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GB

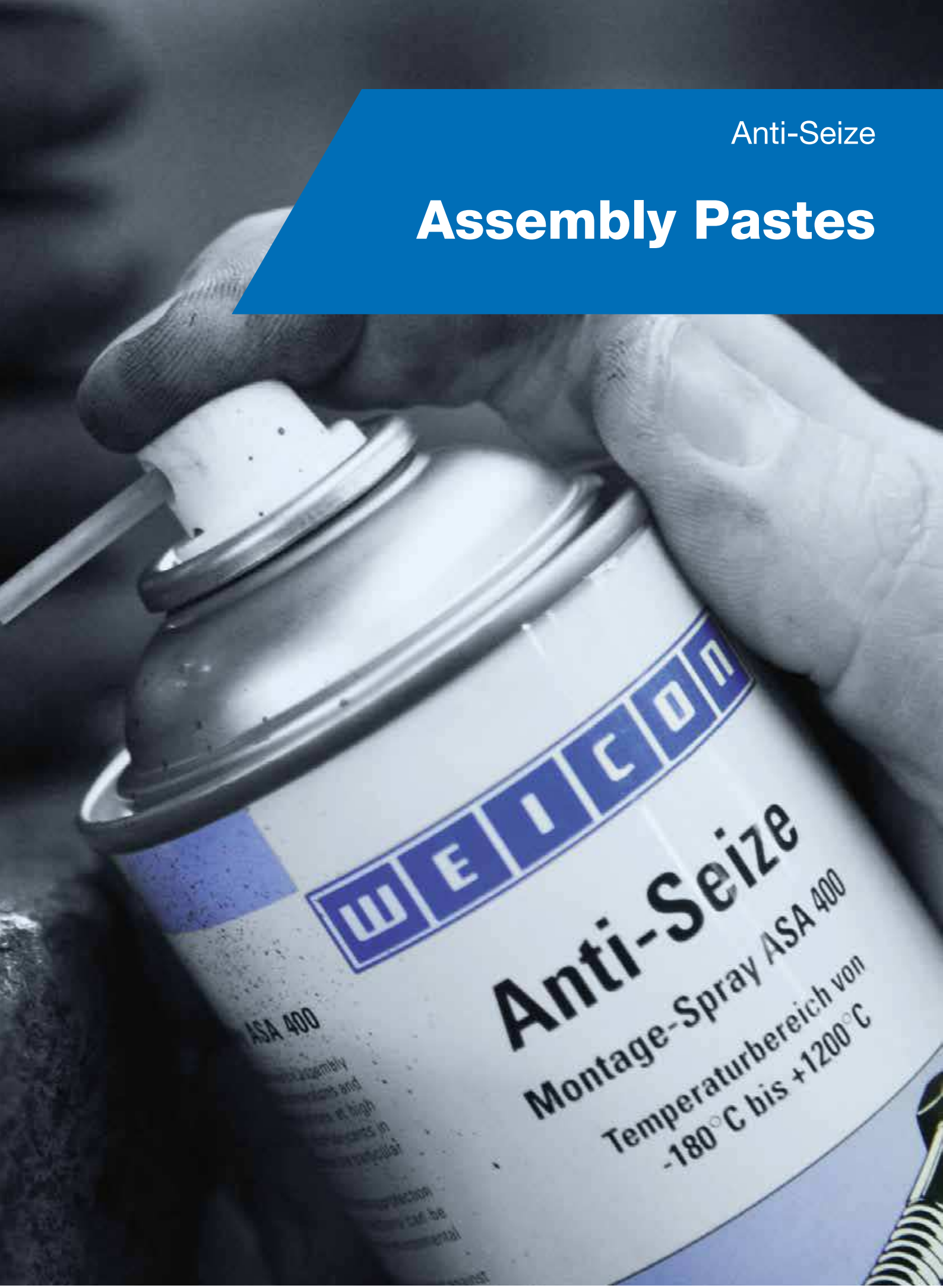
Assembly Pastes and Lubricants

www.weicon.com

Assembly Pastes

Anti-Seize

Assembly Pastes



Anti-Seize

All kinds of influencing factors, such as moisture and friction, lead to damage due to corrosion, seizure, and wear on machines and installations.

Extensive repair and maintenance work at considerable cost are the result.

Especially under critical conditions of application, such as:

- High operation temperatures
- High pressure loads
- Outdoor weather conditions
- Aggressive chemicals
- The influence of other media

such consequences frequently occur.

WEICON Anti-Seize assembly pastes are especially developed for these requirements. They are used as protecting and separating agents, as well as lubricants, for highly stressed parts, especially at high temperatures.

Anti-Seize

Assembly Pastes

Optimally balanced solids contents as well as selected additives permit a wide range of applications, especially in this area.
Conventional separating agents or lubricants such as mineral oils and greases often cannot provide sufficient lubrication and protection in difficult industrial environments.

The basic components in WEICON Anti-Seize are made of synthetic oils, which have a considerably lower sulphur content than products containing mineral oil. A residue-free vaporisation of the oil at temperatures between +200°C *(+392°F)* and +250°C *(+482°F)* is thus possible. This is particularly important in the case of stainless steels (e.g. for VA material) to prevent stress-corrosion cracking.

The safe protection of work pieces and structures made of steel and other metals is thus absolutely necessary for the rational and economic operation of technical installations.

Due to the special formulation and the very fine grinding of the solids contained in WEICON Anti-Seize, irregularities in the surface being protected are completely filled – even to a layer thickness of only 12 µm. Only a perfectly sealed surface guarantees a reliable protection against corrosion. An additional sealing effect thus results for special applications, such as flange connections.

WEICON Anti-Seize provides protection against the following:

- Corrosion – seizure - wear
- Stick-slip phenomena
- Oxidation and fretting corrosion
- Electrolytic reactions (“cold welding”)

WEICON Anti-Seize is free of sulphurous additives and halogens, well-adherent and abrasion-proof, and resistant against hot, cold, and salt water. The extremely low friction coefficient also permits easy disassembly from machines and installations.

In addition, WEICON Anti-Seize assembly pastes are excellent lubricants for statically high-stressed parts and for slowly rotating installations, as long as corresponding relubrication intervals are observed.

With its dual function as a lubricant and corrosion protection agent, WEICON Anti-Seize thus becomes a rationalisation factor, both in terms of saving time and reducing costs.

WEICON Anti-Seize is used sparingly. At a layer thickness of 0,01 mm, 1 kg suffices to cover a surface area of approximately 45 m².

Three product variants are available for various areas of application.

Anti-Seize
Anti-Seize „High Tech“
Copper Paste

Anti-Seize

Reliable protection against corrosion, seizing and cold welding

WEICON Anti-Seize is used as a protecting, separating and lubricating agent for highly stressed parts. Ideally compatible solid contents and selected additives enable a wide range of usage.

Anti-Seize protects against corrosion, seizure and wear, stick-slip phenomena, oxidation, fretting corrosion and electrolytic reactions („cold welding“).

Technical Data

Basic oil	Synthetic oil mixture
Colour	anthracite
OFW device coefficient of friction	0,13
Coefficient of friction total	0,14 µ
Coefficient of friction thread	0,13 µ
Coefficient of friction on upside down	0,15 µ
VKA-Test (DIN 51350) goods load	4200 N
VKA-Test (DIN 51350) welding load	4400 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,5 mm
Worked penetration (DIN ISO 2137)	310 to 340 1/10 mm
Sulphur content (DIN 51400)	< 0,1%
Water resistance (DIN 51807)	0 - 90
Temperature resistance	-180 to +1.200°C *(-292 to +2.192°F)*
Pressure load	230 N/mm² *(33.400 psi)*
Density at +20°C *(+68°F)* (DIN 51757)	1,16 g/cm³
Salt spray test (DIN 50017)	> 170 h
Thermal conductivity	0,3 W/m· K
Dielectric strength	0,47 kV/mm
Specific resistance	1,2 x 10^{15} Ohm/cm

10 g ✓ 26000001 Syringe	30 g ✓ 26000003 Pen	120 g ✓ 26000012 Brush top can	200 ml ✓ 26000200 Press pack
400 g ✓ 26000040 Cartridge	450 g ✓ 26000045 Can	500 g ✓ 26000050 Brush top can	1,0 kg ✓ 26000100 Can
1,8 kg ✓ 26000180 Bucket	5,0 kg ✓ 26000500 Bucket	10,0 kg ✓ 26000910 Bucket	20,0 kg ✓ 26000920 Bucket
100 ml ✓ 27000100 Spray	400 ml ✓ 27000400 Spray		

Anti-Seize

Assembly Pastes

Clearance certificate for the application in the food industry, according to the USDA H1

Anti-Seize „High-Tech“

Metal-free, NSF approval

Anti Seize „High-Tech“ is high temperature resistant, has excellent separating characteristics, is metal-free, neutral to materials and has an NSF approval.

Anti-Seize „High-Tech“ is particularly suitable when metal-containing pastes can cause electrolytic reactions, when nickel-containing products should or may not be used due to health reasons and when dark metal-containing products should or may not be used for optical reasons.

30 g ✓ 26100003 Pen	120 g ✓ 26100012 Brush top can	400 g ✓ 26100040 Cartridge	450 g ✓ 26100045 Can
500 g ✓ 26100050 Brush top can	1,0 kg ✓ 26100100 Can	1,8 kg ✓ 26100180 Bucket	5,0 kg ✓ 26100500 Bucket
10,0 kg ✓ 26100910 Bucket	20,0 kg ✓ 26100920 Bucket	400 ml ✓ 27050400 Spray	

Technical Data

Basic oil	Medicinal oil
Colour	white
OFW device coefficient of friction	0,10 to 0,13
Coefficient of friction total	0,13 µ
Coefficient of friction thread	0,11 µ
Coefficient of friction on upside down	0,14 µ
VKA-Test (DIN 51350) goods load	3600 N
VKA-Test (DIN 51350) welding load	3800 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,7 mm
Worked penetration (DIN ISO 2137)	310 to 340 1/10 mm
Sulphur content (DIN 51400)	< 0,1%
Water resistance (DIN 51807)	1 - 90
Temperature resistance	-40 to +1.400°C *(-40 to +2.552°F)*
Pressure load	230 N/mm² *(33.400 psi)*
Density at +20°C *(+68°F)* (DIN 51757)	1,42 g/cm³
Salt spray test (DIN 50017)	> 170 h
Thermal conductivity	0,7 W/m• K
Dielectric strength	0,40 kV/mm
Specific resistance	1,0 x 10¹⁵ Ohm/cm

WEICON Anti-Seize products and their behaviour vis-à-vis sealing materials (elastomers)	Anti-Seize	Anti-Seize “High-Tech”
ACM - Acrylate rubber	++	++
CR - Chloroprene rubber	+	+
CSM - Chlorosulfonated PE rubber	++	++
EPDM - Ethylene propylene diene rubber	--	--
FKM - Fluorocaoutchoc	++	++
NBR - Nitrile butadiene rubber	++	++
NR - Natural rubber	--	--
SBR - Styrene butadiene rubber	--	--
SQM/MVQ - Silicone rubber	++	++

++ resistant + resistant to a limited extent 0 not tested, preliminary trials or resistance tests are recommended -- not resistant

WEICON Anti-Seize products and their behaviour vis-à-vis sealing materials (elastomers)	Anti-Seize	Anti-Seize “High-Tech”
ABS - ABS copolymeride	++	++
CA - Cellulose acetate	++	++
EPS - Expanded polystyrene	++	++
PA - Polyamide	++	++
PC - Polycarbonate	--	--
PE - Polyethylene	++	++
PE-UHMW - Polyethylene with ultra high molar weight	++	++
PE-LD - Polyethylene with low density	+	+
PET - Polyethyleneterephthalate	++	++
POM - Polyoxymethylene	++	++
PP - Polypropylene	++	++
PPO - Polyphenylene oxide	++	++
PS - Polystyrene	+	+
PTFE - Polytetrafluor ethylene	++	++
PUR - Polyurethane	+	+
PVC - Polyvinylchloride	++	++

++ resistant + resistant to a limited extent 0 not tested, preliminary trials or resistance tests are recommended -- not resistant

The specified resistance levels are based on laboratory tests and literature notices. A guarantee cannot be provided due to the large number of raw materials used on the one hand and the complex chemical and morphological structure of the polymers on the other. In critical application cases, we recommend that you carry out tests and/or consult with our application technology department.

Anti-Seize

Assembly Pastes

Copper Paste

Protecting, separating and lubricating agent for highly stressed parts in high-temperature applications

Technical Data

Consistency assignment (DIN 51818)	NLGI-Class 1
Colour	copper
Thickener	Aluminium complex soap
Basic oil	Mineral oil
Solid lubricant	Copper / Graphite
Coefficient of friction (acc. to DIN 946)	0,11 - 0,13
Coefficient of friction total	0,12 µ
Coefficient of friction thread	0,11 µ
Coefficient of friction on upside down	0,13 µ
VKA-Test (DIN 51350) / Welding load	3200 N
Density	1,1 g/cm³
Kinematic viscosity basic oil (+40°C/*+104°F* DIN 51562)	180 mm²/s
Drop point (IP 396)	+180°C *(+356°F)*
Worked penetration (DIN ISO 2137)	310 to 340 1/10 mm
Temperature resistance	-20 to +1.100°C *(-4 to +2.012°F)*

Copper Paste is corrosion resistant and strong. It contains no sulphur, lead or nickel.

WEICON Copper Paste is used as an assembly lubricant for all kinds of threaded joints and sliding surfaces. It forms an effective lubricating and separating film which protects the functional surfaces on plug-in tools, wear bushings, screws, and all kinds of threaded, plug-in and bayonet joints against corrosion and seizing.

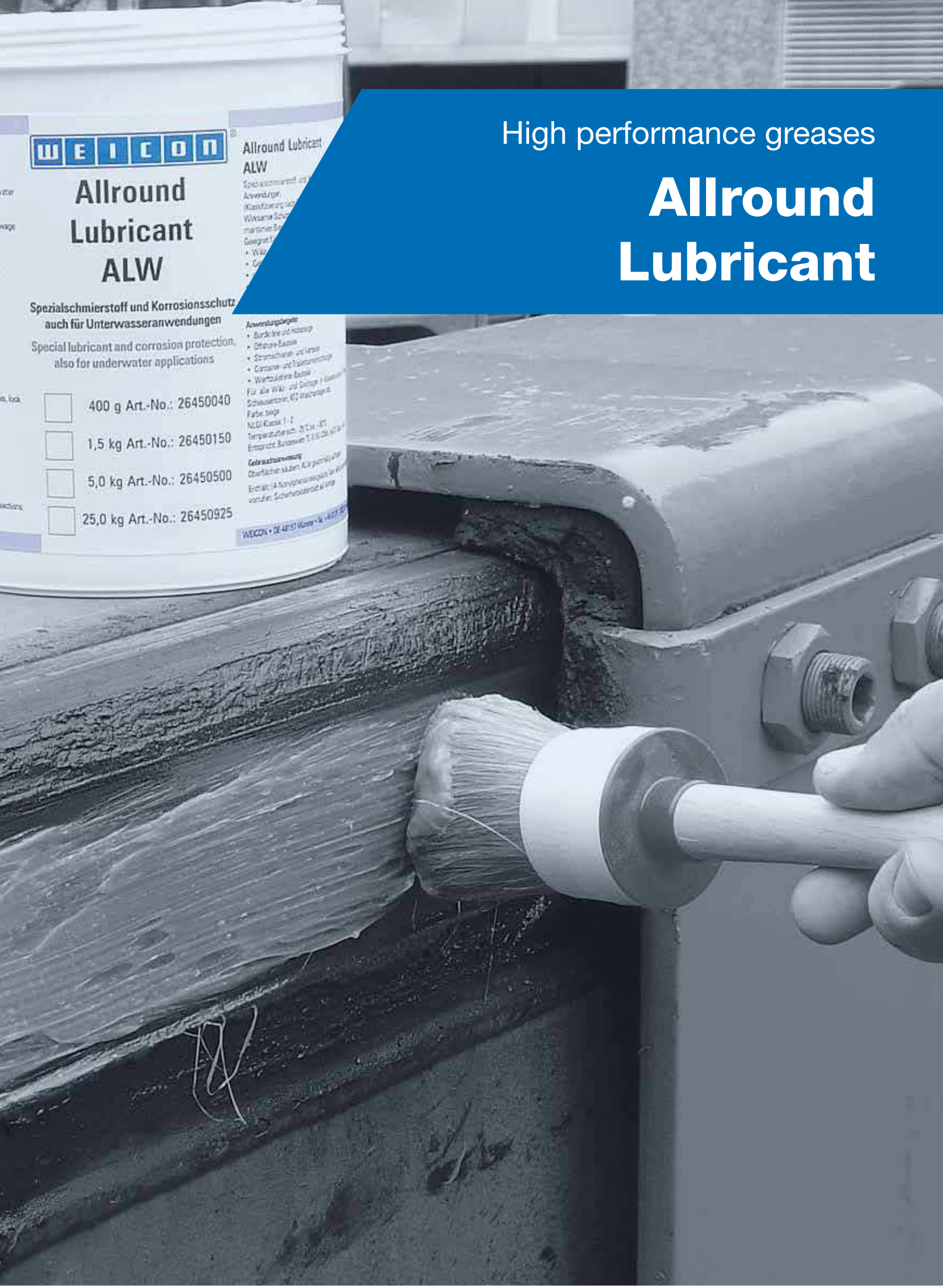
It can be used to reduce vibration on brake blocks and guides, brake cams and pins, car and truck battery terminals and other electrical connections, wheel bolts and nuts, and on wear bushings at electrical, compressed air and hydraulic hammers. The product can be used in many industrial applications.

30 g ✓ 26200003 Pen	120 g ✓ 26200012 Brush top can	450 g ✓ 26200045 Can
500 g ✓ 26200050 Brush top can	1,0 kg ✓ 26200100 Can	10,0 kg ✓ 26200910 Bucket
400 ml ✓ 27200400 Spray		

Packaging

	10 g Syringe	30 g Pen	120 g Brush top can	200 ml Press pack	400 g Cartridge	450 g Can	500 g Brush top can	1,0 kg Can	1,8 kg Bucket	5,0 kg Bucket	10,0 kg Bucket	20,0 kg Bucket	100 ml Spray	400 ml Spray
Anti-Seize	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-Seize "High Tech"	-	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
Copper Paste	-	✓	✓	-	-	✓	✓	✓	-	-	✓	-	-	✓

High performance greases



High performance greases

Allround Lubricant

Allround Lubricant

Even in the present “High-tech age” problems due to friction and wear are a matter in a lot of industrial sectors. Extensive repairs, longer downtimes, shorter maintenance intervals and lower serviceable lives of plant and equipment are the consequence and cause enormous costs every year.

Therefore it is important to already fulfil the requirements for long-term operational dependability of plant and equipment in the development and construction phase.

During the technical design of movable plant and equipment elements, the lubricant should be viewed as being a calculable functional element and must be included within the terms of reference under the aspects of friction and wear.

A plant operator needs to guarantee a disturbance-free and damage-free operation. The working life of lubricated machine parts depend to a decisive extent upon the selection and the use of the right lubricant.

Modern high performance lubricants, which meet the constantly increasing demands placed on plant and equipment, are thus increasingly gaining in significance.

The main demand placed upon such high performance lubricants is the maximum power transmission with minimal friction and minimal wear.

High performance greases

Allround Lubricant

Moreover, additional properties such as water resistance, chemicals' resistance, plastics compatibility or protection against corrosion must be observed.

WEICON Allround Lubricant high performance greases are specially developed to meet these high demands.

They provide sustained protection against friction and wear and thus enable:

- extremely long re-greasing intervals
- increased functional dependability and the retention of the value of the machine and production plants.
- reduction of the maintenance and repair work
- improved economic efficiency

The following influential factors of tribological systems and their complex interactions must be taken into account when selecting the appropriate WEICON product.

- design specifications,
  e.g. type of material, surface properties, geometry of the components
- mechanical stress,
  e.g. speed, vibration, pressure
- environmental influences,
  e.g. temperature, moisture, dirt accumulation

Technical product information, a type selection table as well as basic information about "Tribology" can be found on the following pages.

Constant further development and advancement in line with the latest practical and environmental demands additionally guarantee a constantly high quality standard.

AL-F

Allround product, NSF approval

WEICON AL-F can be used to lubricate rolling and sliding bearings, joints, levers, sliding guides, spindles, spline shafts, camshafts, open gears, worm gears and all grease lubrication points, even in the food industry.

Clearance certificate for the application in the food industry, according to the USDA H2

350 g	400 g	1,0 kg	5,0 kg
26550035	26550040	26550100	26550500
Can	Cartridge	Can	Bucket

25,0 kg
26550925
Bucket

Technical Data

Abbreviation (DIN 51502)	KLF 2K -30
Consistency assignment (DIN 51818)	NLGI-class 2
Basis	Lithium soap/mineral oil
Colour	white
VKA-Test (DIN 51350) welding load	3600 N
VKA-Test (DIN 51350) goods load	3400 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,8 mm
Speed identifying value	350 000
Worked penetration (DIN ISO 2137)	280 + 15 1/10 mm
Water resistance (DIN 51807)	1 - 90
Temperature resistance	-30 to +120°C *(-22 to +248°F)*
Drop point (IP 396)	>190°C *(+374°F)*
Kinematic viscosity (DIN 51 562) +40°C *(+104°F)*	approx. 100 mm^2/s
Kinematic viscosity (DIN 51 562) +100°C *(+212°F)*	approx. 9 mm^2/s
EMCOR-corrosion test (DIN 51 802)	0 / 0
Density at +20°C *(+68°F)* (DIN 51757)	0,90 g/cm^3
Conforms to	NSF-H 2, LMBG Section 31 and Section 5
Shelf life at least	24 months

AL-H

High temperature resistant, NSF approval, odourless and tasteless

WEICON AL-H is suitable for rolling bearings, sliding bearings, joints, spindles, spline shafts and linear guidance systems at all sliding speeds permitted for grease lubrication.

WEICON AL-H is particularly suited for usage in foodstuff technology.

Clearance certificate for the application in the food industry, according to the USDA H1

400 g	1,0 kg	5,0 kg	25,0 kg
26500040	26500100	26500500	26500925
Cartridge	Can	Bucket	Bucket

Technical Data

Abbreviation (DIN 51502)	KPHC 1P -40
Consistency assignment (DIN 51818)	NLGI-class 1
Basis	Aluminium complex soap polyalphaolefine
Colour	yellowish-white
VKA-Test (DIN 51350) welding load	1800 N
VKA-Test (DIN 51350) goods load	1700 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,6 mm
Speed identifying value	400 000
Worked penetration (DIN ISO 2137)	310-340 1/10 mm
Water resistance (DIN 51807)	1 - 90
Temperature resistance	-40 to +160°C *(-40 to +320°F)*
Drop point (IP 396)	>200°C *(+392°F)*
Kinematic viscosity (DIN 51 562) +40°C *(+104°F)*	approx. 400 mm^2/s
Kinematic viscosity (DIN 51 562) +100°C *(+212°F)*	approx. 40 mm^2/s
EMCOR-corrosion test (DIN 51 802)	1 / 1
Density at +20°C *(+68°F)* (DIN 51757)	0,93 g/cm^3
Conforms to	NSF-H 1, LMBG Section 31 and Section 21
Shelf life at least	24 months

High performance greases

Allround Lubricant

AL-M

Strong adhesion, high pressure resistant, with MoS_2

WEICON AL-M reduces friction and wear for a long time and is suited for rolling and slide bearings, joints, levers, sliding guides, spindles, camshafts, spline shafts, springs, open gears, worm gears and at all sliding speeds permitted for grease lubrication.

Technical Data

Abbreviation (DIN 51502)	KF 2 K-20
Consistency assignment (DIN 51818)	NLGI-class 2
Basis	Li/Ca-Soap/MoS_2/ mineral oil
Colour	black
VKA-Test (DIN 51350) welding load	3200 N
VKA-Test (DIN 51350) goods load	3000 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,5 mm
Speed identifying value	250 000
Worked penetration (DIN ISO 2137)	265-295 1/10 mm
Water resistance (DIN 51807)	1 - 90
Temperature resistance	-20 to +120°C *(-4 to +248°F)*
Drop point (IP 396)	>170°C *(+338°F)*
Kinematic viscosity (DIN 51 562) +40°C *(+104°F)*	approx. 185 mm^2/s
Kinematic viscosity (DIN 51 562) +100°C *(+212°F)*	approx. 14 mm^2/s
EMCOR-corrosion test (DIN 51 802)	0 / 0
Density at +20°C *(+68°F)* (DIN 51757)	0,92 g/cm^3
Shelf life at least	24 months

400 g	1,0 kg	5,0 kg	25,0 kg
26400040	26400100	26400500	26400925
Cartridge	Can	Bucket	Bucket

AL-T

Long-term lubrication, high temperature resistant

WEICON AL-T high performance grease is a universally usable high temperature grease for long-term lubrication.

WEICON AL-T is suitable for rolling and sliding bearings, joints, levers, sliding guides, spindles, spline shafts and at all sliding speeds permitted for grease lubrication.

400 g	1,0 kg	5,0 kg	25,0 kg
26600040	26600100	26600500	26600925
Cartridge	Can	Bucket	Bucket

Technical Data

Abbreviation (DIN 51502)	KPL 2 R -20
Consistency assignment (DIN 51818)	NLGI-class 2
Basis	Aluminium complex soap / mineral oil
Colour	dark-brown
VKA-Test (DIN 51 350) welding load	2400 N
VKA-Test (DIN 51350) goods load	2200 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	2,0 mm
Speed identifying value	400 000
Worked penetration (DIN ISO 2137)	265-295 1/10 mm
Water resistance (DIN 51807)	0 - 90
Temperature resistance	-25 to +190°C *(-13 to +374°F)*
Drop point (IP 396)	>210°C *(+410°F)*
Kinematic viscosity (DIN 51 562) +40°C *(+104°F)*	approx. 230 mm^2/s
Kinematic viscosity (DIN 51 562) +100°C *(+212°F)*	approx. 16 mm^2/s
EMCOR-corrosion test (DIN 51 802)	0 / 0
Density at +20°C *(+68°F)* (DIN 51757)	0,94 g/cm^3
Shelf life at least	24 months

High performance greases

Allround Lubricant

AL-W

Special lubricant for underwater applications

AL-W high performance grease is a special lubricant and corrosion protection which can also be used for underwater applications.

WEICON AL-W offers effective protection against aggressive liquids such as sea or wastewater, both in the maritime sector and in wet plants.

WEICON AL-W is suitable for rolling and sliding bearings even in mixed friction operation, for joints, levers, sliding guides, spindles, spline shafts, open gears, worm gears, chains and wire cables and at all sliding speeds permitted for grease lubrication.

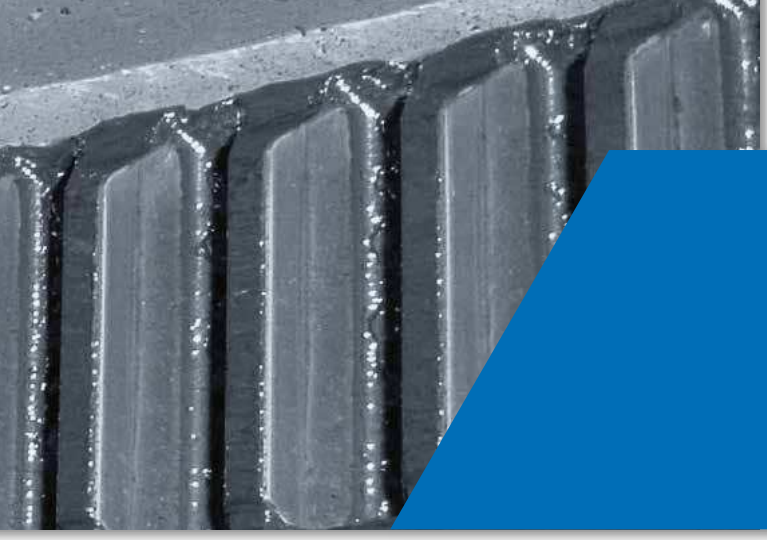
Technical Data

Abbreviation (DIN 51502)	KPL 1-2 E -25
Consistency assignment (DIN 51818)	NLGI-class 1-2
Basis	Spec. calcium soap / mineral oil
Colour	beige
VKA-Test (DIN 51350) welding load	3400 N
VKA-Test (DIN 51350) goods load	3200 N
VKA-Test (DIN 51350) Spherical cap value (1 Min/1000)	0,7 mm
Speed identifying value	350 000
Worked penetration (DIN ISO 2137)	285-315 1/10 mm
Water resistance (DIN 51807)	0 - 40
Temperature resistance	-25 to +80°C *(-13 to +176°F)*
Drop point (IP 396)	>100°C *(+212°F)*
Kinematic viscosity (DIN 51 562) +40°C *(+104°F)*	approx. 100 mm²/s
Kinematic viscosity (DIN 51 562) +100°C *(+212°F)*	approx. 9 mm²/s
EMCOR-corrosion test (DIN 51 802)	0 / 0
Density at +20°C *(+68°F)* (DIN 51757)	0,94 g/cm³
Conforms to	Federal German Armed Forces TL 9150-0066, NATO specification G-460
Shelf life at least	24 months

400 g	1,0 kg	5,0 kg	25,0 kg
26450040	26450100	26450500	26450925
Cartridge	Can	Bucket	Bucket

Type selection table

	AL-T	AL-M	AL-W	AL-H	AL-F
Rolling bearings	•	•	•	•	•
Sliding bearings	•	•	•	•	•
Chains			•		
Joints	•	•	•	•	•
Levers	•	•	•	•	•
Sliding guides	•	•	•	•	•
Linear guide systems	•			•	
Spindles	•	•	•	•	•
Spline shafts	•	•	•		•
Camshafts		•			•
Springs		•			
Open gears		•	•		•
Worm gears		•	•		•
Cables			•		



High performance greases

Allround Lubricant

Technical Specifications

		AL-T	AL-M	AL-W	AL-H	AL-F
Abbreviation (DIN 51502):		KPL 2 R -20	KF 2 K –20	KPL 1-2 E -25	KPHC 1P -40	KLF 2K -30
Consistency assignment (DIN 51818):		NLGI-Klasse 2	NLGI-Klasse 2	NLGI-Klasse 1-2	NLGI-Klasse 1	NLGI-Klasse 2
Base:		Aluminium complex soap / mineral oil	Li/Ca soap / MoS_2 / mineral oil	Spec. calcium soap / mineral oil	Aluminium complex soap / polyalphaolefine	Lithium soap / mineral oil
Colour:		darkbrown	black	beige	yellowish-white	white
VKA Test (DIN 51 350):	Welding load:	2400 N	3200 N	3400 N	1800 N	3600 N
	Goods load:	2200 N	3000 N	3200 N	1700 N	3400 N
	Spherical cap value (1 Min / 1000 N)	2,0 mm	0,5 mm	0,7 mm	0,6 mm	0,8 mm
Speed identifying value ($k_a \cdot n \cdot d_m$):		400 000	250 000	350 000	400 000	350 000
Worked penetration (DIN ISO 2137):		265-295 1/10 mm	265-295 1/10 mm	285-315 1/10 mm	310-340 1/10 mm	280 ± 15 1/10 mm
Water resistance (DIN 51807):		0 - 90	1 - 90	0 - 40	1 - 90	1 - 90
Temperature resistance:		-25°C to +190°C *(-13 to +374°F)*	-20°C to +120°C *(-4 to +248°F)*	-25°C to +80°C *(-13 to +176°F)*	-40°C to +160°C *(-40 to +320°F)*	-30°C to +120°C *(-22 to +248°F)*
Drop point (IP 396):		>210°C *(+410°F)*	>170°C *(+338°F)*	>100°C *(+212°F)*	>200°C *(+392°F)*	>190°C *(+374°F)*
Kinematic visosity (DIN 51 562):	+40°C *(+104°F)*	approx. 230 mm²/s	approx. 185 mm²/s	approx. 100 mm²/s	approx. 400 mm²/s	approx. 100 mm²/s
	+100°C *(+212°F)*	approx. 16 mm²/s	approx. 14 mm²/s	approx. 9 mm²/s	approx. 40 mm²/s	approx. 9 mm²/s
Salt spray test with separated protective coats (Federal German Armed Forces Regulations 336 h/35°C, 5% NaCl):		---	---	no corrosion	---	---
EMCOR-corrosion test (DIN 51 802):		0 / 0	0 / 0	0 / 0	1 / 1	0 / 0
Density at +20°C *(+68°F)* (DIN 51757):		0,94 g/cm³	0,92 g/cm³	0,94 g/cm³	0,93 g/cm³	0,90 g/cm³
Conforms to:		. / .	. / .	Federal German Armed Forces TL 9150-0066, NATO specification G-460	NSF-H 1, LMBG Section 31 and Section 21	NSF-H 2, LMBG Section 31 and Section 5
Shelf life at least (months)*:		24	24	24	24	24

Manual for the determination and classification of lubricating greases in accordance with DIN 51 502

Type of lubricating grease:
K, G, OG, M
• Information with respect to the operative range (in the case of synthetic oil additional letter based on type of oil: HC,E,PG,S)

Consistency class (NLGI)

Lower temperature operative range

Additional identifying letter: D,E,F,L,M,S,P,V
• Information with respect to the usability

KF 2 K-20

Additional identifying letter C to U
• Statement of the upper temperature operative range

1	2	3
Lubricating grease	Identifying letter	Symbol
Lubricating greases for rolling and sliding bearings and sliding surfaces in accordance with DIN 51825	K[1)]	For lubricating greases based on mineral oil
Lubricating greases for closed gears in accordance with DIN 51826	G	
Lubricating greases for open gears, gearing (adhesive lubricants without bitumen)	OG	
Lubricating greases for sliding bearings and seals [2)]	M	
Lubricating greases with a synthetic base are classified like the aforementioned greases based on mineral oil in terms of the basic properties.	Addition to the identifying letters in accordance with Table 1, Material group 3	For lubricating greases with a synthetic oil base

[1)] ISO/TR 3498: 1986 uses the letters XM for the identifying letter K
[2)] Lower demands than those placed on K lubricating greases

1	2
Consistency identifying number (NLGI classes in accordance with DIN 51818)	Worked penetration determined based on DIN ISO 2137 units[1)]
000	445 to 475
00	400 to 430
0	355 to 385
1	310 to 340
2	265 to 295
3	220 to 250
4	175 to 205
5	130 to 160
6	85 to 115 [2)]

[1)] 1 unit = 0.1mm / [2)] Stationary penetration

1	2
Additional identifying number	lower application temperature
-10	-10°C *(+14°F)*
-20	-20°C *(-4°F)*
-30	-30°C *(-22°F)*
-40	-40°C *(-40°F)*
-50	-50°C *(-58°F)*
-60	-60°C *(-76°F)*

Additional identifying letters for synthetic oils

E	organic ester
FK	perfluor liquids
HC	synthetic hydrocarbons
PH	esters of phosphoric acid
PG	polyglycol oils
SI	silicon oils
X	others

WEICON®

High performance greases

Allround Lubricant

1	2
Additional identifying letter	Lubricants
D	For lubricating oils with detergent additives, e.g. hydraulic oil HLPD
E	For lubricating oils, which are used mixed with water, e.g. water mixable cooling lubricants, e.g. SE cooling lubricant
F	For lubricants with a solid lubricating additive (such as graphite, molybdenum sulfide), e.g. oil lubricant CLPF
L	For lubricant oils with active substances to increase the protection against corrosion and/or the aging stability, e.g. lubricant oil DIN 51517 – CL 100
M	For water mixable cooling lubricants with mineral oil contents, e.g. SEM cooling lubricant
S	For water mixable cooling lubricants with a synthetic base, e.g. SES cooling lubricant
P	For lubricants with active substances to reduce the friction and wear in the mixed friction area and/or to increase the stability under load, e.g. CLP 100 lubricating oil
V[1)]	For lubricants, which are diluted with solvents, e.g. DIN 51513-BB-V lubricating oil

[1)] The additional identifying letter V sometimes necessitates labelling in accordance with the Hazardous Substances Act (GefStoffV).

1	2	3
Additional identifying letter	upper application temperature [1)]	Behaviour with water in accordance with DIN 51807 Part 1 Evaluation scale DIN 51807 – [2)]
C	+60°C *(+140°F)*	0-40 or 1-40
D		2-40 or 3-40
E	+80°C *(+176°F)*	0-40 or 1-40
F		2-40 or 3-40
G	+100°C *(+212°F)*	0-90 or 1-90
H		2-90 or 3-90
K	+120°C *(+248°F)*	0-90 or 1-90
M		2-90 or 3-90
N	+140°C *(+284°F)*	by arrangement
P	+160°C *(+320°F)*	
R	+180°C *(+356°F)*	
S	+200°C *(+392°F)*	
T	+220°C *(+428°F)*	
U	more than +220°C *(+428°F)*	

[1)] The „upper application temperature“ for permanent lubrication is equal to the highest test temperature when testing in accordance with DIN 51806 part 2 (e.g. draft) and/ or DIN 51821 part 2, if the test runs are passed.
[2)] 0 means no change
1 means slight change
2 means moderate change
3 means considerable change

Miscibility of WEICON Allround Lubricant with other greases

Optimum results with WEICON Allround Lubricant high performance greases can only be achieved following the complete removal of grease residues. However, in practice the complete removal of such grease residues is not always possible. In this case you must check whether the WEICON product envisaged for use is always compatible with the grease that is still present. This test must be carried out on the basis of the main components of the grease (basic oil and thickener). Both main components must be miscible (compatible).

Miscibility of basic oils

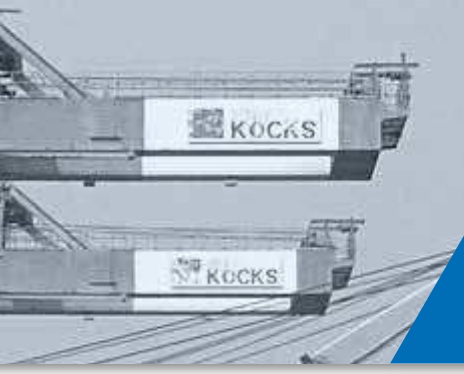
Basic oil	Mineral oil (AL-M, AL-W, AL-F, AL-T)	Polyalpha-olefine (AL-H)	Ester	Polyglycol	Silicone (Metyhl)	Silicone (Phenyl)	Polyphenyl-ether	Perfluoro-polyether oil
Mineral oil (AL-M, AL-W, AL-F, AL-T)		++	++	0	0	+	0	0
Polyalphaolefine (AL-H)	++		++	0	0	0	0	0
Ester	++	++		++	0	++	++	0
Polyglycol	0	0	++		0	0	0	0
Silicone (Metyhl)	0	0	0	0		+	0	0
Silicone (Phenyl)	+	0	++	0	+		++	0
Polyphenyl-ether	0	0	++	0	0	++		0
Perfluoro-polyether oil	0	0	0	0	0	0	0	

++ miscible + miscible to a limited extent 0 not miscible

Miscibility of thickeners

Thickening agents	Ca soap (water-free) (AL-W)	Ca complex soap	Li soap (AL-F)	Li complex soap	Li/Ca soap (AL-M)	Na soap	Gels*	Ba complex soap	Al complex soap (AL-H, AL-T)	Polyca-barmide
Ca soap (water-free)(AL-W)		++	++	++	++	0	++	++	0	++
Ca com-plex soap	++		++	++	++	0	++	++	0	++
Li soap (AL-F)	++	++		++	++	0	++	++	0	++
Li complex soap	++	++	++		++	0	0	++	++	0
Li/Ca soap (AL-M)	++	++	++	++		0	++	++	0	++
Na soap	0	0	0	0	0		++	++	0	++
Gels*	++	++	++	0	++	++		++	0	++
Ba com-plex soap	++	++	++	++	++	++	++		++	++
Al complex soap (AL-H, AL-T)	0	0	0	++	0	0	0	++		++
Polycabarmide	++	++	++	0	++	++	++	++	++	

++ miscible 0 not miscible



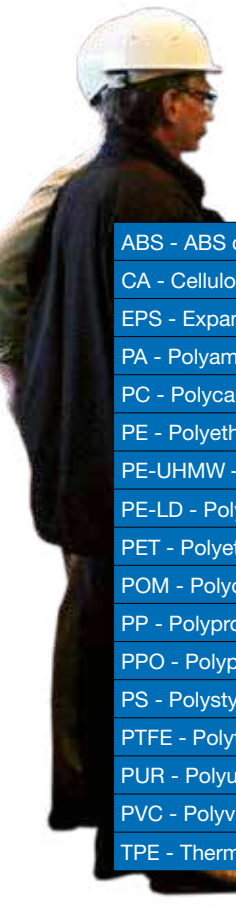
High performance greases

Allround Lubricant

WEICON lubricants and their behaviour vis-à-vis sealing materials (elastomers)

	AL-T	AL-M	AL-W	AL-H	AL-F
ACM - Acrylate rubber	++	++	++	++	++
CR - Chloroprene rubber	+	+	+	+	+
CSM - Chlorosulfonated PE rubber	++	++	++	++	++
EPDM - Ethylene propylene diene rubber	--	--	--	--	--
FKM - Fluorocaoutchoc	++	++	++	++	++
NBR - Nitrile butadiene rubber	++	++	++	++	++
NR - Natural rubber	0	--	--	--	--
SBR - Styrene butadiene rubber	0	--	--	--	--
SQM/MVQ - Silicone rubber	++	++	++	++	++

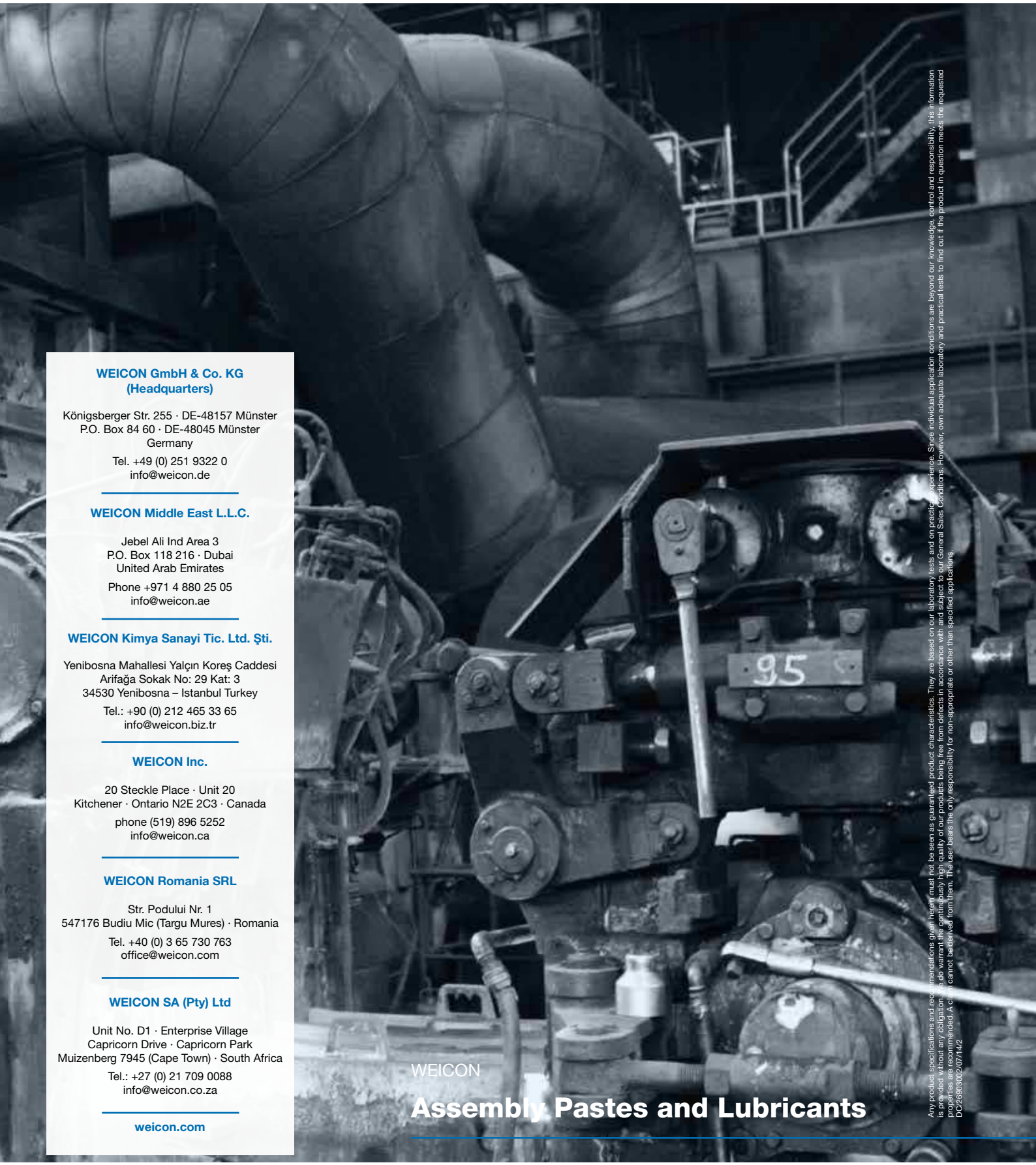
++ resistant + resistant to a limited extent 0 not tested, preliminary trials or resistance tests are recommended – not resistant



WEICON lubricants and their behaviour vis-à-vis polymer materials

	AL-T	AL-M	AL-W	AL-H	AL-F
ABS - ABS copolymeride	++	++	++	++	++
CA - Cellulose acetate	++	++	++	++	++
EPS - Expanded polystyrene	++	++	++	++	++
PA - Polyamide	++	++	++	++	++
PC - Polycarbonate	--	--	--	+	--
PE - Polyethylene	++	++	++	++	++
PE-UHMW - Polyethylene with ultra high molar mass	++	++	++	++	++
PE-LD - Polyethylene with low density	+	+	+	++	+
PET - Polyethyleneterephtalate	++	++	++	++	++
POM - Polyoxylmethylene	++	++	++	++	++
PP - Polypropylene	++	++	++	++	++
PPO - Polyphenylene oxide	++	++	++	++	++
PS - Polystyrene	+	+	+	++	+
PTFE - Polytetrafluor ethylene	++	++	++	++	++
PUR - Polyurethane	+	+	+	++	+
PVC - Polyvinylchloride	++	++	++	++	++
TPE - Thermoplastic elastomers	0	0	0	0	0

++ resistant + resistant to a limited extent 0 not tested, preliminary trials or resistance tests are recommended – not resistant
The stated resistance levels are based on laboratory tests and literature notices. A guarantee cannot be provided due to the large number of raw materials used on the one hand and the complex chemical and morphological structure of the polymers on the other. In critical application cases we recommend that you carry out tests and/or consult with our application technology department.



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Assembly Pastes and Lubricants