



GRESON
PREMIUM GREASES

BELGIN



BELGIN provides over 1000 different types of specific industrial lubricants, motor oils and specialties under 32 main groups for the domestic and foreign production industries.

BELGIN also produces the high performance GRESON greases in its modern plant which operates under SGS ISO 9001 – TSE ISO 9001 quality system certificate and laboratory certificate in the scope of TS EN ISO/IEC 17025 standard. This plant boasts a production with state-of-the-art technology as well as fully automated, computer controlled operations, founded on 7800 m² closed area within 25000 m² open area at the Gebze Organized Industrial Site.

GRESON greases are produced under 8 main groups as calcium, sodium, lithium, lithium complex, calcium complex, bentonite, polyurea and silica greases, at different consistencies and performance levels, to meet the entire requirements of the industry.

GRESON greases, that are produced at the world standards, are used with unparallel success in different industrial sectors.



GRESON

PREMIUM GREASES

GENERAL INFORMATION

Greases are lubricants, at different penetration levels from solid to semi-solid, which are formed by the dispersion of a liquid lubricant in a thickener.

The following properties are expected from greases depending to usage area.

Minimization of friction and wear&tear by forming a protective lubricant film with required thickness

Prevention of rust and corrosion

Prevention of dirt, water and undesired materials entering the system

Resistance to water

Enabling of carrying load (EP properties)

Preserving the property of pumpability at a wide temperature range

Prevent any harm to the sealants in the system

Extension of service life

Greases are produced by blending different mineral and synthetic oils and reacting with thickeners, in order to meet the above mentioned requirements. However, certain requirements may only be improved with addition of additives.

General classification of grease additives:

- Antiwear and EP additives
- Antioxidant additives
- Rust and corrosion preventative additives
- Polymers
- Solid lubricants



CLASSIFICATION OF GREASES

Greases can be classified according to thickener types and consistency degrees.

CLASSIFICATION ACCORDING TO THICKENER TYPES

Thickeners can be summarized under two main groups as soap and non-soap thickener. Thickeners play an important role in grease performance.

Greases with different type of thickeners must not be mixed. Please consult with Belgin Technical Support for further information about miscibility of various greases with different thickener types.

SOAP THICKENERS

- Sodium or Barium
- Lithium or Lithium Complex
- Calcium or Calcium Complex
- Aluminum or Aluminum Complex

NON-SOAP THICKENERS

- Bentonite
- Polyurea
- Silica

CLASSIFICATION ACCORDING TO CONSISTENCY DEGREES (PENETRATION)

Penetration is a parameter that assigns a consistency degree to greases. Penetration is determined at constant temperature, namely 25°C, because consistency of grease changes with temperature. Generally in winter time NLGI 2 grade greases and in summer time NLGI 3 grade greases are recommended.

NLGI NO	WORKED PENETRATION	APPEARANCE
000	445-475	Semi-fluid
00	400-430	Semi-fluid
0	355-385	Semi-fluid
1	310-340	Very Soft
2	265-295	Soft
3	220-250	Low consistency
4	175-205	Consistency
5	130-160	High Consistency
6	85-115	Block Grease

COMPARATIVE GREASE TABLE

SOAP TYPE	MECHANICAL STABILITY	PUMPABILITY AT LOW TEMPERATURE	HEAT RESISTANCE	HIGH TEMPERATURE LIFE	WATER RESISTANCE
CALCIUM	★★★	★★	★★	★	★★★★★
SODIUM	★★	★	★★★★★	★★	★
BARIUM	★★★	★	★★★★★	★★	★★★★★
LITHIUM	★★★★★	★★★★★	★★★★★	★★★	★★★★★
LITHIUM COMPLEX	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CALCIUM COMPLEX	★★★	★★	★★★	★★	★★★★★
ALUMINUM COMPLEX	★★★★★	★★★	★★★★★	★★	★★★★★
NON-SOAP (BENTONITE)	★★★	★★★★★	★★★★★	★★★	★★★
POLYUREA	★★★	★★★	★★★★★	★★★★★	★★★★★

GREASE PERFORMANCE TESTS



PENETRATION TEST (ASTM D 217)

This test determines a consistency degree to grease at 25°C.

DROPPING POINT TEST (ASTM D 566)

This test determines working temperature of grease in relation with dropping point. It changes according to thickener types.



FOUR-BALL WELD POINT TEST (ASTM D 2596)

This test determines shock load carrying capacity of grease.



WATER WASHOUT TEST (ASTM D 1264)

This test determines water resistance of grease in a bearing.



FOUR-BALL WEAR DIAMETER TEST (ASTM D 2266)

This test determines wear prevention characteristic of greases.



GREASE PERFORMANCE TESTS



WATER SPRAY TEST (ASTM D 4049)

This test determines resistance of lubricating grease to direct water spray.

LEAKAGE TENDENCIES OF AUTOMOTIVE WHEEL BEARING GREASES (ASTM D 1263)

This test determines leakage tendency of grease in automotive application.



ROLL STABILITY (ASTM D 1831)

This test determines changes in consistency of grease after working in roll stability tester under load.



OIL SEPARATION (ASTM D 1742)

This test determines oil separation percentage of grease. Oil separation up to %3 is an expected property in greases.

CORROSION RESISTANCE (ASTM D 1743)

This test determines corrosion protection of grease.

EMCOR CORROSION TEST (IP 220)

This test determines resistance to salt water corrosion of grease.

OXIDATION STABILITY (ASTM D 942)

This test determines resistance to oxidation of grease.

LOAD WEAR INDEX (ASTM D 2596)

This test determines load carrying capability of grease across wide range of loads.

GREASES

GRESON KAP GREASE

It is calcium soap based, red colored grease, which is used in low load and ambient temperature. This grease provides excellent protection against rust and corrosion and resists water washout, which makes them particularly suitable for equipment where moist or wet conditions are common.

GRESON CG SERIES

It is calcium soap based, black colored grease containing graphite, which is used in ambient temperature and medium load. This grease provides excellent protection against rust and corrosion and resists water wash-out which makes them particularly suitable for equipment where moist or wet conditions are common.

GRESON SD SERIES

Greson SD Series are sodium soap based adhesive type bearing greases. These greases provide excellent protection against oxidation, rust and corrosion. GRESON SD 2 and 3 are suitable for electrical motors, conveyor systems and bearing that are not in contact with water. GRESON SD 00 and 000 may be used in gearboxes, fast gear cases of tractors instead of gear oils. The recommended operating temperature range is from -15°C to 120°C.

GRESON LIT SERIES

Greson LIT Series are lithium soap based multipurpose, long-life greases. These greases provide excellent protection against water, oxidation, rust and corrosion. They are used in medium loading bearings, vertical shaft applications, electrical motors and also in automotive applications. The recommended operating temperature range is from -20°C to 130°C.

GRESON LIT EP SERIES

Greases LIT EP Series are lithium soap greases blended with mineral oils and enriched with extreme pressure additives. They are long-life multipurpose industrial greases, that are resistant to water, corrosion, rust and oxidation. They are used in high loading bearings, vertical shaft applications, electrical motors and also in automotive applications. The recommended operating temperature range is from -20°C to 130°C.

GRESON LIT G SERIES

Greson LITG Series are lithium soap based, black colored, multipurpose, greases containing graphite. These greases provide excellent protection against water, oxidation, rust and corrosion. They are used in medium loading bearings, vertical shaft applications, electrical motors and also in automotive applications for operating temperatures between -20°C and 130°C.

GRESON LIT -M SERIES

Greases LIT-M Series are lithium soap based gray-black colored, multipurpose greases. These greases provide excellent protection against water, oxidation, rust and corrosion. The lubricity and film forming effect is improved with solid lubricants like molybdenum disulfide and additionally EP additives. They are used in bearings, vertical shaft applications, electrical motors and also in automotive applications under extreme conditions. The recommended operating temperature range is from -20°C to 130°C.



GREASES

GRESON LK SERIES

Greson LK Series are lithium complex soap based, high performance long-life greases containing EP additives. These greases provide excellent protection against water, oxidation, rust and corrosion and they are superior to calcium based and lithium based greases, because of its excellent mechanical stability and high temperature endurance. They are specially used in automotive sector, instead of lithium and calcium greases in axel bearings of automotives. The recommended operating temperature range is from -20°C to 180°C.

GRESON LKG SERIES

Greson LKG Series are lithium complex soap based, black colored, high performance long-life greases containing graphite and EP additives. These greases provide excellent protection against water, oxidation, rust and corrosion and they are superior to calcium based and lithium based greases, because of its excellent mechanical stability and high temperature endurance. They are specially used in automotive sector, instead of lithium and calcium greases in axel bearings of automotives. The recommended operating temperature range is from -20 °C to 180 °C.

GRESON LKM SERIES

Greson LKM Series are lithium complex soap based, black colored, high performance long-life greases containing molybdenum disulfide and EP additives. These greases provide excellent protection against water, oxidation, rust and corrosion and they are superior to calcium based and lithium based greases, because of its excellent mechanical stability and high temperature endurance. They are especially used in automotive sector, instead of lithium and calcium greases in axel bearings of automotives. The recommended operating temperature range is from -20°C to 180°C.

GRESON POLY SERIES

Greson POLY Series are polyurea thickener based, high performance greases with long service life. They have very good water resistant characteristic and can work at high temperature. They have high performance under heavy duty conditions due to the EP additives. They provide excellent oxidation stability due to non-soap thickener. They are used with success in iron-steel industry and automotive industry for operating temperatures between -20°C and 190°C.

GRESON P SERIES

Greson P Series, are high performance greases with long service life which are resistant to high temperature, water, oxidation, rust and corrosion. They do not contain soap and so they have no dropping point. They are used with success in high temperature and high load applications like cement industry, bearings and chains of the oven conveyors etc. The recommended operating temperature range is from -10°C to 200°C.

GRESON PG SERIES

Greson PG Series are high performance greases with long service life which contain graphite additives. They are resistant to high temperature, water, oxidation, rust and corrosion. They are used with success in high temperature and high load applications as cement industry, bearing and chain of the oven conveyors. The recommended operating temperature range is from -10°C to 200°C.

GRESON PM SERIES

Greson PM Series, are high performance greases with long service life which contain molybdenum disulfide additives. They are resistant to high temperature, water, oxidation, rust and corrosion. They do not contain soap and so they have no dropping point. They are used with success in high temperature and high load applications as cement industry, bearing and chain of the oven conveyors. The recommended operating temperature range is from -10°C to 200°C.

GRESON GEP 72

Greson GEP 72, is a special new technology grease based on lithium-calcium complex thickeners. It contains antioxidants and anticorrosion additives. It has excellent antiwear and Extreme Pressure properties due to the bismuth additive technology and can carry heavy loads under difficult conditions. It is water-resistant because of its thickener structure, can maintain its structure and has adhesion even at severe water flush. The recommended operating temperature range is from -20°C to 200°C.

GRESON FD 2

It is white colored food-grade grease, developed especially for food processing industries. Greson FD-2, due to its additives contained, can continue lubrication under difficult conditions. It is not affected through water, alkaline or acidic liquids like fruit juice, hot steam or salty water. It does not irritate the skin and meets the FDA SS 178-3570 and FDA SS 178-3620 norms. It can be also used in ship and textile industries. The recommended operating temperature range is from -35°C to 150°C.

TRANSPORTATION AND STORAGE OF LUBRICANTS

All Belgin products are carefully packed in fully automated facilities equipped with the state of the art technology which closely follows the latest scientific advances and the world standards, before they are shipped. However, the whole range of these lubricants produced with exacting attention, has their own respective handling and storage methods and requirements.

All products must be used on the basis of "first in, first out" (FIFO) principle.

A) UNLOADING OF PRODUCTS FROM VEHICLES

Drums of a weight varying between 175 kgs and 250 kgs require optimum care while unloading. Drums shoved and thrown about incur the risk of being cracked or pierced, thus giving rise to waste of material and causing accidents. Use of a forklift is indispensable for loading and unloading. Should a forklift be not available, please use a wooden or metal plate as a loading platform. Metal wheelbarrows must be used to take the drums to the storage area.

B) STORAGE

Open Air Storage Of Products

Although they are weatherproofed, care should be taken not to store lubricant drums and cans in open areas unless there is no other choice.

The following risks may be incurred:

- Inclement weather conditions (heavy rainfall, excessive temperature variations) may transform the physical properties of certain lubricants rendering them unusable.
- Vertical storage of drums may allow penetration of water through stoppers, rusting inner walls and consequently leading to the formation of rust particles, turbidity and destabilization.
- Long exposure of drums may cause rust and delete the letters and signs marked on them which will eventually call for lab analysis for identification.

What To Do?

Drums to be stored in open air must have horizontal position taking care that stoppers point to 3 or 9. It will be advisable to cover them with a nylon covering to protect their surface against corrosion. Before using lubricants they must be brought up to room temperature.

Storage In Covered Areas

- It is ideal recommended storage method.
- Lubricant drums and cans may be stored either on pallets on the floor or on heavy load steel carrying units.
- Or they may be stored horizontally on heavy load carrying racks.

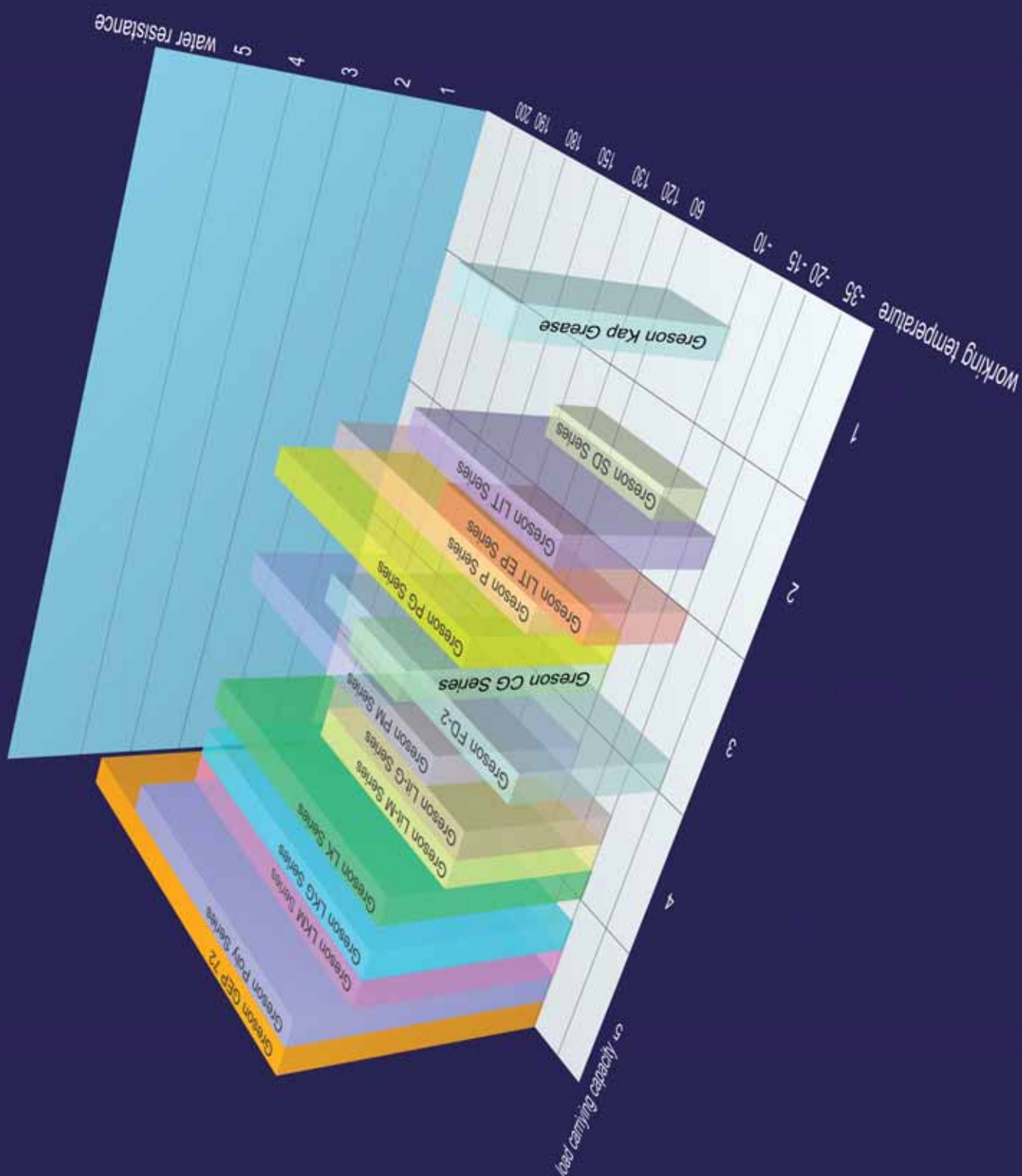




TABLE OF BELGIN'S GREASES

Product Name	Thickener Type	NLGI	Dropping Point (OC)	Working Temperature	*Load Carrying Capacity	*Water Resistance
Greson Kap Grease	Calcium	3	100 °C	-10 °C - +60 °C	1	4
Greson CG Series	Calcium	2	100 °C	-10 °C - +60 °C	3	4
Greson SD 2	Sodium	2	180 °C	-15 °C - +120 °C	2	1
Greson SD 3	Sodium	3	180 °C	-15 °C - +120 °C	2	1
Greson Lit-00	Lithium	00	110 °C	-20 °C - +70 °C	2	2
Greson Lit-1	Lithium	1	180 °C	-20 °C - +130 °C	2	3
Greson Lit-2	Lithium	2	190 °C	-20 °C - +130 °C	2	3
Greson Lit-3	Lithium	3	195 °C	-20 °C - +130 °C	2	3
Greson Lit EP-00	Lithium	00	110 °C	-20 °C - +70 °C	3	2
Greson Lit EP-1	Lithium	1	180 °C	-20 °C - +130 °C	3	3
Greson Lit EP-2	Lithium	2	190 °C	-20 °C - +130 °C	3	3
Greson Lit EP-3	Lithium	3	195 °C	-20 °C - +130 °C	3	3
Greson Lit G-2	Lithium	2	190 °C	-20 °C - +130 °C	4	3
Greson Lit G-3	Lithium	3	195 °C	-20 °C - +130 °C	4	3
Greson Lit M-2	Lithium	2	190 °C	-20 °C - +130 °C	5	3
Greson Lit M-3	Lithium	3	195 °C	-20 °C - +130 °C	5	3
Greson LK-2	Lithium Complex	2	250 °C	-20 °C - +180 °C	4	4
Greson LK-3	Lithium Complex	3	250 °C	-20 °C - +180 °C	4	4
Greson LKG-2	Lithium Complex	2	250 °C	-20 °C - +180 °C	5	4
Greson LKG-3	Lithium Complex	3	250 °C	-20 °C - +180 °C	5	4
Greson LKM-2	Lithium Complex	2	250 °C	-20 °C - +180 °C	5	4
Greson LKM-3	Lithium Complex	3	250 °C	-20 °C - +180 °C	5	4
Greson P-2	Non-soap	2	300 °C	-10 °C - +200 °C	2	3
Greson P-3	Non-soap	3	300 °C	-10 °C - +200 °C	2	3
Greson PG-2	Non-soap	2	300 °C	-10 °C - +200 °C	3	3
Greson PG-3	Non-soap	3	300 °C	-10 °C - +200 °C	3	3
Greson PM-2	Non-soap	2	300 °C	-10 °C - +200 °C	4	3
Greson PM-3	Non-soap	3	300 °C	-10 °C - +200 °C	4	3
Greson POLY 2	Polyurea	2	250 °C	-20 °C - +190 °C	3	5
Greson POLY 3	Polyurea	3	250 °C	-20 °C - +190 °C	3	5
Greson GEP 72	Lithium-Calcium Complex	2	280 °C	-20 °C - +200 °C	5	5
Greson FD-2	Aluminum Complex	2	250 °C	-35 °C - +150 °C	3	4

*Load Carrying Capacity and Water resistance of greases are shown comparatively in table where 5 refers to highest performance and 1 refers to lowest performance.



PRODUCT RANGE

- GRINDING FLUIDS
- WATERSOLUBLE METALWORKING FLUIDS
- HYDRAULIC OILS
- GREASES
- NEAT CUTTING OILS
- HONING OILS
- QUENCHING OILS AND FLUIDS
- HEAT TRANSFER OILS
- CIRCULATION AND LUBRICATION OILS
- CORROSION PREVENTITIVE OILS
- NEAT FORMING AND DEEPDRAWING LUBRICANTS
- SOLUBLE FORMING AND DEEPDRAWING LUBRICANTS
- SLIDWAY LUBRICANTS
- INDUSTRIAL GEAR LUBRICANTS
- OPENGEAR LUBRICANTS
- HOTFORMING AND FORGING LUBRICANTS
- VARIOUS LUBRICANTS
- CLEANERS
- MOTOR OILS
- TRANSMISSION OILS
- PROSES OILS
- TEXTILE LUBRICANTS
- BIOCIDES
- ELECTRO EROSION FLUIDS
- INJECTOR ADJUSTMENT FLUIDS
- SHOCKABSORBER OILS
- MOULD RELEASE LUBRICANTS
- COMPRESSOR LUBRICANTS
- MARINE OILS
- COMPLEMENTARY AUTOMOTIVE PRODUCTS
- CHAIN OILS



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