Brand of **NTN Group**

LUBRICATION

Experts & Tools, at the service of our customers

Because maintenance and bearing lubrication requirements are specific to each customer, Experts & Tools offers solutions that take into account your application and its challenges, as well as your available resources.

Each application requires its own expertise. The maintenance of a wind turbine differs from that of a press or a crusher. With nearly a century of theoretical and practical experience in industrial applications, NTN Europe can provide you with the expertise and tools you need.

With a workforce of nearly 25,000 employees worldwide, the NTN Group develops and improves maintenance methods and tools on a daily basis.

Our goal is to provide you with products and services that are easy for your operators to use. In designing our tools and in our approach to service, we aim to increase your efficiency.

From reducing the time spent on maintenance and servicing to optimising the service life of your bearings, our offerings provide you with real gains as well as safety and long-term use.

This catalogue brings together our entire range of greases, grease nipples and centralised lubrication systems, including our associated services. Our maintenance tools are listed in a separate catalogue.

LUB'SOLUTIONS: let us solve your lubrication problems.

Bearings, mechanical components and industrial processes require reliable and appropriate lubrication in order to function optimally and sustainably. In addition to its high-quality bearings, Experts & Tools also provides you with the expertise and products you need to master this fundamental component.

The LUB'SOLUTIONS product range includes lubricants specifically selected for different applications, as well as all the means necessary to reliably distribute the right amount required by each mechanical component.

But **above all, LUB'SOLUTIONS offers experts** to assist you in implementing solutions tailored to your environment. From advice on defining your needs to the installation of lubrication systems for your application, including their customised design, our technicians are available to solve your problems.

LUB'SOLUTIONS embodies the Experts & Tools spirit. This spirit drives an organisation of experts who are available and committed to providing you with a personalised solution to ensure that your bearings and machines operate in optimal conditions.

> "Experts & Tools, provides you with a complete solution of tools and services for your bearings"

Experts & Tools

SUMMARY

1 Lubricants

Expert opinion

Only correct lubrication guarantees optimal operation of the bearing and the associated mechanical component.
55% of premature bearing failures are the result of inadequate lubrication.
Imperfect lubrication significantly reduces the service life of the bearing.
It is often neglected due to the difficulty of accessing bearings and the user's lack of knowledge about lubricants.
The choice of lubricant, the lubrication method, the precise quantity to be introduced into the bearing and the frequency of monitoring must be carefully considered.

1.1 Good lubrication: principles and advantages

- ✔ By placing a film of lubricant (known as an oil film) between the rolling elements and the raceway, it prevents wear and seizure of the components in contact.
- ✔ It also protects parts from corrosion.
- ✔ It ensures sealing against liquids and external pollution, and removes impurities created by the movement of parts.
- ✔ It reduces friction, thereby limiting the power consumed by the machine and saving energy.
- ✔ In the case of oil circulation, it dissipates heat and thus contributes to the thermal balance of the machine
- ✔ The service life of the bearing is directly related to the effectiveness of the oil film, which depends on:
  - the nature of the lubricant and therefore its ability to withstand temperature, vibrations, etc.
  - the load and speed of the bearing.

General-purpose greases do not always meet the specific requirements of certain applications. Bearings that are required to operate under conditions of load, speed, temperature, in the presence of water, humidity or vibrations require the use of a carefully selected grease.

1.2 Choice of lubrication type

	OIL LUBRICATION	GREASE LUBRICATION
ADVANTAGES	• Good penetration into the bearing • Good physical and chemical stability • Cooling • Easy lubricant monitoring: condition and levels	• Cleanliness of the mechanism • Easier to achieve watertightness • Protective barrier • Simplicity of assembly • Ease of handling • Reduction or elimination of additional lubrication • Possibility of using pre-lubricated bearings
DISADVANTAGES	• Sealing required for assembly • In the event of prolonged stoppage, poor protection against oxidation and moisture • Delayed start-up when autonomous circulation prior to rotation is required	• Higher coefficient of friction than oil • Lower heat dissipation • Replacement (if necessary) requires disassembly and cleaning of the bearing • No possibility of checking the grease level, therefore requiring a reliable grease retainer or periodic replenishment to compensate for leaks, contamination or ageing

1.3 Grease for bearing

A grease is a product with a semi-fluid to solid consistency, obtained by dispersing a thickening agent (soap) in a lubricating liquid (mineral or synthetic oil).

Additives may be included to provide certain specific properties. The increasing use of grease-lubricated bearings, combined with the development of the concept of lifetime lubrication, makes grease an integral component of the bearing. The service life of the bearing and its behaviour in various environments are largely determined by the properties of the grease used.

Physicochemical characteristics

Consistency:

- NLGI (National Lubrication Grease Institute) grades correspond to a penetration value in the worked grease (according to ASTM/D217 test specifications).
- For bearings, the consistency generally used is grade 2.

NLGI GRADES	WORKED PENETRATION	CONSISTENCY
0 1	385 - 355 340 - 310	Semi-fluid Very soft
2 3	295 - 265 250 - 220	Medium soft
4	205 - 175	Semi-hard

Viscosity of the base oil: generally defined in cSt (mm^2/s) at 40°C.

Density: around 0.9.

Drop point: temperature at which the first drop liquefied by heating a sample falls

Order of magnitude: 180°C/260°C depending on the grease's constituents. The maximum operating temperature of the grease is always well below the drop point.

Functional characteristics

The working conditions imposed on the lubricant (rolling, mixing) require special bearing greases that cannot be selected solely on the basis of their physical and chemical characteristics. The NTN Europe Research & Testing Centre continuously conducts approval tests on bearings, enabling us to recommend the most suitable grease for the application.

For more than 50 years, NTN Europe has been conducting research in this field with the world's leading lubricant manufacturers. As a result, we have knowledge and practical experience of most lubricants applicable to bearings.

The approval specifications cover the following basic criteria:

- Ball bearing endurance
- Roller bearing endurance
- Water resistance
- High and low temperature resistance
- Adhesion (centrifugation)
- Vibration resistance (false Brinell effect)
- High-speed performance

These criteria may be supplemented depending on the result sought by the customer. The selection for an application is a compromise based on the application specifications.

1.4 SNR's range of lubricants

USE	Grease	Technology Thickener/oil	Base oil viscosity at 40°C (cSt)	NLGI	Operating temperature	PRODUCT DESCRIPTION
General industrial and automotive use	UNIVERSAL	Anhydrous calcium / Mineral	125	2	-20 to + 120	**UNIVERSAL Multi purpose** General-purpose grease for industrial and automotive applications subject to high loads. This high-quality grease offers a more durable alternative to traditional lithium-based greases.
	UNIVERSAL +	alcium Lithium / Mineral	150	2	-30 to + 130	**UNIVERSAL +** General-purpose grease for industrial and automotive use, designed for single-point lubricators.
Extreme Pressure	HEAVY DUTY	Calcium Lithium / Mineral	150	2	-30 to + 130	**HEAVY DUTY High load** Premium quality extreme pressure grease, highly versatile, designed for intensive applications in heavy industries: steel, construction, transport, etc.
	HEAVY DUTY +	Lithium / Mineral	150	2	-30 to + 150	**HEAVY DUTY + High load** Premium quality extreme pressure, multi-purpose grease for heavy-duty applications in heavy industry. It is designed for single-point lubricators.
	HD EP3	Anhydrous calcium / Mineral	110	3	-20 to + 120	**HEAVY DUTY EP3** High-quality, multi-purpose NLGI 3 grease that can withstand high loads. Its lithium-free technology is particularly effective, especially for vertical shafts. Its consistency (grade 3) is suitable for applications where a hard grease is required.
Very high temperature	HIGH TEMP MP	Polyurea / Synthetic	80	2	-40 to + 180	**HIGH TEMP MP High temperature** High-performance synthetic polyurea extreme pressure grease. Ideal solution for very long-lasting lubrication at low and high temperatures up to 180°C. This grease is also particularly suitable for high speeds.
Food grade, high load	FOOD GR	Anhydrous calcium / Ester	220	2	-40 to + 120	**FOOD GR** Environmentally friendly, this multi-purpose food-grade grease based on fully synthetic biodegradable ester is a high-performance product suitable for high loads and humid and corrosive environments. NSF H1 certified. Halal and Kosher certified, this fat is perfectly suited to many food and pharmaceutical industries. It should also be noted that this fat does not contain MOSH MOAH.
	FOOD	Aluminium complex/ Mineral	195	2	-30 to + 120	**FOOD** Multi-purpose grease for the food and pharmaceutical industries. Complies with NSF-H1 recommendations and is designed for single-point lubricators.
Food grade, very high temperature	ULTRA HIGH TEMP	PTFE / Synthetic	460	2	-30 to + 260	**ULTRA HIGH TEMP High Temperature** Grease for long-term lubrication of all types of bearings at extreme temperatures (+260°C). NSF H1 certified, it is also ideal in harsh environments where food-grade grease is required.
High viscosity, shock and vibration	VIB 400	Calcium sulfonate complex/ Mineral	400	2	-25 to + 160	**VIB 400 Vibration & high performances** Latest-generation high-viscosity grease designed for extreme conditions. Particularly suited to shocks and vibrations, it also offers excellent protection in the presence of water. Its formulation allows it to reach very high temperatures. VIB 400 is particularly recommended for quarries, cement works, public works and agricultural applications, as well as heavy-duty applications in humid environments, paper mills, drilling, etc.
	VIB	Calcium Lithium/ semi-synthetic	360	2	-20 to + 140	**VIB Vibrations and shocks** Grease with excellent resistance to shock, vibration, and heavy loads. Water-resistant, it guarantees long-lasting lubrication. It is designed for single-point lubricators.
Very low temperature, extreme speed	LOW TEMP	Lithium / Synthetic	18	2	-60 to + 130	**LOW TEMP High speed** Premium high-performance synthetic grease designed for very low temperatures (-60°C) for fans and pumps during start-up, as well as for spindle bearings operating at very high speeds.
Chain oil	FOOD CHAIN OIL	Ester + PAO	220	/	-30 to + 120	**FOOD CHAIN OIL** Food-grade chain oil for the food and pharmaceutical industries. Complies with NSF-H1 recommendations. Wide operating temperature range, excellent ageing and oxidation stability, good protection against wear and corrosion, and resistance to seizing.
	CHAIN OIL	Ester + PAO	320	/	-20 to + 250	**CHAIN OIL** Synthetic oil for high-temperature chains. High lubricating power even at high temperatures and under heavy loads, excellent spreading properties ensuring rapid formation of a lubricating film, excellent resistance to loads and wear. Good adhesion, therefore, no product splashing, low residue formation thanks to fully synthetic components.

	Load	Shocks	High temperature	Low temperature	Presence of water	Corrosion resistance	High speed	Pumpability	AVAILABLE FORMATS
									
Multi-purpose greases	+	+	+	+	++	++	++	+++	400g cartridge 1kg pot 5kg bucket 15kg, 50kg and 190kg drum
	+	+	+	++	++	++	++	+++	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc
	++	+	++	++	++	++	++	+++	400g cartridge 1kg pot 5kg bucket 15kg, 50kg and 190kg drum
	++	+	++	++	++	++	++	+++	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc
	++	+	+	+	+++	+	+	+	1kg pot
	++	++	+++	+++	++	+++	++	++	400g cartridge - 1kg pot 5kg bucket - 15kg, 50kg and 180kg drum READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc - SMART 125cc
	++	+	+	+++	+++	+++	+	+++	400g cartridge 1kg pot 5kg bucket 15kg, 50kg drum
	+	+	+	++	+++	++	+	+++	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc
Speciality greases	+++	++	+++	++	+++	++	+	+	800g cartridge 25kg bucket
	+++	+++	+++	+	+++	+++	+	+	450g cartridge 1kg pot 5kg bucket 15kg, 50kg and 190kg drum
	+++	+++	++	+	+++	++	+	++	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc
	+	/	+	+++	++	++	+++	++	370g cartridge 1kg pot 15kg drum
Oils	+	/	+	++	++	++	/	/	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc
	++	/	+++	+	++	++	/	/	READY 60cc and 125cc DRIVE 60cc, 120cc, 250cc and 500cc SMART 125cc

+Good performance ++Very good performance +++Excellent performance
/ Not applicable

Low temperature behaviour: +: -20°C (standard) ++: -30°C (low temperature) +++: -40°C (extreme temperature)

1.5 Choosing an SNR grease based on your application

RECOMMENDATIONS (Experts & Tools)	MAIN FUNCTION	LIMITS OF USE	
		TEMPERATURE °C	SPEED
UNIVERSAL ou **UNIVERSAL +**	**General use**	UNIVERSAL -20 to +120 UNIVERSAL + -30 to +130	< maximum bearing speed
HEAVY DUTY ou **HEAVY DUTY +** ou **HD EP3**	**Heavy loads**	HEAVY DUTY -30 to +130 HEAVY DUTY + -30 to +150 HD EP3 -20 to +120	< 2/ 3 speed limit of the bearing
HIGH TEMP MP	**High temperature**	-40 to +180	< 2/3 bearing speed limit
ULTRA HIGH TEMP		-30 to +260	< 2/3 bearing speed limit
LOW TEMP	**Low temperature**	Up to -60	< 2/ 3 bearing speed limit
	High speed	-20 to +120	< 4/3 bearing speed limit
UNIVERSAL ou **HEAVY DUTY** (normale ou +)	**Humidity**	-30 to +130	< 2/ 3 speed limit of the bearing
VIB 400	**High-amplitude vibrations or shocks** **Centrifugation Rotating outer ring**	-25 to +160	< 2/ 3 bearing speed limit
FOOD GR ou **FOOD**	**Food use**	-40 to +120	< 2/ 3 bearing speed limit
FOOD CHAIN OIL	**Food grade Chain oil**	-30 to +120	/
CHAIN OIL	**Chain oil for high temperatures**	-25 to +250	/

EXAMPLES OF APPLICATION	USUAL RECOMMENDATIONS
Industry and automotive: Agricultural equipment, general mechanics, handling equipment, power tools, car wheel bearings, etc.	Mineral oil. Soap: Anhydrous Calcium (UNIVERSAL) Consistency generally grade 2 for large bearings or those with specific operating characteristics. Performance decreases at continuous temperatures above 90°C.
Intensive applications in heavy industry: Steel industry, construction, transport, etc. Conveyors, lifting equipment, high-power electric motors, water pumps, presses, truck wheel hubs, etc.	Similar to general-purpose greases with extreme pressure additives.
Multi-purpose applications, high speeds, low/high temperatures Automotive, steel and paper industries, electric motor bearings, pumps, dryers, furnace conveyors, generators and any other high-speed, low- or high-temperature application.	Multi-purpose synthetic polyurea grease for high speeds, low and high temperatures, containing no substances harmful to human health or the environment.
Intensive applications at extreme temperatures Corrugated cardboard manufacturing machines, plastics industry, textile drying machines, copier loading rollers. Electric motors operating at extreme temperatures, furnace equipment, furnace trolleys, etc. H1 registration: suitable for use in the food industry.	Fully synthetic grease. The grease is not miscible with mineral and synthetic products of a different nature. This product only performs well when the parts to be lubricated are clean and completely free of grease. H1 registration: occasional contact with food.
Aviation, special machinery.	Very low viscosity base oil. >Be careful of grease fluidisation if the temperature exceeds 80°C.
Machine tool spindles, textile machine spindles, miniature electric motors.	Very low viscosity oil.
Washing machines.	Traditional grease heavily fortified with anti-corrosion additives.
For use in quarries, cement works, public works and agricultural applications, as well as heavy-duty applications in humid environments such as paper mills, drilling operations, etc. Bucket axles, crushers, vibrating screens, washing machines, industrial fans, etc.	Grade 2 consistency grease with high adhesion.
Applications where accidental contact with foodstuffs is technically possible: Bottling machines, dairy equipment, industrial pastry making, pasta manufacturing, confectionery, slaughterhouses, etc.	Meets NSF requirements as an H1 product. Halal and Kosher certified grease, MOSH/MOAH-free and biodegradable. * NSF: National Sanitation Foundation / H1: Occasional contact with food.
Applications in the food and pharmaceutical industries: **Spur, bevel and worm gears, bearings,** pivots, joints and for the lubrication of lifting, drive and transport chains, even at low temperatures.	Meets NSF requirements as an H1 product. *NSF: National Sanitation Foundation /H1: Occasional contact with food
Applications in the textile and plastics industry with all types of oil-lubricated chains: Levelling machines, flat frames, multi-level frames, pleat dryers, hanging pleat sprayers, coating installations.	Oil with good adhesion and good flow (spreadability).

Miscibility of greases

In general, it is not recommended to mix two lubricating greases.

When mixing (e.g. changing grease in a lubrication system), ensure that the two greases are miscible, i.e. that their base oils and thickeners are compatible.

OIL	MINERAL	PAO POLYALPHAOLEFIN	ESTER	PAG POLYGLYCOL	POLYPHENYL ÉTHER	SILICONE (METHYL)	SILICONE (PHENYL)	FLUORINATED
MINERAL	M							
PAO POLYALPHAOLEFIN	M	M						
ESTER	M	M	M					
PAG POLYGLYCOL	NM	NM	M	M				
POLYPHENYL ÉTHER	M	M	M	NM	M			
SILICONE (METHYL)	NM	NM	NM	NM	NM	M		
SILICONE (PHENYL)	M	M	M	NM	M	M	M	
FLUORINATED	NM	NM	NM	NM	NM	NM	NM	M

EPAISSISSANT	ANHYDROUS CALCIUM SOAP	CALCIUM COMPLEX SOAP	LITHIUM SOAP	LITHIUM COMPLEX SOAP	LITHIUM/ CALCIUM SOAP	ALUMINIUM COMPLEX SOAP	BENTONE SILICA GEL	POLYUREA	FLUORINATED
ANHYDROUS CALCIUM SOAP	M								
CALCIUM COMPLEX SOAP	NM	M							
LITHIUM SOAP	M	NM	M						
LITHIUM COMPLEX SOAP	M	M	M	M					
LITHIUM/CALCIUM SOAP	M	NM	M	M	M				
ALUMINIUM COMPLEX SOAP	M	NM	NM	NM	NM	M			
BENTONE SILICA GEL	M	NM	NM	NM	NM	NM	M		
POLYUREA	M	M	M	M	NM	M	NM	M	
FLUORINATED	NM	NM	NM	NM	NM	NM	NM	NM	M

M = mixture permissible - NM = mixture not permissible.

1.6 Technical characteristics of SNR lubricants

UNIVERSAL/
UNIVERSAL+

HEAVY DUTY EP3

FOOD GR / FOOD

VIB 400 / VIB

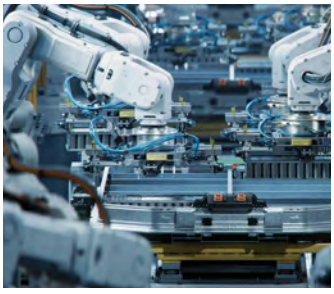
FOOD CHAIN OIL

HEAVY DUTY /
HEAVY DUTY+

HIGH TEMP MP

ULTRA HIGH TEMP

LOW TEMP



CHAIN OIL

UNIVERSAL/UNIVERSAL+ GREASE

Multi-purpose

Multi-purpose grease based on anhydrous calcium (UNIVERSAL), offering a high-performance alternative to lithium with excellent value for money.

Applications

- Agricultural equipment
- Washing machines
- Handling equipment
- General mechanics
- Low-power electric motors
- Car wheel bearings,
- Small tools, etc.

PROPERTIES		ADVANTAGES
Excellent lubrication performance	€	Universal thus ensures very good protection for mechanisms with excellent value for money
Good oxidation stability up to 120°C		No premature ageing of the grease across the entire of temperature
Very good resistance to water and load	KG	Lubrication remains optimal in a humid environment and under load, thus helping to increase your productivity
Very good pumpability		The product is easy to use

Feature	Method	Unit	UNIVERSAL	UNIVERSAL+
Operating temperature		°C	-20°C to 120°C	-30°C to+ 130°C
Colour			Blonde to dark blonde	Blonde to dark blonde
Texture			Smooth	Smooth
Density	NF-T-60 101	g/cm³	0.94	0.94
Worked penetration 60 strokes	ISO 2137	10^{-1} mm	265/295	265/295
NLGI grade	ISO 6743		2	2
Speed resistance		NDm*	600,000	500,000
Type of thickener			Anhydrous calcium	Calcium/lithium
Type of base oil			Mineral	Mineral
Viscosity of base oil at 40°C	ASTM D 445	cSt	125	150
Base oil viscosity at 100°C	ASTM D 445	cSt	13	11.5
Drop point	ISO 2176	°C	>140	190

* NDm is a speed factor where N is the rotational speed in rpm and Dm is the average bearing diameter (d+D)/2

Available packaging

UNIVERSAL

1kg 400g 5kg 15kg, 50kg and 190kg

UNIVERSAL+

single-point lubricators

READY 60cc and 125cc

DRIVE 60cc, 120cc, 250cc and 500cc

SMART 125cc

HEAVY DUTY / HEAVY DUTY+ GREASE

High Load

Premium quality extreme pressure grease, highly versatile, designed for intensive applications in heavy industries: steel, construction, transport, etc.

Applications

- Conveyors,
- Lifting equipment,
- Truck wheel hubs,
- Medium-power electric motors,
- Water pumps,
- Fans, etc.

PROPERTIES		ADVANTAGES
Very good oxidation stability for continuous use up to 130°C continuously		No premature ageing of the grease up to 130°C in continuous use
Contains extreme pressure additives	EP	Excellent performance under heavy
Good behaviour in the presence of		Very good resistance to washing out, which limits grease loss and therefore reduces consumption
Contains anti-wear additives	AW	Excellent protection against wear

Characteristics	Method	Unit	HEAVY DUTY	HEAVY DUTY +
Operating temperature		°C	-30°C to + 130°C	-30°C to + 150°C
Colour			Blonde to dark blonde	Fluorescent green
Texture			Smooth	Smooth
Density	NF-T-60 101	g/cm^3	0,94	0,89
Worked penetration 60 strokes	ISO 2137	10^{-1} mm	265/295	265/295
NLGI grade	ISO 20623		2	2
4 EP balls welding	ISO 20623	Kg	315	315
Type of thickener			Lithium/calcium with EP additives	Lithium with EP additives
Nature of base oil			Mineral	Mineral
Viscosity of base oil at 40°C	ASTM D 445	cSt	150	150
Viscosity of base oil at 100°C	ASTM D 445	cSt	11.8	15
Drop point	ISO 2176	°C	190	> 190

Available packaging

HEAVY DUTY

1kg 400g 5kg 15kg, 50kg and 190kg

HEAVY DUTY +

single-point lubricators

READY 60cc and 125cc
DRIVE 60cc, 120cc, 250cc and 500cc
SMART 125cc

HEAVY DUTY EP3 GREASE

High Load

High-quality, multi-purpose NLGI 3 grease that can handle heavy loads. Its lithium-free technology is particularly effective, especially for vertical shafts.

Applications

- Applications with vertical shafts
- Automotive wheel bearings
- Truck and trailer wheel hubs
- Agricultural machinery

PROPERTIES		ADVANTAGES
Extreme pressure/anti-wear	AW/EP	Good load-bearing
NLGI 3 grease	NLGI 3	Greater consistency for better retention on vertical axles
Excellent water resistance		Good resistance to washing out, thus limiting fat loss
Presence of antioxidants	€	Extended lubricant life, reducing maintenance costs maintenance
Corrosion inhibitors		Good protection of your equipment against

Characteristics	Method	Unit	HEAVY DUTY EP3
Operating temperature		°C	-20°C to 120°C
Colour			Yellow
Texture			Smooth
Density	ISO 51757	g/cm³	0.90
NLGI grade	ASTM D 217		3
4 EP balls welding	DIN 51350:4	N	3000
Type of thickener			Anhydrous calcium
Nature of base oil			Mineral
Viscosity of base oil at 40°C	ASTM D 7152	cSt	110
Viscosity of base oil at 100°C	ASTM D 7152	cSt	9
Drop point	IP 396	°C	> 140

Available packaging

HEAVY DUTY EP3

1kg

HIGH TEMP MP GREASE

High temperature

High-performance synthetic polyurea extreme pressure grease. Ideal solution for very long-lasting lubrication at low and high temperatures up to 180°C. This grease is also particularly suitable for high speeds.

Applications

- Medium to high power electric motors
- Pumps
- Dryers
- Furnace conveyors
- Generators
- All high-speed and low- or high-temperature applications

PROPERTIES	ADVANTAGES
Very good stability at low and high temperatures up to 180°C	Low evaporation, therefore minimal loss and less frequent relubrication
Excellent resistance to mechanical shear	Very good grease behaviour under load
Excellent anti-rust and anti-corrosion properties	Extended service life for your equipment by protecting it from corrosion
Easy to pump and inject	Easy to apply
Lead-free and free of other heavy	More environmentally friendly grease

Characteristics	Method	Unit	HIGH TEMP MP
Operating temperature		°C	-40°C to 180°C
Colour			Pale yellow
Texture			Smooth
Penetration at 25°C	ASTM D217 / DIN 51 818	10^{-1} mm	265/295
NLGI grade	ASTM D217 / DIN 51 818		2
4 EP balls welding	ASTM D2596	Kgf	> 315
Nature of thickener			Polyurea
Nature of base oil			Synthetic
Viscosity of base oil at 40°C	ASTM D 445	cSt	80
Drop point	IP 396/NFT 60 102 C	°C	>260

Available packaging

HIGH TEMP MP

1kg 400g 5kg 15kg, 50kg and 180kg

HIGH TEMP MP

Single-point lubricators

READY 60cc and 125cc

DRIVE 60cc, 120cc, 250cc and 500cc

SMART 125cc

FOOD GR/FOOD GREASE

Food safe

Multi-purpose food-grade greases for the food and pharmaceutical industries. FOOD GR is based on biodegradable ester. It is a high-performance grease suitable for heavy loads and humid and corrosive environments. NSF H1, Halal and Kosher certified. It also contains no MOSH or MOAH.

Applications

- Bearings under load, exposed to moisture and maximum temperatures of 120°C
- Bottling machines
- Dairy equipment
- Conveyor bearings
- Slaughterhouses
- Packaging machines
- Mixers
- Oil mills

PROPERTIES		ADVANTAGES
NSF H1 approval and Halal and Kosher certification (Kosher certification only for the FOOD GR)	NSF H1	A single grease for most of your applications in the food and pharmaceutical industries
Biodegradable ester-based grease, guaranteed no MOSH MOAH (FOOD GR)	MOSH MOAH	Grease more environmentally friendly, without substances that are potentially dangerous to health
Good adhesion and charge resistance	€	Excellent load-bearing capacity across the entire temperature range. Greasing intervals are extended, thereby reducing maintenance costs
Excellent lubrication in wet and corrosive environments		It will retain its full effectiveness in the most demanding environments (corrosive products, significant presence of water)
The grease is easy to pump.		The product is simple and effective to

Characteristics	Method	Unit	FOOD GR	FOOD
Operating temperature		°C	-40°C to 120°C (130°C peak)	-30°C to 120°C
Colour			Beige	Amber
Texture			Smooth	Homogeneous
Density, at 20°C, approx.	ISO 51757	g/cm³	0.95	0.92
Worked penetration 60 strokes	ASTM D217 / DIN 51 818		265/295	265/295
NLGI grade	ASTM D217 / DIN 51 818		2	2
Type of thickener			Anhydrous calcium	Aluminium complex soap
Nature of the base oil			Ester	Paraffinic mineral
Base oil viscosity at 40°C	ASTM D 445	cSt	220	195
Base oil viscosity at 100°C	ASTM D 445	cSt	26	22
Droplet point	IP 396	°C	> 140	> 220

Available packaging

FOOD GR

1kg | 400g | 5kg | 15kg, 50kg and 190kg

FOOD

Single-point lubricators

READY 60cc and 125cc

DRIVE 60cc, 120cc, 250cc and 500cc

SMART 125cc

ULTRA HIGH TEMP GREASE

High temperature

Multi-purpose grease suitable for extreme temperatures, compliant with food industry standards.

Applications

- Textile drying machines
- Corrugated cardboard manufacturing machines
- Furnace cars
- Electric motors operating at extreme temperatures
- Baking ovens and other equipment in the food industry
- Vacuum pumps
- High-temperature fans
- Glass industry

PROPERTIES		ADVANTAGES
Chemically inert		Non-toxic and nonflammable
Excellent thermal stability		Very limited evaporation, even at 250°C (therefore very infrequent re-lubrication)
High extreme pressure capacity	EP	Limited wear under high loads
Intrinsically resistant to oxidation		Increased grease service life, therefore reduced maintenance costs
Excellent washout resistance in all environments, including the food industry		Only fluorinated greases can meet these conditions
NSF H1 certified grease	NSF H1	Food-grade grease certified for incidental contact with food

Characteristics	Method	Unit	ULTRA HIGH TEMP
Operating temperature		°C	-30°C to 260°C
Colour			White
Texture			Stringy
Density	ISO 2811	g/cm³	1.97
NLGI grade	ISO 6743		2
4-ball machine - welding	ISO 20623	kg	620
Type of thickener			PTFE
Type of base oil			Perfluorinated polyether oil
Viscosity of base oil at 40°C	ISO 3104	cSt	460
Drop point	ISO 2176	°C	Not measurable

Available packaging

ULTRA HIGH TEMP

25 kg format available on request

800g

VIB 400 / VIB GREASE

Vibration & high performances

Latest-generation high-viscosity grease designed for extreme conditions. Particularly suited to shocks and vibrations, it also offers excellent protection in the presence of water. Its formulation allows it to withstand very high temperatures.

Applications

- Heavy-duty applications in wet environments: paper mills, drilling, etc.
- Grinders
- Crushers
- Vibrating screens
- Washing machines
- Continuous casting
- Industrial fans
- Bucket shafts...

PROPERTIES		ADVANTAGES
Excellent "anti-wear" performance and extreme pressure	AW/EP	Equipment service life maintained even in the event of impacts, vibrations under heavy loads and low speeds
Exceptional mechanical stability in the presence of water		Very good resistance to washing out, which limits grease loss and therefore reduces consumption
Very good thermal stability: 160°C continuously, 180°C intermittently		Low evaporation, therefore longer intervals between lubrication (reduced maintenance costs and improved productivity)
Very good natural protection against rust and corrosion		Longer service life for your equipment by protecting it from corrosion
Wide temperature range		A single grease for numerous applications at different temperatures

Characteristics	Method	Unit	VIB 400	VIB
Operating temperature		°C	-25°C to 160°C (180°C peak)	-20°C to 140°C
Colour			Beige	Blonde
Texture			Smooth	Smooth
Density	NF-T-60 101	g/cm^3	1.05	0.90
Worked penetration 60 strokes	ISO 2137	10^{-1} mm	275/305	265/295
NLGI grade			2	2
4 EP balls welding	ISO 20623	kg	500	250
Type of thickener			Calcium sulphonate complex	Lithium/calcium
Type of base oil			Mineral	Semi-synthetic
Base oil viscosity at 40°C	ASTM D 445	cSt	400	360
Base oil viscosity at 100°C	ASTM D 445	cSt	29	25
Droplet point	ISO 2176	°C	295	> 190

Available packaging

VIB 400

1kg 450g 5kg 15kg, 50kg and 190kg

VIB

single-point lubricators

READY 60cc and 125cc
DRIVE 60cc, 120cc, 250cc and 500cc
SMART 125cc

LOW TEMP GREASE

High speed

Premium synthetic grease for very low temperatures (-60°C) for fans, pumps during start-up and spindle bearings with very high speeds.

Applications

- Applications subject to very low temperatures: fans, pumps
- Textile machine spindles
- Spindles of machine tools operating at high speeds
- Small electric motors used in medical applications

PROPERTIES		ADVANTAGES
Low-viscosity synthetic oil+ Lithium		Enables very high speeds and operation at very low temperatures
Excellent resistance to mechanical shear	KG	Very good grease behaviour under load
Exceptional resistance to oxidation	€	Increased grease service life, thereby reducing maintenance costs
Very good resistance to water and corrosion		Very good resistance to washing out, which limits fat loss and therefore reduces consumption
Reduced running-in time for spindle bearings		This promotes productivity
Free of lead and other heavy metals	Pb Plomb	More environmentally friendly grease

Characteristics	Method	Unit	LOW TEMP
Operating temperature		°C	-60°C to 130°C -(150°C peak)
Colour			White
Texture			Smooth
Penetration at 25°C	ASTM D217 / DIN 51 818	10^{-1} mm	265/295
NLGI grade	ASTM D217 / DIN 51 818		2
Speed factor		NDm*	1,600,000
Nature of thickener			Lithium
Nature of base oil			Synthetic
Viscosity of base oil at 40°C	ASTM D 445/DIN 51-562-1/ISO 3104/IP71	cSt	18
Drop point	IP 396	°C	> 200

* NDm is a speed factor where N is the rotational speed in rpm and Dm is the average bearing diameter (d+D)/2

Available packaging

LOW TEMP

1kg | 370g | 15kg

FOOD CHAIN OIL

Edible oil for chains intended for use in the food and pharmaceutical industries.

Applications

- Bottling machines
- Dairy equipment
- Industrial bakery
- Dough production
- Confectionery
- Slaughterhouses...

PROPERTIES		ADVANTAGES
Wide operating temperature range		Effective across its entire temperature
Excellent stability against ageing and oxidation	€	Increased oil life, thus reducing maintenance costs Maintenance
Good protection against wear and corrosion, as well as		Extend the life of your equipment by protecting it from corrosion
Compatible with sealing materials and paints		No risk of contamination during production
NSF H1 certified oil	NSF H1	Certified food-grade oil for occasional contact with food

Characteristics	Method	Unit	FOOD CHAIN OIL
Operating temperature		°C	-30°C / +120°C
Colour			Colourless
Density, at 20°C, approx.	DIN 51757	g/cm³	0.85
Base oil type			Ester/PAO
Base oil viscosity at 40°C	DIN 51561	cSt	220
Base oil viscosity at 100°C	DIN 51561	cSt	26
Viscosity index, approx.	DIN ISO 2909	°C	150

Available packaging

FOOD CHAIN OIL

Single-point lubricators

READY 60c and 125cc

DRIVE 60cc, 120cc, 250cc and 500cc

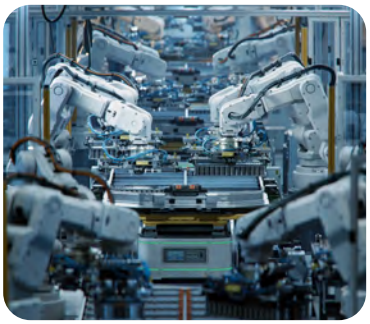
SMART 125cc

CHAIN OIL

Synthetic oil for high-temperature chains and heavy loads.

Applications

- Spur gears, bevel gears and worm gears
- Bearings, joints, pivots
- Lifting, drive and transport chains.



PROPERTIES		ADVANTAGES
High lubricating power even at high temperatures and loads	€	Extended service life for reduced maintenance costs
Excellent spreading properties ensuring rapid film formation		Immediate protection for your equipment
Low residue formation thanks to components		Low risk of contamination during production

Characteristics	Method	Unit	CHAIN OIL
Operating temperature		°C	-20°C to 250°C
Colour			Light green
Density, at 20°C, approx.	ISO 51757	g/cm³	0.95
Base oil type			Ester/PAO
Base oil viscosity at 40°C	DIN 51562	cSt	320
Viscosity of base oil at 100°C	DIN 51562	cSt	28
Viscosity index, approx.	DIN ISO 2909		110
Flash point, Cleveland, open cup	ISO 2592	°C	> 220

Available packaging

CHAIN OIL

Single-point lubricators

READY 60cc and 125cc

DRIVE 60cc, 120cc, 250cc and 500cc

SMART 125cc

2 Lubrication systems

▶ Manual

Grease gun

For easy one-handed lubrication.

Applications:

Agricultural equipment, washing machines, handling equipment, general mechanics, low-power electric motors, car wheel bearings, small tools, etc.

*Option

Advantages:

- **Practical**
  The pump can be operated with one hand. Its knurled body makes it easy to grip. It can be used with cartridges or directly with bulk grease.
- **Robust**
  Designed for industrial use, it develops a maximum pressure of 345 bar. Its high-quality, impact-resistant steel guarantees long-term use.
- **Precise and clean**
  A grease nipple developed by NTN Europe can be screwed onto the grease gun. It allows grease to be injected cleanly and precisely into the bearing. Reduced and controlled grease flow: 0.5 cm^3 per stroke.

Commercial reference:

LUB GREASE GUN SET
Nozzle (optional): LUB GREASE GUN/ACC SET

▶ Single point

Automatic lubricators ensure continuous, reliable, clean and extremely precise lubrication of your bearings:

- They provide the application with a constant and controlled supply of high-quality grease, 24 hours a day, 7 days a week.
  - Less friction= r energy savings
- They actively contribute to extending the service life of bearings.
  - Improve the availability of industrial equipment
- They eliminate the risk of over-lubrication or under-lubrication.
- They reduce the risk of contamination.
- They ensure proper lubrication with the right grease.
  - They reduce the number of premature failures.
- They allow for longer intervals between machine maintenance.
  - They reduce the risk of accidents, particularly in hazardous or hard-to-reach areas.

Expert opinion

Reduce your maintenance time and operating costs while improving safety for people and machines. The automatic lubricator provides constant and regular lubrication for your bearings. Easily integrated into various types of applications (mechanical and automotive industries, steelworks, paper mills, etc.), it allows you to optimise the lubrication function without any modification to your installations.

For each of your applications, combine the most suitable grease and lubricator.

	UNIVERSAL +	HEAVY DUTY +	VIB	HIGH TEMP MP	FOOD	FOOD CHAIN OIL	CHAIN OIL
DESCRIPTION							
	General use, for industry	Extreme pressure quality, multi-service, intended for intensive applications	Parts subject to significant vibration or impact For applications in humid environments	Ideal for long-term lubrication at high temperatures up to +180°C	Multi-purpose for the food and pharmaceutical industries Complies with NSF-H1 recommendations NSF-H1	Food-grade chain oil for the food and pharmaceutical industries. Complies with NSF-H1 recommendations	Synthetic oil for high-temperature chains
APPLICATIONS							
	Agricultural equipment, handling equipment, general mechanics, low-power electric motors, etc.	Heavy industries: steel, construction, transport, conveyors, lifting equipment, water pumps, etc.	Quarries, cement works, public works and wet environments: paper mills, drilling, crushers, vibrating screens, etc.	Textile machinery, paper processing, hot air fans, dryers, water pumps, electric motors, etc.	Bottling, dairies, industrial bakeries, pasta manufacturing, confectionery, slaughterhouses, etc.	Spur gears, bevel gears and worm gears, bearings, pivots, joints, as well as for the lubrication of lifting, drive and transport chains, even at low temperatures	Textile and plastic processing machinery plastics: for all types of chains, oil-lubricated chains
TECHNICAL DATA							
Soap	Lithium Calcium	Lithium	Lithium Calcium	Polyurea	Aluminium complex	•	•
Oil	Mineral	Mineral	Semi-synthetic	Synthetic	Paraffinic mineral	Ester + PAO	Ester + PAO
Operating temperature	-30°C/+130°C	-30°C/+150°C	-20°C/+140°C	-40°C/+180°C	-30°C/+120°C	-30°C/ +120°C	-20°C/+250°C
Viscosity at 40°C	150 cSt	150 cSt	360 cSt	80 cSt	195 cSt	220 cSt	320 cSt
OFFER AVAILABLE							
READY Booster	•	•	•	•	•	•	•
SMART Booster	•	•	•	•	•	•	•
DRIVE Booster	•	•	•	•	•	•	•

READY BOOSTER

- 60 cm^3 and 125 cm^3
- Economical
- Robust
- Ergonomic: Excellent visibility of grease level
- Suitable for use in explosive areas

SMART BOOSTER

- + de capacité : 125 cm^3
- Accurate, ergonomic
- Adjustable to the nearest month on LCD screen
- Constant flow rate regardless of ambient temperature
- Recyclable: reusable control unit
- Suitable for explosive areas

DRIVE BOOSTER

- Versatile
- 4 capacities: 60 cm^3 3 , 120 cm^3 3 , 250 cm^3 3 and 500 cm^3 3
- Multi-purpose
- Precise
- Powerful: suitable for remote lubrication
- Rechargeable

2.1 READY Booster 60 & 125

Ideal for humid environments, exposed to corrosion or requiring maximum hygiene, such as in the food industry.

READY BOOSTER: the economical and flexible model.

2.1.1 Description

Available in two sizes (60cc and 125cc), the **READY BOOSTER** is suitable for a wide variety of applications, particularly aggressive environments that can cause corrosion of electronic systems, or industrial sectors with demanding cleanliness and hygiene requirements.

The distribution of grease is ensured by an electrochemical reaction.

The grease distribution period can be adjusted from 1 to 12 months using a selector switch.

2.1.2 Applications

Designed for single-point lubrication of bearings, plain bearings, open gears, chains, ball screws, linear guides, etc.

Its corrosion resistance is highly valued in the food industry.

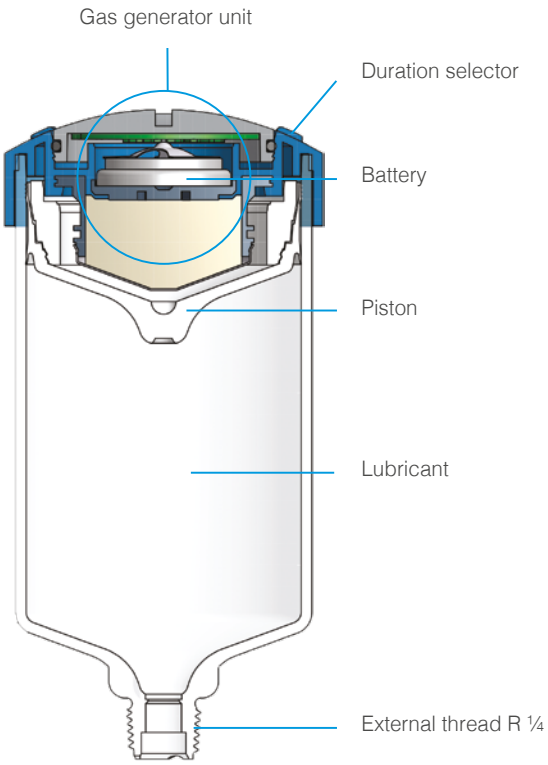
2.1.3 Features and advantages

• Compact design (with optional flange)	• Easy to install even in confined spaces
• Certification **II 1G Ex ia IIC T6 II 1D Ex iaD 20 T85°C I M1 Ex ia I DEKRA 13 ATEX 0078 X**	• Suitable for use in potentially explosive atmospheres
• Transparent tank made of high-density polyamide	• Allows visual inspection of grease level
• Waterproof and dustproof: IP 68	• Resistant to corrosion and vibrations • Operates in all positions
• Integrated flow control valve for oil version	• Facilitates installation

2.1.4 Technical datas

Drive: gas-powered by electrochemical reaction
Capacity: 60 cm^3 or 125 cm^3
Maximum pressure: 5 bar
Distribution period: 1 to 12 months
Immediate start-up: 1 day
Operating temperature: -20°C to +60°C

Disponible avec les graisses performantes SNR spécialement développées pour les roulements et paliers et avec les huiles synthétiques spéciales pour les chaînes. Nous consulter pour d'autres types de lubricants.



2.1.5 Technical references

COMMERCIAL REFERENCE	PRODUCT	LUBRICANT
LUBER READY 60 UNIVERSAL +	READY BOOSTER 60	UNIVERSAL + grease (General use)
LUBER READY UNIVERSAL +	READY BOOSTER 125	
LUBER READY 60 HEAVY DUTY +	READY BOOSTER 60	+ HEAVY DUTY Grease (Heavy loads)
LUBER READY HEAVY DUTY +	READY BOOSTER 125	
LUBER READY 60 HIGH TEMP MP	READY BOOSTER 60	HIGH TEMP MP grease (High temperatures)
LUBER READY HIGH TEMP MP	READY BOOSTER 125	
LUBER READY 60 VIB	READY BOOSTER 60	VIB grease (Vibrations and shocks)
LUBER READY VIB	READY BOOSTER 125	
LUBER READY 60 FOOD	READY BOOSTER 60	FOOD grease (food-grade)
LUBER READY FOOD	READY BOOSTER 125	
LUBER READY 60 FOOD CHAIN OIL	READY BOOSTER 60	FOOD CHAIN OIL
LUBER READY FOOD CHAIN OIL	READY BOOSTER 125	FOOD CHAIN OIL (Food-grade chain oil)
LUBER READY 60 CHAIN OIL	READY BOOSTER 60	CHAIN OIL (High-performance oil for chains)
LUBER READY CHAIN OIL	READY BOOSTER 125	

2.2 SMART Booster 125

High-performance, economical lubrication solution, ideal for applications subject to temperature variations.

SMART BOOSTER: the economical model that is independent of temperature.

2.2.1 Description

SMART BOOSTER, the first automatic electrochemical lubricator equipped with a reusable control unit that adjusts the flow rate according to the ambient temperature.

You are guaranteed a continuous supply of the volume of lubricant required for your application, regardless of the temperature. This smart lubricator is equipped with a temperature sensor that adjusts the pressure level required to dispense the correct amount of grease defined at start-up.

The dispensing duration can be easily adjusted to the nearest month (from 1 to 12 months) by simply pressing the control unit. The control unit can be reused several times; only the 125 cm^3 grease cartridge needs to be replaced.

2.2.2 Applications

Designed for single-point lubrication of bearings, plain bearings, open gears, chains, ball screws, linear guides, etc. It is perfectly suited to environments subject to significant temperature variations (e.g. roof fans) or requiring intrinsic safety (e.g. petrochemical industry).

2.2.3 Features and advantages

• Adjustable between 1 and 12 months via a touch control unit, with on/off function, reusable.	• Flexible, precise and versatile, it reduces operating costs while improving the lubrication of rotating parts.
• Integrated temperature compensation with a wide operating temperature range.	• High reliability: temperature-independent grease flow rate throughout the entire distribution period. • Universal use.
• Compact design with reinforced flange.	• Robust, easy to install even in confined spaces.
• Certification **I M1 Ex ia I Ma II 2G Ex ia IIC T4 Gb II 2D Ex ia IIIC T 135°C Db ZELM I0 ATEX 0434X**	• Suitable for use in potentially explosive atmospheres.
• IP65 protection.	• Can be used in many dusty and humid environments.
• Transparent tank made of high-density polyamide.	• Allows visual inspection of grease level. • Operates in all positions.
• Integrated flow control valve for oil version.	• Facilitates installation.

2.2.4 Technical datas

Drive: gas-generating cells with electronic temperature compensation.

Capacity: 125 cm^3

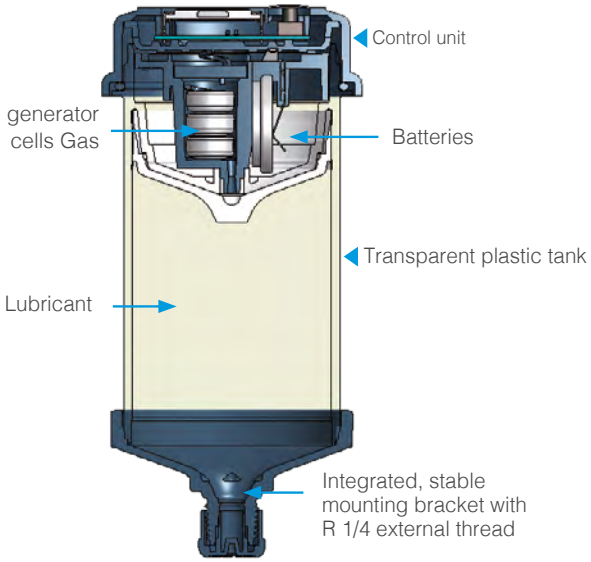
Maximum pressure: 6 bar

Distribution period: 1 to 12 months

Immediate start-up: 1 day

Operating temperature: -20°C to +60°C

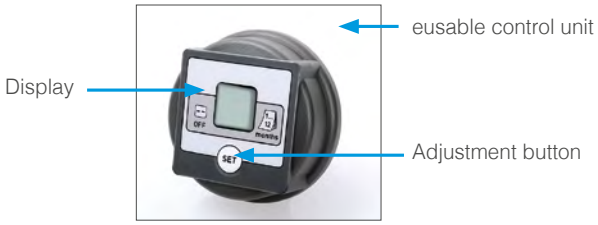
Available with high-performance SNR greases specially developed for bearings and bearings, and with special synthetic oils for chains. Please contact us for other types of lubricants.



2.2.5 Technical references

LUBER SMART 125 (grease name):
Complete kit (+ control unit, lubricant reservoir with gas cells and batteries+ protective cover).

LUBER SMART REFILL (grease name): Lubricant reservoir with gas cells and batteries+ protective cover).



Distribution time selection

Transport protection and dust and dirt cover

COMMERCIAL REFERENCE	PRODUCT	LUBRICANT
LUBER SMART 125 UNIVERSAL+	SMART BOOSTER complete	+ UNIVERSAL grease (General purpose)
LUBER SMART REFILL 125 UNIVERSAL+	Refill	
LUBER SMART 125 HEAVY DUTY+	SMART BOOSTER complete	+ HEAVY DUTY grease (heavy loads)
LUBER SMART REFILL 125 HEAVY DUTY+	Refill	
LUBER SMART 125 HIGH TEMP MP	SMART BOOSTER complete	HIGH TEMP MP grease (High temperatures)
LUBER SMART REFILL 125 HIGH TEMP MP	Refill	
LUBER SMART 125 VIB	SMART BOOSTER complete	VIB grease (Vibrations and shocks)
LUBER SMART REFILL 125 VIB	Refill	
LUBER SMART 125 FOOD	SMART BOOSTER complete	FOOD grease (Food-grade)
LUBER SMART REFILL 125 FOOD	Refill	
LUBER SMART 125 CHAIN OIL	SMART BOOSTER complete	CHAIN OIL (High-performance oil for chains)
LUBER SMART REFILL 125 CHAIN OIL	Refill	

2.3 DRIVE Booster 60, 120, 250 & 500

High-performance, environmentally friendly, easy-to-use lubrication solution for applications requiring very precise dosing, whether in contact with or away from the lubrication point.

DRIVE BOOSTER: the best single-point lubricator to simplify your maintenance and optimise your productivity!

Ideal solution for limiting the risk of accidents in hazardous areas that are difficult to access or subject to high ambient temperatures or severe vibrations.

2.3.1 Description

DRIVE BOOSTER, an automatic electromechanical lubricator for extremely precise, temperature-independent lubrication with high operational reliability. This lubricator is the ideal solution for limiting the risk of accidents in hazardous areas that are difficult to access or subject to high ambient temperatures or severe vibrations. Available in **4 sizes: 60, 120, 250 and 500 cm³** (3), it is suitable for most lubrication applications.

Its electromechanical drive control head features:

- A single button linked to the LCD screen, which makes it very easy to set the lubricator's discharge duration (1 to 24 months*) and activate the «purge» function
- Four LEDs around the control head for clear visualisation of the device status
- A constant and reliable thrust pressure of 7.5 bar throughout the entire dispensing process, allowing the lubrication point to be moved up to 5 metres away**
- A reusable head, helping to protect the environment

2.3.2 Applications

Designed for single-point lubrication of bearings, plain bearings, open gears, chains, ball screws, linear guides, etc. Independent of ambient temperature and pressure, it is suitable for a wide range of applications and operating conditions. It can be installed up to 5 metres away from the lubrication point.

2.3.3 Features and benefits

• Powerful and robust electric motor drive. • Easily adjustable with its LCD screen.	• Pressure of 7.5 bar (distribution up to 5 metres). • Independent of temperature and pressure. • High reliability: constant grease flow throughout the entire distribution process.
• Reusable	• Environmentally friendly
• Transparent reservoir made of high-density polyamide, with reinforced flange.	• Grease level indicator.
• Equipped with indicator lights.	• Indicates operating status and allows quick remote monitoring.
• Compact design.	• Easy to install even in confined spaces.
• Grease kit with accessories included.	• The set of connectors provided allows the device to be mounted on 95% of applications.
• Refill consists of a lubricant reservoir and a battery pack. • Adjustable from 1 to 24* months via a touch control unit with reusable on/off function and purge function.	• Performance guarantee. • Flexible and precise, it reduces operating costs. • The purge function helps to resolve blockages.

* Discharge time varies depending on the size of the cartridge.
** The maximum distance depends on several factors. Please contact your NTN Europe representative for more information.

2.3.4 Technical datas

Drive: electromechanical, reusable

Power supply: battery pack

Capacity: 60cm³, 120 cm³, 250 cm³ or 500cm³

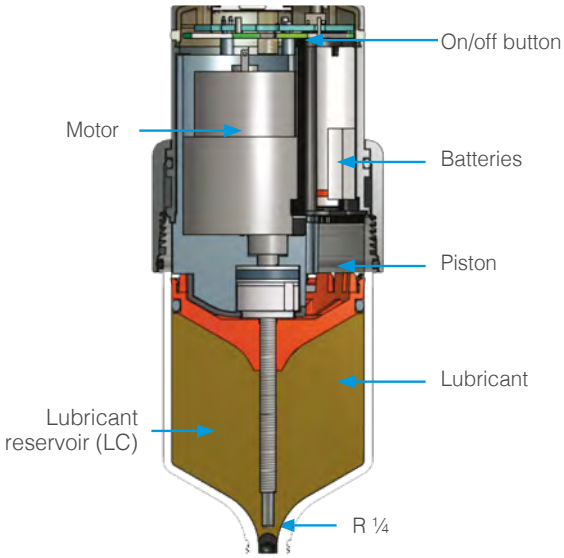
Maximum pressure: 7.5 bar

Distribution period:
1 to 26 weeks for all cartridge sizes
1 to 24 months for 60 cm³ cartridges
1 to 12 months for 120 & 250 cm³ cartridges
Up to 6 months for 500 cm³ cartridges

Immediate start-up

Operating temperature: -20°C to +60°C

Available with SNR high-performance greases specially developed for bearings and housings. Please contact us for other types of lubricants.



LCD screen with adjustment button (1 to 24 months) + purge function

Protective cap

2.3.5 Commercial references

LUBER DRIVE KIT (capacity, grease name): Complete lubricator kit including: Motor+ , lubricant reservoir 60, 120, 250 or 500 cm³+ , battery pack.

LUBER DRIVE REFILL (capacity, grease name): Refill including: 60, 120, 250 or 500 cm³ lubricant reservoir+ -pack batteries. The commercial reference follows the same logic for all lubricants: UNIVERSAL+, HEAVY DUTY+, HIGH TEMP MP, VIB, FOOD, CHAIN OIL, FOOD CHAIN OIL.

EXAMPLE OF COMMERCIAL REFERENCE	PRODUCT	LUBRICANT
LUBER DRIVE KIT 120 UNIVERSAL +	DRIVE BOOSTER 120 complete kit	+ grease (General purpose)
LUBER DRIVE KIT 250 HEAVY DUTY +	DRIVE BOOSTER 250 complete kit	HEAVY DUTY grease+
LUBER DRIVE REFILL 60 HIGH TEMP MP	Refill 60	HIGH TEMP MP grease (High temperatures)
LUBER DRIVE REFILL 500 VIB	500 refill	VIB grease (Vibrations and impacts)

To order:

- **A complete DRIVE BOOSTER kit in 250 cm³ with HIGH TEMP MP grease**
  > Ref.: LUBER DRIVE KIT 250 HIGH TEMP MP
- **A 120 cm³ refill with HEAVY DUTY grease +**
  > Ref.: LUBER DRIVE REFILL 120 HEAVY DUTY+

Visit the E-Shop"

www.eshop.ntn-europe.com

2.4 SNR single-point lubricator installation guide

Expert advice

Only use hoses with a minimum internal diameter of 6 mm.
Avoid unnecessarily long hoses.

Choosing the installation method:

Remote installation or not?

In many cases, it is safer to install remote lubrication systems due to the risks involved in accessing machinery during operation.

Example of bearing mounting


Example of remote mounting

2.4.1 Mounting kits for SNR DRIVE BOOSTER, robust and reliable turnkey solutions

Advantages of DRIVE MOUNTING KITS:

Workplace safety

- Remote mounting reduces the risk of accidents by up to 90%
- Remote mounting reduces the time spent in dangerous areas that are difficult to access

Cost

- The most economical solution with a cost advantage over retail purchases
- All parts from a single supplier ➜ Lower administrative costs

Reliability

- The robustness of each accessory ensures a long service life

2.4.2 DRIVE Standard Duty mounting kit

Standard Duty mounting kits are designed for use in environments with normal environmental conditions. The kits contain the necessary mounting hardware and an M10x1 and G1/8 reducer for each lubrication point.

Bracket mounting

1 point with 65 mm fixing bracket and 3 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER SDKIT 1P BC

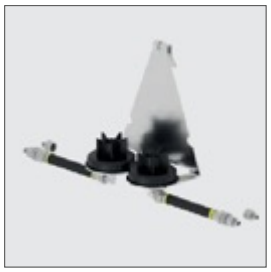
2 points with 65 mm mounting bracket and 5 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER SDKIT 2P BC

Fastening for protective grille

1 point for protective grille with 3 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER SDKIT 1P CH



2 points for protective grille with 5 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER SDKIT 2P CH

2.4.3 Heavy Duty mounting kit

DRIVE Heavy Duty mounting kits are designed for use in harsh environmental conditions. The kits contain the necessary mounting hardware as well as a DRIVE Heavy Duty protective cover, a drain fitting with manual valve and an M10x1 and G1/8 reducer for each lubrication point.

Bracket mounting

1 point with 65 mm mounting bracket and 3 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER HDKIT 1P BC

2 points with 65 mm mounting bracket and 5 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER HDKIT 2P BC

Mounting for protective grille

1 point for protective grille with 3 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER HDKIT 1P CH

2 points for protective grille with 5 m of hose with an internal diameter of 9.5 mm.

SNR reference:
LUBER HDKIT 2P CH

2.4.4 Accessories for preparing the lubrication point

When installing a remote assembly with a single-point lubricator for the first time, it is essential to pre-fill the hose leading to the lubrication point.

The pre-fill adapter kit consists of several components that can be used to create assemblies suitable for different hose diameters.

Designation	Marker
R1/4 tapered grease nipple	1
Flat grease nipple G1/4	2
45 mm extension G1/4 male x G1/4 female	3
G1/4 female sleeve	4
G1/4 male pipe connector for Øi 9.5mm push lock pipe	5
G1/4 male pipe connector for Øi 8mm straight pipe	6
Raccord de tuyau G1/4 male pour tuyau Øi 6mm droit	7

1 2 3 4 5 6 7

Example below of assembly for different pipe diameters

G1/4

Ø 6 mm

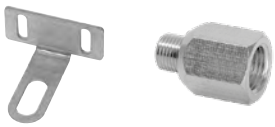
Ø 8 mm

Ø 9,5 mm

2.5 Accessories for the Booster range

Select the appropriate accessory from the SNR range.

Mounting brackets:

		
DESCRIPTION	DRIVE / SMART / READY plastic mounting clip	+ -insert bracket
COMMERCIAL REFERENCE	LUBER UNIVERSAL CLIP	LUBER BRACKET

Flexible connector:

	
DESCRIPTION	1 Female connector on the booster side+ 1 Flexible tube (nylon, length 1 m, external/internal diameter: 8/6 mm) + 1 G1/4 male connector
COMMERCIAL REFERENCE	LUBER HOSE & CONNECTORS 1 M

Elbows:

		
DESCRIPTION	Connection angle 45° G1/4 - G1/4	90° connection angle G1/4 - G1/4
COMMERCIAL REFERENCE	LUBER ANGLE 45 G1/4	LUBER ANGLE 90 G1/4

Fittings / Reducers:

						
DESCRIPTION	Reducer G1/4 - G1/8	Reducer G1/4 - M6	Reducer G1/4 - M8 x1	G1/4 - M8 x1.25 reducer	G1/4 - M10 reducer x1	G1/4 - M10 x1.50 reducer
COMMERCIAL REFERENCE	LUBER REDUCER G1/4 - G1/8	LUBER REDUCER G1/4 - M6	LUBER REDUCER G1/4 - M8 x1	LUBER REDUCER G1/4 - M8	LUBER REDUCER G1/4 - M10 x1	LUBER REDUCER G1/4 - M10

Extension leads:

		
DESCRIPTION	Extension R1/40 x G1/4 - 30 mm	Extension R1/40 x G1/4 - 75 mm
COMMERCIAL REFERENCE	LUBER EXTENSION G1/4 30 mm	LUBER EXTENSION G1/4 75 mm

Brushes and paintbrushes:

DESCRIPTION	Brush diam. 20 G1/4	40X30 mm G1/4 brush made of foam or horsehair	60X30 mm G1/4 brush made of foam or horsehair	Brush 100X30 mm G1/4 made of foam or horsehair
				
COMMERCIAL REFERENCE	LUBER OIL BRUSH diam. 20 -G1/4	LUBER OIL BRUSH 40 x 30 -G1/4	LUBER OIL BRUSH 60 x 30 -G1/4	LUBER OIL BRUSH 100 x 30 -G1/4
				
COMMERCIAL REFERENCE		LUBER OIL BRUSH H 40 x 30 - G1/4	LUBER OIL BRUSH H 60 x 30 - G1/4	LUBER OIL BRUSH H 100 x 30 - G1/4

Drive accessories:

			
DESCRIPTION	G1/4 reinforcement base (copper/plastic)	Protective cap 120 cm^3	Protective cap 250 cm^3
COMMERCIAL REFERENCE	LUBER PROTECTION BASE	LUBER PROTECTION COVER 120	LUBER PROTECTION COVER 250

Ready accessories:

		Accessory kit for extreme environments*	
			
DESCRIPTION	Reinforcement base (G1/4 - G1/4) (copper/plastic)	Reinforcement base (G1/4 - G1/4) (aluminium)	Metal protective cap
COMMERCIAL REFERENCE	LUBER READY PROTECTION BASE	LUBER READY SUPPORT FLANGE	LUBER READY PROTECTION CAP

* These accessories are sold separately.

2.6 POLIPUMP, the easy-to-use, low-cost centralised lubrication system

A cost-effective, high-performance and easy-to-use multipoint lubrication solution, allowing you to lubricate 1 to 35 points with ease.

Plug in and connect, and your lubrication centre is ready to operate. Simply follow the four steps described below:

1. **Determine the number of points that need to be lubricated,** select your pumping components and connect them.
2. **Connect the pump** to your electrical network
3. **Fill the tank** with the grease of your choice
4. **Program your lubrication cycles:** Your POLIPUMP is ready to operate

2.6.1 Benefits

A cost-effective choice
Treat yourself to a multi-point lubrication system that will increase the availability of your equipment while reducing your maintenance costs.

An economical and efficient solution
Lubricate between 1 and 35 points with the grease of your choice at distances of up to 20 metres*.

Environmentally friendly and easy to implement
No technical skills are required to install your lubrication centre. Ready to use and environmentally friendly, easily refill your pump while reducing waste.

2.6.2 Applications

This lubrication solution has been designed to lubricate between 1 and 35 points for a wide variety of applications. It is mainly used in two distinct sectors:

- **Industry**

The Polipump can be used to lubricate bearings, plain bearings, open gears, chains, ball screws, linear guides, etc. It is self-contained and allows you to lubricate up to 35 points over a distance of up to 20 metres*. There is no need to refill with specific greases; you can easily fill the reservoir with the grease of your choice.

- **Vehicles and chassis (agricultural machinery, construction machinery, lorries)**

A specific version of the Polipump has been designed for use on vehicles such as agricultural machinery, construction equipment, lorries, etc. This pump can lubricate up to 35 points while complying with the specific electrical requirements of these vehicles.

* Distance subject to conditions: please consult us.

• Robust electric motor	• Independent of temperature and pressure
• Simplified grease distribution circuit	• No special technical skills required for implementation.
• Easy programming	• High reliability: constant grease flow throughout the entire distribution period
• Compact pump	• Easy to integrate into your equipment
• Transparent reservoir	• Visualisation of grease level.
• Works with NLGI 00 to 2 grade grease (for silicone-based grease, please consult us)	• Use your own grease, no specific refill required
• Optional “flash” tank refill kit	• Solution for filling your reservoir very quickly
• 6 pump elements available for sale with different flow rates	• Allows you to tailor the solution to your lubrication needs
• Collection of accessories available for purchase, including fittings and pre-filled tubes	• Our range of connectors covers most of your applications

2.6.3 Technical data

Power supply: 12VDC or 24VDC

2 types of pump: NRUN for vehicles and IND for industry

Capacity: 2-litre tank

Maximum pressure: 80 bar

Operating temperature: -10°C to + 60°C

Grade of grease that can be used: NLGI 00 to NLGI 2

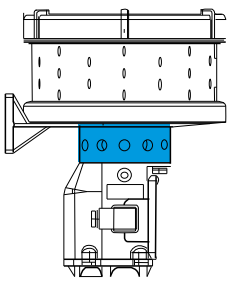
Programming: from 1 cycle/min to 12 cycles/day (2 cycles/min: for pipe filling only)

6 types of pumping elements:
0.02, 0.03, 0.04, 0.08, 0.10 and 0.13 cc

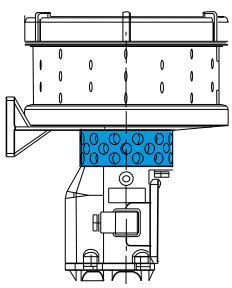
Important questions to ask yourself:

- **How many points do I have to lubricate?**
- **What is the greatest distance between the two furthest points?**
- **What type of power supply?**
- **How much grease is required per lubrication point?**

Pump available in two versions: 12 or 35 outlets



12 outlets



35 outlets

2.6.4 POLIPUMP solution selection guide

Choose from the items below the pump and accessories required for your installation.

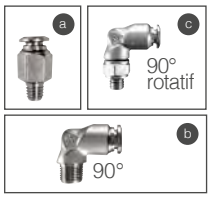
1. Pump selection

		DESIGNATION	Number of outlets	SAP code	Quantity
POLIPUMP standard Suitable for industrial applications	12 VDC	POLIPUMP-2KG-12 PUM-12VDC-IND._0888270	12	308492	
		POLIPUMP-2KG-35 PUM-12VDC-IND._0888272	35	308500	
	24 VDC	POLIPUMP-2KG-12 PUM-24VDC-IND._0888273	12	308494	1*
		POLIPUMP-2KG-35 PUM-24VDC-IND._0888275	35	308502	
POLIPUMP NRUN For agricultural machinery, trucks, etc.	12 VDC	POLIPUMP-2KG-12 PUM-12VDC-NRUN_0888276	12	308493	
		POLIPUMP-2KG-35 PUM-12VDC-NRUN_0888278	35	308501	
	24 VDC	POLIPUMP-2KG-12 PUM-24VDC-NRUN_0888279	12	308495	
		POLIPUMP-2KG-35 PUM-24VDC-NRUN_0888281	35	308503	

2. Selection of pumping components

DESIGNATION	Colour code	SAP code	Quantity
PUMPING UNIT 0.02cc - RED_0888451	RED	308508	6*
PUMPING UNIT 0.03cc - GREEN_0888452	GREEN	308509	4*
PUMPING UNIT 0.04cc - YELLOW_0888453	YELLOW	308510	
PUMPING UNIT 0.08cc - BLUE_0888454	BLUE	308511	
PUMPING UNIT 0.10cc - GREY_0888455	GREY	308512	
PUMPING UNIT 0.13cc - BLACK_0888456	BLACK	308513	

3. Selection of fittings and hoses



	DESIGNATION	SAP code	Quantity
Connectors	PUSH-IN- M6X1 D4_3084579 ⓐ (65 bar max.)	311555	10*
	PUSH-IN-90 M6X1 D4_3084613 ⓑ (65 bar max.)	311558	
	PUSH-IN-GIR.90 M8X1 TUBO4_3084731 ⓒ (150 bar max.)	311560	
	CONN-ELBOW PUSH-IN M10X1 D4_3084654 ⓑ (65 bar max.)	311561	
	SWIVEL CONN-STRAIGHT 90-Ø4-1/8_3084638 ⓒ (65 bar max.)	311562	
	STRAIGHTPUSH-IN-CONN 1/8 D4_3084577 ⓐ (65 bar max.)	311557	
Grease-free hose	TUBE-NYLON 6 4X2 BLACK-25M_5717258 (65 bar max.)	310717	
Hose with grease	TUBE-NYLON6 4X2 BLACK-25M GREASE_5717259 (65 bar max.)	310718	2*

4. Filling kit and greases

DESIGNATION	SAP code	Quantity
CARTRIDGE GREASE FILLING KIT_0888038	308475	1*
90° FITTING M22 x 1.5 - M/F - 3077222 (for the filling kit)	308475	
Universal grease cartridge	722534	
Heavy duty grease cartridge	722538	
High Temp MP grease cartridge	467254	
VIB 400 grease cartridge	722540	
Food GR grease cartridge	726673	1*
Ultra High Temp grease cartridge	365488	
Low temp grease cartridge	727228	

5. Tank riser

DESIGNATION	SAP code	Quantity
Lubso tank segment_888116	326966	1*

*Application example

Industry: food

Application: packaging machine

Ambient temperature: 25°C

Grease used: FOOD GR

Number of lubrication points:

- 4 bearings 22210 in bearings: 5 g(cc)/week
- 6 bearings 22206 in bearings: 3.4 g(cc)/week

Power supply voltage: 24 VDC

Additional information:

- connection to point M6X1
- Distance: 1 bearing 22210 and 22206 at 10 m and the other points at 3 m
- Fill the pump using the appropriate syringe (cartridge kit + 1 cartridge)

> Parts to order

Pump:

Polipump 24 VDC 12 PUM

Pumping element:

a) 5 g(cc)/week = 0,03cc with 24cy/day setting**

b) 3 g(cc)/week = 0,02cc with 24cy/day setting**

Connection: 10 M6X1 connections

Hose: 2 pre-filled 25 m hoses

**Result obtained according to the calculation table available on our website.

2.6.5 Accessories for the POLIPUMP

Choose the appropriate accessory from the SNR range.

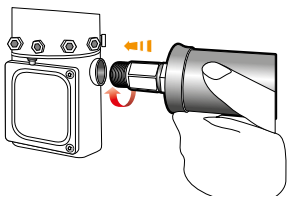
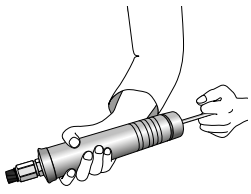
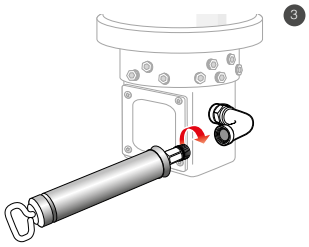
Connectors/Reducers:

			
DESCRIPTION	Straight push-in fitting M6X1	90° angled push-in connector M6X1	90° rotary push-in fitting M8X1
COMMERCIAL REFERENCE	PUSH-IN – M6x1 D4 3084579	PUSH-IN –90 M6x1 D4_3084613	PUSH-IN –GIR.90 M8x1 TUBO4_3084731
			
DESCRIPTION	90° angled push-in fitting M10X1	90° rotatable push-in fitting 1/8"	1/8" straight push-in fitting
COMMERCIAL REFERENCE	CONN-ELBOW PUSH-IN M10x1 D4_3084654	SWIVEL CONN-STRAIGHT 90-Ø4-1/8_3084638	STRAIGHTPUSH-IN-CONN 1/8 D4_3084577

Hoses:

		
DESCRIPTION	4X2 nylon hose without grease	Nylon hose pre-filled with NLGI00 grease
Metric	TUBE-NYLON 6 4X2 BLACK-25M_571258	TUBE-NYLON 6 4X2 BLACK-25M GREASE_571259

quick grease filling kit and 90° M22 x 1.5 fitting:

			
DESCRIPTION	Polipump tank quick-fill kit		90° M22 x 1.5 fitting for use with the quick-fill kit
COMMERCIAL REFERENCE	KIT CARTRIDGE GREASE FILLING_0888038		Fitting 90° M22 x 1,5 - M/F - 3077222

3 Lubrication theory and methodology

3.1 LUB' SOLUTIONS services

- Do you require assistance in defining your industrial lubrication needs for your application?
- Would you like to design and have the most suitable lubrication system for your machine installed?
- Do you require an installer to implement or modify a system?
- Are you experiencing difficulties with the operation of your industrial lubrication system?

The LUB'SOLUTIONS service from Experts & Tools is primarily a team of engineers and technicians available to assist you with these various projects or tasks.

Please contact Experts & Tools directly with any enquiries
(tel.: 04 5065 3000, website: www.ntn-europe.com) or via your distributor or NTN Europe sales representative.

3.1.1 Tips for defining your requirements

Our engineers can help you choose the most suitable lubrication technology for your application and its environment, and design the most efficient system for your machine. In addition, working with Experts & Tools during the design phase of a machine offers a significant additional advantage. Simultaneous dimensioning of bearings and their lubrication system ensures superior reliability and optimal operation of your industrial installation at an optimised cost.

We can assist you with equipping older machines designed without centralised lubrication, or existing but obsolete systems. LUB'SOLUTIONS experts will determine the closest equivalent or most suitable equipment for your needs.

3.1.2 Design and production of customised systems

Based on your specifications, Experts & Tools designers will provide you with a tailor-made technical and commercial offer, accompanied by a technical file (schematic diagram, list of components).

Once you have approved the proposal, Experts & Tools will then manufacture your customised lubrication system.

3.1.3 Implementation of lubrication systems for customers

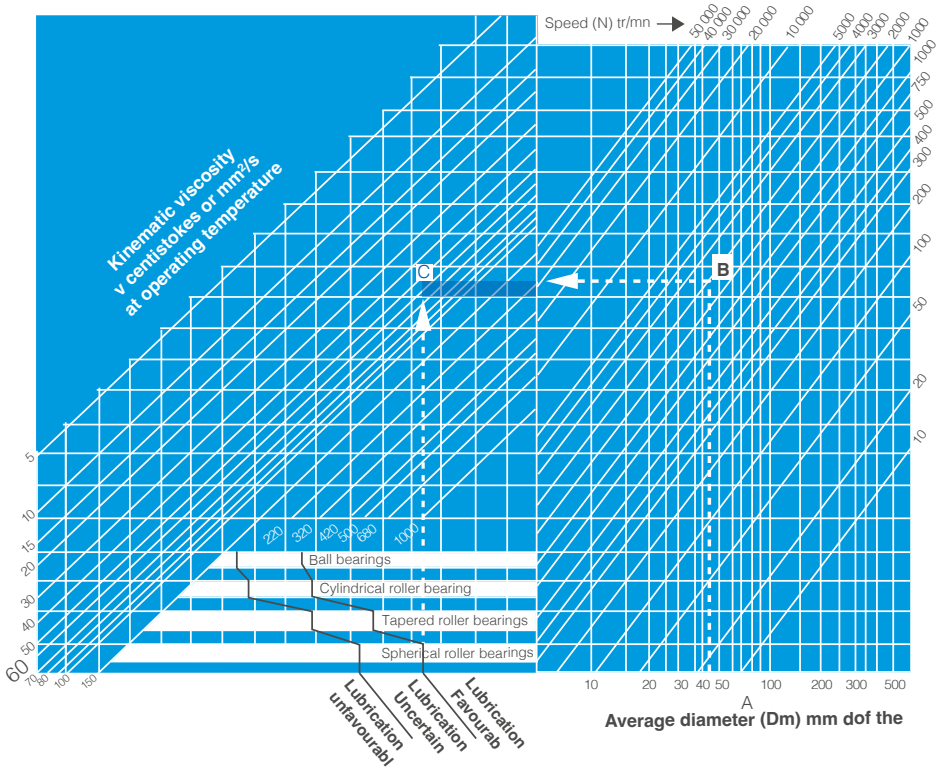
Our technicians are available to install industrial lubrication equipment designed for you on your machine at your site.

3.1.4 After-sales service

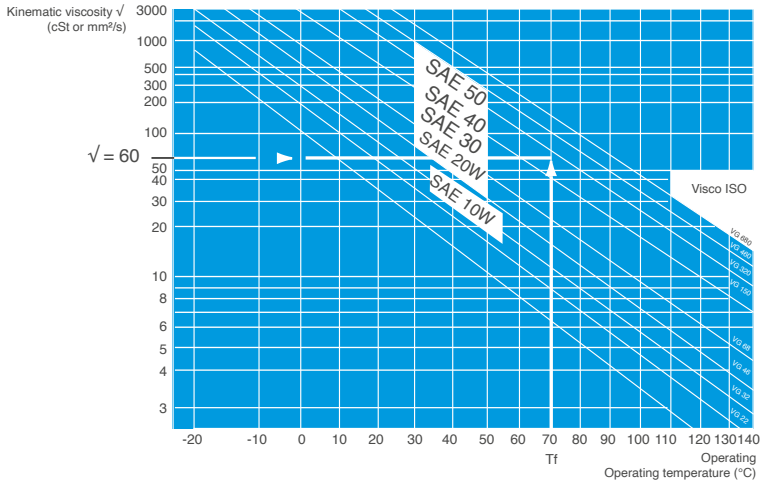
Even outside the warranty period, Experts & Tools also provides servicing and maintenance for industrial lubrication systems. We also offer this service for systems not designed by us.

3.2 Tools for calculating the lubrication requirements of a bearing

Choice of lubricant viscosity (oil or grease)



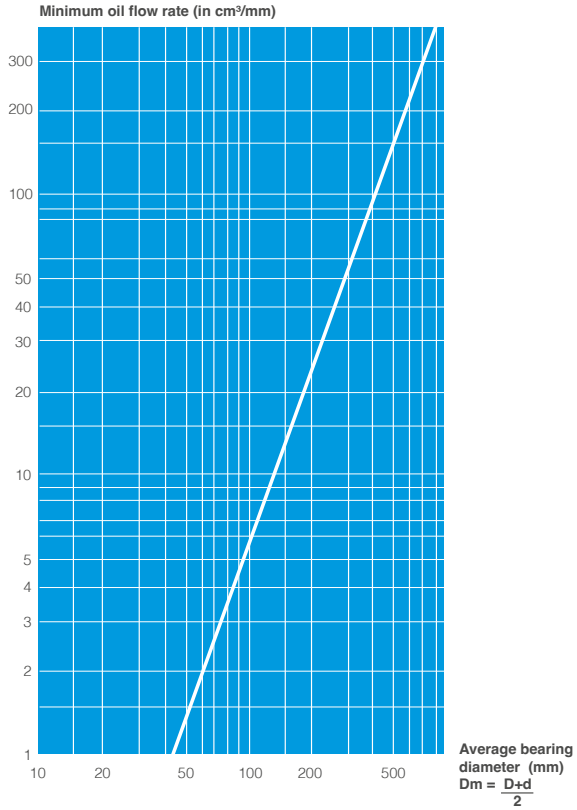
- Determine the average bearing diameter (A) = (bore+ outer diameter)/2
- Find point B on the graph, intersection with the bearing rotation speed line
- Identify point C, the intersection of the horizontal line from B and the vertical line from the effective lubrication limit according to the type of bearing
- Determine the value of the oblique line passing through C (60, in this case)



- Next, calculate the viscosity of the lubricant to be selected, taking into account the operating temperature of the bearing. On the vertical scale, plot the calculated base viscosity value. Identify the intersection between this value and the operating temperature of the bearing. The viscosity sought is the value of the diagonal line passing through this intersection. (Approximately SAE 50 or VG 300 in this case).

Lubricant dosage and relubrication

▸ Oil lubrication (minimum quantity)



▸ Grease lubrication (dosage)

Excess grease can cause overheating. The grease should occupy approximately 30% of the free volume inside the bearing.

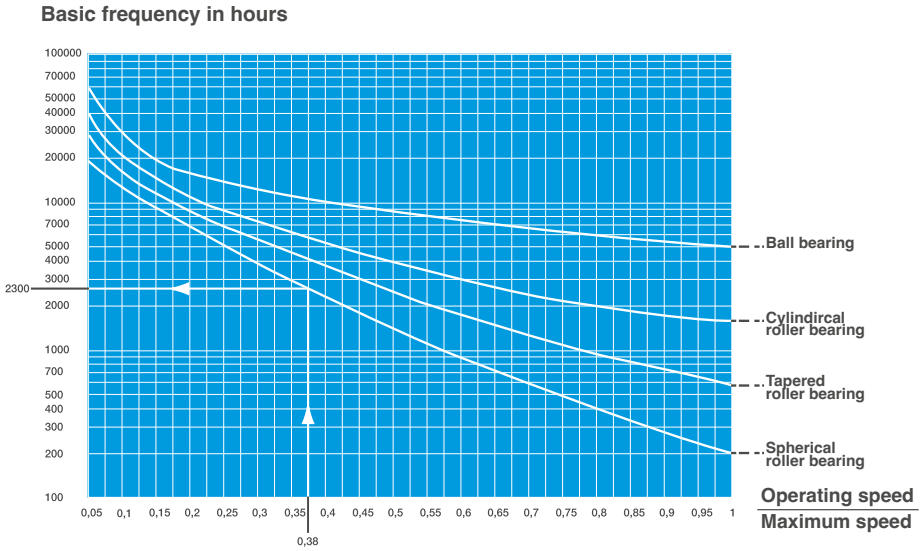
Formula for calculating the required grease weight: V= K x W

V: Total free volume for open bearings (approx.), cm³
K: Internal free volume factor (see the value of K in the table below)
W: Mass of the bearing, kg

Bearing type [1]			Cage type	Bearing space factor K
Deep groove ball bearing [2]			Pressed cage	61
Angular contact ball bearing			Pressed cage	54
			Machined cage	33
			Moulded resin cage	33
Cylindrical roller bearing	Type NU [3]		Pressed cage	50
			Machined cage	36
	Type N [5]		Pressed cage	55
			Machined cage	37
	ULTAGE series (EA type) E type	Type NU [4]	Machined cage	33
			Moulded resin cage	33
		Type N [4]	Machined cage	34
			Moulded resin cage	35
Tapered roller bearing			Pressed cage	46
Spherical roller bearing	Type C		Pressed cage	35
	Type B Type 213		Machined cage	28
	ULTAGE series	Type EA	Pressed cage	33
		Type EM	Machined cage	31

[1] Does not apply to non-catalogue numbered models. [2] Does not apply to 1600 series bearings. [3] Does not apply to NU4 series. [4] Applies only to G1 machined cages. [5] Does not apply to N4 series.

▸ Relubrication frequency



The basic relubrication frequency (Fb) depends on the type of bearing and the ratio of the operating speed to the limiting speed given in the bearing specifications.

This base frequency must be corrected by the coefficients below according to the specific environmental conditions of the mechanism (dust, humidity, shocks, vibration, vertical axis, operating temperature, etc.) according to the relationship: Fc=Fb x Te x Ta x Tt

	Environment	Applications	Temperature		
Conditions	Dust Humidity Cond ensation	With shocks Vibrations Vertical axis	Level	For standard grease	For high-temperature grease
Coefficients	Te	Ta		Tt	Tt
Average	0,7 à 0,9	0,7 à 0,9	75°C	0,7 à 0,9	-
Strong	0,4 à 0,7	0,4 à 0,7	75°C à 85 °C	0,4 à 0,7	0,7 à 0,9
Very high	0,1 à 0,4	0,1 à 0,4	85°C à 125 °C	0,1 à 0,4	0,4 à 0,7
	-	-	130°C à 170 °C	-	0,1 à 0,4

Example: a 22212EA bearing, lubricated with standard grease, rotating at 1500 rpm in a dusty environment at 90°C with no other application constraints:

22212 = Spherical roller bearing

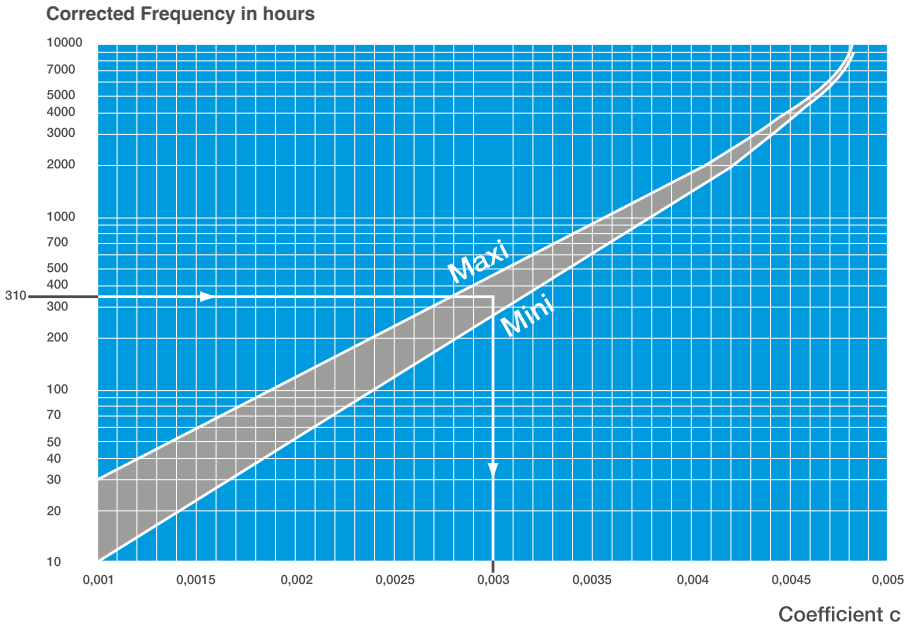
V limit = 3900 rpm

V operating speed = 1500 rpm

$$\frac{\text{V operating speed = 1500 tr/mn}}{\text{V limit = 3900 rpm}} = \frac{1500}{390} = 0{,}38 \dashrightarrow \text{Base frequency Fb = 2300 H}$$

Te = 0,5 ⇢ dust
Ta = 0,9 ⇢ normal
Tt = 0,3 ⇢ 90°C

Weight of grease to be replaced



This corrected frequency allows you to determine the weight of grease to be added, based on:

- its width B
- its outer diameter D
- of the coefficient c read on the curve below by the relationship **P = D x B x c**

Example :
For 22212 (spherical roller bearing).

P = weight of grease.

Approximately 9 grams should therefore be added every 310 hours of operation.

As a first approximation, the following values can be considered:

Shaft diameter	Manual lubrication frequency (1 pump stroke = 0.5 cm^3)	Quantity per day	Frequency of automatic lubricator replacement
100 to 120 mm	8 pump strokes per day	3 to 4 cm^3	1 month
80 to 100 mm	4 strokes per day	2 cm^3	2 months
65 to 80 mm	16 to 20 pump strokes per week	1,5 cm^3	3 months
50 to 65 mm	16 to 20 pump strokes every 15 days	0,7 cm^3	6 months
< 50 mm	16 to 20 pump strokes per month	0,3 cm^3	12 months

4 Product technical data

4.1 Grease gun

Reference: LUB GREASE GUN SET

Technical specifications:

- Grease gun suitable for 400 g cartridges, bulk grease, with bleed and fill valve. It is compatible with standard grease cartridges, including SNR LUB grease cartridges.
- Material: heavy-duty sheet steel
- Weight: 1,130 g with rigid tube and nozzle
- 150 mm rigid steel tube
- Hydraulic-type steel end fitting, 3 jaws, with flat surface (10x100 thread)

Capacity	Flow rate	Operating pressure	Maximum pressure
500 cm^3	0,50 cm^3	180 bar	345 bar

- Lubrication accessories supplied with the gun: one zinc-plated steel connector (M10x100 thread)
- Option: two plastic nozzles with standard threading

4.2 Booster single-point automatic lubricators

LUBER READY (capacity, lubricant name)

Capacity		60 cm^3 or 125 cm^3
Distribution duration		Adjustable from 1 to 12 months
Ambient temperature range		-20°C to +60°C
Maximum operating pressure		5 bar
Drive		Electrochemical reaction
Maximum permissible distance between lubricator and lubrication point		Oil 1000 mm and minimum inner tube diameter 6 mm Grease 500 mm and minimum inner tube diameter 10 mm*
Intrinsic safety certification		I M1 Ex ia I II 1G Ex ia IIC T6 II 1D Ex iaD 20 T 85°C
Recommended storage temperature		20°C
Device usage period		Maximum 2 years (storage+ -use)**
Weight (with lubricant)	**READY BOOSTER 60** **READY BOOSTER 125**	Approximately 145 g Approximately 260 g

*The maximum length of the lubricant conduit depends on the ambient temperature, the type of grease and the back pressure generated by the application.

▸ Drain time for READY 125 at 20°C

Ø	1 month	3 months	6 months	9 months	12 months
-20°C	2	5	10	13	15
0°C	1,3	3,8	7,2	11	13
+20°C	1	3	6	9	12
+40°C	0,8	2,5	5,2	7,5	10
+60°C	0,6	2	4	-	-

Data based on laboratory tests without back pressure and using grade 2 grease. Residues possible at temperatures > 40°C or oil change intervals > 6 months

▸ Flow rate setting at 20°C (grease)

Adjustment / month		1	2	3	4	5	6	7	8	9…	…12
Lubricant/day (cm³)	60cc	2,0	1,0	0,7	0,5	0,4	0,3	0,3	0,3	0,2	0,2
	125cc	4,2	2,1	1,4	1,0	0,8	0,7	0,6	0,5	0,5	0,4
Lubricant/week (cm³)	60cc	14,0	7,0	4,7	3,5	2,8	2,3	2,0	1,8	1,6	1,6
	125cc	29,2	14,6	9,7	7,3	5,8	4,9	4,2	3,6	3,2	2,6
Lubricant/month (cm³)	60cc	60	30	20	15	12	10	8,5	7,5	6,6	5
	125cc	125	62,5	41,6	31,2	25	20,8	17,8	15,6	13,8	10,4
Pump strokes/week	60cc	9-11	5	3	2-3	2	1-2	<1,5	<1,5	1	<1
	125cc	60	29 - 30	19 - 20	14 - 15	11 - 12	9 - 10	8 - 9	7 - 8	6 - 7	5 - 6

1 pump stroke of the grease gun dispensing: 0.5 cm3/piston stroke.

LUBER SMART 125 (name of grease)

Complete kit (+ control unit, lubricant reservoir with gas cells and batteries+ , plastic cover).

LUBER SMART REFILL 125 (name of grease)

Lubricant reservoir with gas cells and batteries+ -plastic cover.

Capacity	125 cm³
Distribution duration	Flexible from 1 to 12 months (adjustable to the nearest month)
Ambient temperature range	-20°C to +60°C
Maximum operating pressure	6 bar
Drive	Gas generator cell with electronic temperature compensation
Maximum permissible distance between lubricator and lubrication point	Oil 1000 mm and minimum inner tube diameter 6 mm Grease 1000 mm and minimum inner tube diameter 10 mm*
Intrinsic safety certification	I M1 Ex ia I Ma II 2G Ex ia IIC T4 Gb II 2D Ex ia IIIC T135°C Db
Protection rating	IP 65
Recommended storage temperature	20°C
Device usage period	Maximum 2 years (storage+ -use)**
Weight (with lubricant)	Approximately 280 g (including 40 g electronic unit)

* The maximum length of the lubricant conduit depends on the ambient temperature, the type of grease and the back pressure generated by the application.

** The electronic control unit is reusable and is not affected.

▸ Flow rate adjustment

Adjustment / month	1	2	3	4	5	6	7	8	9…	…12
Lubricant/day (cm³)	4	2	1,4	1,1	0,9	0,7	0,6	0,5	0,5	0,4
	29	14,5	10,1	7,6	6,1	5,1	4,3	3,8	3,4	2,7
Lubricant/week (cm³)	8 à 9	4 à 5	2 à 3	2 à 3	2	1 à 2	1	1	1	< 1
	60 à 62	30 à 32	20 à 21	15 à 16	12 à 13	10 à 11	8 à 9	7 à 8	6 à 7	5 à 6
Pumps per day	4	2	1,4	1,1	0,9	0,7	0,6	0,5	0,5	0,4
	29	14,5	10,1	7,6	6,1	5,1	4,3	3,8	3,4	2,7
Pumps per week	8 à 9	4 à 5	2 à 3	2 à 3	2	1 à 2	1	1	1	< 1
		30 à 32	20 à 21	15 à 16	12 à 13	10 à 11	8 à 9	7 à 8	6 à 7	5 à 6

1 pump stroke (grease gun) dispensing: 0.5 cm³/piston stroke.

LUBER DRIVE KIT (capacity, lubricant name)

Complete kit (+ engine Lubricant reservoir 60, 120, 250 or 500 cm³+ -pack batteries)..

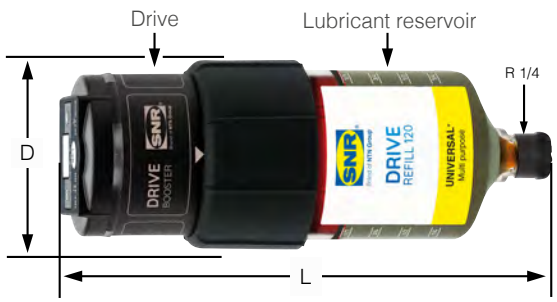
LUBER DRIVE REFILL (capacity, lubricant name)

Lubricant reservoir 60, 120, 250 or 500 cm³ + battery pack.

Capacity		60 cm³, 120 cm³, 250 cm³ or 500 cm³
Distribution duration		1 to 26 weeks for all cartridge sizes 1 to 24 months for 60 cm³ cartridges 1 to 12 months for 120 and 250 cm³ cartridges Up to 6 months for 500 cm³ cartridges
Ambient temperature range		-20°C to +60°C
Maximum operating pressure		7,5 bar
Drive		Electromechanical
Maximum permissible distance between lubricator and lubrication point		Oil 5 metres and internal diameter 9.5 mm* Grease 5 metres and internal diameter 9.5 mm*
Status indicators (LED)		In good working order, operating, empty, faulty
Recommended storage temperature		20°C
Device usage period		2 years (storage+ -use) **
Battery pack		3 x 1,5 V AA (alkaline)
Weight (with lubricant)	**DRIVE BOOSTER 60** **DRIVE BOOSTER 120** **DRIVE BOOSTER 250** **DRIVE BOOSTER 500**	Approximately 542 g Approximately 612 g Approximately 774 g Approximately 1105 g

* The maximum length of the lubricant line depends on the ambient temperature, the type of grease and the back pressure generated by the application.
** The electronic control unit is reusable and is not affected.

Type	Volume (cm³)	Diameter D (mm)	Total length L (mm)
REFILL 60	60	75	155
REFILL 120	120	75	178
REFILL 250	250	75	228
REFILL 500	500	75	324



DRIVE BOOSTER

▸ Weekly flow rate adjustment

		1	2	3	4	5	6	7	8	9	10	11	12
DRIVE 60 60 cm³	cm³ / 24 h	8,57	4,29	2,86	2,14	1,71	1,43	1,22	1,07	0,95	0,86	0,78	0,71
	cm³ / 100 h	35,7	17,9	11,9	8,93	7,14	5,95	5,10	4,46	3,97	3,57	3,25	2,98
	Pause time	0:21	0:42	1:03	1:24	1:45	2:06	2:27	2:48	3:09	3:30	3:51	4:12
DRIVE 120 120 cm³	cm³ / 24 h	17,1	8,57	5,71	4,29	3,43	2,86	2,45	2,14	1,90	1,71	1,56	1,43
	cm³ / 100 h	71,4	35,7	23,8	17,9	14,3	11,9	10,2	8,93	7,94	7,14	6,49	5,95
	Pause time	0:21	0:42	1:03	1:24	1:45	2:06	2:27	2:48	3:09	3:30	3:51	4:12
DRIVE 250 250 cm³	cm³ / 24 h	35,7	17,9	11,9	8,93	7,14	5,95	5,10	4,46	3,97	3,57	3,25	2,98
	cm³ / 100 h	148,8	74,4	49,6	37,2	29,8	24,8	21,3	18,6	16,5	14,9	13,5	12,4
	Pause time	0:20	0:40	1:00	1:20	1:40	2:00	2:21	2:41	3:01	3:21	3:41	4:01
DRIVE 500 500 cm³	cm³ / 24 h	71,4	35,7	23,8	17,9	14,3	11,9	10,2	8,93	7,94	7,14	6,49	5,95
	cm³ / 100 h	297,6	148,8	99,2	74,4	59,5	49,6	42,5	37,2	33,1	29,8	27,1	24,8
	Pause time	0:10	0:20	0:30	0:40	0:50	1:00	1:10	1:20	1:30	1:40	1:50	2:00

		13	14	15	16	17	18	19	20	21	22	23	24	25	26
DRIVE 60 60 cm³	cm³ / 24 h	0,66	0,61	0,57	0,54	0,50	0,48	0,45	0,43	0,41	0,39	0,37	0,36	0,34	0,33
	cm³ / 100 h	2,75	2,55	2,38	2,23	2,10	1,98	1,88	1,79	1,70	1,62	1,55	1,49	1,43	1,37
	Pause time	4:33	4:54	5:15	5:36	5:57	6:18	6:39	7:00	7:21	7:42	8:03	8:24	8:45	9:06
DRIVE 120 120 cm³	cm³ / 24 h	1,32	1,22	1,14	1,07	1,01	0,95	0,90	0,86	0,82	0,78	0,75	0,71	0,69	0,66
	cm³ / 100 h	5,49	5,10	4,76	4,46	4,20	3,97	3,76	3,57	3,40	3,25	3,11	2,98	2,86	2,75
	Pause time	4:33	4:54	5:15	5:36	5:57	6:18	6:39	7:00	7:21	7:42	8:03	8:24	8:45	9:06
DRIVE 250 250 cm³	cm³ / 24 h	2,75	2,55	2,38	2,23	2,10	1,98	1,88	1,79	1,70	1,62	1,55	1,49	1,43	1,37
	cm³ / 100 h	11,5	10,6	9,92	9,30	8,75	8,27	7,83	7,44	7,09	6,76	6,47	6,20	5,95	5,72
	Pause time	4:22	4:42	5:02	5:22	5:42	6:02	6:23	6:43	7:03	7:23	7:43	8:03	8:24	8:44
DRIVE 500 500 cm³	cm³ / 24 h	5,49	5,10	4,76	4,46	4,20	3,97	3,76	3,57	3,40	3,25	3,11	2,98	2,86	2,75
	cm³ / 100 h	22,9	21,3	19,8	18,6	17,5	16,5	15,7	14,9	14,2	13,5	12,9	12,4	11,9	11,5
	Pause time	2:11	2:21	2:31	2:41	2:51	3:01	3:11	3:21	3:31	3:41	3:51	4:01	4:12	4:22

▸ Monthly data allowance

		1	2	3	4	5	6	7	8	9	10	11	12	15	18	21	24
DRIVE 60 60 cm³	cm³ / 24 h	1,97	0,99	0,66	0,49	0,39	0,33	0,28	0,25	0,22	0.20	0,18	0,16	0,13	0,11	0,09	0,08
	cm³ / 100 h	8,22	4,11	2,74	2,06	1,64	1,37	1,17	1,03	0,91	0,82	0,75	0,69	0,55	0,46	0,39	0,34
	Pause time	1:31	3:02	4:33	6:04	7:36	9:07	10:38	12:09	13:40	15:12	16:43	18:14	22:48	27:21	31:55	36:28
DRIVE 120 120 cm³	cm³ / 24 h	3,95	1,97	1,32	0,99	0,79	0,66	0,56	0,49	0,44	0,39	0,36	0,33				
	cm³ / 100 h	16,45	8,22	5,48	4,11	3,29	2,74	2,35	2,06	1,83	1,64	1,50	1,37				
	Pause time	1:31	3:02	4:33	6:04	7:36	9:07	10:38	12:09	13:40	15:12	16:43	18:14				
DRIVE 250 250 cm³	cm³ / 24 h	8,22	4,11	2,74	2,06	1,64	1,37	1,17	1,03	0,91	0,82	0,75	0,69				
	cm³ / 100 h	34,27	17,13	11,42	8,57	6,85	5,71	4,90	4,28	3,81	3,43	3,12	2,86				
	Pause time	1:27	2:55	4:22	5:50	7:17	8:45	10:12	11:40	13:07	14:35	16:03	17:30				
DRIVE 500 500 cm³	cm³ / 24 h	16,45	8,22	5,48	4,11	3,29	2,74										
	cm³ / 100 h	68,53	34,27	22,84	17,13	13,71	11,42										
	Pause time	0:43	2:57	2:11	2:55	3:38	4:22										

4.3 Polipump

POLIPUMP-2KG-(12-35) PUM-(12-24) VDC-(IND-NRUN)

An electric pump with an integrated reservoir, the POLIPUMP is designed for use with pumping units.

The IND model is intended for industrial applications.

The NRUN model is intended for industrial vehicles (lorries, construction and agricultural machinery).

TECHNICAL SPECIFICATIONS

Pumping system	Single-acting pumping elements with cam activation	
Drive assembly	DC motor with gearbox	
Power supply	12 VDC	24 VDC
Electronic protection threshold for motor overload	0,6 A	
Net weight	3,4 kg (2,2 lb)	
Number of outputs/max/version	12 – 35	
Pump element connection	Instantaneous for Ø 4 (5/32 inches)	
Nominal flow rate per pumping element	0,02 cm^3/stroke – **RED** (1 notche) 0,03 cm^3/stroke – **GREEN** (2 notches) 0,04 cm^3/stroke – **YELLOW** (3 notches) 0,08 cm^3/stroke – **BLUE** (4 notches) 0,10 cm^3/stroke – **GREY** (5 notches) 0,13 cm^3/stroke – **BLACK** (6 notches)	
Max. discharge pressure	80 bar	
Tank capacity	2 L (0,53 gallons)	
Compatible grease (except silicone-based grease)	NLGI00 to NLGI2	
Operating temperature	-10°C to +60°C (+14°F to +140°F)	
Storage temperature	-20°C to +80°C (-4°F to + 176°F)	
Noise level	< 70 dB (A)	
Minimum level indication	Hall effect sensor	
CONTROL PANEL SPECIFICATIONS		
Power supply	12 VDC – 24 VDC	
Operating temperature	-10°C to +60°C (+14°F to +140°F)	
Storage temperature	-20°C to +80°C (-4°F to + 176°F)	
Features	• Motor overload protection • Input power protection • Remote alarm signal • End-of-cycle control sensor	
Protection level	IP 65	
Relay alarm contact	NC (open in alarm) – Imax 5 A - Vmax 250 V – Pmax 60 W	

INSTALLATION OF PUMPING ELEMENTS AND SHUT-OFF VALVES

The pumping elements are not supplied with the pump and must be ordered separately and installed before use, depending on the number of points to be lubricated. Each pumping element has a colour code corresponding to the delivery volume and must simply be screwed into the outlet port. All unused ports must be plugged using the plugs (supplied).

▸ Positioning of pumping elements

Select a location for the first pumping element and then distribute the other elements in the outlet manifold ports according to the instructions in the table below and the diagram (fig. 1).

No. of outlets used	Position of pumping elements	No. of outlets used	Position of pumping elements	Number of outlets used	Position of pumping elements
Row 1		Row 2		Row 3	
1	1	13	13	25	25
2	1-7	14	13-19	26	25-31
3	1-5-9	15	13-17-21	27	25-29-33
4	1-4-7-10	16	13-16-19-22	28	25-28-31-34
5	1-2-4-7-10	17	13-14-16-19-22	29	25-26-28-31-34
6	1-3-5-7-9-11	18	13-15-17-19-21-23	30	25-27-29-31-33-35
7	1-2-4-5-7-9-11	19	13-14-16-17-19-21-23	31	25-26-28-29-31-33-35
8	1-2-4-5-7-8-10-11	20	13-14-16-17-19-20-22-23	32	25-26-28-29-31-32-34-35
9	1-2-3-5-6-7-9-10-11	21	13-14-15-17-18-19-21-22-23	33	25-26-27-29-30-31-33-34-35
10	1-2-3-4-5-6-7-9-10-11	22	13-14-15-16-17-18-19-21-22-23	34	25-26-27-28-29-30-31-33-34-35
11	1-2-3-4-5-6-7-8-9-10-11	23	13-14-15-16-17-18-19-20-21-22-23	35	25-26-27-28-29-30-31-32-33-34-35
12	1-2-3-4-5-6-7-8-9-10-11-12	24	13-14-15-16-17-18-19-20-21-22-23-24		

Screw in the pumping elements (12 mm spanner) and the plugs (6 mm hex spanner) applying a torque of 10 Nm.

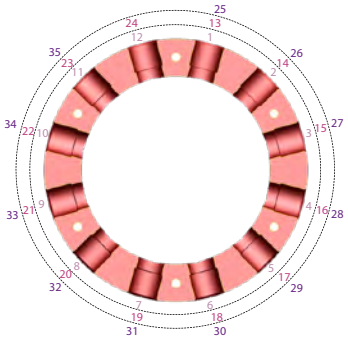
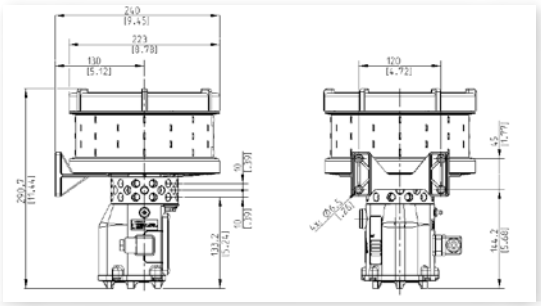


Fig. 1: Positioning of the pumping elements depending on the number of outlets used.

Electrical connection diagram

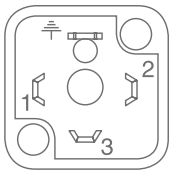
▸ Dimensions

NRUN: model designed for industrial vehicles. The connection with general activation (NRUN) allows the pump to be used with the machine in slave mode. The pump only operates if the activation signal is present, otherwise it remains in standby mode; the external activation signal is a standard +5 V logic signal.



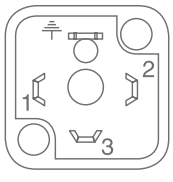
12 VDC-IND

1 = 12VDC +
2 = ALARM NO out
3 = ALARM COM out
⏚ = 12VDC –



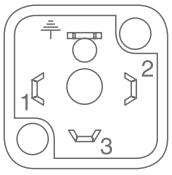
24 VDC-IND

1 = 24VDC +
2 = ALARM NO out
3 = ALARM COM out
⏚ = 24VDC –



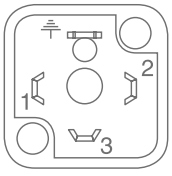
12 VDC-NRUN

1 = 12VDC +
2 = NRun in
3 = ALARM out
⏚ = 12VDC –



24 VDC-NRUN

1 = 24VDC +
2 = NRun in
3 = ALARM out
⏚ = 24VDC –



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