



## KINEMATICGP52 Long Life

### kinematicGP52 dosage chart for engines and gearbox

The amount of oil in the engine and gearbox in litres	The amount of preparation GP52 in ml for the engine up to 50 thousand mileage.	The amount of oil in the gearbox in litres	The amount of preparation GP52 in ml for the gearbox up to 50 thousand mileage.
1-4 l	10ml	1-2 l	10ml
5-10 l	20 ml	3-5 l	20 ml
11-20 l	30ml	6-10 l	30 ml
21-30 l	40 ml	11-15 l	40ml

### KinematicGP52 dosage chart for hydraulic systems and transmissions

The amount of oil in the system	The amount of preparation for the hydraulic system, power steering and transmissions in milliliters
1-2 l.	5 ml
3-5 l	10 ml
6-10 l.	15 ml
11-20 l	25 ml
21-30 l	30 ml

### kinematicGP52 dosage chart for engines and gearbox

The amount of oil in the engine and gearbox in litres	The amount of preparation GP52 in ml for the engine up to 100 thousand mileage.	The amount of oil in the gearbox in litres	The amount of preparation GP52 in ml for the gearbox up to 100 thousand mileage.
1-4 l	15-20 ml	1-2 l	10-20 ml
5-10 l	25-30 ml	3-5 l	25-35 ml
11-20 l	35-40 ml	6-10 l	35-45 ml
21-30 l	45-50 ml	11-15 l	45-55 ml

## kinematicGP52 dosage chart for engines and gearbox

The amount of oil in the engine and gearbox in litres	The amount of preparation GP52 in ml for the engine up to 200 thousand mileage.	The amount of oil in the gearbox in litres	The amount of preparation GP52 in ml for the gearbox up to 200 thousand mileage.
1-4 l	20-25 ml	1-2 l	20-30 ml
5-10 l	30-35 ml	3-5 l	30-40 ml
11-20 l	40-45 ml	6-10 l	40-50 ml
21-30 l	50-55 ml	11-15 l	50-60 ml

MOLECULAR METAL-CERAMIC REGENERATOR FOR VEHICLES AND MECHANISMS USED IN ANY OIL CREATES A SELF-REGENERATING PROTECTIVE (COMPOSITE) METAL-CERAMIC LAYER ON MATING SURFACES.

Intended for motor cars, sports competitive cars, tuned cars, off-road vehicles, delivery trucks, heavy machines with hydraulic systems, such as diggers, loaders, elevators, stationary machines etc., as well as other mechanisms which work in extremely difficult conditions.

Applies the "NO-WEAR" effect in four-stroke combustion engines, gearboxes and other mechanisms. KinematicGP composite on the basis of the result of research and report no BT3.229 (plus annexes to report BT1.226, PZL-Mielec no 381/SW, PZL-Hydral no 1633). Received a certificate of approval from the Institute of Aviation. Has a Safety Assessment document, a certificate of approval from the Institute of Occupational Medicine – is produced in the cooperation with Czechowice Refinery. Meets the requirements of ÖNORM Z 1008. Is safe according to EU norm (91/155/EEC).

### HOW IT WORKS

The unique and innovative technology used in KINEMATICGP is intended for regeneration, protection and decrease of friction forces in mechanisms where such forces occur. KINEMATICGP can be mixed with all types of grease and oil because it does not come into any chemical reactions with them. It does not cause rheological changes of lubricants and acts as a refiner (and regenerator of metal surfaces).

Regeneration with KINEMATICGP52 Long Life consists in the restoration of nominal sizes and proper geometry of mating surfaces in mechanisms, where friction occurs through building up of a ceramic-metal layer which protects the surfaces of wearing details.

The regeneration is carried out without the disassembly of equipment during its normal operation. The thermodynamic processes which take place on wearing surfaces cause the building up of a metal-ceramic layer everywhere and especially in worn out places. The building up gradually stabilizes, together with the decrease of friction coefficient. The process of building up optimizes the slits of wearing details and after reaching nominal values it automatically stops, perfectly

reconstructing the surfaces. This means that in places which are more worn out or have cracks; a thicker layer is rebuilt than in less worn out places, which results in the reconstruction of the (desired) geometry of wearing details.

As a result of the diffusion of KinematicGP52 Long Life into a metal surface the structure of crystal lattice of the metal improves and a unique top layer is created (a permanent inseparable protective ceramic-metal layer appears). The process of creating the layer is called metal-ceramization. This layer fills, covers and evens up microdefects and deformations of surfaces subject to friction. As a result of high temperature in places of local friction the KinematicGP52 Long Life particles “integrate”. The melted particles are characterised by a high level of adhesion to metal and carry the metal particles to worn out places with the highest temperature caused by friction, and diffuse there. In these places the combined metal particles and GP molecules (diffusing) rebuild the surfaces creating a ceramic-metal layer. KINEMATICGP52 Long Life should be primarily used for renovation and preventively for the protection of mechanisms against the consequences of friction, significantly extending their life-span and failure-free operation time. The durability of a newly-created top layer is much bigger and does not have any known equivalents as far as thermal conductivity and grindability are concerned. KINEMATICGP nanotechnology is materials engineering at a molecular level.

Basic parameters of a ceramic-metal layer which is created after treatment

- Kinematic friction coefficient: 0.015 – i.e. 10 times lower than in case of equipment greased only with oil or lubricant. (The friction coefficient of the friction pair steel to steel in oil is 0.15).
- Microhardness – 4000-4500 MPa (400 – 450 kg/mm<sup>2</sup>) (for comparison: microhardness of steel is on average 600 MPa (60 kg/mm<sup>2</sup>)).
- Resistance to compression: 2500 MPa (250 kg/mm<sup>2</sup>).
- High resistance of a treated surface to corrosion caused by aggressive chemical substances.

## OPERATING BENEFITS OF KINEMATICGP52 Long Life TECHNOLOGY

Repair, regeneration and reconstruction of the geometry of details during the operation through the creation of a metal-ceramic layer which fills, covers, and evens up the scratches, defects and grooves.

1. One does not have to disassembly or turn off a mechanism to repair it and protect it against friction.
2. In case of a complete (emergency) oil leak from the gearbox or a rear axle reducer – possibility to temporarily continue driving without damage to mechanisms. This significantly increases the safety and reliability of mechanisms, which is really important in extreme operating conditions.
3. Lowering of the friction coefficient caused by a metal-ceramic layer created in the process, thus the increase of efficiency of mechanisms – engine power.
4. Protects against the results of unwanted friction and lowers the friction coefficient (to a value below 0.02), in this way decreases the heat between metal parts rubbing against each other.
5. The technology stops pitting and protects against it.
6. Reduces vibrations and noise.
7. Increases and equalizes the pressure to nominal values.
8. Hardens and increases the resistance of mating surfaces to wear.
9. Extends the durability of mechanisms even up to 10 times.
10. Makes it possible to extend the mileage between oil changes, lowers oil consumption
11. In case of insufficient greasing (e.g. because of oil leak) the created layer enables the device to continue to work for some time without damage.
12. KinematicGP52 Long Life does not change the parameters of oil or lubricant. Oil or lubricant is just its carrier.

13. Protects sub-assemblies against corrosion and aggressive chemical substances (important in case of using low quality oils).
14. Lowers the costs of repairs from 5 to 20 times in comparison to a traditional one.
15. Measurably lowers the costs of future repairs.
16. The effect of reconstruction of surfaces is maintained also after subsequent oil changes (at least for 65,000 miles).
17. The technology is universal and easy to use. The safety of operation of a vehicle or device is increased with low costs and little effort.
18. KinematicGP52 Long Life preparations don't need additional equipment during treatment. The product does not need servicing.
19. The preparations can be used in any equipment (including industrial).
20. KinematicGP52 Long Life doesn't cause any side effects.

## ENGINES – GENERAL PRINCIPLES OF USE

1. The highest efficiency in using KinematicGP52 Long Life is obtained if the following instructions are strictly followed.
2. During the entire process of metal-ceramization (1.3 thousand miles or 250 motohours) don't change the oil. Oil should be changed on the appointed date.
3. KinematicGP52 Long Life can be mixed with all types of oil and used in all types of combustion engines (petrol engines, gas-powered engines, Diesel engines, engines with turbocharge, with an exhaust catalyst, with a lambda probe).
4. A lowered dose of kinematicGP52 Long Life will not yield expected results of treatment.
5. A bigger than necessary (e.g. 2 x greater) dose of kinematicGP52 Long Life does not cause any side effects, only the time of treatment is longer.
6. The amount of the preparation necessary for metal-ceramization for the surfaces of mating pairs is specified in the table below: If there is more than 30 l of oil in the hydraulic system or engine, please contact our firm in order to determine the amount of the preparation. One dose of "KinematicGP52 Long Life" contains 10 ml of preparation which is easily soluble in oil.

We recommend (if possible, before and after treatment) to make basic diagnostic measurements of the engine in order to confirm the effectiveness of kinematicGP52 Long Life. Basic measurements include:

1. Measurement of compression pressure in each cylinder in the engine.
2. Measurement of oil pressure.
3. Measurement of fuel and oil consumption.
4. Analysis of exhaust fumes.

## SEQUENCE OF OPERATION DURING ENGINE TREATMENT

1. Warm the engine up to working temperature (e.g. after driving or at least after 10 minutes of engine idle running).
2. Stop the engine.
3. Open the oil filler plug, unlock the feeder and press out the appropriate amount of the preparation to the oil filler.
4. Close the oil filler plug.
5. Start the engine and leave it idle running for 0.5 hour.
6. Gently (just like with breaking-in) cover the distance of 30 miles (not necessarily at one time), with rotational speed limited to 2700 rev./min. or in case of no revolution counter with car speed limited to 65 miles/h. Attention: 30 miles of mileage can be replaced with half an hour of engine idle running. One hour of idle running is equal to 40 miles drive.

7. For engines whose operation is expressed in motohours (mth) the engine should be operated (just like with breaking-in) for 2.5 mth (not necessarily at one time), with rotational speed limited to 2700 rev./min.

8. After covering the distance of 30 miles or after 0.5 hour of idle running one can drive without limited speed but gently until the full result of engine treatment is obtained i.e. to 1300 miles. Don't change the oil during that time!

For engines whose operation is expressed in motohours (mth) the engine can be operated without limitations after operating for 2.5 mth. However, gentle treatment of the engine is recommended until it operates 250 mth in total, i.e. until the end of the metal-ceramization process.

#### Notes:

In case of mechanical damage to the engine (e.g. broken or stuck piston ring, leaky valves, deep scratches on the cylinder bearing surface etc.) the damages should be repaired and then KinematicGP52 Long Life should be applied.

The preparation does not regenerate the places where there is friction of rubber or plastics against metal.

In case of older cars without automatic regulation, after the treatment, i.e. after 1300 mileage one should adjust the ignition (in petrol engine) or injection moment (in diesel engine), regulate the valves, idle running.

In case centrifugal oil filters are used (in high-power diesel engines of trucks, buses etc.) the filter should be thoroughly cleaned properly before the treatment. This is necessary because of a great loss of the preparation.

It does not block oil passages or filters, does not contain Teflon and molybdenum.

## RECOMMENDATIONS FOR USE

1. The highest effectiveness of KinematicGP52 Long Life is obtained when the recommendations and instructions are closely followed.
2. The technology is used to regenerate worn out mechanisms and protect the new and not damaged ones.
3. Oil should not be changed during the entire treatment process.
4. The preparation can be mixed with any type of gear oil and used in all types of transmissions and reducers.
5. A lower than necessary dose of KinematicGP52 Long Life will not yield expected results of treatment.
6. A bigger than necessary (e.g. 2 x greater) dose does not cause any side effects.
7. In case the mechanisms are significantly worn, and especially if there is no improvement of the operation of mechanisms during treatment after 100-300 miles, the dose should be doubled.
8. In case there were earlier additions to oil used (with molybdenum or Teflon) it is recommended to change the oil and wash the mechanism before using KinematicGP52 Long Life technology. Otherwise the effectiveness of metal-ceramic treatment will be decreased and the time of treatment will be longer. Note: this does not apply to KinematicGP additions.
9. A characteristic symptom of the beginning of regeneration is a reduction of noise and engine temperature as early as after several dozen kilometres. If there is no reduction of the level of noise and no smooth operation, this can mean that the engine is significantly worn.
10. If there is no improvement in the operation of the mechanism after 100 – 300 miles, this can mean that the wear was wrongly assessed. It is recommended to use a double dose of KinematicGP52 Long Life.

## TRANSMISSIONS - INSTRUCTION

KINEMATICGP52 Long Life regenerates and protects against the effects of friction creating a self-regenerating metal-ceramic top layer on the surfaces of gear wheels and bearings. It is recommended for all types of drives, both front, rear, and 4WD.

- Manual gearboxes
- Transmissions
- Reducers
- Driving axles
- Hydraulic systems
- Support systems ( except systems with a so-called viscose clutch)

For automatic gearboxes it is recommended to use on average 1ml of the preparation per 1 litre of oil in the mechanism.

“KINEMATICGP52 Long Life” feeders contain 10 ml of the concentrate.

## INSTRUCTION OF TREATMENT FOR GEARBOXES, REDUCERS AND DRIVING AXLES

1. Warm the oil up in the gearbox, axle, reducer, it is best to drive for several kilometres ( or apply after driving ).
2. Stop the engine, open the oil filler plug of the gearbox or rear driving axle, press out the entire content of the feeder or all feeders (see table) to the oil filler hole, close the oil filler plug.
3. Cover at one time the distance of 5 miles with speed up to 65 miles/h and 100 – 300 yards in reverse gear.
4. The full result of the treatment of mechanisms is obtained after about 1300 miles or after 50 hours of operation of the mechanism. Don't change the oil during that time. The doses for industrial transmissions are determined as follows: on average 15 ml of the preparation per 1000 cm<sup>2</sup> of surfaces taking part in the process.

After oil change and any other change we recommend to use 5 ml of KINEMATICGP52 Eco – for engine and transmission in order to maintain excellent working conditions for mechanisms (selective transport, a very low friction coefficient)

It is recommended to use it together with KINEMATICGP2 as a catalyst of fuels and regenerator of the feed system and injection system.

KINEMATICGP2 significantly improves the process of engine fuel combustion through initiating the phenomenon of catalytic hydrocarbon chain splitting and oxidation. cleans and greases the fuel system. It makes motor operation smoother, increases its power and efficiency, lowers the toxicity of exhaust fumes, lowers fuel consumption, makes starting the engine easier. It should be used after every 5 thousand miles. Preventively or constantly in order to lower fuel consumption, and to protect the fuel systems. ( 5ml per 30 - 80 litres of fuel)