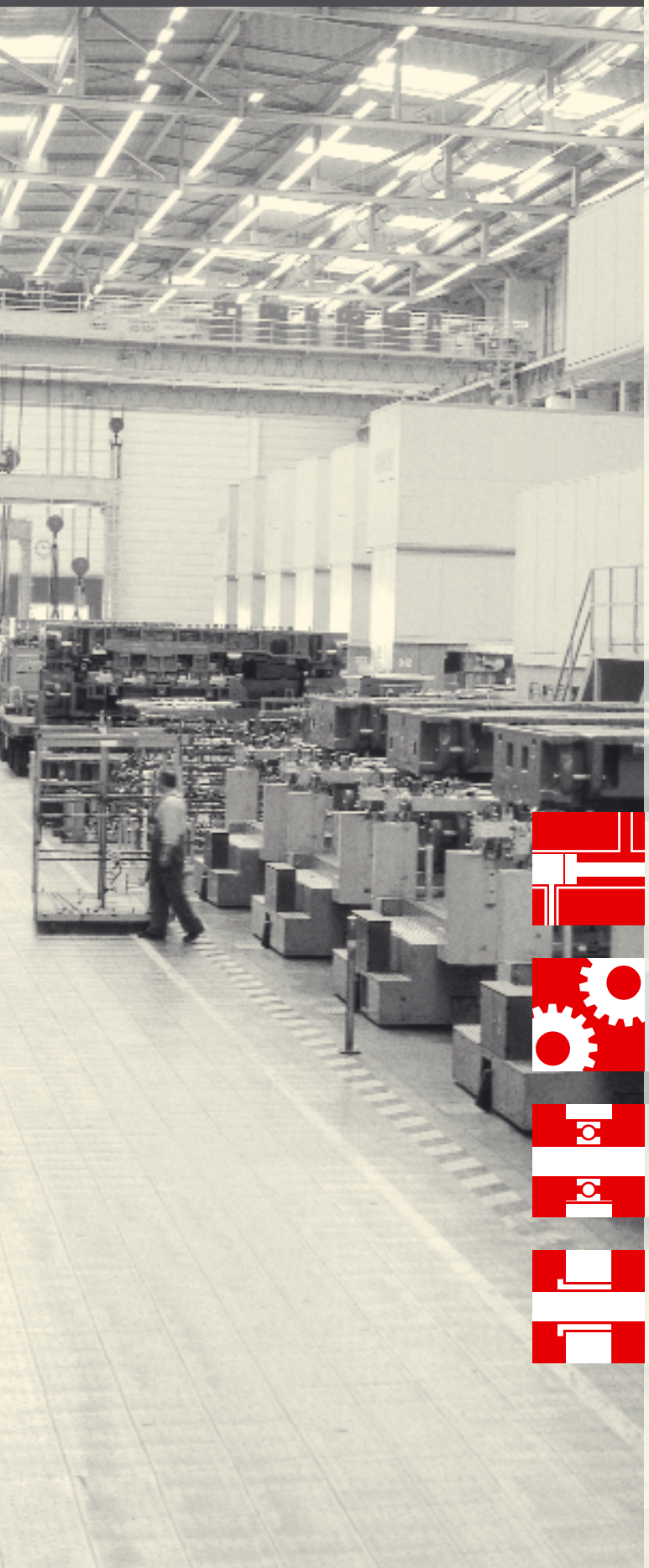
Divinol industrial oils

hydraulic oils • industrial gearbox oils • multipurpose oils

Zeller+Gmelin
Mineralöle · Druckfarben · Chemie



Wherever wheels turn, surfaces are pressed against each other or forces have to be transmitted, lubricants need to be used to reduce start-up resistance and friction forces and protect against wear. Modern high-performance machines are especially demanding in this respect. They require very careful selection of lubricants in the interest of maintaining precision, performance, equipment value and economy of operation.

Divinol industrial oils are high-quality hydraulic, gearbox and machine oils that have been especially designed with regard to the requirements of modern machines and to maintain their performance and precision. Our company is certified to DIN EN ISO 9001:2008 and DIN EN ISO 14001:2005 and thus ensures consistently high quality standards of the products that are manufactured. At the same time we offer consulting on site, laboratory monitoring and also help with questions concerning disposal.

Divinol hydraulic oils

Description	Density/15 °C DIN 51757 kg/m³	Viscosity/40 °C DIN 51562 mm²/s (cSt)	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
Divinol HLP ISO 10	850	10	165	-30
Divinol HLP ISO 22	860	22	195	-21
Divinol HLP ISO 32	860	32	200	-18
Divinol HLP ISO 46	870	46	210	-15
Divinol HLP ISO 68	880	68	220	-15
Divinol HLP ISO 100	880	100	225	-15
Application and properties	High-pressure hydraulic oils HLP as per DIN 51524 Part 2 with high ageing resistance, excellent corrosion protection and wear-protecting properties. For all hydraulic units that require the use of HLP-alloyed oils.			
Divinol HVI ISO 15	870	15	130	-39
Divinol HVI ISO 32	860	32	180	-30
Divinol HVI ISO 46	860	46	185	-27
Divinol HVI ISO 68	870	68	185	-24
Application and properties	High-pressure hydraulic oils HVLP as per DIN 51524 Part 3 with especially favourable viscosity-temperature behaviour, excellent wear and corrosion protection as well as very good oxidation preventing properties. Exceed the requirements for hydraulic oils HLP as per DIN 51524 Part 2. Especially suitable for hydraulic units subjected to extreme variations in operating temperature.			
Divinol HLP 46 MWB	880	46	210	-25
Divinol HLP 68 MWB	880	68	230	-25
Application and properties	Zinc-free high-pressure hydraulic oils HLP as per DIN 51524 Part 2, especially finely filtered, high loading capacity as per Brugger, approved by Müller-Weingarten.			
Divinol DHG ISO 10	850	10	150	-30
Divinol DHG ISO 22	860	22	165	-30
Divinol DHG ISO 32	860	32	190	-30
Divinol DHG ISO 46	870	46	210	-30
Divinol DHG ISO 68	880	68	230	-25
Divinol DHG ISO 100	880	100	230	-20
Divinol DHG ISO 150	890	150	220	-15
Application and properties	Hydraulic and gearbox oils HLP-D with detergents and dispersants. Exceed the requirements for hydraulic oils HLP as per DIN 51524 Part 2. The products offer a high ageing stability as well as excellent corrosion protection and anti-wear properties. Preferred for use in hydraulic units where there is a risk of the formation of condensation water or the penetration of water-based cooling lubricants, e.g., as used with machine tools. Likewise can be used to lubricate gearboxes in machines. Please observe OEM technical instructions.			

Divinol hydraulic oils

Description	Density/20 °C DIN 51757 kg/m³	Viscosity/40 °C DIN 51562 mm²/s (cSt)	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
Divinol DHG-ZF ISO VG 10	860	10	160	-30
Divinol DHG-ZF ISO VG 22	870	22	190	-25
Divinol DHG-ZF ISO VG 32	870	32	190	-25
Divinol DHG-ZF ISO VG 46	880	46	200	-20
Divinol DHG-ZF ISO VG 68	890	68	210	-20

Application and properties

Hydraulic and gearbox oils HLP-D with detergents and dispersants. The product series is zinc- and ash-free and fulfills DBL 6721. The hydraulic oil HLP requirements according to DIN 51524 part 2 are exceeded. The products offer a high lubrication effect, a high oxidation stability as well as an outstanding wear and corrosion protection and excellent purification and dirt carrying capacity. Preferential usage in machines and facilities, where water-miscible cooling lubricants are used and due to strong temperature variation the forming of condensation water is possible. Can simultaneously be used to lubricate gearboxes in machines. Please observe OEM technical instructions.

Divinol HE 46	920* (*Densitiy/20 °C)	46	>280	-30

Application and properties

Readily biodegradable hydraulic fluid, based on synthetic esters, given the „Blue Angel" ecological award as well as the EU Ecolabel*[1] (flower logo) reg. no. DE/027/034.

Meets all technical minimum requirements as per VDMA standard specification sheet 24568 HEES. The product can be used in a number of applications due to its high viscosity index. It can be used as an alternative to hydraulic oils HLP as per DIN 51524 Part 2 and HVLP as per DIN 51524 Part 3 respectively in the corresponding viscosity.

Temperature application range: -20 °C to +120 °C

*[1]awarded for goods and services which comply with the environmental requirements of the environmental label of the EU. Register no. DE/027/034

When changing to fast biodegradable hydraulic oils we recommend to consider the implementation guideline according to VDMA 24569 HEES as well as the instructions of the manufacturer.

Divinol industrial gearbox oils

Description	Density/15 °C DIN 51757 kg/m³	Viscosity/40 °C DIN 51562 mm²/s (cSt)	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
Divinol ICL ISO 32	880	32	180	-15
Divinol ICL ISO 46	880	46	180	-15
Divinol ICL ISO 68	880	68	180	-15
Divinol ICL ISO 100	890	100	210	-15
Divinol ICL ISO 150	890	150	210	-15
Divinol ICL ISO 220	900	220	210	-12
Divinol ICL ISO 320	900	320	210	-12
Divinol ICL ISO 460	900	460	210	-12
Divinol ICL ISO 680	900	680	210	-3

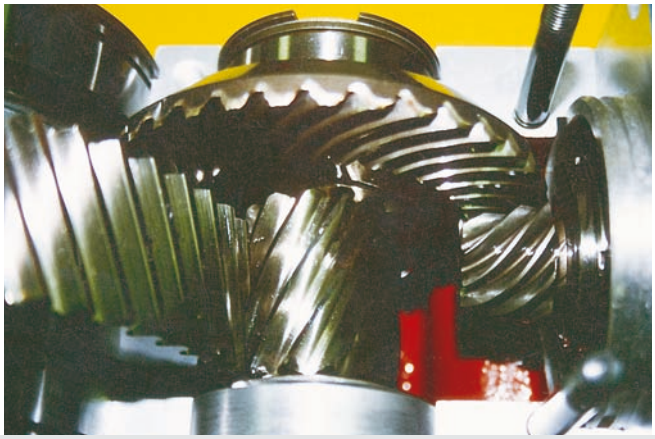
Application and properties

Industrial high-pressure gearbox oils CLP as per DIN 51517 Part 3 with additives to reduce friction and wear, excellent aging resistance, good temperature stability and protection against corrosion. Meets the requirements of AISE 224, AGMA 9005-E02 and David Brown S1.53.101 (E). For use in highly-stressed industrial gearboxes using circulating lubrication and dip bath gearboxes with spur pinions and bevel gear and worm gear.

Divinol MCL ISO 68	880	68	200	-15
Divinol MCL ISO 320	900	320	210	-12
Divinol MCL ISO 460	900	460	210	-12

Application and properties

Industrial high-pressure gearbox oils CLP as per DIN 51517 part 3 with molybdenum disulphide (MOS 2). Meets the requirements AISE 224, AGMA 9005-E02 and David Brown S1.53.101 (E). Can be used for gear wheels and worm gear with high surface pressures or frequent overloading, also for impact and thermal loadings and also for sliding bearings with an oscillating movement.



Divinol multipurpose oils for bearings, gearboxes, hydraulics

Description	Density/15 °C DIN 51757 kg/m³	Viscosity/40 °C DIN 51562 mm²/s (cSt)	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
Divinol GWA ISO 3	820	3	120	-15
Divinol GWA ISO 5	830	5	130	-15
Divinol GWA ISO 7	840	7	140	-25
Divinol GWA ISO 10	850	10	165	-30
Divinol GWA ISO 15	860	15	165	-27
Divinol GWA ISO 22	870	22	180	-21
Divinol GWA ISO 32	870	32	205	-18
Divinol GWA ISO 46	870	46	215	-15
Divinol GWA ISO 68	880	68	220	-15
Divinol GWA ISO 100	880	100	220	-15
Divinol GWA ISO 150	890	150	225	-12
Divinol GWA ISO 220	900	220	230	-10
Divinol GWA ISO 320	900	320	230	-10
Divinol GWA ISO 460	900	460	250	-10

Application and properties

Zinc-free multipurpose oils for bearings, gearboxes and hydraulics with high aging resistance, good protection against corrosion and excellent load-carrying capacity. The Divinol GWA series meets and complies with the requirements of group CL as per DIN 51517 Part 2.

Divinol GWA ISO 10 to Divinol GWA ISO 150 likewise meet the requirements of groups HL/HLP as per DIN 51524 Part 1 and Part 2.

Products of the Divinol GWA series are used in hydraulic and mechanical gear-boxes, in roller bearings and slider bearings, in hydraulics, for lubricating spindles, etc.

Divinol compressor and circulation oils

Divinol VDL ISO	68	880	68	> 210	-12
Divinol VDL ISO	100	880	100	> 220	-12
Divinol VDL ISO	150	890	150	> 230	-6

Application and properties

Compressor oils for the lubrication of piston compressors and rotary piston compressors for final compressing temperatures of up to +220 °C.
They correspond to DIN 51506 Group VCL / VDL or ISO 6743-3 category DAA-DAB.

Divinol SVO ISO	32	870	32	> 200	<-6
Divinol SVO ISO	46	880	46	> 200	<-6

Application and properties

Circulation oils for the usage in screw compressors as well as in steam, gas and hydro-turbines.
Correspond to DIN 51515 part 1 / L-TD and DIN 51515 part 2 / L-TG or ISO 6743-5 L-TGA / L-TGB / L-TSA / L-TGSB.

Divinol machine lubrication oils

Description	Density/15 °C DIN 51757 kg/m³	Viscosity/40 °C DIN 51562 mm²/s (cSt)	Flash point DIN ISO 2592 °C	Pour point DIN ISO 3016 °C
Divinol GW ISO 7	840	7	140	-20
Divinol GW ISO 10	850	10	160	-20
Divinol GW ISO 46	870	46	205	-15
Divinol GW ISO 100	880	100	240	-12
Divinol GW ISO 150	890	150	270	-9
Application and properties	Lubricating oils age resisting and without additives, with good viscosity-temperature behaviour. Lubricating oils C as per DIN 51517 Part 1. Can be used to lubricate sliding and roller bearings, gearboxes that are not heavily loaded, gearwheels, etc.			
Divinol R ISO 22	860	22	190	-15
Divinol R ISO 32	870	32	210	-15
Divinol R ISO 46	870	46	210	-15
Divinol R ISO 68	880	68	220	-15
Divinol R ISO 100	890	100	220	-15
Application and properties	Lubricating oils L-AN as per DIN 51501 are pure mineral oils for lubricating purposes without stringent requirements. Can be used for simple lubricating tasks such as general machine lubrication, manual lubrication points, open bearings and slideways.			

ISO standard 6743/4 and /6 uses the following identifying 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

We would be glad to provide on request technical documents concerning further details on industrial oils such as guideway and slideway oils, adhesive oils, technical white oils, heat transfer oils or about our entire range of industrial lubricants for cutting and non-cutting metal working processes.

For a detailed advice regarding technical application please contact our sales representatives.

Oil purity levels

Constantly increasing requirements regarding reliability, availability and economic efficiency of hydraulic and lubricating systems demand operating liquids or lubricants of constantly increasing purity.

There are different methods to classify the existing system cleanliness. The methods used most frequently are ISO 4406:1999 as well as SAE AS 4059:2001. These testing methods are exclusively valid for hydraulic and lube oils.

Electronic particle counters as well as purity level monitors which are working according to the light barrier (surface determination) principle are used to determine the oil purity levels. Microscopic analyses via light microscope are also still done here. The amount and the size of the particles per 100 ml liquid are measured. Due to the determined values the oil purity level of the respective medium can be seen in the following charts.

Oil purity levels 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	
from	to	from	to	from	to	APC[1)]	
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

[1)] 3-digit-code only if an automatic particle counter is used (APC)

Oil purity levels

Oil purity levels according to SAE AS 4059:2001

Maximum number of particles (particles per 100 ml)							
Particle size (ISOMTD) Calibrated according to 11171		**> 4µm(c)**	**> 6µm(c)**	**> 14µm(c)**	**> 21µm(c)**	**> 38µm(c)**	**70µm(c)**
Size code		**A**	**B**	**C**	**D**	**E**	**F**
Code no.	000	195	76	14	3	1	0
	00	390	152	27	5	1	0
	0	780	304	54	10	2	0
	1	1560	609	109	20	4	1
	2	3120	1220	217	39	7	1
	3	6250	2430	432	76	13	2
	4	12.500	4860	864	152	26	4
	5	25.000	9730	1730	306	53	8
	6	50.000	19.500	3460	612	106	16
	7	100.000	38.900	6920	1220	212	32
	8	200.000	77.900	13.900	2450	424	64
	9	400.000	156.000	27.700	4900	848	128
	10	800.000	311.000	55.400	9800	1700	256
	11	1.600.000	623.000	111.000	19.600	3390	512
	12	3.200.000	1.250.000	222.000	39.200	6780	1020

According to the new DIN 51524 a purity level of 21/19/16 in accordance to ISO 4406:1999 is required. Additionally, the following remark is made in the DIN:

"The requirements to the cleanliness of the pressure fluids are system-dependent. The value shown in the table corresponds to the state of the art. Other values at delivery can be fixed by agreement between supplier and consumer. During transport and storage the oil is subject to manifold influences. In any case, the required purity for the system has to be secured by carefully filtering the pressure liquid when filling in."

Our hydraulic and lube oils fulfil these demands/purity levels according to DIN 51524 by far. In case of very sensible hydraulic systems we recommend an additional filtration of the hydraulic liquid before the filling.

Particle counter type Pic 9100
which is used by Zeller+Gmelin.

PROGRAM

Industrial lubricants

Multiboard®	separation agents for derived timber products
Multical®	calibration lubricants
Multicast®	separation agents for metal
Multicor®	corrosion protection lubricants
Multicut®	non-water-miscible cooling lubricants
Multidraw®	wire drawing lubricants
Multidraw®	deep-drawing lubricants
Multipress®	extrusion oils
Multiroll®	lubricants for manufacturing continuous cast wire rod
Textol®	lubricants for the textile industry
Zubora®	water-miscible cooling lubricants
Divinol®	lubricating greases
Divinol®	guideway and slideway oils, hardening oils, adhesive oils, hydraulic oils, industrial gear oils, machine oils, commercial white oils, compressor oils, cylinder oils

You can find our products in over 100 countries world-wide .

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