



SPECIAL LUBRICANTS & MAINTENANCE PRODUCTS

Oil and gas industry



setral[®]

Competence in Lubricants



Greases

| USE FOR / AS | PRODUCT | BASE OIL | V40 [mm ² /s]* | THICKENER SYSTEM | NLGI | T-RANGE [°C]** | DESCRIPTION |
|--|--------------------------------|-------------|---------------------------|----------------------------|------|-------------------------|---|
| Bearings, multi-purpose grease | MI-setral-LI/PD 2 | Mineral oil | 120 | Lithium | 2 | -30 - +140 | High-pressure grease with EPL additive technology for a low friction coefficient to reduce energy intake, also avoids or re-smoothens pitting and micropittings in gear couplings, rolling bearings, toothed wheels in all industrial areas. Use for shock loads, vibrations or sliding pairs susceptible to wear |
| Bearings chassis, engine, generator | MI-setral-LI/PD 2-220 | Mineral oil | 220 | Lithium | 2 | -20 - +150 | High-pressure grease in moderately high base oil viscosity without solids with EPL additive technology for a low friction coefficient to reduce energy intake, also avoids or re-smoothens pittings and micropittings in gear couplings, rolling bearings, toothed wheels in all industrial areas. Use for shock loads, vibrations or sliding pairs susceptible to wear |
| Bearings | MI-setral-61 B | Mineral oil | 120 | Lithium / solid lubricants | 2 | -20 - +110 | White high-performance grease for plain and rolling bearings |
| Bearings, low speed, high loads | MI-setral-LI/C2-1000 MG | Mineral oil | 1000 | Lithium complex | 2 | -20 - +150 | Long-term grease with special additive technology and dark solid lubricants for applications under heavy loads. Used in mining, mills, crushers, grooved presses etc. |
| Bearings, high-speed, low temperatures | SYN-setral-HSP/N | PAO / ester | 27 | Lithium complex | 2 | -50 - +130 (short +150) | High-performance synthetic grease for high-speed applications for the lubrication of plain and rolling bearings (e.g. in shale shaker motors), small gears, toothed wheel, linear drives and guidings. Suitable for the application at very low temperatures |

*V40 = kinematic base oil viscosity at 40 °C **Temperature Range [°C]



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|----------------------------|--|-------------|---------------------------|--|------|----------------------------|--|
| Wire rope | SYN-setral-CA 2 B | Ester | 275 | Calcium | 2 | -30 - +80 (short +100) | Quickly biodegradable EAL wire rope lubricant with low level of harmful materials to prevent wear and corrosion on ships, in harbors, shipyards, offshore platforms, water purification plant, water locks, mining and forestry. Also for use in roller bearings |
| Bearings | MI-setral-CA/C2-180 | Mineral oil | 220 | Calcium sulfonate complex | 1-2 | -30 - +160 | Media-resistant special grease with excellent wear and corrosion protection for heavily loaded rolling and plain bearings at medium speed, e.g. in calanders, pumps dryers, mining etc. |
| Bearings | MI-setral-CA/C2-180 M | Mineral oil | 220 | Calcium sulfonate complex / MoS ₂ | 1-2 | -25 - +160 | Media-resistant special grease with MoS ₂ and excellent wear and corrosion protection for heavily loaded rolling and plain bearings at medium speed, e.g. in calanders, pumps dryers, mining etc. |
| Bearings, sliding elements | MI-setral-CA/C2-400 | Mineral oil | 460 | Calcium sulfonate complex | 1-2 | -25 - +150 (short +180) | Media-resistant special grease with excellent wear and corrosion protection for the lubrication of bearings, gear rims, hinges, levers and bolts working under unfavorable ambience like water and lye, e.g. in pipe mills, stone crushers, lime mills, excavators, cranes, harbor equipment, machinery on drilling rigs like iron roughnecks etc. |
| Valves, bearings | MI-setral-CA/C2-400 M | Mineral oil | 460 | Calcium sulfonate complex / MoS ₂ | 1-2 | -25 - +180 | Media-resistant special grease with MoS ₂ and excellent wear and corrosion protection for the lubrication of bearings, gear rims, hinges, levers and bolts working under unfavorable ambience such as moisture and alkaline environments. Suitable for heavy-duty applications in the oil and gas industry, such as drilling and processing equipment, valves, cranes, and auxiliary mechanical components used in upstream and downstream operations |
| Bearings | SYN-setral-CA/C2-400 FD SYN-setral-CA/C2-400 FD (Spray) | PAO | 400 | Calcium sulfonate complex | 2 | -30 - +170 | High-temperature grease for rolling and plain bearings at low to medium speeds, slide bars, joints, and linear guides and other sliding surfaces exposed to challenging operating conditions such as water, steam, high loads, shocks loads and elevated temperatures |

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|----------------------------|------------------------------|--------------|---------------------------|---|------|-------------------------|--|
| Open gear, slow-moving | MI-setral-AL/CO-500 G | Mineral oil | 500 | Aluminium complex / dark solid lubricants | 0 | -30 - +120 (short +150) | Fluid grease for highly loaded, slow-moving, open gears operating in harsh conditions such as moisture, dust, vibration or shock loads. Ideal for oil and gas supporting facilities including large conveyors, crushers for raw materials, cement or processing plants serving drilling operations, rotary kilns, excavators, stamping presses, etc. |
| Open gear, slow-moving | MI-setral-OG/0-800 | Mineral oil | 800 | Aluminium complex / dark solid lubricants | 0 | -20 - +150 (short +180) | Fluid grease for heavy-duty, slow-moving open gears operating in harsh conditions such as moisture, dust, vibration or shock loads and elevated temperatures. Suitable for oil and gas related processing and transport equipment e.g. large conveyors, crushers, draglines, wheel excavators, mills, rotary kilns, cranes and hoists, winches, etc. |
| Bearings, engine generator | MI-setral-PU 100 | Mineral oil | 100 | Polyurea | 2 | -30 - +150 (short +170) | High performance grease for long-term lubrication of rolling and plain bearings, joints, plains, hinges and guidings |
| Bearings, electric motor | SYN-setral-PU 2 | Ester | 100 | Polyurea | 2 | -40 - +180 | Rolling and plain bearings in unfavorable conditions like water or team, e.g. in air conditions, road construction machines, generators. Ideal for rolling bearings to reduce noise development, e.g. electric motors |
| Valves, fittings, sealant | SI-setral-929/FD | Silicone oil | 750 | Inorganic / white solid lubricants | 3 | -50 - +200 | Grease for fittings, valves, EPDM seals or as an assembly lubricant for metal/plastic and metal/rubber pairings. PFAS and TPPT-free |
| Valves, fittings, sealant | SI-setral-1041/FD | Silicone oil | 3500 | Inorganic | 2-3 | -30 - +200 | Adhesive grease for assembly, sealing and lubrication of plug connections, rubber and plastic O-rings. Also suitable for waterproof electrical connections, electrical components and terminals. PFAS and TPPT-free |

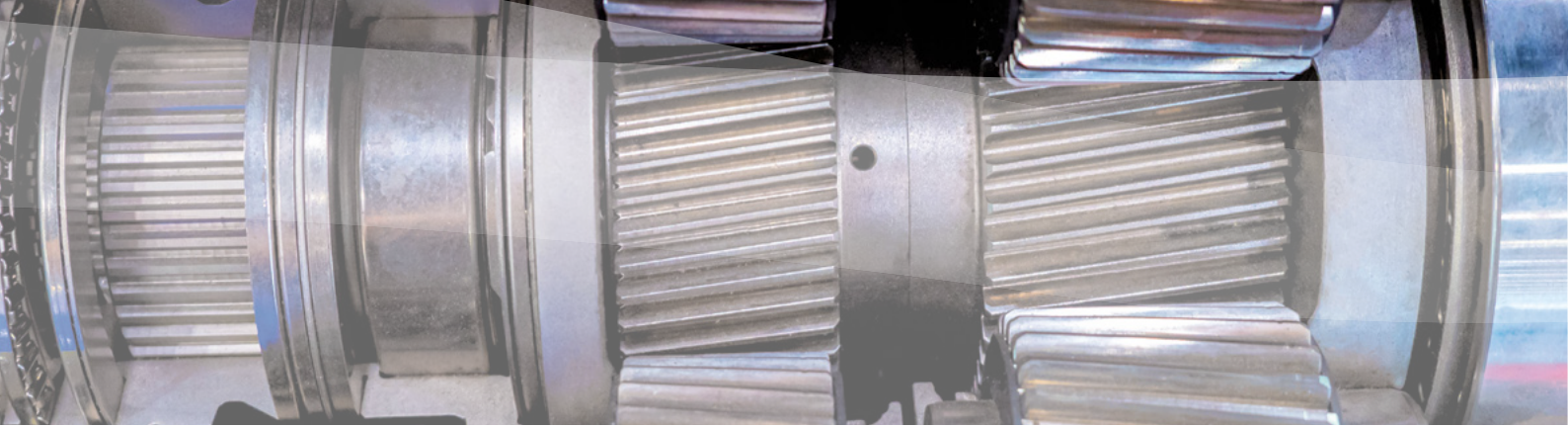
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|---|-----------------------------------|----------|---------------------------|--------------------------|------|-------------------------|---|
| Bearings, valves, low temperatures, high speeds, extreme conditions, chemical resistant | SYN-setral-INT/90 M-1/2 | PFPE | 85 | PTFE | 1-2 | -75 - +220 (short +240) | Special lubricant with excellent low- and high-temperature properties for the lubrication of rolling and plain bearings, valves gaskets and other elements. Suitable for applications at high speeds and applications requiring a low coefficient of friction, low starting torques at low-temperatures, high chemical resistance and long-term or lifetime lubrication, e.g. in precision engineering industry |
| Bearings, extreme conditions, chemical resistant | SYN-setral-INT/190 R-2 | PFPE | 190 | PTFE | 2 | -45 - +250 | Lifetime lubricant with excellent low- and high-temperature properties and high chemical resistance for low torque drives and rolling and plain bearings with low driving force, e.g. in precision engineering, electrical and automotive industry |
| Bearings, extreme conditions, chemical resistant, high loads | SYN-setral-INT/250 A-2 | PFPE | 420 | PTFE | 2 | -40 - +250 (short +280) | Special grease for long-term or life-time lubrication of rolling and plain bearings and all sliding pairs susceptible to wear under extreme conditions, such as high temperatures, aggressive media and/or high loads, e.g. high-temperature drilling operations |
| Bearings, valves, oxygen | SYN-setral-INT/280 OX | PFPE | 210 | Special solid lubricants | 1-2 | -45 - +300 | PTFE-free, load and shock resistant lifetime lubricant with high running smoothness at high temperatures and high oxygen pressures for oxygen applications and plant components. Tested by Air Liquide on reaction with oxygen |
| Bearings, valves, oxygen | SYN-setral-INT/200 V-2 | PFPE | 200 | Special solid lubricants | 2 | -50 - +280 | Special fully synthetic lubricant for valves, fittings as well as rolling and sliding bearings. Suitable for very low and extremely high temperatures. Use in oxygen fittings is conceivable |
| Bearings, valves, fittings, extreme high temperatures, low speeds | SYN-setral-INT/330 Special | PFPE | 1200 | Special solid lubricants | 2 | -10 - +330 (short +340) | Special long-term and life-time grease for extreme thermal loads, especially for permanent temperatures up to +300 °C e.g. in rolling and plain bearings at low speeds, valves and fittings, sliding guides or hinges, etc. Suitable for highly demanding applications requiring exceptional thermal, chemical and load resistance, excellent wear protection and effective damping properties |

*V40 = kinematic base oil viscosity at 40 °C **Temperature Range [°C]



High-temperature and specialty oils

| USE FOR / AS | PRODUCT | BASE OIL | V40 [mm ² /s]* | TEMPERATURE RANGE [°C] | DESCRIPTION |
|--------------------------------------|---------------------------------------|-------------|---------------------------------------|--|--|
| GEAR OILS | | | | | |
| Gearbox | MI-setral-GEAR/EPL ... series | Mineral oil | 150 220 320 460 680 | -10 - +120 -10 - +120 -10 - +120 -5 - +120 -5 - +120 | Mineral oil based gear oil with EPL additive system for highly loaded spur, bevel and worm gears. In compliance with DIN 51517-3 and ISO 12925-1. Approvals / references: GEA, Pekrun, Renk, Zimm, HST, etc. |
| Gearbox | SYN-setral-GEAR ... N series | PAO | 150 220 320 460 680 | -40 - +150 | Synthetic high-performance gear oil with EP additives for loaded industrial gears and roller bearings. Meets DIN 51517-3 and ISO 12925-1. Flender approval for helical- bevel- and planetary gear units. Approvals / references: Eickhoff, Eisenbeiss, Flender, GEA, Pekrun, Renk, Zimm, Sumitomo / Hansen |
| Gearbox | SYN-setral-GEAR/PGW ... series | PAG | 68 150 220 320 460 680 | -35 - +150 -35 - +150 -35 - +150 -35 - +150 -30 - +150 -30 - +150 | Approved and water-soluble gear oil for gear boxes, stressed spur gears, planetary gears and worm gears. Meets DIN 51517-3. Flender approval for helical-, bevel-, planetary and worm gear units (ISO VG 150 - 680). Approvals / references: Flender, Pekrun, Zimm, Amandus Kahl, etc. |
| COMPRESSOR / VACUUM PUMP OILS | | | | | |
| Compressor, vacuum pumps | COVA-setral-SMG ... series | PAO | 32 46 68 | -50 - +140 -45 - +140 -45 - +140 | Fully synthetic high-performance screw compressor oil for very long relubrication intervals |
| Compressor, vacuum pumps | COVA-setral-SE ... series | Ester | 100 150 | -30 - +200 | High-performance compressor and vacuum pump oil for piston and rotary compressors, air and process compressors, and vacuum pumps. Free from metallic additives |
| Gas compressor | COVA-setral-PGB/G ... series | PAG | 100 150 190 | -35 - +175 -35 - +175 -35 - +180 | Compressor oil based on synthetic base oil for gas compressors processing gases e.g. propane, butane, methane, ethane, ethylene, propylene, butylene, ammonia, vinyl chloride, butadiene. Free from metallic additives. Burckhardt Compression approval (V40 = 150 and 190) |

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High-temperature and specialty oils

| USE FOR / AS | PRODUCT | BASE OIL | V40 [mm ² /s]* | TEMPERATURE RANGE [°C] | DESCRIPTION |
|---|--|----------------|---------------------------|--|--|
| HYDRAULIC OILS | | | | | |
| Hydraulic motor, hydraulic components | HYD-setral-SYN 22 ECO HYD-setral-SYN 32 ECO | PAO / ester | 22 32 | -30 - +140 -30 - +150 (short +180) | Fully synthetic, biodegradable hydraulic oil for use in areas where hydraulic fluid may leak into the ground or wastewater. Typical applications are hydraulic units in drilling and processing equipment, floating dredges used in offshore or pipeline operations, and lock or weir systems in transport and storage facilities even at low temperatures |
| SPECIALTY OILS | | | | | |
| Ropes, chains | setral PLASTOLUB GK/FD | semi-synthetic | 37 | -20 - +80 | Water-resistant rope and chain lubricant with excellent penetrating and very good corrosion properties |
| Loading arms, swivel of turrets, FPSO / FSO | FLUID-setral-INT/150 CP | PFPE | 155 | -28 - +220 | High-temperature inert oil for various applications for lifetime or long-term lubrication even under aggressive conditions and high temperatures. Especially suited for the application under challenging surroundings e.g. for the lubrication of loading arms or swivel of turrets on FPSO and FSO ships in the oil industry |
| Swivel of turrets, FPSO / FSO | FLUID-setral-INT/140 LH | PFPE | 140 | -45 - +220 (short +260) | High-temperature inert oil for various applications for lifetime or long-term lubrication even under aggressive conditions and high temperatures. Especially suited for the application under challenging surroundings e.g. for the lubrication of swivel of turrets on FPSO and FSO ships in the gas industry |

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Offshore vs. Onshore Applications

Offshore applications are far more demanding, with constant exposure to wind, harsh weather, water, and salt. These conditions significantly increase stress on equipment and lubricants, requiring exceptional protection, reliability, and corrosion resistance.



Pastes

| USE FOR / AS | PRODUCT | BASE OIL | THICKENER / SOLID LUBRICANTS | NLGI | TEMPERATURE RANGE [°C] | DESCRIPTION |
|--------------|-----------------------------|-------------|------------------------------|------|---|---|
| Anti-seize | MI-setral-9 M | Mineral oil | Aluminium / organic | 2 | -30 - +1180 | Aluminium-based general purpose lubricating and assembly paste especially for stainless steel. Ideal activity up to +300°C |
| Anti-seize | MI-setral-9 C | Mineral oil | Copper / inorganic | 2 | -30 - +1180 | Copper-based general purpose lubricating and assembly paste for all screw and plug connections, sealings, flanges and bolts. Ideal activity up to +600°C |
| API thread | MI-setral-API Thread | Mineral oil | Dark solids | 1 | -20 - +550 (dry lubrication: > +170) | High-pressure thread compound according to API RP 5A3, free from heavy metals for threaded connections of tubings and casings in oil fields |
| Anti-seize | MI-setral-HPP 1200 S | Mineral oil | Dark solids | 1-2 | -30 - +1200 | Special paste for high thermal and extreme mechanical loads for e.g. extruder flanges, heat exchangers, boilers and apparatus construction and also for slow running bearings. One for alle for a lower variety of pastes |

Solid lubricants

| USE FOR / AS | PRODUCT | TEMPERATURE RANGE [°C] | DESCRIPTION |
|------------------------|-------------------|------------------------|---|
| Solid lubricant, ropes | MIPO LM 14 | -185 - +500 | Dark, novel solid lubricant powder with MoS ₂ for dry lubrication of mechanical elements. Also suitable for dry lubrication of ropes |



Bonded coatings

| USE FOR / AS | PRODUCT | TEMPERATURE RANGE [°C] | DESCRIPTION |
|---|------------------------|-----------------------------|--|
| Hinges, dry lubrication, extreme temperatures | DIO-setral-57 N | -200 - +450 (short +500) | Air-drying black bonded coating based on MoS ₂ for long-term dry lubrication of heavily loaded surfaces and for extreme temperatures, e.g. hinges (drilling rig). Also suitable for the lubrication of chains, especially in dusty environments and as assembly aid |



Maintenance

| USE FOR / AS | PRODUCT | BASE OIL | TEMPERATURE RANGE [°C] | DESCRIPTION |
|---|--|---------------|---|---|
| Maintenance, penetrating oil, disassembly | GLIS-setral-SQ (Spray) | Synthetic oil | -20 - +80 | Fast-acting penetrating oil for the disassembly of corroded and seized parts like screws, bolts, fits, bearings, etc. Suitable in applications where common rust dissolvers do not work |
| Maintenance, corrosion protection | PRO-setral-11 X RPO-setral-11 X (Spray) | Synthetic wax | -40 - +70 | Wax-like anti corrosion agent for long-term corrosion protection and overseas transport. Also suitable for indoor and outdoor preservation of aggregates and vehicle parts |
| Maintenance, fine oil, corrosion protection | PRO-setral-KS ECO PRO-setral-KS ECO (Spray) | Ester | -10 - +120 (active ingredient, short +150) | Eco-friendly, biodegradable, low-viscous anticorrosive agent and fine oil, also for the removal of fretting corrosion |
| Maintenance, cleaner and degreaser | CLEAN-setral-AN/U CLEAN-setral-AN/U (Spray) | Solvents | -40 - +40 | Fast evaporating, residue-free, high-performance cleaner and degreaser. |

Successful in more than **90 countries** with satisfied customers



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