
Worked penetration at 25 °C, 0.1 mm	400-430	355-385	310-340	265-295	220-250
Four-ball tribological properties:					
weld load, N, or more	2800	2800	2800	2800	2800
wear scar diameter, mm, or less	0,5	0,5	0,5	0,5	0,5

LUKOIL POLYFLEX EP 160 HD

Antifriction grease designed for use in sliding friction units operating under shock loads and dynamic loads. Used in cars and trucks, off-road, agricultural, construction and mining machinery. Manufactured from a mixture of high-quality mineral base oils thickened by lithium soap. The grease is enhanced with an additive package and additional solid lubricants for operation in the boundary friction mode.

ADVANTAGES:

- **Performs well under conditions of high specific and shock loads.** Due to the solid filler the grease preserves its properties and does not run out of the friction unit when exposed to shock loads.
- **Corrosion protection.** The grease provides excellent protection of greased parts against all types of corrosion.
- **Performance stability at low temperatures.** Due to the careful base oil selection the grease has a soft structure ensuring very good cold-temperature pumpability.
- **High load-carrying ability.** The unique formulation ensures high anti-wear and extreme-pressure characteristics contributing to a reliable equipment protection under severe operation conditions.



PROPERTY	LUKOIL POLYFLEX EP		
	0-160 HD	1-160 HD	2-160 HD
NLGI consistency	0	1	2
DIN 51502 designation	KPF0K-40	KPF1K-30	KPF2K-30
Color	From dark gray to black		
Type of soap	Li	Li	Li
Type of base oil	Mineral	Mineral	Mineral
Operating temperature range, °C	-40...+120	-30...+120	-30...+120
Kinematic viscosity of base oil at 40 °C, mm ² /sec	160	160	160
Dropping point, °C, or more	180	185	185
Worked penetration at 25 °C, 0.1 mm	355-385	310-340	265-295
Four-ball tribological properties:			
weld load, N, or more	3300	3300	3300
wear scar diameter, mm, or less	0,5	0,5	0,5

FLEX Series greases

LUKOIL POLYFLEX EP 400

Anti-friction multipurpose grease designed for use in low-speed heavy-load friction units operating in harsh climate conditions, in dust environment, at intense vibrations and shock loads. Used in rolling and plain bearings, open gears and worm drives of construction and mining machinery, equipment for metallurgy and other industries, as well as in heavy vehicles. A special technology combined with a sophisticated additive package allows it for the grease to maintain its operating capacity at high dynamic and shock loads.

ADVANTAGES:

- **High anti-wear performance.** Innovative formula of the grease ensures excellent wear protection under conditions of vibration and shock loads.
- **Corrosion protection.** Due to a sophisticated additive package the grease provides excellent corrosion protection of greased parts at high humidity.
- **Water wash-out resistance.** Outstanding adhesion and high water resistance of the grease allow using it in open and unsealed mechanisms.



LUKOIL POLYFLEX EP

PROPERTY	0-400	1-400	2-400	3-400
NLGI consistency	0	1	2	3
DIN 51502 designation	KP0K-30	KP1K-20	KP2K-20	KP3K-10
Color	From light yellow to dark brown			
Type of soap	Li	Li	Li	Li
Type of base oil	Mineral	Mineral	Mineral	Mineral
Operating temperature range, °C	-30...+120	-20...+120	-20...+120	-10...+120
Kinematic viscosity of base oil at 40 °C, mm ² /sec	400	400	400	400
Dropping point, °C, or more	–	180	180	180
Worked penetration at 25 °C, 0.1 mm	355–385	310–340	265–295	220–250
Four-ball tribological properties:				
weld load, N, or more	3000	3000	3000	3000
wear scar diameter, mm, or less	0,5	0,5	0,5	0,5

LUKOIL POLYFLEX ARCTIC

Antifriction multipurpose cold-temperature grease. Designed for lubricating friction units of vehicles, industrial, construction and marine equipment operating in cold and Arctic climate conditions, at low and medium loads. Manufactured from the mixture of low-viscosity mineral base oils thickened by lithium soap. Contains a special additive package enhancing cold-temperature, adhesion and tribological properties.

ADVANTAGES:

- **Performance stability at low temperatures.** Due to the careful base oil selection the grease has a soft structure ensuring very good cold-temperature pumpability. Wide operating temperature range make it possible to use the grease all year round, while its high frost resistance allows using it in the Far North regions.
- **Energy saving.** Low-viscosity base oil provides excellent antifriction characteristics, allows raising efficiency output of the equipment and considerably extending its service life.
- **Water wash-out resistance.** Outstanding adhesion and high water resistance of the grease allow using it in open and unsealed mechanisms.



PROPERTY	LUKOIL POLYFLEX EP			
	ARCTIC 0	ARCTIC 1	ARCTIC 2	ARCTIC 3
NLGI consistency	0	1	2	3
DIN 51502 designation	K0G-50	K1K-50	K2K-50	K3K-50
Color	From yellow to dark brown			
Type of soap	Li	Li	Li	Li
Type of base oil	Mineral	Mineral	Mineral	Mineral
Operating temperature range, °C	-50...+100	-50...+120	-50...+120	-50...+120
Dropping point, °C, or more	160	170	180	180
Worked penetration at 25 °C, 0.1 mm	355-385	310-340	265-295	220-250
Four-ball tribological properties:				
wear scar diameter, mm, or less	0,5	0,5	0,5	0,5
Effective dynamical viscosity at -30 °C, Pa·sec, or less	1400	1400	1400	1400

FLEX Series greases

LUKOIL THERMOFLEX EP 180

High-temperature multipurpose antifriction grease. Used in rolling and sliding friction units, gears, chassis components, electric motors, crushers, conveyors where exceptional high-temperature and lubricating properties are needed, also in assemblies operating in humidity and water content environment. Manufactured from the mixture of refined mineral base oils thickened by lithium complex soap. Contains a high-performant additive package enhancing adhesion, anti-oxidation, anti-corrosion and tribological properties.

ADVANTAGES:

- **High stability.** Due to the careful base oil selection and lithium complex thickener, the grease has a high stability against thermal, structural and oxidative destruction.
- **Corrosion protection.** Due to a sophisticated additive package the grease provides excellent corrosion protection of greased parts at high humidity.
- **High load-carrying ability.** The framework of lithium complex soap and the additive package contribute to maintaining high anti-wear and extreme-pressure characteristics and reliable equipment protection at high loads, sliding friction and shock loads.
- **Unification.** Universal applicability of the grease allows for reducing the lubricants stock assortment.



PROPERTY	LUKOIL THERMOFLEX EP		
	0-180	1-180	2-180
NLGI consistency	0	1	2
DIN 51502 designation	KP0P-30	KP1P-30	KP2P-30
Color	From blue to dark blue		
Type of soap	Li-complex	Li-complex	Li-complex
Type of base oil	Mineral	Mineral	Mineral
Operating temperature range, °C	-30...+160	-30...+160	-30...+160
Kinematic viscosity of base oil at 40 °C, mm ² /sec	180	180	180
Dropping point, °C, or more	–	200	230
Worked penetration at 25 °C, 0.1 mm	355–385	310–340	265–295
Four-ball tribological properties:			
weld load, N, or more	3283	3283	3283
wear scar diameter, mm, or less	0,5	0,5	0,5
Effective viscosity at -30 °C, Pa·sec, or less	1500	2000	2500

LUKOIL THERMOFLEX EP 180 HD

Antifriction high-temperature grease designed for use in friction units operating at medium and high loads and exposed to shock and cyclic loads and high temperatures. Used in sliding friction units of industrial equipment and vehicles. Manufactured from the mixture of high-quality mineral base oils thickened by lithium complex soap with solid lubricants and high-performant additive package enhancing anti-wear, adhesion, anti-corrosion and extreme-pressure properties.

ADVANTAGES:

- **High stability.** Due to the careful base oil selection and lithium complex thickener, the grease has a high stability against thermal, structural and oxidative destruction.
- **Performs well under conditions of high cyclic and shock loads.** Due to the solid filler the grease preserves its properties and does not run out of the friction unit when exposed to shock loads.
- **Corrosion protection.** Due to a sophisticated additive package, the grease provides excellent corrosion protection of greased parts at high humidity.
- **Extending service life.** Innovative formulation ensures a long-term operation of the friction units, which contributes to lowering the maintenance and repair costs.



PROPERTY	LUKOIL THERMOFLEX EP		
	1-180 HD	2-180 HD	3-180 HD
NLGI consistency	1	2	3
DIN 51502 designation	KPF1P-30	KPF2P-30	KPF3P-20
Color	From dark gray to black		
Type of soap	Li-complex	Li-complex	Li-complex
Type of base oil	Mineral	Mineral	Mineral
Operating temperature range, °C	-30...+160	-30...+160	-20...+160
Kinematic viscosity of base oil at 40 °C, mm ² /sec	180	180	180
Dropping point, °C, or more	200	230	230
Worked penetration at 25 °C, 0.1 mm	310-340	265-295	220-250
Four-ball tribological properties:			
weld load, N, or more	4500	4500	4500
wear scar diameter, mm, or less	0,5	0,5	0,5

FLEX Series greases

LUKOIL THERMOFLEX EP 400

Antifriction high-temperature multipurpose grease designed for use in heavily-loaded low-speed friction units. Among the areas of application there are steel and pulp and paper industries as well as at the plants for extraction and processing of fossil minerals. Can be used in low-speed rolling and plain bearings, gears and other friction units operating at high loads and temperatures. Manufactured from high-viscosity base oils with a high viscosity index, thickened by lithium complex soap with an additive package enhancing adhesion, anti-wear, extreme-pressure and anti-oxidation properties.

ADVANTAGES:

- **High stability.** Due to the careful base oil selection and lithium complex thickener, the grease has a high stability against thermal, structural and oxidative destruction.
- **Corrosion protection.** Due to a sophisticated additive package, the grease provides excellent corrosion protection of greased parts at high humidity.
- **Extending service life.** Innovative formulation ensures a long-term operation of the friction units, which contributes to lowering the maintenance and repair costs.
- **Wear protection.** High-viscosity base oil maintains good lubrication and surface separation.



LUKOIL THERMOFLEX EP

PROPERTY

1-400

2-400

NLGI consistency

1

2

DIN 51502 designation

KP1N-20

KP2N-20

Color

Dark blue

Dark blue

Type of soap

Li-complex

Li-complex

Type of base oil

Mineral

Mineral

Operating temperature range, °C

-20...+160

-20...+160

Kinematic viscosity of base oil at 40 °C, mm²/sec

400

400

Dropping point, °C, or more

220

240

Worked penetration at 25 °C, 0.1 mm

310-340

265-295

Four-ball tribological properties:

weld load, N, or more

3600

3600

wear scar diameter, mm, or less

0,5

0,5

LUKOIL THERMOFLEX EP 400 HD

Antifriction high-temperature grease designed for use in heavily-loaded low-speed plain bearings, gears, support and hitch mechanisms and conveyors operating at elevated temperatures and exposed to shock loads and reciprocating motion. Due to a high water-wash-out resistance, the grease is suitable for application in metallurgical, mining and other equipment operating under high water and dust content conditions. Manufactured from refined high-viscosity mineral base oils thickened by lithium complex soap with a high-performant additive package extending operational potential of the grease. Contains solid lubricants enhancing stability against shock and cyclic loads.

ADVANTAGES:

- **Outstanding stability at high temperatures.** Due to the lithium complex soap and refined base oils, the grease has high anti-oxidation and anti-corrosion properties ensuring high-temperature protection of the friction units.
- **High load-carrying ability.** Due to solid lubricants and high-viscosity base oil, the grease has excellent anti-wear and extreme-pressure characteristics ensuring reliable equipment protection in the boundary friction and shock loads conditions.



PROPERTY	LUKOIL THERMOFLEX EP	
	1-400 HD	2-400 HD
NLGI consistency	1	2
DIN 51502 designation	KPF1P-20	KPF2P-20
Color	From dark gray to black	
Type of soap	Li-complex	Li-complex
Type of base oil	Mineral	Mineral
Operating temperature range, °C	-20...+160	-20...+160
Kinematic viscosity of base oil at 40 °C, mm ² /sec	400	400
Dropping point, °C, or more	220	240
Worked penetration at 25 °C, 0.1 mm	310-340	265-295
Four-ball tribological properties:		
weld load, N, or more	4500	4500
wear scar diameter, mm, or less	0,5	0,5

FLEX Series greases

LUKOIL CARBOFLEX

Antifriction high-temperature grease used in heavily-loaded low-speed plain bearings, open and closed gears and plain ways exposed to extreme specific and shock loads in wide temperature range. Manufactured from the mixture of high VI mineral base oils thickened by lithium (OGL 1,5-400) or lithium complex soap. Advanced additive package delivers superior anti-oxidation and anti-corrosion performance. High content of solid lubricants ensures exceptional stability against shock loads, allowing for the reliable operation of the grease in the boundary friction mode.

ADVANTAGES:

- **Emergency operation mode.** Due to the high solids content, it can be used as a dry lubricant to ensure a short-term run of the friction unit.
- **High stability.** Due to lithium complex thickener, the grease has a high stability against thermal, structural and oxidative destruction.
- **Water wash-out resistance.** Excellent water resistance of the grease ensures the long-term operation of the mechanisms exposed to water ingress.



LUKOIL CARBOFLEX

PROPERTY

EP 0-75 OGL 1,5-400 EP 2-400

NLGI consistency	0	1,5	2
DIN 51502 designation	KPF0K-45	OGP1.5K-20	KPF2N-20
Color	From dark gray to black		
Type of soap	Li-complex	Li	Li-complex
Type of base oil	Mineral	Mineral	Mineral
Operating temperature range, °C	-45...+120	-20...+120	-20...+150
Kinematic viscosity of base oil at 40 °C, mm ² /sec	75	400	400
Dropping point, °C, or more	–	190	230
Worked penetration at 25 °C, 0.1 mm	355–385	300–330	265–295
Four-ball tribological properties:			
weld load, N, or more	5200	8000	6400
wear scar diameter, mm, or less	0,5	0,6	0,5

LUKOIL AQUAFLEX EP 180

Water-resistant, high-temperature, multi-purpose grease designed for operation at medium and high loads. Used in the most demanding rolling and sliding friction units of the industrial, construction and shipboard equipment, as well as various vehicles operating at high temperatures under high water and dust content conditions. The grease functions well even when eventually the additives wear out and conventional products seize to function. Water resistance and anti-corrosion performance of the grease make it suitable for steel and mining and processing plants, woodworking enterprises, ship-building yards and waterborne vehicles. Manufactured from the mixture of high-quality mineral oils thickened by calcium sulfonate with a high-performant additive package.

ADVANTAGES:

- **Corrosion protection.** Through the nature of the thickener, the grease provides excellent corrosion protection of the greased parts at frequent fresh and sea water contact and in acid environment.
- **Outstanding stability.** Innovative formula of the grease has a high stability against thermal, structural and oxidative destruction.
- **Wide operating temperature range.** Allows it to use the grease in various climate conditions.



Наименование показателя	LUKOIL AQUAFLEX EP		
	0-180	1-180	2-180
NLGI consistency	0	1	2
DIN 51502 designation	KP0P-30	KP1P-30	KP2P-30
Color	From light yellow to dark-brown		
Type of soap	Ca sulfonate	Ca sulfonate	Ca sulfonate
Type of base oil	Mineral	Mineral	Mineral
Operating temperature range, °C	-30...+160	-30...+170	-30...+170
Kinematic viscosity of base oil at 40 °C, mm ² /sec	180	180	180
Dropping point, °C, or more	–	300	300
Worked penetration at 25 °C, 0.1 mm	355–385	310–340	265–295
Four-ball tribological properties:			
weld load, N, or more	4136	4136	4136
wear scar diameter, mm, or less	0,5	0,5	0,5

FLEX Series greases

LUKOIL AQUAFLEX EP 180 HD

Antifriction high-temperature grease designed for use in high-load sliding friction units of various equipment operating in high humidity conditions, at shock and cyclic loads. Used to lubricate assemblies of industrial equipment, construction, drilling, mining and shipboard machinery and vehicles. Manufactured from the mixture of high-quality mineral base oils thickened by calcium sulfonate with solid lubricants and a high-performant additive package enhancing stability against shock and reversed loads.

ADVANTAGES:

- **Superior corrosion protection.** Through the nature of the thickener, the grease provides excellent corrosion protection of the greased parts at high humidity, in sea climates and in acid environment.
- **High load-carrying ability.** Due to solid lubricants, the grease has enhanced stability against boundary friction and shock loads, as well as high anti-wear and extreme-pressure characteristics.
- **Outstanding stability.** The grease has exceptional stability against destruction at high temperatures.



LUKOIL AQUAFLEX EP

PROPERTY	0-180 HD	1-180 HD	2-180 HD	3-180 HD
NLGI consistency	0	1	2	3
DIN 51502 designation	KPF0P-40	KPF1R-40	KPF2R-30	KPF3R-20
Color	From dark gray to black			
Type of soap	Ca sulfonate	Ca sulfonate	Ca sulfonate	Ca sulfonate
Type of base oil	Mineral	Mineral	Mineral	Mineral
Operating temperature range, °C	-40...+160	-40...+180	-30...+180	-20...+180
Kinematic viscosity of base oil at 40 °C, mm ² /sec	180	180	180	180
Dropping point, °C, or more	–	280	280	280
Worked penetration at 25 °C, 0.1 mm	355–385	310–340	265–295	220–250
Four-ball tribological properties:				
weld load, N, or more	6200	6200	6200	6200
wear scar diameter, mm, or less	0,5	0,5	0,5	0,5

LUKOIL AQUAFLEX EP 400

Water-resistant, high-temperature, antifriction grease designed for use in high-load low-speed sliding and rolling friction units of industrial, shipboard, construction, mining and drilling equipment and vehicles, operating at high temperatures and in water environment. Manufactured from the mixture of high-quality high-viscosity mineral base oils thickened by calcium sulfonate with high-performant additive package enhancing anti-oxidation, extreme-pressure and adhesion characteristics. Highly recommended for the equipment of steel plants, tube-rolling mills and pulp and paper plants.

ADVANTAGES:

- **Superior corrosion protection.** Through the nature of the thickener, the grease provides excellent corrosion protection of the greased parts in the humid sea climate and in acid environment.
- **High stability.** Due to the innovative formulation, the grease has exceptional stability against thermal, structural and oxidative destruction at high temperatures.
- **High load-carrying ability.** High-viscosity base oil provides a better lubrication at high loads and vibrations.



PROPERTY	LUKOIL AQUAFLEX EP	
	1-400	2-400
NLGI consistency	1	2
DIN 51502 designation	KP1R-30	KP2R-30
Color	Light brown	Light brown
Type of soap	Ca sulfonate	Ca sulfonate
Type of base oil	Mineral	Mineral
Operating temperature range, °C	-30...+180	-30...+180
Kinematic viscosity of base oil at 40 °C, mm ² /sec	400	400
Dropping point, °C, or more	300	300
Worked penetration at 25 °C, 0.1 mm	310- 340	265-295
Four-ball tribological properties:		
Weld load, N, or more	5200	5200
Wear scar diameter, mm, or less	0,5	0,5

Multi purpose greases

Grease Litol-24

Designed for use in all types of rolling and plain bearings, gears and other types of transmissions, friction units of vehicles, industrial equipment, shipboard machinery and electrical machines operating at temperatures from minus 40 °C to plus 120 °C with short-term overheating up to 130 °C. It is possible to use the grease for rust-preventive treatment of the abovementioned units.

Grease LUKOIL FIOL-1

Used in vehicles to lubricate bearings of wheels, chassis, gears of industrial machines and mechanisms, transmissions of machines, conveyors, water pumps and chain gears, as well as centralized lubrication systems. The operating temperature ranges from minus 40 °C to plus 120 °C.

Grease TSIATIM-201

Designed for rolling and sliding friction units operating at low shear force under conditions of low loads and low temperatures. The operating temperature ranges from minus 60 °C to plus 90 °C.

Grease TSIATIM-203

Recommended for lubrication of tooth and worm gears of gearboxes, sliding supports and rolling bearings, as well as various power drives, screw pairs, loaded gearboxes operating at open platforms in the Arctic areas and friction units of cars. The operating temperature ranges from minus 50 °C to plus 90 °C.

PROPERTY	Litol-24	LUKOIL FIOL-1	TSIATIM-201	TSIATIM-203
NLGI consistency	3	1	2	2
Color	From dark yellow to brown	From light brown to dark brown	From light yellow to light brown	Dark brown or green brown
Type of soap	Li	Li	Li	Li
Dropping point, °C, or more	185	185	175	160
Worked penetration at 25 °C, 0.1 mm	220–250	310–340	265–310	250–300
Operating temperature range, °C	–40...+120	–40...+120	–60...+90	–50...+90
Four-ball tribological properties:				
load wear index, or more	28	–	–	–
weld load, N, or more	1410	–	–	–
critical load, N, or more	630	–	–	–

Fatty cup grease

Used for lubrication of sliding and rolling friction bearings of various assemblies in industrial, automotive, construction, agricultural and other equipment. When used in rather powerful mechanisms (bearings, joints, blocks etc.), the grease is efficient at temperatures down to minus 50 °C. Provides good corrosion protection of metal surfaces.

GreaseLUKOIL 1-13

Recommended for use in various rolling bearings and, more rarely, in sliding bearings, electrical engine bearings, wheel hubs of vintage cars etc., operating at temperatures ranging from minus 20 °C to plus 110 °C. It can operate at temperatures as low as minus 40 °C in rather powerful mechanisms.

Graphite grease

Used to lubricate sliding friction units of heavy-loaded low-speed mechanisms (lifting jacks, springs, tractor and car suspensions, open gears, threaded connections etc.) operating at temperatures from minus 20 °C to plus 60 °C.

PROPERTY	Fatty cup grease	LUKOIL 1-13	Graphite grease
NLGI consistency	2–3	3–4	3
Color	From light yellow to dark brown	From light brown to brown	From dark brown to black
Type of soap	Ca	Na-Ca	Ca
Dropping point, °C, or more	78	120	77
Worked penetration at 25 °C, 0.1 mm	230–290	180–250	250 or more
Operating temperature range, °C	–25...+65	–20...+110	–20...+60

Industrial greases

Grease LUKOIL IP-1



Designed to lubricate loaded mechanisms, rolling mill bearings and other friction units in metallurgical equipment using centralized lubrication system.

LUKOIL IP-1L is a summer grade used at temperatures from 0 °C to plus 70 °C;

LUKOIL IP-1Z is a winter grade used at temperatures from minus 10 °C to plus 70 °C.

Grease LUKOIL LS-1P



Designed to lubricate medium- and high-load friction units of industrial equipment, as well as heavy-loaded friction units of foundry, press-forging and other equipment with centralized lubrication systems. The operating temperature ranges from minus 40 °C to plus 130 °C.

PROPERTY	LUKOIL IP-1L	LUKOIL IP-1Z	LUKOIL LS-1P
NLGI consistency	1–2	1	1
Color	From light brown to dark brown	From light brown to dark brown	Brown
Type of soap	Ca	Ca	Li
Dropping point, °C, or more	85	80	185
Worked penetration at 25 °C, 0.1 mm	280–310	310–360	310–340
Operation temperature range, °C	0...+70	–10...+70	–40...+130
Four-ball tribological properties:			
weld load, N, or more	–	–	2195
critical load, N, or more	–	–	980
load wear index, or more	–	–	372
Colloid stability, % of separated oil, or less	–	–	25

Grease LUKOIL UNIOL-2M



Used to lubricate friction units of metallurgical, agglomeration, mining and other equipment performing rotational and linear motions, operating under high specific and shock loads, and subjected to high temperature and water.

LUKOIL UNIOL-2M/1 is used to lubricate mechanisms operating at high specific loads. The operating temperature ranges from minus 30 °C to plus 180 °C.

LUKOIL UNIOL-2M/2 is used in centralized lubrication systems. The operating temperature ranges from minus 30 °C to plus 170 °C.

Grease LUKOIL LKS-METALLURGICAL



Designed to lubricate high-speed heavy-loaded rolling bearings of metal-cutting machines, including centralized grease lubrication systems of metallurgical equipment.

LUKOIL LKS-METALLURGICAL grade 1

Can operate within the friction unit temperature range from minus 30 °C to plus 150 °C, with short-time overheating up to plus 170 °C.

LUKOIL LKS-METALLURGICAL, grade 2

Can operate within the friction unit temperature range from minus 30 °C to plus 150 °C, with short-time overheating up to plus 180 °C. Contains graphite.

PROPERTY	LUKOIL UNIOL-2M/1	LUKOIL UNIOL-2M/2	LUKOIL LKS-METALLURGICAL	
			grade 1	grade 2
NLGI consistency	2	0	2	2
Color	From light brown to dark brown	From light brown to dark brown	Brown	From dark gray to black
Type of soap	Ca-complex	Ca-complex	Li-complex	Li-complex
Dropping point, °C, or more	240	230	230	230
Worked penetration at 25 °C, 0.1 mm	280–330	330–380	250–320	250–320
Four-ball tribological properties:				
weld load, N, or more	2323	2323	2760	2930
critical load, N, or more	980	980	784	823
load wear index, or more	392	392	392	400
Colloid stability, % of separated oil, or less	9	12	15	15

Automotive greases

Grease LUKOIL SHRUS-4

Recommended for use in constant-velocity joints of the cars, as well as in different highly-loaded friction units of vehicles, machines and mechanisms. The operating temperature ranges from minus 40 °C to plus 120 °C.

Grease LUKOIL No.158

Used for lubricating closed rolling bearings of electrical equipment of vehicles and cars, needle bearings of universal-joint cross, windshield cleaning devices of passenger cars and trucks, harvesters, tractors and other vehicles. The operating temperature ranges from minus 40 °C to plus 120 °C.

PROPERTY	LUKOIL SHRUS-4	LUKOIL No.158
NLGI consistency	2	1–2
Color	From dark gray to black	From blue to dark blue
Type of soap	Li	K-Li
Dropping point, °C, or more	190	150
Worked penetration at 25 °C, 0.1 mm	250–280	265–320
Operating temperature range, °C	–40...+120	–40...+120
Four-ball tribological properties:		
weld load, N (kgf), or more	4900 (500)	—
critical load, N (kgf), or more	1098 (112)	—
load wear index, or more	559 (57)	—



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