



ZELLER+GMELIN

Industrial oils

Gear and hydraulic oils | Guide and slideway oils





Zeller+Gmelin

The brand with the clear plus

Zeller+Gmelin is a medium-sized, international manufacturer of lubricants, printing inks and chemicals. The company with its head office in Eislingen/Fils, which was founded in 1866, is still family-owned. With 15 subsidiary companies and many partners, we are well connected throughout the world and deliver our high-quality products to more than 80 countries. We have understood and solved your problems for more than 150 years and will continue to do so in the future. This is how we create a tangible plus for our customers. Because we understand the customer and develop solutions – reliably, flexibly and tailor-made.

With our Divinol industrial oils, you receive high-quality lubricants for various applications and guarantee functional safety for machines and systems. Customers worldwide trust in the high quality of our products. When developing our lubricants, we concentrate on fulfilling both the current and future requirements of the chemicals legislation and, moreover, on ensuring the optimal economy.

Industrial oils



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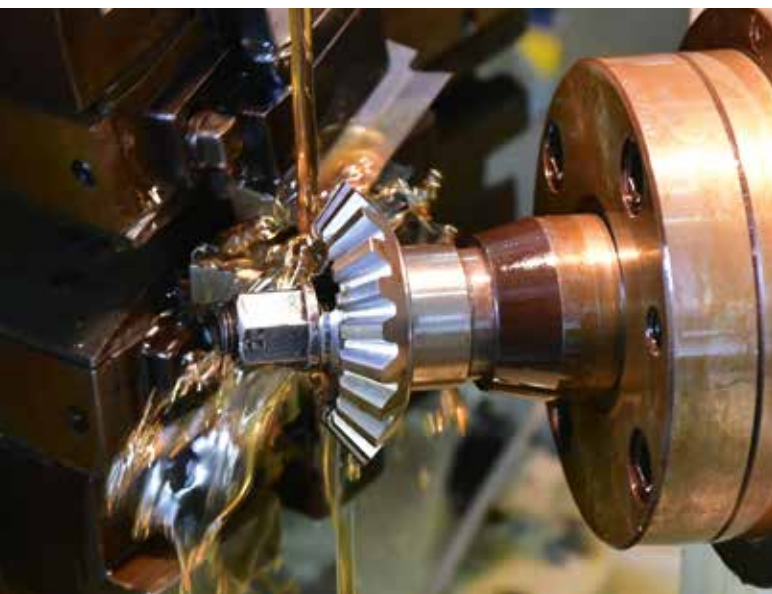
Please take a look at the current MSDS for all products offered.
The MSDS are always available on demand.



Divinol industrial oils – Gear and hydraulic oils / Guide and slideway oils

Wherever wheels turn, surfaces are shifted against each other or forces are transmitted, lubricants must be used to reduce starting resistance and frictional forces and to protect against wear. Modern high-performance machines are particularly demanding in this regard. They require very careful selection of lubricants in the interest of maintaining accuracy, performance, investment values and economy.

Divinol industrial oils are high-quality hydraulic, gear and machine oils that are specially designed to meet the requirements of modern machines and to maintain their performance and precision. Our company, certified in accordance with DIN EN ISO 9001:2015 and DIN EN ISO 14001:2015, guarantees a consistently high-quality standard for the products we manufacture. At the same time, we offer on-site consulting, laboratory monitoring and assistance with disposal issues.



Hydraulic oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol HLP ISO 10	20530	10	> 160	≤ −30
Divinol HLP ISO 22	48850	22	> 190	≤ −27
Divinol HLP ISO 32	48861	32	> 200	≤ −24
Divinol HLP ISO 46	48870	46	> 210	≤ −24
Divinol HLP ISO 68	48880	68	> 210	≤ −18
Divinol HLP ISO 100	48890	100	> 220	≤ −15

Description: High-pressure hydraulic oils **HLP** according to **DIN 51524-2** with high ageing resistance as well as excellent corrosion and wear protection properties, **zinc containing**, for all hydraulic units. For stationary hydraulic systems.

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C	Brugger value N/mm²
Divinol HLP ISO 46 MWB ZF	23070	46	> 210	≤ −24	35
Divinol HLP ISO 68 MWB ZF	23080	68	> 220	≤ −21	35

Description: **Zinc-free** high-pressure hydraulic oils **HLP** according to **DIN 51524-2**, particularly finely filtered, very high degree of purity, high load capacity according to Brugger (Brugger value: > 30 N/mm²), **approved by Müller-Weingarten**.

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol HVI ISO 15	48830	15	> 160	≤ −36
Divinol HVI ISO 32	48840	32	> 190	≤ −33
Divinol HVI ISO 46	48820	46	> 210	≤ −27
Divinol HVI ISO 68	48740	68	> 210	≤ −24

Description: High-pressure hydraulic oils **HVLP** according to **DIN 51524-3** with a high viscosity index for large areas of application, **contains zinc**, particularly suitable for hydraulic systems that are exposed to strongly fluctuating operating temperatures (e.g. for mobile hydraulic systems).

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol HLP ISO VG 46 BR	24190	46	> 220	≤ −24

Description: **Zinc-containing** high-pressure hydraulic oil HLP according to **DIN 51524-2** with oxidation and corrosion-inhibiting ingredients and additives that reduce friction and wear. **It meets the requirements of the Bosch Rexroth Fluid Rating List RDE 90245.**



Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol HLP-D ISO 32 ZF	23290	32	> 185	≤ −24
Divinol HLP-D ISO 46 ZF	48720	46	> 200	≤ −24
Divinol HLP-D ISO 68 ZF	48690	68	> 220	≤ −24

Description: **Zinc-free detergent/dispersing** hydraulic oils **HLP-D** according to **DIN 51524-2**, recommended in hydraulic systems with the risk of condensation or penetration of aqueous cooling lubricants (e.g. in machine tools). Also suitable for mobile and stationary hydraulic systems with hydrostatic drive.

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol DHG ISO 10	84301	10	> 130	≤ −27
Divinol DHG ISO 15	30830	15	> 160	≤ −27
Divinol DHG ISO 22	84310	22	> 185	≤ −27
Divinol DHG ISO 32	84330	32	> 190	≤ −24
Divinol DHG ISO 46	84350	46	> 210	≤ −24
Divinol DHG ISO 68	84370	68	> 220	≤ −21
Divinol DHG ISO 100	84390	100	> 220	≤ −15
Divinol DHG ISO 150	84411	150	> 220	≤ −15

Description: **Detergent/dispersing** hydraulic oils **HLP-D** according to **DIN 51524-2**, **containing zinc**. Preferred use in hydraulic systems with the risk of condensation or the penetration of aqueous cooling lubricants (e.g. in machine tools). Also suitable for mobile and stationary hydraulic systems with hydrostatic drive.

Industrial gear oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol ICL ISO 32	27440	32	> 180	≤ −12
Divinol ICL ISO 46	27450	46	> 180	≤ −12
Divinol ICL ISO 68	25030	68	> 180	≤ −12
Divinol ICL ISO 100	25040	100	> 210	≤ −12
Divinol ICL ISO 150	24630	150	> 210	≤ −12
Divinol ICL ISO 220	25060	220	> 210	≤ −12
Divinol ICL ISO 320	25070	320	> 210	≤ −9
Divinol ICL ISO 460	21750	460	> 210	≤ −9

Description: Industrial high-pressure gear oils **CLP** according to **DIN 51517-3** with additives to reduce friction and wear, **free of silicone and zinc**, very high-pressure absorption capacity. The requirements AISE 224, AGMA 9005-E02 and David Brown S1.53:101 (E) are met. Use in heavy-duty industrial gear units with circulation lubrication as well as immersion bath gear units with spur and bevel gears and worm gear units. FZG test according to DIN 51354/2: Damage force level > 12.



Multi-purpose oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol GWA ISO 3	20001	3	> 100	≤ −24
Divinol GWA ISO 5	20010	5	> 120	≤ −24
Divinol GWA ISO 10	20030	10	> 160	≤ −24
Divinol GWA ISO 22	48760	22	> 190	≤ −21
Divinol GWA ISO 32	48770	32	> 200	≤ −24
Divinol GWA ISO 46	48812	46	> 210	≤ −24
Divinol GWA ISO 68	48780	68	> 220	≤ −21
Divinol GWA ISO 100	48790	100	> 220	≤ −21
Divinol GWA ISO 150	20050	150	> 230	≤ −12

Description: Zinc-free multi-purpose oils for bearings, gears and hydraulic systems according to **DIN 51517-2**. Divinol GWA ISO 10 to Divinol GWA ISO 150 also meet the HLP requirements of **DIN 51524-2**. Products of the Divinol GWA series are used in hydraulic and mechanical gears, in roller and slide bearings, in hydraulic systems, for spindle lubrication, etc.

Supercharger oils + compressor oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol VDL ISO 32	53611	32	> 230	≤ −15
Divinol VDL ISO 46	53621	46	> 230	≤ −15
Divinol VDL ISO 68	36240	68	> 240	≤ −15
Divinol VDL ISO 100	36220	100	> 240	≤ −21
Divinol VDL ISO 150	36230	150	> 240	≤ −21

Description: Air compressor oils for the lubrication of thermally highly loaded reciprocating and rotary piston compressors for compression end temperatures up to +220 °C. They comply with **DIN 51506 group VBL / VDL** or ISO DP 6521 category DAA-DAB-DAH-DA.

Turbine oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol SVO ISO 32	53610	32	> 230	≤ −15
Divinol SVO ISO 46	53620	46	> 230	≤ −15
Divinol SVO ISO 68	36241	68	> 240	≤ −15
Divinol SVO ISO 100	36221	100	> 240	≤ −21

Description: Turbine oils for use in screw air compressors and steam, gas and water turbines. They meet the requirements for lubricating oils according to **DIN 51515-1 / L-TD** and **DIN 51515-2 / L-TG** or ISO 6743-5 categories L-TGA / L-TGB / L-TSA / L-TGSB.

Machine oils

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C	Pour point °C
Divinol GW ISO 7	90640	7	> 140	≤ -21
Divinol GW ISO 10	90650	10	> 160	≤ -21
Divinol GW ISO 150	90600	150	> 240	≤ -9

Description: Ageing resistant lubricating oils without additives with good viscosity temperature behaviour. Lubricating oils C according to **DIN 51517-1**. They can be used for the lubrication of slide and roller bearings, lightly loaded gears, pinions, etc.

The ISO 6743-4 or -6 standard uses the following code letters:
for HL = L-HL, for HLP = L-HM, for HVLP = L-HV
for C = L-HH, for CL = L-CKB, for CLP = L-CKC

Technical documentation on other industrial oils such as guide and slideway oils, adhesive oils, technical white oils, heat transfer oils or on our entire industrial lubricant programme for non-cutting or machining metalworking is of course available on request.

Our technical field service is at your disposal for application-related consulting.



Oil purity classes

Constantly increasing demands on reliability, availability and economy of hydraulic and lubrication systems require ever purer operating fluids or lubricants.

Several methods exist for classifying the existing system cleanliness. ISO 4406:1999 is applied according to DIN 51524. Limit value according to DIN 21/19/16 ZG during filling: 19/15/12. These test methods are only valid for hydraulic and lubricating oils.

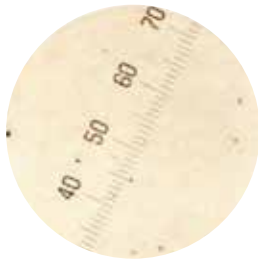
In order to determine the oil purity classes, electronic particle counters or purity class monitors, which work on the principle of light blocking (area measurement), are used. Microscopic evaluations by means of a light microscope can also still be found. The number and the respective size of the particles per 100 ml liquid are determined. On the basis of the values determined, the respective oil purity class of the medium can then be determined in the following tables.

Filter to measure the oil purity:

The oil purity class according to ISO 4406 (1999) is given as a composite number, e.g. 17/15/12.

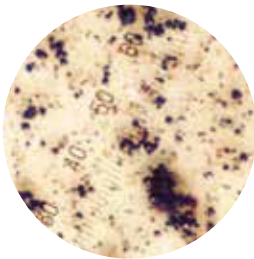
The first number refers to particles > 4 µm, the middle number to particles > 6 µm and the last number to particles > 14 µm.

for filling ZG



19/15/12

DIN specification



21/19/16

Oil purity classes according to ISO 4406:1999

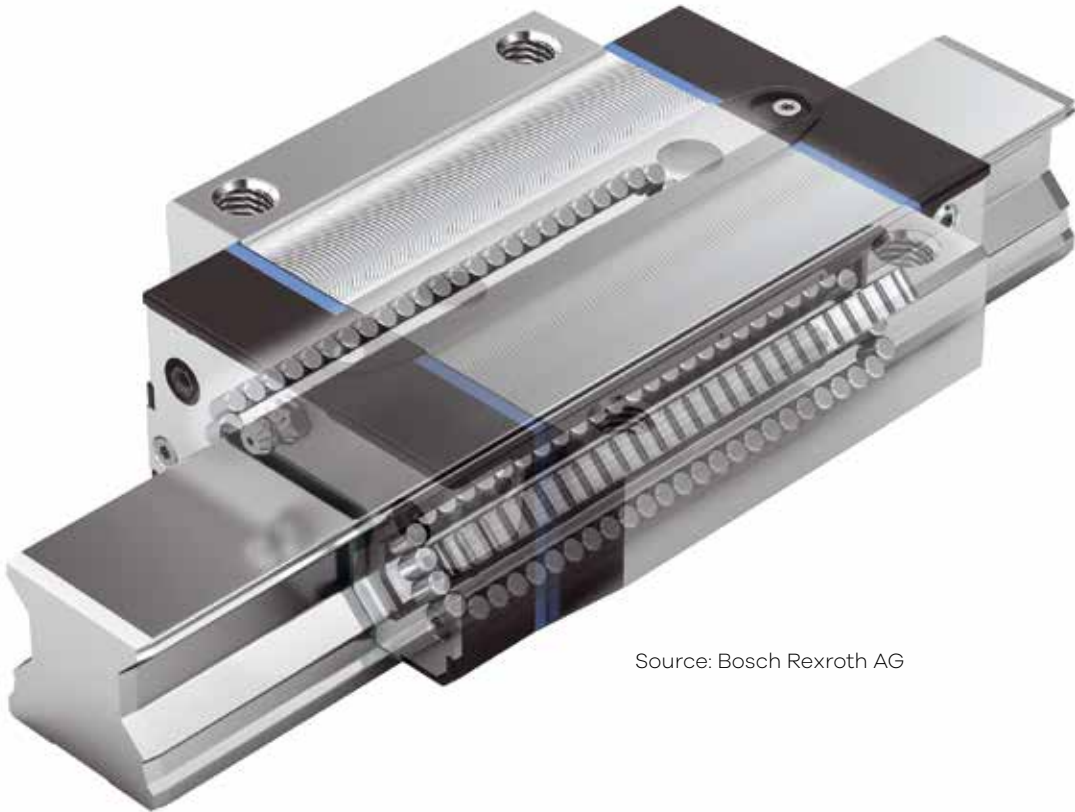
Number of particles per 100 ml						Code	
–		> 5 µm		> 15 µm			
> 4 µm(c)		> 6 µm(c)		> 14 µm(c)		Only APC *	
from	to	from	to	from	to		
4 000 000	8 000 000	500 000	1 000 000	64 000	130 000	23 /	20 / 17
2 000 000	4 000 000	250 000	500 000	32 000	64 000	22 /	19 / 16
1 000 000	2 000 000	130 000	250 000	16 000	32 000	21 /	18 / 15
500 000	1 000 000	64 000	130 000	8 000	16 000	20 /	17 / 14
250 000	500 000	32 000	64 000	4 000	8 000	19 /	16 / 13
130 000	250 000	16 000	32 000	2 000	4 000	18 /	15 / 12
64 000	130 000	8 000	16 000	1 000	2 000	17 /	14 / 11
32 000	64 000	4 000	8 000	500	1 000	16 /	13 / 10
16 000	32 000	2 000	4 000	250	500	15 /	12 / 9
8 000	16 000	1 000	2 000	130	250	14 /	11 / 8
4 000	8 000	500	1 000	64	130	13 /	10 / 7
2 000	4 000	250	500	32	64	12 /	9/6
1 000	2 000	130	250	16	32	11 /	8/5
500	1 000	64	130	8	16	10 /	7/4

* 3-digit code only when using an automatic particle counter (APC)

Guide and slideway oils

Divinol guide and slideway oils have been specially formulated to meet the high demands for performance, precision and economy in modern manufacturing technology. The consistently high quality of the lubricant components used results in the greatest possible operational safety for the user. The guide and slideway oils from Zeller+Gmelin are convincing contributions for a more efficient and cost-effective production. These high-performance lubricants guarantee high reliability and positioning accuracy of the machine tools, especially when the machines are equipped with plastic-coated bed tracks.

Demulsifying guideway oils for use in emulsion-filled machine tools for the lubrication of metal and metal-plastic sliding pairs on conventional guideways in accordance with **DIN 51502 CGLP**. Special additives reduce the friction forces when starting up and prevent the stick-slip effect at low sliding speeds.



Source: Bosch Rexroth AG

High-performance lubricants – demulsifying

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C
Divinol T3 EP ISO 32	95980	32	> 200
Divinol T6 EP ISO 68	81911	68	> 200
Divinol T8 EP ISO 100	22960	100	> 200
Divinol T12 EP ISO 220	81930	220	> 200

These data are calculated average values. We reserve the right to deviate within the usual tolerances.

High-performance lubricants – for oil-filled machine tools

Product	Item no.	Viscosity mm²/s at 40 °C	Flash point °C
Divinol T6 KA ISO 68	90050	68	> 200
Divinol T9 KA ISO 150	21550	150	> 200
Divinol T12 KA ISO 220	90070	220	> 200

These data are calculated average values. We reserve the right to deviate within the usual tolerances.

Slideway oils according to **DIN 51502 CGLP** for guides and slideways in oil-filled machine tools, can also be used in machines without separate oil circuits if, for example, machining oil and slideway oil are supplied from one container.

Complete solution for machine tools

Zubora – water-miscible cooling lubricants

Water-miscible high-performance cooling lubricants based on the latest technology and taking into account the current legal requirements. They can be used for almost all materials and machining processes. They can be used with a wide variety of water qualities – special soft or hard water products. Long service life due to high emulsion stability.

Multicut – non-water-miscible cooling lubricants

Wide range of cooling lubricants for the most diverse areas of application and materials. Low oil mist and low evaporation products; universally applicable types or multifunctional oils. High-performance machining oils based on the latest synthesis technology for the most difficult machining operations and for grinding. Special products for fine machining.

For roller lubrication of linear guides in machine tools Divinol Lithogrease 00/000

NLGI classes 00 and 000

Water-resistant, semi-synthetic, EP-alloyed fluid greases for the lubrication of mechanically and thermally highly stressed gears. Excellent for the lubrication of roller, ball or needle bearing linear systems in machine tools. The corresponding approvals are available.

Divinol Lithogrease 000 has a more favourable post-flow behaviour.

Operating temperature range –30 °C to +140 °C.

(Markings according to DIN 51 826: GP 00/000 N-30, according to ISO 6743-9: ISO-L-XCDHB 00/000.)



Awards

Anyone who receives the Bosch Global Supplier Award should be considered as one of the best industrial suppliers in his sector:
Zeller+Gmelin received the award for the sixth time already in the category »Indirect Purchasing«.

The criteria of quality, cost awareness, innovation and logistics were decisive for the awarding of the Bosch Global Supplier Award.
The motto of the 2017 award ceremony was »Partners in Success«.



Awards:

2017 / 2015 / 2013 / 2010 / 2005 / 2003
Supplier Award for the best lubricant
supplier of the Bosch Group.



At home + Abroad

We are your plus.

Zeller+Gmelin has got offices worldwide, plus its head office in Eislingen in Baden-Württemberg. Our name stands for reliability and quality, at all times. Our subsidiaries and partners with all their employees ensure this on a worldwide basis.

The distinct expertise of our sites and our smooth cooperation are beneficial not just to us, the company as a whole – but also to you, the customer.

The concentrated competence and understanding of processes, application and development, coupled with problem-solving skills and personal advice, are what make Zeller+Gmelin a global figure when it comes to understanding and solving your problems.



Germany
Zeller+Gmelin GmbH & Co. KG
ZG Fluidmanagement
SÜDÖL Mineralöl-Raffinerie GmbH
SÜDÖL GmbH
SÜDÖL Recycling GmbH



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