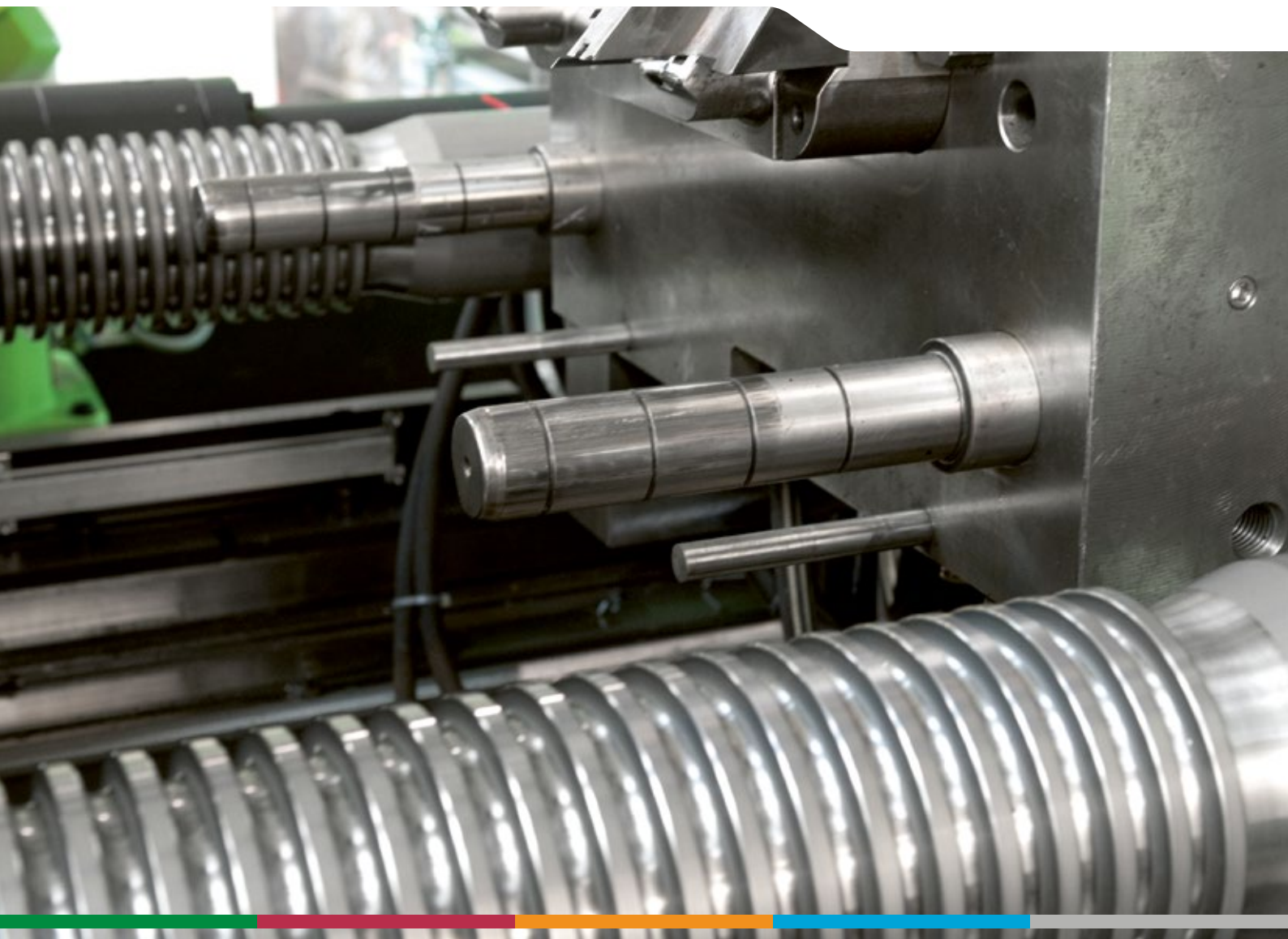


Plastic injection moulding

Bremer & Leguil special products



Content

| | |
|-----------------------|----|
| About Bremer & Leguil | 4 |
| Product overview | 6 |
| Protect | 8 |
| Clean | 10 |
| Lubricate | 14 |
| Release | 20 |
| Packaging overview | 22 |





Overview, certificates, and pledge to serve

Plastics play a significant role in many areas of our daily life. Directly usable moulded parts can be produced economically and in large numbers as well as in small limited editions with injection moulding. Only when your injection moulding machines can work in full swing and the output is at a maximum can an optimal and profitable performance be achieved. Our products offer you support here – Lower costs, more reliability.

The goals of our innovative and high-quality Rivotta brand products are increasing the tool life, acceleration of cleaning and maintenance processes, ensuring the intrinsic value and minimisation of downtimes, and production wastage in all the sectors of plastic injection moulding.

We offer you a comprehensive product portfolio on the following pages to carry out the tasks in the fields of preservation, cleaning, lubrication, and release.

This portfolio also offers products with NSF registration. The statutory hygiene regulations (DIN EN ISO 22000 & HACCP [Hazard Analysis Critical Control Points]) have been extended in the requirement even in the plastic

injection moulding industry to use lubricants and cleaning agents, which are permitted for the occasional – unavoidable – contact with foodstuffs, beverages, pharmaceuticals, or animal feeds.

The NSF International (National Sanitation Foundation), an independent organisation, which has been addressing the creation of standards, certification of products, and implementation of tests for the protection of foods, water, and consumer goods since 1944, is involved in this.

An NFS registration is being required of more and more companies even within the framework of certifications. So, you are on the safer side with an NFS registered product to that effect.



Bremer & Leguil – we keep things moving

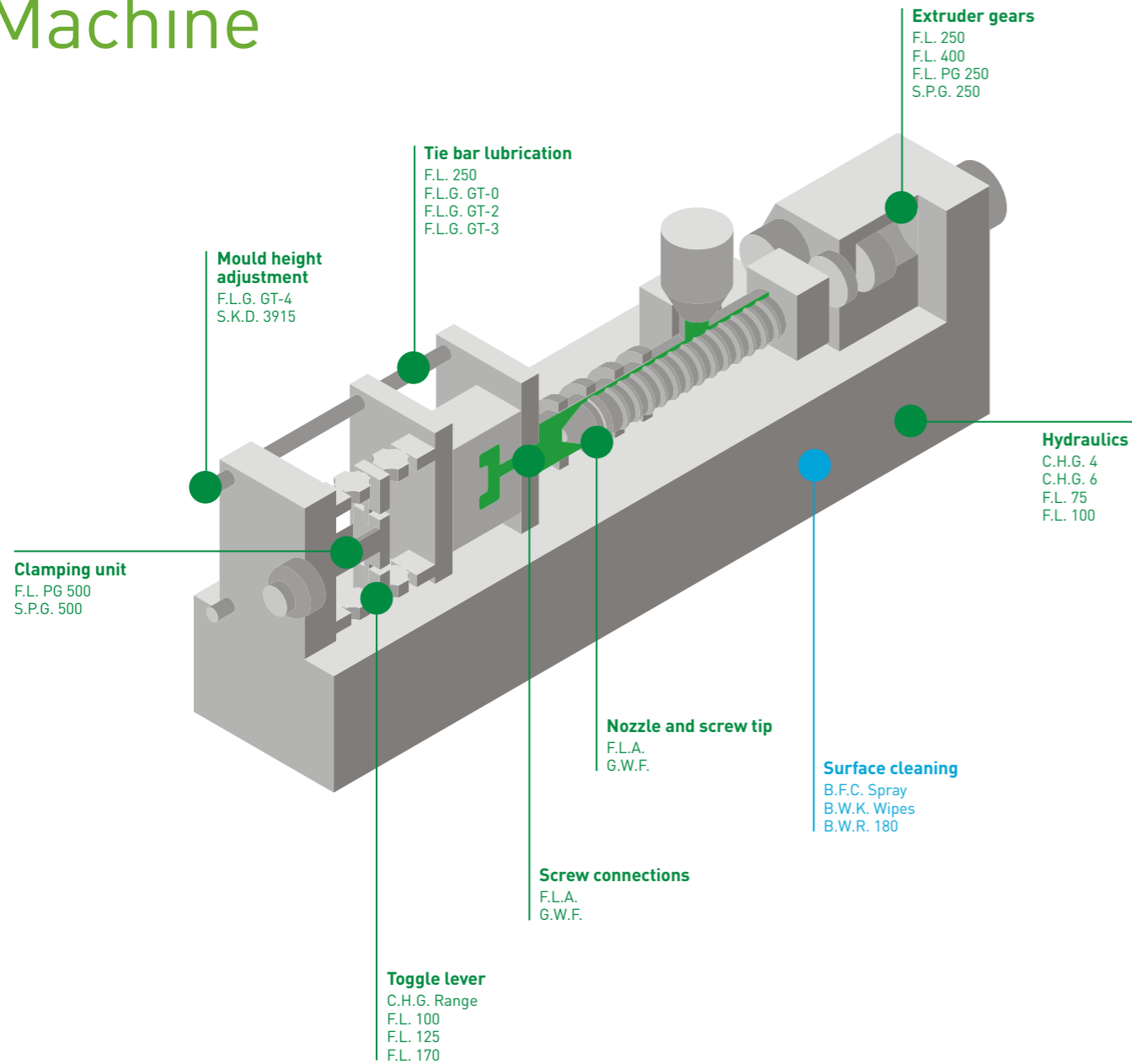
Bremer & Leguil is known since a good 50 years for its special lubricants, cleaning agents, corrosion protection agents, and maintenance products. With a wide product range, we have faced almost all sorts of challenges, which ensue in the technical tasks in the industrial sector, energy supply, and in many other sectors.

We are setting new benchmarks through innovation and service. Our team of technical professionals is always there for you – with the expertise and the advice that your company needs. Safety in maintenance work and production is a byword for our products. We exclusively use selected raw materials. They serve to reduce the hazardous substance labels and increase the safety for the users and the environment.

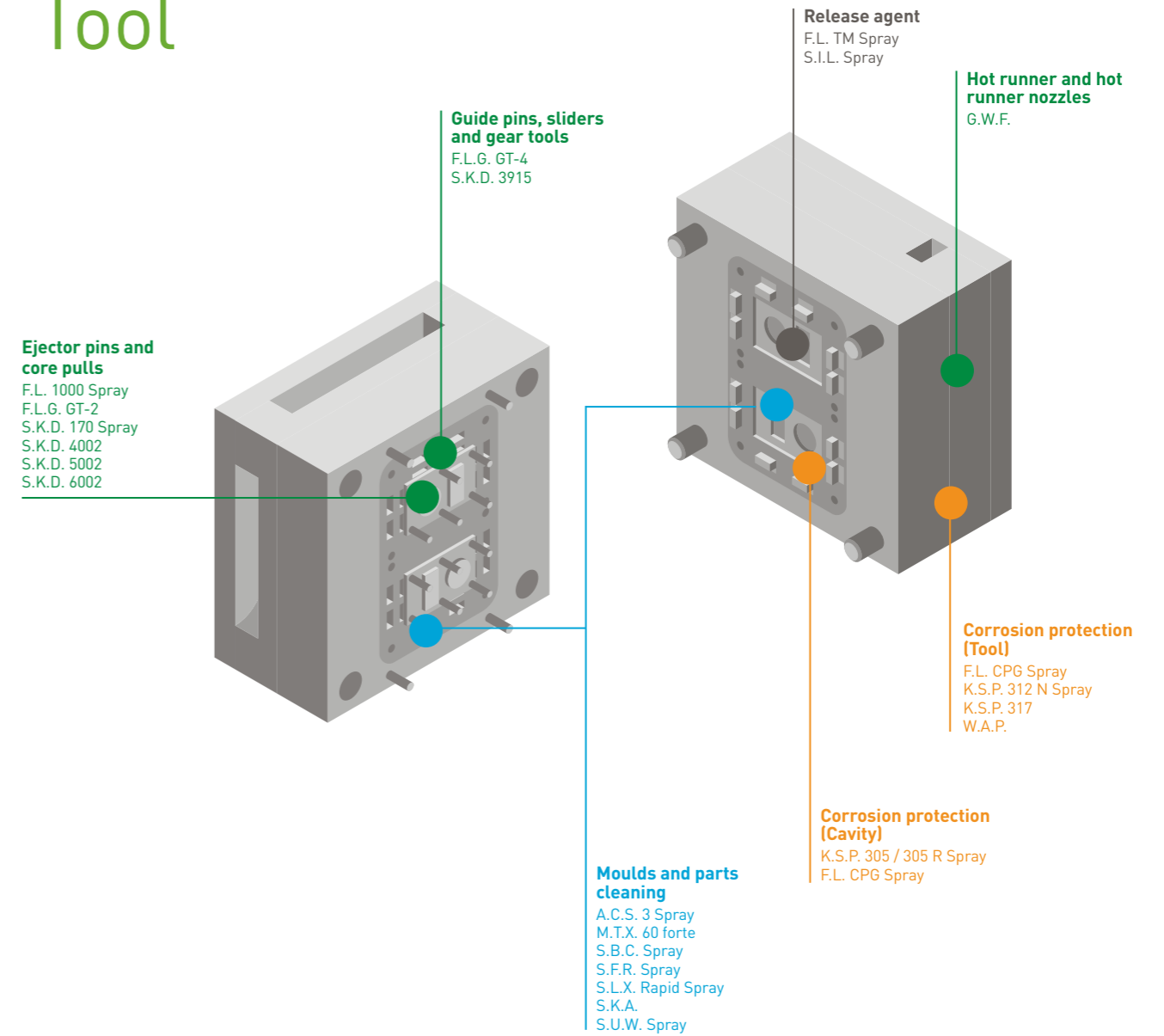


For lubrication, cleaning, protection and release in the plastic production we recommend the use of the following products. On the depicted diagrams you can see where exactly which Rivolta Product can be used:

Machine



Tool





Protect

During the injection moulding process, the costs for the tool account for a major part of the necessary investments.

New construction and maintaining the value of the plastic injection tools are cost-intensive. Therefore, the protection of the tool is of great importance. Even a slight corrosion arising during the breaks in production, storage or transport can permanently damage the shape. In order to avoid this, we offer you special, easily removable corrosion protection products, which minimise your maintenance expense and increase the service life of the tool.

For protecting the cavities, we recommend:

K.S.P. 305 Spray / K.S.P. 305 R Spray

It is the ideal corrosion protection for all metal surfaces such as cavities, even for high-gloss finish and complicated moulding. The wax-like protective film can be easily applied, does not creep into the ejection and slider gaps, is effective for a long time, and can often be quickly removed from the mould without additional cleaning expense. The mould can be immediately and readily used without prior cleaning. Corrosion protection is already completely removed without residues after a few shots. You should use Rivolta K.S.P. 305 Spray while storing the mould, after maintenance or in case of longer halts in production, e.g., on weekends. Also available in a red-coloured variant (K.S.P. 305 R Spray).



F.L. CPG Spray

Rivolta F.L. CPG Spray was specially developed for conservation of high-glass surfaces, cavities, and complicated mouldings, which are used in the manufacture of, for example, packaging for food and cosmetic industry and has the NSF-H1 registration. The product does not creep into ejection and slider gaps while applying and does not leave any residues even at increased mould temperatures upon injection process. A separate cleaning of the mould is often not necessary since the corrosion protection coat is already removed without residues after a few shots.



NSF

For long-term storage and transport, we recommend:

K.S.P. 312 N Spray / K.S.P. 317

They are wax-like and easily removable corrosion protection products, which can be used in the periphery for long-term preservation, such as long-term storage and transport, also under adverse storage and transport conditions such as air freight or sea transport.



For the protection of clamping plates, we recommend:

W.A.P.

Rivolta W.A.P. is a light-coloured, high-performance metal-soap based paste in conjunction with highly effective white solid lubricants. W.A.P. is characterised by its high compressive strength, a very good adhesion, and its high water-resistance. Excellent corrosion protection properties effectively prevent the formation of corrosion between clamping plates and the tool. W.A.P. is free of graphite and MoS₂.



Clean

Bremer & Leguil also provides a broad spectrum of specially developed products even in the field of cleaning.

From removing deposits and residues by plastic, fumigations and colour batches right up to degreasing of mechanical machine components, our products measure up to all challenges and thus accelerate your processes. In addition, our cleaning agents are strictly free of CMR substances (carcinogens, mutagens, and toxic for reproduction) and thus increase the work safety many times over.



For cleaning of tools and moulds, we recommend:

S.F.R. Spray

The high-performance formulation powerfully cleans the moulds and tools. Rivolta S.F.R. Spray is NSF-A1 registered. It is the ideal mould cleaner when it comes to considering all the work safety-related aspects, and to simultaneously penetrate and release plastics without attacking the material of the injection mould in the process.



S.K.A.

Rivolta S.K.A. is a user-friendly cleaning agent. It penetrates and releases a number of thermoplastic resins and elastomers from moulds and tools on the injection moulding machines, foil lines, blow moulding lines, spinning plants, and extrusion plants. NSF-A1 registered.



A.C.S. 3 Spray

It is a universal rapid cleaner and degreaser for cleaning even the most sensitive surfaces including high-gloss engravings without leaving a residue. Creates a basis for subsequent processes such as galvanisation or painting.



S.U.W. Spray

Is a special evaporating cleaning agent with a mild smell, good material compatibility, and excellent cleaning strength against persistent contaminations such as resinous residues, oils, and greases, etc.



M.T.X. 60 forte

It should be used for quickly releasing greases, waxes, cracked oils and other persistent residues. It can be used in various cleaning procedures such as immersion, rinsing, brushing, or spraying using a spray can.





S.L.X. Rapid Spray

It is a rapid cleaning agent with NSF-K1 & K2 registration for degreasing the metal surfaces in component production for hygiene sensitive fields. Rivolta S.L.X. Rapid Spray is free of acetone and has excellent cleaning effect under sufficient reaction time. It has versatile uses, e.g., in other sectors as a rapid cleaning agent.



S.B.C. Spray

Rivolta S.B.C. Spray is a rapid and residue-free evaporating cleaning agent, which is excellent for quick and thorough cleaning / degreasing of blank metal and steel parts. S.B.C. Spray is NSF-A1 registered. It is based on a combination of highly effective substances, which can each remove various residues and contaminations.



For the in-house surface cleaning, we recommend:

B.W.K. Wipes Set

Cleaning wet wipes soaked with an easily biodegradable cleaning agent. Especially suitable for quick and easy removal of contaminations on water-resistant surfaces. NSF-A1 registered. Available as a set of wipes including refillable bucket as well as a refill pack.



B.S.E.

Rivolta B.S.E. quickly and thoroughly cleans objects such as rusted workpieces, machines, and fastening elements and is used for safe removal of rust and calcifications from the cooling channels.



B.F.C. Spray

Universal foam cleaner with NSF-A1 registration. Gently and effectively cleans protective viewing panes, e.g., Makrolon due to its good material compatibility. Also ideal for touch panels and display screens.



B.W.R. 180

The universally usable cleaning concentrate with higher cleaning strength is suitable to release and clean off a wide variety of contaminations on water-resistant surfaces. NSF-A1 registered and hence "Almost all-in-one".



For cleaning the floors, we recommend:

B.R.X. 540

Rivolta B.R.X. 540 is particularly suitable for cleaning floors and sealed ground areas. Its active ingredients release even persistent contaminations.





Lubricate

Complicated moulds, tool temperatures, aggressive condensates, used injected material and high speeds are the key factors for efficiency in the plastic injection moulding industry.

In addition, there are growing quality requirements. Conventional lubricants are often overburdened here. This is because the base oil viscosity is influenced by temperature, the consistency changes, the lubricating grease liquifies and runs down from the lubrication point. This results in lack of lubrication and consequently, increased wear on the moving parts. Other consequences are higher evaporation rates of the base oil used and thus, the drying out of the lubricant. This results in the formation of solid residues, which can be seen as black or brown spots on the mouldings, and which lead to rejection. You can counteract these with synthetic Rivolta lubricants, which are compatible even with sensitive types of plastics. Relubrication intervals can be significantly extended, and a high quality maintained.

For use on ejector pins and core pulls, we recommend:

S.K.D. 4002

It is a fully synthetic high-performance grease and excellent for the lubrication of ejector pins up to approx. +100 °C tool temperature. Low evaporation losses result in a stable lubrication film protecting against wear. Coke residues on the ejector pins can be prevented by applying this grease. The practical 100 g tube enables an optimal dosing usable at all times in the workshop as also in the factory.



F.L.G. GT-2

It is a fully synthetic and NSF registered basic grease for tool temperatures up to approx. +80 °C. Does not result in resin formation and forms a stable, adherent consistency on the moving parts. Protection against wear, stiffness and squealing noises. Practical dispenser for easy application. Your maintenance expense shall be significantly reduced. Rivolta F.L.G. GT-2 is also ideal for general machine lubrication. It has been approved by Arburg GmbH & Co. KG.



NSF

S.K.D. 170 Spray

It is an adherent lubrication oil, combined with excellent adhesion properties for tool functioning, including lubrication of the ejector pins on the ejector plate. Best lubrication properties even for chains and joints on the transport systems and peripheral equipment. Easy to apply.



F.L. 1000 Spray

An NSF-H1 registered product alternative to Rivolta S.K.D. 170 Spray for plastic articles used in hygiene sensitive sectors.



NSF

For high-temperature use on ejector pins and core pulls, we offer:

S.K.D. 5002

This NSF-H1 registered high temperature grease is recommended at temperatures up to approx. +260 °C. It prevents the dirt from being dragged out on the moulding and ensures good material compatibility in sensitive materials, e.g., transparent materials (PC).



S.K.D. 6002

This NSF-H1 registered extreme temperature grease is recommended at temperatures up to approx. +280 / +300 °C. It prevents the lubricant from being transferred on the moulding and ensures good material compatibility in sensitive materials, e.g., transparent plastics (PC).



For sliders and transmission tools, we recommend the following products:

S.K.D. 3915

It is an especially adherent lubricant, which does not get displaced in spite of extremely high loading pressure while closing the tool. Can be used up to +160 °C. Rivolta S.K.D. 3915 can also be used as a universal grease in guide pins, sliding surfaces on sliders, column guides, and transmission tools with open interlocking.



F.L.G. GT-4

An NSF-H1 registered product alternative to Rivolta S.K.D. 3915 at temperature requirements up to +160 °C. As the permitted food-grade lubricant, it is also suitable for lubrication of guide pins, sliding surfaces on sliders, column guides, open transmission tools and in mould height adjustment.



For screw fittings in hot and cold application, we recommend:

G.W.F.

This paste makes the assembly and disassembly of screw fittings on nozzles, screw tips and hot runners easy. Even after long use, the connections can be loosened without any problem. Arburg, Ferromatic, and other manufacturers have approved this paste.



F.L.A.

An NSF-H1 assembly paste for machines with food grade. It enables the assembly and disassembly of nozzles, screw tips and hot runners in the necessary hygiene requirements. Approved by Arburg GmbH & Co. KG.



Bremer & Leguil also offers a comprehensive product range, which has been developed especially for the hydraulics, extruder gears, and mechanical clamping units on plastic injection moulding machines.

All the products of the Rivolta F.L. series that are shown here are NSF-H1 registered and can hence be used in hygiene-sensitive fields such as the manufacture of packaging for foodstuff, cosmetics, and pharmaceuticals including clean room conditions. They are based on a combination of special fully synthetic oils and an excellent additive package. These premium lubricants thus offer wear protection, ageing stability and corrosion protection all in one.

For hydraulics, extruders, gears, and toggle levers, we recommend the following products:

F.L. 75 / 100 / 125 / 170 / 250 / 400

The Rivolta F.L. series offers fully synthetic oils in different ISO VG classes as well as different approvals:

- F.L. 75 is a hydraulic oil of ISO VG 46 with approvals from manufacturers Arburg GmbH & Co. KG, as well as Engel Austria GmbH.
- F.L. 100 is a hydraulic oil of ISO VG 68.
- F.L. 125 has the ISO VG 100.
- F.L. 170 has the ISO VG 150.
- F.L. 250 is an extruder gear oil of ISO VG 220 and also suitable for tie bar lubrication. Approved by Arburg GmbH & Co. KG and the Knödler-Getriebe GmbH & Co. KG.
- F.L. 400 is also an extruder gear oil with ISO VG 320.



F.L. PG 250 / 500

Rivolta F.L. PG 250 is polyglycol-based and is suitable for separate extruder gears. It has the ISO VG 220. F.L. PG 500 is also a polyglycol with ISO VG 460 and is used for gears and clamping gears on toggle levers.



Other lubrication greases for machine lubrication:

F.L.G. GT-0 / F.L.G. GT-3

Both are ideal for tie bar lubrication. Rivolta F.L.G. GT-0 has the NLGI class 00 and F.L.G. GT-3 has the NLGI class 2.



For applications without NSF classification, we recommend:

C.H.G. 4 / 6 / 10 / 15 / 22

Rivolta C.H.G. 4 / 6 / 10 / 15 / 22 are fully synthetic, low-evaporation, high-performance oils with high-quality oxidation and corrosion protection additives as well as inhibitors for friction and wear minimisation. They were specially developed to offer a high performance in hydraulics and gears. ISO VG from 46 to 220.



S.P.G. 250 / 500

Fully synthetic polyglycol-based special oils with a high-performance additive package for especially heavy loads, e.g., in separate extruder gears. The extremely high viscosity index ensures functional safety in a wide operating range for temperature. In conjunction with a very low friction coefficient and excellent wear protection properties, they enable a higher efficiency and long oil life. Rivolta S.P.G. 250 has the ISO VG 220 and S.P.G. 500 has the ISO VG 460.





As release agents, we recommend:

F.L. TM Spray

It is silicone-free and does not contain any substances, which affect a further downstream processing such as painting, galvanising, or multiple-component production. Specially developed for use in sensitive fields of hygiene also and NSF-H1 registered. It has material compatibility to polycarbonates.



NSF

S.I.L. Spray

It is a silicone-containing mould release agent, which can be used as a sliding and release agent for conveyor belts, slides, guides, as well as moisture protection and maintenance of surfaces or for assembly of rubber and plastic parts. NSF-H1 & 3H registered.









NSF

Release

Bremer & Leguil rely on tried and tested Rivolta products even in release agents. These release agents reliably achieve an easy demoulding of the injection moulded parts from the cavities. This ensures the surface quality of the workpiece as well as its suitability for further processing and avoids undue ejection.

Packaging Overview

Protect










| Product | Application |
|---|---|
| F.L. CPG Spray Synthetic Corrosion Protection Spray  | For temporary preservation of semi-finished products, injection moulding tools, thin-layer preservation, without penetration behavior  |
| K.S.P. 305 / 305 R* Spray Corrosion protection wax  | Conservation of cavities and all sensitive metal surfaces during downtimes or storage |
| K.S.P. 312 N Spray Corrosion protection wax  | Exterior preservation of tools, spare parts, and machine parts for the long-term storage or the transport (sea and air freight) in handy spray can |
| K.S.P. 317 Corrosion protection wax  | Exterior preservation of tools, spare parts and machine parts for the long-term storage or the transport (sea and air freight) as bulk product |
| W.A.P. High-performance grease paste  | Preservation of clamping plates and all sensitive metal surfaces during downtimes or storage |

*red pigmented

NSF classes





- A1** describes cleaning products for the general, universal use in all areas as well as in production areas of the food industry.
- A4** describes floor cleaners which can be used in alle areas of the food industry for the cleaning of floors and walls.
- K1** describes solvent cleaners which can be used in the food industry outside the production area.
- K2** describes solvent based cleaning products for electrical and electronical installations and instruments.
- H1** describes lubricants which can be used at critical points in the food industry, where an incidental, unscheduled contact of the lubricant with the food cannot be completely excluded.
- 3H** describes lubricants which act as a release agent where direct food contact is intended or technically necessary to stop the food from sticking during the manufacturing process. Thereby acting as a lubricating film and release material.













Clean

| Product | Application |
|--|--|
| A.C.S. 3 Spray Rapid evaporating cleaner  | Highly effective removal without residues of all oily and greasy contaminations from moulds and mechanical parts, cleaning of glossy engravings |
| B.F.C. Spray A1-Foam cleaner  | Streak-free cleaning of windows at safety doors, of control panels and screens  |
| B.R.X. 540 In-depth cleaner for floors  | Highly concentrated ingredient combination, phosphate-free, highly alkaline, effortlessly removes the most stubborn dirt |
| B.S.E. Safety rust remover  | For the removal of rust, lime and scale deposits, free of mineral acids, VOC-free |
| B.W.K. Wipes Set Wet wipes  | Ready to use, enormous cleaning power, very good material compatibility, user-friendly, free from colorants, fragrances and preservatives  |
| B.W.R. 180 Cleaning concentrate  | Cleaning of machine surfaces and hall floors  |
| M.T.X. 60 forte Intensive cleaner  | For the cleaning of all oil and grease lubricated mechanical sliding surfaces, removal of deposits on mounting surfaces and parting lines |
| S.B.C. Spray A1-Special cleaner  | Special cleaner with rapid and residue-free evaporation and strong cleaning power  |
| S.F.R. Spray Special mould cleaner  | Cleaning of cavities from plastic deposits  |
| S.K.A. Mould cleaner  | User-friendly, removes residues that arise on tools and moulds during plastics processing  |
| S.L.X. Rapid Spray Universal rapid cleaner  | Removal without residues of oily and greasy contaminations, cleaning of glossy engravings  |
| S.U.W. Spray Special cleaner for wind power stations and industrial plants  | Mild smell, enormous cleaning power, good material compatibility, residue-free and rapid evaporation |





The shown packaging sizes are our standard. Other types of packagings and sizes are available upon request.

Lubricate

| Product | Application |
|---|--|
| C.H.G. 4 / 6 / 10 / 15 / 22 Fully synthetic top-performance oil |  Synthetic hydraulic and gear oil, ISO VG 46 - 220 |
| F.L. 75 Synthetic food grade lubricating oil |  Synthetic hydraulic oil, ISO VG 46  |
| F.L. 100 Synthetic food grade lubricating oil |  Synthetic oil for hydraulics or toggle lever, ISO VG 68  |
| F.L. 125 Synthetic food grade lubricating oil |  Synthetic oil for toggle lever, ISO VG 100  |
| F.L. 170 Synthetic food grade lubricating oil |  Synthetic oil for toggle lever, ISO VG 150  |
| F.L. 250 Synthetic food grade lubricating oil |  Synthetic oil for extruder gears or tie bar guidance, ISO VG 220  |
| F.L. 400 Synthetic food grade lubricating oil |  Synthetic oil for extruder gears, ISO VG 320  |
| F.L. 1000 Spray Synthetic food grade lubricating oil |  Lubrication of ejector pins and core pulls, lubrication of chain links at transport systems  |
| F.L.A. High-performance assembly paste |  Assembly paste with a wide temperature range of -40 °C up to +1200 °C  |
| F.L.G. GT-0 Synthetic semi-fluid grease |  To lubricate tie bars and toggle levers, with a wide temperature range  |
| F.L.G. GT-2 Synthetic multi-temperature grease |  Temperature stable high performance grease for improved sliding properties at ejector pins, core pulls or sliding surfaces of peripheral devices  |
| F.L.G. GT-3 Synthetic multi-temperature grease |  To lubricate guides and tie bars, good corrosion protection  |
| F.L.G. GT-4 Synthetic multi-temperature grease |  To lubricate column guides and tool guides, sliders and gears at threading tools for increased temperature requirements  |
| F.L. PG 250 Special food grade gear oil |  Polyglycol oil for extruder gears or total loss toggle lever lubrication, ISO VG 220  |

| Product | Application |
|---|--|
| F.L. PG 500 Special food grade gear oil |  Polyglycol oil for gears and clamping gears, ISO VG 460  |
| G.W.F. Anti-seize-agent and lubricant |  Application for all screw connections in the hot area such as nozzles, screw tips or hot-runners |
| S.K.D. 170 Spray Synthetic adhesive chain lubricant |  Lubrication of ejector pins and core pulls or chain links at transport systems |
| S.K.D. 3915 High-temperature, heavy-load grease |  To lubricate column guides and tool guides, sliders and gears at threading tools |
| S.K.D. 4002 High-temperature, high-performance grease |  Fully synthetic grease for the permanent lubrication of ejector pins, ageing stable and with very good properties of wear protection |
| S.K.D. 5002 Highest temperature grease |  High temperature grease for ejector pins and core pulls. Material compatible for injection-moulded articles which are sensitive to stress cracking, for special purity requirements  |
| S.K.D. 6002 Extreme-temperature grease |  Extreme temperature grease for ejector pins and core pulls. Material compatible for injection-moulded articles which are sensitive to stress cracking, for special purity requirements  |
| S.P.G. 250 Synthetic high-performance gear oil |  Polyglycol oil for extruder gears and total loss toggle lever lubrication, ISO VG 220 |
| S.P.G. 500 Synthetic high-performance gear oil |  Polyglycol oil for extruder gears, ISO VG 460 |

Release

| Product | Application |
|--|---|
| F.L. TM Spray Silicone-free allround release agent |  Silicone-free mould release agent for applications of highest product purity in hygiene areas  |
| S.I.L. Spray Silicone oil |  Silicone-based release agent and mounting aid for applications of highest product purity in hygiene areas, NSF-H1 and 3H listed  |

The shown packaging sizes are our standard. Other types of packagings and sizes are available upon request.

Publisher and Copyright:

Bremer & Leguil GmbH
Am Burgacker 30 - 42
47051 Duisburg, Germany
Local first instance court Duisburg, Germany
Certification of registration 932

Reprints, total or in part, are permitted only prior consultation with Bremer & Leguil GmbH and if source is indicated and voucher copy is forwarded.

This brochure facts and statements and is determined with our best knowledge and will be checked continuously. These statements are depending - among other reasons - on experiences gained in the industry. We only pass them on without liability. Before using our products you should test the applicability and you should convince yourself about the satisfactory performance. We are specialized in developing products for extreme tribological problems in cooperation with end users. Bremer & Leguil provides service and individual advice. Please contact us.

Product illustrations partly consist of picture compositions and therefore, do not necessarily reflect the reality.

Our products are continually being up-dated. We reserve the right, therefore, to alter the information of this brochure at any time and without prior announcement.

Bremer & Leguil GmbH

Am Burgacker 30-42 • 47051 Duisburg • Germany
Tel. +49 (0) 203 99 23-0 • Fax +49 (0) 203 2 59 01