Forward

on your industrial evolution

Product catalogue **2023**

Castrol

At a glance

Industrial lubricants 6
Gear oils 8
Hydraulic oils 11
Machine and slideway oils 14
Spindle oils 15
Compressor oils 15
Turbine oils 16
Circulating oils 16
Heat transfer fluids 17
Gas engine oils 17
Chain lubricants 18
Greases 20
Speciality lubricants 24
Pastes 25
Sprays 25
Robotics 26
Wind 29

Lubricants for the food, alcohol and tobacco industries 30
Greases 32
Gear oils 33
Hydraulic oils 33
Compressor oils 33
Chain lubricants 34
Medicinal white oils 34
Speciality lubricants 34
Sprays 34

Metalworking fluids 36
Water-soluble cutting fluids 39
Synthetic water-soluble cutting fluids 41
Water-insoluble cutting fluids 42
Industrial cleaners 45
Corrosion preventatives 48
Quenching oils 50
Forming oils 51

General
Abbreviations 54
Technical details 55
New product names 60

Industrial solutions for multiple requirements

We can offer a range of products and services to help you drive your business forward.

Castrol, one of the world's leading lubricant brands, has a proud heritage of innovation and fueling the dreams of pioneers. Our passion for performance, combined with a philosophy of working in partnership, has enabled Castrol to develop lubricants, coolants and greases that have been at the heart of numerous technological feats on land, air, sea and in space for over 100 years.

We have the expertise to assist you in selecting the right products and services. Furthermore, we help you improve the productivity and quality of your production while reducing costs at the same time..

Our industrial lubricants and metalworking fluids are based on global experience, an innovative mindset, the most advanced technologies and high-quality products, so you can reap the benefits in your application processes.

Higher productivity
Longer equipment life
More efficiencies

In addition, Castrol were the first lubricants company to provide the wind industry with a carbon neutral gear oil in 2018, we have since expanded our carbon neutral offer. This means wherever you are in the world you can use selected Castrol products knowing they are carbon neutral, according to PAS 2060.

Our top priority is to support you in achieving the best possible performance in your industry. We off er you customised solutions and services to suit your individual needs in your production processes.

We support you in every respect. Our sales team helps you select the right products and services for your specifi c requirements. We are at your side with our comprehensive knowledge and outstanding service to ensure your success.

As our partner, you can depend on Castrol to provide the right products and services for your application.

Industrial lubricants

Castrol offers you a comprehensive range of industrial lubricants for the most diverse areas of application. We have the right products even for the most demanding and cost-intensive applications, which require the latest in lubrication technologies. This allows us to help you optimise your production equipment and protect them from wear.

We can help your equipment work reliably and for longer periods even in difficult and sometimes aggressive environments, therefore increasing the productivity of your machinery.

Gear oils

Our large selection of mineral and synthetic gear oils meet your needs – from standard applications to the most difficult operating conditions such as in wind turbines. These products were developed for a wide range of gear types.

Hydraulic oils

Our superb hydraulic oils fulfil far-reaching requirements such as rapid biodegradability, a high viscosity index, good anti-wear properties along with perfect protection against rust and oxidation.

Machine and slideway oils

Our slideway oils have outstanding lubrication properties, which prevents stick-slip on slideways, and they have a high load-carrying capacity, which significantly reduces wear. These products are suitable to use together with water- soluble cutting fluids thanks to their outstanding demulsifying capacity and their cutting fluids compatibility.

Spindle oils

We offer you high-performance spindle oils to lubricate spindle bearings. These protect your bearings against premature wear and prevent machine downtime. Spindle oils aim to cool spindles and protect them against corrosion and wear.

Turbine oils

Our Perfecto X and XEP turbine oils are based on the latest additive and base-oil technology. They are used to lubricate and cool steam and gas turbines. They fulfil the requirements of "lubricants and control oils" of DIN 51 515 Part 2 and those of ISO 8068.

Circulating oils

Specifically developed for the critical lubrication demands of larger steel mills, our products are highly suitable for both basic bearings and advanced MORGOIL™ roll neck bearings (which require an outstanding demulsifying property) and for No-Twist™ rollers.

Gas engine oils

The superb gas motor oils of the Castrol Duratec range fulfil the demands of the latest generation of motors. They provide the perfect wear protection, even under high stress.

Medicinal white oils

Our medicinal white oils are specifically designed for lubrication of medical equipment. In addition, they can be used in the food and cosmetic industry where NSF-N1 and FDA approvals are required.

Greases

We offer you a large assortment of outstanding greases – from multi-purpose standard greases and high-performance greases to greases applied in high-temperature environments – from which you can pick the best product for your highly specific application.

Compressor oils

We have high-performance products for screw and piston compressors suitable for small single-state units to multi-stage designs with very high capacity. Depending on individual application cases, we can offer mineral or synthetic fluids.

Highly fire-resistant hydraulic fluids

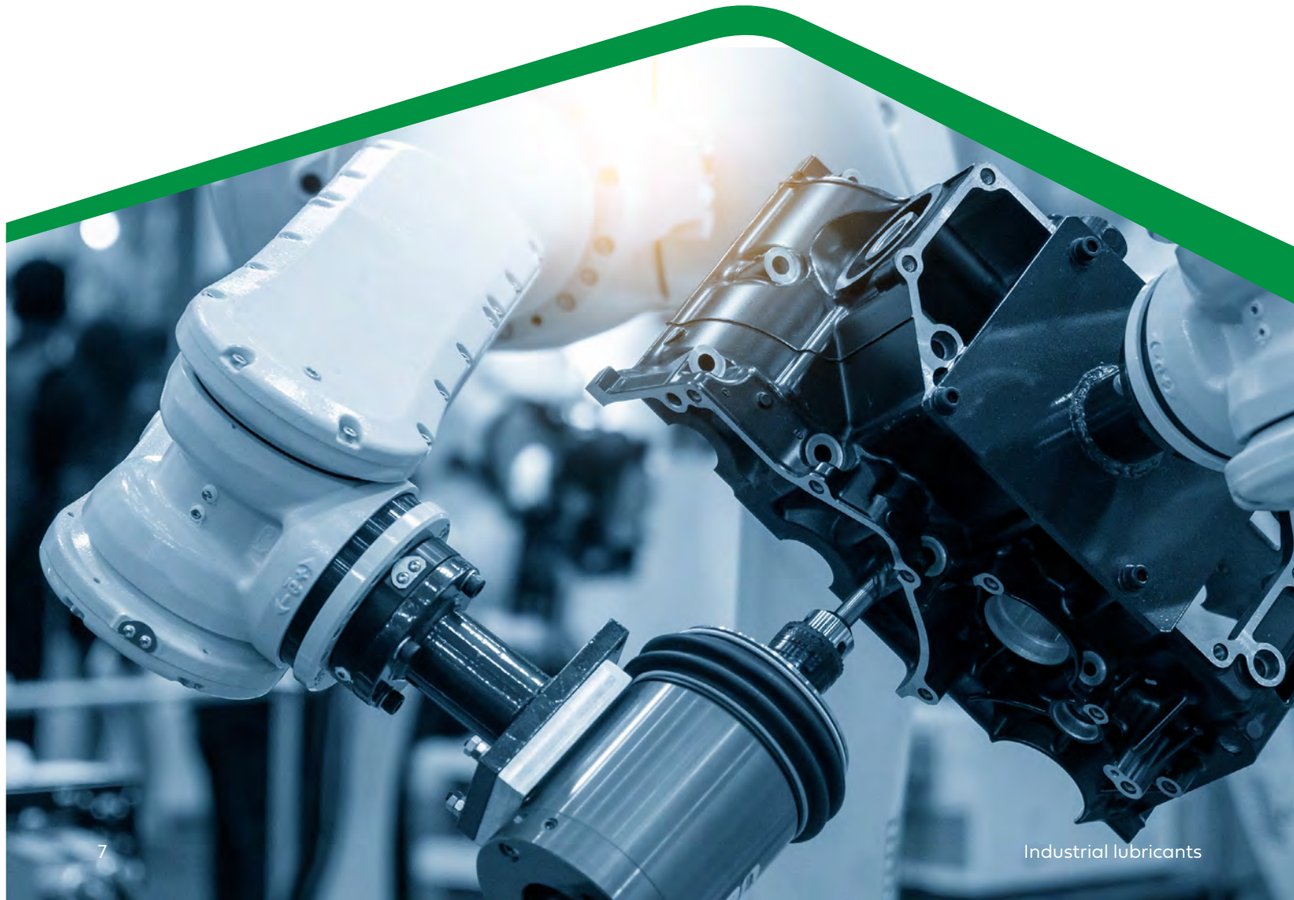
Among the highly fire-resistant hydraulic fluids is water glycol. This product has excellent fire resistance, and has proven its excellent anti-wear performance in numerous systems. In addition, we can supply you with Polyolester-based hydraulic fluids with improved anti-wear characteristics.

Heat transfer fluids

Our heat transfer oils are designed for de-pressurised, closed heat transfer systems. They offer excellent heat transfer over a broad temperature range.

Chain lubricants

Our high-performance chain lubricants are suitable for difficult operating conditions such as high temperatures, dusty, wet or corrosive environments as well as electrogalvanisation processes or galvanic metal separation.



Gear oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Pour- point (°c)	Application
Magna CT 150	Mineral oil	-	150	98	-9	Gear Oils type CL fulfil the requirements of DIN 51 517 Part 2. They include anti-corrosion and anti-wear protection and have an outstanding demulsifying ability. Used for example in the steel industry.
Magna CT 220	Mineral oil	-	220	97	-15	
Magna CT 320	Mineral oil	-	320	97	-9	
Magna CT 460	Mineral oil	-	460	98	-6	
Magna CT 680	Mineral oil	-	680	>95	-12	
Alpha BMB 100	Mineral oil	EP/AW/FSS	100	93	-27	Gear oils with solid lubricants suitable for use in gears with high loads and for bearings. In compliance with the requirements of DIN 51 517 Part 3 Type CLPF.
Alpha BMB 220	Mineral oil	EP/AW/FSS	220	90	-15	
Alpha BMB 320	Mineral oil	EP/AW/FSS	320	94	-12	
Alpha BMB 460	Mineral oil	EP/AW/FSS	460	95	-9	
Alpha BMB 680	Mineral oil	EP/AW/FSS	680	94	-6	
Alpha CEP 150	Mineral oil	EP/AW	150	97	-21	High-alloyed gear oil specifically developed for gear systems, bearings, circulating systems under high loads as well as worm gears, hypoid gears and press gears.
Alpha VT 32	Mineral oil	EP/AW	32	105	-42	Power transmission fluid for hydrodynamic drives with integrated reduction gears, hydraulic drive systems and converters. Released by Deutsche Bahn and Voith Turbo: VEH A/8,3/90 SKS: ≥ 12. CLP/HLP.
Alpha EP 32	Mineral oil	EP/AW	32	105	-27	Heavy metal-free gear oils suitable for use in gears with medium and high load-carrying capacity as well as bearings and hydraulic systems. In compliance with the requirements of DIN 51 517. Part 3 - CLP.
Alpha EP 46	Mineral oil	EP/AW	46	100	-27	
Alpha EP 68	Mineral oil	EP/AW	68	97	-30	
Alpha EP 100	Mineral oil	EP/AW	100	94	-19	
Alpha EP 150	Mineral oil	EP/AW	150	92	-12	
Alpha EP 220	Mineral oil	EP/AW	220	93	-12	
Alpha EP 320	Mineral oil	EP/AW	320	97	-15	
Alpha EP 460	Mineral oil	EP/AW	460	97	-9	
Alpha EP 680	Mineral oil	EP/AW	680	82	-12	
Alpha SP 46	Mineral oil	EP/AW	46	102	-21	Heavy metal-free gear oil suitable for use in gears with medium and high load-carrying capacity as well as bearings and hydraulic systems. In compliance with the requirements of DIN 51 517. Part 3 - CLP, DIN 51 524 Part 2 - HLP and SEB 181 226.
Alpha SP 68	Mineral oil	EP/AW	68	102	-21	
Alpha SP 100	Mineral oil	EP/AW	100	97	-21	Heavy metal-free gear oil suitable for use in gears with medium and high load carrying capacity as well as bearings and in circulating systems. They comply with the requirements of DIN 51 517 Part 3 - CLP, DIN 51 524 Part 2 - HLP, Flender BA 7300, and SEB 181 226.
Alpha SP 150	Mineral oil	EP/AW	150	97	-21	
Alpha SP 220	Mineral oil	EP/AW	220	97	-21	
Alpha SP 320	Mineral oil	EP/AW	320	96	-21	
Alpha SP 460	Mineral oil	EP/AW	460	96	-6	
Alpha SP 680	Mineral oil	EP/AW	680	90	-6	
Alpha SP 150 S	Mineral oil	EP/AW + VCI	150	95	-18	Heavy metal-free gear oil suitable for use in gears with medium and high load-carrying capacity to protect against shrinkage and corrosion (with VCI inhibitor). Complies with the requirements of DIN 51 517 Part 3 - CLP (with the exception of the flash point) and Flender W 2900 DE.
Alpha SP 220 S	Mineral oil	EP/AW + VCI	220	95	-18	
Alpha SP 100 SR	Mineral oil	EP/AW + VCI	100	>95	-15	Castrol Alpha SP 100 SR gear oil with shrinkage and corrosion protection that has good anti-wear protection and good high-pressure properties. VCI inhibitors ensure improved corrosion protection during storage of gears after running or running on the test stand. They comply with DIN 51 517 Part 3 - CLP with the exception of the flash point.
Alphasyn EP 150	PAO	EP/AW	150	140	- 48	Gear oils suitable for use in closed gears which are exposed to shock loads e.g. mining, quarries, ship applications and the paper industry. They fulfil the following requirements: DIN 51 517 Part 3, AGMA 9005 - D94, U.S. Steel 224, David Brown Type E, Hansen Transmissions, Flender and Lohmann & Stolterfoht.
Alphasyn EP 220	PAO	EP/AW	220	140	- 42	
Alphasyn EP 320	PAO	EP/AW	320	140	-36	
Alphasyn EP 460	PAO	EP/AW	460	140	-36	
Alphasyn GS 150	PG	EP/AW	150	199	- 45	PAG (Polyglycol) based Synthetic gear oils suitable for lubricating gears under high mechanical and thermal loads. Operating temperature range: briefly up to +180°C. They fulfil the requirements of DIN 51 517 Part 3 - CLP.
Alphasyn GS 220	PG	EP/AW	220	215	- 45	
Alphasyn GS 320	PG	EP/AW	320	200	- 45	
Alphasyn GS 460	PG	EP/AW	460	238	-39	
Alphasyn GS 680	PG	EP/AW	680	250	-33	

Gear oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Pour- point (°c)	Application
Alphasyn HTX 68	PAO	EP/AW	68	147	-42	PAO based synthetic gear oil of type CLP, in accordance with DIN 51 517 Part 3. Castrol Alphasyn HTX range is mainly used for lubricating circulating systems operating under high thermal loads.
Alphasyn HTX 220	PAO	EP/AW	220	154	-36	
Alphasyn HTX 1000	PAO	EP/AW	1000	165	-30	
Alphasyn PG 150	PG	EP/AW	150	225	-39	PAG (Polyglycol) based synthetic gear oils suitable for lubricating gears under high mechanical and thermal loads. Operating temperature range: briefly up to +180°C. They fulfil the requirements of DIN 51 517 Part 3 – CLP.
Alphasyn PG 220	PG	EP/AW	220	235	-39	
Alphasyn PG 320	PG	EP/AW	320	240	-36	
Alphasyn PG 460	PG	EP/AW	460	255	-36	
Alphasyn T 32	PAO	EP/AW	32	146	-57	Gear and hydraulic oils free of heavy metals used for gears and central lubrications and hydraulics subjected to high thermal loads. Fulfil the requirements of DIN 51 517 Part 2 - CL.
Alphasyn T 46	PAO	EP/AW	46	139	-57	
Alphasyn T 68	PAO	EP/AW	68	153	-57	Gear and hydraulic oils free of heavy metals used for gears and central lubrications and hydraulics subjected to high thermal loads. Fulfil the requirements of DIN 51 517 Part 3 - CLP.
Alphasyn T 100	PAO	EP/AW	100	154	-51	
Alphasyn T 150	PAO	EP/AW	150	130	-42	
Alphasyn T 220	PAO	EP/AW	220	140	-45	
Alphasyn T 320	PAO	EP/AW	320	140	-33	
Alphasyn T 460	PAO	EP/AW	460	145	-30	
Molub-Alloy GM 90/220	Mineral oil	EP/AW/FSS	220	98	-18	Gear oils suitable for lubricating closed gears. Suitable for use in spur gears, helical gears, bevel gears, or spiral tooth bevel gears.
Molub-Alloy GM 140/460	Mineral oil	EP/AW/FSS	460	95	-15	
Molub-Alloy GM 170/680	Mineral oil	EP/AW/FSS	680	97	-9	
Molub-Alloy GM 690/320	Mineral oil	EP/AW/FSS	320	100	-15	
Molub-Alloy GM 969/320	Mineral oil	EP/AW/FSS	320	94	-15	Gear lubricant for use in heavy-duty excavators such as dredgers and crawlers, and in industrial and ship gears.
Molub-Alloy GM 300S/1000	Mineral oil	EP/AW/FSS	1000	95	-12	Highly viscous gear oils for use in closed gears, in heavy industrial and mining equipment such as cableway excavators and other construction equipment.
Molub-Alloy GM 1500	Mineral oil	EP/AW/FSS	1500	95	-9	
Optigear BM 68	Mineral oil	PD	68	103	-24	Gear oils for long-term lubrication under extreme conditions. For use in spur gears, bevel gears, worm gears, cams, control shafts and planetary gears, actuators, closed gear coupling and all types of bearings (roller bearings, disk cylinders, full complement cylindrical roller bearings and thrust bearings).
Optigear BM 100	Mineral oil	PD	100	100	-21	
Optigear BM 150	Mineral oil	PD	150	98	-18	
Optigear BM 220	Mineral oil	PD	220	92	-15	
Optigear BM 320	Mineral oil	PD	320	92	-15	
Optigear BM 460	Mineral oil	PD	460	92	-12	
Optigear BM 680	Mineral oil	PD	680	92	-9	
Optigear BM 1000	Mineral oil	PD	1000	93	-9	
Optigear BM 3000	Mineral oil	PD	3000	120	0	
Optigear EP 32	Mineral oil	EP/AW/PD	32	107	-33	High-performance gear oil for long-term and permanent lubrication even under the most difficult mechanical conditions. Suitable for use in spur gears and bevel gears also exposed to shock loads, ball bearing lubrication, gear couplings and drive units of rail-based vehicles. Our Optigear EP products comply with DIN 51 517 Part 3, CLP gear oils. Also meets API GL-5 requirements.
Optigear EP 46	Mineral oil	EP/AW/PD	46	105	-30	
Optigear EP 68	Mineral oil	EP/AW/PD	68	102	-27	
Optigear EP 100	Mineral oil	EP/AW/PD	100	97	-24	
Optigear EP 150	Mineral oil	EP/AW/PD	150	95	-24	
Optigear EP 220	Mineral oil	EP/AW/PD	220	95	-15	
Optigear EP 320	Mineral oil	EP/AW/PD	320	95	-9	
Optigear EP 460	Mineral oil	EP/AW/PD	460	94	-9	
Optigear RMO	PAO	PD	150	133	-39	High-performance long-term gear oil for spur gears, bevel gears and ball bearings.
Optigear ALR X1	PAO	EP/AW	150	>145	-42	Fully synthetic, high-performance transmission fluid for high-speed axle drives on robots. Yellow colourant added to identify leaks.
Optigear Synthetic A 320	PAO	PD	320	140	-36	Fully synthetic gear oils for industrial gears operating under high loads such as in wind turbines, conveyor belts, crane gears, elevators, steel mills, heavy-duty cams, gear couplings, chain drives, drives and joints of robots, slide bearings, ball bearings and transport systems during winter operation.

Gear oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Optigear Synthetic PD 68 ES	PAO	PD	68	151	-51	Synthetic high-performance gear oils based on synthetic hydrocarbons (polyalphaolefins) and special PD additives (plastic deformation). It is used in spur gears, bevel gears and planetary gears as well as heavy-duty gears. It prevents the formation of micro-pitting and it has a positive effect on the contact pattern of gears. In compliance with the requirements of DIN 51 517 Part 3 - CLP.
Optigear Synthetic PD 100 ES	PAO	PD	100	159	-51	
Optigear Synthetic PD 150 ES	PAO	PD	150	165	-51	
Optigear Synthetic PD 220 ES	PAO	PD	220	172	-48	
Optigear Synthetic PD 320 ES	PAO	PD	320	180	-45	
Optigear Synthetic PD 460 ES	PAO	PD	460	178	-42	
Optigear Synthetic PD 680 ES	PAO	PD	680	176	-39	
Optigear Synthetic X 320	PAO	PD	320	152	-33	Fully synthetic gear oils for use in spur gears, bevel gears and planetary gears and high loads such as in wind energy.
Optigear Synthetic X 460	PAO	PD	460	153	-27	
Optigear Synthetic 800/100	PG	EP/AW	100	205	-42	Synthetic gear oils to lubricate ball bearings and slide bearings in spur gears, bevel gears and in worm gears of slide bearings and ball bearings, PVC calendering lines, kneaders, conveyor systems, steel mills and grinders.
Optigear Synthetic 800/150	PG	EP/AW	150	210	-36	
Optigear Synthetic 800/220	PG	EP/AW	220	215	-33	
Optigear Synthetic 800/320	PG	EP/AW	320	230	-30	
Optigear Synthetic 800/460	PG	EP/AW	460	240	-30	
Optigear Synthetic 800/680	PG	EP/AW	680	260	-27	
Optigear Synthetic 800/1000	PG	EP/AW	1000	275	-24	
Optigear Synthetic 800/1500	PG	EP/AW	1500	290	-12	
Optigear 1100/68	Mineral oil	PD	68	100	-33	Gear oils to lubricate spur gears, bevel gears, planetary gears and gear couplings as well as sliding and rolling surfaces of bearings.
Optigear 1100/100	Mineral oil	PD	100	97	-30	
Optigear 1100/150	Mineral oil	PD	150	96	-27	
Optigear 1100/220	Mineral oil	PD	220	95	-24	
Optigear 1100/320	Mineral oil	PD	320	95	-21	
Optigear 1100/460	Mineral oil	PD	460	94	-21	
Optigear 1100/680	Mineral oil	PD	680	86	-18	
Optigear 1100/1000	Mineral oil	PD	1000	80	-18	
Optigear 1100/1500	Mineral oil	PD	1500	84	-15	
Optigear Synthetic 1300/220	PG	EP/AW	220	250	-33	Synthetic gear oils to lubricate ball bearings and slide bearings in spur gears, bevel gears and in worm gears of slide bearings and ball bearings, PVC calendering lines, kneaders, conveyor systems, steel mills and grinders.
Optigear Synthetic 1300/460	PG	EP/AW	460	250	-30	
Optigear Synthetic 1390/220	PG	EP/AW	220	200	< -18	Synthetic shrinkage and corrosion protection oils suitable for gears, which are intended for later combined use with a gear oil based on polyglycol.
Optigear Synthetic 1510/320	Polyalphaolefin	PD	320	142	-39	Typically applied in tooth flanks of spur gears, bevel gears and planetary gears, gear couplings, particularly in applications subject to mixed friction over the entire contact area of the tooth flanks due to their form of teeth or type of operation, in sliding and rolling surfaces of bearings and in circulating systems (gears).
Optigear Synthetic 1710/320	PAO/ mineral oil	PD	320	135	-30	Gear oils suitable for spur gears, bevel gears, planetary gears and gear couplings as well as sliding and rolling surfaces of bearings.
Optigear Synthetic 1710/460	PAO/ mineral oil	PD	460	135	-30	
Optigear Synthetic CT 320	PAO	PD / EP/AW	335	174	-45	For use in wind turbine gearboxes. It can also be used for all types of closed gearboxes, even high and impact-loaded gearboxes and bearings for which EP properties are required.
Optigear Synthetic RO 150	PAO	PD	150	130	-45	It can be used in all kinds of spur gears, even those under challenging loads; also in bevel gear sets with a large axle offset (hypoid) and at high alternating loads, in rolling bearings of all types and at high loads as well as low and high temperatures.
Rapidly biodegradable gear oils						
Performance Bio GE 220 ESU	Ester	EP/AW	220	180	-39	Rapidly biodegradable gear oils based on synthetic ester, primarily recommended at low temperatures in environmentally sensitive areas in the industry.
Performance Bio GE 320 ESS	Ester	EP/AW	320	170	-21	Fully synthetic gear oils based on the rapidly bio-degradable ester, primarily intended to lubricate gears in environmentally sensitive areas such as waterways and water protection zones.

Hydraulic oils

Product	Bawse oil	Din class	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Hyspin AWS 10	Mineral oil	HLP	10	74	-39	Alloyed hydraulic oils with anti-wear additives suitable for hydraulic systems with high operating pressures and temperatures. Fulfils the requirements of DIN 51 524 Part 2 and Type HM of ISO 6743/4.
Hyspin AWS 15	Mineral oil	HLP	15	100	-39	
Hyspin AWS 22	Mineral oil	HLP	22	102	-30	
Hyspin AWS 32	Mineral oil	HLP	32	102	-30	
Hyspin AWS 46	Mineral oil	HLP	46	102	-21	
Hyspin AWS 68	Mineral oil	HLP	68	102	-21	
Hyspin AWS 100	Mineral oil	HLP	100	97	-21	
Hyspin AWS 150	Mineral oil	HLP	150	97	-21	
Hyspin AWS 32 HX	Mineral oil	HLP	32	114	-39	These alloyed hydraulic fluids contain zinc and anti-wear additives for hydraulic systems with high operating pressures and temperatures as well as having a very high oxidation stability (TOST lifetime >5,000 h). They fulfil the requirements and specifications of DIN 51524-2. – Bosch Rexroth Fluid Rating List RDE 90245 – Parker Hannifin (Denison) HF0, HF1 & HF2 – Eaton E-FDGN-TB002-E – Eaton Brochure 03-401-2010
Hyspin AWS 46 HX	Mineral oil	HLP	46	113	-36	
Hyspin AWS 68 HX	Mineral oil	HLP	68	111	-33	
Hyspin HLP-Z 32	Mineral oil	HLP	32	96	-33	Alloyed hydraulic oils with zinc and anti-wear additives. Compatible with the following classification of hydraulic fluids: DIN 51502 type HLP and DIN EN ISO 6743-4 type HM.
Hyspin HLP-Z 46	Mineral oil	HLP	46	93	-30	
Hyspin HLP-Z 68	Mineral oil	HLP	68	93	-27	
Hyspin HLP-AF 32	Mineral oil	HLP	32	94	-27	Alloyed hydraulic fluids formulated without zinc but with anti-wear additives. Compatible with the following classification of hydraulic fluids: DIN 51502 type HLP and DIN EN ISO 6743-4 type HM.
Hyspin HLP-AF 46	Mineral oil	HLP	46	93	-24	
Hyspin HLP-AF 68	Mineral oil	HLP	68	96	-24	
Hyspin ZZ 10	Mineral oil	HLP	10	90	-33	Zinc and ash-free high-performance hydraulic oils with anti-wear additives for hydraulic systems operating under high pressures and temperatures. Outstanding filterability. Fulfils the requirements of DIN 51 524 Part 2 along with the specifications of well-known manufacturers of hydraulic components and Type HM in accordance with ISO 6743/4.
Hyspin ZZ 22	Mineral oil	HLP	22	100	-30	
Hyspin ZZ 32	Mineral oil	HLP	32	100	-30	
Hyspin ZZ 46	Mineral oil	HLP	46	101	-30	
Hyspin ZZ 68	Mineral oil	HLP	68	101	-30	
Hyspin ZZ 100	Mineral oil	HLP	100	100	-24	
Hyspin ZZ 32 HX	Mineral oil	HLP	32	100	-39	High-performance hydraulic fluids, formulated without zinc, with wear protection additives for hydraulic systems that run at high operating pressures and temperatures as well as a very high oxidation stability (TOST lifetime >7,500 h). Outstanding filterability. They fulfil the requirements of DIN 51 524-2 as well as the specifications. – Bosch Rexroth Fluid Rating List RDE 90245 – Parker Hannifin (Denison) HF0, HF1 & HF2 – Eaton E-FDGN-TB002-E
Hyspin ZZ 46 HX	Mineral oil	HLP	46	114	-36	
Hyspin ZZ 68 HX	Mineral oil	HLP	68	113	-33	
Hyspin XP 46	Mineral oil	HLP	46	111	-27	Zinc and ash-free high-performance hydraulic oils with EP/AW anti-wear additives and increased Brugger value for hydraulic systems operating under high pressures and temperatures. Fulfils the requirements of DIN 51 524 Part 2 and type HM of ISO 6743/4. Brugger - value > 40 N/mm².
Tribol HM 943/22	Spec. mineral oil	HLP	22	105	-30	Zinc and ash-free high-performance hydraulic oils with anti-wear additives based on special base oils with extremely high ageing resistance and good air release. Fulfils the requirements of DIN 51 524 Part 2 and are conforming to Type HM of ISO 6743/4.
Tribol HM 943/32	Spec. mineral oil	HLP	32	115	-27	
Tribol HM 943/46	Spec. mineral oil	HLP	46	118	-30	
Tribol HM 943/68	Spec. mineral oil	HLP	68	112	-30	
Alphasyn K 15	PAO	HLP	15	128	-40	Synthetic hydraulic oil free of heavy metals, recommended for high thermal loads. Fulfils the requirements of DIN 51 524 Part 2 - HLP and ISO 6743/4-L-HM. It is suitable for use as spindle, central lubricant or circulating and gear oil (CLP). Brugger - value > 50 N/mm².
Alphasyn T 10	PAO	HLP	10	120	-57	Fully synthetic hydraulic oil free of heavy metals also suitable as circulating and spindle oils for spindle and central lubrications under high thermal loads. Can also be used as circulating and spindle oil (CL).
Alphasyn T 32	PAO	HLP	32	125	-57	
Alphasyn T 46	PAO	HLP	46	125	-57	
Alphasyn T 68	PAO	HLP	68	125	-57	
Alphasyn T 100	PAO	HLP	100	130	-51	
Alphasyn T 150	PAO	HLP	150	130	-42	
Hyspin 4243	Mineral oil	HLP-D	46	103	-33	Zinc-free universal hydraulic oil for use under adverse operating conditions such as high moisture levels. High Brugger value > 50 N/mm².

Hydraulic oils

Product	Base oil	Din class	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Hyspin DHV 46	Mineral oil	HVLP-D	46	149	-45	Zinc-free hydraulic oil in accordance with DIN 51 524 Part 3 (with the exception of the demulsifying capacity) suitable for use in all hydraulic systems, which are subjected to large temperature fluctuations such as hydraulic lifts, heavy-duty construction equipment, hydraulic systems on trucks etc.
Hyspin DHV 68	Mineral oil	HVLP-D	68	150	-45	
Hyspin HLP-D 32	Mineral oil	HLP-D	32	105	-30	High quality hydraulic oils for hydraulic systems with high operating pressures and temperatures, as well as additional requirements for contaminant and water handling capacity. Fulfils the requirements of DIN 51 524 Part 2 with the exception of the demulsifying capacity.
Hyspin HLP-D 46	Mineral oil	HLP-D	46	100	-24	
Hyspin HLP-D 68	Mineral oil	HLP-D	68	100	-24	
Hyspin DSP 10	Mineral oil	HLP-D	10	105	-30	Heavy metal and ash-free hydraulic oils suitable for use in hydraulic systems operating under high pressures and temperatures and with additional contaminant and water handling capacity. Fulfils the requirements of DIN 51 524 Part 2 with the exception of the demulsifying capacity.
Hyspin DSP 22	Mineral oil	HLP-D	22	100	-21	
Hyspin DSP 32	Mineral oil	HLP-D	32	100	-15	
Hyspin DSP 46	Mineral oil	HLP-D	46	100	-15	
Hyspin DSP 68	Mineral oil	HLP-D	68	100	-15	
Hyspin DF Top 46	Mineral oil	HLP-D	46	102	-30	Zinc-free, micro-filtered hydraulic oils for hydraulic systems operating under high pressures and temperatures offering a particularly efficient protection against soiling and the formation of fine streaks. Excellent filterability and high "keep clean" ability. Fulfil the requirements of DIN 51 524 Part 2. Often used in injection moulding machines.
Hyspin DF Top 68	Mineral oil	HLP-D	68	102	-24	
Hyspin DXP 46	Mineral oil	HLP-D	46	102	-33	Zinc-free, high-performance hydraulic oil with high detergent properties/dispersing capacity and high water handling capacity. High anti-wear protection in mixed friction applications, Brugger-value = 50 N/mm2. Also suitable for use in wet clutch/brake combinations. Release: Schuler (formerly MüllerWeingarten), Oertlinghaus.
Hyspin AWH-M 15	Mineral oil	HVLP	15	150	-51	High-VI-Hydraulic oils with EP/AW additives for wear protection. For use in hydraulic systems with high operating pressure and temperature fluctuations, designed specifically for outdoor hydraulic facilities. Fulfils the requirements of DIN 51 524 Part 3 along with the specifications of well-known manufacturers of hydraulic components.
Hyspin AWH-M 32	Mineral oil	HVLP	32	150	-42	
Hyspin AWH-M 46	Mineral oil	HVLP	46	150	-39	
Hyspin AWH-M 68	Mineral oil	HVLP	68	150	-39	
Hyspin AWH-M 100	Mineral oil	HVLP	100	130	-30	
Hyspin AWH-M 150	Mineral oil	HVLP	150	130	-30	
Hyspin HVI 15	Mineral oil	HVLP	15	>150	-51	Zinc-free, high VI hydraulic oils with EP/AW additives for wear protection. For use in hydraulic systems with high operating pressure and temperature fluctuations, designed specifically for outdoor hydraulic facilities. Excellent filterability. Fulfils the requirements of DIN 51 524 Part 3 along with the specifications of well-known manufacturers of hydraulic components.
Hyspin HVI 22	Mineral oil	HVLP	22	>150	-42	
Hyspin HVI 32	Mineral oil	HVLP	32	>150	-39	
Hyspin HVI 46	Mineral oil	HVLP	46	>150	-36	
Hyspin HVI 68	Mineral oil	HVLP	68	>140	-39	
Hyspin HVI 100	Mineral oil	HVLP	100	>141	-33	
Brayco Micronic 756	Mineral oil	HVLP	14	>350	< -70	A petroleum base, low viscosity, red colored ISO Grade 15 hydraulic fluid for aircraft, missile and ordnance use. It is a blend of highly refined, selected base stocks with suitable additives, which yield a product with exceptionally good viscosity-temperature characteristics, good anti-wear properties, low rubber swell, and excellent oxidation stability.
Brayco HV 15	Mineral oil	HVLP	14	>350	< -70	Special hydraulic oil, dyed red for the aviation industry and designed for extreme temperature fluctuations primarily at low temperatures. Fulfils the requirements of NATO H-515, DEF STAN 91-48/2 and MIL-H-5606E.
Hyspin H 540	Mineral oil	HVLP	38	279	-60	Special hydraulic oil suitable for a wide range of temperatures such as in military vehicles or specialist vehicles such as fire engines. Fulfils the requirements of H 540 and TL 9150-0035.
Hyspin HVI 46 D	Mineral oil	HVLP-D	46	165	-33	Heavy metal-free multiple-use hydraulic oil for hydraulic systems operating under high pressures and temperatures and with additional requirements on cleaning and water uptake capacity. Contains EP/AW anti-wear additives.
Hyspin AWV 32	Mineral oil	HVLP-D	32	355	-57	Suitable for use in equipment on the decks of ships that operate in extreme climates. Also suitable as a hydraulic fluid for hatch cover systems on reefer ships.

Hydraulic oils

Product	Base oil	Din class	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Shock absorber oils						
Hyspin 4004	Mineral oil	HVLP	16.2	202	-57	Hydraulic oil of low viscosity suitable for use in shock absorbers and hydraulic systems with large temperature fluctuations, which require a highly precise controllability, such as copy machines or CNC tooling machines.
Hyspin 4517	PAO	HVLP	29.5	168	< -48	Special shock-absorber and hydraulic oil developed for the automotive industry with low evaporation loss and a reduction of the noise level. It is primarily used as central hydraulic fluid and as shock absorber oil.
Hyspin V 10	PAO	HVLP	10	175	< -48	A fully synthetic, biodegradable hydraulic fluid with a Blue dye for identification purposes. Suitable for use under wide temperature fluctuations where the need for extremely precise controllability is desirable.
Hyspin ZH-M	Mineral oil	HVLP	16.4	161	-45	Special central hydraulic fluid that effectively controls system noise. For use for example, in car level regulators or hydraulic systems for convertible roof systems. Release: MB sheet 343.

Product	Base oil	Din class	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Rapidly biodegradable hydraulic oils						
Performance Bio HE 46	Ester	HEES	46	160	-30	Hydraulic fluids based on fully saturated ester and synthetic hydrocarbons with rapid biodegradability, stable to ageing, with good anti-wear protection suitable for use in ecologically sensitive areas in accordance with VDMA 24568. For various releases and recommendations, consult the technical Product Data Sheets.
Performance Bio HE 32 TG	Ester	HETG	32	207	-30	Rapidly biodegradable hydraulic oil (>90% according to CEC-L-33-A-93) based on vegetable ester.
Performance Bio HE 46 ESU	Ester	HEES	46	185	-27	Hydraulic fluids based on fully saturated ester and synthetic hydrocarbons with rapid biodegradability, stable to ageing, with good anti-wear protection suitable for use in ecologically sensitive areas in accordance with VDMA 24568. For various releases and recommendations, consult the technical Product Data Sheets.

Highly fire-resistant hydraulic fluids

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Application
Anvol PE 46 XC	Phosphoric acid ester	AW	46	-	HF-DR type fluid used primarily in hydraulic control units of steam turbines, also suitable in industrial hydraulics where there is a risk of fire.
Anvol SWX 46	Polyolester	AW	46	180	Superb HF-DU type fluids. Very high flash point and good anti-wear protection comparable with standard mineral oils, suitable for high pressure hydraulic systems up to 500 BAR/7200 PSI in mills. Castrol Anvol SWX 46 fulfils the requirements of Factory Mutual Category 1.
Anvol WG 46	Glycol + water	AW	46	>200	HFC fluid for pressures of up to 200 bar with good anti-wear properties. Suitable for use in foundries and steel mills.

Machine and slideway oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Adhesive additive	Cincinnati lamb specification	Application
Magna SW 68	Mineral oil	EP/AW	68	Yes	P47	Slideway lubricants with excellent stick-slip properties and good load carrying capacity. Specifically formulated for complete lubrication of slideways, hydraulic systems and gears.
Magna SW 220	Mineral oil	EP/AW	220	Yes	P50	
Magna SW 32	Mineral oil	EP/AW	32	No	-	Slideway and hydraulic oils with good stick-slip prevention properties to lubricate machine tools.
Magna SW B 68	Mineral oil	EP/AW	68	Yes	-	Slideway oils with good stick-slip prevention properties to lubricate bed ways and guides on machine tools.
Magna SW B 100	Mineral oil	EP/AW	100	Yes	-	
Magna SW B 150	Mineral oil	EP/AW	150	Yes	-	
Magna SW B 220	Mineral oil	EP/AW	220	Yes	-	
Magna SW D 32	Mineral oil	EP/AW	32	Yes	P53	Slideway oils with excellent stick-slip properties. Specifically formulated for combined lubrication of slideways, hydraulic systems and gears. Excellent test results at SKC and the Darmstadt University of Applied Sciences. ISO VG 32 variant can also be used as a hydraulic oil.
Magna SW D 68	Mineral oil	EP/AW	68	Yes	P47	
Magna SW D 100	Mineral oil	EP/AW	100	Yes	-	
Magna SW D 150	Mineral oil	EP/AW	150	Yes	-	
Magna SW D 220	Mineral oil	EP/AW	220	Yes	P50	
Magna SW DX 68	Mineral oil	EP/AW	68	Yes	-	Slideway oils to lubricate bed ways and guides on machine tools.
Magna SW DX 220	Mineral oil	EP/AW	220	Yes	-	
Optigear BM 68	Mineral oil	PD	68	No	-	Slideway oils to lubricate bed ways and guides on machine tools. With its special additives, it offers a very high protection against the formation of high spots.
Optigear BM 220	Mineral oil	PD	220	No	-	
Performance Bio SW 68	Ester	EP/AW	68	No	0.71	Suitable for the lubrication of bed ways and guides on machine tools with very high surface loads, while being environmentally friendly.
Tribol Non Fluid 150	Mineral oil/ alkylbenzene	EP/AW	150	Yes	-	Special adhesive type solid-free lubricant, based on mineral oil and alkylbenzene. Prevents stick-slip. Suitable for use on slideway guides of machine tools, bed ways, older model looms and chains. Excellent corrosion protection.
Tribol SW MWO 40	Mineral oil	EP/AW/ organic molybdenum compound	220	Yes	P50	Slideway oils with special liquid organic molybdenum compounds, "liquid solids", which offer excellent protection against wear.
Tribol SW 1066/220	Mineral oil	EP/AW	233	Yes	-	High-performance slideway oils with excellent stick-slip prevention properties and a very good compatibility with water-soluble coolants. Suitable for lubrication of slideway and guide tracks on machine tools. SKC Gleittechnik GmbH and FH Darmstadt tests demonstrated outstanding results.

Spindle oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Applicationw
Alphasyn K 15	PAO	EP/AW	15	177	-40	Synthetic hydraulic oil, free of heavy metals, recommended for use in high thermal load applications. Fulfils the requirements of DIN 51 524 Part 2 - HLP and ISO 6743/4-L-HM. It is suitable for use as spindle, central lubricant or circulating and gear oil (CLP). Brugger - value >50 N/mm².
Alphasyn T 10	PAO	AW	10	160	-57	Fully synthetic hydraulic fluid, free of heavy metals also suitable as hydraulic fluid and circulating oil. Also suitable for spindle and central lubrications under high thermal loads. Can also be used as circulating and spindle oil (CL).
Hyspin Spindle Oil 2	Mineral oil	Corrosion and oxidation protection	2	91	< -40	Spindle oil suitable for lubrication of high-speed and precision spindle bearings with increased protection against rust and ageing.
Hyspin Spindle Oil ZZ 2	Mineral oil	AW	2	91	-39	High-performance spindle oil with ash-free anti-wear additives.
Hyspin Spindle Oil ZZ 5	Mineral oil	AW	5	114	-39	
Hyspin Spindle Coolant SF	-	-		>150	-15	Water-based (ready to use) spindle coolant for machine tools. It offers an outstanding protection against corrosion and therefore prolonged service intervals.
Magna 2	Mineral oil	-	2	80	< -30	Highly refined spindle oil for high-speed spindle bearings.

Compressor oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Application
Aircol CM 32	Mineral oil	EP/AW	32	113	The high-performance compressor oils are based on highly refined mineral oils and special additives that have excellent thermal and oxidative ageing stability and a good load capacity. Oil changes can be made at intervals of up to 4,000 operating hours. The high load-carrying capacity (vehicle rating of >12) allows the fluids to be used in gearbox compressor units. Fulfil the requirements of ISO 6743-3 Compressor Oils.
Aircol CM 46	Mineral oil	EP/AW	46	113	
Aircol CM 68	Mineral oil	EP/AW	68	111	
Aircol CM 100	Mineral oil	EP/AW	100	107	
Aircol CM 150	Mineral oil	EP/AW	150	111	
Aircol HV 100	Mineral oil	-	95	100	Vacuum pump oil with a narrow boiling range, suitable for the use on mechanical fine and high vacuum pumps.
Aircol PG 185	PG	AW	185	200	Fully synthetic compressor oil for lubricating compressors for hydrocarbon gases such as liquid gas and natural gas. As opposed to compressor oils based on mineral oils or PAO, the viscosity in these oils is barely affected by the contact with gas.
Aircol SH 100	Ester	AW	100	62	Synthetic high performance compressor oil.
Aircol SN 68	Dicarbonic acid ester	AW	68	67	Compressor oils for piston air compressors.
Aircol SN 100	Dicarbonic acid ester	AW	100	89	
Aircol SR 32	PAO	EP/AW	32	133	Synthetic compressor oils, designed to be used in air compressors working in challenging conditions. These fluids are characterised by outstanding oxidation stability. Their performance has been verified by running long-term tests in screw compressors with runtimes of over 4,000 h and at temperatures of up to 120°C. They meet the requirements of ISO 6743/3 - DAG, DAH and DAJ for rotary air compressors. Applications include circulating lubrication systems for slide and roller bearings with high operating temperatures, e.g. in paper machines.
Aircol SR 46	PAO	EP/AW	46	135	
Aircol SR 68	PAO	EP/AW	68	140	
Aircol SR 100	PAO	EP/AW	100	142	
Aircol WM 2631	Medicinal white oil	Oxidation protection	280	95	Special compressor oil suitable for use of cylinder lubrication of PE compressors in the high pressure range. Conforms to the requirements of the German Pharmacopoeia 10 (DAB) and the FDA Art. 178.3570a. NSF-H1 registered and OK Kosher certified.
Tribol CS 890/68	Ester	AW	68	100	Synthetic compressor oils specially for use in high pressure piston compressors and screw compressors with increased demands. Exceeds the requirements of DIN 51 506 Type VDL.
Tribol CS 890/100	Ester	AW	100	61	
Tribol CS 1555/32	PAO	EP/AW	32	130	Synthetic compressor oils for extreme operating conditions or very long oil change intervals. Increased anti-wear protection. VEH >12. Exceeds the requirements of DIN 51 506 Type VDL.
Tribol CS 1555/46	PAO	EP/AW	46	137	
Tribol CS 1555/68	PAO	EP/AW	68	137	
Tribol CS 1555/100	PAO	EP/AW	100	138	
Aircol LPT 32	Mineral oil	-	32	70	Suitable for the lubrication of refrigerant compressors which operate with ammonia, halogenated hydrocarbons or standard hydrocarbons. Conforming to DIN 51503 KAA/KC/KE.
Aircol LPT 46	Mineral oil	-	46	52	
Aircol LPT 68	Mineral oil	-	68	47	

Turbine oils

Product	Base oil	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Perfecto X 32	Spec. mineral oil	32	112	-15	Alloyed turbine oils of the latest additive and base-oil technology for lubricating steam and gas turbines and their control systems. They fulfil the requirements of "lubricants and control oils L-TG" of DIN 51 515 Part 2 and those of ISO 8068.
Perfecto X 46	Spec. mineral oil	46	112	-15	
Perfecto X 68	Spec. mineral oil	68	112	-12	
Perfecto XEP 32	Spec. mineral oil	32	112	-15	EP-alloyed turbine oils of the latest additive and base-oil technology for lubricating steam and gas turbines as well as their control systems. They fulfil the requirements of "lubrication and control oils L-TG with anti-wear protection" according to DIN 51 515 Part 2, the requirements according to BS 489 as well as ISO 8068.
Perfecto XEP 46	Spec. mineral oil	46	112	-15	
Perfecto XEP 68	Spec. mineral oil	68	112	-12	

Circulating oils

Product	Base oil	Viscosity 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Demulsification capacity at 82°c (min.)	Veh (a/8.3/90) Damage force level	Application
Unalloyed circulating oils							
Magna 2	Mineral oil	2	-	-42	-	-	Highly refined circulating oils. Classified in accordance with DIN 51 502 Type C.
Magna 10	Mineral oil	10	52	-54	-	-	
Magna 15	Mineral oil	15	90	-24	-	-	
Magna 32	Mineral oil	32	95	-18	-	-	
Magna 46	Mineral oil	46	95	-21	-	-	
Magna 68	Mineral oil	68	95	-21	-	-	
Magna 100	Mineral oil	100	96	-12	-	-	
Magna 150	Mineral oil	150	95	-18	-	-	
Magna 220	Mineral oil	220	95	-12	-	-	Circulating oils are intended for lubrication of bearings, circulating systems and compressors, which do not require the anti-wear additives.
Magna 320	Mineral oil	320	95	-12	-	-	
Magna 460	Mineral oil	460	95	-12	-	-	
Magna SR 7	Mineral oil	9	approx. 90	-18	-	-	Petroleum-based lubricant for use as spindle oil and process oil.
Circulating oils for the steel industry							
Magna CTX 100 WT	Mineral oil	100	105	-24	5	>12	Gear and circulating oils for the steel industry with outstanding demulsifying properties in accordance with Morgoil and Danieli requirements.
Circulating oils for the paper industry							
Magna PM 220	Mineral oil	228	-	-18	-	12	Circulating oils for use in the paper industry.
Magna PM 220 ZZ	Mineral oil	220	100	-12	-	-	Zinc-free circulating oil with excellent oxidation stability for use in paper machines.
Tribol PM 220 S	Synthetic ester	220	160	-39	-	11	Synthetic circulating oils for paper machines, specifically designed for very high temperatures and long oil service life. It is also suitable for use in other circulating applications such as in calenders and agitators.
Tribol PM 320 S	Synthetic ester	320	162	-30	-	11	

Heat transfer fluids

Product	Base oil	Viscosity 40°c (mm²/s)	Operating temperature range (°c)	Flash point (°c)	Application
Perfecto HTS 0801	Synthetic hydrocarbon	16.5	-5 to a max. of 350°C flow temperature	200	Synthetic thermal transfer medium based on dibenzyltoluene isomers for use in de-pressurised, closed heat transfer systems with flow temperatures of up to 350°C or film temperatures of up to 380°C.
Perfecto HT 2	Mineral oil	9		>140	Primarily intended for use in closed heat transfer systems with bulk temperatures up to 300°C. It can also be used in open systems at much lower bulk oil temperatures.
Perfecto HT 5	Mineral oil	30.5		>200	

Gas engine oils

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Sae class	Flash point (°c)	Application/releases
Duratec HPL	Mineral oil	Low-ash AW	120	40	250	Premium low-ash gas engine oil based on non-conventional base oils for use in engines under high thermal loads in natural gas operation. Released by: MENAG, MAN Truck & Bus AG, MTU Onsite Energy (formerly MDE), MWM, GEJenbacher, 2G Agenitor, MENAG.
Duratec L	Mineral oil	Low-ash AW	130	40	250	High performance low-ash gas engine oil also for use in wastewater treatment plants/landfills and biogas operations as well as dual fuel operations. Released by: GEJenbacher, MWM (formerly DEUTZ Power Systems), new MBH, Perkins, Ullstein, Wärtsila, Waukesha.
Duratec M	Mineral oil	AW	125	40	250	High-performance gas engine oil with moderate ash content and alkaline reserve, with properties specifically for special gas use (landfill, sewage treatment plant and biogases). Released by: Perkins, Guascor, MWM.
Duratec MX	Mineral oil	AW	124	40	250	Zinc-free high-performance gas engine oil, particularly suitable for special gases (biogas, landfill gas, sewage gas). Released by: GEJenbacher, MAN Truck & Bus AG, Guascor.
Duratec XPL	PAO	Low-ash AW	109	20W-40	260	Fully synthetic, low-ash high-performance gas engine oil for gas engines under high thermal loads. Released by: MAN Truck & Bus AG, MTU Onsite Energy (formerly MDE), MWM (formerly DEUTZ Power Systems).
Duratec LD	PAO	Low-ash AW	109	20W-50	268	Castrol Duratec LD is low ash oil designed with the base number required to maintain engine cleanliness, provide resistance to acid corrosion and protect the engine from wear throughout the oil life.
Duratec G	Mineral oil	Low-ash AW	116	40	274	Low-ash, high-performance gas engine oil for use in stationary gas engines with natural gas or landfill gas.

Chain lubricants

Product	Base oil	Viscosity 40°c (mm²/s)	Anti-wear additives	Operating temperature range (°c)		Flash point (°c)	Application
Molub-Alloy CH 22	Mineral oil	22	FSS	-40	+90	185	Multi-purpose chain oil for use in a number of chain applications.
Tribol CH 1430	Ester	150	EP/AW	-20	+240	268	High-temperature chain oil made of temperature stable, aromatic ester for furnace and transport chains under very high operating temperatures, of over +240°C and a peak temperature of up to +280°C.
Tribol CH 1730/100	Mineral oil/ ester	100	EP/AW	-20	+120	170	Suitable for lubrication of conveyor and drive chains at room temperature, increased temperature, media influence and high degree of soiling.
Viscogen KL 3	Ester	32	EP/AW	-40	+200	230	Synthetic chain oils for lubrication in normal to high temperature range under heavy operating conditions, where mineral oils or traditional synthetic chain oils would lead to extreme wear, charring, and the formation of residues.
Viscogen KL 9	Ester	100	EP/AW	-40	+200	230	
Viscogen KL 15	Ester	220	EP/AW	-40	+200	250	
Viscogen KL 23	Ester	250	EP/AW	-40	+200	250	
Viscogen KL 130	Ester	1570	EP/AW	-40	+200	220	
Viscogen KL 300	Ester	4030	EP/AW	-40	+200	220	
Viscogen 3 N	Ester	52	-	-30	+180	275	Temperature-stable synthetic lubricant specifically for the lubrication of chains. Released for Siempelkamp ContiRoll systems and Dieffenbacher presses.
Viscogen G	Ester	220	-	-35	+200	208	Synthetic high-temperature lubricants specifically for lubrication in the manufacture of hollow glasses.
Viscogen G 175	Ester	-	-	-35	+200	200	
Viscogen GDS 400	-	145	-	-	285		
Viscogen KLK 25	Ester	210	EP/AW	-40	+250	>260	Synthetic chain lubricants for use at high temperatures in consumption lubrication systems, in applications which require special anti-wear protection due to extreme stresses.
Viscogen KLK 28	Ester	280	EP/AW	-40	+250	>260	
Tribol CH 1330	PG	130	EP/AW	-20		>280	High temperature, polyglycol based chain oil specially developed for the lubrication of drive and transport chains also at elevated temperatures.
Tribol CH 290/150	PG	150	EP/AW	-20	+220	299	Synthetic chain oil for conveyors, drive and open-transport chains in varnishing furnaces at high temperatures, such as in the automotive and metalworking industry.
Tribol CH 290/220	PG	220	EP/AW	-20	+220	296	
Tribol CH 1421/150	Ester/ special oil	150	EP/AW	-35	+300	260	Synthetic high-temperature chain oil, developed for chain applications under the highest thermal loads. It offers an extraordinarily low tendency to form residues combined with a low tendency to evaporate, which leads to a reduced lubrication need.

Greases

Product	Thickener/ soap basis	Base oil	Nlgi class	Base oil viscosity at 40°c (mm²/s)	Operating temperature range (°c)		Anti-wear additives	Application
Multi-purpose greases								
Spheerol 4807	Calcium complex	Mineral oil	1/2	70	-20	+60	EP/AW	Special grease for lubrication and for corrosion protection against friction springs of the annular spring type, which are used in plunger buffers in the railway sector.
Spheerol CLX 2	Calcium complex	Mineral oil	2	145	-25	+140	EP/AW	Universal grease to lubricate slide and ball bearings of all standard sizes, types and torque, at high and at low temperatures.
Spheerol EPL 00	Lithium	Mineral oil	00	150–200	-20	+120	EP/AW	Universal greases for the entire system with good adhesion and usable in broad temperature ranges, potential to simplify the assortment of greases.
Spheerol EPL 0	Lithium	Mineral oil	0	150–200	-20	+120	EP/AW	
Spheerol EPL 1	Lithium	Mineral oil	1	150–200	-20	+120	EP/AW	
Spheerol EPL 2	Lithium	Mineral oil	2	150–200	-20	+120	EP/AW	
Spheerol EPL 3	Lithium	Mineral oil	3	150–200	-20	+120	EP/AW	
Spheerol EPLX 200-2	Lithium complex	Mineral oil	2	180–220	-20	150	EP/AW	Castrol Spheerol EPLX 200-2 can be used in many ways, e. g. in all types of industrial systems, electric motors and tools as well as in applications at higher temperatures such as paper machines, fan bearings and furnace blowers.
Spheerol LC 2	Lithium/ calcium	Mineral oil	2	400	-25	+130	EP/AW	Heavy-duty grease for long-term use. Lubrication of heavy-duty roller bearings at slow and moderate rotational speeds and roller bearings.
Spheerol LCX 6002	Lithium complex	Mineral oil	2	600	-20	+150	EP/AW	Multi-purpose grease suitable for use in slide and roller bearings subjected to high stress, particularly for operation at slower rotations and under impact and vibration stresses.
Spheerol LZ	Lithium	Mineral oil	2	100	-20	120	EP/AW	Long-term, multi-purpose grease that is suitable for universal use in construction site operation and in all transport equipment, also for use in agricultural and forestry machinery.
Spheerol SLC 2	Lithium/ calcium	PAO	2	31	-50	+130	R+O	Lithium/calcium grease based on synthetic oil (PAO) particularly suitable for the lubrication of the smallest bearings at high rotational speeds or low temperatures and made of metal/plastic combined and plastic/plastic.
Spheerol SY 2202	Lithium complex	Synthetic	2	220	-40	+170	EP/AW	High-temperature grease suitable for use in fast-moving slide and roller bearings at extremely low or very high temperatures.
Spheerol SY 4601	Lithium complex	Synthetic	1.5	460	-40	+170	EP/AW	High-temperature grease suitable for industrial use, particularly in the steel and paper industry.
Spheerol LMM	Lithium	Mineral oil	2	180	-20	+110	FSS	Specifically developed for bearings under normal to heavy loads at low to moderate speeds and shock loads. It is also suitable for use in rotating pins, cams and feed screws.
Spheerol AP 2	Lithium	Mineral oil	2	120	-30	+120	-	Oxidation and water resistant multi-purpose greases with a wide range of applications for slide and roller bearings under thermal and mechanical stresses.
Spheerol AP 3	Lithium	Mineral oil	3	120	-30	+120	-	
High-performance multi-purpose greases								
Tribol GR HS 1.5	Polymer	PAO	1–2	46	-40	+120	R+O	High-performance spindle grease for long-term lubrication of extremely fast-moving slide and roller bearings (spindle bearings).
Tribol GR 100-00 PD	Lithium	Mineral oil	00	130	-35	+140	PD	Suitable for long-term use in highly stressed ball and slide bearings. Also suitable for expander rollers, bearings of feed rollers on steel rolls and for bearings that alternate in rotation or bearings subjected to rotation/ swivel movements.
Tribol GR 100-0 PD	Lithium	Mineral oil	0	130	-35	+140	PD	
Tribol GR 100-1 PD	Lithium	Mineral oil	1	95	-35	+140	PD	
Tribol GR 100-2 PD	Lithium	Mineral oil	2	95	-35	+140	PD	
Tribol GR ALR 100-00 PD	Lithium complex	PAO	00	100	-40	150	PD	Robot gear systems where grease lubrication is preferred over lubrication by gear oil. The combination of synthetic base fluid and lithium complex thickener system and the MFT-PD additive system makes it particularly suited to a wide application temperature range.

Greases

Product	Thickener/ soap basis	Base oil	Nlgi class	Base oil viscosity at 40°c (mm²/s)	Operating temp range (°c)		Anti-wear additives	Application
High-performance multi-purpose greases								
Optitemp SB 100-1	Lithium	PAO	1	100	-40	140	PD	Fully synthetic, high-performance roller bearing grease to prevent corrosion during standstill corrosion (false brinelling).
Molub-Alloy 3136	Lithium	Mineral oil	1	880	-20	+120	FSS	For use in applications exposed to high stresses, adverse environmental effects and slow movements.
Molub-Alloy 6040/460-1.5	Calcium sulphonate complex	Mineral oil	1–2	460	-20	+130	EP/AW	High-performance grease, recommended for use in slide and roller bearings exposed to high stresses in various industrial sectors.
Molub-Alloy 6080/460-1.5	Calcium sulphonate complex	Mineral oil	1–2	460	-25	130 bis 200*	EP/AW FSS	High-performance grease, recommended for use in slide and roller bearings in various industrial sectors that are exposed to high loads. Refer to product information when using at temperatures >130°C.
Molub-Alloy Blanc	Lithium	Mineral oil	2	193	-25	+130	FSS	For use under high bearing pressure and for long-term lubrication in the food, alcohol and tobacco industries (provided contact with food is excluded), specifically in wet areas, dusty environments and in conveyor belts, can and bottle filling systems, labelling machines.
Molub-Alloy 777-1 ES	Lithium	Mineral oil	1	950	-30	+120	FSS	Greases for high demands in adverse environmental conditions in all types of roller bearings, slide bearings, spindles, joint couplings in the steel or in the construction industry, mining and forestry.
Molub-Alloy 777-2 ES	Lithium	Mineral oil	2	950	-20	+120	FSS	
Molub-Alloy 777-1 NG	Lithium	Mineral oil	1	950	-30	+120	FSS	
Molub-Alloy 777-2 NG	Lithium	Mineral oil	2	860	-20	+120	FSS	
Molub-Alloy 860/220-1 ES	Lithium complex	Mineral oil	1	220	-30	+140	FSS	High-performance grease, recommended for use in highly stressed slide and roller bearings at normal to increased operating temperatures.
Molub-Alloy 860/220-2 ES	Lithium complex	Mineral oil	2	220	-20	+140	FSS	
Molub-Alloy 860/460-1 ES	Lithium complex	Mineral oil	1	460	-30	+140	FSS	
Molub-Alloy 860/460-2 ES	Lithium complex	Mineral oil	2	460	-20	+140	FSS	
Molub-Alloy 870-2	Lithium	Mineral oil	2	1776	0	+120	FSS	High-performance grease for highly stressed and slow-moving roller bearings.
Tribol GR 400-2 PD	Lithium	Mineral oil	2	320/ 460	-30	+140	PD	For use in slide and roller bearings under difficult conditions, such as high moisture, dust and vibration.
Tribol GR 400-3 PD	Lithium	Mineral oil	3	320/ 460	-20	+140	PD	
Molub-Alloy 370-2	Lithium	Mineral oil	2	370	-25	+130	FSS	Due to its high pressure absorption, it is particularly suitable for long-term lubrication of slow-moving slide and roller bearings.
Tribol GR 00	Lithium	Mineral oil	00	150	-35	+100	EP/AW	Suitable for use as fluid grease for central lubrication systems, even under difficult conditions such as high moisture, dust and vibration.
Tribol GR 2 EP	Lithium	Mineral oil	2	100	-25	+130	EP/AW	Developed for slide and roller bearings, even under difficult conditions such as high moisture, dust and vibration.
Tribol GR CLS 000	Lithium/ Calcium	Mineral oil	000	100	-30	+120	EP/AW	Semi-fluid grease for central lubrication systems, gears and gear motors, even under adverse conditions such as high humidity and the effects of water.
Tribol GR CLS 2	Lithium/ Calcium	Mineral oil	2	100	-30	+120	EP/AW	
Tribol GR 1350-2.5 PD	Lithium	Mineral oil	2.5	1350	-10	+140	PD	Developed for the lubrication of slide and roller bearings in mining, the metal-working industry, in rolling mills and port facilities, equipment on ships and oil rigs.
Tribol GR 3020/1000-000 PD	Lithium	Mineral oil	000	1000	- 40	+120	PD	Suitable for use in all types of slide and roller bearings, spindles, joint couplings, chassis, cams and general lubrication points which are exposed to high loads and low speeds.
Tribol GR 3020/1000-00 PD	Lithium	Mineral oil	00	1000	- 40	+120	PD	
Tribol GR 3020/1000-0 PD	Lithium	Mineral oil	0	1000	- 40	+120	PD	
Tribol GR 3020/1000-1 PD	Lithium	Mineral oil	1	1000	-30	+120	PD	
Tribol GR 3020/1000-2 PD	Lithium	Mineral oil	2	1000	- 40	+120	PD	
Tribol GR 3785/220-1.5	Lithium	Mineral oil/ PAO	1.5	220	- 40	+120	EP/AW	Pumpable under extremely low temperatures, brief peak temperatures of +140°C.

Greases

Product	Thickener/ soap basis	Base oil	Nlgi class	Base oil viscosity at 40°c (mm²/s)	Operating temperature range (°c)		Anti-wear additives	Application
High-performance multi-purpose greases								
Tribol GR 4020/220-1 PD	Lithium complex	Mineral oil	1	220	-30	+150	PD	Multi-purpose greases for highly stressed roller and slide bearings such as in the automotive industry, along with industrial applications requiring a high performance grease.
Tribol GR 4020/220-2 PD	Lithium complex	Mineral oil	2	220	-30	+150	PD	
Tribol GR 4020/460-1 PD	Lithium complex	Mineral oil	1	460	-30	+140	PD	
Tribol GR 4020/460-2 PD	Lithium complex	Mineral oil	2	460	-20	+150	PD	
High-temperature greases								
Braycote Inertox 2	PTFE	PFPE	2	150*	-25	+260	FSS	High-temperature greases for slide and roller bearings requiring prolonged lubrication intervals in an aggressive environment. Also suitable for sealing high-vacuum containers.
Braycote Inertox 440-1	PTFE	PFPE	0–1	440	-25	+260	FSS	
Braycote Inertox 500-2	PTFE	PFPE	2	500	-25	+260	FSS	
Braycote Inertox 240-2	PTFE	PFPE	2	240	-25	+260	FSS	
Braycote 2115-2	PTFE	PFPE	2	500	-20	+250	FSS	For use in the lubrication of bearings in conveyor belts under very high temperatures. They are excellently suited for use in coating drying furnaces and textile clamping frames.
Braycote 2115-0	PTFE	PFPE	0	510	-20	+250	FSS	
Molub-Alloy 1000 HT	Organic	PAO/Ester	1	540	-0	+230	EP/FSS	Developed for bearings, slideways and guide bushings on conveyor systems in coating furnaces; also suitable for use in rotating cement furnaces as a gas-sealing lubricant.
Molub-Alloy 100-2 HT	Silica acid	PAO/Ester	2	100/150	-20	+220	PTFE	For use under permanent extreme temperatures. Enables long-term lubrication of slide and roller bearings as well as other greasing points at high operating temperatures, large bearing pressures and aggressive environmental conditions.
Optitemp 9890	PTFE	PFPE	2	22	-45	+100	FSS	For use in lubrication of plastic parts (thermoplastic and duroplastic material), which require minimum lubrication.
Tribol GR HT 2	Silica acid	Mineral oil	2	460/680	-20	+160	-	For use in long-term lubrication of slide and roller bearings at high operating temperatures as well as normal to moderate bearing pressures.
Tribol GR PS 1 HT	Polyurea	Mineral oil	1	460	-25	+160	-	For application in highly stressed slow-moving to medium-moving slide and roller bearings, such as sterilisers in the food industry, eccentric presses, forging presses, continuous casting plants and calender bearings.
Tribol GR PS 2 HT	Polyurea	Mineral oil	2	460	-25	+160	-	
Tribol GR 4747/220-2 HT	Lithium complex	PAO/Ester	2	220	-40	+160	PD	For use in slide and roller bearings subjected to high stresses requiring increased anti-wear protection in the boundary and mixed friction range (briefly up to +180°C).
Tribol GR SW 460-1	Lithium complex	PAO	1	460	-40	150	PD	Recommended for tough industrial applications especially as encountered in Wind Turbine Main Bearings, Pitch and Yaw Bearings It gives outstanding bearing protection under high loads at low to moderate speeds and in applications where water resistance is critical. A very important feature is to help to reduce wear from static vibration known as false brinelling and from sliding motion due to axial thrust. These are the most prominent failure modes in Wind Turbine main bearings.
Low-temperature greases								
Tribol GR XT 2 HT	Polyurea	PAO	2	270	-25	180	EP/AW	High-temperature polyurea grease for use in ball and slide bearings; suitable for lubricating heated bearings.
Molub-Alloy 243 Arctic	Calcium	Mineral oil	1–2	13	-55	+80	FSS	For lubricating slide and roller bearings in pumps, motors and transport systems at extremely low temperatures (up to -55°C).
Optitemp LG 0	Lithium	PAO	0	46	-50	+120	EP/AW	Specifically for use at low temperatures and in fast-running bearings in the normal temperature range. Very compatible with plastics and elastomers.
Optitemp LG 2	Lithium	PAO	2	46	-50	+120	EP/AW	

* At temperatures over 100°C, the viscosity of the fresh product will gradually increase up to 500 mm2/s

Greases

Product	Thickener/ soap basis	Base oil	Nlgi class	Base oil viscosity at 40°c (mm²/s)	Operating temperature range (°c)		Anti-wear additives	Application
Low-temperature greases								
Tribol GR TT 1 PD	Lithium/ silicic acid	Ester	1	15/22	-60	+120	PD	Suitable in use for slide and roller bearings with moderate bearing pressures. For use in great temperature differences.
Spheerol BNS 2	Bretonite	Mineral oil	2	180–220	-20	150	-	A non melting grease for the lubrication of plain and roller bearings at high temperatures. It has no drop point. This grease is based on an oxidation resistant, thermally stable base oil and an inorganic thickener.
Greases for open gears								
Molub-Alloy OG 3710-0/00	Lithium	Special	0/00	2100	-30	+100	EP/AW/ FSS	Grease for heavy industry, for lubricating open mill drives in ball and tube mills, such as in coal mines, cement mills, copper mines and phosphate mills.
Molub-Alloy OG 968 SF Heavy	Lithium	Mineral oil	1	978	-10	+90	FSS	High-performance multi-purpose grease for high stresses.
Molub-Alloy OG 936 WT 680	Lithium	Mineral oil	000	680	- 40	+100	EP/AW/ FSS	Castrol Molub-Alloy OG 936 WT 680 is suitable for use in mining applications, such as in all types of open gears, tracks, rollers, racks and gearwheels, shafts and other slideways on shovels and drag-lines. It complies with the requirements of the Bucyrus International SD 4713 Open Gear Specification.
Molub-Alloy OG 936 SF Heavy	Lithium	Mineral oil	0	2000	-20	+100	EP/AW/ FSS	Castrol Molub-Alloy OG 936 SF Heavy is suitable. for use in all types of open gears, pinions and racks as well as slide gears or carriage applications/skid applications such as in drag- line excavators and backhoes. It can be applied manually or by high performance greasing systems.
Molub-Alloy OG 9790/2500-0	Lithium	Mineral oil	0	2500	-20	+90	FSS	Greases for open gears and bearings subjected to high stresses and with a low torque. Sprayable.
Tribol GR OG 500-0	Aluminium complex	Mineral oil	0	490	-20	+120	PD	Suitable for use in the cement and heavy industry as well as in mining, to lubricate open tooth gears and wire ropes.
Rapidly biodegradable greases								
Performance Bio GR 9488	Silica acid	Ester	1	500	-20	+120	FSS	Multi-purpose grease for open gears and/or greasing bearings in accordance with OECD 301B >60%.
BioTac MP	Lithium complex	Synthetic, renewable	1.5	500	-20	+120	EP/AW	Synthetic easily biodegradable high-performance grease for slide bearings, roller bearings, wire ropes and open gears. Good water resistance.
Lifetime greases								
Optitemp 2 LN 584 LO	Lithium	Mineral oil	2	100	-40	+140	FSS/ EP	For use in homokinetic joint shafts, suitable for both industrial and automotive applications.
Optitemp FLF 1 N	Lithium	Silicone oil	1	75	-40	+140	-	For use in the start-stop technology for cars and trucks. Meets the Bosch Standard N28 FT1161-001.
Tribol GR EB 100-0.5 PD	Lithium complex	PAO	0.5	100	-40	130	PD	Primarily intended for a gear box applications, the grease has a high level of chemical stability and provides excellent protection against wear, rust and corrosion. Targeted for gear box appllications especially in electric bikes.
Optitemp BT 1 LF	Polyurea	Mineral oil/ PAO	1–2	125	-40	+160	EP/AW/LF	Suitable for use under extreme stress in all types of constant velocity joints, homokinetic ball joints and tripod joints.
Optitemp DH 00 T	Polyurea	PAO	00–000	260	-40	+180	EP/AW/LF	Developed for vehicle components and particularly thermally and mechanically stressed assemblies.
Optitemp HT 1 LF	Polyurea	PAO/ester	1–2	300	-45	+180	FSS, EP/ AW/LF	For use under extreme thermal and mechanical stresses in constant velocity ball joints.
Optitemp HT 1 LF NG	Polyurea	Synthetic	1	300	-45	+180	FSS, EP/ AW/LF	For use under the most extreme thermal and mechanical stresses in constant velocity ball joints.
Optitemp LP 1.5	Lithium	Synthetic	1–2	18	-50	+120	PTFE	Suitable for use as lifelong greasing at a wide temperature range.
Optitemp MS 1 LF	Polyurea	Mineral oil/ PAO	1	125	-40	+160	FSS, EP/ AW/LF	Suitable for use under the most extreme thermal and mechanical stresses in constant velocity ball joints.

Greases

Product	Thickener/ soap basis	Base oil	NIgi class	Base oil viscosity at 40°c (mm²/s)	Operating temperature range (°c)		Anti-wear additives	Application
Lifetime greases								
Optitemp PG 1.5	Lithium complex	Polyglycol	1–2	220	-40	+140	EP/AW	Grease for long-term and lifelong greasing of plastics and elastomers.
Optitemp PU 035/4	Polyurea	Mineral oil/PAO	2	100	-35	+160	EP	Developed for thermally and mechanically extremely stressed constant velocity ball joints for use in side shafts and longitudinal drive shafts. For universal use in various types of joints due to its outstanding behaviour during low and high temperatures.
Optitemp Racing CBT	Polyurea	Synthetic	1–2	259	-40	+160	EP/AW/LF	Fully synthetic high-temperature drive shaft grease for the most extreme stresses in constant velocity joints such as in homokinetic ball and tripod joints in side shafts and high speed longitudinal drive shafts.
Optitemp XBT 1 LF	Polyurea	PAO/ester	1–2	260	-40	+180	EP/AW/LF	Developed for thermally and mechanically extremely stressed constant velocity ball joints for use in side shafts and longitudinal drive shafts. For universal use in various types of joints due to its outstanding behaviour during low and high temperatures.
Optitemp SG 2	Polyurea	Mineral oil/PAO	2	90	-35	+160	-	For long-term and lifetime greasing of any types of sliding points, specifically those grease points subjected to thermal and mechanical stresses.
Speciality greases								
Tribol GR FM 2.5 Sil	Lithium	Silicone oil	2–3	68/100	-40	+180	-	For use as silicon grease, release agent and lubricant for metal/plastic mating as well as lubricant and roller bearing grease.
Optitemp PL 3	Lithium	Mineral oil	2–3	100	-30	+120	-	Special grease for use as initial grease for bearings in lubricated vehicle transmissions.
Optitemp RB 2	Lithium	PAO	2	48		+100	EP/AW	Light beige grease based on polyalphaolefin, PAO synthetic oil suitable for use in lubricating cables in robots.
Spheerol TN	Calcium complex	Synthetic	2	50	-40	+100	-	Special grease for use in vehicle door locks, very good adhesion and cold behaviour, released by Renault and Peugeot.

Speciality lubricants

Product	Base oil	Base oil viscosity at 40°c (mm²/s)	Viscosity index	Pour- point (°c)	Application
Tribol Non Fluid 150	Mineral oil/ alkylbenzene	150	94	-12	Special adhesive type oil, solid-free, based on mineral oil and alkylbenzene. Prevents stick-slip. Suitable for use on slideway guides of machine tools, bed ways, older model looms and chains. Excellent corrosion protection.
Tribol 1899	PFPE	<1	-	-	Highly fluorinated and inert cleaner and solvent, suitable for use as substitute for ozone-depleting fluids.
Tribol MO 14	Ester	14	-	-15	Castrol Tribol MO 14 is a silicone-free and solvent-free separating agent with an excellent separation effect of tools and materials, e.g. when cutting paper or cardboard. It is also suitable for use in gas-shielded welding.
Tribol WR 4600		28	-	-	Wire cable lubricant, developed specifically for cables operating building lifts. Volatile compounds evaporate very quickly and leave an oily residue that ensures that the lift cables are lubricated and protected against corrosion.
Calibration Oil 4113	Mineral oil	2.5	-	<-30	A calibration and storage oil for diesel fuel injectors and pumps. Test fluid made with low viscosity mineral oils and selected additives.
Calibration Oil C	Mineral oil	4.2	-	-21	Test fluid made with highly refined mineral oils and additives. This test oil is the preferred option for the calibration of diesel injection pumps. Calibration Oil 'C' meets the requirements of LUCAS CAV 7-10-100.
Magna CL 1000	Mineral oil	1000	80	-	Magna CL 1000 is designed for lubrication of steam engine cylinders and valves. It is also suitable for other purposes, such as the lubrication of heavily loaded slow-moving bearings and gears. It is also suitable for condensing engines using high pressure steam up to 200psi and superheat up to 345°C/653°F.

Pastes

Product	Thickener/ soap basis	Base oil	NIgi class	Operating temperature range (°c)		Application
Molub-Alloy Paste DH 2	Lithium	PAO	2	-40	+130	Molub-Alloy Paste DH 2 is used among others in door hinges in the automotive sector and due to its outstanding low temperature properties, it can also be used for other vehicle components. It is suitable for use as long-term and lifelong greasing under extreme mechanical and chemical conditions.
Molub-Alloy Paste HT	Bentint/ FSS	Synthesis oil	2	-30	+1100*	Suitable for use as assembly paste for screw connections and face points subject to thermal stress.
Molub-Alloy Paste MF	Lithium/ FSS	Synthesis oil	1	-10	+1100*	Silver high-temperature paste to lubricate screws and plug connections. High pressure uptake, hot and cold water resistant, good corrosion protection. Suitable for use in screw connections in the high temperature range in power plants and vehicles, lambda sensors and spark plug threads.
Molub-Alloy Paste MP 3	PTFE	PAO	3	-35	+180	White assembly paste suitable for long-term and lifelong greasing even under extreme mechanical and chemical conditions.
Molub-Alloy Paste MP 3 Anthrazit	PTFE/ graphite	PAO	3	-35	+180	Anthracite-coloured assembly paste for long-term and lifelong greasing, even suitable for use under extreme mechanical and chemical conditions.
Molub-Alloy Paste PL	Bentonit/ FSS	Mineral oil	2	-40	+ 450/600*	For use in pressurised sliding points as well as for basic lubrication and thin-film lubrication under high pressures and temperatures such as in screw connections, tight and press fits, slide bearings, bushings and gears.
Molub-Alloy Paste TA	Bentonit/ FSS	Mineral oil	1–2	-40	+1100*	Suitable for use as an assembly aid for assembly parts subject to temperature and environmental stresses, such as screws, flanges and seals.
Molub-Alloy Paste White RV	Lithium/ FSS	Synthesis oil	1	-30	+250	Suitable for universal use as an assembly paste to prevent fretting corrosion, specifically in areas of high vibration. To prevent stick-slip. For machinery and equipment subject to friction oscillations.
Molub-Alloy Paste White T	Inorganic/ lithium	Mineral oil/ ester	1	-30	+250	White paste for use in all assembly works and for use as base and thin-film lubrication. Prevents fretting corrosion. For use in short slide paths. Also suitable for long-term lubrication in slide and guide elements for screws, hinges, chucks, etc.
Molub-Alloy Paste WHS LN 776	Lithium, aluminium	Mineral oil	1	-20	+1150	High-temperature separating paste, which prevents seizing of screws and fittings. For screws on boilers, steam pipes, exhaust systems, curing ovens, etc.
Molub-Alloy Paste AU LN 598	Inorganic/ lithium	Mineral oil	2	-40	+250	White assembly paste, specifically designed to prevent fretting corrosion.
Molub-Alloy Paste PG LF 15-1	Inorganic	Polyglycol	1	-40	100	A fully synthetic Silica based paste with a Polyglycol base fluid. It is suitable for worm gear applications. It provides excellent low temperature properties as well as good EPDM compatibility. Specially developed lubrication to prolong the service life of steel and plastic worm gearboxes. Components are used in small electromechanical brake systems.

* The temperature refers to the effect on solid lubricants.

Sprays

Product	Application
Dry lubricants	
Molub-Alloy TF Spray	Black powder spray that leaves a dry lubricating film on MoS_2-basis, suitable for use in spindles, guides and slide bearings. Operating temperature range from -180°C to +450°C.
Lubricating paste	
Molub-Alloy Paste PL Spray	Black assembly and lubricating paste with MoS_2 for press fits.
Molub-Alloy Paste TA Spray	Silver high temperature-assembly paste for use as a separating paste for screws and flanges.
Molub-Alloy Paste White T Spray	White assembly paste that prevents fretting corrosion.
Greases	
Molub-Alloy OG 936 SF Heavy Spray	Black adhesive lubrication without solvent, for extreme applications. For use in open gears, gears and sliding surfaces.
Tribol GR OG 500-0 Spray	Transparent grease adhesive spray for open gears, gears and sliding surfaces.
Lubricants	
Molub-Alloy CH 22 Spray	Dark chain oil with solids.
Rustilo WDP Spray	Lubricating, rust-dissolving and corrosion protection spray for use as multi-purpose aerosol spray. Displaces moisture.
Tribol CH 1430 Spray	Transparent, solid-free, fully synthetic chain spray for use in the normal and high operating temperature range.
Tribol CH 1730/100 Spray	Transparent, solid-free, semi-synthetic chain spray for use in the normal operating temperature range.
Viscogen KL 23 Spray	Transparent, solid-free, fully synthetic chain spray for use in the normal and high operating temperature range.
Viscogen KL 3 Spray	
Viscogen KL 300 Spray	

Robotics

Product	Group	Base oil	Lubrication point	Brief description	Viscosity at 40°c (mm²/s)	Viscosity index vi
Gear oils						
Optigear ALR X1	Gear oil	PAO	All axis	Fully synthetic, high-performance transmission fluid for high-speed axle drives on robots. Yellow colourant added to identify leaks.	150	145
Optigear Synthetic RO 150	Gear oil	PAO	All axis	High load carrying for oil lubricated robots. Favoured by certain manufacturers due to endurance performance.	150	130
Optigear EP 320	Gear oil	Mineral oil	Axis 1	High load carrying, low friction, mainly used in Axis 1.	320	95
Optigear BM 100	Gear oil	Mineral oil	Axis 4, 5, 6	Transmission fluids for the long-term lubrication of various types of gearboxes under extreme conditions.	100	100
Optileb GT 1800/220	Gear oil	Polyglycol	All axis	For oil-lubricated robots in food applications.	220	235

Product	Group	Base oil	Lubrication point	Brief description	Nlgi-class	Thickener
Greases						
Tribol GR ALR 100-00 PD	Grease	PAO	All axis	Robot gear systems where grease lubrication is preferred over lubrication by gear oil. The combination of synthetic base fluid and lithium complex thickener system and the MFT-PD additive system makes it particularly suited to a wide application temperature range.	00	Lithium complex
Tribol GR 100-00, -0, -1, -2 PD	Grease	Mineral oil	All axis	Greases to minimise friction with high wear protection.	00 bis 2	Lithium
Optileb GR 823-2	Grease	White oil	Cables	For grease-lubricated robots in food applications.	2	Aluminium complex
Optitemp RB 2	Grease	PAO	Cables	Designed for robot cable lubrication with high wear protection and good adhesion.	2	Lithium

Kuka choose Castrol for first fill

The team at Kuka Robots know Castrol products can prevent wear, abrasion, scoring, corrosion and reduce leakage, which all lead to downtime. That's why they choose Castrol in their factories and recommend us to their customers.

Wind

Product	Group	Base oil	NIgiklasse	Grundöl-viskosität 40 °C (mm²/s)	Temperatur-einsatzbereich (°C)		Verschleisss-chutz-additive	Brief description
Greases								
Tribol GR SW 460-1	Lithium Complex	PAO	1	460	-40	150	PD	Recommended for tough industrial applications especially as encountered in Wind Turbine Main Bearings, Pitch and Yaw Bearings It gives outstanding bearing protection under high loads at low to moderate speeds and in applications where water resistance is critical. A very important feature is to help to reduce wear from static vibration known as false brinelling and from sliding motion due to axial thrust. These are the most prominent failure modes in Wind Turbine main bearings.
Tribol GR 100-2 PD	Lithium	Mineral oil	2	95	-35	140	PD	High-performance grease with PD additives for roller and slide bearings on wind turbines, the preferred choice for generator bearings.
Tribol GR 1350-2.5 PD	Lithium	Mineral oil	2.5	1350	-10	140	PD	Special water and dirt-repellent grease for roller and slide bearings with PD additives, with excellent adhesion and suitable for a lifetime of use. The preferred product for lubricating yaw gears on wind turbines.

Product	Base oil	Verschleisss-chutz-additive	Viskosität 40 °C (mm²/s)	Viskositätsi-ndex	Pourpoint (°C)	Brief description
Gear oils						
Optigear Synthetic A 320	PAO	PD	320	140	-36	Fully synthetic gear oil for wind turbines contains special PD additives for the optimisation and smoothing of rough surfaces.
Optigear Synthetic 1710/320	PAO / Mineral oil	PD	320	135	-30	Semi-synthetic gear oil for wind turbines contains special PD additives for the optimisation and smoothing of rough surfaces. Good miscibility with gear oils based on mineral oil or PAO.
Optigear Synthetic X 320	PAO	PD	320	179	-45	Fully synthetic gear oil for wind turbines contains special PD additives for the optimisation and smoothing of rough surfaces, ensuring excellent micro-pitting resistance and a very long oil service life.
Optigear Synthetic X 320 AD	PAO	PD	320	150		A combination of active substances, specifically adapted to Castrol Optigear Synthetic X 320, make it ideal for topping up gearboxes already using this product. Promotes further extension of the oil service life by refreshing the additive levels.
Optigear Synthetic CT 320	PAO	PD / EP / AW	335	174	-45	Fully synthetic transmission fluid for wind turbines has very high micro-pitting resistance and excellent compatibility with most gear oils based on PAO and mineral oil.
Hydraulic oil						
Hyspin AWH-M 32 Superclean	Mineral oil	HVLP	32	>150	-45	Hydraulic fluid with a high viscosity index (VI). Supplied at an oil purity class of 15/13/10 (according to ISO 4406).

Product	Base oil	Viskosität 40 °c (mm²/s)	Einsatzkonzentration	Brief description
Service products				
Techniclean SC 320	Mineral oil	320	5–10%	Cleaning additive for oil circulating systems and oil reservoirs in engines, gears and hydraulic systems prior to oil changes. Add 5 to 10% of the oil volume at least 48 hours before an oil change, depending on the degree of contamination. Sludgy, lacquer-like and resinous deposits are dissolved and kept in suspension. The dissolved contaminants are then removed from the system with the rinsing oil during the following oil change.
Magna 320	Mineral oil	320	100%	Flushing oil for use in oil changes for wind turbine gearboxes.

Lubricants for the food, alcohol and tobacco industries

Consumers are more and more quality minded and the purity of food products and beverages becomes increasingly important. Regulatory agencies and non-governmental organisations globally intensify their efforts to improve the purity of food products and beverages and their compliance with legal regulations.

Institutions use it to respond to increasing problems with contamination in food products. It is by far not enough for the ingredients to conform to the regulations on production and processing. Moreover, the machines and equipment used must conform to these standards. When using food-grade lubricants and lubricants approved for beverages and tobacco, manufacturers and processors can demonstrate to consumers and legislators or the regulatory agencies that they are aware of their responsibility and that they do everything necessary to produce their products in an optimal and safe environment.

Castrol Industrial has developed a range of lubricants specifically designed to meet the requirements for use in the food and beverage industry, particularly for lubricating their systems and equipment. Castrol's comprehensive product range of lubricants cover all applications from hydraulics to gears, from bearings to compressors across the entire operating temperature range.

Castrol industrial lubricants for the food, alcohol and tobacco industries

- Are registered in accordance with nsf-h1
- Do not contain natural products from animals* or genetically modified organisms (gmo)
- Are suitable for use in vegetarian and nut-free food products and alcoholic beverages
- Are released and approved by all leading oems
- Can extend the useful life of equipment and improve efficiency
- Can extend maintenance intervals and increase productivity
- Can reduce maintenance costs, overall consumption and waste
- Support safe processing of food products, tobacco and alcohol

* except Castrol Molub-Alloy FoodProof 823

Greases for the food, alcohol and tobacco industries

Product	Thickener/ soap basis	Base oil	Nlgi class	Base oil viscosity at 40°c (mm²/s)	Operating temperature range (°c)		Anti-wear additives	Application
Optileb GR 823-0	Aluminium complex	White oil	0	190	-30	+120	EP/AW/ FSS	Grease for the food industry. Physiologically safe grease for slide and roller bearings with high demands for cleanliness. Released by the LGA Bavaria. NSF-H1 registered.
Optileb GR 823-2	Aluminium complex	White oil	2	190	-30	+120	EP/AW/ FSS	
Optileb GR 9830	PTFE	PFPE	2	510	-20	+250	PTFE	High-temperature grease for high demands in terms of cleanliness. For release by LGA Bavaria, BAM; see data sheet. Compatible with a multitude of sealing materials. NSF-H1 registered.
Optileb GR FS 2	Aluminium complex	PAO	1–2	50	-40	+140	-	Particularly suitable for lubricating slide and roller gears at high speeds in the food, beverage and pharma industries. Not suitable for EPDM seals. NSF-H1 registered.
Optileb GR UF 00	Aluminium complex	PAO	00	435	-40	+140	EP/AW/ FSS	Physiologically safe special greases for use in the food, beverage and pharma industry. NSF-H1 registered.
Optileb GR UF 1	Aluminium complex	PAO	1	580	-30	+140	EP/AW/ corrosion protection	
Optileb 2 Sil	PTFE	Silicone oil	2	1200	-30	+150	FSS	For lubrication of elastomers among others of EPDM, beverage fixtures and filling systems. NSF-H1 registered.
Optileb VAS	Paraffins	White oil	2	-	-		-	Creamy white petroleum jelly to preserve and protect machinery. Suitable for use in food processing facilities for seal assembly and as base material for the production of pharmaceutical and cosmetic products. It complies with the requirements of the European Pharmacopoeia. Physiologically safe.

Gear oils for the food, alcohol and tobacco industries

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Viscosity index	Pour- point (°c)	Application
Optileb GT 100	PAO	EP/AW	100	148	-42	Gear lubricants for spur gears, angular gears and worm gears, for gear drives on agitators, variable speed chain gearboxes, slide and roller bearings along with pumps and closed circulating systems. NSF-H1 registered.
Optileb GT 150	PAO	EP/AW	150	149	-42	
Optileb GT 220	PAO	EP/AW	220	157	-36	
Optileb GT 320	PAO	EP/AW	320	150	-33	
Optileb GT 460	PAO	EP/AW	460	151	-27	
Optileb GT 1800/220	PG	EP/AW	220	235	-33	Gear oils for use in worm gears, spur gears, bevel gears and planetary gears. NSF-H1 registered.
Optileb GT 1800/460	PG	EP/AW	460	255	-30	

Hydraulic oils for the food, alcohol and tobacco industries

Product	Base oil	Din class	Viscosity 40°c (mm²/s)	Viscosity index	Pour- point (°c)	Application
Optileb HY 15	PAO	HLP	15	>130	< -50	Fully synthetic hydraulic oils, physiologically safe. Specially developed for the special requirements in the food and beverage industry. They exceed the requirements of DIN 51 524 Part 2. NSF-H1 registered.
Optileb HY 32	PAO	HLP	32	136	< -50	
Optileb HY 46	PAO	HLP	46	136	-48	
Optileb HY 68	PAO	HLP	68	143	-45	

Compressor oils for the food, alcohol and tobacco industries

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s	Viscosity index	Application
Optileb V 46	PAO	AW	46	136	Screw, piston and rotary vane compressors along with vacuum pumps in the food industry. NSF-H1 registered.
Optileb V 100	PAO	AW	100	144	
Aircol WM 2631	Medicinal white oil	Oxidation protection	280	95	Special compressor oil suitable for use as cylinder lubrication of PE compressors in the high pressure range. Conforms to the requirements of the German Pharmacopoeia 10 (DAB) and the FDA Art. 178.3570a. NSF-H1 registered and OK Kosher certified.

Chain lubricants for the food, alcohol and tobacco industries

Product	Base oil	Viscosity 40°c (mm²/s)	Anti-wear additives	Operating temperature range (°c)		Flash point (°c)	Application
Optileb CH 32	PAO	32	AW	-60	+150	220	Fully-synthetic chain lubricants, physiologically safe for use in chains on production lines, fill lines and packaging machines in the food industry. NSF-H1 registered.
Optileb CH 150	PAO	150	AW	-30	+200	236	
Optileb CH 280	PAO	280	AW	-30	+200	232	
Optileb CH 1500	PAO	1500	AW	-20	+200	224	

Medicinal white oils for the food, alcohol and tobacco industries

Product	Base oil	Anti-wear additives	Viscosity 40°c (mm²/s)	Pour-point (°c)	Flash point (°c)	Application
Optileb DAB 8	Medicinal White oil	-	40	-15	>176	Physiologically safe white oil. Its degree of purity complies with the regulation of the German Pharmacopoeia (DAB 10). NSF-H1 registered.
Optileb WOM 14	Medicinal White oil	-	15	-15	205	Medicinal white oils which are colourless, odourless and flavourless, and which comply with the provisions of the German Pharmacopoeia (DAB 10), the European Pharmacopoeia BGA 155 and Article 178.3620a of the FDA. NSF-H1 registered.
Optileb WOM 24	Medicinal White oil	-	32	-12	215	
Optileb WOM 65	Medicinal White oil	-	70	-24	220	

Speciality lubricants for the food, alcohol and tobacco industries

Product	Base oil	Base oil viscosity at 40°c (mm²/s)	Viscosity index	Pour-point (°c)	Application
Optileb AT 15	White oil	15	110	-15	Suitable for use in compressed air maintenance units in the food and beverage industry as well as the pharmaceutical industry, where there is an immediate risk of direct contact with the product or its packaging. Castrol Optileb AT 15 ensures that valves, pistons and compressed air tools work flawlessly. NSF-H1 registered.

Sprays for the food, alcohol and tobacco industries

Product	Application
Optileb F&D Spray	Physiologically safe oil spray suitable for use in machines and equipment of the food and beverage industry. Suitable for use in surface lubrication and cleaning. NSF-H1 registered.
Optileb CH 32 Spray	Physiologically safe, synthetic oil spray for use in chains on production lines, fill lines and packaging machines. NSF-H1 registered.
Optileb CH 280 Spray	
Optileb CH 1500 Spray	

Metalworking fluids

We have developed a range of outstanding fluids for the metalworking industry, focusing particularly on the reliability of the processes. To ensure that your requirements are met, Castrol offers product support based on broad experiences in various industrial sectors.

Our products help increase quality and productivity while reducing the overall production costs and achieving your goals in the field of occupational health and safety and environmental protection (HSSE).

Cutting fluids

Our comprehensive offer of high-quality cutting fluids meets all machining requirements in the various application areas. By using our products, you can help to improve your productivity, quality and HSSE profile. Due to our latest knowledge from research and technology, we can help you increase your efficiency and reduce your costs through lower fluid consumption.

Our cutting fluids are divided in: Soluble Cutting Fuids, Synthetic Cutting Fluids and Neat Cutting Fluids.

Industrial cleaners

The cleanliness of assembly parts has been an elementary requirement for meeting the increasing demands on quality, function and lifespan or for ensuring perfect surfaces for the downstream processes such as heat treatment or coating. We at Castrol aim at achieving an optimal product compatibility over the entire metal forming process. Castrol can particularly help you to achieve more process safety while increasing the cost efficiency in your production.

Corrosion preventatives

For many years, we have focused on corrosion prevention and on the research of its causes. We can help you reduce the risk of corrosion and improve your processes through the use of low-aromatic, solvent-free or aqueous products. Our products allow industrial components or products to be temporarily protected against corrosion during production, transport, storage or assembly.

Quenching oils

The quenching products of the Castrol Iloquench range cover a broad application range. They minimise hardening distortion and achieve an outstanding surface quality in various work pieces and surfaces. The high thermal stability and constant quenching performance as well as the low drag-out losses – even during long operating hours – ensure a particularly economic deployment.

Forming oils

Metal forming has gained increasing importance, particularly if greater efficiency can be attained by reducing process steps or by achieving lower drag-out rates. At Castrol, we focus on the development of fluids for metal forming, which enable compatibility throughout the entire production process.

Our Iloform product range offers you a comprehensive range of innovative and high-performance products for metal forming.

Water-soluble cutting fluids

Product	Concentrate				Emulsion				Material suitability						Application
	Mineral oil concentration (%)	Ester/ep-additive	Boron	Ph 5%	Appearance	Application concentration (%)	Refractometer factor	Water hardness range (°dh)	Grey cast iron	Low alloyed steels	High alloyed steels	Aluminium alloys	Magnesium alloys	Non-ferrous metals	
Almaredge 23	72	✓	–	9.0	milky	5–15	0.9	8–30	✓	✓	-	✓	-	✓	Water-soluble, boron free coolant for machining low-to-medium-alloyed steel, aluminium alloys and non-ferrous metals.
Almaredge 51 FF	50	–	✓	9.2	milky	4–10	1.0	3–20	✓	✓	✓	✓	-	-	Water-soluble coolant for grinding steel and machining low-to-medium-alloyed steel and grey cast iron.
Almaredge 230 K	53	✓	-	9.6	milky	6–12	1.0	10–50	✓	✓	✓	✓	-	✓	Water-soluble high-performance, cutting-edge coolant that is boron and formaldehyde free, especially designed for aluminium alloys used in machining.
Alusol ABF 10	40	✓	-	9.2	milky	4–10	1.0	5–20	✓	✓	✓	✓	-	✓	Water-soluble, boron and amine-free coolant for machining aluminium alloys and low-to-medium-alloyed steel.
Alusol ABF 47	49	✓	-	9.0	milky	4–10	1.0	8–40	✓	✓	✓	✓	-	✓	Water-soluble coolant, free of boron and amine, for machining aluminium alloys, low-to-medium-alloyed steel as well as non-ferrous metals.
Alusol M-FX	40	✓	✓	9.0	translucent	5–12	1.1	5–30	✓	✓	✓	✓	-	✓	Water-soluble coolant for machining aluminium alloys and low-to-medium-alloyed steel.
Alusol RAL BF	46	✓	-	9.0	milky	6–10	1.0	5–45	✓	✓	✓	✓	-	✓	Water-soluble, boron free coolant for machining aluminium alloys and low-to-medium-alloyed steel.
Alusol SL 51 XBB	50	✓	-	9.6	milky	5–10	1.0	10–40	✓	✓	✓	✓	-	✓	Water-soluble coolant designed for machining iron and aluminium alloys.
Alusol SL 61 XBB	35	✓	-	9.3	milky	6–10	1.0	8–45	✓	✓	✓	✓	-	✓	Water-soluble coolant designed for high-performance machining of aluminium alloys. The product can be used for machining cast iron and low-to-medium-alloyed steel.

Water-soluble cutting fluids

Product	Concentrate				Emulsion				Material suitability						Application
	Mineral oil concentration (%)	Ester/ep-additive	Boron	Ph 5%	Appearance	Application concentration (%)	Refractometer factor	Water hardness range (°dh)	Grey cast iron	Low alloyed steels	High alloyed steels	Aluminium alloys	Magnesium alloys	Non-ferrous metals	
Alusol XT FF	50	✓	✓	9.1	milky	7–15	1.0	10–20	✓	✓	✓	✓	-	✓	Water-soluble coolant for machining aluminium alloys and low-to-medium-alloyed steel.
Hysol 30 FF	26	-	✓	9.2	translucent	3–10	1.3	8–20	✓	✓	✓	-	-	-	Semi-synthetic coolants for grinding steel and machining low-to-medium-alloyed steel and grey cast iron.
Hysol 39 CBF	39	✓	-	9.1	milky	6–10	1.0	5–45	✓	✓	✓	✓	-	✓	Water-soluble coolant designed specifically for general processing of aluminium alloys, iron alloys and non-ferrous metals.
Hysol ABF 12	47	-	-	9.1	milky	6–12	1.0	10–85	✓	✓	-	✓	✓	✓	Water-soluble, boron and amine-free coolant for machining low-to-medium-alloyed steel and grey cast iron.
Hysol CGX 100	10	✓	✓	9.0	milky	5–12	1.0	3–20	✓	✓	✓	✓	-	✓	Water-soluble coolant for machining low-to-medium-alloyed steel and high-alloyed steel.
Hysol MB 50	50	✓	✓	9.7	milky	5–10	1.0	5–50	✓	✓	✓	✓	-	✓	Water-soluble coolant suitable for use in processing low-to-medium-alloyed steel, high-alloyed steel and other alloys used in the aerospace industry.
Hysol RD	35	-	✓	9.0	translucent	4–8	1.1	5–20	✓	✓	✓	-	-	-	Semi-synthetic coolants for grinding steel and machining low-to-medium-alloyed steel and grey cast iron.
Hysol SL 30 XBB	30	-	-	9.7	translucent	4–10	1.3	10–45	✓	✓	-	-	-	-	Water-soluble coolant, designed for grinding steel and machining low and medium-alloy steel and grey cast iron. Formulated without MEA, boron and formaldehyde. Translucent.
Hysol SL 35 XBB	35	-	✓	9.6	milky	4–10	1.1	10–30	✓	✓	-	-	-	-	Water-soluble coolant developed specifically for processing cast iron and low-alloyed steel.
Hysol SL 36 XBB	30	✓	-	9.3	translucent	4–10	1.2	3–22	✓	✓	✓	✓	-	-	Water-soluble coolant developed specifically for processing cast iron and low-to-medium-alloyed steels.
Hysol SL 37 XBB	36	✓	-	9.3	milky	5–10	1.1	5–40	✓	✓	✓	✓	-	✓	This water-soluable cutting fluid is the latest generation, high-performance product. Formulated without boron and formaldehyde, for use with difficult-to-machine materials such as stainless steel, Ni-based alloys, aluminium, titanium. Highest additive level.
Hysol SL 45 XBB	45	✓	-	9.4	milky	5–10	1.0	5–45	✓	✓	✓	✓	-	✓	Water-soluble coolant developed specifically for processing low-to-medium-alloyed steels and for processing aluminium alloys and other alloys used in the aerospace industry. Airbus release: AIMS 12-10-001.
Hysol SL 50 XBB	50	✓	-	9.9	milky	5–10	1	5–45	✓	✓	✓	✓	-	(✓)	High-performance, water-soluble coolant, formulated without boron and formaldehyde releasing agents, designed for machining iron, aluminium alloys and titanium. Our multi-metal machining product with high additive level.
Hysol XB	37	✓	✓	9.3	milky	6–10	1.1	3–15	✓	✓	✓	✓	-	✓	Semi-synthetic coolant suitable for machining low-to-medium-alloyed steel, high-alloyed steel and aluminium alloys.

Synthetic water-soluble cutting fluids

Product	Concentration		Solution					Material suitability						Application
	Mineral oil concentration (%)	Boron	Ph 5%	Appearance	Application concentration (%)	Refractometer factor	Water hardness range (°dh)	Grey cast iron	Low alloyed steels	High alloyed steels	Aluminium alloys	Magnesium alloys	Non-ferrous metals	
Syntilo 2000	0	-	9.1	transparent	2–20	1.7	2–20	✓	✓	✓	-	-	-	Universally usable, boron free coolant for grinding, honing and for moderate to heaviest machining of ferrous metals.
Syntilo 34	0	-	9.0	transparent	5–7	1.6	10–20	✓	✓	✓	-	-	-	Fully synthetic coolant for use in grinding turbine blades based on nickel alloys.
Syntilo 75 EF	0	-	9.7	transparent	4–10	2.0	2–30	✓	✓	✓	-	-	-	Boron free coolant for grinding and for moderate to heavy machining processes of the latest ferrous alloys.
Syntilo 81 BF	0	-	9.1	transparent	3–5	1.5	2–20	✓	✓	✓	-	-	-	Boron free coolant for grinding ferrous metals.
Syntilo 81 E	0	✓	9.2	transparent	3–5	1.5	2–20	✓	✓	✓	-	-	-	Coolant for use in grinding ferrous metals.
Syntilo 9913	0	-	7.4	transparent	6–10	1.4	2–14	-	-	✓	✓	-	-	Boron free, pH-neutral coolant for heavy machining to process aluminium and other alloys used in the aerospace industry.
Syntilo 9918	0	✓	7.6	transparent	4–10	1.7	0–22	✓	✓	✓	✓	-	-	Coolant, pH-neutral for use in grinding and heavy machining processes of ferrous and non-ferrous metals.
Syntilo 9923	0	-	7.4	transparent	6–10	1.4	0–20	-	✓	✓	✓	-	-	Coolants for grinding and heavy machining to process ferrous metals.
Syntilo 9954	0	✓	8.6	transparent	4–15	1.4	1–17	✓	✓	✓	-	-	-	
Syntilo 9974 BF	0	-	9.2	transparent	4–15	1.4	2–22	✓	✓	✓	-	-	-	
Syntilo CR 4	0	-	9.2	transparent	5–6	1.4	3–20	-	-	-	-	-	-	Boron free coolants with special inhibitors for safe grinding of hard metals without cobalt release.
Syntilo K1	0	✓	9.3	transparent	2–3	1.2	2–20	✓	✓	-	-	-	-	Coolant for use in general grinding and high-speed grinding.
Syntilo MR 81 BF	0	-	9.1	transparent	3–5	1.5	0–20	✓	✓	✓	-	-	-	Coolant for use in general grinding of ferrous metals specifically for flat grinding, circular grinding, discus grinding and centreless grinding with high resistance against bacteria and for carbon processing.
Syntilo MR 9930 BF	0	-	9.5	transparent	3–8	1.8	2–25	✓	✓	✓	-	-	-	
Syntilo MR 9974 BF	0	-	9.5	transparent	5–15	1.5	2–20	✓	✓	✓	-	-	-	High-performance, synthetic cutting fluid, formulated without boron and formaldehyde releasing agents, designed for grinding and heavy machining processes when working on ferrous metals.

Water-insoluble cutting fluids

Product	Properties									Application
	Viscosity at 40°c (mm²/s)	Flash point (°c)	Copper corrosion Stripe test (§h/100°c)	Ester	Active sulphur	Phosphorus	Other	Chlorine	Zinc	
General machining										
CareCut ES 1	28	≥ 270	1b	✓	-	✓	-	-	-	Cutting oil based on ester for extreme lubrication requirements with high flash point.
Ilocut 226	25	193	1a	✓	-	✓	-	-	✓	Chlorine-free coolant for processing alloyed steels, non-ferrous metals and non-ferrous heavy metals.
Ilocut 242	42	220	1a	✓	✓	✓	-	-	✓	Chlorine-free coolant suitable for general processing of alloyed steel, aluminium and non-ferrous metals.
Ilocut 315	17.5	170	4c	✓	✓	-	✓	-	-	Chlorine-free coolant for processing high-alloyed steels and for grinding, deep drilling, broaching and gear cutting.
Ilocut 330	23	204	4c	✓	✓	-	✓	-	-	Chlorine-free universal coolant for use in all medium-duty machining operations.
Ilocut 820	16	168		✓	✓	-	-	-	-	Chlorine-free, water-insoluble universal coolant for use in all medium-duty machining operations.
Variocut C 272	11	146	1b	✓	-	✓	-	-	✓	Chlorine-free, non water-soluble coolant suitable for processing cast iron, alloyed steels and non-ferrous metals.
Variocut C 335	37	220	4c	✓	✓	✓	-	-	-	Chlorine-free, water-insoluble coolant suitable for use in processing medium-alloyed steel in multiple spindle turning machines, hobs and thread cutters.
Variocut C 462	22	204	1b	✓	-	-	-	-	-	Chlorine-free, water-insoluble coolant suitable for standard processing of non-ferrous metals and low-alloyed steel.
Variocut C 769 HC	10	>160	1b	✓	✓	✓	-	-	-	Coolant for machining and grinding steel and non-ferrous metal; compatible with non-ferrous metal. Based on the "EHVI" hydrocracker base oil technology.
Deep drilling										
Variocut C 334	9.5	≥ 150	4c	✓	✓	-	-	-	-	For use in deep drilling and universal processing oil for cast iron and low- to medium-alloyed steel.
Variocut D 112	12.3	172	4c	✓	✓	-	✓	-	-	Deep-drilling oil for processing steels and stainless steels under more difficult conditions.
Variocut D 734	13.6	≥ 160	4c	✓	✓	✓	-	-	✓	
Variocut D 824	12	170	4c	✓	✓	✓	-	-	-	Deep-drilling oil for use in processing cast iron, medium-alloyed steel and broaching in gear production.
Variocut G 485	10	≥ 170	4c	✓	✓	✓	-	-	✓	Deep-drilling oil for use in high-alloyed steels and in grinding with CBN grinding discs.
Honing										
CareCut ES 3	5.5	175	1b	✓	-	-	✓	-	-	Honing and micro-finishing oil based on ester for extreme lubrication requirements.
Honilo 909	9	152	1b	✓	-	✓	-	-	-	Honing and micro-finishing oil as well as low-allowed cutting oil for machining of machining steel and carbon steels as well as aluminium.
Honilo 919	2.6	108	1b	✓	-	✓	-	-	-	Honing and micro-finishing oil for the bearing industry.
Honilo 930	3.7	≥ 125	1a	-	-	✓	-	-	-	Honing and micro-finishing oil for standard cast iron processing.
Honilo 971	8.4	137	4c	✓	✓	✓	-	-	-	Honing and micro-finishing oil for use in increased performance requirements of the steel and non-ferrous metal processing.

Water-insoluble cutting fluids

Product	Properties									Application
	Viscosity at 40°c (mm²/s)	Flash point (°c)	Copper corrosion Stripe test (§h/100°c)	Ester	Active sulphur	Phosphorus	Other	Chlorine	Zinc	
Honing										
Honilo 974	4.3	132	1b	✓	-	✓	-	-	-	Honing and micro-finishing oil for use in standard applications of steel and non-ferrous metal processing.
Honilo 980	4.3	140	1b	✓	-	✓	-	-	-	
Honilo 981	4.9	136	1b	✓	-	-	-	-	-	Honing, finishing and micro-finishing oil for applications requiring the best possible lubrication.
Honilo 988	4.5	≥ 125	1b	✓	-	✓	✓	-	-	Honing and micro-finishing oil for use with steel and aluminium. Prevents discolouration if sulphurised honing stones are used.
Honilo 989	2.9	≥ 125	1a	✓	-	✓	✓	-	-	Honing and micro-finishing oil for use with steel and aluminium; prevents discolouration when using honing stones, readjusts and regenerates honing stones.
Grinding										
CareCut ES 2	9	216	1b	✓	-	✓	-	-	-	Grinding and cutting oil based on ester, with high flash point for the highest of performance requirements.
Variocut G 260	6.2	128	1a	✓	✓	✓	-	-	✓	Grinding and honing oil for use in processing alloyed steels, non-ferrous metals and aluminium alloys.
Variocut G 950	8.2	182	1a	✓	-	✓	✓	-	-	Grinding oil for use in camshaft grinding with CBN and corundum grinding.
Variocut G 399	5.5	≥ 130	4c	✓	✓	-	-	-	-	Thin grinding oil for high-speed grinding to process steel.
Variocut G 408 HC	7.7	168	1a	-	-	-	✓	-	-	Grinding oil for use in carbide grinding, particularly in carbide tools susceptible to cracking. Based on "Extreme High Viscosity Index (EHVI)" Hydrocracked base oil technology.
Variocut G 500	21	≥ 190	1b	✓		✓	-	-	-	Grinding oil for use in flute grinding, e.g. twist drills and milling tools.
Variocut G 582	11	157	1b	✓	✓	✓	-	-	-	Grinding oil for use in full form grinding and tooth flank grinding with CBN grinding discs and semi-friable aluminium oxide as well as honing.
Variocut G 600 HC	8.9	≥ 160	1b	✓	✓	✓	-	-	-	Grinding oil with high flash point for use in high-speed grinding, creep feed grinding and tooth gear grinding. Based on "Extreme High Viscosity Index (EHVI)" Hydrocracked base oil technology. Suitable for use in CBN grinding discs.
Variocut G 611	10	182	1b	-	-	✓	-	-	-	Grinding oil for high and creep speeds, and in particular for gear-grinding iron, aluminium and non-ferrous metals with CBN and corundum grinding discs. Formulation based on the "Gas to Liquid (GTL)" base oil technology.
Variocut G 613 HC	12.5	190	1b	✓	✓	✓	-	-	-	Grinding oil for use in high-speed grinding, creep feed grinding and tooth gear grinding. Suitable for use in CBN grinding discs.
Variocut G 615 HC	14	208	1a	✓	✓	✓	-	-	-	Hybrid grinding oil for high and creep speeds, and in particular for gear-grinding iron, aluminium and non-ferrous metals with CBN and corundum grinding discs. Ester-based and "Extreme High Viscosity Index (EHVI)", hydrocracker base oil technology.
Variocut G 650 HC	9.1	170	1b	✓	✓	✓	-	-	-	High-performance grinding oil with high flash point for use in high-speed grinding, creep feed grinding, tooth gear grinding, and for use in drilling/cutting processes based on the "EHVI" hydrocracked base oil technology.
Variocut G 683 HC	9	178	1b	✓	-	✓	-	-	-	Grinding oil with high flash point for use in camshaft grinding based on the "EHVI" hydrocracked base oil technology.
Broaching										
Variocut B 9	11	154	4c	✓	✓	✓	-	-	-	Broaching oil for broaching and fouling of heat-resistant steels and non-ferrous metals.
Ilocut 11	17	≥ 140	1b	✓	-	-	-	✓	-	High-performance broaching and cutting oil for use in machining gears, equipped with an additive technology for processing steel, stainless steel and nickel alloys.
Variocut B 27	21	197	4c	✓	✓	✓	-	-	-	Broaching and cutting oil for use in machining gears to process steel and cast iron.
Variocut B 30	22	169	4c	✓	✓	✓	-	-	✓	High-performance broaching and cutting oil for use in machining of gears. Suitable for processing steel and stainless steel.
Variocut B 30 SP	22	170	4c	✓	✓	✓	-	-	-	Broaching oil for rapid broaching, broaching and hobs.
Variocut B 40	21	202	1a	✓	-	-	✓	-	-	High-performance broaching and cutting oil for use in machining gears, equipped with an advanced additive technology to process steel and stainless steel.
Variocut B 46 TC	15	≥ 140	2b	✓	✓	✓	✓	-	-	High-performance broaching, deep-drilling and cutting oil for use in machining gear to process steel and stainless steel.

Water-insoluble cutting fluids

Product	Properties									Application
	Viscosity at 40°c (mm²/s)	Flash point (°c)	Copper corrosion Stripe test (§h/100°c)	Ester	Active sulphur	Phosphorus	Other	Chlorine	Zinc	
Minimum quantity lubrication (mql)										
Hyspray A 1520	19	180	1a	-	-	-		-	-	Water-insoluble coolant based on bioalcohol for minimum lubrication for use in processing grey cast iron, alloyed steels and non-ferrous metals.
Hyspray A 1536	27	180	1a	-	-	-		-	-	Water-insoluble coolant based on bioalcohol for minimum lubrication for use in machining aluminium alloys.
Hyspray E 2000	28	≥ 270	1b	✓	-	✓		-	-	Water-insoluble coolant based on synthetic esters for minimum quantity lubrication use in machining high-alloyed steels and non-ferrous metals.
Hyspray E 2010	9	216	1b	✓	-	✓		-	-	Water-insoluble coolant based on synthetic esters for minimum quantity lubrication use in machining alloyed steels and non-ferrous metals.
Hyspray V 1066	35	226	1b	✓	-	-		-	-	Water-insoluble coolant based on vegetable esters for minimum quantity lubrication use in machining alloyed steels and non-ferrous metals.
Hyspray V 1084	36	189	4c	✓	✓	✓		-	-	Water-insoluble coolant based on synthetic esters for minimum quantity lubrication use in machining high-alloyed steels and non-ferrous metals.
Hyspray V 1093	24	>115	1b	✓	-	-		-	-	Water-insoluble coolant based on vegetable esters for quantity lubrication use in machining aluminium, steels and non-ferrous metals.
Multi-purpose oils										
Ilocut 510 MP	10	172	1a	-	-	✓		-	-	Multi-purpose oils, suitable specifically for use in machining and simple metal cutting processes of ferrous and non-ferrous metals. At the same time, they conform to the HLP-D specification for hydraulic oils free of heavy metals.
Ilocut 522 MP	22	208	1a	-	-	✓		-	-	
Ilocut 532 MP	32	200	1a	-	-	✓		-	-	
Ilocut 546 MP	46	220	1a	-	-	✓		-	-	
Dielectric/spark erosion oils										
Ilocut EDM 180	2.5	105	1b	-	-	-		-	-	Unalloyed, highly age-resistant and well filterable dielectrics, tried and tested for use in electrical discharge machining. Ilocut EDM 180 is for use in fine finishing work, Ilocut EDM 200 and EDM 401 are for use in finishing and roughing. Due to its low viscosity, Ilocut EDM 401 is suitable for use as a grinding oil for grinding hard metal.
Ilocut EDM 200	1.9	104	1b	-	-	-		-	-	
Ilocut EDM 401	3.5	123	1b	-	-	-		-	-	
Performance bio nc										
Super Lite	8	161	1b	✓	-	-	-	-	✓	Performance Bio NC products are high-performance cutting oils based on renewable resources, which increase your productivity, improve the quality of your components whilst ensuring a safe work environment, which is achieved by reducing the oil mist, smoke and the fire hazard.
Ultra Lite	16	173	1b	✓	-	-	-	-	✓	
Lite	25	215	1b	✓	-	-	-	-	✓	
Plus	40	282	1b	✓	-	-	-	-	✓	

Industrial cleaners

Product	Ph value at 5%	Operating temperature range (°c)	Application					Material suitability			Contamination						Application
			Dipping	Ultrasound	Spraying	Flood washing	High pressure	Steel	Aluminium	Non-ferrous metal	Emulsion	Light machining oils	Moderate machining oils	Heavy machining oils	Pastes/waxes	Particle	
Aqueous process cleaner for interoperational cleaning																	
Techniclean 80 XBC	9.9	20–70	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	Cleaner is suitable for a broad range of applications. Approved by Hammelmann high pressure pumps Recyclable in XBB coolant emulsions.
Techniclean 90 XBC	9.9	20–70	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	Cleaner is suitable for a broad range of applications. Approved by Hammelmann high pressure pumps Recyclable in XBB coolant emulsions. Formulated without monoethanolamine (MEA).
Techniclean MP 2	8.8	50–80	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	-	-	-	✓	Cleaner suitable for a broad range of applications, free of inorganic salts.
Techniclean S 17	9.5	40–70	-	-	✓	✓	-	✓	✓	✓	✓	✓	-	-	-	✓	Alkanolamine-free spray cleaner.
Techniclean S 30	9.8	20–70	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	Universal spray cleaner free of monoethanolamine.
Techniclean D 890	8.9	50–80	✓	✓	-	-	-	✓	✓	✓	✓	✓	✓	-	✓	✓	Immersion and ultrasonic cleaner, suitable for use with many metal substrates.
Techniclean HP	9.3	20–65	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	High pressure spray cleaner.
Techniclean MP	10.2	20–65	✓	✓	✓	✓	-	✓	-	✓	✓	✓	✓	-	-	✓	Cleaner suitable for a broad range of applications for ferrous metals.
Techniclean S 20	9.9	20–70	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	Universal, economic spray cleaner.
Techniclean S 581	10.7	20–80	-	-	✓	✓	-	✓	-	-	✓	✓	-	-	-	✓	Cleaner for use in heat treatment of ferrous metals.
Aqueous process cleaner with increased corrosion protection																	
Techniclean 45 XBC	9.5	20–70	-	-	✓	✓	✓	✓	-	-	✓	✓	-	-	-	✓	Cleaner gives very good protection against corrosion on ferrous metals. Recyclable in XBB coolant emulsions.
Techniclean CPL	9.2	20–65	-	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	✓	Semi-synthetic, oily micro-emulsion cleaner.
Techniclean S Extra FF	9.7	20–80	-	-	✓	✓	✓	✓	-	✓	✓	✓	-	-	-	✓	Spray cleaner for final rinses.
Techniclean S-RP	9.9	40–70	-	-	✓	✓	-	✓	✓	✓	✓	✓	-	-	-	✓	Water-soluble, oily, coarsely dispersed emulsion cleaner.
Aqueous process cleaner for heavy contamination																	
Techniclean MP Flex	12.0	20–80	✓	✓	✓	✓	-	✓	✓	-	✓	✓	✓	✓	✓	✓	Alkaline cleaner suitable for a broad range of applications.
Techniclean D 804	12.7	50–90	✓	✓	-	-	-	✓	-	-	✓	✓	✓	✓	✓	✓	Strong alkaline cleaner for electrolytical immersion lubrication, silicate-free.
Techniclean XHD	13.1	20–90	✓	-	✓	✓	-	✓	-	-	✓	✓	✓	✓	-	✓	Strongly alkaline cleaner, free of silicates and tensides.

Industrial cleaners

Product	Flash point (°c)	Max. Operating temperature (°c)	Voc-conform at 20°c	Application				Material suitability			Contamination					Application
				Manual	Dipping	Ultrasound	Vacuum vapour degreasing	Steel	Non-ferrous metal	Aluminium	Emulsion	Light machining oils	Heavy machining oils	Pastes/waxes	Particle	
Hydrocarbon cleaner																
Techniclean AS 58	>56	42	-	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	Low-odour hydrocarbon cleaner based on isoparaffin.
Techniclean AS 62	>62	47	-	✓	✓	✓	-	✓	✓	✓	-	✓	✓	✓	-	Dearomatised hydrocarbon cleaner.
Techniclean AS 100	>100	85	✓	✓	✓	✓	-	✓	✓	✓	-	✓	✓	✓	-	Voc-conforming hydrocarbon cleaner.
Techniclean AS 105	>101	85	✓	✓	✓	✓	-	✓	✓	✓	-	✓	✓	✓	-	Voc-conform hydrocarbon cleaner.
Techniclean OX 1	>55	45	-	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	Polar solvent cleaner ethyl hydroxypropionate.

Product	Application concentration (%)	Name	Application
Maintenance and service products			
Techniclean 80 XBC	1–10	Multipurpose cleaner	Machine-cleaning wash additive, compatible with xbb cooling lubricants. Very low foaming.
Techniclean 90 XBC	1–10	Multipurpose cleaner	Machine and system-cleaning wash additive, formulated without fad and compatible with xbb coolants. Very low foaming. Formulated without monoethanolamine (mea).
Techniclean FC Plus	0.5–5	Floor cleaner	Industrial floor cleaner for heavy soiling, ph 12.3.
Techniclean MTC 43	1–3	Aqueous system cleaner	Aqueous machine and system cleaner for light to strong soiling.
Techniclean Mop Turbo	-	Oil binding agent	Odourless and low dust oil binding agent in granular form.
Cleaners for oil systems			
Techniclean SC 170	Depending on the application (See technical data sheet)	Detergent additive	A detergent additive that is soluble in all mineral oils and in mineral oil-compatible synthetic oils. It is used to clean oil systems, e. G. In turbines, paper machines or heat transfer systems in order to dissolve deposits formed in these systems.
Techniclean SC 320	5–10	Cleaner for oil and oil residue contaminated systems	System cleaner for oil circulating systems and oil reservoirs of engines, gears and hydraulic systems without rinsing process or intermediate change prior to oil change. Cleaning additive for cleaning oil systems. Add to the oil prior to an oil change to help loosen sludgy, lacquer-like and resinous deposits. The dissolved contaminants are kept in suspension and removed from the system during the following oil change.
Cleaning wipes			
Techniclean OX 1 WDL	Ready to use	Impregnated cleaning cloths for the aviation industry	Cleaning cloths to clean and degrease metal components. They easily remove typical impurities, such as plasticisers, sealing materials, rubber abrasion and separating agents as well as mineral oils, liquid synthetic lubricants, vegetable greases and adhesives. Airbus release: asn42202.
Techniclean IPA 100 WFS	Ready to use		Isopropyl alcohol-soaked cleaning cloths to remove greasy impurities, light Mineral oils, colour markings, flux, polar impurities, fingerprints, general Dirt, dust, etc. They can be used for cleaning many metal and non-metal surfaces as well as carbon and plastic surfaces.
Techniclean Tablefit WDL	Ready to use		Cleaning cloths, designed for manually cleaning plastic, aluminium and stainless steel surfaces and especially good for the removal of inks, traces of adhesive tape, grease on floors, fingerprints, etc.
Careclean AS 1 WDL	Ready to use		Alternative to products with higher flammability and aromatic hydrocarbon solvents – designed to remove mineral oils, greases, oils and other nonpolar contamination. Airbus release: asn42202.

Image source: Ecoclean GmbH

Corrosion preventatives

Product	Basic medium	Flash point (°c)	Type of film	Film-forming portion (%)	Film strength (µm)	Corrosion protection		Drying time at 20°c (min.)	Barium	Application
						Inside storage (months)	Outside storage (months)			
Contains solvents										
Rustilo 5905	Diacetone alcohol	65	oily	75	5	Not specified	Not specified	N/A	-	Anti-corrosion medium and assembly fluid.
Rustilo DWX 10	White spirit	>38	no film	0	0	not evaluated	not evaluated	15	-	Dewatering fluid.
Rustilo DWX 21	Dearomatised KW	>38	oily	30	3–4	3	1	60	✓	Corr. and DW fluids for short-term protection.
Rustilo DWX 30	White spirit	>38	petroleum jelly-like	8	0.6–1	8–12	3–6	30	✓	Corr. and DW fluids, medium-term protection.
Rustilo DWX 31	Dearomatised KW	>38	petroleum jelly-like	19	2–4	12	6	40	✓	
Rustilo DWX 32	Dearomatised KW	>38	Vaseline-like, solid	32	4–6	18	9	90	✓	Corr. and DW fluid, long-term protection.
Rustilo DW 180 X	Isoparaffin	58	oily, petroleum jelly-like	11	1.2–1.5	12	4–6	40	-	Corr. and DW fluid, medium-term protection.
Rustilo DW 210 X	Isoparaffin	58	oily	30	3.5–5	3	1	90	-	Corr. and DW fluid, short-term protection.
Rustilo DW 230 X	Isoparaffin	58	oily, petroleum jelly-like	24	3	12–15	3–6	80	-	Corr. and DW fluids, medium-term protection.
Rustilo DW 300 X	Isoparaffin	65	petroleum jelly-like	8	0.6–1	8–12	3–6	40	-	
Rustilo DW 330	Dearomatised KW	>62	Strong petroleum jelly-like	40	7	24	12	120	-	Corr. and DW fluid, extra long protection.
Rustilo DW 370	Dearomatised KW	>62	petroleum jelly-like	31	4–6	18	9	90	-	Corr. and DW fluid, long-term protection.

Product	Basic medium	Viscosity at 40°c (mm^2/s)	Flash point (°c)	Type of film	Film-forming portion (%)	Film strength (µm)	Corrosion protection		Drying time at 20°c (min.)	Barium	Application
							Inside storage (months)	Outside storage (months)			
Contains solvents: VOC-conform (EC solvent directive 1999/13/EC and 31.BImSchv (The German Solvent Ordinance))											
Rustilo 4135 HF	Dearomatised KW		113	Vaseline-like	10	2-2.5	12	3	>10 h	-	Corr. and DW fluid, medium-term protection.
Rustilo DW 160 HF	Dearomatised KW	2.4	>89	oily	8	<1	2	not evaluated	>10 h	-	Corr. and DW fluid, short-term protection.
Rustilo DW 180 HF	Dearomatised KW	3.1	>89	oily, petroleum jelly-like	12	0.5	9–12	1–3	>10 h	-	Corr. and DW fluid, medium-term protection.
Rustilo DW 310 HF	Dearomatised KW	4.8	>90	petroleum jelly-like	20	1.5	9–12	4–6	>10 h	-	Corr. and DW fluid, medium-term protection.

Corrosion preventatives

Product	Basic medium	Viscosity at 40°c (mm^2/s)	Flash point (°c)	Type of film	Film-forming portion (%)	Film strength (µm)	Corrosion protection		Drying time at 20°c (min.)	Barium	Application
							Inside storage (months)	Outside storage (months)			
Corrosion preventative oils											
Rustilo 4163	Mineral oil	7	110	oily	100	2	12–24	not evaluated	N/A	-	Corrosion protection oil, low viscosity. Conforms to the German Solvent Ordinance (BImSchV, VOC).
Rustilo 66 VCI	Mineral oil + VCI	13	>130	thin, oily	100	2–3	5 years (sealed pack)	not evaluated	N/A	-	Corrosion protection oil with steam phase corrosion protection (VCI active substance).
Rustilo 612	Mineral oil	12	150	oily	100	2–4	4	not evaluated	N/A	-	Corrosion protection oil, low viscosity. Conforms to the German Solvent Ordinance (BImSchV, VOC).
Rustilo 637	Mineral oil	37	190	oily	100	3–5	6	not evaluated	N/A	-	Corrosion protection oil, medium viscosity. Conforms to the German Solvent Ordinance (BImSchV, VOC).
Rustilo 652	Mineral oil	52	190	oily	100	3–5	6–9	not evaluated	N/A	-	Corrosion protection oil, high viscosity. Conforms to the German Solvent Ordinance (BImSchV, VOC).
Water-soluble VOC-conform (EC solvent directive 1999/13/EC and The German Solvent Ordinance (31.BImSchV))											
Rustilo Aqua 21	Mineral oil, water-soluble	70	>150	thin, oily	depending on the concentration	depending on the concentration	8–12 (20%)	not evaluated	60–240	-	Water-soluble corrosion protection oil.
Rustilo Aqua 30	Microemulsion	N/A	N/A	Vaseline-like	10	0.9	9	N/A	30	-	Microemulsion, "ready to use".
Rustilo Aqua 498	Microemulsion	32	N/A	oily, petroleum jelly-like	36	20	12–36	6–18	60–240	-	Water-soluble corrosion protection agent "ready to use".
Rustilo Aqua 2 FD	Mineral oil, water-soluble	87	>150	oily	depending on the concentration	depending on the concentration	8–12 (20%)	not evaluated	60–240	-	Water-soluble corrosion protection oil.
Rustilo Aqua 2 PD	Mineral oil, water-soluble		>150	oily	depending on the concentration	depending on the concentration	8–12 (20%)	4	60–240	✓	Water-soluble corrosion protection oil.

Quenching oils

Product	Viscosity at 40°c (mm²/s)	Operating temperature range (°c)			Flash point (°c)	Application
Quenching oils						
Iloquench 1	20	+30 +50	+80 +100	(without inert gas) (with inert gas)	210	Universal use hardening oil, which is suitable for use in construction steels and Q&T steels with small to medium cross-sections, e. g. for nuts, bolts, springs.
Iloquench 25	44	+30	+90	(without inert gas)	225	Hardening oil for use in low-distortion quenching of gear components, which achieves an outstandingsurface quality of the hardened components. The oil is not affected negatively by any residual salts introduced.
Iloquench 100	110	+50 +120	+120 +180	(without inert gas) (with inert gas)	250	Oxidation- and temperature-stable high-performance hardening oil of higher viscosity, which is suitable for use in alloyed but also more sensitive and higher-alloyed steels due to its cooling properties.
Iloquench 455	30	+30 +50	+70 +100	(without inert gas) (with inert gas)	>200	High quality, low viscous hardening oil, primarily designed for use in heavy components made of case-hardened steels or steels with low hardenability, low-alloyed steels, screws and nuts, punch parts and bearing units.
Water-soluble quenchant						
Iloquench 768 Aqua FF	100	up to a maximum of +45			-	Fully synthetic, water-soluble quenching concentrate on polymer basis for use in heat treatment of steel, particularly for use in inductive quenching and heat treatable aluminium alloys following homogenising annealing. Free of formaldehyde depot substances.

Forming oils

Product	Properties						Material suitability					Precision tool release	Application
	Viscosity at 40°c (mm²/s)	Sulphur	Ester	Phosphorus	Chlorine	Other	Stainless steel	Unalloyed steel	Galvanised steel	Aluminium	Non-ferrous metals		
Fine blanking													
Iloform CFX 80	80	✓	✓	✓	-	✓	-	✓	✓	✓	-	-	Versatile forming oil for drawing and deep drawing of unalloyed steels of up to 6mm thickness and for fine cutting and rod drawing.
Iloform CFX 160	165	✓	✓	✓	-	-	✓	✓	(✓)	-	-	-	Fine blanking of hydrocarbon and Q&T steel.
Iloform CFX 185	185	✓	✓	✓	-	-	✓	✓		-	-		Multi-purpose forming oil for heavy forming operations such as blanking and fine blanking of stainless steels as well as demanding deep-drawing of hydrocarbon steels. Also suitable for use in moderate requirements as an outside lubricant during hydroforming and during pipe bending of hydrocarbon steels.
Iloform CFX 300	320	✓	✓	✓	-	-	✓	✓	(✓)	-	-	-	Fine blanking of high-alloyed steel and stainless steels of up to 8 mm.
Iloform FST 8	168	✓	✓	✓	-	✓		✓	-	-	-	-	Fine blanking oil for medium to heavy geometries of up to 10 mm.
Iloform FST 14	84	✓	✓	-	-	✓		✓	-	-	-	✓	Fine blanking oil for light to medium geometries of up to 6 mm.
Iloform FST X	200	-	✓	✓	✓	✓	✓	✓	-	-	-	-	Fine blanking oil for heavy geometries of up to 10 mm. Contains chlorine.

Product	Properties						Material suitability				Application
	Viscosity at 40°c (mm²/s)	Sulphur	Ester	Phosphorus	Chlorine	Other	Unalloyed steel	Galvanised steel	Aluminium	Non-ferrous metals	
Sheet metal forming in the automotive industry											
Iloform PL 17 ZM	17	-	✓	-	-	-	✓	✓	✓	-	Thixotropic coil and blank-wash oils.
Iloform PL 62 ZM	62	-	✓	-	-	-	✓	✓	✓	-	Thixotropic high-performance prelube for mill orders.
Iloform PN 951 HM	N/A	-	✓	✓	-	✓	✓	✓	✓	✓	Hotmelt high-performance lubricant for mill orders.
Evaporating blank-wash fluids											
Iloform PN 49	Based on solvents	-	✓	-	-	-	✓	✓	✓	✓	Blank-wash fluid for various metals subject to light stress.
Iloform PN 221	Based on solvents	-	✓	-	-	-	✓	✓	✓	✓	Blank-wash fluid for deep-drawing of electrical steel sheets.
Iloform PN 403	Based on solvents	-	✓	-	-	-	-	✓	✓	-	Blank-wash for aluminium cooling fins with flat, moderate collar height.

Forming oils

Product	Properties						Material suitability				Application
	Viscosity at 40°c (mm²/s)	Sulphur	Ester	Phosphorus	Chlorine	Other	Unalloyed steel	Stainless steel	Aluminium	Non-ferrous metals	
Internal high pressure forming – water-insoluble											
Iloform HFO 10	500	✓	✓	✓	-	-	✓	✓	✓	-	High-performance lubricants for the exterior.

Product	Properties						Material suitability					Application
	Viscosity at 40°c (mm²/s)	Sulphur	Ester	Phosphorus	Chlorine	Other	Stainless steel	Galvanised steel	Steel	Aluminium	Non-ferrous metals	
Deep-drawing – water-insoluble												
Iloform CFX 80	80	✓	✓	✓	-	✓	-	✓	✓	✓	-	Versatile forming oil for drawing and deep drawing of unalloyed steels of up to 6mm thickness and for fine cutting and rod drawing.
Iloform CFX 160	165	✓	✓	✓	-	-	✓	(✓)	✓	-	-	Deep-drawing oil for moderate to difficult forming processes.
Iloform CFX 300	320	✓	✓	✓	-	-	✓	(✓)	✓	-	-	Deep-drawing oil for moderate to difficult forming processes.
Iloform FST 16	93	✓	✓	✓	-	-	✓	-	✓	-	-	Deep-drawing oil for moderate forming ratios.
Iloform PN 142	127	✓	✓	✓	-	✓	-	✓	✓	✓	-	Medium-viscous, multi-functional forming oil suitable for use in chipless cold-forming such as cold impact extrusion, blanking and deep-drawing.
Iloform PN 226	67	✓	✓	✓	✓	✓	✓		✓	-	-	Deep-drawing oil for moderate forming ratios. Contains chlorine.
Iloform SLZ 350	312	✓	✓	-	-	✓	-	-	✓	✓	-	Deep-drawing oil for moderate forming processes.
Deep-drawing – water-soluble												
Iloform PS 158	N/A	-	✓	-	-	✓	-	-	✓	✓	-	Pigmented forming paste for heavy-duty deep-drawing processes.
Tube drawing and pilgering – water-insoluble												
Iloform CFX 185	185	✓	✓	✓	-	-	✓	-	✓	✓	-	Chlorine-free oil for pipe pilgering operations (outer diameter lubrication).
Iloform TDN 81	140	-	✓	-	✓	-	✓	-	✓	✓	-	Chlorinated oil for pipe pilgering operations (outer diameter lubrication).
Iloform TDN 86	viscous paste	-	✓	-	✓	✓	✓	-	✓	-	-	Chlorinated, pigmented oil for heavy pipe pilgering operations (internal diameter lubrication).

Forming oils

Product	Properties						Material suitability				Application
	Viscosity at 40°c (mm²/s)	Sulphur	Ester	Phosphorus	Chlorine	Other	Unalloyed steel	Alloyed & stainless steel	Aluminium	Non-ferrous metals	
Wire drawing											
Iloform BWN 141	28	✓	✓	-	-	-	✓	✓	-	-	Drawing oil for use in stainless steel wire drawing as well as deep-drawing, blanking and forming.
Iloform BWN 320	130	-	✓	-	-	-	-	-	✓	-	Particularly suitable for use in multiple wire drawing machines with immersion or spray lubrication for rod and medium wire drawing of aluminium alloys.
Iloform CFX 25	25	✓	✓	✓	-	-	✓	(✓)	-	-	Wire drawing of stainless steel.
Cold extrusion											
Iloform PN 142	127	✓	✓	✓	-	✓	✓	✓	✓	-	Medium-viscous, multi-functional forming oil suitable for use in chipless cold-forming such as cold impact extrusion, blanking and deep-drawing.
Iloform PN 415	68	✓	✓	-	-	-	✓	-	✓	✓	Multi-purpose oil for light forming operations and machine lubrication.
Rolling oils – water-insoluble											
Iloform RN 3016	9.9	-	✓	✓	-	-	✓	✓	-	-	Cold-rolling oils to roll steel and stainless steel materials suitable for use in duo/quattro roll stands and for use in 20-roll reversible stands.
Iloform RN 3017	7.5	-	✓	✓	-	-	✓	✓	-	-	
Iloform PL 6	7.8	-	✓	✓	-	✓	✓	✓	-	-	Blank-wash oil specifically formulated as a wash oil and lubricant for use in blank washers with brush rollers.
Other forming oils											
Iloform EB 20	37	-	✓	-	-	-	-	-	✓	✓	Drawing oil for use in rolling and plating of aluminium, steel materials and non-ferrous materials.

Product	Properties							Material suitability			Application
	Mineral oil	Concentration range (%)	Ph at 5%	Construction pipe	Mechanical engineering tubes	Boron free	Lubricant additives	Steel	Stainless steel	Galvanised steel	
Pipe forming – water-soluble											
Iloform TRS 104	-	3–7	9.1	✓	-	-	-	✓	-	(✓)	Fully synthetic for use in chipless forming of steel pipes with longitudinal welds and for grinding steel.
Iloform TRS 105	-	3–8	9.2	✓	-	✓	✓	✓	✓	-	Fully synthetic for use in the production of precision steel pipes with longitudinal welds.
Iloform TRS K	-	4–9	9.0–9.4	✓	-	✓	✓	✓	-	(✓)	Fully synthetic with increased lubrication performance, boron-free.
Iloform RS 5116	-	4–10	9.1	N/A	-	N/A	N/A	N/A	N/A	N/A	Versatile product, suitable for use in various applications such as rolling welded pipes, cold rolling and as inner sliding lubricants for tubular hydroforming. Can also be used for deep drawing and sawing steel.

Abbreviations

Abbreviation	Meaning
AW	Anti-wear
CBN	Cubic boron nitride
DW	Dewatering
EHVI	Extreme High Viscosity Index
EP	Extreme pressure
EPDM	Ethylene propylene diene rubber
FSS	Solid lubricants
Not specified	Not specified
Corr.	Corrosion protection
KW	Hydrocarbon
LF	Low friction
MMKS	Minimum quantity lubrication
N/A	Not applicable
NF	Non-ferrous
PAO	Polyalphaolefin
PD	Plastic deformation
PFPE	Polyfluoropolyether
PG	Polyglycol
PTFE	Polytetrafluoroethylene
R+O	Corrosion and oxidation protection
VCI	Vapour-phase Corrosion Inhibitor
VOC	Volatile Organic Compound

Technical details

Viscosity – overview tables

In 1687, viscosity as a measure of internal friction of a fluid was defined by Newton for the "absolute" or dynamic viscosity as a connection between shear stress and shear rate. In accordance with DIN 53 015, the dynamic viscosity for lubricants as Newtonian liquids can be measured with Höppler's falling ball viscometer.

η; 1 Pa · s = 1 Ns/m^2
10^{-3} Ns/m^2 = 10^{-3} Pa · s = 1 mPa · s = 1 cP (centipoise)

In accordance with DIN 51 562, the kinematic viscosity is measured with the capillary-based method by Ubbelohdev.
v = η/p 1 m^2/s = 10^6 mm^2/s = 10^6 cSt (centistokes)

ISO-VG

ISO-VG is the rounded numeric value of a range of systematically graduated numerical figures in accordance with DIN 51 519 for the kinematic viscosity of liquid industrial lubricants. The individual middle viscosity value is approx. 50% greater/less than its previous/following numeric value. The permissible limits of an ISO-VG are +/-10% of the middle viscosity value.

The rounded numerical value e.g. ISO-VG 7 is derived from the numerical value 6.8 mm^2/s, the value of the middle viscosity at 40°C. The individual middle viscosity value is approx. 50% greater/less than its previous/following numeric value. The permissible limits of an ISO-VG are +/-10% of the middle viscosity value.

ISO Viscosity Grade (ISO VG)	Middle viscosity at 40°C mm²/s (cSt)	Limit of kinematic viscosity at 40°C mm²/s (cSt)	
		Minimum	Maximum
ISO VG 2	2.2	1.98	2.42
ISO VG 3	3.2	2.88	3.52
ISO VG 5	4.6	4.14	5.06
ISO VG 7	6.8	6.12	7.48
ISO VG 10	10	9.0	11.0
ISO VG 15	15	13.5	16.5
ISO VG 22	22	19.8	24.2
ISO VG 32	32	28.8	35.2
ISO VG 46	46	41.4	50.6
ISO VG 68	68	61.2	74.8
ISO VG 100	100	90.0	110
ISO VG 150	150	135	165
ISO VG 220	220	198	242
ISO VG 320	320	288	352
ISO VG 460	460	414	506
ISO VG 680	680	612	748
ISO VG 1000	1000	900	1100
ISO VG 1500	1500	1350	1650

Conversion of percentage in ppm (parts per million)

%	ppm
1	10,000
0.1	1,000
0.01	100
0.001	10
0.0001	1

NLGI grades

The "National Lubricating Grease Institute" introduced consistence grades for lubricants, which were adopted as DIN 51 818. Consistency of grease is the resistance against deformation (similar to the viscosity in lubricating oils).

This deformability depends on the type and quantity of the thickener, the viscosity temperature – the behaviour of the base oil and the duration of worked penetration. In accordance with the worked penetration, greases are divided into nine NLGI consistency grades.

Consistency classification according to din 51 818	Worked penetration according to din 51 804*	Consistency	Type of lubricant and application
000	445–475	fluid	Gear flow grease and for use in central lubricating systems.
00	400–430	not very fluid	
0	355–385	semi-fluid	
1	310–340	very soft	Gear greasing, central lubricating systems.
2	265–295	soft	Multi-purpose greases for sliding and roller bearings.
3	220–250	firm	For very fast turning slide bearings, top greases.
4	175–205	very firm	
5	130–160	firm	Standard water pump greases.
6	85–115	very hard and harder	As opposed to the above grades unworked penetration: block greases.

* DIN 51 804 T1/01.72 was replaced by DIN ISO 2137

It is specified in the consistency indicator. The consistency indicator is also specified as an NLGI grade according to DIN 51818 and it may be specified as unworked or worked penetration, whereby the consistency measurement according to DIN ISO 2137 tumbles the fat prior to measuring to imitate the stress in a bearing. Classifications:

Connection between fat consistency and common household products

000	00	0	1	2	3	4	5	6
Edible oil	Apple sauce	Mustard	Tomato paste	Peanut butter	Vegetable fat	Frozen yoghurt	Soft pâté	Cheddar cheese
Fluid	OPTIC. Semi-fluid	OPTIC. Very soft	OPTIC. Soft	OPTIC. "Normal" grease	OPTIC. Firm	OPTIC. Very Firm	OPTIC. Hard	OPTIC. Very hard
Penetration 445–475	Penetration 400–430	Penetration 355–385	Penetration 310–340	Penetration 265–295	Penetration 220–250	Penetration 175–205	Penetration 130–160	Penetration 85–115

Labelling of greases according to DIN 51 502

DIN 51 502 describes the unified and clear identification of greases and grease points. This should prevent greases being confused and then causing damages. Furthermore, this standard refers to other DIN standards, which describe and specify greases and their tests in more detail.

The labelling regulations for greases according to DIN 51 502 define, among other things, the application point, the base oil type, the additives, the maximum use temperature and the behaviour toward water.

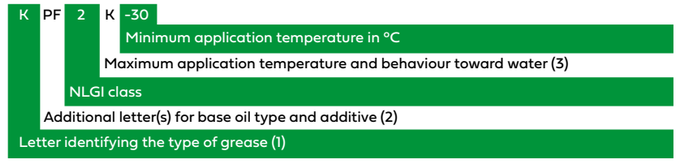
(1) Type of grease

G Closed gears DIN 51 826
OG Open gears
K Roller bearings, sliding bearings, sliding surfaces according to DIN 52 825
M Sliding bearings and seals (fewer requirements than on K)

(2) Additional letter(s)

For base oil type:

E Ester oils
FK Hydrofluorocarbon fluorine
HC Synthetic hydrocarbons
PG Polyglycols
PH Ester of the phosphoric acid
SI Silicone oils
X Other



For additives:

P EP/AW additives
F Solid greases, e.g. MoS_2

(3) Maximum application temperature and behaviour toward water at test temperature (DIN 51 807, T1 stat. test).

	Maximum application temperature [1]	Behaviour toward water [2]	Test temperature
C	60°C	0 or 1	40°C
D	60°C	2 or 3	40°C
E	80°C	0 or 1	40°C
F	80°C	2 or 3	40°C
G	100°C	0 or 1	90°C
H	100°C	2 or 3	90°C
K	120°C	0 or 1	90°C
M	120°C	2 or 3	90°C
N	140°C	By agreement	
P	160°C		
R	180°C		
S	200°C		
T	220°C		
U	>220°C		

1 The maximum application temperature for continuous lubrication is identical with the highest test temperature according to DIN 51 806-2 and/or DIN 51 821-2, provided the test runs are passed.
2 Behaviour toward water:
0 = no change
1 = slight change
2 = moderate change
3 = strong change

Important information

Historically, there are various product names and product ranges at BP due to numerous takeovers, among other things, at the turn of the millennium (Castrol, Tribol, Optimol, Aral). The number of names makes it very difficult and complicated for some customers to gain an overview of the product portfolio. To simplify the orientation in our assortment, we changed numerous names of products and ranges of products in 2015 to generate a homogeneous overall picture. At the same time, we wanted to use known and existing names as much as possible. As a result, we have the current pattern of names, which led among other things to, for example, former products of Optimol receiving a Tribol name, or vice versa. In the meantime, all products were sold by BP and are assigned to Castrol, our premier brand in the lubrication segment. Therefore, this renaming was possible and it made sense.

Below, you will find some of our most important product range names and what you can associate with them. These were combined with parts of the former product name to make it easier to recognise them (e.g. Castrol Molub-Alloy FoodProof 823-... FM to Castrol Optileb GR 823-... or Castrol Firetemp XT 2 to Castrol Tribol GR XT 2 HT). In addition, we implemented some short identifiers to allow conclusions to be drawn about properties and/or areas of application.

Greases:

- **Castrol Spheerol** — General greases for industrial use without particular high-performance characteristics
- **Castrol Tribol GR** — High-performance greases with properties that exceed those of general greases
- **Castrol Molub-Alloy** — High-performance greases and pastes with various solid lubricants
- **Castrol Braycote** — High-performance greases primarily on a PTFE/PFPE basis, which are chemically inert; they are suitable for use in high vacuum, aerospace applications, clean rooms, gas fixtures, etc.
- **Castrol Optitemp** — Special greases, which are primarily for use in lifelong lubrication primarily for use in the car/truck sector
- **Castrol Optileb GR** — Speciality greases for use in the food and beverage industry
- **Castrol Performance Bio GR** — Biodegradable speciality greases

Lubricants:

- **Castrol Magna** — Circulating and simple gear oils
- **Castrol Perfecto** — Circulating, turbine and heat transfer oils
- **Castrol Alpha** — Standard gear oils
- **Castrol Optigear** — High-performance gear oils
- **Castrol Tribol** — High-performance oils of various categories
- **Castrol Molub-Alloy** — Solid grease-containing speciality oils
- **Castrol Viscogen** — Residue and vaporisation-loss optimising products, e.g. for use in chain or particle board applications and in the glass industry
- **Castrol Hyspin** — Hydraulic and spindle oils
- **Castrol Aircol** — Oils for use in compressors and cooling units
- **Castrol Anvol** — Highly flame-resistant hydraulic fluids
- **Castrol Optileb** — Speciality oils for the food and beverage industry
- **Castrol Performance Bio** — Biodegradable speciality oils

Examples for additional letters:

- **GR** — Grease
- **HT** — High temperature applications
- **SW** — Slideway and bed ways applications
- **PM** — Paper machine and circulating oils
- **CH** — Chain applications
- **GE** — Gear applications
- **GT** — Gear applications
- **HY** — Hydraulic applications
- **PD** — Plastic deformation, PD high-performance additive (plastic deformation, formerly TGOA or MFT)
- **OG** — Open Gear, for use in open gears
- **C** — Cutting, turning and milling
- **D** — Drilling
- **G** — Grinding

Cutting fluids:

- **Castrol Alusol** — Water-soluble MWF for use in aluminium and steel processing
- **Castrol Almaredge** — Water-soluble MWF
- **Castrol Hysol** — Water-soluble MWF for use in cast iron, steel and stainless steel processing
- **Castrol Syntilo** — Synthetic MWF
- **Castrol Ilocut** — Cutting oils
- **Castrol Variocut** — High-performance cutting oils
- **Castrol Honilo** — High-performance honing oils
- **Castrol Hyspray** — Minimum quantity lubrication

Foaming:

- **Castrol Iloform** — Forming products

Cleaners:

- **Castrol Techniclean** — Industrial cleaner

Corrosion preventatives:

- **Castrol Rustilo** — Corrosion protection

Quenching oils:

- **Castrol Iloquench** — Quenching media

Please note:

Product names and additional letters often allow conclusions to be drawn as to the application or particular properties. However, we also adopted some additional letters or name components from the former product names. There may be some overlaps. Therefore, no guaranteed properties can be derived from the product names or additional letters. Only the properties specified on the product data sheet are binding

New product names

Castrol's portfolio of lubricants was unified for a simpler product selection. The former names and the new product names are listed below:

Old name	New name
Almaredge bi	Almaredge 23*
Anvol pe 46 xc	Anvol pe 46 b
Aquasafe 21	Rustilo aqua 21
Aquasafe 30	Rustilo aqua 30
Aquasafe 498	Rustilo aqua 498
Brayco hv 15	Brayco micronic 756
Careclean mp	Techniclean mp 1
Careclean mp 2	Techniclean mp 2
Careclean s 17	Techniclean s 17
Careclean s 30	Techniclean s 30
Carelube ges 220	Performance bio ge 220 esu
Carelube ses 46	Performance bio he 46
Carelube sl 68	Performance bio sw 68
Cooledge abf 12	Hysol abf 12
Cresta pm 220	Magna pm 220
Cresta zfx 220	Magna pm 220 zz
Emulsol 230	Almaredge 23
Firetemp xt 2	Tribol gr xt 2 ht
Flexiclean	Techniclean mp flex
Flexiclean cpl	Techniclean cpl
H 540	Hyspin h 540
Ilobroach 11	Ilocut 11
Ilobroach 9 cf	Variocut b 9
Ilogrind 260	Variocut g 260
Ilogrind 950	Variocut g 950
Inertox heavy	Braycote inertox 2
Inertox medium	Braycote inertox 500-2
Inertox medium 150	Braycote inertox 240-2
Longtime blanc	Molub-alloy blanc
Longtime hs 1.5	Tribol gr hs 1.5
Longtime pd 0	Tribol gr 100-0 pd
Longtime pd 00	Tribol gr 100-00 pd
Longtime pd 1	Tribol gr 100-1 pd
Longtime pd 2	Tribol gr 100-2 pd
Ma 1000	Molub-alloy 1000 ht
Ma 140/460	Molub-alloy gm 140/460
Ma 1500	Molub-alloy gm 1500
Ma 170w/680	Molub-alloy gm 170/680
Ma 2115-0	Braycote 2115-0
Ma 2115-2	Braycote 2115-2
Ma 300 s/1000	Molub-alloy gm 300s/1000
Ma 3710-0/00	Molub-alloy og 3710-0/00
Ma 690/320	Molub-alloy gm 690/320
Ma 90/220	Molub-alloy gm 90/220
Ma 936 sf arctic	Molub-alloy og 936 wt 680
Ma 936 sf heavy	Molub-alloy og 936 sf heavy
Ma 936 sf heavy spray	Molub-alloy og 936 sf heavy spray
Ma 968 sf heavy	Molub-alloy og 968 sf heavy
Ma 969/320	Molub-alloy gm 969/320
Ma 9790/2500-0	Molub-alloy og 9790/2500-0
Ma 9890-2	Optitemp 9890
Ma biotop 9488	Performance bio gr 9488
Ma chain oil 22	Molub-alloy ch 22
Ma chain oil 22 spray	Molub-alloy ch 22 spray

Old name	New name
Ma foodproof 823-0 fm	Optileb gr 823-0
Ma foodproof 823-2 fm	Optileb gr 823-2
Ma foodproof 9830	Optileb gr 9830
Ma topfit 3284	Molub-alloy paste white t
Ma topfit 3844	Molub-alloy paste mf
Magna bd 68	Magna sw 68
Magna cf 220	Magna sw 220
Magna gc 32	Magna sw 32
Magna hb 150	Magna ct 150
Magna hb 220	Magna ct 220
Magna hb 320	Magna ct 320
Magna hb 460	Magna ct 460
Magna xx 100	Magna ctx 100 wt
Magnaglide b 100	Magna sw b 100
Magnaglide b 150	Magna sw b 150
Magnaglide b 220	Magna sw b 220
Magnaglide b 68	Magna sw b 68
Magnaglide d 100	Magna sw d 100
Magnaglide d 150	Magna sw d 150
Magnaglide d 220	Magna sw d 220
Magnaglide d 32	Magna sw d 32
Magnaglide d 68	Magna sw d 68
Magnaglide dx 220	Magna sw dx 220
Magnaglide dx 68	Magna sw dx 68
Mop turbo	Techniclean mop turbo
Obeen fs 2	Optileb gr fs 2
Obeen uf 00	Optileb gr uf 00
Obeen uf 1	Optileb gr uf 1
Olista longtime 2	Tribol gr 400-2 pd
Olista longtime 3 ep	Tribol gr 400-3 pd
Olistamoly 2	Molub-alloy 370-2
Olistamoly 2 ln 584 lo	Optitemp 2 ln 584 lo
Olit 00	Tribol gr 00
Olit 2 ep	Tribol gr 2 ep
Olit cls	Tribol gr cls 2
Olit cls 000	Tribol gr cls 000
Opticoating tf spray	Molub-alloy tf spray
Optim. Paste white rv	Molub-alloy paste white rv
Optimol f+d fluid spray	Optileb f&d spray
Optimol non fluid 150	Tribol non fluid 150
Optimol paste dh 2	Molub-alloy paste dh 2
Optimol paste ht	Molub-alloy paste ht
Optimol paste mf	Molub-alloy paste mf
Optimol paste mp 3	Molub-alloy paste mp 3
Optimol paste mp3 anthrazit	Molub-alloy paste mp 3 anthrazit
Optimol paste pl	Molub-alloy paste pl
Optimol paste pl spray	Molub-alloy paste pl spray
Optimol paste ta	Molub-alloy paste ta
Optimol paste ta spray	Molub-alloy paste ta spray
Optimol paste white t	Molub-alloy paste white t
Optimol paste white t spray	Molub-alloy paste white t spray
Optimol paste whs ln 776	Molub-alloy paste whs ln 776
Optimol shf spray	Tribol shf spray
Optipit	Tribol gr 1350-2.5 Pd

New product names

Castrol's portfolio of lubricants was unified for a simpler product selection. The former names and the new product names are listed below:

Old name	New name
Optisil flf 1	Optitemp flf 1
Optisil fm	Tribol gr fm 2.5 Sil
Optisil leb 2	Optileb 2 sil
Optisil td-1	Tribol gr td 1 sil
Optisil wx spray	Tribol wx spray
Optisynt ht 320	Tribol pm 320 s
Optisynt ht 680	Tribol pm 680 s
Optitemp ht 2	Tribol gr ht 2
Optitemp ps 1	Tribol gr ps 1 ht
Optitemp ps 2	Tribol gr ps 2 ht
Optitemp rb 1	Optitemp rb 2
Optitemp tt 1	Tribol gr tt 1 pd
Penetrat wdp spray	Rustilo wdp spray
Performance bio ge 220 ess	Performance bio ge 220 esu*
Performance biolubes nucut lite	Performance bio nc lite
Performance biolubes nucut plus	Performance bio nc plus
Product 299/34	Syntilo 34
Product 5905	Rustilo 5905
Product ld 0027 sc	Hysol rx
Product ld 0061 def	Iloform cfx 185
Rheomic sg 2	Optitemp sg 2
Rustilo dw 310	Rustilo dw 230 x*, rustilo dw 370*
Safecoat 612	Rustilo 612
Safecoat 637	Rustilo 637
Safecoat 652	Rustilo 652
Safecoat 66	Rustilo 66 vci
Safecoat dw 16 vc	Rustilo dw 160 hf
Safecoat dw 18 vc	Rustilo dw 180 hf
Safecoat dw 18 x	Rustilo dw 180 x
Safecoat dw 21 x	Rustilo dw 210 x
Safecoat dw 23 x	Rustilo dw 230 x
Safecoat dw 30 x	Rustilo dw 300 x
Safecoat dw 31 vc	Rustilo dw 310 hf
Safecoat dw 33	Rustilo dw 330
Safecoat dw 37	Rustilo dw 370
Spezialpaste auln 598	Molub-alloy paste au ln 598
Spindle coolant sf	Hyspin spindle coolant sf
Tr foodproof 1800/220	Optileb gt 1800/220
Tr foodproof 1800/460	Optileb gt 1800/460
Trenulo 03311	Tribol mo 14
Tribol 1100/100	Optigear 1100/100
Tribol 1100/1000	Optigear 1100/1000
Tribol 1100/150	Optigear 1100/150
Tribol 1100/1500	Optigear 1100/1500
Tribol 1100/220	Optigear 1100/220
Tribol 1100/320	Optigear 1100/320
Tribol 1100/460	Optigear 1100/460
Tribol 1100/68	Optigear 1100/68
Tribol 1100/680	Optigear 1100/680
Tribol 1300/220	Optigear synthetic 1300/220
Tribol 1300/460	Optigear synthetic 1300/460
Tribol 1390/220	Optigear synthetic 1390/220
Tribol 1421/150	Tribol ch 1421/150
Tribol 1430	Tribol ch 1430
Tribol 1430 spray	Tribol ch 1430 spray

Old name	New name
Tribol 1510/320	Optigear synthetic 1510/320
Tribol 1555/32	Tribol cs 1555/32
Tribol 1555/46	Tribol cs 1555/46
Tribol 1555/68	Tribol cs 1555/68
Tribol 1710/100	Optigear synthetic 1710/100
Tribol 1710/220	Optigear synthetic 1710/220
Tribol 1710/320	Optigear synthetic 1710/320
Tribol 1710/460	Optigear synthetic 1710/460
Tribol 1730/100	Tribol ch 1730/100
Tribol 1730/100 spray	Tribol ch 1730/100 spray
Tribol 290/220	Tribol ch 290/220
Tribol 3020/1000-0	Tribol gr 3020/1000-0 pd
Tribol 3020/1000-00	Tribol gr3020/1000-00 pd
Tribol 3020/1000-000	Tribol gr 3020/1000-000 pd
Tribol 3020/1000-1	Tribol gr 3020/1000-1 pd
Tribol 3020/1000-2	Tribol gr 3020/1000-2 pd
Tribol 3785/220-1.5	Tribol gr 3785/220-1.5
Tribol 4020/220-1	Tribol gr 4020/220-1 pd
Tribol 4020/220-2	Tribol gr 4020/220-2 pd
Tribol 4020/460-2	Tribol gr 4020/460-2 pd
Tribol 4747/220-2	Tribol gr 4747/220-2 ht
Tribol 5000	Tribol og 500-0
Tribol 5000 spray	Tribol og 500-0 spray
Tribol 800/100	Optigear synthetic 800/100
Tribol 800/1000	Optigear synthetic 800/1000
Tribol 800/150	Optigear synthetic 800/150
Tribol 800/1500	Optigear synthetic 800/1500
Tribol 800/220	Optigear synthetic 800/220
Tribol 800/320	Optigear synthetic 800/320
Tribol 800/460	Optigear synthetic 800/460
Tribol 800/680	Optigear synthetic 800/680
Tribol 890/100	Tribol cs 890/100
Tribol 890/68	Tribol cs 890/68
Tribol 943aw-22	Tribol hm 943 22
Tribol 943aw-32	Tribol hm 943 32
Tribol 943aw-46	Tribol hm 943 46
Tribol 943aw-68	Tribol hm 943 68
Tribol biotop 1418/320	Performance bio ge 320 ess
Vario hdx	Hyspin hvi 46 d
Viscochain 3 n	Viscogen 3n
Viscoleb 150	Optileb ch 150
Viscoleb 1500	Optileb ch 1500
Viscoleb 1500 spray	Optileb ch 1500 spray
Viscoleb 280	Optileb ch 280
Viscoleb 280 spray	Optileb ch 280 spray
Viscoleb 32	Optileb ch 32
Viscoleb 32 spray	Optileb ch 32 spray
Viscotemp 2	Molub-alloy 100-2 ht
Vitamol 4004	Hyspin 4004
Vitamol v 10	Hyspin v 10
Vitamol zh-m	Hyspin zh-m
Whitemor wom 14	Optileb wom 14
Whitemor wom 24	Optileb wom 24
Whitemor wom 65	Optileb wom 65

The Lubricant Oracle

Explore our product range online 24/7

- Search by sector, product category or application for all your fluid needs
- Get product and safety data sheets
- Check out our high-performance reference guide covering all the need-to-knows of high-performance lubrication
- Register online access to OEM approvals

thelubricantoracle.castrol.com

Forward

on your industrial evolution

Find out more at castrol.com/industrial

Castrol and the Castrol logo are trademarks of Castrol Limited used under licence.
This publication and the information contained therein must be seen applicable at the time it was printed. No express or implied warranty or assurance is given for the accuracy and completeness of the data and information contained in this publication. The data provided are based on the standardised test methods under laboratory conditions and serve as reference values only. The operator is responsible for evaluating and using the products with the required care, for judging their suitability for the intended application and for complying with all applicable laws and regulations. For information about health, safety and environmental aspects, please request a material safety data sheet. It includes particulars about storage, safe handling and disposal of the products. The BP Group shall not be liable for damages and injuries caused by the use of these products, which are generally not foreseeable, which are caused by not following recommendations or which are based on the hazards in connection with the nature of the product. Our General Delivery Terms and Conditions including the liability provisions contained therein apply to all deliveries. For further product information, please contact Technical Services at BP Europe.

As of July 2023 · Subject to technical modifications