



SPECIAL GREASES

solutions for technical complex requirements

For more than 50 years we develop special lubricants and maintenance product in close cooperation with customers and partners for almost all applications in the industry.

setral® special greases are being developed in own and modern laboratories since 1969. There they are tested until they are ready for the market. By using innovative lubricants formulations even the most technical complex application problems are being solved. The sophisticated production process ensures lubricants that fulfill a constant quality standard worldwide.

setral® special greases greases are approved by many OEMs worldwide. And recommended and successfully used by numerous renowned companies.

setral® special greases are used in almost every industry and are convincing by its continuous quality in difficult applications like they exist in mechanical or plant engineering as well as in the automotive, chemical, wood, plastic, food, pharmaceutical, steel, packaging and cement industry.

setral® special greases are also available with H1 registration, certified according to DIN ISO 21469 as well as Kosher & Halal. Thus they fulfill the requirements of the HACCP quality standard of the food and pharmaceutical industry.

In addition to the most suitable special greases we offer more than 800 further products. Our permanent active research on new lubrication technologies is proactive for any individual customized requirement.

The special selection of our product portfolio gives you a first overview of the most suitable grease for your specific application. Moreover our experts are available for individual advice.

Miscibility of greases

Before using lubricants important technical parameters are to be taken into account to reach the best possible efficiency of components and thus to reduce costs. Therefore, the best choice of suitable base oil and thickener has to be made as well as the consideration of the miscibility of both components. The following table gives you an advice of fundamental trends but this well-grounded expertise does not replace essential lab and practical tests.

Miscibility of base oils

| | MINERAL OIL | POLYALPHAOLEFIN (PAO) | ESTER OIL | POLYALKYLEN-GLYKOL (PAG) | SILICONE OIL | | PERFLUORPOLYETHER (PFPE) |
|--------------|-------------|-----------------------|-----------|--------------------------|--------------|--------|--------------------------|
| | | | | | METHYL | PHENYL | |
| Mineral oil | ++ | ++ | + | - | - | + | - |
| PAO | ++ | ++ | + | - | - | - | - |
| Ester oil | + | + | ++ | + | - | + | - |
| PAG | - | - | + | ++ | - | - | - |
| Silicone oil | methyl | - | - | - | ++ | + | - |
| | phenyl | + | - | + | - | ++ | - |
| PFPE | - | - | - | - | - | - | ++ |

Key: ++ = miscible + = limited miscible - = immiscible

Consistency (NLGI)

The consistency is the measure for the deformability of greases. To enable a comparability of grease consistency NLGI grades were established.

Consistency according to NLGI and DIN 51818 with worked penetration according to DIN ISO 2137.

| NLGI GRADE | WORKED PENETRATION [1/10 MM] | CONSISTENCY | MAIN APPLICATION |
|------------|------------------------------|---------------|---------------------------------------|
| 000 | 445 to 475 | liquid | Gears and central lubrication systems |
| 00 | 400 to 430 | almost liquid | Gears and central lubrication systems |
| 0 | 355 to 385 | semi-liquid | Gears and central lubrication systems |
| 1 | 310 to 340 | very soft | Roller and slide bearings |
| 2 | 265 to 295 | soft | Roller and slide bearings |
| 3 | 220 to 250 | still soft | Roller and slide bearings |
| 4 | 175 to 205 | semi-solid | Sealings |
| 5 | 130 to 160 | solid | Sealings |
| 6 | 85 to 115 | very solid | Sealings |

Miscibility of thickeners

| | | METAL SOAPS | | | | COMPLEX METAL SOAPS | | | | | INORGANIC/ORGANIC | | | |
|---------------------|-----------|-------------|----|----|----|---------------------|----|----|----|----|-------------------|------|------|---------|
| | | Al | Ca | Li | Na | Al | Ba | Ca | Li | Na | Ben-tonite | Urea | PTFE | Aerosil |
| METAL SOAPS | Al | ++ | + | + | + | ++ | + | + | + | + | + | + | ++ | ++ |
| | Ca | + | ++ | + | + | - | + | + | + | + | + | + | ++ | ++ |
| | Li | + | + | ++ | - | - | + | + | ++ | - | - | + | ++ | ++ |
| | Na | + | + | - | ++ | - | ++ | + | + | + | + | + | ++ | ++ |
| | | | | | | | | | | | | | | |
| COMPLEX METAL SOAPS | Al | ++ | - | - | - | ++ | ++ | + | ++ | + | - | + | ++ | ++ |
| | Ba | + | + | + | ++ | ++ | ++ | + | + | + | + | + | ++ | ++ |
| | Ca | + | + | + | + | + | + | ++ | ++ | + | - | ++ | ++ | ++ |
| | Li | + | + | ++ | - | ++ | + | + | ++ | + | + | + | ++ | ++ |
| | Na | + | + | + | + | + | + | + | + | ++ | - | + | ++ | ++ |
| INORGANIC ORGANIC | Bentonite | + | + | - | + | - | + | - | + | - | ++ | + | ++ | ++ |
| | Urea | + | + | + | + | + | + | ++ | + | + | + | ++ | ++ | ++ |
| | PTFE | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ |
| | Aerosil | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ | ++ |

Comparison of fundamental properties

| | SOAP TYPE | LOW TEMPERATURE | HIGH TEMPERATURE | WATER RESISTANCE | SHEAR STABILITY | EP BEHAVIOR | CORROSION PROTECTION BEHAVIOR |
|---------------------|-------------------|-----------------|------------------|------------------|-----------------|-------------|-------------------------------|
| METAL SOAPS | Calcium | good | moderate | very good | moderate | good | sufficient |
| | Lithium | good | good | good | very good | moderate | good |
| | Aluminum | good | moderate | good | moderate | moderate | very good |
| COMPLEX METAL SOAPS | Calcium | moderate | moderate | very good | moderate | good | moderate |
| | Aluminum | good | good | very good | moderate | very good | good |
| | Lithium | good | very good | very good | very good | very good | good |
| INORGANIC/ORGANIC | Calcium sulfonate | good | good | very good | very good | very good | very good |
| | Urea | good | very good | very good | very good | good | good |
| | Bentonite | good | moderate | moderate | moderate | moderate | moderate |
| | PTFE | good | very good | very good | moderate | good | very good |
| Aerosil | sufficient | good | good | good | sufficient | sufficient | moderate |

Speed factor

The speed factor A_{grease} is the product of the rotation speed n_{grease} and the average bearing diameter $d_{m greese}$ which is calculated from the average of outer bearing diameter D and the inner bearing diameter d .
The speed factor enables the correlation to specific rotation speeds (rpm).

$$A = n \cdot d_m \text{ with } d_m = 1/2 (D+d)$$

| | nd_m (mm min ⁻¹) |
|--------------------------|--------------------------------|
| low rotation speed | <100.000 |
| medium rotation speed | 100.000 - 300.000 |
| high rotation speed | 300.000 - 500.000 |
| very high rotation speed | >500.000 |

Loading conditions C/P

C [N] is the dynamic load rating. It is the loading with an adequate amount of similar bearings which have a nominal lifetime of 1 000 000 rotations.

P [N] is the dynamic equivalent load. This is a calculated value which represents the sum of rotary and axial loading with a special factor.

| C/P | Degree of loading |
|-------|----------------------|
| >30 | very low loading |
| 20-30 | low loading |
| 8-20 | medium loading |
| 4-8 | high loading |
| <4 | extreme high loading |

Technical environmental conditions

This table shows an **extract** of test options of specific standards to simulate and test referring to environmental conditions.

| | High temperature | Low temperature | High loads | Aggressive / aqueous media | High / low rotation speed | incidental unavoidable technical contact with food | Lifetime lubrication / bearing service life | Electric contact |
|--|------------------|-----------------|------------|----------------------------|---------------------------|--|---|------------------|
| WORKED PENETRATION according to DIN ISO 2137 | | | | | | | x | |
| FLOW PRESSURE according to DIN 51805 | | x | | | | | | |
| RHEOLOGY AND TRIBO CELL | x | x | x | | x | | x | |
| OIL SEPARATION according to DIN 51817 | | | | | | | x | |
| DROPPING POINT according to DIN ISO 2176 | x | | | | | | | |
| WATER-RESISTANCE according to DIN ISO 51897-2 | | | | x | | | | |
| SKF EMCOR (STEEL CORROSION) according to DIN 51811 | | | | x | | | x | |
| FAG-FE9 according to DIN 51821 | | | | x | | | x | |
| SKF-ROF-TEST | | | | | x | | x | |
| FAG-FE8 according to DIN 51819 | | | x | | | | x | |
| FOUR-BALL-APPARATUS-WELDING LOAD ACCORDING TO DIN 51350-4 | | | x | | x | | | |
| SHELL ROLLER according to ASTM D 1831 | | | x | | x | | x | |
| ELECTRIC CONDUCTIVITY | | | | | | | | x |
| HYGIENE REQUIREMENT according to DIN ISO 21469 | | | | | | x | | |
| H1 | | | | | | x | | |
| HALAL, KOSHER | | | | | | x | | |



Low temperature

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES |
|-------------------------------------|-----------|--|------|-----------------------------|----------------------------------|---|--|
| SYN-setral-LI/S 2 | Synthetic | 27 | 2 | Special lithium | -50 to +130 (short term +150) | Fully synthetic low-temperature grease for long-term lubrication | <ul style="list-style-type: none"> - Reduction of running-in time - Good compatibility with plastics - Very good low-temperature properties |
| SYN-setral-43 B/N | Synthetic | 30 | 2 | Special lithium | -50 to +140 | Full synthetic special grease with white solid lubricants for a wide temperature range | <ul style="list-style-type: none"> - Life-time lubrication - Low running-in torque at low-temperature - Excellent corrosion protection - Very good anti oxidation behaviour |
| SYN-setral-SINT/125 CST-2 FD | Synthetic | 90 | 2-3 | Special | -55 to +200 (short term +220) | Synthetic special H1 grease for low and high temperatures based on an innovative lubrication technology | <ul style="list-style-type: none"> - More economical compared to common PTFE greases - Very good shear stability - Compatible with most plastics and elastomers - Low running-in torque at low-temperature |
| SYN-setral-CA/C2-80 | Synthetic | 80 | 1-2 | Calcium sulfonate complex | -55 to +150 | Synthetic and media-resistant low-temperature grease with high wear and corrosion protection | <ul style="list-style-type: none"> - Shear stability - Excellent corrosion protection - Excellent wear protection |
| SYN-setral-INT/90 M-2 | PFPE | 85 | 2 | PTFE | -75 to +220 (short term +240) | Fully synthetic lifetime lubricant with excellent low-temperature properties | <ul style="list-style-type: none"> - Especially wide temperature application range - High wear protection - Extended re-lubrication intervals |

*Varies depending on NLGI class



High temperature

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES |
|---------------------------------------|-----------|--|-------------|---------------------------------|----------------------------------|--|--|
| SYN-setral-INT/250 S ...series | PFPE | 500 480 480 | 1 2 3 | PTFE | -40 to +260 (short term +280) | Fully synthetic special grease for long-term lubrication, stable at high temperature and aggressive ambience | <ul style="list-style-type: none"> - Extremely low evaporation rate - Extended relubrication cycles - Economical in consumption |
| SYN-setral-INT/330 Special | PFPE | 1000 | 2 | Organic, white solid lubricants | -10 to +300 (short term +330) | Fully synthetic, special grease for lubrication at high temperature and aggressive ambience | <ul style="list-style-type: none"> - Suitable for extreme temperatures - Extraordinary low evaporation losses at up to +300 °C - Very good adhesion property |
| SYN-setral-SINT/425 CST-2 | Synthetic | 425 | 2 | Special | -20 to +220 (short term +240) | Synthetic high-temperature special grease based on an innovative lubrication technology | <ul style="list-style-type: none"> - Very good shear stability - Highest pressure and temperature stability - More economical compared to common PTFE greases |
| SYN-setral-PU 2 | Synthetic | 100 | 2 | Urea | -40 to +180 | Fully synthetic low and high-temperature grease for long-term lubrication | <ul style="list-style-type: none"> - Very good anti oxidation behaviour - Low-noise roller bearing lubricant - Extended re-lubrication intervals |
| SYN-setral-PU 460 | Synthetic | 460 | 2 | Urea, white solid lubricants | -30 to +180 (short term +200) | Fully synthetic urea grease for a wide temperature range | <ul style="list-style-type: none"> - High thermal stability - Very good anti oxidation behaviour - Extended re-lubrication intervals |

*Varies depending on NLGI class



High load

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES |
|----------------------------------|-------------|--|------|---|-------------------------------|---|--|
| SYN-setral-LI/C 400 PD | Synthetic | 400 | 2 | Lithium complex | -38 to +180 | Fully synthetic high-temperature grease with EPL additive technology for extremely loaded slide and roller bearings | <ul style="list-style-type: none"> - Excellent wear protection - Highest load carrying ability - Low and stable FEB friction coefficient run at room temperature according to DIN 51819 |
| MI-setral-CA/C2-400 | Mineral oil | 460 | 1-2 | Calcium sulfonate complex | -25 to +150 (short term +180) | Media-resistant special grease with excellent wear and corrosion protection | <ul style="list-style-type: none"> - Excellent wear protection - Excellent adhesion - No spin-off/drop-off at high speeds |
| MI-setral-LI/C2-1000 MG | Mineral oil | 1000 | 2 | Lithium complex, black solid lubricants | -20 to +150 | Long-term grease with high base oil viscosity and special additive technology for applications under heavy loads | <ul style="list-style-type: none"> - Excellent wear protection - High load carrying ability - Economical in consumption |
| SYN-setral-SINT/425 CST-2 | Synthetic | 425 | 2 | Special | -20 to +220 (short term +240) | Synthetic high-temperature special grease based on an innovative lubrication technology | <ul style="list-style-type: none"> - Very good shear stability - Good corrosion protection - Excellent wear protection |
| MI-setral-LI/PD 2-400 | Mineral oil | 400 | 2 | Lithium | -20 to +140 | High-pressure grease without solids, with EPL additive technology | <ul style="list-style-type: none"> - Surface smoothening - Extremely low coefficient of friction - Excellent wear protection |

* Varies depending on NLGI class



High speed

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES |
|-------------------------------|-------------|--|------|-----------------------------|-------------------------------|--|--|
| SYN-setral-HSP/N | Synthetic | 27 | 2 | Lithium complex | -50 to +130 (short term +150) | Fully synthetic high speed and spindle grease | <ul style="list-style-type: none"> - Very good wear protection - Stable at very high speeds - Avoids stick-slip |
| MI-setral-LI/PD 2 | Mineral oil | 120 | 2 | Lithium | -35 to +140 | High-pressure grease without solids, with EPL additive technology | <ul style="list-style-type: none"> - Excellent wear protection - Extremely low coefficient of friction - Surface smoothening |
| SYN-setral-HSR | Synthetic | 15 | 2 | Lithium | -50 to +120 | Semi-synthetic special grease for slide and roller bearings operating at high speed | <ul style="list-style-type: none"> - Suitable for high speed - Very good wear protection - Good anti oxidation behaviour |
| SYN-setral-CA/C2-30 FD | Synthetic | 30 | 2 | Calcium sulfonate complex | -25 to +150 (short term +180) | Media-resistant H1 high-performance and low-temperature grease with high wear and corrosion protection | <ul style="list-style-type: none"> - High load carrying ability - Excellent wear protection - Shear stability |
| SYN-setral-LI/S 2 | Synthetic | 27 | 2 | Special lithium | -50 to +130 (short term +150) | Fully synthetic low-temperature grease for long-term lubrication | <ul style="list-style-type: none"> - Wide application temperature range - Significantly shorter running-in phases - Good anti oxidation behaviour |

* Varies depending on NLGI class



H1 lubricants

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES | CERTIFICATS |
|--|-----------|--|-------------------|-----------------------------|----------------------------------|---|---|------------------------|
| SYN-setral-INT/250 FD ...series | PFPE | 500 | 00 0 1 2 | PTFE | -40 to +260 | H1 high-temperature grease for long-term lubrication in the food and pharmaceutical industry, particularly at high temperatures and aggressive ambience | <ul style="list-style-type: none"> - High load carrying ability - Resistant against chemicals and aggressive media - Good anti oxidation behaviour | H1 Koscher Halal |
| SYN-setral-SINT/425 CSF-2 FD | Synthetic | 425 | 2 | Special | -55 to +200 (short term +220) | H1 high-temperature special grease based on an innovative lubrication technology | <ul style="list-style-type: none"> - Excellent wear protection - Very good anti oxidation behaviour - Low wear values on FE8 run with angular ball bearing at 200°C according to DIN 51819 part 2 | H1 Koscher Halal |
| SYN-setral-CA/C2 FD ...series | Synthetic | 30 100 400 | 2 | Calcium sulfonate complex | -30 to +170 (short term +180) | Multi-purpose and media-resistant H1 high-temperature grease with high wear and corrosion protection | <ul style="list-style-type: none"> - High load carrying ability - Excellent wear protection - Shear stability | H1 Koscher Halal |
| SYN-setral-AL/C FD ...series | Synthetic | 260 | 00 0 1 2 | Aluminum complex | -40 to +150 (short term +160) | Fully synthetic H1 aluminium complex grease for the food and pharmaceutical industry | <ul style="list-style-type: none"> - Compatible with usual plastic and sealing materials - Free from mineral oil - Very good anti oxidation behaviour | H1 Koscher Halal |
| SYN-setral-BFG 2-400 | Synthetic | 400 | 2 | Organic | -40 to +120 (short term +150) | H1 adhesive lubricating grease for the food, beverage and pharmaceutical industry | <ul style="list-style-type: none"> - Approved beer foam compatibility with passed sensor system check of odor and taste from research center Weihenstephan - Tested by Institut Nehrting to ensure safety in terms of food law - Good anti oxidation behaviour | H1 Koscher Halal |

*Varies depending on NLGI class





Media-resistant

| PRODUCT | BASE OIL | BASE OIL VISCOSITY AT 40 °C [mm ² /s] | NLGI | SOLID LUBRICANTS/ THICKENER | TEMPERATURE RANGE [°C] * | DESCRIPTION | FEATURES |
|---------------------------------------|--------------|--|-------------|---------------------------------|----------------------------------|--|---|
| SYN-setral-INT/250 A ...series | PFPE | 510 | 0 1 2 | PTFE | -40 to +250 (short term +280) | Fully synthetic special grease for long-term lubrication, stable at high temperature and aggressive ambience | <ul style="list-style-type: none"> - Resistant against chemicals and aggressive media - Extremely low evaporation rate - Neutral to most plastics and elastomers |
| SYN-setral-INT/330 Special | PFPE | 1000 | 2 | Organic, white solid lubricants | -10 to +300 (short term +330) | Fully synthetic, special grease for lubrication at high temperature and aggressive ambience | <ul style="list-style-type: none"> - Insoluble in usual solvents, acids, lye - Very good adhesion property - H1 registered |
| SYN-setral-INT/1000 | PFPE | 500 | 2 | Organic, white solid lubricants | -20 to +300 (short term >300) | Fully synthetic special grease free from PTFE, for long-term lubrication under extreme conditions | <ul style="list-style-type: none"> - Resistant against chemicals and aggressive media - Extend re-lubrication intervals - Excellent wear protection |
| MI-setral-CA/C2 ...series | Mineral oil | 220 460 | 2 | Calcium sulfonate complex | -30 to +160 (short term +180) | Media-resistant special grease with excellent wear and corrosion protection | <ul style="list-style-type: none"> - Excellent media-resistant - Excellent water resistance - Excellent corrosion protection |
| SI-setral-L 50 | Silicone oil | 150 | 2 | PTFE | -50 to +200 | H1 high-temperature silicone grease with PTFE | <ul style="list-style-type: none"> - Stable to cold and hot water - Hot steam resistant - Compatible with FKM, NBR elastomers |

*Varies depending on NLGI class



Applications

This selection table shows a first overview of diverse application areas of special lubricating greases.

This collection is an extract of our product portfolio and serves as a first guideline.

| PRODUCT | NGLI | TEMPERATURE RANGE [°C]* | APPLICATION | | | | | | | | | | CHARACTERISTICS | | | | | | | | | | | |
|---------------------------|----------|-------------------------------|-------------|------|-----------------|---------|----------|---------------|---------------------|----------------|-------------------------|-----------------------|-----------------|------------------|-----------|-----------|-----------|------------|------------------|---------------------|-----------------------------------|------------------|--------------------------|--------------------------|
| | | | Bearing | Gear | Valve / Fitting | Sealing | Assembly | Guide / Joint | H1 DIN EN ISO 21469 | Halal & Kosher | Beer foam compatibility | Life-time lubrication | Low temperature | High temperature | High load | Vibration | Low speed | High speed | Water resistance | Chemical resistance | Plastic and sealing compatibility | Electric contact | Biological degradability | Solid lubricants content |
| Mi-setral-43 N | 2 | -20 to +130 | ++ | ++ | | | | | | | | | | | | | | | | | | | | ++ |
| Mi-setral-61 B ...series | 00/0/2 | -20 to +110 | ++ | ++ | | | | | | | | | | | | | | | | | | | | ++ |
| Mi-setral-AL/C2 FD | 2 | -20 to +130 (short term +150) | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | |
| Mi-setral-AL/FD ...series | 00/1/2 | -25 to +140 (short term +160) | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-CA/C2-180 | 1-2 | -30 to +160 | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-CA/C2-180 M | 1-2 | -25 to +160 | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-CA/C2-400 | 1-2 | -25 to +150 (short term +180) | ++ | ++ | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-FKR ...series | 0/2 | -15 to +120 (short term +140) | | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-H | 2 | -20 to +125 | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-HT 2 | 2 | -20 to +180 (short term +200) | ++ | | | | | | ++ | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-LI/B/EP 2 | 2 | -20 to +130 | ++ | | | | | | + | | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-LI/C 2 | 2 | -20 to +150 (short term +180) | ++ | | | | | | | | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-LI/C2-1000 M6 | 2 | -20 to +150 | ++ | | | | | | | | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-LI/PD ...series | 00/0/1/2 | -35 to +140 | ++ | ++ | | | | | | | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-06/0-800 | 0 | -20 to +150 (short term +180) | | ++ | | | | | | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-AL/C0-500 G | 0 | -30 to +120 (short term +150) | | ++ | | | | | | ++ | | | | | | | | ++ | | | | | | ++ |
| Mi-setral-PU ...series | 2 | -30 to +150 (short term +170) | ++ | ++ | | | | | | ++ | | | | | | | | ++ | | | | | | ++ |
| SI-setral-642 | 1-2 | -40 to +200 | | | | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |
| SI-setral-1041/FD | 2-3 | -30 to +200 | | | | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |
| SI-setral-929/FD | 3 | -50 to +200 | | | | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |
| SI-setral-150 | 2 | -50 to +200 | ++ | ++ | | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |
| SI-setral-LI/C 2 | 2 | -50 to 220 (short term +230) | | | | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |

MINERAL OIL

SILICONE OIL

Key: ++ = recommend + = suitable *Varies depending on NGLI class

| TYPE OF BASE OIL | PRODUCT | NGLI | TEMPERATURE RANGE [°C]* | APPLICATION | | | | | | | | | | CHARACTERISTICS | | | | | | | | | | |
|---------------------------------|------------------------------|-------------------------------|-------------------------------|-------------|------|-----------------|---------|----------|---------------|---------------------|----------------|-------------------------|-----------------------|-----------------|------------------|-----------|-----------|-----------|------------|------------------|---------------------|-----------------------------------|------------------|--------------------------|
| | | | | Bearing | Gear | Valve / Fitting | Sealing | Assembly | Guide / Joint | H1 DIN EN ISO 21469 | Halal & Kosher | Beer foam compatibility | Life-time lubrication | Low temperature | High temperature | High load | Vibration | Low speed | High speed | Water resistance | Chemical resistance | Plastic and sealing compatibility | Electric contact | Biological degradability |
| MINERAL OIL | SYN-setral-43 B/N | 2 | -50 to +140 | | ++ | | | | | ++ | | | | | | | | | | | | | | ++ |
| | SYN-setral-53 B ...series | 0/3 | -5 to +150 | ++ | ++ | | | | | | ++ | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-54 N | 2-3 | -20 to +180 | ++ | | | | | | | | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-AL/C FD ...series | 00/0/1/2 | -40 to +150 | ++ | ++ | | | | | ++ | ++ | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-CA/C-FD ...series | 0/2 | -35 to +150 | ++ | ++ | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-BF6 2-400 | 2 | -40 to +120 (short term +150) | | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-CA/C2-80 | 1-2 | -55 to +150 | ++ | | | | | | | | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-D6 313 | 1 | -5 to +150 | | | | | | | | ++ | | | | | | | | ++ | | | | | ++ |
| | SYN-setral-LI/S-2 UV | 2 | -50 to +130 (short term +150) | ++ | ++ | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-EK ...series | 0-1/2 | -50 to +150 | | ++ | | | | | | | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-HSR | 2 | -50 to +120 | ++ | + | | | | | | + | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-HSP/N | 2 | -50 to +130 (short term +150) | ++ | ++ | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-LI/C 400 PD | 2 | -38 to +180 | ++ | | | | | | | | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-HT 2 N | 1-2 | -20 to +180 (short term +200) | ++ | | | | | | | + | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-PU ...series | 1-2/2 | -40 to +160 (short term +180) | ++ | | | | | | | | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-PG 814 | 1-2 | -40 to +150 (short term +160) | ++ | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-CA 2 B | 2 | -30 to +80 (short term +100) | + | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-SPEEDFLEX 2 | 2-3 | -40 to +120 (short term +140) | ++ | ++ | | | | | | | | | | | | | ++ | | | | | | ++ |
| | SYN-setral-SINT/425 CST-2 | 2 | -20 to +220 (short term +240) | ++ | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ |
| | SYN-setral-SINT/125 CST-2 FD | 2-3 | -55 to +200 (short term +220) | ++ | | | | | | | + | ++ | | | | | | ++ | | | | | | ++ |
| SYN-setral-SINT/425 CSF-2 FD | 2 | -20 to +220 (short term +240) | ++ | | | | | | | + | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/330 Special | 2 | -10 to +300 (short term +330) | ++ | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/1000 | 2 | -20 to +300 | ++ | + | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/190 R-2 | 2 | -45 to +250 | ++ | + | | | | | | | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/OX ...series | 2 | -20 to +250 | + | | | | | | | | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/250 A ...series | 0/1/2 | -40 to +250 (short term +280) | ++ | ++ | | | | | | + | | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/310 FD | 1 | -20 to +310 (short term +320) | ++ | | | | | | | ++ | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/250 FD ...series | 00/0/1/2 | -40 to +260 (short term +280) | ++ | | | | | | | + | ++ | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/250 S ...series | 1/2/3 | -40 to +260 (short term +280) | ++ | | | | | | | + | | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/250 L ...series | 1/2 | -40 to +250 (short term +280) | ++ | | | | | | | + | | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/300 | 2 | -30 to +300 | | | | | | | | + | | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/90 M-2 ...series | 2 | -75 to +220 (short term +240) | ++ | ++ | | | | | | + | | | | | | | ++ | | | | | | ++ | |
| SYN-setral-INT/Special | 3 | -20 to +280 | | + | | | | | | + | | | | | | | ++ | | | | | | ++ | |

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