



***your safety,
our future.***



RICERCA

Non c'è innovazione senza ricerca. Per questo motivo i nostri chimici lavorano costantemente a nuovi formulati al fine di offrire prodotti tecnologicamente avanzati, basati su un concetto di innovazione eticamente responsabile dove la sicurezza rappresenta un'esigenza primaria.

SITO PRODUTTIVO

Il sito produttivo Landoil è fra i più importanti d'Europa ed è contraddistinto da processi altamente automatizzati in tutte le sue fasi. Nel laboratorio R&D vengono studiate nuove formulazioni basate su materie prime innovative, mentre nel laboratorio Controllo Qualità vengono analizzate le materie prime in ingresso affinché si certifichi la corrispondenza coi requisiti imposti dai nostri chimici.

SICUREZZA

Da sempre tutto ciò che produciamo è pensato per aumentare la produttività dei nostri clienti, senza tralasciare l'aspetto più importante: la salute degli operatori.

Il risultato del nostro impegno è volto a migliorare in modo tangibile la sicurezza sul posto di lavoro e a ridurre l'impatto ambientale.

Seguiamo infatti scrupolosi standard di sicurezza che rappresentano, oggi più che mai, uno dei valori rappresentativi dal brand Landoil.

La sintesi di tutto questo?

Landoil: your safety, our future.



**THE NEW
MANUFACTURING FACILITY**
highly automated

*your safety
our future*



PRODUCTION

Landoil Technology's entry into Group A+B has enabled the company to improve its entire production process.

With the aim of creating a modern plant that embraces technology, innovation and high-level automation, the Landoil production site is among the most technological on the market.

All stages, from mixing to packaging, are managed by software that provides precise control over all operations carried out.

As always, however, the key strength of the Group is the know-how developed by our chemists, our highly qualified in-house personnel and our technicians who, for over 30 years, have been supporting customers in all problem-solving aspects and introducing continuous innovative solutions.

The Landoil plant is now one of the most innovative European production sites in the world of lubricants.

PRODUCTS

Landoil products are global benchmarks in the industry of cooling lubricants and lubricants for mechanical workshops.

Landoil products fully embrace the concepts of innovation, technology and safety for customers.

In addition to improving operational efficiency, our DNA also boasts a form of accountability with regard to aspects such as the elimination of risks for operators who are in daily contact with the lubricants and environmental protection.

Thanks to our in-house research and development team, we formulate, test, manufacture and distribute over 70 product lines.

This comprehensive level of control allows us to carefully select raw materials, continuously improve and innovate the formulations, constantly optimize production processes and additional services, which results in exceptionally high quality end products.

With multiple requirements, we are able to produce and store our products in any size from 5 litre canisters to 200 litre drums or 1000 litre tanks.

The product lines on which we have achieved internationally recognised levels of specialisation are: water-miscible cooling lubricants, neat fluids for cutting, moulding and deformation, industrial lubricants, protective products, industrial greases and multipurpose oils, machines and accessories.

*your safety
our future*

CAN
25 LITRI



DRUM
200 LITRI



TANK
1000 LITRI



future.

your safety,

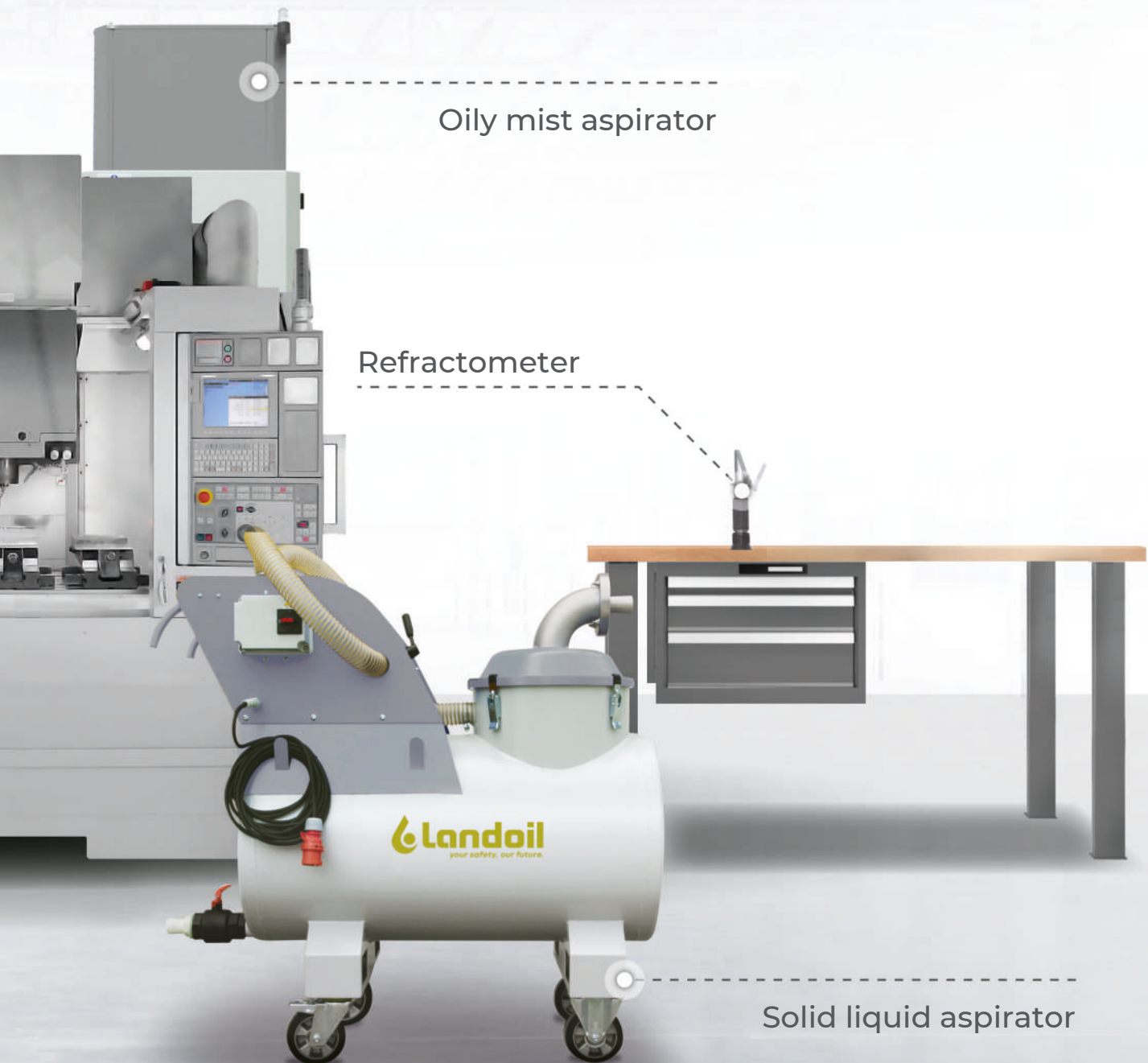
Volumetric mixer



Emulsions
Hydraulic oils
Neat oils

Oil separator

our future.



Oily mist aspirator

Refractometer

Solid liquid aspirator



Your products
are shipped with

WITH DELIVERY 24H

from the moment the order
is processed

*your safety
our future*



LOGISTICS

Landoil's logistics department, like the other business divisions, is designed to be as efficient and innovative as possible.

Starting from the Toyota model, the goods are handled using semi-automatic trolleys, which not only makes the collection of finished products more efficient, but also the shipment of the same.

Every investment is aimed at minimising the delivery times to the end customer. In fact, thanks to the high procurement volumes of the raw material and the optimisation of the entire production process, we manage and deliver most orders in 24-48h.

At Landoil, the concept of quality is not just limited to the actual products, but extends to all company areas.

future.



In the lab

FUTURA LAB

all our products are formulated

your safety
our fu



FUTURA LAB

The quality of Landoil products is simply the result of a series of elements, the common denominator of which is the human factor.

Why Futura Lab? Because our goal is to research and produce state-of-the-art lubricants. Futura is our mineral oil-free product line.

In our R&D laboratory our chemical experts work on a day-to-day basis to improve and develop products, striving to meet all the most stringent requirements imposed by Reach and the industry.

Futura Lab is one of Landoil's strong points and operates proactively with respect to market demands, placing the operator's health as a key prerequisite for all its products.

This is why the search for raw materials, chemical compositions, test environments and production environments fully comply with the highest quality standards.

For Landoil optimizing the performance of mechanical machining is essential, but to do so while protecting the health of its customers is even more so.

Futura.



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miscibili in acqua

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*your safety
our future*



**Lubrorefrigeranti
miscibili in acqua**

future.

In the formulation of cooling lubricants, it is the balancing of the components that gives each product specific technical characteristics that affect the behaviour of the emulsions in operation.

Lubricity power EP

The first variable to correctly choose a cooling lubricant fluid is its ability to provide lubricity to the machining process. High lubricity and extreme pressure (EP) power are required for very heavy-duty work and/or particularly tough materials. A cooling lubricant with high EP power protects tools from wear and delays the refining of tools: It is to be chosen in all cases where heavy work is carried out or on tough materials that place a lot of stress on the tool. On the other hand, a high EP power could hinder the ability of a fluid to quickly decant the waste produced by the machining process: during the finishing processes or where the materials allow the same, it is preferable to use cooling lubricants where the lubricity level is lower and the cooling aspect prevails.

Cooling and detergency

Cooling is, in a sense, the opposite of lubricity. If, in fact, the lubricity and EP power are the capacities of a cooling lubricant to remain adhered to the metal during machining, cooling is its ability to yield heat faster and detergency its ability to quickly be removed from the surfaces. A cooling lubricant with high cooling and detergency power keeps the machine clean and removes chips effectively from the work area. When machining produces a light or very small chip, such as during grinding or high feed milling operations, semi-synthetic products are recommended, which have the characteristic of rapidly evacuating the metal chip and preventing it from remaining between the workpiece and the tool, which could affect the finish.

Water compatibility

The emulsion consists of about 90% water and in each territory the physical chemical parameters of the water vary: different contents of sulphates, chlorides, carbonates and other ions change the conductivity and hardness of the water. A high content of certain salts may interfere and, in some cases, damage the surfactant system of the cooling lubricant. Thanks to the new generation of surfactant systems, Landoil cooling lubricants perform well even with very hard water (>50°f) where they maintain their stability or with very soft water (< 10°f) with excellent prevention of foaming.

There are industrial applications (such as some yellow alloy processing equipment) where water needs to be particularly monitored and therefore treatment plants such as softeners, osmosis treatment or, in some cases, distillers are used. These plants remove the salts present in the water and make it also usable with so-called biodynamic, amine-free products.

This particular type of product, which has some interesting applications such as, for instance for yellow alloys, is much more sensitive to hardness and soft water is therefore the preferable choice.



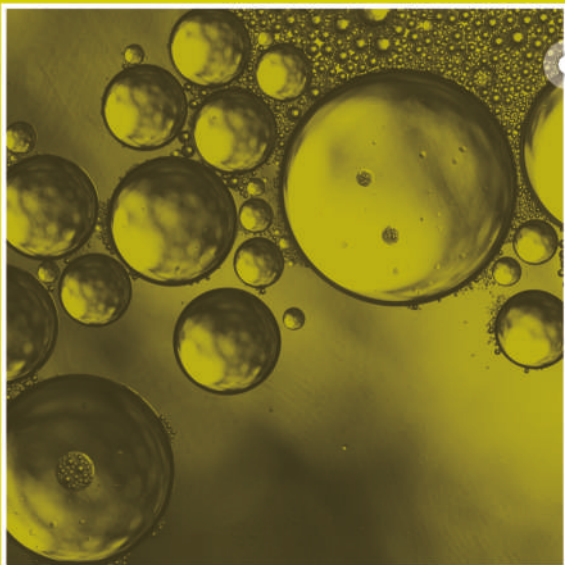
Anti-corrosion protective capacity

It is essential that all cooling lubricants prevent the oxidation of ferrous metals which, in a humid environment, tend to oxidise. A product with high protective power prevents the onset of rust on machined parts and machine tool chucks, making for optimum storage of the finished product.

Bacterial resistance

All industrial products must have high resistance to bacterial attacks. Cooling lubricant emulsions for mechanical processing, in particular, must "resist" contamination due to dirt in the environment or on the workpieces to be processed. A high bacterial resistance of the cooling lubricant allows the emulsion to have a long useful life and generate a healthy working environment. Nowadays, it is not always necessary to use bactericides or biocides to formulate an emulsifier that ensures high bacterial resistance: the latest generation Landoil products use a balance of components that make the emulsion an inhospitable place for bacterial growth where, therefore, the microorganisms responsible for bad odours and fluid degradation cannot grow. As long as the correct percentages of product are maintained on the machine.

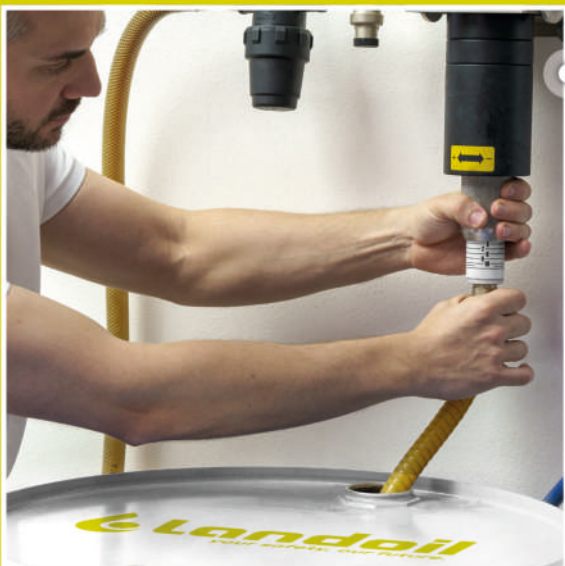




What is an emulsion

In order to have an emulsion at hand at its maximum performance capacity, it is essential to prepare it correctly. There are two things to pay attention to: the product and the water.

A first rule to follow, despite being trivial, is to pour oil into water and not vice versa. Reversing the process would create instability and a consequent separation of the two. It is also essential that the tanks and circuits are perfectly clean and that the emulsion is prepared using water with a temperature above 10 °C.



Preparing the emulsion

Only after the operators have been provided with the necessary PPE (e.g. protective suit, gloves, goggles, ...) can the emulsion be created using a mixer. The fluid can be prepared manually, but the automatic mixer is the only instrument that can ensure maximum precision concerning dosing and correct mixing.

For the correct preparation of the emulsion, it is essential to check the product data sheet to determine the correct utilisation rates, while the safety data sheet can be used for all information concerning the hazards of concentrated metal working fluids, including precautions for safe handling.



The importance of water

In order to ensure maximum product stability, water plays a key role. Ideal water quality requirements such as hardness or conductivity are indicated in each data sheet and we always recommend checking the source; whether drinking water or industrial water is used. In the latter case, a preventive water analysis should be carried out to check for possible contaminants.

As far as hardness is concerned, it can be measured using hardness kits. These give a reading in French degrees (°f) and indicate the content of calcium carbonate and magnesium carbonate. For the preparation of cooling lubricants, the ideal water hardness usually varies between 15 °f and 25 °f, but each product data sheet, indicates the range of acceptability to be referred to.

A change in hardness compared to the specifications in the technical sheets may cause some problems: excessively low hardness may cause an increase in foaming, while an excessively high hardness may result in the formation of soap or the complete separation of the emulsion.

Concentration control

Once the emulsion has been prepared, it should be monitored by checking its concentration and corrected if necessary.

The concentration of the emulsion can be measured using the refractometer. It provides us with the refractometric reading of the emulsion, which will then be multiplied by the refractometric factor of each product in order to obtain the actual concentration.

After the first filling of the tank, and in order to continue working under ideal conditions, we strongly recommend you periodically monitor the emulsion and its concentration level, adjusting the top-up concentration levels if necessary to restore the initial values.

If the concentration is higher than optimal, it is necessary to top up with low-concentration emulsion (never just water).

If, on the other hand, the concentration is lower than optimal, take the reverse precautions and top up with a higher concentration emulsion (never just oil).

Other checks

Machine operators should check the utilisation rate at least once a week.

The emulsion droplet is normally taken from the nozzles near the chuck taper.

This simple check, which takes no more than a minute, is essential to understanding the state of health of the emulsion and whether you are working with the correct percentages.

In case of problems or for routine checks, our laboratories can receive samples that will be analysed by our technical personnel.





Latest generation
cooling lubricants

**THAT PROTECT THE HEALTH
OF THE OPERATOR**



FUTURA **POWER**

The POWER series identifies water-miscible cooling lubricants that can be used in heavy duty applications where specificity and high productivity levels are required.

FUTURA **UNIVERSAL**

The UNI series identifies water-miscible cooling lubricants that can be used in multi-processing operations where high performance is required on a wide range of materials.

FUTURA

Water-miscible cooling lubricants can be used in general light- or medium-intensity processing on a wide range of materials.

future.

| ISO 513 | Materials | Group | Composition - Structure | N/mm ² HRC | DIN | Treatment | Tensile strength N/mm ² | Hardness (HB) | Hardness (HRC) |
|---------|------------------------|-------|---|--------------------------|--------------------|--------------|---------------------------------------|---------------|----------------|
| P | Steel | P1 | Low carbon steel - long chipping | 1.0718 | 9SMnPb28 | Annealed | < 420 | 115 | |
| | | P2 | Low carbon steel - free machining | 1.0401 | C15 | Annealed | < 700 | < 210 | |
| | | P3 | Medium and high carbon steel | 1.0511 | C40 | Annealed | < 850 | < 250 | < 25 |
| | | P4 | Alloy steel | 1.3505 | 100Cr6 | Quenched | < 850 | < 250 | < 25 |
| | | P5 | Alloy steel and tool steel | 1.7225 | 42CrMo4 | Quenched | < 1200 | < 350 | < 38 |
| | | P6 | Alloy steel and high strength steel | 1.6582 | 34CrNiMo6 | Quenched | < 1400 | < 410 | < 44 |
| | | P7 | Ferritic and martensitic stainless steel | 1.4021 | X20Cr13 | Annealed | < 900 | < 265 | < 29 |
| | | P8 | PH stainless steel | 1.4542 | X 7 CrNiCu 16 4 4 | Quenched | < 1350 | < 380 | < 41 |
| M | Stainless Steel | M1 | Austenitic stainless steel | 1.4301 | X5CrNi18-10 | Quenched | < 600 | < 180 | |
| | | M2 | High strength austenitic stainless steel | 1.4404 | X2CrNiMo17-12-2 | Quenched | 600 - 800 | 150 - 230 | < 25 |
| | | M3 | Duplex stainless steel | 1.4410 | X 2 CrNiMoN 25 7 4 | | < 1000 | < 290 | < 30 |
| K | Cast iron | K1 | Gray cast iron | 0.6025 | GG25 | | 125 - 500 | 120 - 290 | < 32 |
| | | K2 | Low and Medium Strength Ductile Cast Irons / Tempered | 0.7060 | GGG60 | | < 600 | 130 - 260 | < 29 |
| | | K3 | Austempered ductile iron (ADI) | | EN-GJS-1000-5 | | < 780 | < 230 | < 43 |
| N | Non-ferrous | N1 | Pure aluminium | 3.0255 | Al99.5 | | < 340 | < 60 | |
| | | N2 | Aluminum alloys with Si <0.5% (long chip) | 3.4365 | AlZnMgCu1.5 | | < 380 | < 100 | |
| | | N3 | Aluminum alloys with Si <10% (medium chip) | 3.2381 | G-AlSi10Mg | | < 500 | < 140 | |
| | | N4 | Aluminum alloys with Si >10% (short chip) | 3.2383 | G-AlSi10Mg(Cu) | | < 600 | | |
| | | N5 | Pure copper | 2.0065 | E-Cu58 | | < 350 | | |
| | | N6 | Copper alloys (long chip) soft brass | 2.0250 | CuZn20 | | < 700 | | |
| | | N7 | Copper alloys (short chip) hard brass | 2.0410 | CuZn44Pb2 | | < 700 | | |
| | | N8 | High strength bronze | 2.0978 | CuAl11Ni6Fe6 | | 700 - 1500 | | |
| | | N9 | Magnesium alloys | 3.5632 | MgAl6Zn3 | | 120 - 300 | | |
| | | N10 | High strength magnesium alloys | 3.5470 | GD-MgAl4Si1 | | 240 - 400 | | |
| S | Super-alloys | S1 | Pure Titanium | 3.7024 | Ti99.5 | | < 400 | < 110 | |
| | | S2 | Alfa - beta Titanium alloy | 3.7165 | TiAl6V4 | | < 1050 | < 320 | |
| | | S3 | Pure Nickel | 1.3911 | RNi24 | | 400 - 600 | | |
| | | S4 | Nickel or Cobalt based alloys | 2.4668 | NiCr19Fe18Nb5Mg | | 840 - 1200 | 250 - 320 | |
| | | S5 | Nickel based alloys age hardened | 2.4668 | Inconel 718 | Age hardened | < 1700 | < 450 | < 48 |
| H | Hardened | H1 | Hardened steel 44 - 56HRC | 1.2343 | X38CrMoV5-1 | Hardened | | < 550 | < 55 |
| | | H2 | Hardened steel 55 - 65HRC | 1.3536 | 100CrMo6 | Hardened | | < 710 | < 65 |
| | | H3 | Hardened steel up to 70HRC | 1.2436 | X 210 CrW 12 | Hardened | | < 760 | < 70 |
| O | Non-metallic materials | O1 | Plastic materials | | | | | | |
| | | O2 | Treated fiber | | | | | | |
| | | O3 | Graphite | | | | | | |

| Basos | Classification | Article | Dnominazione Prodotto | Steel | Stainless steel | Cast iron | Non ferrous | Super alloys | Hardened | Non-metallic materials | Removal | Grinding | Refractive index | EP | Prodotto Biodinamico | Page |
|----------|----------------|---------|-----------------------|-------|-----------------|-----------|-------------|--------------|----------|------------------------|---------|----------|------------------|----|----------------------|---------|
| Minerali | POWER | LN000 | Multifluid E POWER | ●● | ●● | ●● | ●●● | ●● | ●● | - | ✓ | ✓ | 1.1 | - | - | 24 - 25 |
| Minerali | POWER | LN001 | Multifluid E POWER EP | ●●● | ●●● | ●● | ●● | ●● | ●●● | - | ✓ | - | 1.1 | ✓ | - | 26 - 27 |
| Minerali | POWER | LN002 | Multifluid S POWER CU | ● | ● | ● | ●●● | - | ● | - | ✓ | - | 1.5 | - | ✓ | 28 - 29 |
| Minerali | UNI | LN010 | Multifluid E UNI | ●● | ●● | ● | ●●● | ●● | ●● | - | ✓ | - | 1.0 | - | ✓ | 30 - 31 |
| Minerali | UNI | LN011 | Multifluid E UNI EP | ●● | ●●● | ● | ●● | ● | ●● | - | ✓ | - | 1.0 | ✓ | ✓ | 32 - 33 |
| Minerali | UNI | LN012 | Multifluid S UNI | ●●● | ●● | ●● | ●● | ●● | ●● | - | ✓ | ✓ | 1.5 | - | - | 34 - 35 |
| Minerali | - | LN020 | Multifluid S | ●● | ● | ● | ●● | - | ● | ● | ✓ | - | 1.9 | - | - | 36 - 37 |
| Minerali | - | LN021 | Multifluid S CI | ●● | ● | ●● | - | - | ● | ● | ✓ | - | 1.9 | - | - | 38 - 39 |

| | | | | | | | | | | | | | | | | |
|-------------------|-------|-------|------------------|-----|----|-----|----|----|-----|---|---|---|-----|---|---|---------|
| Minerali e esteri | POWER | LN030 | Inova S POWER EP | ●●● | ●● | ●● | ●● | ●● | ●●● | - | ✓ | - | 1.8 | ✓ | - | 40 - 41 |
| Minerali e esteri | POWER | LN031 | Inova S POWER CI | ●●● | ●● | ●●● | ● | ●● | ●●● | ● | ✓ | ✓ | 1.9 | - | - | 42 - 43 |
| Minerali e esteri | UNI | LN040 | Inova E UNI | ●●● | ●● | ●● | ●● | ●● | ●●● | - | ✓ | - | 1.2 | - | - | 44 - 45 |
| Minerali e esteri | - | LN050 | Inova S | ●● | ● | ● | ● | ● | ●● | - | ✓ | - | 1.6 | - | - | 46 - 47 |

| | | | | | | | | | | | | | | | | |
|--------|-------|-------|-----------------|-----|-----|-----|-----|-----|-----|---|---|---|-----|---|---|---------|
| Esteri | POWER | LN060 | Futura E POWER | ●● | ●●● | ● | ●● | ●●● | ●● | - | ✓ | - | 1.1 | - | - | 48 - 49 |
| Esteri | UNI | LN070 | Futura S UNI | ●● | ●● | ●● | ●● | ●● | ●● | ● | ✓ | ✓ | 2.0 | - | - | 50 - 51 |
| Esteri | UNI | LN071 | Futura E UNI EP | ●●● | ●●● | ● | ●● | ●● | ●●● | - | ✓ | - | 1.1 | ✓ | ✓ | 52 - 53 |
| Esteri | UNI | LN072 | Futura S UNI CI | ●● | ●● | ●●● | ●● | ●● | ●● | ● | ✓ | ✓ | 1.8 | - | - | 54 - 55 |
| Esteri | UNI | LN073 | Futura S UNI AL | ●● | ●● | ●● | ●●● | ●● | ●● | - | ✓ | - | 1.5 | - | - | 56 - 57 |
| Esteri | - | LN080 | Futura S | ●● | ● | ●● | ● | - | ● | ● | ✓ | - | 2.5 | - | - | 58 - 59 |

| | | | | | | | | | | | | | | | | |
|----------|---|-------|------------|----|---|-----|---|---|----|---|---|---|-----|---|---|---------|
| Polimeri | - | LN090 | Multi Synt | ●● | ● | ●●● | ● | - | ●● | - | ✓ | - | 2.8 | - | - | 60 - 61 |
|----------|---|-------|------------|----|---|-----|---|---|----|---|---|---|-----|---|---|---------|



Multifluid E POWER

Multifluid E POWER is a semi-synthetic water-miscible cooling lubricant with a high active part content, based on highly refined mineral oils and special synthetic additives. It is free of chlorine, bactericides and nitrosatable amines.

Multifluid E POWER is a cooling lubricant specifically designed to be used during medium or heavy chip removal operations on steels, stainless steels, titanium, aluminium alloys and cast iron. It can also be used for grinding thanks to good foam control. It produces a very stable lactescent emulsion in water. Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

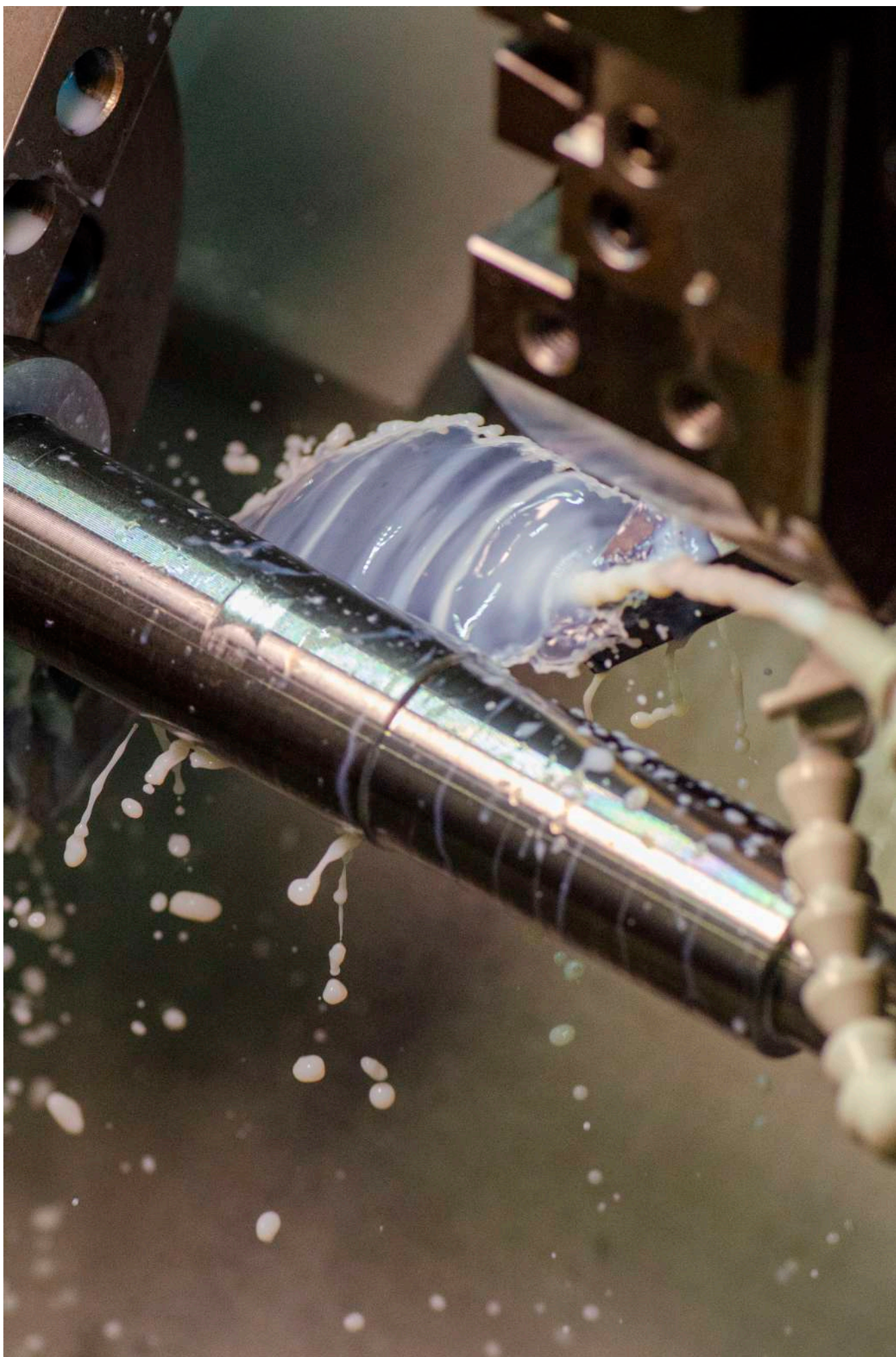
| | | |
|-------------------------|------|-----------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.963 |
| Appearance emulsion | kg/L | Milky |
| pH (5%) | kg/L | 9.0 - 9.3 |
| Refractometric factor | kg/L | 1.1 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Heavy duty product
- High mineral oil content
- Biocide-free
- Excellent performance on aluminium

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN00000025 | 25 | Can | 1 |
| LN00000200 | 200 | Drum | 1 |
| LN00001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 5 - 6 | ●● |
| M | 5 - 7 | ●● |
| K | 5 - 6 | ●● |
| N | 5 - 8 | ●●● |
| S | 7 - 8 | ●● |
| H | 7 - 8 | ●● |
| O | - | - |



Multifluid E POWER EP

Multifluid E POWER EP is a semi-synthetic water-miscible cooling lubricant with a high active part content, based on high-refining mineral oils, oily additives and EP. It is free of bactericides and nitrosatable amines.

Multifluid E POWER EP is a cooling lubricant specifically designed for use in medium to heavy chip removal operations on alloyed and alloy and stainless steels. It can also be used on aluminium and yellow alloys. It has a high anti-rust power and a strong resistance to bad odours even in critical conditions.

It produces a very stable lactescent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-----------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.975 |
| Appearance emulsion | kg/L | Milky |
| pH (5%) | kg/L | 9.0 - 9.3 |
| Refractometric factor | kg/L | 1.1 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Heavy duty product
- High content of mineral oil and EP additives
- Biocide-free
- Excellent performance on steels

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN00100025 | 25 | Can | 1 |
| LN00100200 | 200 | Drum | 1 |
| LN00101000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 10 | ●●● |
| M | 7 - 10 | ●●● |
| K | 5 - 8 | ●● |
| N | 5 - 7 | ●● |
| S | 6 - 11 | ●● |
| H | 7 - 10 | ●●● |
| O | - | - |



Multifluid S POWER CU

Multifluid S POWER CU is a semi-synthetic water-miscible cooling lubricant with medium active part content, based on highly refined mineral oils.

It is free of chlorine, boron, amines and bactericides donors of formaldehyde.

Multifluid s POWER CU is a cooling lubricant specifically designed to be used in mechanical chip removal processes on yellow alloys, carried out with transfer or very high production machining centres. It can in any case be used on all materials. It has a very high resistance to foaming, even in very soft water, it does not leave stains or streaks and does not separate soaps.

It produces a very stable translucent emulsion in water.

Its characteristics make it preferably suitable for use with fresh water.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.967 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.0 - 9.3 |
| Refractometric factor | kg/L | 1.5 |
| Water compatibility | °F | 5 - 25 |

VANTAGGI

- Specific product for processing yellow alloys
- Biodynamic product
- Boron free
- Very high resistance to foaming

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN00200025 | 25 | Can | 1 |
| LN00200200 | 200 | Drum | 1 |
| LN00201000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 8 | ● |
| M | 7 - 10 | ● |
| K | 5 - 8 | ● |
| N | 5 - 8 | ●●● |
| S | - | - |
| H | 7 - 10 | ● |
| O | - | - |



Multifluid E UNI

Multifluid E UNI is a water-miscible cooling lubricant with a high active part content, based on high-refining mineral oils and additives. It is free of chlorine, boron, amines and bactericides donors of formaldehyde.

Multifluid E UNI is a universal cooling lubricant designed to be used during heavy-duty chip removal work on steels, stainless steels, aluminium alloys and yellow alloys. The product is particularly suitable for all heavy-duty operations on hard-to-machinable aluminium alloys and copper alloys.

It produces a very stable lactescent emulsion in water.

Its characteristics make it preferably suitable for use with fresh water.



MSDS

PHYSICAL PROPERTIES

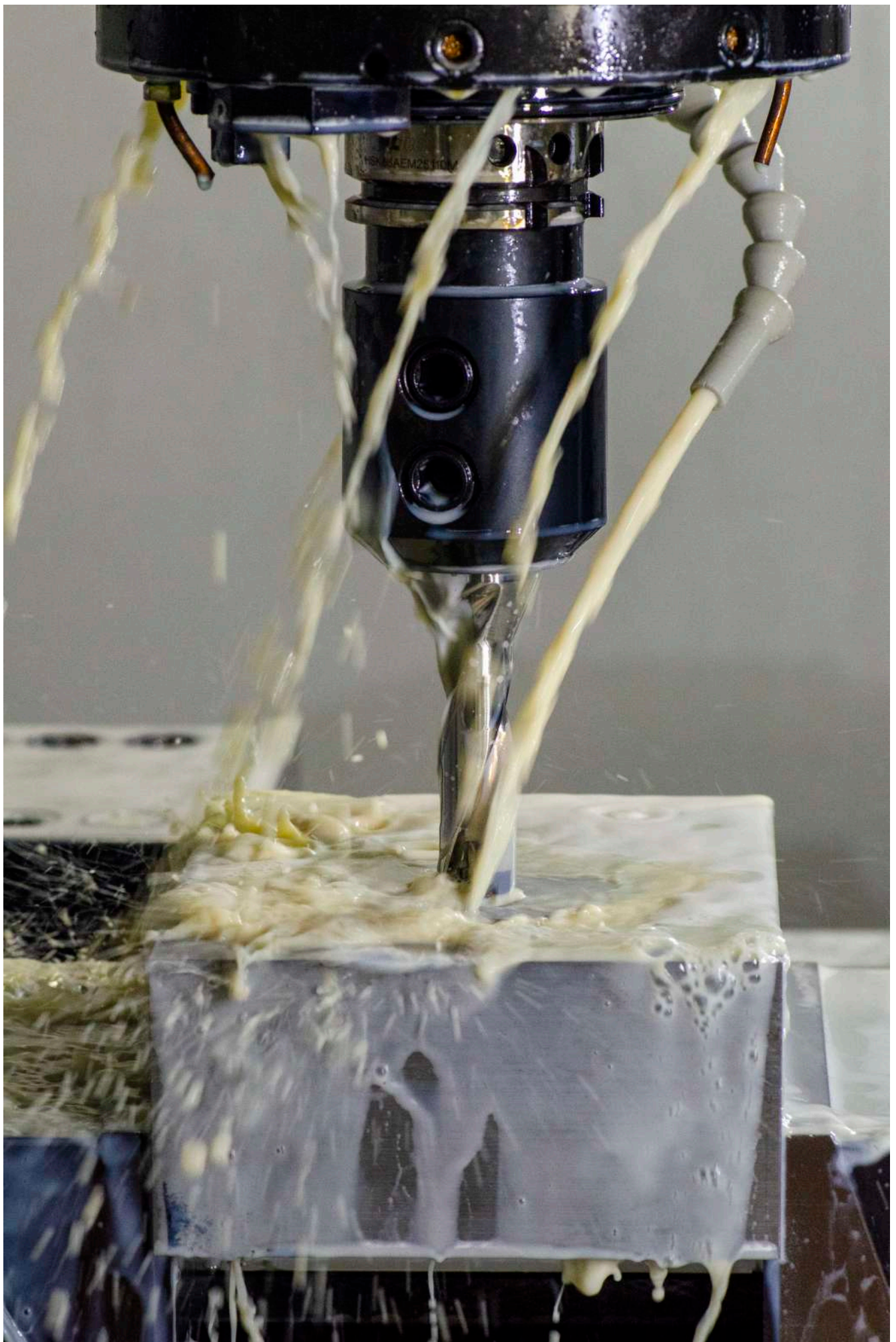
| | | |
|-------------------------|------|-----------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.950 |
| Appearance emulsion | kg/L | Milky |
| pH (5%) | kg/L | 8.8 - 9.2 |
| Refractometric factor | kg/L | 1.0 |
| Water compatibility | °F | 5 - 25 |

VANTAGGI

- Universal product
- High mineral oil content
- Biodynamic product
- Boron free
- Excellent performance on aluminium

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN01000025 | 25 | Can | 1 |
| LN01000200 | 200 | Drum | 1 |
| LN01001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 8 | ●● |
| M | 8 - 10 | ●● |
| K | 5 - 8 | ● |
| N | 5 - 8 | ●●● |
| S | 9 - 12 | ●● |
| H | 7 - 10 | ●● |
| O | - | - |



Multifluid E UNI EP

Multifluid E UNI EP is a water-miscible cooling lubricant with a high active part content, based on high-refining mineral oils and EP additives. It is free of boron, amines and bactericides donors of formaldehyde.

Multifluid E UNI EP is a universal cooling lubricant designed to be used during heavy-duty chip removal work on steels, stainless steels, aluminium alloys and yellow alloys. The product is particularly suitable for all heavy-duty operations on hard-to-process ferrous materials such as high-alloy and stainless steels.

It produces a very stable lactescent emulsion in water.

Its characteristics make it preferably suitable for use with fresh water.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-----------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.950 |
| Appearance emulsion | kg/L | Milky |
| pH (5%) | kg/L | 8.8 - 9.2 |
| Refractometric factor | kg/L | 1.0 |
| Water compatibility | °F | 5 - 25 |

VANTAGGI

- Universal product
- High content of mineral oil and EP additives
- Biodynamic product
- Boron free
- Excellent performance on steels

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN01100025 | 25 | Jerry can | 1 |
| LN01100200 | 200 | Drum | 1 |
| LN01101000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 7 | ●● |
| M | 8 - 10 | ●●● |
| K | 5 - 8 | ● |
| N | 5 - 7 | ●● |
| S | 9 - 11 | ● |
| H | 6 - 8 | ●● |
| O | - | - |



Multifluid S UNI

Multifluid S UNI is a semi-synthetic water-miscible cooling lubricant with medium active part content, based on highly refined mineral oils and special synthetic additives. It is free of chlorine, bactericides and nitrosatable amines.

Multifluid S UNI is a universal cooling lubricant designed to be used during all chip removal and grinding operations on all materials: steels, stainless steels, titanium, light alloys and cast iron. It produces a very stable translucent emulsion in water. Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.989 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.1 - 9.4 |
| Refractometric factor | kg/L | 1.5 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Universal product
- Biocide-free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN01200025 | 25 | Can | 1 |
| LN01200200 | 200 | Drum | 1 |
| LN01201000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 8 | ●●● |
| M | 8 - 10 | ●● |
| K | 6 - 8 | ●● |
| N | 6 - 10 | ●● |
| S | 8 - 10 | ●● |
| H | 7 - 9 | ●● |
| O | - | - |



Multifluid S

Multifluid S is a water-miscible, semi-synthetic cooling lubricant with medium active part content, based on high-refining mineral oils and additives. It is free of chlorine, bactericides and nitrosatable amines.

Multifluid s is a cooling lubricant designed to be used during light general processing on all materials. It is a versatile, all-material compatible product that leaves no stains or streaks and does not separate soaps.

In water it produces a very stable, semi-transparent emulsion.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|------------------|
| Appearance concentrated | | Light amber |
| Density at 20°C | kg/L | 1.01 |
| Appearance emulsion | kg/L | Semi-transparent |
| pH (5%) | kg/L | 9.0 - 9.2 |
| Refractometric factor | kg/L | 1.9 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Product for light or medium machining
- Biocide-free

| CODE | Quantità L | Confezione | Price List Page |
|------------|------------|------------|-----------------|
| LN02000025 | 25 | Can | 1 |
| LN02000200 | 200 | Drum | 1 |
| LN02001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 7 | ●● |
| M | 8 - 10 | ● |
| K | 6 - 7 | ● |
| N | 5 - 8 | ●● |
| S | - | - |
| H | 7 - 9 | ● |
| O | 4 - 6 | ● |



Multifluid S CI

Multifluid S CI is a water-miscible semi-synthetic cooling lubricant with medium active part content, based on high-refining mineral oils and additives. It is free of chlorine, bactericides and nitrosatable amines.

Multifluid S CI is a cooling lubricant designed to be used in light processing on ferrous materials and cast iron. Thanks to its high anti-rust power and strong resistance to bad odours even under critical conditions, the product is particularly suitable for cast iron processing.

In water it produces a very stable, semi-transparent emulsion.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|------------------|
| Appearance concentrated | | Light amber |
| Density at 20°C | kg/L | 1.02 |
| Appearance emulsion | kg/L | Semi-transparent |
| pH (5%) | kg/L | 9.2 - 9.5 |
| Refractometric factor | kg/L | 1.9 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Product for light or medium machining
- Biocide-free
- Good performance on cast iron

| CODE | Quantità L | Confezione | Price List Page |
|------------|------------|------------|-----------------|
| LN02100025 | 25 | Can | 1 |
| LN02100200 | 200 | Drum | 1 |
| LN02101000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 8 | ●● |
| M | 8 - 10 | ● |
| K | 6 - 8 | ●● |
| N | - | - |
| S | - | - |
| H | 8 - 10 | ● |
| O | 4 - 6 | ● |



Inova S POWER EP

Inova S POWER EP is an innovative semi-synthetic water-miscible cooling lubricant based on highly refined mineral oils, esters from renewable raw materials and EP additives. It is free of boron, bactericides and nitrosatable amines.

Inova S POWER EP is a cooling lubricant specifically designed for use in heavy duty machining on ferrous materials and cast iron.

It produces a very stable translucent emulsion in water. Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.997 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.5 - 9.7 |
| Refractometric factor | kg/L | 1.8 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Heavy duty product
- Mineral and ester bases and EP additives
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN03000025 | 25 | Can | 1 |
| LN03000200 | 200 | Drum | 1 |
| LN03001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 9 | ●●● |
| M | 8 - 10 | ●● |
| K | 6 - 8 | ●● |
| N | 7 - 10 | ●● |
| S | 9 - 11 | ●● |
| H | 7 - 10 | ●●● |
| O | - | - |



Inova S POWER CI

Inova S POWER CI is an innovative semi-synthetic water-miscible cooling lubricant based on high-refining mineral oils and esters derived from renewable raw materials. It is free of chlorine, boron, bactericides and nitrosatable amines.

Inova S POWER CI is a cooling lubricant specifically designed to be used for grinding ferrous materials, medium, high alloy steels and cast iron. However, it can also be used for other general chip removal operations. The formula has been designed to ensure high performance combined with an advanced safety profile and an extremely low chemical risk.

It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.997 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.5 - 9.7 |
| Refractometric factor | kg/L | 1.9 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Heavy duty product
- Mineral bases and ester bases
- Biocide-free
- Boron free
- Ottime performance su ghisa

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN03100025 | 25 | Can | 1 |
| LN03100200 | 200 | Drum | 1 |
| LN03101000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 10 | ●●● |
| M | 9 - 11 | ●● |
| K | 7 - 10 | ●●● |
| N | 7 - 10 | ● |
| S | 9 - 11 | ●● |
| H | 8 - 10 | ●●● |
| O | 5 - 7 | ● |



Inova E UNI

Inova E UNI is an innovative semi-synthetic water-miscible cooling lubricant based on high-refining mineral oils and esters derived from renewable raw materials. It is free of chlorine, boron, bactericides and nitrosatable amines.

Inova E UNI is a universal cooling lubricant designed to be used during medium and heavy-duty processing on all materials: steels, stainless steels, titanium, aluminium alloys, cast iron and even yellow alloys. The formula has been designed to ensure high performance combined with an advanced safety profile and an extremely low chemical risk.

It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.965 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.4 |
| Refractometric factor | kg/L | 1.2 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Universal product
- High content of mineral and ester base oils
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN04000025 | 25 | Can | 1 |
| LN04000200 | 200 | Drum | 1 |
| LN04001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 9 | ●●● |
| M | 7 - 10 | ●● |
| K | 6 - 9 | ●● |
| N | 5 - 10 | ●● |
| S | 8 - 11 | ●● |
| H | 5 - 8 | ●●● |
| O | - | - |



Inova S

Inova S is an innovative semi-synthetic water-miscible cooling lubricant based on high-refining mineral oils and esters derived from renewable raw materials. It is free of chlorine, boron, bactericides and nitrosatable amines.

Inova S is a cooling lubricant designed to be used during general light processing on all materials. The formula has been designed to ensure high performance combined with an advanced safety profile and an extremely low chemical risk.

It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.98 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.4 |
| Refractometric factor | kg/L | 1.6 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Product for light or medium machining
- Mineral bases and ester bases
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN05000025 | 25 | Can | 1 |
| LN05000200 | 200 | Drum | 1 |
| LN05001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 4 - 6 | ●● |
| M | 5 - 8 | ● |
| K | 3,5 - 5 | ● |
| N | 3,5 - 8 | ● |
| S | 7 - 9 | ● |
| H | 5 - 8 | ●● |
| O | - | - |



Futura E POWER

Futura E POWER is a water-miscible cooling lubricant based on esters derived from renewable raw materials. It is free of chlorine, boron, bactericides and nitrosatable amines.

Futura E POWER is a cooling lubricant specifically designed for very heavy-duty chip removal work on steels, stainless steels, titanium, nickel-based alloys and aluminium alloys. Due to its exceptional lubricity, the product is particularly suitable for all heavy-duty operations, even on difficult-to-machine materials.

It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.95 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.4 |
| Refractometric factor | kg/L | 1.1 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Heavy duty product
- High content of ester base oils
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN06000025 | 25 | Can | 1 |
| LN06000200 | 200 | Drum | 1 |
| LN06001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 8 | ●● |
| M | 7 - 10 | ●●● |
| K | 6 - 8 | ● |
| N | 6 - 8 | ●● |
| S | 6 - 11 | ●●● |
| H | 7 - 9 | ●● |
| O | - | - |



Futura S UNI

Futura S UNI is a water-miscible cooling lubricant based on esters derived from renewable raw materials.

It is free of chlorine, boron, bactericides and nitrosatable amines.

Futura S UNI is a universal cooling lubricant designed to be used in medium-duty machining in chip removal and grinding on all materials: steels, stainless steels, titanium, aluminium alloys, yellow alloys and cast iron. The formulation has an exceptionally high balance between lubricity and detergency, which makes it an extremely versatile product in all types of processing.

It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|--------------|
| Appearance concentrated | | Straw yellow |
| Density at 20°C | kg/L | 0.99 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.5 |
| Refractometric factor | kg/L | 2.0 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Universal product
- Ester bases
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN07000025 | 25 | Can | 1 |
| LN07000200 | 200 | Drum | 1 |
| LN07001000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 4 - 6 | ●● |
| M | 5 - 8 | ●● |
| K | 3,5 - 5 | ●● |
| N | 3,5 - 8 | ●● |
| S | 7 - 9 | ●● |
| H | 5 - 8 | ●● |
| O | 3,5 - 8 | ● |



Futura E UNI EP

Futura E UNI EP is a water-miscible cooling lubricant based on esters derived from renewable raw materials.

It is free of chlorine, boron, amines and bactericides donors of formaldehyde.

Futura E UNI EP is a universal cooling lubricant designed to be used for heavy-duty chip removal work on steels, stainless steels, aluminium alloys and yellow alloys. Due to its exceptional lubricity, the product is particularly suitable for all heavy-duty operations, even on difficult-to-machine materials.

It produces a very stable lactescent emulsion in water. Its characteristics make it suitable for use with fresh water.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-----------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.93 |
| Appearance emulsion | kg/L | Milky |
| pH (5%) | kg/L | 9.0 - 9.3 |
| Refractometric factor | kg/L | 1.1 |
| Water compatibility | °F | 5 - 15 |

VANTAGGI

- Universal product
- High content of ester base oils and EP additives
- Biodynamic product
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN07100025 | 25 | Can | 1 |
| LN07100200 | 200 | Drum | 1 |
| LN07101000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 8 | ● ● ● |
| M | 7 - 9 | ● ● ● |
| K | 5 - 8 | ● |
| N | 8 - 11 | ● ● |
| S | 9 - 11 | ● ● |
| H | 7 - 8 | ● ● ● |
| O | - | - |



Futura S UNI CI

Futura S UNI CI is a water-miscible cooling lubricant based on esters derived from renewable raw materials.

It is free of chlorine, boron, bactericides and nitrosatable amines.

Futura S UNI CI is a universal cooling lubricant designed to be used in light to medium operations, especially on ferrous materials: steels, stainless steels, titanium and cast iron. Due to its exceptional detergency and ability to decant even small chips, the product is particularly well-performing in grinding steel and cast iron. It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 0.998 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.4 - 9.7 |
| Refractometric factor | kg/L | 1.8 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Universal product
- Ester bases
- Biocide-free
- Boron free
- Ottime performance su ghisa

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN07200025 | 25 | Can | 1 |
| LN07200200 | 200 | Drum | 1 |
| LN07201000 | 1000 | Tank | 1 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 7 - 8 | ●● |
| M | 8 - 9 | ●● |
| K | 6 - 8 | ●●● |
| N | 7 - 9 | ●● |
| S | 9 - 12 | ●● |
| H | 8 - 9 | ●● |
| O | 5 - 7 | ● |



Futura S UNI AL

Futura S UNI AL is a water-miscible cooling lubricant based on esters derived from renewable raw materials.

It is free of chlorine, boron, bactericides and nitrosatable amines.

Futura S UNI AL is a universal cooling lubricant designed to be used in medium and heavy-duty processing, on ferrous materials, aluminium alloys and yellow alloys. Its formulation is inert even in the most stained aluminium series and, for this reason, is particularly suitable for processing these alloys. It produces a very stable translucent emulsion in water.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Light amber |
| Density at 20°C | kg/L | 0.98 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.4 |
| Refractometric factor | kg/L | 1.5 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Universal product
- Ester bases
- Biocide-free
- Boron free
- Ottime performance su alluminio

| CODE | Quantità L | Confezione | Price List Page |
|------------|------------|------------|-----------------|
| LN07300025 | 25 | Can | 2 |
| LN07300200 | 200 | Drum | 2 |
| LN07301000 | 1000 | Tank | 2 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 8 | ●● |
| M | 7 - 9 | ●● |
| K | 5 - 7 | ●● |
| N | 8 - 10 | ●●● |
| S | 7 - 8 | ●● |
| H | 7 - 9 | ●● |
| O | - | - |



Futura S

Futura S is a water-miscible cooling lubricant based on esters derived from renewable raw materials. It is free of chlorine, bactericides and nitrosatable amines.

Futura S is a coolant designed for light to medium duty machining on all types of materials. When added to water, it forms a translucent emulsion that is very stable, and highly resistant to bacterial attack.

Its characteristics make it suitable for use with all types of water, both hard and soft.



MSDS

PHYSICAL PROPERTIES

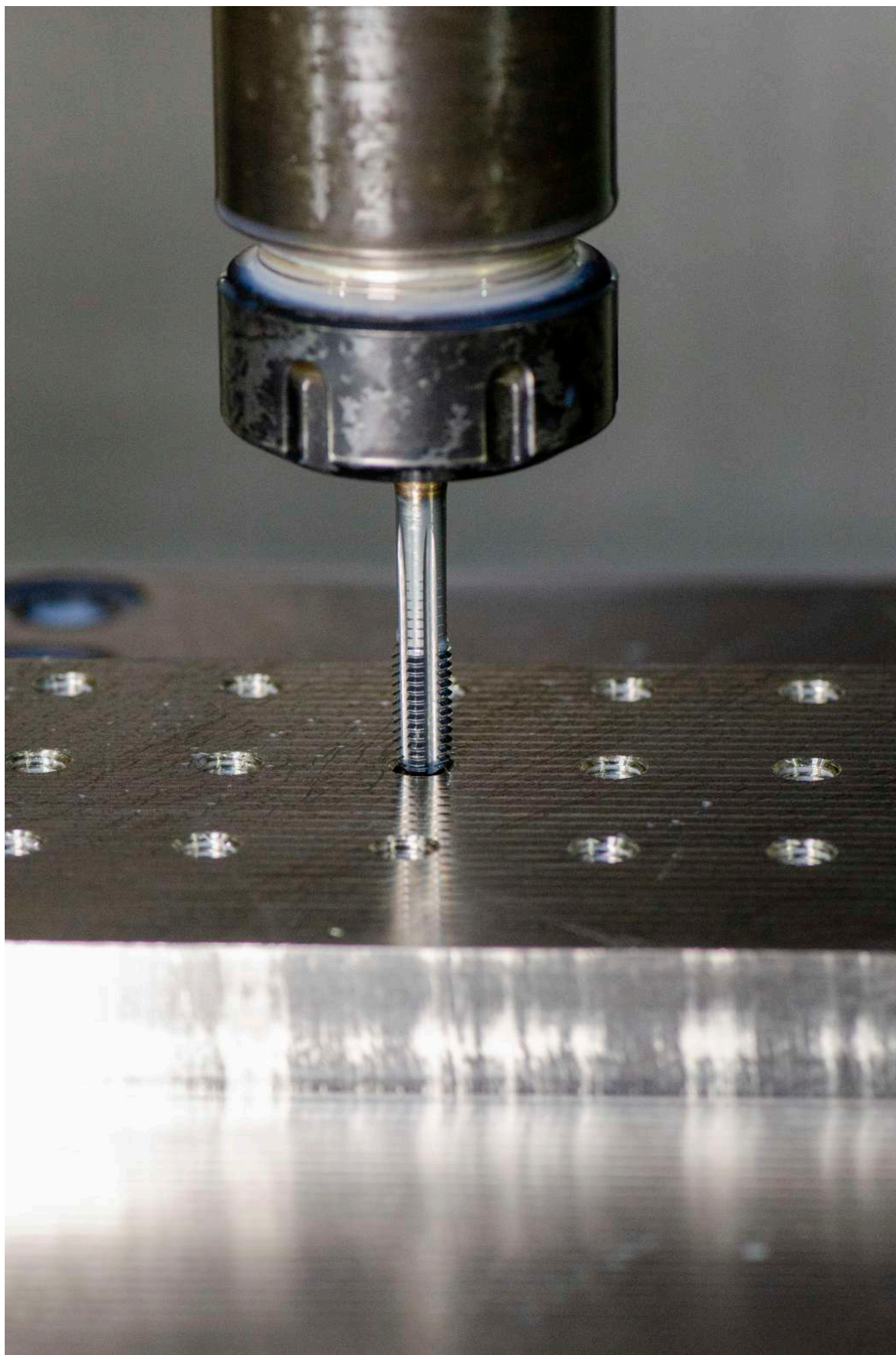
| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 1.01 |
| Appearance emulsion | kg/L | Translucent |
| pH (5%) | kg/L | 9.2 - 9.3 |
| Refractometric factor | kg/L | 2.5 |
| Water compatibility | °F | 5 - 50 |

VANTAGGI

- Product for light or medium machining
- Ester bases
- Biocide-free

| CODE | Quantità L | Confezione | Price List Page |
|------------|---------------|------------|--------------------|
| LN08000025 | 25 | Can | 2 |
| LN08000200 | 200 | Drum | 2 |
| LN08001000 | 1000 | Tank | 2 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 6 - 8 | ●● |
| M | 8 - 10 | ● |
| K | 7 - 8 | ●● |
| N | 7 - 10 | ● |
| S | - | - |
| H | 7 - 8 | ● |
| O | 4 - 6 | ● |



Multi Synt

Multi Synt is suitable for both general chip removal operations, where a transparent product is required, as well as indoor/outdoor grinding and plunge or shape grinding. It is compatible with cast iron, steels and all ferrous metals in general but can be used if, occasionally, yellow or aluminium alloys are machined.

Due to its particular polymeric nature, the product needs to be diluted in osmotised water. Despite this, it maintains excellent foam control.

Multi Synt is a state-of-the-art product in terms of health and eco-toxicology, being free of borate compounds and bactericides.



MSDS

PHYSICAL PROPERTIES

| | | |
|-------------------------|------|-------------|
| Appearance concentrated | | Amber |
| Density at 20°C | kg/L | 1.045 |
| Appearance emulsion | kg/L | Transparent |
| pH (5%) | kg/L | 9.3 |
| Refractometric factor | kg/L | 2.8 |
| Water compatibility | °F | 0 |

VANTAGGI

- Product for light or medium machining
- Polymer bases
- Biocide-free
- Boron free

| CODE | Quantità L | Confezione | Price List Page |
|------------|------------|------------|-----------------|
| LN09000025 | 25 | Can | 2 |
| LN09000200 | 200 | Drum | 2 |
| LN09001000 | 1000 | Tank | 2 |

| Materiali | Concentrazioni % | APPLICATION |
|-----------|------------------|-------------|
| P | 2 - 5 | ●● |
| M | 4 - 9 | ● |
| K | 2 - 5 | ●●● |
| N | 2 - 6 | ● |
| S | - | - |
| H | 3 - 6 | ●● |
| O | - | - |



*your safety
our future*



uture.

**Fluidi interi
da taglio**



MIRZAN:
neat ester based fluids

**COMPLETELY FREE OF
MINERAL OILS**



MIRZAN

Mirzan represents our line of neat ester based cutting fluids, totally mineral oil free. It is available with a wide choice of viscosity, starting at 5 and up to 40 cSt.

Compared to neat oils of petroleum origin and of the same viscosity it has significant advantages such as: high flash point, low fuel venting and higher tool yield.

They also represent a choice that takes a positive view of the health of operators and the environment because they have no occupational exposure limits in relation to the mineral oil and are almost completely biodegradable.

future.



Mirzan

Mirzan is a neat fluid based on synthetic esters and antioxidant additives. The product is designed for universal use during heavy-duty work on all materials. Excellent in turning and milling, its formulation fully protects the health of the operator. It has an outstanding detergency power, and is free of mineral oils, chlorinated compounds, PCB/PCT.



MSDS

PHYSICAL PROPERTIES

| Serie | 720 | 740 |
|--------------------------|-----|-----|
| Viscosity at 40°C | | |
| Viscosity at 100°C | | |
| Viscosity index | | |
| Flash point (COC) | | |
| Pour point | | |
| Specific weight at 15°C. | | |
| Copper corrosion test | | |

VANTAGGI

- High flash point
- Low fuel venting
- High tool performance
- Very oxidation-stable
- Does not stain yellow alloys

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN10000025 | 720 | 25 | Can | 3 |
| LN10000200 | 720 | 200 | Drum | 3 |
| LN10001000 | 720 | 1000 | Tank | 3 |
| LN10010025 | 740 | 25 | Can | 3 |
| LN10010200 | 740 | 200 | Drum | 3 |
| LN10011000 | 740 | 1000 | Tank | 3 |



Mirzan S

Mirzan S is a neat fluid based on synthetic esters that ensure exceptionally low atomization and a high flash point.

The product has been designed to be universally used during heavy-duty work on steels, aluminium alloys and yellow alloys. Excellent in turning and rectification, its formulation fully protects the health of the operator.

It has an outstanding detergency power, a high service life and an important anti-welding power in view of its viscosity.



MSDS

PHYSICAL PROPERTIES

| Serie | 705 | 708 | 710 EP |
|--------------------------|-----|-----|--------|
| Viscosity at 40°C | | | |
| Viscosity at 100°C | | | |
| Viscosity index | | | |
| Flash point (COC) | | | |
| Pour point | | | |
| Specific weight at 15°C. | | | |
| Copper corrosion test | | | |

VANTAGGI

- High flash point
- Low fuel venting
- High tool performance
- Very oxidation-stable
- Does not stain yellow alloys
- High ageing resistance

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|---------------|---------|--------------------|
| LN10110025 | 705 | 200 | Can | 3 |
| LN10110200 | 705 | 25 | Drum | 3 |
| LN10111000 | 705 | 1000 | Tank | 3 |
| LN10100025 | 708 | 200 | Can | 3 |
| LN10100200 | 708 | 25 | Drum | 3 |
| LN10101000 | 708 | 1000 | Tank | 3 |
| LN10120025 | 710 EP | 25 | Can | 3 |
| LN10120200 | 710 EP | 200 | Drum | 3 |
| LN10121000 | 710 EP | 1000 | Tank | 3 |



Mirzan EP

Mirzan EP is a neat synthetic ester-based fluid that is completely free of mineral oils.

The product has been formulated with special wear-resistant and EP additives that make it suitable for use during very heavy work on variously alloyed steels, tool steels and stainless steels, aluminium alloys and yellow alloys.

It has an extraordinary lubrication power, a high service life and an important EP power due to its viscosity.



MSDS

PHYSICAL PROPERTIES

| Serie | 715 | 722 | 730 |
|--------------------------|-----|-----|-----|
| Viscosity at 40°C | | | |
| Viscosity at 100°C | | | |
| Viscosity index | | | |
| Flash point (COC) | | | |
| Pour point | | | |
| Specific weight at 15°C. | | | |
| Copper corrosion test | | | |

VANTAGGI

- High flash point
- Low fuel venting
- High tool performance
- Very oxidation-stable
- Does not stain yellow alloys

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|---------------|---------|--------------------|
| LN10200025 | 715 | 25 | Can | 3 |
| LN10200200 | 715 | 200 | Drum | 3 |
| LN10201000 | 715 | 1000 | Tank | 3 |
| LN10210025 | 722 | 25 | Can | 3 |
| LN10210200 | 722 | 200 | Drum | 3 |
| LN10211000 | 722 | 1000 | Tank | 3 |
| LN10220025 | 730 | 25 | Can | 3 |
| LN10220200 | 730 | 200 | Drum | 3 |
| LN10221000 | 730 | 1000 | Tank | 3 |



Millfluid MF

Millfluid MF is a neat, inactive cutting fluid, compatible for processing on yellow alloys, formulated with paraffinic mineral bases, and wear-resistant, anti-oxidant and anti-corrosive additives. The product has been designed for the removal of medium-duty ferrous and non-ferrous chips in manual and automatic machines. It has good oxidation and thermal degradation stability. Good lubricity and anti-corrosive powers. Limited smoke and mist formation and low foaming tendency. There are no active chlorine and sulphur additives. Millfluid MF is used during general, light-duty grinding, lapping, sanding and chip removal. The specific chlorine-free formulation also allows it to be used in hydraulic controls and for lubricating machine tool guides where only one product is required. As a hydraulic oil it complies with ISO 6743/4 Type HM and DIN 51502, Class HLP-D specifications.



MSDS

PHYSICAL PROPERTIES

| Serie | 32 | 46 | 68 |
|--------------------------|----|----|----|
| Viscosity at 40°C | | | |
| Viscosity at 100°C | | | |
| Viscosity index | | | |
| Flash point (COC) | | | |
| Pour point | | | |
| Specific weight at 15°C. | | | |
| Copper corrosion test | | | |

VANTAGGI

- High lubricity and anti-corrosive powers
- Limited smoke and mist formation and low foaming tendency
- Good surface finish of machined parts
- Does not stain yellow alloys

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN13000025 | 32 | 25 | Can | 3 |
| LN13000200 | 32 | 200 | Drum | 3 |
| LN13001000 | 32 | 1000 | Tank | 3 |
| LN13010025 | 46 | 25 | Can | 3 |
| LN13010200 | 46 | 200 | Drum | 3 |
| LN13011000 | 46 | 1000 | Tank | 3 |
| LN13020025 | 68 | 25 | Can | 3 |
| LN13020200 | 68 | 200 | Drum | 3 |
| LN13021000 | 68 | 1000 | Tank | 3 |



Millfluid 5

Millfluid 5 is a series of neat cutting fluids formulated with refined, high purity mineral bases. Good lubrication and wear-resistant powers due to the presence of EP additives that make it suitable for processing all materials. The product contains no chlorinated additives and is compatible with yellow alloys.



MSDS

PHYSICAL PROPERTIES

| | |
|--------------------------|-----|
| Serie | 521 |
| Viscosity at 40°C | |
| Viscosity at 100°C | |
| Viscosity index | |
| Flash point (COC) | |
| Pour point | |
| Specific weight at 15°C. | |
| Copper corrosion test | |

VANTAGGI

- Excellent skin compatibility
- Maintaining of the lubrication film even during the application of high loads
- High aging and oxidation stability
- Reduced evaporation/oil misting

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN14000025 | 521 | 25 | Can | 3 |
| LN14000200 | 521 | 200 | Drum | 3 |
| LN14001000 | 521 | 1000 | Tank | 3 |



Tap Fluid BLUE

Tap Fluid Blue is a neat universal cutting fluid with high lubrication power and EP additives, free of chlorine, making it particularly suitable for threading and tapping operations. The selected EP and wear-resistant additive package allows it to be used on all ferrous materials such as construction steels, hardened and stainless steels, nickel alloys and titanium.



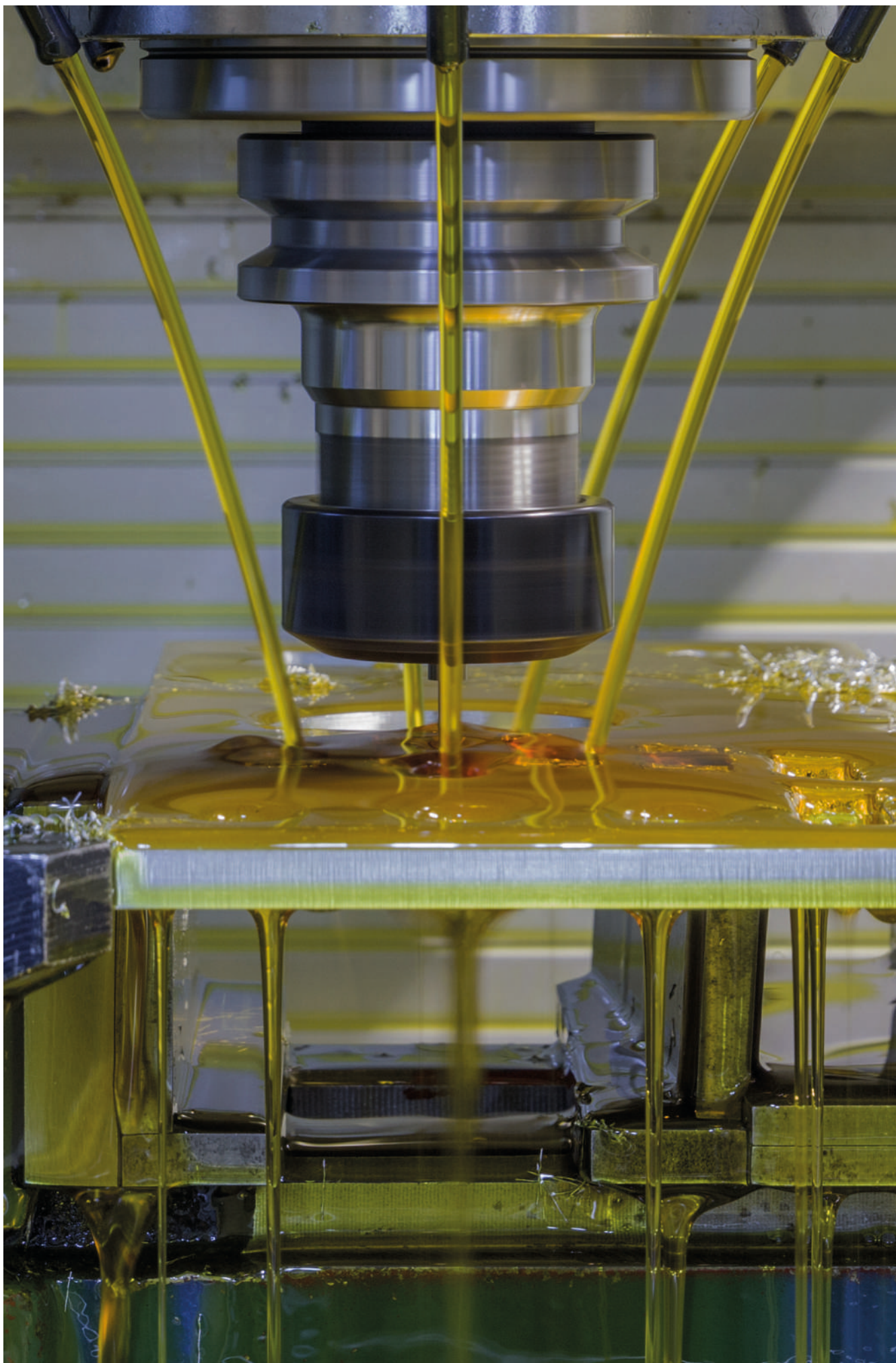
MSDS

PHYSICAL PROPERTIES

VANTAGGI

- Esente cloro
- Adatto per lavorazioni di foratura, filettatura, fresatura e maschiatura
- Elevato potere lubrificante

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|--------------|--------------------|
| LN15000005 | 5 | Can | 3 |
| LN15000012 | 12 | Box 12 x 1 L | 3 |
| LN15000025 | 25 | Can | 3 |



Tap Fluid AL

Tap Fluid AL is a neat universal cutting fluid with high lubrication power based on natural and synthetic esters, free of chlorine and mineral oils, making it particularly suitable for threading and tapping operations.

Ideal for use on aluminium alloys, even those sensitive to staining and in general on all ferrous materials such as construction steels, tempered and stainless steels, nickel alloys and titanium.



MSDS

PHYSICAL PROPERTIES

VANTAGGI

- Esente cloro e oli minerali
- Adatto per lavorazioni di foratura, filettatura, fresatura e maschiatura
- Ideale su leghe di alluminio
- Può essere utilizzato in impianti di lubrificazione minimale

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|--------------|--------------------|
| LN15100005 | 5 | Can | 3 |
| LN15100012 | 12 | Box 12 x 1 L | 3 |
| LN15100025 | 25 | Can | 3 |



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**Lubrificanti
per l'industria**



Abacus

Abacus is a superior quality paraffinic mineral based hydraulic oil with wear-resistant and anti-oxidant additives. The product is designed to be used in hydraulic systems on machine tools, hydraulic presses, forklifts, rolling mills, trolleys, earth moving machines, hydraulic couplings and moderately loaded reduction gears. Given the low pouring point, they are recommended in the pneumatic industry and in line lubrication systems operating at low temperatures. It has an excellent viscosity index and this makes it particularly stable despite changing temperatures: it promotes rapid start-up of the systems at low temperatures and prevents losses in volumetric efficiency of the pumps. The wear-resistant additive forms a lubrication film between the moving parts, significantly reducing their deterioration. The anti-corrosive additive effectively protects sensitive parts of the systems even in the presence of moisture. The antioxidant additive acts on the lubricant itself allowing extended servicing intervals without thickening or forming harmful deposits.



MSDS

PHYSICAL PROPERTIES

| Series | | 10 | 15 | 22 | 32 | 46 | 68 | 100 |
|--------------------------|------|-------|-------|-------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 10 | 15 | 22 | 32 | 46 | 68 | 100 |
| Viscosity at 100°C | cSt | 3,0 | 3,4 | 4,4 | 5,5 | 6,8 | 9 | 11,2 |
| Viscosity index | | 137 | 115 | 115 | 110 | 110 | 105 | 105 |
| Flash point (COC) | °C | 180 | 200 | 200 | 220 | 225 | 230 | 235 |
| Pour point | °C | -26 | -30 | -30 | -30 | -30 | -27 | -27 |
| Specific weight at 15°C. | kg/l | 0,850 | 0,850 | 0,865 | 0,867 | 0,877 | 0,880 | 0,885 |

SPECIFICHE

ISO-L-HM
 DIN 51524 P ART II HLP
 DENISON HF-0, HF-1, HF-2
 AFNOR E 48-603
 VICKERS CETOP RP67H
 VICKERS I-286 S; M-2950 S
 FZG 12° STADIO
 CINCINNATI MACHINE
 USS-127, USS- 136

VANTAGGI

- Excellent natural viscosity index
- Due to the low pouring point it is also recommended in pneumatic applications
- Good rust protection

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN20000025 | 10 | 25 | Can | 4 |
| LN20000200 | 10 | 200 | Drum | 4 |
| LN20001000 | 10 | 1000 | Tank | 4 |
| LN20010025 | 15 | 25 | Can | 4 |
| LN20010200 | 15 | 200 | Drum | 4 |
| LN20011000 | 15 | 1000 | Tank | 4 |
| LN20020005 | 22 | 5 | Can | 4 |
| LN20020025 | 22 | 25 | Can | 4 |
| LN20020200 | 22 | 200 | Drum | 4 |
| LN20021000 | 22 | 1000 | Tank | 4 |
| LN20030005 | 32 | 5 | Can | 4 |
| LN20030025 | 32 | 25 | Can | 4 |

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN20030200 | 32 | 200 | Drum | 4 |
| LN20031000 | 32 | 1000 | Tank | 4 |
| LN20040025 | 46 | 25 | Can | 4 |
| LN20040200 | 46 | 200 | Drum | 4 |
| LN20041000 | 46 | 1000 | Tank | 4 |
| LN20050025 | 68 | 25 | Can | 4 |
| LN20050200 | 68 | 200 | Drum | 4 |
| LN20051000 | 68 | 1000 | Tank | 4 |
| LN20060025 | 100 | 25 | Can | 4 |
| LN20060200 | 100 | 200 | Drum | 4 |
| LN20061000 | 100 | 1000 | Tank | 4 |



Abacus BIO

Abacus BIO is a hydraulic oil based on organic esters and has far superior self-extinguishing characteristics, flash point and self-ignition temperature than mineral based oil. The product is designed to be used in all hydraulic applications where it is preferable to use products that provide greater guarantees from a fire safety point of view. Its biodegradability makes it ideal where there is a problem related to environmental pollution. It has a very high viscosity index and is exceptionally stable at varying temperatures, ensuring optimum system operation even at varying temperatures. The low pouring point allows the systems to be operated even in cold conditions. It has good unctuousness, lubricating, anti-welding and compatibility properties.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Series | | 46 |
| Viscosity at 40°C | cSt | 46 |
| Viscosity at 100°C | cSt | 9,2 |
| Viscosity index | | 181 |
| Flash point (COC) | °C | 290 |
| Pour point | °C | -15 |
| Specific weight at 15°C. | kg/l | 0,925 |

SPECIFICHE

| |
|-----------------------|
| ISO-L-HEES |
| DIN 51524 PART II HLP |

VANTAGGI

- Biodegradable
- High load resistance
- Compatible with mineral oils

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|---------------|---------|--------------------|
| LN21000025 | 46 | 25 | Can | 4 |
| LN21000200 | 46 | 200 | Drum | 4 |
| LN21001000 | 46 | 1000 | Tank | 4 |



Abacus HVI

Abacus HVI is a high quality paraffinic mineral based hydraulic oil, wear-resistant additives and viscosity index improver additives. The product is designed to be used in hydraulic systems on machine tools, hydraulic presses, forklifts, rolling mills, trolleys, earth moving machines, hydraulic couplings and moderately loaded reduction gears. Given the low pouring point, they are recommended in the pneumatic industry and in line lubrication systems operating at low temperatures. It has a very high viscosity index and is exceptionally stable despite changes in temperature. The wear-resistant additive forms a lubrication film between the moving parts, significantly reducing their deterioration. The anti-corrosive additive effectively protects sensitive parts of the systems even in the presence of moisture. The antioxidant additive acts on the lubricant itself allowing extended servicing intervals without thickening or forming harmful deposits.



MSDS

PHYSICAL PROPERTIES

| Series | | 15 | 22 | 32 | 46 | 68 |
|--------------------------|------|-------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 14 | 22 | 32 | 46 | 68 |
| Viscosity at 100°C | cSt | 3,7 | 5,0 | 6,2 | 10,2 | 13,5 |
| Viscosity index | | 165 | 165 | 160 | 160 | 150 |
| Flash point (COC) | °C | 170 | 180 | 180 | 210 | 220 |
| Pour point | °C | -36 | -36 | -36 | -36 | -27 |
| Specific weight at 15°C. | kg/l | 0,870 | 0,870 | 0,875 | 0,880 | 0,881 |

SPECIFICHE

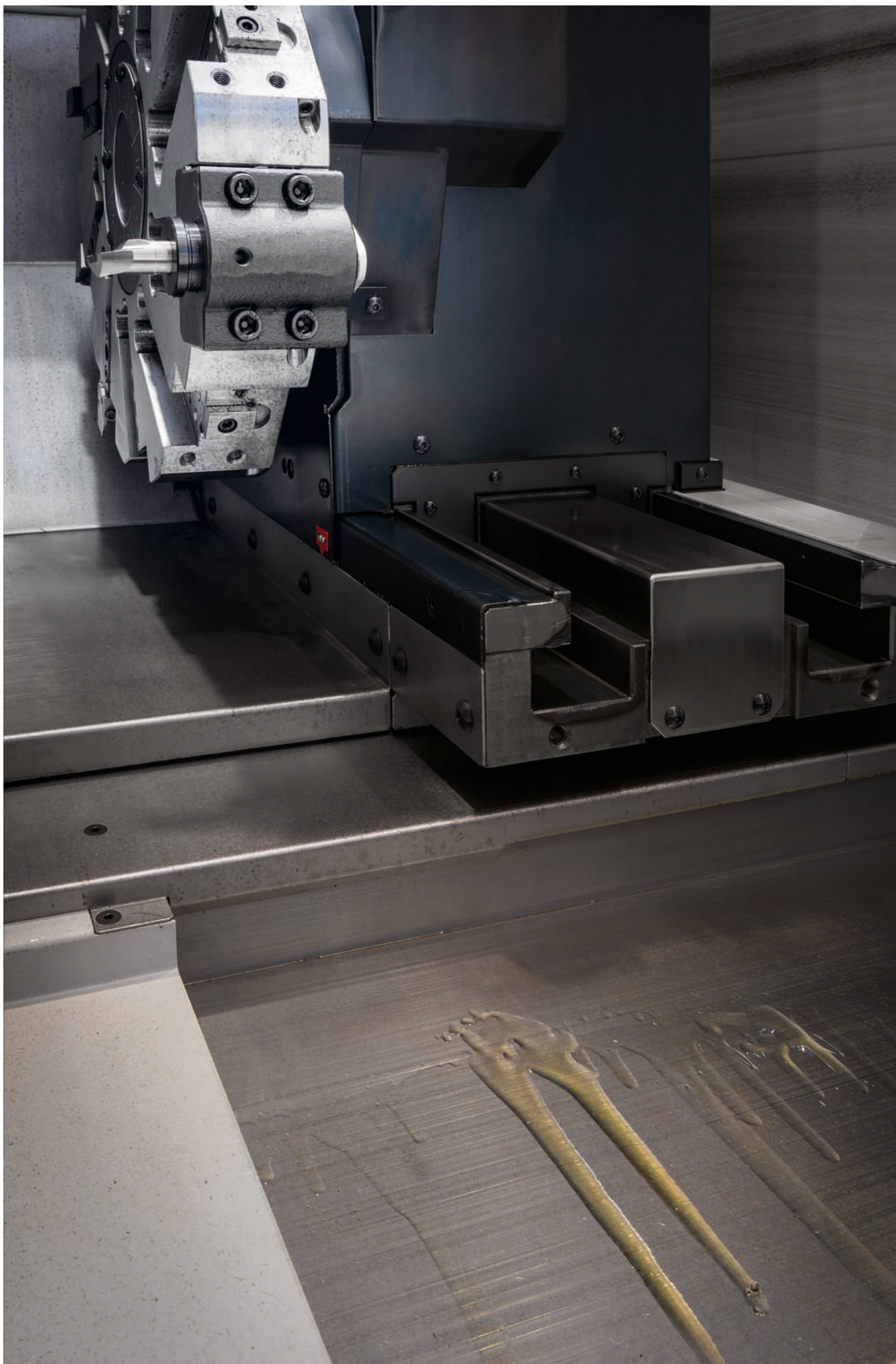
ISO-L-HV
DIN 51524 P ART III HVLP
DENISON HF-0, HF-1, HF-2
AFNOR E 48-603 HV
VICKERS CETOP RP67H
VICKERS I-286 S; M-2950 S
CINCINNATI MACHINE
EATON BROCHURE

VANTAGGI

- High viscosity index
- Due to the low pouring point it is also recommended in pneumatic applications
- Good rust protection

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN22000025 | 15 | 25 | Can | 4 |
| LN22000200 | 15 | 200 | Drum | 4 |
| LN22001000 | 15 | 1000 | Tank | 4 |
| LN22010025 | 22 | 25 | Can | 4 |
| LN22010200 | 22 | 200 | Drum | 4 |
| LN22011000 | 22 | 1000 | Tank | 4 |
| LN22020025 | 32 | 25 | Can | 4 |
| LN22020200 | 32 | 200 | Drum | 4 |

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN22021000 | 32 | 1000 | Tank | 4 |
| LN22030025 | 46 | 25 | Can | 4 |
| LN22030200 | 46 | 200 | Drum | 4 |
| LN22031000 | 46 | 1000 | Tank | 4 |
| LN22040025 | 68 | 25 | Can | 4 |
| LN22040200 | 68 | 200 | Drum | 4 |
| LN22041000 | 68 | 1000 | Tank | 4 |



Carrier

Carrier is a guide and slide rail oil consisting of selected oils and special zinc-free additives that promote high adhesiveness and lubricant film size.

The product has been specifically designed for the lubrication of hydrostatic guides rails, both horizontal and vertical, and is also ideal for guides and slide rails, hydraulic circuits and slow rolling bearings.

The EP additives ensure that lubrication even under high loads and in oil-loss and oil circulation lubrication systems.



MSDS

PHYSICAL PROPERTIES

| Series | | 1 | 2 | 3 | 4 |
|-------------------------|------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 32 | 68 | 100 | 220 |
| Viscosity at 100°C | cSt | 5,2 | 9 | 11,6 | 19,5 |
| Viscosity index | | 110 | 110 | 104 | 101 |
| Flash point (COC) | °C | 220 | 230 | 240 | 240 |
| Pour point | °C | -24 | -21 | -20 | -9 |
| Specific weight at 15°C | kg/l | 0,875 | 0,880 | 0,896 | 0,896 |

SPECIFICHE

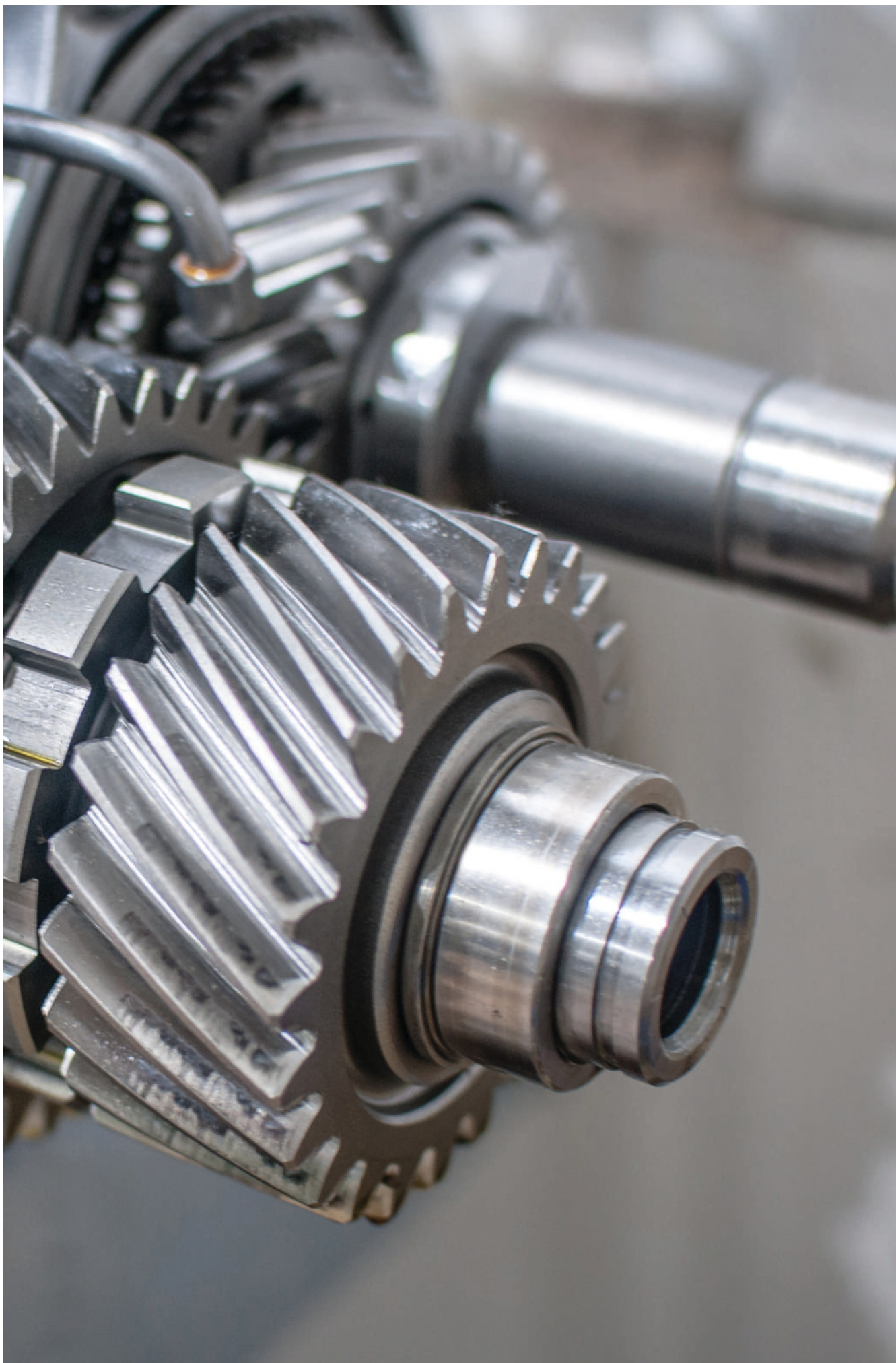
ISO-L-HG

CINNINNATI MILACRON P47, P50 i P53

VANTAGGI

- High adhesiveness
- High EP characteristics
- High demulsivity

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|---------------|---------|--------------------|
| LN23000025 | 1 | 25 | Can | 4 |
| LN23000200 | 1 | 200 | Drum | 4 |
| LN23001000 | 1 | 1000 | Tank | 4 |
| LN23010025 | 2 | 25 | Can | 4 |
| LN23010200 | 2 | 200 | Drum | 4 |
| LN23011000 | 2 | 1000 | Tank | 4 |
| LN23020025 | 3 | 25 | Can | 4 |
| LN23020200 | 3 | 200 | Drum | 4 |
| LN23021000 | 3 | 1000 | Tank | 4 |
| LN23030025 | 4 | 25 | Can | 4 |
| LN23030200 | 4 | 200 | Drum | 4 |
| LN23031000 | 4 | 1000 | Tank | 4 |



Gear Power

Gear Power is a mineral based gear oil with sulphur and phosphorus compounds and no lead additives.

The product is designed to be used under extreme pressure conditions (they pass EP tests such as TIMKEN, 4 ball EP, 4 ball water) and therefore on any type of gear: cylindrical, helical, conical, industrial hypoid, with worm screw (in the latter two cases only where polyalkylene glycol synthetic oils are not prescribed). It is also suitable for the lubrication of flat and rolling bearings and in circulating or oil mist lubrication systems.

It has excellent thermal and oxidation resistance of steel and copper components and ensures swift water separation under all operating conditions.

It has excellent resistance to high temperatures and therefore meets the demands of modern industry.



MSDS

PHYSICAL PROPERTIES

| Series | | 68 | 100 | 150 | 220 | 320 | 460 | 680 |
|--------------------------|------|-------|-------|-------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 68 | 100 | 150 | 220 | 320 | 460 | 680 |
| Viscosity at 100°C | cSt | 8,6 | 11,8 | 14,7 | 19,5 | 24 | 31 | 38 |
| Viscosity index | | 105 | 105 | 100 | 100 | 98 | 98 | 98 |
| Flash point (COC) | °C | 220 | 230 | 235 | 235 | 240 | 245 | 250 |
| Pour point | °C | -24 | -24 | -21 | -18 | -18 | -15 | -15 |
| Specific weight at 15°C. | kg/l | 0,880 | 0,888 | 0,890 | 0,895 | 0,900 | 0,905 | 0,905 |

SPECIFICHE

DIN 51517 part 3
U.S. STEEL 224
AGMA 9005 - E02
ISO 12925-1 CKC/CKD
David Brown S1.53.101
GM LS 2 EP Gear Oil
Cincinnati Machine Gear

VANTAGGI

- High load resistance
- Excellent corrosion protection
- High demulsivity

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|-----------|-----------------|
| LN24000025 | 68 | 25 | Jerry can | 4 |
| LN24000200 | 68 | 200 | Drum | 4 |
| LN24001000 | 68 | 1000 | Tank | 4 |
| LN24010025 | 100 | 25 | Can | 4 |
| LN24010200 | 100 | 200 | Drum | 4 |
| LN24011000 | 100 | 1000 | Tank | 4 |
| LN24020025 | 150 | 25 | Jerry can | 4 |
| LN24020200 | 150 | 200 | Drum | 4 |
| LN24021000 | 150 | 1000 | Tank | 4 |
| LN24030005 | 220 | 5 | Can | 4 |
| LN24030025 | 220 | 25 | Jerry can | 4 |

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|-----------|-----------------|
| LN24030200 | 220 | 200 | Drum | 4 |
| LN24031000 | 220 | 1000 | Tank | 4 |
| LN24040025 | 320 | 25 | Jerry can | 4 |
| LN24040200 | 320 | 200 | Drum | 4 |
| LN24041000 | 320 | 1000 | Tank | 4 |
| LN24050025 | 460 | 25 | Can | 4 |
| LN24050200 | 460 | 200 | Drum | 4 |
| LN24051000 | 460 | 1000 | Tank | 4 |
| LN24060025 | 680 | 25 | Can | 4 |
| LN24060200 | 680 | 200 | Drum | 4 |
| LN24061000 | 680 | 1000 | Tank | 4 |



Comaria

Comaria is a superior quality mineral-based compressor oil with a high viscosity index and zinc-free. The product is designed to be used on piston, vane, screw compressors with standard change intervals. It is also used for the lubrication of pneumatic tools, lubricators in general or hydraulic systems not subject to high loads.

It has a minimal tendency to form deposits and has a high resistance to oxidation.

The antioxidant additive allows the product to be used in rotary or alternative compressors under heavy working conditions for a medium to high replacement interval.

The zinc-free additive effectively counteracts the formation of hygroscopic compounds in humid environments in which the compressor is operating.



MSDS

PHYSICAL PROPERTIES

| Series | | 32 | 46 | 68 | 100 |
|--------------------------|------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 32 | 46 | 68 | 100 |
| Viscosity at 100°C | cSt | 5,5 | 6,8 | 8,7 | 11,5 |
| Viscosity index | | 103 | 103 | 102 | 103 |
| Flash point (COC) | °C | 220 | 225 | 230 | 235 |
| Pour point | °C | -30 | -30 | -27 | -27 |
| Specific weight at 15°C. | kg/l | 0,867 | 0,877 | 0,880 | 0,885 |

SPECIFICHE

DIN 51506 VDL

VANTAGGI

- Zinc-free
- High viscosity index
- High oxidation resistance

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN25000025 | 32 | 25 | Can | 4 |
| LN25000200 | 32 | 200 | Drum | 4 |
| LN25001000 | 32 | 1000 | Tank | 4 |
| LN25010025 | 46 | 25 | Can | 4 |
| LN25010200 | 46 | 200 | Drum | 4 |
| LN25011000 | 46 | 1000 | Tank | 4 |
| LN25020025 | 68 | 25 | Can | 4 |
| LN25020200 | 68 | 200 | Drum | 4 |
| LN25021000 | 68 | 1000 | Tank | 4 |
| LN25030025 | 100 | 25 | Can | 4 |
| LN25030200 | 100 | 200 | Drum | 4 |
| LN25031000 | 100 | 1000 | Tank | 4 |



Comaria Sint

Comaria Sint is a synthetic-based compressor oil of superior quality and advanced concept performance additives.

The product is designed to be used on reciprocating and rotary air compressors even with particularly high compressed air temperatures. It is also used for the lubrication of crank gears of reciprocating compressors with separate cylinder lubrication.

It has a minimal tendency to form carbon deposits due to the careful selection of very low ash and metal components.

It is oxidation and wear resistant and has high EP, antifoam and demulsivity characteristics.

The special formulation obtained with very low volatility bases generates a low thickening tendency: this allows a high thermal stability to be maintained even when localised peaks of high temperatures occur.



MSDS

PHYSICAL PROPERTIES

| Series | | 32 | 46 | 68 |
|--------------------------|------|-------|-------|-------|
| Viscosity at 40°C | cSt | 32 | 43 | 63,9 |
| Viscosity at 100°C | cSt | 5,6 | 7,6 | 9,63 |
| Viscosity index | | 130 | 140 | 132 |
| Flash point (COC) | °C | 235 | 265 | 275 |
| Pour point | °C | -35 | -33 | -30 |
| Specific weight at 15°C. | kg/l | 0,843 | 0,830 | 0,854 |

SPECIFICHE

DIN 51506 (VBL, VCL, VDL)

Odporność na rdzę (ISO/DP 7120A, IP 135A)

Odporność na korozję (ISO 2160, IP154)

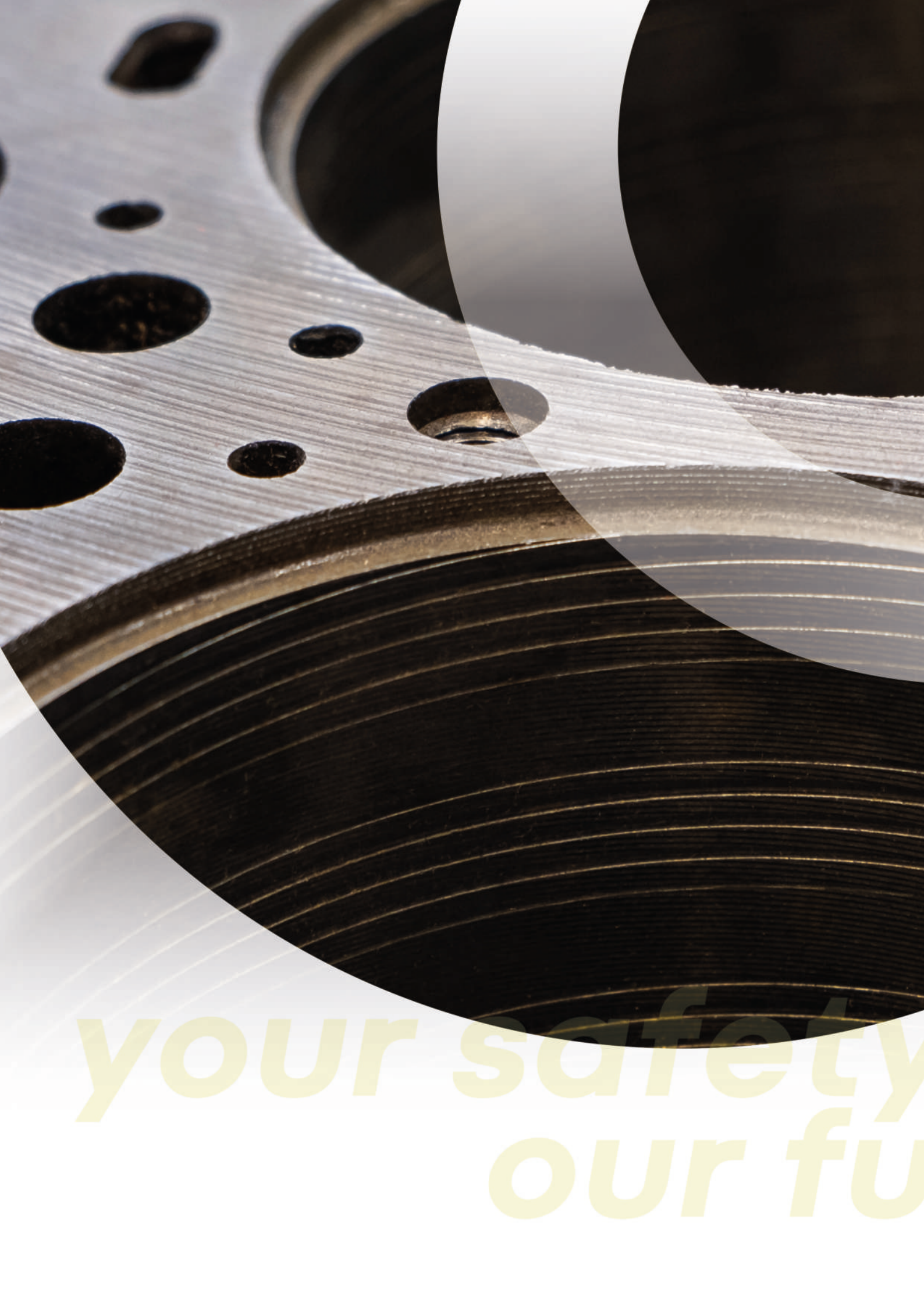
Antypienny (ISO/DP 6247, IP 146)

Deemulgowalność (ISO/DP 6614, ASTM D 1401)

VANTAGGI

- Thermal stability
- High EP characteristics
- Very low residuals

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|---------------|---------|--------------------|
| LN25100025 | 32 | 25 | Can | 4 |
| LN25100200 | 32 | 200 | Drum | 4 |
| LN25101000 | 32 | 1000 | Tank | 4 |
| LN25110025 | 46 | 25 | Can | 4 |
| LN25110200 | 46 | 200 | Drum | 4 |
| LN25111000 | 46 | 1000 | Tank | 4 |
| LN25120025 | 68 | 25 | Can | 4 |
| LN25120200 | 68 | 200 | Drum | 4 |
| LN25121000 | 68 | 1000 | Tank | 4 |



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Protex O

Protex O is an oil-based protective fluid consisting of paraffinic bases with added anti-corrosive and anti-oxidant additives, specifically designed to protect semi-finished products or finished products that must withstand extreme storage or transport conditions. The product is easily applied by brushing on previously dried parts and can be removed with rags, industrial cleaners, alkaline solutions and/or petroleum solvents. The excellent covering capacity and the exceptional anti-rust power allow the product to effectively grip the part to be protected and ensure effective protection even in critical conditions for periods exceeding 12 months. The light graduation is suitable for protecting small components with even complex geometries; it is preferably used by immersion or spray but can also be dispensed by brush. The heavy grade, due to its high adhesive strength, is also used on large sized components and is preferably applied by brush or pad.



MSDS

PHYSICAL PROPERTIES

| Series | | Light | Heavy |
|-------------------------|------|-------|-------|
| Viscosity at 40°C | cSt | 22 | 160 |
| Viscosity at 100°C | cSt | 4.6 | 16 |
| Viscosity index | | 127 | 101 |
| Flash point (COC) | °C | 175 | 230 |
| Scrolling point | °C | -18 | -18 |
| Specific weight at 15°C | kg/L | 0.865 | 0.900 |

VANTAGGI

- Protection for periods longer than 12 months
- Easy to apply
- Versatility of use (shipping + storage)

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|-----------|-----------------|
| LN30010025 | Light | 25 | Jerry can | 5 |
| LN30010200 | Light | 200 | Drum | 5 |
| LN30011000 | Light | 1000 | Cube | 5 |
| LN30020025 | Heavy | 25 | Jerry can | 5 |
| LN30020200 | Heavy | 200 | Drum | 5 |
| LN30021000 | Heavy | 1000 | Cube | 5 |



Protex W

PROTEX W is a wax-based protective fluid for metal components that are stored in high humidity and high salinity conditions. Thanks to a specific formulation and excellent balance of detergents and solvents, PROTEX W has excellent degreasing properties and a dewatering effect.

The product passes ASTM B117 tests (salt spray test) with 90 hours of resistance. PROTEX W retains its protective capacity for 15 months in case of indoor storage while outdoors, by allocating the material to covered areas, it manages to maintain its protective capacity for 9 months.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 40°C | cSt | 3.5 |
| Flash point (COC) | °C | 78 |
| Pour point | °C | -30 |
| Specific weight at 15°C. | kg/L | 0.820 |

VANTAGGI

- Protection for periods exceeding 12 months even in saline atmospheres
- Easy to apply
- Easily removable

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN36010025 | 25 | Jerry can | 5 |
| LN36010200 | 200 | Drum | 5 |



Protex DW/O

Protex DW /O is a protective fluid with a dewatering action designed specifically for the protection of steel laminates and semi-finished products even of complex geometry, as well as for the external protection of parts subject to subsequent handling. It is ideal in situations where there is a need to leave a thin protective layer on the treated surface, easily removable with rags or ordinary solvents. The product is easily applied by immersion, spray, brush and can be removed with rags, industrial cleaners, alkaline solutions and/or petroleum solvents.

The excellent wetting power allows any moisture or water film to be removed from the treated surfaces.

The anti-corrosive and anti-oxidant components form a thin film that protects the parts for a medium to long period (12 months) if the material is properly stored indoors after treatment.



MSDS

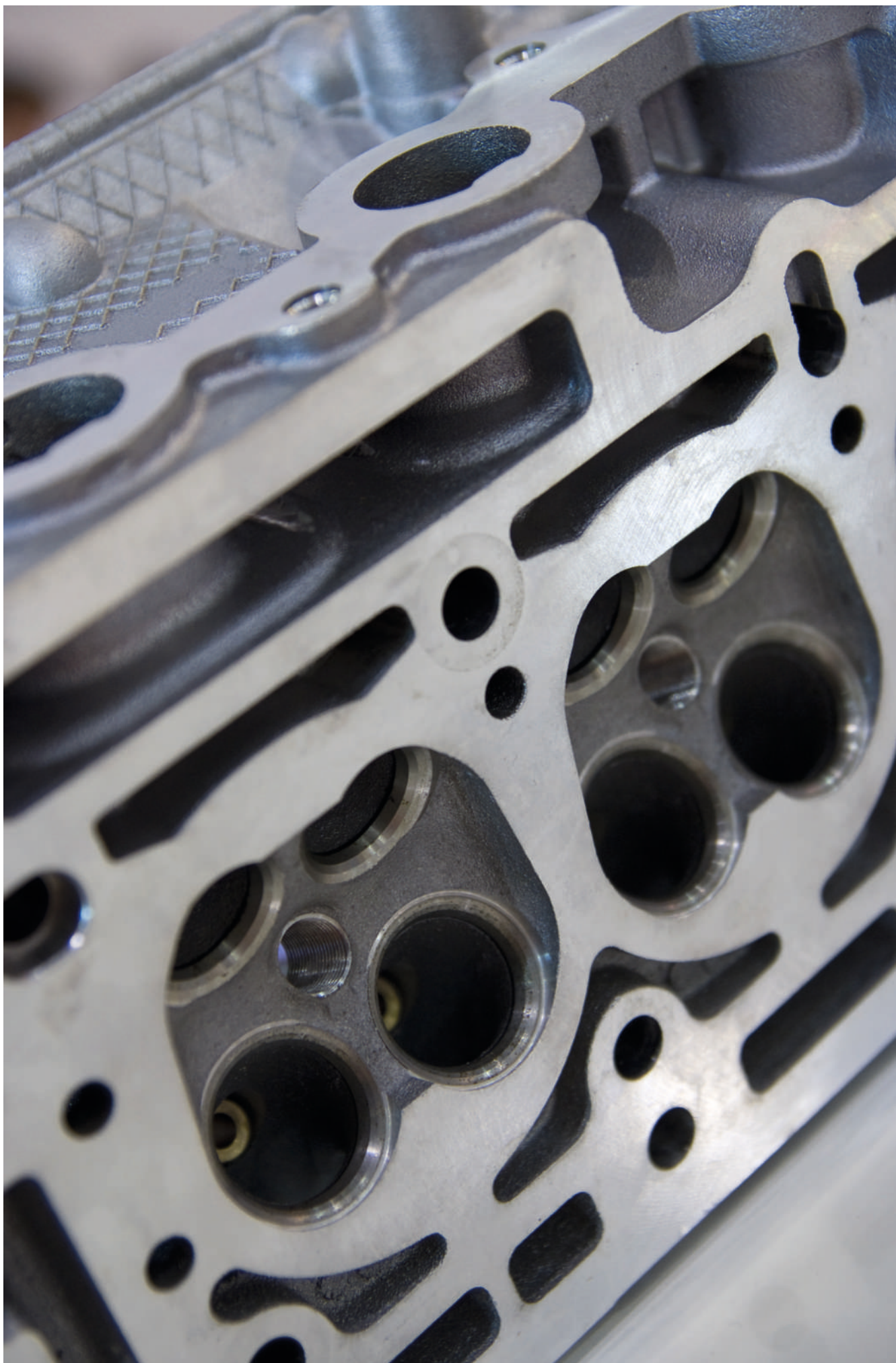
PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 40°C | cSt | 2 |
| Flash point (COC) | °C | 78 |
| Pour point | °C | -30 |
| Specific weight at 15°C. | kg/L | 0.793 |

VANTAGGI

- Protection for periods of up to 12 months
- Easy to apply
- Easily removable

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN32010025 | 25 | Jerry can | 5 |
| LN32010200 | 200 | Drum | 5 |



Protex DW/O VOC Free

Protex DW /O VOC FREE is a protective fluid with dewatering action free of volatile organic compounds (VOC free). It removes moisture from finished parts and protects them against oxidation by means of an adherent oily protective film. Protex DW /O VOC FREE is suitable for the protection of metal surfaces of all kinds such as small parts, gears and dies intended for medium/long storage periods (6-8 months) indoors or for transportation under severe and very severe conditions. Suitable for immersion of parts in double tanks or alternatively in single tanks equipped with a tap for periodic drainage of water that has separated at the bottom. If necessary, also by spray, taking care to distribute the product evenly over the entire surface to be protected. The product exceeds 240h exposure to the static wet chamber (ASTM D1748) and 4h in the salt spray chamber (ASTM B117).



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 40°C | cSt | 4.1 |
| Flash point (COC) | °C | 101 |
| Pour point | °C | -50 |
| Specific weight at 15°C. | kg/L | 0.830 |

VANTAGGI

- VOC-free
- Protection for periods of up to 8 months
- Excellent protection even under severe conditions

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN32110025 | 25 | Jerry can | 5 |
| LN32110200 | 200 | Drum | 5 |



Protex DW/O VOC Free Plus

PROTEX DW/O VOC FREE PLUS is a protective fluid with an oily film dewatering action that removes moisture from finished parts and protects them against oxidation thanks to an adherent oily protective film. PROTEX DW /O VOC FREE PLUS is suitable for protecting metal surfaces of all kinds such as small parts, gears and dies intended for long-term indoor storage periods or for transporting under severe and very severe conditions. Suitable for immersion of parts in double tanks and alternatively in a single tank with a tap for periodic drainage of water that has separated at the bottom. If necessary, also by spray, taking care to distribute the product evenly over the entire surface to be protected. It is removable with 60°C alkaline solutions or vapour phase solvents. The product exceeds 250h exposure to the static wet chamber (ASTM D1748) and 5h in the salt spray chamber (ASTM B117).



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 40°C | cSt | 6.0 |
| Flash point (COC) | °C | 105 |
| Pour point | °C | -50 |
| Specific weight at 15°C. | kg/L | 0.880 |

VANTAGGI

- VOC-free
- Protection for periods of up to 12 months
- Excellent protection even in very severe conditions

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN32210025 | 25 | Jerry can | 5 |
| LN32210200 | 200 | Drum | 5 |

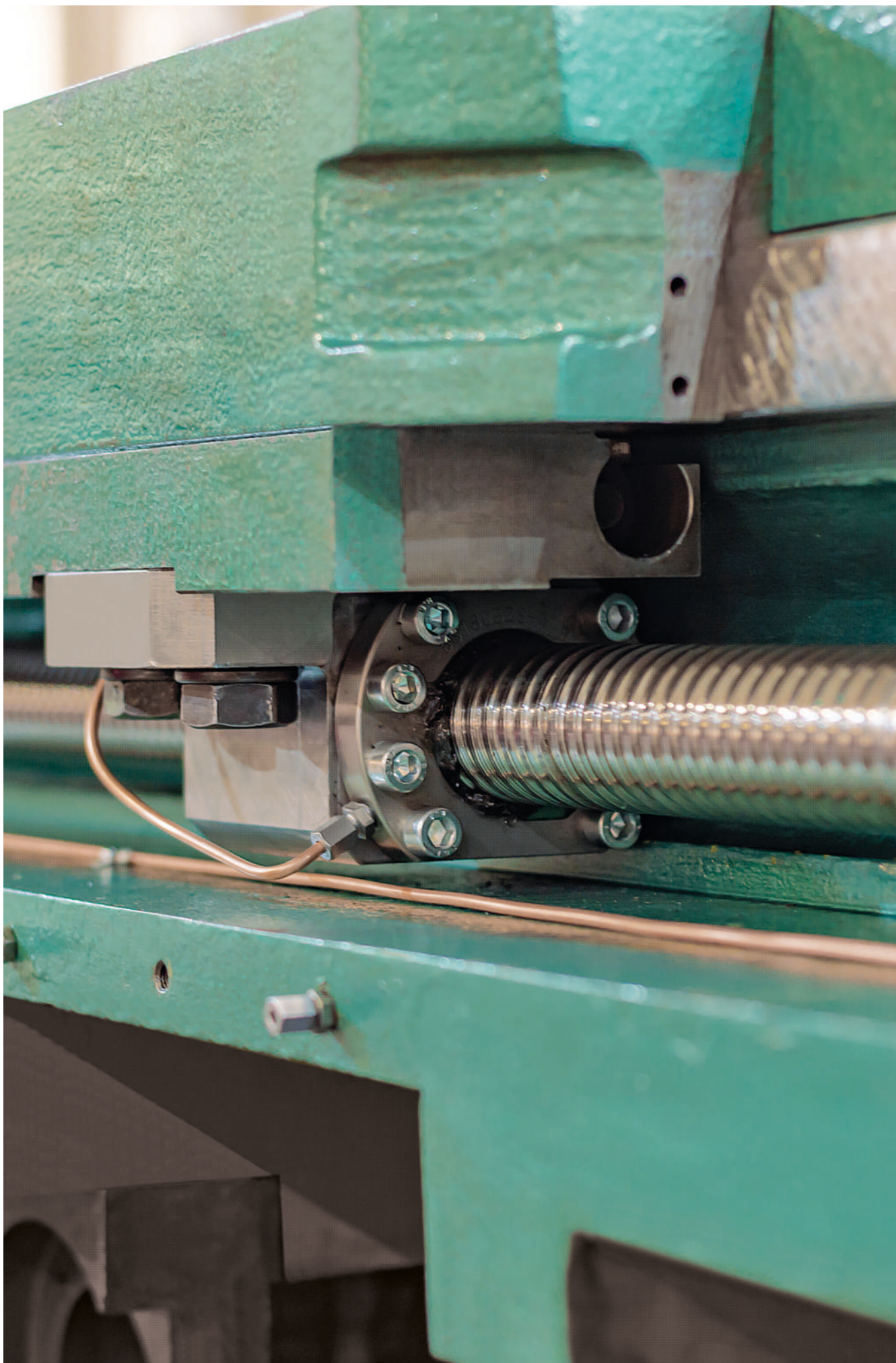


your safety
our fu



Grassi industriali
Oli multipurpose

ture.



Carter

Carter is a primary refinery mineral-based general lubrication oil.

The product is designed to be used inside closed housings, low pressure hydraulic controls, rolling bearings, variable speed drives, no-load industrial gears, pneumatic tools and air compressor kinematics. The low viscosities (3-10) can be used as chuck cooling fluids where an oil-based product is required.

It has high resistance to the formation of degradation products even at medium to high operating temperatures, excellent demulsivity and water separation capacity.

The excellent natural viscosity index makes it particularly stable at changing temperatures, ensuring rapid start-up of the systems at low temperatures and avoiding losses in the volumetric efficiency of the pumps.



MSDS

PHYSICAL PROPERTIES

| Series | | 3 | 10 | 22 | 32 | 46 | 68 | 100 | 150 | 220 | 320 |
|--------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Viscosity at 40°C | cSt | 3,60 | 10,5 | 22 | 32 | 46 | 68 | 100 | 150 | 220 | 320 |
| Viscosity at 100°C | cSt | 1,18 | 3,1 | 4,4 | 5,5 | 6,8 | 8,6 | 11,8 | 14,7 | 19,5 | 24 |
| Viscosity index | - | | 179 | 115 | 110 | 110 | 105 | 105 | 100 | 100 | 98 |
| Flash point (COC) | °C | 120 | 165 | 200 | 220 | 225 | 225 | 230 | 235 | 235 | 240 |
| Pour point | °C | -20 | -25 | -24 | -24 | -24 | -24 | -24 | -21 | -18 | -18 |
| Specific weight at 15°C. | kg/l | 0,800 | 0,835 | 0,865 | 0,870 | 0,880 | 0,880 | 0,888 | 0,890 | 0,895 | 0,900 |

SPECIFICHE

DIN 51506 VBL

DIN 51517 PART 2 CL

R & O

AFNOR 48603 HH

VANTAGGI

- Leaves no residue
- High natural viscosity index
- High demulsivity

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN40000025 | 3 | 25 | Can | 6 |
| LN40000200 | 3 | 200 | Drum | 6 |
| LN40001000 | 3 | 1000 | Tank | 6 |
| LN40010025 | 10 | 25 | Can | 6 |
| LN40010200 | 10 | 200 | Drum | 6 |
| LN40011000 | 10 | 1000 | Tank | 6 |
| LN40020025 | 22 | 25 | Can | 6 |
| LN40020200 | 22 | 200 | Drum | 6 |
| LN40021000 | 22 | 1000 | Tank | 6 |
| LN40030025 | 32 | 25 | Can | 6 |
| LN40030200 | 32 | 200 | Drum | 6 |
| LN40031000 | 32 | 1000 | Tank | 6 |
| LN40040025 | 46 | 25 | Can | 6 |
| LN40040200 | 46 | 200 | Drum | 6 |
| LN40041000 | 46 | 1000 | Tank | 6 |
| LN40050025 | 68 | 25 | Can | 6 |

| CODE | Series | Quantity L | Package | Price List Page |
|------------|--------|------------|---------|-----------------|
| LN40050200 | 68 | 200 | Drum | 6 |
| LN40051000 | 68 | 1000 | Tank | 6 |
| LN40060005 | 100 | 5 | Can | 6 |
| LN40060025 | 100 | 25 | Can | 6 |
| LN40060200 | 100 | 200 | Drum | 6 |
| LN40061000 | 100 | 1000 | Tank | 6 |
| LN40070025 | 150 | 25 | Can | 6 |
| LN40070200 | 150 | 200 | Drum | 6 |
| LN40071000 | 150 | 1000 | Tank | 6 |
| LN40080025 | 220 | 25 | Can | 6 |
| LN40080200 | 220 | 200 | Drum | 6 |
| LN40081000 | 220 | 1000 | Tank | 6 |
| LN40090025 | 320 | 25 | Can | 6 |
| LN40090200 | 320 | 200 | Drum | 6 |
| LN40091000 | 320 | 1000 | Tank | 6 |



Litio

Lithium is a high-quality, multi-purpose, lithium hydroxystearate-based grease with a thick creamy appearance. The product is specifically designed to be used for general lubrication of motor vehicles, wheel hubs, water pumps, dynamos, starters, individual tractor supports and any other grease lubrication for agricultural machines, where strong resistance to anti-sealing loads is not required. It is therefore suitable for any type of application: flat or rolling bearings, lubrication of industrial, construction, road machinery and, generally, when operating conditions at high speeds, high temperatures and water conditions are encountered simultaneously. It has excellent oxidation resistance and exceptional mechanical stability: their consistency does not change even if they are exposed to high operating loads for long periods.



MSDS

PHYSICAL PROPERTIES

| | | | | | |
|----------------|-----------------------|-----------|-----------|-----------|-----------|
| Serie | Amber | | | | |
| Colour | Mineral oils | | | | |
| Base oil | Litio idrossistearato | | | | |
| Soap | | 175 | 185 | 175 | 185 |
| Dropping point | °C | 355 - 385 | 310 - 340 | 355 - 385 | 310 - 340 |
| Penetration | mm/10 | -20; 80 | -20; 100 | -20; 80 | -20; 100 |
| T of use | °C | | | | |

VANTAGGI

- Universality of use
- Mechanical stability
- Excellent oxidation resistance

| CODE | Package | Price List Page |
|------------|---------|-----------------|
| LN40300004 | Dustbin | 6 |
| LN40300018 | Dustbin | 6 |
| LN40300185 | Dustbin | 6 |
| LN40310004 | Dustbin | 6 |
| LN40310018 | Dustbin | 6 |
| LN40310185 | Dustbin | 6 |
| LN40320004 | Dustbin | 6 |
| LN40320018 | Dustbin | 6 |
| LN40320185 | Dustbin | 6 |
| LN40330004 | Dustbin | 6 |
| LN40330018 | Dustbin | 6 |
| LN40330185 | Dustbin | 6 |



Multigrease MP

Multigrease MP is a high-quality, multi-purpose, lithium hydroxysterate-based grease with EP characteristics. The new manufacturing process and the particular base used make them superior to common lithium greases.

The product has been specifically designed to be used for general lubrication of motor vehicles, wheel hubs, water pumps, dynamos, starters, individual tractor supports and any other grease lubrication of agricultural machinery.

It is therefore suitable for any type of application: flat or rolling bearings, lubrication of industrial, construction, road machinery and, generally, when operating conditions at high speeds, high temperatures and water conditions are encountered simultaneously.

It has excellent oxidation resistance and exceptional mechanical stability: it does not soften or harden even when exposed to high operating loads for long periods.



MSDS

PHYSICAL PROPERTIES

| Serie | | | | | | |
|----------------|-------|-----------------------|-----------|-----------|-----------|-----------|
| Colour | | Amber | | | | |
| Base oil | | Mineral oils | | | | |
| Soap | | Litio idrossistearato | | | | |
| Dropping point | °C | 175 | 175 | 180 | 180 | 185 |
| Penetration | mm/10 | 445 - 475 | 355 - 385 | 310 - 340 | 265 - 295 | 220 - 250 |
| T of use | °C | -25; 80 | -20; 80 | -20; 100 | -20; 120 | -20; 120 |

VANTAGGI

- Universality of use
- Excellent mechanical stability
- High EP characteristics

| CODE | Package | Price List Page |
|------------|---------|-----------------|
| LN40400004 | Dustbin | 6 |
| LN40400018 | Dustbin | 6 |
| LN40400185 | Dustbin | 6 |
| LN40410004 | Dustbin | 6 |
| LN40410018 | Dustbin | 6 |
| LN40410185 | Dustbin | 6 |
| LN40420004 | Dustbin | 6 |
| LN40420018 | Dustbin | 6 |

| CODE | Package | Price List Page |
|------------|---------|-----------------|
| LN40420185 | Dustbin | 6 |
| LN40430004 | Dustbin | 6 |
| LN40430018 | Dustbin | 6 |
| LN40430185 | Dustbin | 6 |
| LN40440004 | Dustbin | 6 |
| LN40440018 | Dustbin | 6 |
| LN40440185 | Dustbin | 6 |



Multigrease MP/R 00

Multigrease MP/R 00 is a high-quality, multi-purpose, lithium hydroxysterate-based grease with EP characteristics. The new manufacturing process and the particular base used make them superior to common lithium greases.

The product is designed to be used specifically for the lubrication of guide and slide rails, or in general where the use of a 00 grade grease is required.

It is therefore suitable for any type of application: flat or rolling bearings, lubrication of industrial, construction, road machinery and, generally, when operating conditions at high speeds, high temperatures and water conditions are encountered simultaneously.

It has excellent oxidation resistance and exceptional mechanical stability: it does not soften or harden even when exposed to high operating loads for long periods.



MSDS

PHYSICAL PROPERTIES

| | | |
|-----------------------|-------|-----------------------|
| Serie | | Red |
| Colour | | Mineral oils |
| Base oil | | Litio idrossistearato |
| Soap | | 175 |
| Dropping point | °C | 400 - 430 |
| Penetration | mm/10 | -25; 80 |
| T of use | °C | |

VANTAGGI

- Designed for lubrication of guide and slide rails
- Mechanical stability
- Excellent oxidation resistance

| CODE | Package | Price List Page |
|------------|---------|-----------------|
| LN40500004 | Dustbin | 6 |
| LN40500018 | Dustbin | 6 |
| LN40500185 | Dustbin | 6 |



Safesolv

Safesolv is a degreasing fluid made of selected bases free of aromatic hydrocarbons, and features excellent protection powers.

The product is designed to be used specifically in the cleaning of metal parts and machine parts even with complex geometries.

The product is easily applied by immersion, spray, brush and can be removed with rags, industrial cleaners or petroleum solvents.

Its use generates a thin protective oil film making it ideal for short-term indoor storage without particularly aggressive conditions.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 40°C | cSt | 1.37 |
| Flash point (COC) | °C | 74 |
| Pour point | °C | -30 |
| Specific weight at 15°C. | kg/L | 0.773 |

VANTAGGI

- Excellent protective power
- Easy to apply
- Very good cleaning power

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|---------|--------------------|
| LN42000025 | 25 | Can | 6 |
| LN42000200 | 200 | Drum | 6 |
| LN42001000 | 1000 | Tank | 6 |



Solv

Solv is a degreasing fluid with a synthetic n-paraffins base and with very narrow distillation cuts. The product is designed to be used for all cleaning operations as well as for EDM (Electrical Discharge Machining) roughing and finishing operations where high dimensional accuracy of the machined parts is required.

The product is easily applied by immersion, spray, brush and can be removed with rags, industrial cleaners or petroleum solvents.

The high purity of the components ensures exceptionally smooth operations, maximum electrode life, a safe working environment free of unpleasant odours, high cooling power and perfect visibility of the workpiece.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|------|-------|
| Viscosity at 20°C | cSt | 1.80 |
| Viscosity at 40°C | cSt | 1.35 |
| Flash point (COC) | °C | 72 |
| Pour point | °C | -21 |
| Specific weight at 15°C. | kg/L | 0.750 |

VANTAGGI

- Maximum electrode life
- High cooling power
- Exceptional visibility of the workpiece

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|---------|--------------------|
| LN42100025 | 25 | Can | 6 |
| LN42100200 | 200 | Drum | 6 |



Antifrost BLUE

Antifrost BLUE is a concentrated blue ethylene glycol coolant that is free of amines, nitrites and phosphates.

It is used to lower the freeze point of the mixture to the set limit. Its additives allow it to avoid corrosion during use, to protect ferrous and non-ferrous alloys.

The product is designed to be applied to all metals that comprise the various parts of a cooling system, especially in aluminium.

At boiling point, it minimises any inconveniences by inhibiting foaming.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|--------|-------|
| Specific weight at 15°C. | kg/L | 1.125 |
| pH (50%) | | 9.2 |
| Alkalic reserve | ml HCl | 17 |
| Freezing point (50%) | °C | -38 |
| Boiling point | °C | 165 |
| Resistant to hard water | | Clear |

SPECIFICHE

| |
|---------------------|
| CUNA NC 956 - 16 |
| ASTM D 3306 |
| SAE J 1034 |
| FIAT 55523/11 |
| ALFA ROMEO |
| GM US 1899 M |
| FORD ESE M97 B 18°C |
| BS 3151 TYPE B |

TABELLA DI DILUIZIONE

| | |
|----------|-------|
| 10% Vol. | -4°C |
| 20% Vol. | -9°C |
| 30% Vol. | -17°C |
| 40% Vol. | -26°C |
| 50% Vol. | -38°C |

VANTAGGI

- It can be used on engines used in cars, commercial vehicles and buses with iron or aluminium radiators
- It must be diluted with water to obtain a concentration of between 10% and 50%
- The use of distilled or demineralised water is highly recommended

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN41000005 | 5 | Can | 6 |
| LN41000025 | 25 | Jerry can | 6 |
| LN41000200 | 200 | Drum | 6 |



Antifrost BLUE ECO

Antifrost BLUE ECO is a blue, concentrated ethylene glycol coolant that is free of amines, nitrites and phosphates and has an excellent toxicological profile.

It is used to lower the freeze point of the mixture to the set limit. Its additives allow it to avoid corrosion during use, to protect ferrous and non-ferrous alloys.

The product is designed to be applied to all metals that comprise the various parts of a cooling system, especially in aluminium.

At boiling point, it minimises any inconveniences by inhibiting foaming.



MSDS

PHYSICAL PROPERTIES

| | | |
|--------------------------|--------|-------|
| Specific weight at 15°C. | kg/L | 1.050 |
| pH (50%) | | 9.2 |
| Reserve alkalinity | ml HCl | 15 |
| Freezing point (50%) | °C | -32 |
| Boiling point | °C | 152 |
| Resistant to hard water | | Clear |

SPECIFICHE

CUNA NC 956 - 18

ASTM D 3306 TYP 2

SAE J 1034

TABELLA DI DILUIZIONE

| | |
|----------|-------|
| 10% Vol. | -4°C |
| 20% Vol. | -9°C |
| 30% Vol. | -16°C |
| 40% Vol. | -24°C |
| 50% Vol. | -32°C |

VANTAGGI

- It can be used on engines used in cars, commercial vehicles and buses with iron or aluminium radiators
- It must be diluted with water to obtain a concentration of between 10% and 50%
- The use of distilled or demineralised water is highly recommended

| CODE | Quantity L | Package | Price List Page |
|------------|---------------|-----------|--------------------|
| LN41100005 | 5 | Jerry can | 6 |
| LN41100025 | 25 | Jerry can | 6 |
| LN41100200 | 200 | Drum | 6 |

The image shows a close-up of a white industrial machine. On the left, there is a control panel with a red emergency stop button, a yellow stop button, and a black power cord plugged into a port. A black cable is coiled on the left side. The Landoil logo, consisting of a stylized 'L' and a circle, is printed in yellow. To the right of the logo, the tagline 'your safety, our future.' is written in a smaller yellow font. On the right side of the machine, there is a black ventilation grille. The background is a plain white surface.

Landoil
your safety, our future.

*your safety
our future*



uture.

Macchine

Tos



Manual



DESCRIZIONE

Coalescence de-oiling machine capable of separating foreign oils, sludge and soap from emulsions.

Thanks to the self-levelling suction unit, it can also be used in tanks with narrow spaces and independently follows the level of the emulsion.

It does not require operator assistance, except in the discharge phase.

It effectively de-oils aqueous fluids with neutral or weakly alkaline pH, with temperatures up to 60°C.

DOTAZIONE STANDARD

Bag filter 300 µm

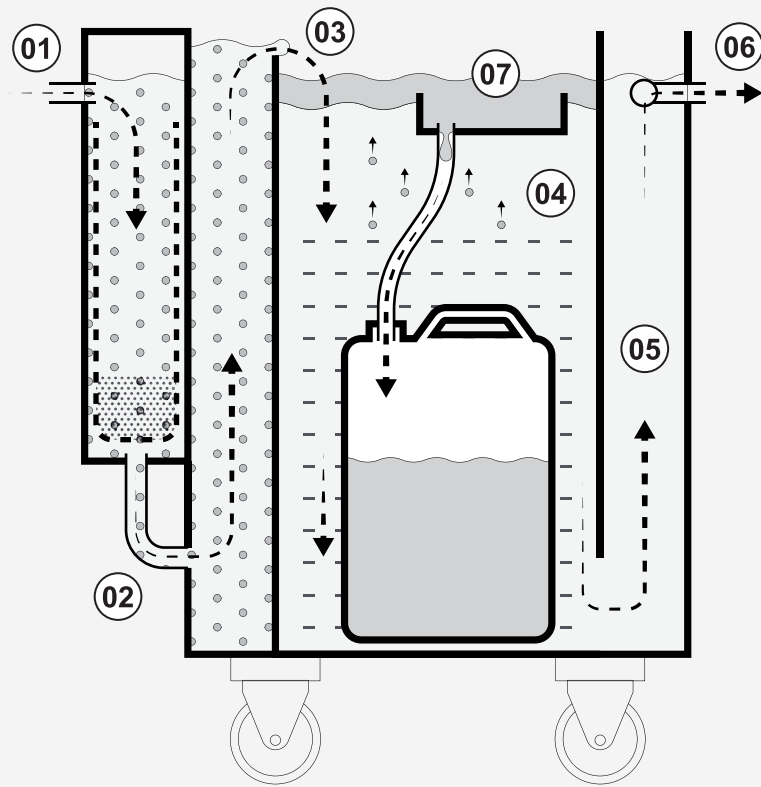
Dynamic suction inlet with magnet. h 70 mm

Suction hose Ø 20 mm - 2 m.

Exhaust pipe 40 mm - 2 m.

| CODE | Tank capacity L | Flow l/h | Power kW | Voltage V | Dimensions mm | Empty weight kg | Operating temp. | Price List Page |
|-----------|--------------------|-------------|-------------|--------------|-------------------|--------------------|-----------------|--------------------|
| LN8400000 | 105 | 250 | 0.29 | 230 to 50 Hz | 570 x 550 x 980 h | 80 | < 60°C | 7 |

HOW IT WORKS



- 01** The dirty emulsion enters the TOS through a bag filter that removes any floating chips
- 02** After filtration, the dirty fluid rises upwards from the bottom of the tank: The choice of loading the TOS in this manner prevents excessive re-mixing of the fluid and avoids the formation of foam
- 03** When the fluid reaches the top of the first chamber, it spills toward the second chamber where the coalescing filter is fitted
- 04** The coalescing filter in the second chamber separates the foreign oil that collects on the surface

- 05** The clean emulsion remains at the bottom and fills the third chamber of the TOS
- 06** After passing through the third chamber, the emulsion can be returned to the machine tool tank
- 07** When a thick layer of foreign oil has accumulated on the surface of the second chamber, it can be conveyed to the discharge tank connected to the canister

VANTAGGI

- Reduces biological chemical risks
- Reduces smoke generated by foreign oils
- Extends the service life of the emulsion
- Can be used on multiple machine tools
- No operator supervision required

AFM



Manual



DESCRIZIONE

Aspirator based on an inertial and mechanical system capable of eliminating oil mist, fumes and vapours generated by mechanical processes using neat oils. It features an innovative system designed to achieve an effective and ultra high abatement of pollutants directly at the source, with the positioning of the electric fan downstream in relation to the filter battery. This feature allows quick and easy replacement, maintenance and periodic inspection directly from the filter compartment door. Decanting and filtration is performed through the stilling chamber, the prefilters, the high efficiency cartridge H12, the two absolute filters H13, so as to obtain a filtration rate of 99.99%. Supply voltage 400 V / 50 Hz three-phase.

DOTAZIONE STANDARD

Luminous clogging detector signal

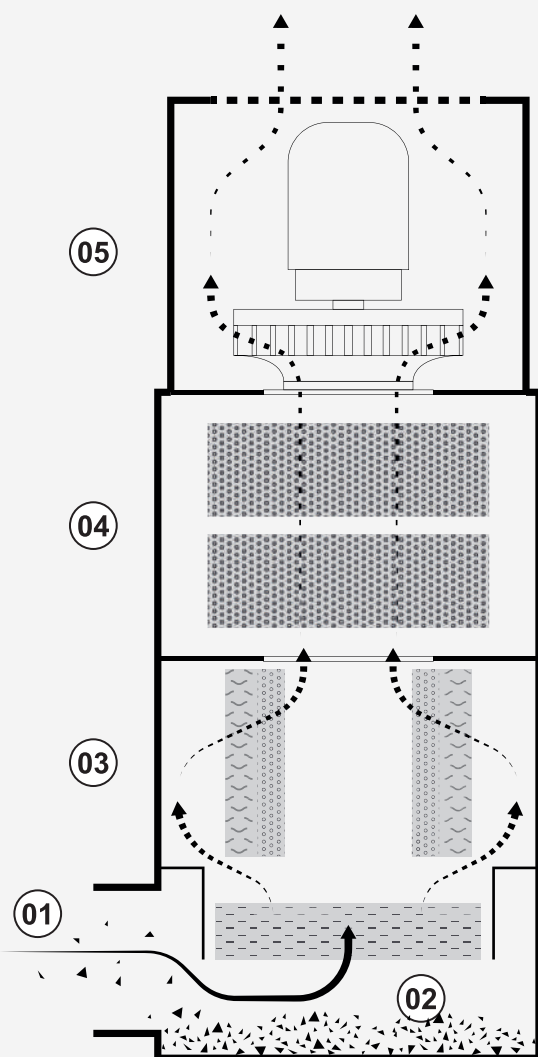
Pre-filters

H12 cartridge

2 x H13 filters

| CODE | Model | Suction air flow m³/h | Power kW | suction Ø mm | Noise level dBA | Static pressure Pa | Filtering surface m² | Price List Page |
|------------|----------------------|--------------------------|-------------|-----------------|--------------------|-----------------------|-------------------------|--------------------|
| LN88000500 | AFM MIST PLUS - 500 | 700 | 0.55 | 125 | 62 | 820 | 5.7 | 7 |
| LN88001000 | AFM MIST PLUS - 1000 | 1200 | 1.1 | 150 | 64 | 1100 | 8.4 | 7 |
| LN88002000 | AFM MIST PLUS - 2000 | 2100 | 1.5 | 200 | 68 | 1400 | 11.9 | 7 |
| LN88003000 | AFM MIST PLUS - 3000 | 3100 | 2.2 | 250 | 72 | 2000 | 14 | 7 |

HOW IT WORKS



01 Oil mists, fumes and vapours are suctioned via an inertial impact oil separator which separates them from large size residues

02 The fumes pass through the synthetic pre-filter

03 As they rise, they pass through a cartridge coated with a special fabric specially created to block the oily particles generated by the machine tool

04 The fumes are further filtered by the presence of one or two high efficiency absolute filters

05 The fumes, now 99.99% filtered, continue to rise to the engine housing before being released back into the environment

VANTAGGI

- Up to 99.99% fumes, smoke and vapour removal (EN 779 - EN 1822 HEPA standard)
- Clean and healthy environment (Leg. Decree 25/02 - Leg. Decree 81/2008)
- Low maintenance costs

Twist Oil



Manual



DESCRIZIONE

Single-phase industrial aspirator suitable for the separation of liquids mixed with solids. The emptying of liquids takes place by reversing the flow of air generated by the turbine, eliminating any problem of possible blocking of the transfer pumps.

Features:

- Turbine with single-phase motor
- Liquid aspiration time L/sec 130/30
- Liquid discharge time L/sec 130/50
- Microperforated galvanized steel basket
- Level probe with automatic blocking system
- Suction mouth Ø 50 mm
- immediate recovery of cooling lubricants with direct return to bath via drainage pipe with ball valve
- frame with storage compartment for accessories

DOTAZIONE STANDARD

Washable nylon filter

PUR hose Ø 50 mm x 3 m.

Rubber bore Ø 50 mm

Exhaust pipe Ø 35 mm x 3 m.

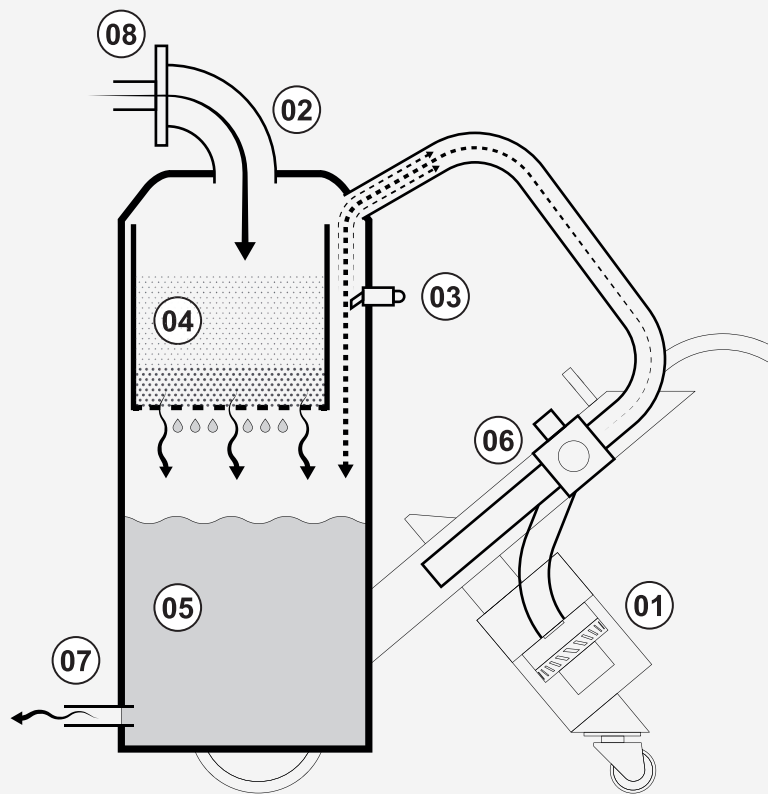
Ball valve 1" - 1/4

Flat metal nozzle L 400 mm

Anti-oil rubber tapered nozzle

| CODE | Liquid capacities L | Solid capacities L | Power supply V - Hz | Power Kw - HP | Max. depression mBar | Max. air flow rate l/min | Sound level dB(A) | Dimensions mm | Price List Page |
|------------|------------------------|-----------------------|------------------------|------------------|-------------------------|-----------------------------|----------------------|---------------------|--------------------|
| LN89000130 | 130 | 40 | 230 - 50/60 | 2.4 - 3 | 230 | 5500 | 70 | 700 x 1180 x 1320 h | 7 |

HOW IT WORKS



01 The vacuum is generated by a group of 2.4 kW single-phase bypass motors, which allows for the aspiration of 130 l of liquid in 30 sec.

02 The aspirated material enters from above and falls into the sieve grid

03 An electrical level sensor automatically shuts off the aspiration of the motors

04 The sieve grid separates the liquid from the solid parts

05 The liquid is aspirated into a 130 litre container

06 The motor reverse air flow system allows the aspirated liquid to be eliminated at a speed of 130 l in 50 sec.

07 The liquid is drained via a sturdy oil proof rubber hose and a manual control valve

08 A non-return valve inside the inlet neck ensures that fluids do not spill when draining

VANTAGGI

- Quick emptying of the tank
- Instant and easy use
- No operator supervision required due to automatic overflow stop
- Chip separation from liquid

Twist Oil



Manual



DESCRIZIONE

Three-phase industrial aspirator for continuous use, capable of separating mixed liquids and solids. The emptying of liquids takes place by reversing the flow of air generated by the turbine, eliminating any problem of possible blocking of the transfer pumps. Weight: 220 kg.

Components:

- Turbine with three-phase motor
- Liquid aspiration time L/sec. 280/40
- Liquid drain time L/sec. 280/50
- Microperforated galvanized steel basket
- Level probe with automatic locking system
- Aspiration nozzle Ø 50 mm
- L 280 capacity tank which also acts as a robust load-bearing structure
- Instant recovery of cooling lubricants with direct return delivery to the tank via a drain tube with ball valve
- Accessory holders

DOTAZIONE STANDARD

Washable nylon filter

PUR hose Ø 50 mm x 3 m.

Rubber bore Ø 50 mm

Exhaust pipe Ø 50 mm

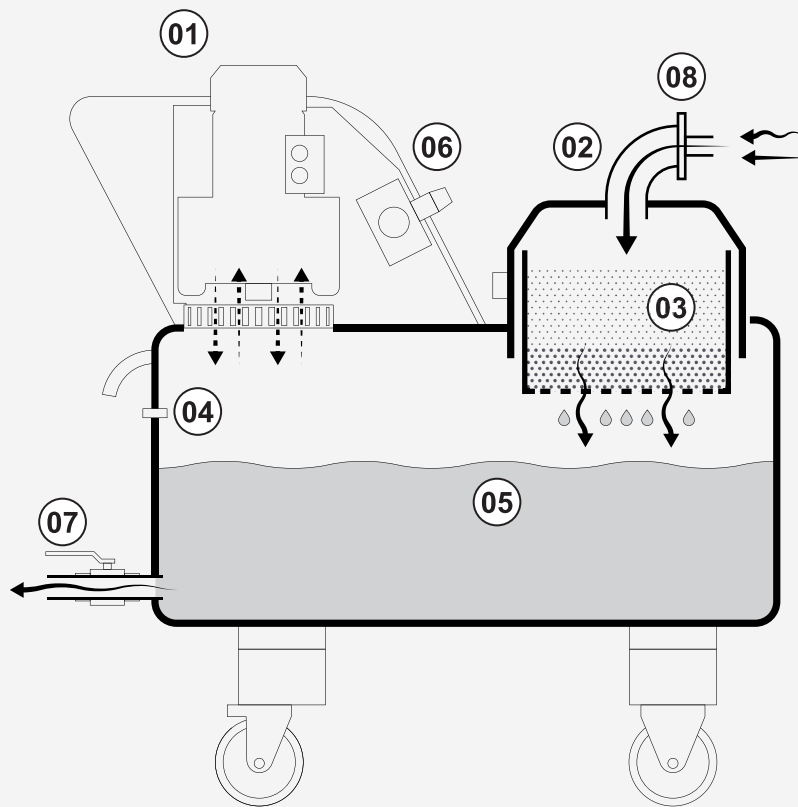
2" ball valve

Flat metal nozzle L 400 mm

Anti-oil rubber tapered nozzle

| CODE | Liquid capacities L | Solid capacities L | Power supply V - Hz | Max. air flow rate Kw - HP | Max. depression mBar | Max. capacity l/min | Sound level db(A) | Dimensions mm | Price List Page |
|------------|------------------------|-----------------------|------------------------|-------------------------------|-------------------------|------------------------|----------------------|---------------------|--------------------|
| LN89100280 | 280 | 40 | 400 - 50/60 | 2.5 - 3 | 330 | 5100 | 72 | 700 x 1450 x 1400 h | 7 |

HOW IT WORKS



01 The vacuum is generated by a Siemens side-channel turbine capable of aspirating for example 500 l in 57 sec.

02 The aspirated material enters from above and falls into the sieve grid

03 The sieve grid separates the liquid from the solid parts

04 An electrical level sensor automatically shuts off the aspiration of the motor

05 Liquid is aspirated into a 280 | 500 | 1000 l container.

06 The motor reverse air flow system allows the aspirated liquid to be eliminated at a speed of 500 l in 69 sec.

07 The liquid is drained via a sturdy oil proof rubber hose and a manual control valve

08 A non-return valve inside the inlet neck ensures that fluids do not spill when draining

VANTAGGI

- Quicker emptying of the tank thanks to the three-phase motor
- No operator supervision required due to automatic overflow stop
- Simple maintenance due to the absence of an external auxiliary pump
- Chip separation from liquid
- Instant and easy use

Rasen



Manual

DESCRIZIONE

The RASEN N series of belt oil separators are designed for the removal of foreign oil in machine tools, washing parts, compressor condensation and in general where it is necessary to separate surface oil from the underlying fluid.

They are easily applicable even in tight spaces, and allow for an effective mechanical removal of polluting oils from the surface of cooling lubrication emulsions.

Features:

- STAINLESS Steel and Light Alloy Construction
- PVC/Polyurethane Belt
- Low tension planetary gear motor, according to ISO standards, protected against dust and accidental impact
- 7 speeds adjustable via a potentiometer
- Air fitting for emulsion oxygenation included
- Can be equipped with a level switch
- 230 V power supply

VANTAGGI

- Reduces biological chemical risks
- Reduces smoke generated by foreign oils
- Extends the service life of the emulsion
- No operator supervision required

| CODE | Suction tube mm | Tape size mm | Overall dimensions mm | Weight Kg | Level switch | Price List Page |
|------------|--------------------|-----------------|--------------------------|--------------|--------------|--------------------|
| LN85000250 | 300 | 25 | 210 x 100 x 438 | 5.5 | SI | 7 |
| LN85000500 | 300 | 50 | 244 x 148 x 507 | 7.5 | SI | 7 |



Manual



DESCRIZIONE

A volumetric mixer is an instrument driven only by water pressure that guarantees stable emulsions at the required concentration.

Using a volumetric mixer can reduce filling and topping up times for machine tool tanks, saving time and reducing costs. The volumetric mixer can also be used for topping up, specifying the concentration with ease and precision.

The LANDOIL volumetric mixer is made in Italy and all units are tested individually before being sold to the end user. The mixer in its full version is equipped with a filter, pressure reducer, suction tube, stainless steel housing to prevent the product from accidental impact and 2 valves so that it is ready for use.

VANTAGGI

- Dosing accuracy
- Does not require operator supervision
- Quick top-up

| CODE | Concentration | Flow l/h | Water pressure bar | Model | Price List Page |
|------------|---------------|----------|--------------------|----------|-----------------|
| LN81001010 | 1 - 10% | 1600 | from 0.7 to 8 | Base | 7 |
| LN81001012 | 1 - 10% | 1600 | from 0,7 to 8 | Complete | 7 |

Venturi



Manual



DESCRIZIONE

The Venturi mixer allows machine tool tanks to be filled and topped up quickly.
We recommend that you periodically check the concentration at the outlet of the mixer.

VANTAGGI

- Does not require operator supervision
- Quick top-up

| CODE | Concentration | Flow l/h | Water pressure bar | Price List Page |
|------------|---------------|-------------|-----------------------|--------------------|
| LN81500510 | 1 - 10% | 1000 | min. 2 | 7 |

Fluid Tester



Manual



DESCRIZIONE

The refractometer is an optical instrument that measures the refractive index of a fluid to determine the concentration percentage of the coolant lubricating emulsions. Its daily use makes it possible to verify the correct concentration of the emulsion in the tank, in order to avoid waste, protect machine tools and reduce total production costs.

VANTAGGI

- Option to check the correct concentration of the emulsion
- Instant and easy use

| CODE | Model | Divisions | Price List Page |
|------------|---------|-----------|-----------------|
| LN80000018 | 0 - 18% | 0.1 | 7 |

SPARE PARTS FOR TOS OIL SEPARATOR

| CODE | Description | Price List Page |
|------------|---|-----------------|
| LN84100010 | Dynamic suction inlet with magnet. h=70 mm | 7 |
| LN84100020 | Dynamic suction inlet with magnet. h=250 - 500 mm | 7 |
| LN84100030 | Float h=70 mm | 7 |
| LN84100040 | Float h=250 - 500 mm | 7 |
| LN84200010 | Bag filter 300 µm | 7 |
| LN84200020 | O-ring for bag filter | 7 |
| LN84300010 | Quick release female Ø 20 mm | 7 |
| LN84300020 | Quick release male Ø 20 mm | 7 |
| LN84300030 | Exhaust pipe with elbow Ø 40 mm | 7 |
| LN84400010 | Pump shaft | 7 |
| LN84400020 | Sealing ring | 7 |
| LN84400030 | Pump body with fittings | 7 |
| LN84400040 | Pump impeller kit NBR | 7 |
| LN84400100 | Plug & Play pump unit | 7 |
| LN84500010 | Reduction gear assembly | 7 |
| LN84500020 | MM63B2 engine 0.247 kW - 220 V - 50 Hz | 7 |



OILY MIST ELIMINATOR SPARE PARTS

| CODE | Description | Price List Page |
|------------|-------------------------------------|-----------------|
| LN88100500 | Pre-filter kit for AFM 500 | 7 |
| LN88101000 | Pre-filter kit for AFM 1000 | 7 |
| LN88102000 | Pre-filter kit for AFM 2000 | 7 |
| LN88103000 | Pre-filter kit for AFM 3000 | 7 |
| LN88400500 | Internal cartridge kit for AFM 500 | 7 |
| LN88401000 | Internal cartridge kit for AFM 1000 | 7 |
| LN88402000 | Internal cartridge kit for AFM 2000 | 7 |
| LN88403000 | Internal cartridge kit for AFM 3000 | 7 |
| LN88800500 | AFM 500 post filter kit | 7 |
| LN88801000 | AFM 1000 post filter kit | 7 |
| LN88802000 | AFM 2000 post filter kit | 7 |
| LN88803000 | AFM 3000 post filter kit | 7 |



SPARE PARTS FOR TWIST OIL INDUSTRIAL ASPIRATORS/SEPARATORS

| CODE | Description | Price List Page |
|------------|---------------------------------------|-----------------|
| LN89310050 | Rubber bore for pipes Ø 50 mm | 8 |
| LN89410350 | Anti-oil hose Ø 50 mm - 3 m | 8 |
| LN89510335 | Oil exhaust hose Ø 35 mm - 3 m | 8 |
| LN89600020 | Ball valve 1" - 1/4 | 8 |
| LN89600050 | Ball valve 2" | 8 |
| LN89710050 | Flat metal lance Ø 50 mm - 400 mm | 8 |
| LN89810050 | Anti-oil rubber conical lance Ø 50 mm | 8 |
| LN89910010 | Washable nylon filter | 8 |



SPARE PARTS FOR OPTICAL REFRACTOMETERS

| CODE | Description | Price List Page |
|------------|-------------------------------------|-----------------|
| LN80100100 | Replacement glass for refractometer | 8 |



FAQ

STOCCAGGIO DEI LUBROREFRIGERANTI

Alcune condizioni essenziali per il corretto stoccaggio e utilizzo sono:

- i fluidi lubrorefrigeranti concentrati vanno conservati ad una temperatura tra i 5°C e i 40°C, negli imballi del produttore o in appositi serbatoi di stoccaggio
- se esposti al rischio di pioggia o condensa, suggeriamo di conservare i contenitori in posizione verticale con i relativi coperti chiusi, o su un lato per escludere che l'acqua ristagni vicino alle aperture
- sfruttare a pieno le logiche di rotazione del magazzino in modo che i fluidi lubrorefrigeranti non vengano conservati più di quanto indicato dal fornitore
- non utilizzare mai lubrorefrigeranti oltre la data di scadenza indicata dal fornitore
- controllare che le etichette di pericolo siano affisse su tutti i contenitori usati per lo stoccaggio dei fluidi

Consigliamo comunque di far sempre riferimento alle schede di sicurezza del fornitore per ottenere informazioni dettagliate.

SMALTIMENTO DEI LUBROREFRIGERANTI

Lubrorefrigeranti usati

È fondamentale smaltire gli emulsionabili con modalità conformi alla normativa nazionale e locale, coinvolgendo un appaltatore autorizzato.
Bisogna assicurarsi che il fluido non si sia sparso nell'ambiente e non crei un rischio per la salute durante il suo stoccaggio e trasporto.

Sversamento

Assicurarsi di aver previsto una procedura e un kit di strumenti (es: materiali assorbenti) in grado far fronte all'emergenza.
Suggeriamo di segnalare lo sversamento utilizzando della segnaletica adeguata e dotare il personale addetto alla pulitura di DPI corretti.
Non riversare il fluido sversato all'interno della vasca.

| | |
|--|--|
| Soluzioni di controllo ingegneristiche | <ul style="list-style-type: none"> • Se possibile eseguire sempre le lavorazioni con macchine chiuse • Se possibile utilizzare dei dispositivi che consentano di tenere chiuse le porte fino a quando la nebbia all'interno della macchina non si è dissolta • Verificare che pressione, temperatura d'esercizio e velocità di taglio siano impostate correttamente • Interrompere l'erogazione dell'emulsione una volta terminata la lavorazione • Effettuare tutti i controlli di routine |
| Progettazione e realizzazione di sistemi di ventilazione e scarico locale | <ul style="list-style-type: none"> • Implementare un sistema di ventilazione di scarico locale per rimuovere le nebbie dai locali in cui si trovano le macchine utensili • Verificarne il loro corretto funzionamento • Assicurarsi che i sistemi di filtrazione dell'aria siano efficienti • Effettuare periodicamente analisi ambientali per verificare il corretto funzionamento degli impianti |
| Controllo delle prestazioni dei sistemi di ventilazione | <ul style="list-style-type: none"> • Implementare un programma preventivo per il mantenimento dei sistemi di ventilazione • Segnalare tempestivamente eventuali anomalie sui sistemi di ventilazione • Effettuare un controllo visivo quotidiano sui sistemi ingegneristici come ad esempio i manometri • Eseguire il collaudo dei sistemi di ventilazione almeno ogni 14 mesi |
| Utilizzo di aria compressa | <p>L'utilizzo di aria compressa per pulire i macchinari o i pezzi lavorati aumenta il rischio di inalazione di nebbie oleose. Per questo suggeriamo di considerare metodi alternativi all'utilizzo di aria compressa come sistemi di ventilazione a scarico locale o materiali assorbenti.</p> <ul style="list-style-type: none"> • Ridurre la pressione della linea dell'aria compressa al livello minimo • Utilizzare linee dell'aria compressa dotate di impugnature più lunghe o dotate di schermi per proteggere l'operatore • Non usare aria compressa vicino al viso o al corpo dell'operatore |
| Formare i dipendenti | <ul style="list-style-type: none"> • È sempre importante formare i dipendenti e dare loro il maggior numero di informazioni sul rischio di esposizione alle nebbie di lubrorefrigeranti. |
| Fornire DPI | <ul style="list-style-type: none"> • È importante utilizzare dei DPI che proteggano le vie respiratorie, ma solo dopo aver applicato tutte le attività preventive di cui sopra. |

| ODORE E ASPETTO | | | |
|--|---|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Un fluido lubrorefrigerante stagnante può esalare un odore rancido e di zolfo. | <ul style="list-style-type: none"> Garantire un'efficace gestione dei lubrorefrigeranti. Una mancata gestione può modificarne l'aspetto, l'odore o la stabilità. | <ul style="list-style-type: none"> Controllare che il fluido non abbia cambiato colore o il suo aspetto Verifica la presenza di schiuma, oli estranei o residui metallici Odori sgradevoli potrebbero significare proliferazione di batteri o ristagno dell'emulsione Controllare la presenza di film visibili sulle superfici di vasche di raccolta o filtri | Tutti i giorni |

| TEMPERATURA D'ESERCIZIO | | | |
|--|--|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Alte temperature d'esercizio possono generare proliferazione batterica, oltre che un aumento della concentrazione dell'emulsione a causa dell'evaporazione dell'acqua. | <ul style="list-style-type: none"> Garantire che la temperatura d'esercizio rientri nelle specifiche del fornitore Consigliamo di non superare mai una temperatura d'esercizio di 30°C, a meno che non sia strettamente necessario per la singola lavorazione Se possibile, utilizzare un sistema di raffreddamento per mantenere la temperatura ai livelli consigliati Raccomandiamo di controllare costantemente la temperatura del fluido | <ul style="list-style-type: none"> Raccomandiamo di controllare costantemente la temperatura del fluido Lasciare le sonde per la rilevazione della temperatura per alcuni minuti in vasca | Ogni 7 giorni |

| OLIO ESTRANEO | | | |
|---|--|--|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| L'olio estraneo può favorire la proliferazione di batteri anaerobici, soprattutto durante il fermo macchina. Un'emulsione soggetta ad oli estranei riduce le sue prestazioni. | <ul style="list-style-type: none"> Effettuare costantemente una buona manutenzione sulle macchine per ridurre le perdite d'olio La contaminazione da olio estraneo deve essere sempre mantenuta al minimo (al di sotto del 2%) Utilizzare disoleatori o separatori d'olio per rimuovere l'olio estraneo | <ul style="list-style-type: none"> Controllare frequentemente la presenza di olio estraneo, che sull'emulsione può presentarsi sotto forma di macchie oleose galleggianti Tenere monitorato il consumo di olio idraulico nei vari punti della macchina | Ogni 7 giorni |

| PH | | | |
|---|--|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Il valore del pH di un'emulsione è indicatore della sua qualità. Un calo del pH può indicare un'elevata presenza di batteri che acidificano il fluido, mentre un suo aumento può indicare una sua contaminazione chimica. | <ul style="list-style-type: none"> Verificare che il pH rimanga all'interno dei valori indicati dai fornitori Correggere il pH aggiungendo fluido concentrato fresco o additivi raccomandati dal fornitore | <ul style="list-style-type: none"> Controllare il livello di pH utilizzando cartine o un pH-metro Suggeriamo di tenere un registro di lettura del pH per identificare eventuali trend o cambiamenti | Ogni 7 giorni |

| CONCENTRAZIONE | | | |
|--|---|--|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Un'errata concentrazione del fluido lubrorefrigerante può creare instabilità. Una concentrazione troppo alta può comportare la perdita di acqua per evaporazione, la formazione di schiuma e il rischio di formazione di nebbie oleose. Una concentrazione troppo bassa può innalzare il rischio di contaminazione batterica e corrosione riducendo le performance durante la lavorazione, una minore durata del liquido in vasca e quindi costi più | <ul style="list-style-type: none"> Utilizzare il fluido lubrorefrigerante alla concentrazione indicata dal fornitore Per riequilibrare la concentrazione rabboccare con emulsione fresca. Sconsigliamo di utilizzare solamente acqua o prodotto concentrato | <ul style="list-style-type: none"> Controllare la concentrazione del fluido tramite rifrattometro La lettura di un rifrattometro non è una misura diretta della concentrazione. A quel valore va applicato il fattore moltiplicativo rifrattometrico specifico del prodotto come indicato dal fornitore sulla scheda tecnica Suggeriamo di tenere un registro delle letture rifrattometriche per rilevare eventuali trend o cambiamenti | Ogni 7 giorni |

| RICIRCOLO DELL'EMULSIONE | | | |
|---|--|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Un mancato ricircolo dell'emulsione può generare ostruzioni nelle macchine, aumentando il livello di pressione e generando quindi schiuma o nebbie oleose e riducendo le performance del prodotto | <ul style="list-style-type: none"> Mantenere quanto più possibile il fluido in circolo per evitare il ristagno in vasche e tubi, prestando attenzione soprattutto nei periodi di fermo macchina Effettuare routine di pulizia vasche per garantire che il fluido possa circolare liberamente | <ul style="list-style-type: none"> Controllare regolarmente l'accumulo di trucioli, film, depositi in qualunque area sensibile | Ogni 7 giorni |

| PROLIFERAZIONE BATTERICA | | | |
|--|--|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Un'alterazione della stabilità dell'emulsione potrebbe generare una proliferazione batterica | <ul style="list-style-type: none"> È fondamentale operare un monitoraggio continuo della proliferazione batterica. Sugeriamo di utilizzare dei dip-slide che sono in grado di rilevare batteri, funghi e lieviti. Se il fluido è fortemente contaminato (oltre 1.000.000 CFU/ml), emana cattivo odore o presenta un pH inferiore ai valori raccomandati è necessario contattare il proprio fornitore per trovare la soluzione più indicata alla risoluzione del problema. | <ul style="list-style-type: none"> Controllare tramite dip-slide che il livello di proliferazione batterica non superi 10.000 CFU/ml Sugeriamo di tenere un registro delle letture dei dip-slide per rilevare eventuali trend o cambiamenti Consigliamo di consultare il proprio fornitore per identificare ulteriori livelli di controllo | Tutti i giorni |

| BIOCIDI | | | |
|--|---|---|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| Il risultato dei test tramite dip-slide è superiore ai 10.000 CFU/ml | <ul style="list-style-type: none"> Assicurarsi che tutti i fattori determinanti per la qualità dell'emulsione siano sotto controllo (concentrazione, pH, contenuto olio estraneo, contaminazioni, temperatura d'esercizio, ricircolo fluidi) Se i valori qui sopra sono sotto controllo, potrebbe essere necessario l'uso di un biocida Aggiungere i biocidi nella vasca in una zona in cui il fluido è in movimento per favorirne la corretta miscelazione. Per determinarne la quantità è importante considerare il volume della vasca | <ul style="list-style-type: none"> Utilizzare il biocida solo come ultima alternativa nel caso in cui la proliferazione microbica continua anche dopo aver adottato altre azioni correttive. | - |

| RESIDUI METALLICI | | | |
|--|--|--|---------------------|
| Problema | Soluzione | Controlli | Frequenza controlli |
| <p>Tipo di metallo, processi e velocità di lavorazione possono provocare residui di metallo. Essi potrebbero comportare:</p> <ul style="list-style-type: none"> Problemi relativi alla qualità finale del pezzo Su materiali particolari (es: cobalto), problemi di salute per l'operatore Problemi di stabilità dell'emulsione | <ul style="list-style-type: none"> Assicurarsi che i residui metallici siano al livello minimo all'interno dell'emulsione | <ul style="list-style-type: none"> Controllare visivamente l'accumulo di residui metallici. | Ogni 7 giorni |

Note

Note





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