

# Industrial Lubricants

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## **Worldwide Associated Companies**

- |                  |                   |
|------------------|-------------------|
| - Austria        | - Malaysia        |
| - Belgium        | - Mexico          |
| - Bulgaria       | - Poland          |
| - China          | - Portugal        |
| - Czech Republic | - South Africa    |
| - Denmark        | - Sweden          |
| - Egypt          | - Switzerland     |
| - Finland        | - Slovenia        |
| - France         | - Spain           |
| - Great Britain  | - Thailand        |
| - Hungary        | - Taiwan          |
| - Indonesia      | - The Netherlands |
| - Iran           | - Turkey          |
| - Italy          | - Ukraine         |
| - Japan          | - USA             |
| - Korea          | - Venezuela       |





#### An Introduction .....

Welcome to Hardcastle Petrofer Private Ltd. (HARDCASTLE PETROFER), a joint Venture between the Jantias of HARDCASTLE group and the world renowned Petrofer Germany.

#### About the Partners .....

PETROFER's range of Industrial Lubricants are approved by various OEM's such as Bosch Rexroth, Buhler Druckguss AG, Deckel - Maho Gildemeister, Engel Austria GmbH, Muller - Weingarten AG, Liebherr Verzahntechnik GmbH, Nagel Maschinen/Werkzeugfabrik GmbH etc.

The excellence of PETROFER's product range is the result of the Company's philosophy of continuous improvement and the dedication of its personnel at its development centre in Hildesheim, Germany.

Many products of HARDCASTLE are already being used by some leading industries on an exclusive basis. On the other hand, from its origin in Central Europe, PETROFER has developed a worldwide network of associates and distributors to ensure that the needs of its international customers are met completely.

PETROFER's commitment to quality assurance and the environment is reflected in its accreditation to the DIN EN ISO 9001, QS 9000, VDA 6.1 and DIN EN ISO 14001 standards.

HARDCASTLE has made pioneering efforts during its long market presence in the Indian Metal Processing Chemicals and Lubricants Industry.

HARDCASTLE was the first to introduce advanced technology products such as Polymer Quenchant and Fire Resistant Hydraulic Fluids to the Indian Industry by indigenously manufacturing and supporting the performance through unmatched service back-up.

HARDCASTLE is an approved supplier to an entire spectrum of leading industrial organizations in the Private and Public sectors in India.

#### About us .....

HARDCASTLE PETROFER's Indian manufacturing facility is located at Sarigam (near Vapi), Gujarat. You can always depend on HARDCASTLE PETROFER's team of qualified and experienced chemists and engineers, who will work with you to find the optimum solution to your needs.

The products of HARDCASTLE PETROFER, play a vital role in a wide variety of industrial applications such as Heat Treatment, Metal Working, Cleaning, Wire Drawing, Corrosion Prevention, Fluid Power, Steel Rolling, Off-Shore Drilling, Mining, etc. In addition, highly specialised products are developed for a wide range of customised applications.

Thus, HARDCASTLE PETROFER is an unparalleled combines of an Indian Company AND a German Company both having served their respective industries for over half a century. They have come together to complement each other's expertise and serve the Indian industry with their combined strength. THE OBJECTIVE : TO EXCEED THE HIGHLY SPECIALISED EXPECTATIONS OF VARIED CUSTOMER NEEDS.

#### SLIDE WAY OIL:

HILUBRIC WL Series

#### HYDRAULIC OIL:

HILUBRIC AW Series  
HILUBRIC HLP Series  
HILUBRIC HLP-HN Series

#### GEAR OIL:

HILUBRIC GR Series  
HILUBRIC GR SYN HC Series

#### HEAT TRANSFER OIL

HILUBRIC TT - 1  
HILUBRIC SYN TT Series

#### SPINDLE OIL:

HILUBRIC N Series

# INTRODUCTION



“High quality Lubricant means improved productivity of machines and equipments & hence better profitability of a Business ”

Today, it is more important than ever to maintain the value of expensive assets. Modern plant requires the optimum in lubrication or power-transmitting media. The selection of the right viscosity and the correct level of additives are of utmost importance in preventing the damage and destruction of expensive equipment.

We have been dedicated for years to the field of special purpose lubricants, hydraulic fluids and transmission oils and have a wealth of practical experience. There are, therefore, special purpose oils of various viscosity classes and levels of performance available today for most industrial lubrication problems. Suitable lubricants have been made available through our Research and Development departments for innumerable applications.

Lubricants for Industry: that means careful selection of raw materials; continuous product monitoring; extensive experience across the whole field of tribological engineering. All this assures you that our products will be of the highest quality.

At the concept stage of our lubricants for industry, special attention has been given to a product being compatible with common sealing elements and materials and beyond that, to having demulsifying properties.

Diffused water-miscible coolant/lubricants (emulsions or solutions) can therefore easily be removed by drawing off. Any dangerous, mixed friction that causes wear is thus avoided.

Detergent products quickly absorb water and continue to ensure great corrosion protection for your expensive equipment.

When selection of the lubricating / hydraulic medium, most suitable for a special purpose is being made, our Technical Services Department will gladly give advice at any time.

We monitor application properties of lubricants, on request, within the framework of our Customer Services in our laboratories.

This brochure is intended to give a general view of our standard programme in the field of Industrial Lubrication.

We can supply you with greases and other special purpose lubricants, on request.



## SLIDE WAY OIL HILUBRIC WL Series

### Product description:

The **HILUBRIC WL** Series of Slide way Oils are formulated from High quality base oil and unique combination of additives. These Slide way oils are stick-slip free & have high capacity to absorb the pressure. These features avoid the boundary lubrication conditions as much as possible for the best possible accurate functioning of Machine Tool Slide ways.

The **HILUBRIC WL** Series of slide way oils have high level of ageing resistance, excellent corrosion protection as well as very good oxidation resistance. These slide way oils have very good compatibility with Hardcastle Petrofer make soluble cutting oils.

These products have very good lubricity resulting in effective wear protection under continuous loading conditions. These slide way oils are Zinc free and have excellent water separation characteristics.

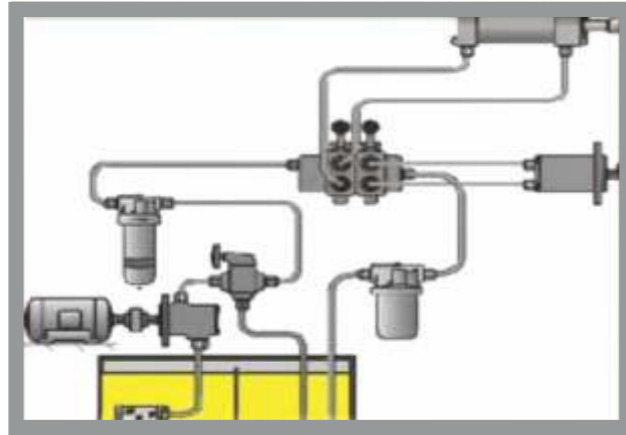
### Specifications :

**HILUBRIC WL** slide way oils qualify to **DIN 51517** quality standard.

### Application :

The **HILUBRIC WL** Series of slide way oils are most suitable for horizontal slide ways of machine tools, ball screws, linear guides, translating screws as well as headstocks.

HILUBRIC WL Series				
ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Specific Gravity @ 30°C	Flash point (°C) ASTM D 92
46	HILUBRIC WL 46	46	0.877	220
68	HILUBRIC WL 68	68	0.880	220
100	HILUBRIC WL 100	100	0.884	230
150	HILUBRIC WL 150	150	0.885	240
220	HILUBRIC WL 220	220	0.892	250
320	HILUBRIC WL 320	320	0.895	260



## HYDRAULIC OIL

### HILUBRIC AW, HLP, HLP–HN Series

#### Product Description :

The HILUBRIC HLP & AW Series Hydraulic Oils are Premium grade, High quality mineral oil based, High viscosity index hydraulic oils. These oils have characteristic of excellent viscosity temperature relationship as well as anti-wear, anti-oxidation, anti-corrosion and anti-foaming.

These Hydraulic Oils are also available in the NAS Clean grade in the brand name of HILUBRIC HLP–HN Series Hydraulic Oils.

#### Specification :

HILUBRIC Series Hydraulic Oils meet the International quality Hydraulic Oil Specification of DIN 51524 Part 2, HLP Type.

These Hydraulic Oils provide maximum designed life to a Hydraulic system due to minimized abrasion & wear, compatibility with various materials of Hydraulic system as well as minimized sludge and varnish formation.

#### Application :

HILUBRIC Series Hydraulic oils satisfy the requirements of a best quality Hydraulic oil for high, medium and low pressure Hydraulic systems requiring clean & high performance hydraulic oil, such as

INDUSTRIAL POWER PACKS, CNC MACHINES & LATHES, MACHINING CENTRES

PLASTIC MOLDING MACHINE (Injection, Blow, Extrusion)

RUBBER MOLDING MACHINE (Injection, Compression, Extrusion)

DIE - CASTING MACHINE (Al, Cu, Steel, Ceramic, other materials)

MATERIAL HANDLING EQUIPMENTS/FORK LIFTS

TEXTILE MACHINES (Knitting/ Weaving/ Loom accessories)

LAND MOUNTED & SHIP CRANE HYDRAULIC SYSTEMS

HYDRAULIC OPERATED UNDERWATER TOOLS

ELEVATORS, ESCALATORS, BUILDING LIFTS

OTHER POWER TRANSMISSION EQUIPMENTS

## HYDRAULIC OIL (AW & HLP TYPE)

### HILUBRIC AW Series

ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Viscosity Index ASTM D 2270	Flash point (°C) ASTM D 92
15	HILUBRIC AW 15	15	100	165
22	HILUBRIC AW 22	22	100	180
32	HILUBRIC AW 32	32	100	190
46	HILUBRIC AW 46	46	100	200
68	HILUBRIC AW 68	68	100	200
100	HILUBRIC AW 100	100	100	200
150	HILUBRIC AW 150	150	99	240
220	HILUBRIC AW 220	220	98	240

### HILUBRIC HLP Series

ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Viscosity Index ASTM D 2270	Flash point (°C) ASTM D 92
15	HILUBRIC HLP15	15	100+	165
22	HILUBRIC HLP 22	22	100+	180
32	HILUBRIC HLP 32	32	100+	190
46	HILUBRIC HLP 46	46	100+	200
68	HILUBRIC HLP 68	68	100+	200
100	HILUBRIC HLP 100	100	100	200
150	HILUBRIC HLP 150	150	100	240
220	HILUBRIC HLP 220	220	100	240



## GEAR OIL

### HILUBRIC GR, GR SYN HC SERIES

#### Product Description :

##### A] Hilubric GR Series

HILUBRIC GR Series of Gear Oils are Lead free, Gear oils having favorable viscosity-temperature relationship for the noise less functioning of an enclosed Gear box system.

The excellent extreme pressure characteristics as well as load carrying properties of these Gear oils make them a favorite choice of various Industrial and marine Gear box users. The HILUBRIC GR Series of Gear Oils have very good anti-wear, anti-oxidation, anti-corrosion as well as anti-foaming characteristics.

##### B] Hilubric GR SYN HC Series

Hilubric GR SYN HC Series of Gear Oils are special quality, high performance Synthetic Gear Oils with enhanced additive package. These products offer maximum protection from grey staining (micropitting) & thus offering increased operational life of Bearings, Gear tooth, Seals etc.

#### Specification:

**A] HILUBRIC GR** Series of Gear Oils meet the International quality Gear Oil Specification of DIN 51517 PART 3, CLP Type.

**B] HILUBRIC GR SYN HC** Series of Gear Oils meet the international quality Gear Oil Specification of DIN 51517 PART 3, CLP (HC) Type

#### Application :

##### A] Hilubric GR Series

These Gear Oils are most suited for worm, Spur Helical and Bevel type of enclosed gears with splash and circulation type lubrication up to 120 °C temperature.

The use of high performance Hilubric GR Series is advisable in severe industrial environments, e.g. in the cement, lime and gypsum industry, in iron and steel works, crane transmissions, also in maritime environments and in special cases where a high degree of freedom from maintenance is regarded as important.

##### B] Hilubric GR SYN HC Series

These Gear Oils are most suited for nearly all types of enclosed gears and toothings which are subjected to heavy mechanical loading and high temperature operating conditions. Also suitable for long term effective lubrication of Gear Couplings, slideways, plain and roller bearings, joints and circulating lubrication systems of any type.

## GEAR OIL (MINERAL OIL & SYNTHETIC TYPE)

### HILUBRIC GR Series

ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Viscosity Index ASTM D 2270	Flash point (°C) ASTM D 92
46	HILUBRIC GR 46	46	100	200
68	HILUBRIC GR 68	68	100	210
100	HILUBRIC GR 100	100	98	210
150	HILUBRIC GR 150	150	98	220
220	HILUBRIC GR 220	220	98	220
320	HILUBRIC GR 320	320	98	240
460	HILUBRIC GR 460	460	97	240
680	HILUBRIC GR 680	680	96	260

### HILUBRIC GR SYN HC Series

ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Viscosity Index ASTM D 2270	Flash point (°C) ASTM D 92
150	HILUBRIC GR SYN HC 150	140	> 125	> 230
220	HILUBRIC GR SYN HC 220	221	> 125	> 230
320	HILUBRIC GR SYN HC 320	333	> 125	> 230
460	HILUBRIC GR SYN HC 460	462	> 125	> 235



## HEAT TRANSFER OIL / THERMIC FLUID

### HILUBRIC TT & SYN TT Series

#### Product description :

#### HILUBRIC TT-1: (Mineral oil based Heat transfer oil)

The **HILUBRIC TT-1** Oil is a high performance Heat Transfer Oil for closed and Indirect heating systems of various Industrial processes. The higher heat transfer rate and better operating efficiency of this Oil results in to lower operating cost. The **HILUBRIC TT-1** oil is formulated from, highly refined mineral oil base stocks having excellent resistance to chemical oxidation as well as thermal cracking.

#### HILUBRIC SYN TT SERIES: (Synthetic Heat Transfer Fluid)

**HILUBRIC SYN TT-Series** of Synthetic Heat Transfer Fluids have excellent ageing, oxidation stability and are specially suitable for closed heat transfer systems with low pressure circulation of the fluid. The long service life and freedom from deposits makes these oils a favorable choice among its users.

#### Application:

**HILUBRIC –TT-1** Oil can be used in open and closed Industrial installations where temperature requirement ranges from – 13 °C up to 320 °C.

This Heat Transfer Oil is preferably used by process industries like chemical plants, extrusion machines, molding machines as well as die-casting machines.

**HILUBRIC SYN TT** Series of synthetic heat transfer fluids are best suited for the die temperature control in die-casting and injection moulding industries, where maximum bulk temperature requirement is 300 °C to 360 °C & maximum film temperature is 310 °C to 370 °C. Operating temperature range for Hilubric Syn TT series of synthetic heat transfer fluids ranges from - 50 °C to 360 °C

HILUBRIC TT & SYN TT SERIES

Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Pour Point (°C) ASTM D 97	Flash point (°C) ASTM D 92	Specific Heat (300°C) kJ/Kg K
HILUBRIC TT-1	32	< = - 13	215	2.9
HILUBRIC SYN TT-2	22	< = - 50	180	2.8
HILUBRIC SYN TT-3	21	< = - 48	185	2.8
HILUBRIC SYN TT-4	16.5	< = - 33	200	2.6

Wherever you are, count on HARDCASTLE PETROFER's Expertise, Quality and Dedication



## SPINDLE OIL

### HILUBRIC N Series

#### Product description :

**HILUBRIC N** Series of Spindle oils are formulated from high quality base oil & hence they are highly resistant to oxidation.

These oils have very good anti - rust, anti - corrosion and anti - foaming characteristics. This Oil easily separates from the water due to very good demulsibility.

The Extreme pressure additive technology of **HILUBRIC N** Series of Spindle oils reduces the abrasion and wear of critical spindle components by absorbing the pressure generated and maintaining the effective lubricant film over entire critical lubrication surface.

#### Specification :

HILUBRIC N Series of Spindle Oils meet the International quality specification of DIN 51517 Part 2 for "CL" Type of Oils.

#### Application :

HILUBRIC N Series of Spindle oils are specially suitable for the effective lubrication of hydrodynamic spindle bearings of machine tools used for grinding operations.

HILUBRIC N Series

ISO VG	Product Name	Kinematic Viscosity (mm <sup>2</sup> /s @ 40°C) ASTM D 445	Viscosity Index ASTM D 2270	Flash point (°C) ASTM D 92
2	HILUBRIC N 2	2	100	108
5	HILUBRIC N 5	5	100	140
7	HILUBRIC N 7	7	100	145
10	HILUBRIC N 10	10	100	150
15	HILUBRIC N 15	15	100	160

Wherever you are, count on HARDCASTLE PETROFER's Expertise, Quality and Dedication

# OUR SPECIALTIES INCLUDE...



## CLEANERS:

- HICLEAN L Series of Liquid Cleaner
- HICLEAN P Series of Powder Cleaner

## CUTTING COOLANTS:

- HICUT Series of Neat Cutting Oils
- HICUT Series of Soluble Cutting Oils
- HICUT Series of Bio Stable Semi Synthetic Cutting Oils
- HIGRIND Series of Synthetic Grinding & Cutting Oils



## DIECASTING & FORGING LUBRICANTS:

- HILUBRIC L Series of Die Release Agents
- HILUBRIC PL Series of Plunger Lubricants
- HILUBRIC PP Series of Solid Plunger Lubricants
- HILUBRIC FW Series of Water Extendable Hot Forging Lubricants
- HILUBRIC OG Series of Oil Based Hot Forging Lubricants



## FIRE RESISTANT HYDRAULIC FLUIDS:

- HISAFE Series of HFA Type Fluids
- HISAFE Series of HFB Type Fluids
- HISAFE Series of HFC Type Fluids
- HISAFE Series of HFDU Type Fluids
- HISAFE Series of HFDR Type Fluids

## HEAT TREATING QUENCHANTS:

- HIQUENCH Series of Cold Quenching Oils
- HIQUENCH MT Series of Hot Quenching Oils
- HIQUENCH P Series of Polymer Quenchants



## HEAT TREATING SALT BATHS, PROTECTIVE AGENTS:

- HICARB Series of Carburising Chemicals
- HISALT Series of Heat Treating Salts



## METAL FORMING, DRAWING:

- HIFORM Series for Metal Forming
- HIDRAW Series for Deep Drawing & Wire Drawing

## ROLLING:

- HIROLL Series of Rolling Oil
- HIRUSTAVERT Series of Rust Preventive Oil



## RUST PREVENTIVES:

- HIRUSTAVERT O Series of Oil Based Rust Preventives
- HIRUSTAVERT S Series of Solvent Based Rust Preventives
- HIRUSTAVERT DW Series of De-Watering Fluids
- HIRUSTAVERT WD Series of Water-Extendable Rust Preventives



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