

DIVIN OL® Iubricating greases



High-Performance Greases

Divinol[®] industrial greases provide a high performance range of high quality lubricating greases for the most diverse uses. Our wide product range enables you to choose the optimum solution for a large number of industrial lubricating applications taking the technical as well as the economical point of view into account.

Zeller+Gmelin is aware of its customers' problems. In co-operation with them lubricating greases for the most diverse uses have been developed in conditions as close to working conditions as possible in order to meet the technical requirements for each individual case. The constant high quality of the lubricants in use means that the user achieves the greatest possible operational safety. In order to get a successful lubrication, you have to

- know the exact requirements to the lubricant resulting from the bearing points which have to be greased
- select the most appropriate lubricant depending upon the requirements involved

The most important characteristics of the bearing and the operating conditions determine the requirements to the lubricant, i.e.

- Type of bearing (roller or slide bearing) and bearing size
- Operating temperature
- Environmental conditions (presence of water, dust, caustic solutions, etc.)
- Speed (ranges)
- Type of lubrication (central lubrication, grease filling etc.)
- Load

Greases are divided into the following main categories:

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| Sodium soap-based greases | Page 8 |
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Lithium soap-based greases (Li)

The conspicuous transparency of these greases makes the difference to the other greases immediately apparent. They are mostly shortfibered, shiny, very smooth and have a homogenous structure. The drop point is around +190 °C. Lithium soap-based greases are water resistant and therefore cover most of the areas of application of the lime and sodium soap-based greases. In many cases (but not all!) lithium soap-based greases can therefore be used as multi-purpose greases in order to reduce the number of greases stocked. The application temperature lies between -30 °C and +130 °C.

Complex soap-based greases

The most common types are aluminium, calcium and lithium complex soap-based greases. They have a homogenous and smooth structure and are often characterised by a high pressure resistance and drop points of approx. +250 °C. Complex soap-based greases are highly waterresistant. The temperature range in which they may be used lies between approx. -30 °C and +150 °C depending upon the oil base selected and the type of thickener and last. but not least, on the relubrication intervals.

Sodium soap-based greases (Na)

These have a continuous fibred structure and show a very good worked consistency. The drop point of these greases lies between +150 °C and +180 °C. The lubricity lies between -20 °C and +110 °C depending up-

on the type of raw material used and the consistency. Sodium soapbased greases are not water resistant. Amongst other uses they are used for lubricating thermally affected roller and sliding bearing (machine tools, electric motors, comminution machines, dry cylinders, mills, hammer works, rolling mills and roller tables etc.). The bearing points should not, however, be subjected to the effects of steam or water.

Calcium soap-based greases (Ca)

The most known representatives of this type are the so-called consistency or cup greases. The drop point of the greases in this group is approx. +100 °C. They have a smooth homogenous structure, excellent worked consistency and are water resistant. Generally they are used to lubricate sliding bearings within the temperature range of approx. -30 °C to +60 °C as well as for sealing these bearings against water and dust. Calcium soap-based greases are further recommended for use on ships and in water engineering as well as for the lubrication of water pumps and turbines and as a frost protection grease.

Gel greases

These are soap-free greases. A silicate compound is used to thicken the mineral oil (Bentonite, Aerosil or similar). These greases have practically no drop point. Gel greases can be used up to approx. +160 °C at high speeds, and even up to about +180 °C at low speeds, but with regular relubrication.

Biologically degradable greases

These greases are based mainly on rapeseed oil or synthetic ester that decompose rapidly. Calcium and lithium soaps are the thickeners primarily used. The greases based on rapeseed oil can be used in the temperature range -20 °C to +80 °C, while ester based greases have a wider temperature range according to the type of ester used. Due to their moderate thermal load, greases with a rapeseed oil base are mainly used for applications with total loss lubrication. Ester-based greases on the other hand are used in a wide range of applications similar to the mineral oil based greases.

The following overview of our grease program is designed to help you select the most appropriate lubricating grease. Further products and special mixes are available upon request. Our technical support is available for advice on the technical application.



| | Designation | NLGI class | Thickener/ base oil | Temperature range | Dropping point | Base oil 9 viscosity at 40 °C/mm²/s |
|---|---|---------------------|--|----------------------|-------------------|---|
| | Lithium soap-based | greases | | | | |
| | Divinol [®] Fett WEP 3 | 3 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 220 |
| | Divinol [®] Fett L 3 | 3 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 100 |
| - | Divinol [®] Fett L 2 | 2 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 100 |
| - | Divinol [®] Mehrzweckfett 2 | 2 | Lithium soap/mineral oil | –30 to +120 °C | 190 | 110 |
| - | Divinol [®] Mehrzweckfett W | 2 | Lithium soap/mineral oil | –30 to +120 °C | 190 | 110 |
| - | Divinol [®] Fett L 283 | 2 | Lithium soap/mineral oil | –35 to +130 °C | 190 | 100 |
| - | Divinol [®] Fett EP 2 | 2 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 220 |
| - | Divinol [®] Fett Fibrous 2 | 2 | Lithium soap/mineral oil | –25 to +130 °C | 190 | 220 |
| | Divinol [®] Fett MTS 2 | 2 | Lithium soap/mineral oil/ Polyalphaolefin | –50 to +120 °C | 190 | 30 |
| | Divinol [®] Mehrzweckfett graphitiert | 2 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 100 |
| - | Divinol [®] Fett LM 2 | 2 | Lithium soap/mineral oil | –30 to +130 °C | 190 | 100 |
| | Divinol [®] Fett 2 Mo | 2 | Lithium soap/mineral oil | –35 to +130 °C | 190 | 100 |
| | Divinol [®] Fett LR 2 EP | 2 | Lithium soap/mineral oil | −20 to +140 °C | 190 | 800 |
| | Divinol [®] Fett F 14 EP | 1 | Lithium soap/mineral oil | –40 to +120 °C | 190 | 100 |
| - | Divinol [®] Fett LT 1 | 1 | Lithium soap/ Technical white oil | –20 to +130 °C | 190 | 70 |
| | Divinol [®] Synthogrease LF 1 | 1 | Lithium soap/ Polyalphalolefin | –60 to +120 °C | 190 | 20 |
| | Divinol [®] Fett L 0 | 0 | Lithium soap/mineral oil | –40 to +120 °C | 180 | 100 |
| - | Divinol [®] Fett ZSA | 00 | Lithium soap/mineral oil | –40 to +120 °C | 170 | 68 |
| | Divinol [®] Fließfett 498 EP | Not determinable | Lithium soap/mineral oil | –30 to +100 °C | - | 60 |

| Designation as per DIN 51825/ 51826 and ISO/DIS 6743-9 | General advice on application |
|---|---|
| | |
| KPF 3 K-30 ISO-L-XCCHB 3 | Water-resistant EP lubricating grease light in colour with solid lubricant additives capable of bearing high mechanical loads. Suitable for roller bearings subject to shock-like loads, vibrations and oscillating movements. |
| KP 3 K-30 ISO-L-XCCHB 3 | Water-resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal and mechanical stress. Also suitable for use as a wheel hub grease. |
| KP 2 K-30 ISO-L-XDCHB 2 | Water-resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal and mechanical stress. Also suitable for use as a wheel hub grease, in central lubrication installations with progressive distributor and for gear lubrication in drilling machines. |
| K 2 K-30 ISO-L-XCCHA 2 | Water resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal stress. |
| KF 2 K-30 ISO-L-XCCHA 2 | Water-resistant white multi-purpose grease with solid lubricant additives for a wide range of applications. |
| KP 2 K-30 ISO-L-XCCHB 2 | A versatile water resistant EP grease for roller and slide bearings. Suitable for use in central lubrication systems with self-cycling distributors. |
| KP 2 K-30 ISO-L-XCCHB 2 | Water-resistant EP lubricating grease, capable of withstanding thermal stress, for roller and slide bearings, such as tapered roller bearings or swivel-joint roller bearings that are subject to shock-like loads and vibrations. |
| KP 2 K-20 ISO-L-XBCHB 2 | Water-resistant long-fibrous EP lubricating grease with good adhesion properties for roller and slide bearings subject to thermal stress. It contains high-performance additives for long-term lubrication and for the most difficult conditions. |
| K 2 K-50 ISO-L-XECHA 2 | Water-resistant partly synthetic grease for high and low temperatures for roller and slide bearings with a high sliding friction component, especially suitable for lubricating fast running bearings. |
| KPF 2 K-30 ISO-L-XCCHB 2 | Water-resistant multi-purpose grease containing solid lubricant for lubricating roller and slide bearings subject to thermal stress. The lubricating effect is improved by the addition of the solid lubricant. |
| KPF 2 K-30 ISO-L-XCCHB 2 | Water-resistant multi-purpose EP grease with solid lubricant additives for roller and slide bearings subject to shock-like loads and oscillating movements. A solid lubricant additive provides this grease with emergency running properties. |
| KPF 2 K-30 ISO-L-XCCHB 2 | Water-resistant, multi-purpose EP-grease with solid lubricant additives for highly stressed roller and slide bearings. The solid lubricant additive provides this grease with a high load-carrying capacity with emergency running properties. (Also suitable for use in wire-rope production for lubrication and as corrosion protection.) |

| KPF 2 N-20 | Water-resistant, multi-purpose EP-grease with solid lubricant additives for the lubrication of roller and slide bearings subject to |
|---------------|---|
| ISO-L-XBDHB 2 | high thermal and mechanical stress, of all kinds of industrial machines and for the use in metallurgical plants. The added solid |
| | lubricant composition increases pressure absorption properties and provides the grease with emergency running properties. |

| KP 1 K-40 ISO-L-XDCHB 1 | Very soft water-resistant grease for lubricating roller and slide bearings subject to thermal stress as well as for central lubrication systems with self-cycling distributors. Also suitable for gear lubrication. |
|----------------------------|---|
| KPF 1 K-20 | Water-resistant multi-purpose EP grease of light colour containing solid lubricant for lubricating roller and especially slide |

| ISO-L-XBCHB 1 | bearings, e.g. guiding elements with a plastic-metal combination. |
|------------------------------|---|
| KPF 1 K-60 ISO-L-XECHB 1 | Water-resistant, fully synthetic low-temperature grease containing solid lubricants for roller and slide bearings with high loads. Used for extended relubrication intervals and also suitable for lifetime filling. |
| GP 0 K-40 ISO-L-XDCHB 0 | Water-resistant liquid grease with EP additives for lubrication of gears and for central lubrication systems |
| GP 00 K-40 ISO-L-XDCHB 00 | Water-resistant liquid EP-grease for example for gear lubrication. The grease is easily conveyable via central lubrication systems as well as at low temperatures. Approved for the use in Willy Vogel central lubrication systems. |
| | |

GP/G-30 ISO-L-XCBHB– Water-resistant semi-fluid EP grease for central lubrication systems.

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| | | | | | Base oil |
|--|---------------|--|----------------------|-------------------|-----------------------------|
| Designation | NLGI class | Thickener/ base oil | Temperature range | Dropping point | viscosity at 40 °C/mm²/s |
| Complex soap-based | l greases | | | | |
| Divinol [®] Aluplex 2 | 2 | Aluminium complex soap/mineral oil | –25 to +150 °C | 230 | 300 |
| Divinol [®] Fett AL 973 EP 2 | 2 | Aluminium complex soap/mineral oil / Polyalphaolefin | –40 to +150 °C | 240 | 200 |
| Divinol [®] Fett AL M 2 | 2 | Aluminium complex soap/mineral oil | –25 to +150 °C | 240 | 300 |
| Divinol [®] Fett AL R 0 | 0 | Aluminium complex soap/mineral oil | –20 to +130 °C | 180 | 320 |
| Divinol [®] Fett AL 867 | 00 | Aluminium complex soap/mineral oil | –25 to +140 °C | 190 | 220 |
| Divinol [®] Lithogrease 3 | 3 | Lithium complex soap/mineral oil | −20 to +150 °C | 230 | 220 |
| Divinol [®] Lithogrease 2 B | 2 | Lithium complex soap/mineral oil | –30 to +150 °C | 230 | 220 |
| Divinol® Lithogrease 2 B/300 | 2 | Lithium complex soap/mineral oil | –25 to +150 °C | 240 | 300 |
| Divinol [®] Lithogrease G 421 | 2 | Lithium complex soap/mineral oil/ Polyalphaolefin | –35 to +160 °C | 230 | 130 |
| Divinol [®] Lithogrease 2500 | 2 | Lithium complex soap/mineral oil | −20 to +150 °C | 220 | 500 |
| Divinol [®] Lithogrease 1500 | 1 | Lithium complex soap/mineral oil | –20 to +150 °C | 220 | 500 |
| Divinol [®] Lithogrease EP 1 | 1 | Lithium complex soap/mineral oil | −20 to +150 °C | 220 | 500 |
| Divinol [®] Lithogrease 0 | 0 | Lithium complex soap/mineral oil/ Polyalphaolefin | –30 to +150 ℃ | 200 | 320 |
| Divinol [®] Lithogrease 00 | 00 | Lithium complex soap/mineral oil/ Polyalphaolefin | –30 to +150 °C | 190 | 200 |
| Divinol [®] Lithogrease 000 | 000 | Lithium complex soap/mineral oil/ Polyalphaolefin | −30 to +140 °C | 170 | 380 |
| Divinol [®] Fett CaX 2 | 2 | Calcium complex- soap/mineral oil | −30 to +150 °C | 250 | 100 |
| Divinol [®] Multitherm 2 | 2 | Calciumsulfonat com- plex soap/mineral oil | –25 to +180 °C | 280 | 180 |
| Divinol [®] Paste SF | 2 | - | –30 to +250 °C | 18 | 120 |
| Kupferpaste | | - | −30 to +1100 °C | - | 300 |

| Designation a per DIN 51825 51826 and ISO/DIS 6743-9 | |
|---|--|
| | |
| KP 2 N-20 ISO-L-XBDHB 2 | Water-resistant grease with EP additives for high temperatures for all kinds of roller and slide bearings subject to high mechanical stress |
| KP 2 N-40 ISO-L-XDDHB 2 | Water-resistant partly synthetic lubricating grease with EP additives for use in roller and slide bearings in a wide temperature range. |
| KPF 2 N-20 ISO-L-XBDHB 2 | Water-resistant grease for high temperatures containing EP additives and solid lubricant for roller and slide bearings subject to stress. The solid lubricant provides this grease with emergency running properties. |
| GPF 0 K-20 ISO-L-XBCHB 0 | Water-resistant gear lubricating grease with EP and solid lubricant additives for use in gear boxes subject to high mechanical stress and where vibrations and shock loads occur. |
| G 00 N-20 ISO-L-XBDHA 00 | Water-resistant liquid grease with good thermal and mechanical stability suitable as a gear lubricating grease in angle grinders and other electrical appliances. |
| KP 3 N-20 ISO-L-XBDHB 3 | Water-resistant complex soap-based greases with EP additives for roller and slide bearings subject to high mechanical and thermal stress, especially for all wheel hubs and clutch release bearings. Both types of greases are dyed blue. |
| KP 2 N-30 ISO-L-XCDHB 2 | |
| KP 2 N-20 ISO-L-XCDHB 2 | Water-resistant, EP-alloyed complex soap grease provided with high pressure absorption properties and high base oil viscosity for roller and slide bearings subject to high thermal and mechanical stress. The grease is dyed blue. |
| KP 2 P-30 ISO-L-XCEHB 2 | Water-resistant partly synthetic complex soap-based grease for roller and slide bearings subject to high mechanical and thermal stress. |
| KPF 2 N-20 ISO-L-XBDHB 2 | Water-resistant lithium complex soap grease with solid lubricant additives and high base oil viscosity for especially high pressures. Suitable for the use in bearings subject to high thermal and mechanical stress resp. slow speeds. Also suitable for the lubrication of drive chains in industrial machines. |
| K 1 N-20 ISO-L-XBDHA 1 | Water-resistant complex soap grease for roller and slide bearings subject to high thermal and mechanical stress. Suitable for example for gear lubrication with lifting spindles or lubrication of roller bearings in rolling mills. |
| KPF 1 N-20 ISO-L-XBDHB 1 | Water-resistant lithium complex soap grease with solid lubricant additives and high base oil viscosity. Suitable for the lubri- cation of roller and slide bearings subject to high thermal and mechanical stress like for example with the lubrication of roller bearings in rolling mills. Also well suited for the lubrication of drive chains in industrial machines. The grease is dyed blue. |
| GP 0 N-30 ISO-L-XCDHB 0 | Water-resistant partly synthetic liquid greases with EP additives for lubricating gear boxes subject to high mechanical and thermal stress. Divinol Lithogrease 0 and Lithogrease 00 are preferabely used as life-time lubrication in gear boxes on angle grinders, circular saws etc. Lithogrease 00 and Lithogrease 000 are used for roller lubrication of linear guideways in machine tools. |
| GP 00 N-30 ISO-L-XCDHB 00 | |
| GP 000 N-30 ISO-L-XCDHB 000 | |
| KP 2 N-30 ISO-L-XCDHB 2 | Conventional calcium complex soap grease for the use with permanent influence of water like for example with the casting process in the steel works industry or as general-purpose grease in the cement industry (not suitable for the lubrication of sprockets). |
| KP 2 R-20 ISO-L-XBFIB 2 | Waterproof roller and slide bearing grease with an increased pressure absorption capacity and a particularly wide range of applications. |
| _ | Water-resistant, partly synthetic grease paste for clamping elements like for example chucks in machine tools in the metal working industry. Approvals of various chuck producers are available. |
| - | Water-resistant anti-corrosion assembly paste for high temperatures with very good separative properties for screw connections, socket tools of all kinds and wear bushes. |

| | | | | | Base oil |
|---|---------------|--|----------------------|----------------------------|----------|
| Designation | NLGI class | Thickener/ base oil | Temperature range | Dropping point | |
| Sodium soap-based | greases | | | | |
| Divinol [®] Fett N 2 | 2 | Natrium soap/mineral oil | –20 to +110 °C | 170 | 220 |
| Divinol [®] Getriebefett N 0 | 0 | Natrium soap/mineral oil | –20 to +90 °C | 150 | 220 |
| Divinol [®] Getriebefett N 00 | 00 | Natrium soap/mineral oil | –20 to +90 °C | 150 | 220 |
| Calcium soap-based | greases | | | | |
| Divinol [®] Abschmierfett 3 | 3 | Calcium soap/ mineral oil | −30 to +60 °C | 100 | 46 |
| Divinol [®] Abschmierfett 2 | 2 | Calcium soap/ mineral oil | –40 to +60 °C | 100 | 36 |
| Divinol [®] Fett Top 2003 | 2 | Calcium soap/ mineral oil/synthetic oil | –30 to +110 °C | 140 | 1000 |
| Divinol [®] Fett G 460 | 2 | Calcium soap/ mineral oil | –30 to +100 °C | 130 | 110 |
| Divinol® Kabinenfett 2 also available dyed red | 2 | Calcium soap/ mineral oil | –40 to +60 °C | 100 | 36 |
| Divinol [®] Kabinenfett 1 also available dyed red | 1 | Calcium soap/ mineral oil | –40 to +60 °C | 100 | 36 |
| Gel greases | | | | | |
| Divinol® Hochtemperaturfett Z 2 | 2 | Aerosil/mineral oil | –20 to +150 °C | Has no drop- ping point | 480 |
| Divinol® Hochtemperaturfett Z 1 | 1 | Aerosil/mineral oill | −20 to +150 °C | Has no drop- ping point | 480 |
| Bio-degradable lubri | cating gr | eases | | | |
| Divinol [®] Fett R 2 | 2 | Calcium soap/ rapeseed oil | –20 to +80 °C | 140 | 36 |
| Divinol [®] Fett CE 2 | 2 | Calcium soap/ synth. ester | −35 to +100 °C | 140 | 46 |
| Divinol [®] Fett E 2 | 2 | Lithium soap/ synth. ester | –35 to +130 ℃ | 190 | 68 |
| Divinol [®] Fett E 00 | 00 | Lithium soap/ synth. ester | –30 to +130 °C | 180 | 53 |

| Designation as per DIN 51825/ 51826 and ISO/DIS 6743-9 | General advice on application |
|---|---|
| | |
| K 2 H-20 ISO-L-XBBBA 2 | A non water-resistant chassis grease with an increased pressure absorption capacity for roller and slide bearings subject to thermal stress. Also suitable as a wheel hub grease. |
| GP 0 F-20 ISO-L-XBBBB 0 | Non water-resistant EP liquid greases for use in slow-running mechanical gear boxes that are not oiltight, e.g. circular spike harrows. |
| GP 00 F-20 ISO-L-XBBBB 00 | |
| | |
| K 3 C-30 ISO-L-XCAHA 3 | Waterproof conventional chassis grease with a natural colour for roller and slide bearings not subject to much thermal stress. May also be used as a water-pump grease. |
| K 2 C-40 ISO-L-XDAHA 2 | Waterproof conventional chassis grease with a natural colour for roller and slide bearings not subject to much thermal stress. May also be used as a spray booth grease. |
| KP 2 G-30 ISO-L-XCBIB 2 | Water-resistant, partly synthetic lubricating grease with a pronounced adhesive capacity. For all-round use. |
| K 2 G-30 ISO-L-XCBIA 2 | Seawater-resistant multi-purpose grease with excellent corrosion protection properties for the lubrication of all kinds of wear points, exposed to the influence of water, especially seawater including humid sea air. Approved by the German Armed Forces according to Nato code G-460. |
| K 2 C-40 ISO-L-XDAHA 2 | Waterproof greases with good anti-corrosion properties and good adhesion for coating spray booth walls. These greases are available in natural colour or dyed red and in the NLGI classes 1 and 2. |
| K 1 C-40 ISO-L-XDAHA 1 | |
| | |
| K 2 N-20 ISO-L-X-BDDA 2 | Water-resistant grease for high temperatures for roller and slide bearings subject to high thermal stress. Examples of use: hot air ventilators or crane installations in foundries. |
| K 1 N-20 ISO-L-XBDDA 1 | Very soft, water-resistant grease for high temperatures for roller and slide bearings subject to high thermal stress as well as for lubricating gears. |
| | |
| K 2 E-20 ISO-L-XBAHA 2 | Waterproof chassis grease on the basis of rapeseed oil for lubrication points not subject to a lot of thermal stress with total loss lubrication and with regular relubrication. Suitable for use in the water industry, agriculture and forestry works. |
| K 2 G-30 ISO-L-XCBHA 2 | Waterproof chassis grease with synthetic ester base for roller and slide bearings not subject to a lot of thermal stress with normal lubrication. Due to its good temperature properties, Divinol® grease CE 2 can also be used as fire-hydrant grease. |
| K 2 K-30 ISO-L-XCCHA 2 | Water-resistant multi-purpose grease with synthetic ester base for roller and slide bearings in applications in a wide temperature range. Also suitable for use as a wheel hub grease as well as for use in central lubrication systems with self-cycling distributors. |
| GP 00 K-30 ISO-L-XCCHB 00 | Water-resistant liquid EP grease with synthetic ester base for central lubrication systems and for lubricating gears. |

Designation according to DIN

Table 1: Lubricating grease designation according to DIN 51825/51826

This regulation classifies lubricating greases with characteristic letters. (extract from the table)

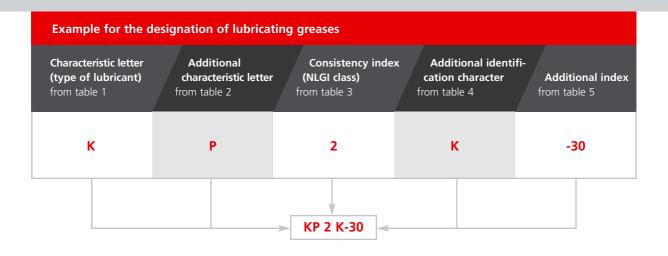
| (extract from the table) | |
|--|-----------------------------------|
| 1 | 2 |
| Type of lubricating grease | Characteristic letter |
| Lubricating greases for roller and slide bearings and sliding surfaces according to DIN 51825 | Kŋ |
| Lubricating greases for closed gear boxes according to DIN 51826 | G |
| Lubricating greases for open gear boxes, gear teeth (adhesive lubricants without bitumen) | OG |
| Lubrication greases for friction bearings and seals 2 | М |
| The basic properties of lubricating greases with synthetic oil base are marked as the mineral oil based ones described above. | Addition by characteristic letter |
| ¹⁾ ISO/TR 3498 uses XM instead of K as the characteristic letter ²⁾ Lower requirements than those for lubricating greases K | |

 $^{\mbox{\tiny 2)}}$ Lower requirements than those for lubricating greases K

Table 2: Additional characteristic letters for lubricating greases according toDIN 51825/51826 (extract from the table)

| 1 | 2 |
|-------------------------------------|--|
| Additional Characteristic letter | Lubricants |
| F | For lubricants with solid lubricant additives (such as graphite, molybdenum polysulfide). |
| Ρ | For lubricants with additives for reducing friction and wear in the mixed friction area and/or for increasing the load capacity. |





| Table 3: Consistency classification for lubricants according to DIN 51818 The classification of the lubricating greases is based on the worked penetration and helps classifying them after their consistency. | | | | |
|--|--|-------------|---------------------------|--|
| 1 | 2 | 3 | 4 | |
| Consistency index NLGI classes according to DIN 51818 | Worked penetratic acc. to DIN ISO 2137 Units ¹⁾ | | Application | |
| 000 | 445 to 475 | Watery | Gear greases | |
| 00 | 400 to 430 | Liquid | | |
| 0 | 355 to 385 | Semi fluid | | |
| 1 | 310 to 340 | Very soft | Roller bearing greases | |
| 2 | 265 to 295 | Soft | Slide bearing greases | |
| 3 | 220 to 250 | Supple | | |
| 4 | 175 to 205 | Nearly firm | | |
| 5 | 130 to 160 | firm | Block greases | |
| 6 | 85 to 115 | very firm | | |
| ¹⁾ 1 unit ≙ 0,1 mm | | | | |

| 1 | 2 | 3 |
|--|--|---|
| Additional characteristic letter | Max. application temperature acc. to DIN 51821 | Behaviour with regard to water according to DIN 51807 part 1 Evaluation level DIN 51807 ¹⁾ |
| c | +60 °C | 0-40 or 1-40 |
| D | | 2-40 or 3-40 |
| E | +80 °C | 0-40 or 1-40 |
| F | | 2-40 or 3-40 |
| G | +100 °C | 0-90 or 1-90 |
| н | | 2-90 or 3-90 |
| К | +120 °C | 0-90 or 1-90 |
| Μ | | 2-90 or 3-90 |
| Ν | +140 °C | As per agreement. |
| Ρ | +160 °C | |
| R | +180 °C | |
| S | +200 °C | |
| т | +220 °C | |
| U | over +220 °C | |
| ¹⁾ 0 means no change 1 means slight change | 2 means moderate c 3 means massive cha | |

| Table 4: Add. cha | racteristic letters for lul | bricating greases acc. | to DIN 51825/51826 |
|-------------------|-----------------------------|------------------------|--------------------|
|-------------------|-----------------------------|------------------------|--------------------|

| Table 5: Additional indices for lubricating greases according to DIN 51825/51826 | | |
|--|---------------------------------|--|
| 1 | 2 | |
| Additional index | Minimum application temperature | |
| -10 | –10 °C | |
| -20 | –20 °C | |
| -30 | –30 °C | |
| -40 | –40 °C | |
| -50 | –50 °C | |
| -60 | -60 °C | |

General recommendation

Unauthorised heating of roller bearings is usually the result of over-lubrication. Too much lubrication causes just as much damage as too little. As a rule of thumb, when greasing roller bearings only fill the grease up to a third of the free space between the roller bodies. Roller bearing relubrication equipment should therefore be used extremely sparingly. We recommend a thorough cleaning of the bearings at least once every 6 months, or at the latest once a year. When refilling pay attention to the filling quantity! Using lubricating greases requires a lot of experience. In case of doubt consult the specialists. We will be glad to advise you on all questions concerning lubrication.



Attention

Do not mix lubricating greases with different kinds of soap thickeners. Mixing has negative effects on the working stability, the drop point and the operating temperature range as well as on the structure of the grease itself.

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PROGRAM

Industrial lubricants

| MULTICAL® | calibration lubricants |
|--------------------|--|
| MULTICOR® | anti-corrosion agents |
| MULTICUT® | non water-miscible cooling lubricants |
| MULTIDRAW® | wire drawing lubricants |
| MULTIDRAW® | deep drawing lubricants |
| MULTIPRESS® | extrusion oils |
| TEXTOL® | lubricants for the textile industry |
| ZUBORA® | water-miscible cooling lubricants |
| DIVINOL® | lubricating greases |
| DIVINOL® | guideway and slideway oils, hardening oils, |
| | adhesive oils, hydraulic oils, industrial gear oils, |
| | commercial white oils, compressor oils, |
| | cylinder oils |
| | |

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