

FUCHS Industrial Lubricants

For extra process reliability



**Diverse corrosion protection
applications methods and their uses**



FUCHS EUROPE SCHMIERSTOFFE GMBH

YOUR STRONG GLOBAL PARTNER



HOW WE EXCEL

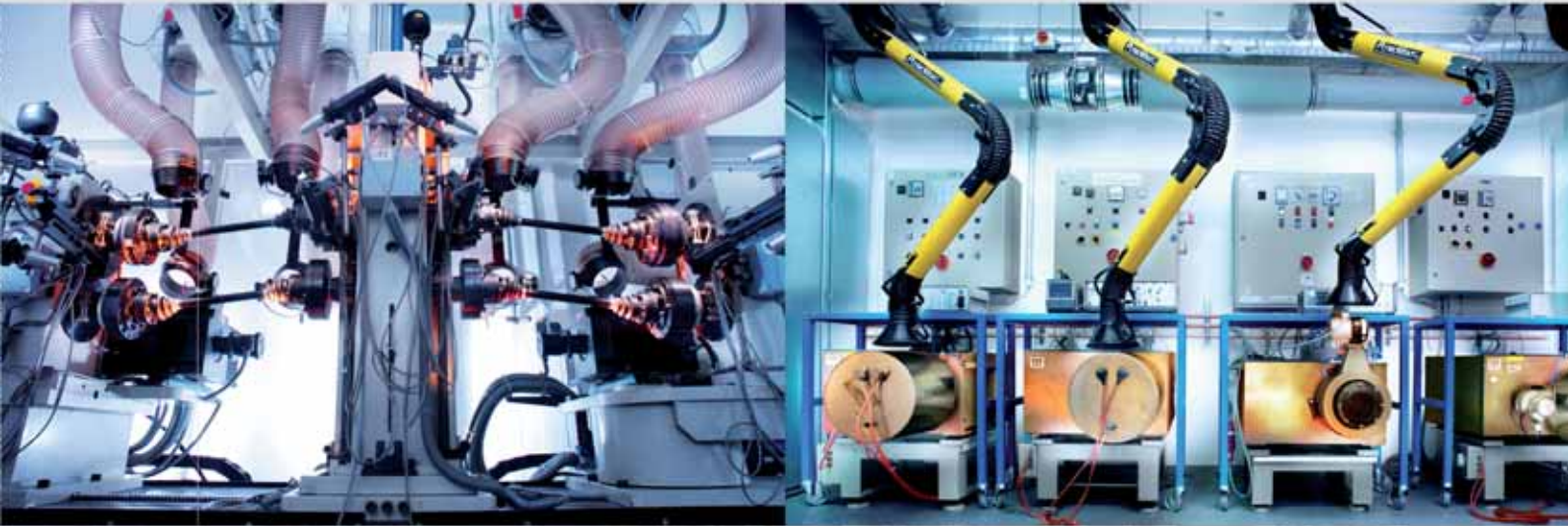
We are a German company whose almost 600 employees manufacture and market a wide range of lubricants and derived specialties. The company, which was founded in 1931 as RUDOLF FUCHS, is located in Mannheim and is a 100 % subsidiary of FUCHS PETROLUB AG, which is the largest independent lubricants manufacturer worldwide.

Our company's degree of specialisation and innovation is way above the industrial average in this field. The full product line includes almost 2,000 lubricants and derived specialties for all walks of life, industrial processes and applications. Our customer's success is also our success. Because partnership to us means passing-on benefits.

The advantage of a strong market presence: FUCHS is the largest independent manufacturer of lubricants in the world. The benefit of premium, innovative products from a full-line manufacturer: With a complete product line as well as tailor-made special solutions, FUCHS has a product for every application. The benefits of reliability: Certified according to DIN EN ISO 9001:2000 and ISO/TS 16949:2002, FUCHS has been continuously upgrading its highly specialised lubricants for decades.

And naturally, partnership for us also means providing our customers with competent support. With comprehensive marketing. With high-performance logistics. With the development of successful service concepts. And qualified consulting. Because together, we can achieve more.

FOR INDUSTRIAL LUBRICANTS



WHAT INCREASES THE VALUE OF OUR PRODUCTS

We develop lubricants: application-specific and tailor-made for our customer's processes. Together we look for the best lubricants for our customers. This cooperation is unique in terms of its form, scope and intensity. We call it **development partnership**. The success of our development partnerships is based on an important fact: FUCHS is not one of the oil-giants.

FUCHS is a multinational, independent lubricant manufacturer. Our independence is the difference. We are open to new solutions, open for visions – the prerequisites for innovations. And innovation is the defining characteristic of FUCHS. 70 % of our products are less than five years old and the great majority of our products are individual solutions. Challenge us and see!



DIN EN ISO 9001:2000
ISO/TS 16949:2002
DIN EN ISO 14001:2004
REG.NR. 2476



Diverse corrosion protection applications methods and their uses.

Dipping



Suitable for low-viscosity corrosion preventives. De-watering, water-miscible and non-water-miscible products can be used. If de-watering products are used, a drain cock must be fitted to the base of the dipping tank.

Advantages:

- Uniform coating even on complex shapes
- Suitable for loose parts and tubes
- Small to large parts can be treated

Disadvantages:

- Concave parts cause high consumption
- Complex handling

Rolling with felt rollers



Manufacturer: e.g. Eckardt (Bretten/Germany)
For conventional, low- and medium-viscosity lubricants. Internal oil feed through hollow shaft, oil quantity electronically metered.

Advantages:

- Low investment costs
- Rollers can be changed for different widths and oil grades
- Rollers can be changed without tools
- Metering system and oil supply can be individually matched

Disadvantages:

- Not suitable for thixotropic products

While the information and figures given here are typical of current production and confirm to specification, minor variations may occur. Subject to amendment. Edition 07/2008



Spraying with spray rails



Manufacturer: e.g. Eckardt (Bretten/Germany)
Designed for highly viscous lubricants and Hotmelt products. Suitable for the oiling of coils and stacks.

Advantages:

- This application matches the oil quantity to the band speed
- Different film thicknesses are possible at different points (spot lubricants)

Disadvantages:

- Sometimes extraction is necessary
- Hotmelts require heated cabins

Spraying with handheld pistols



Manufacturers: e.g. J. Wagner (Markdorf/Germany), EFD (Dirmstein/ Pfalz/Germany)
A pump transports the lubricant through a heating element. Warm-ed-up, the medium flows through a thermo-hose in which the atomizing air is also heated to a defined temperature. The medium is sprayed with a handheld pistol. Also suitable for engine protection.

Advantages:

- Flexible use
- Intake at room temperature
- Air and medium can be heated to +80 °C
- Oil thickness > 0.7 g/m²

Disadvantages:

- Slight oil misting

While the information and figures given here are typical of current production and confirm to specification, minor variations may occur. Subject to amendment.

Edition 07/2008



The optimum lubricant for every stage in the process.

Rolling/squeezing



Manufacturer: e.g. Eckardt (Bretten/Germany)
For highly-viscous, volatile lubricants and Hotmelt products.
Suitable for the oiling of coils and panel stacks.
The squeezing rollers are covered with non-wovens and should not be compared to felt.

Advantages:

- No product heating necessary
- Cost-effective application
- Double-sided coil and panel application in one operation
- Uniform coating thickness
- No extraction necessary
- Suitable for thixotropic products

Disadvantages:

- Roller wear with different panel thicknesses and widths
- Rollers must be cleaned when changing products

Electrostatic spraying



Manufacturers: e.g. Duma, SMR, Ravarini
Used mainly by the steel industry with Prelubes or the RP series. Thixotropic corrosion preventives and Hotmelts can also be sprayed.

Advantages:

- Defined spray pattern width
- Segmented spray rails
- Homogeneous film
- High band speeds possible
- No surface changes
- No wear – contact-less

Disadvantages:

- High investment costs

The complete lubricants program from the specialists.

Selection criteria to determine tailor-made applications:

The selection of the optimum lubricant and the best method of application are of decisive importance to reliable performance of manufacturing processes. This leaflet provides an overview of optimum application criteria.

Selection Criteria:

Size and dimension of the parts to be coated.

Type of parts:

- Coil coating (coil width)
- Stacked panels
- Have the parts been formed?
- Difficult access
(tubes, gearbox housings, engines, etc.)
- Do concave components need to be protected?

What type of lubricants should be used:

- Viscosity (does the lubricant have to be heated before use?)
- Are thixotropic lubricants used?
- Hotmelt required?

Automation of the application:

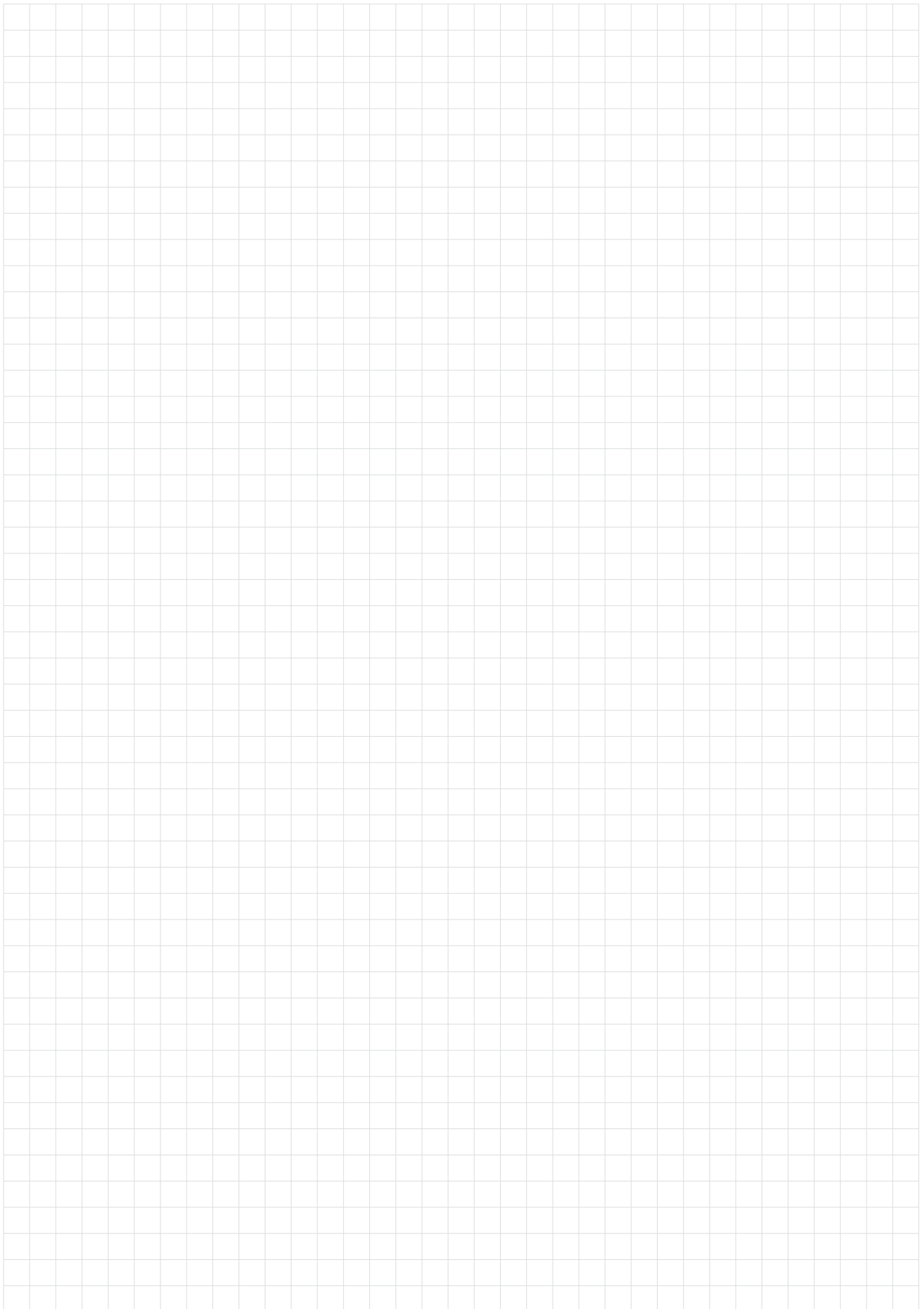
- Application speed
- Required film thickness

Customer's Space availability:

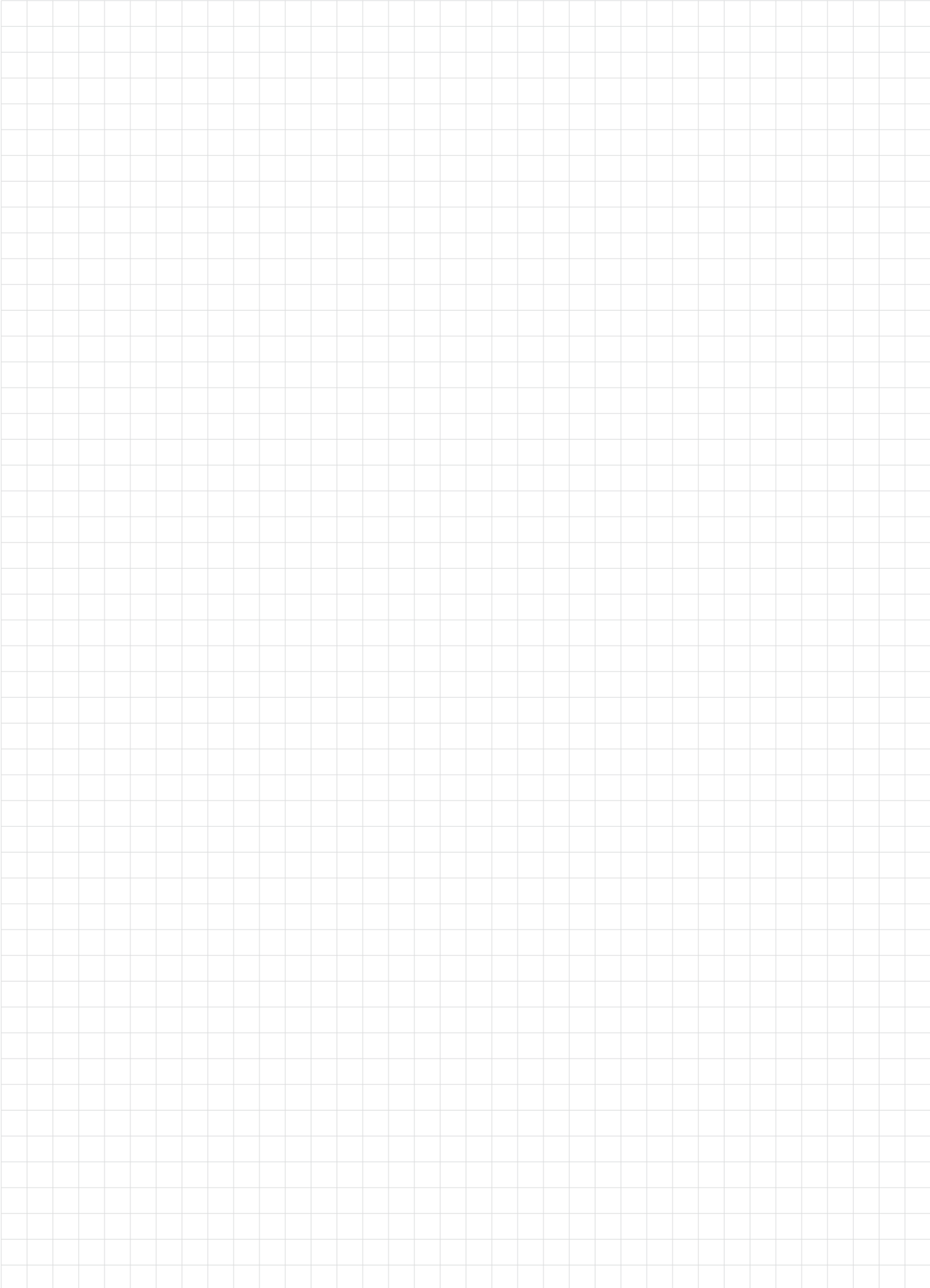
- Ahead of the press
- Around the de-coiling line
- Integration in the process



Notes



Notes



FUCHS Industrial Lubricants

Innovative lubricants need experienced application engineers

Every lubricant change should be preceded by expert consultation on the application in question. Only then can the best lubricant system be selected. Experienced FUCHS engineers will be glad to advise on products for the application in question and also on our full range of lubricants.



Contact:



FUCHS EUROPE SCHMIERSTOFFE GMBH

Friesenheimer Straße 15
68169 Mannheim / Germany
Phone: +49 621 3701-0
Fax: +49 621 3701-570
E-mail: zentrale@fuchs-europe.de
www.fuchs-europe.de

Export Division
Friesenheimer Straße 9
68169 Mannheim / Germany
Phone: +49 621 3701-703
Fax: +49 621 3701-719