

# FINEBLANKING LUBRICANTS

Edition January 2016

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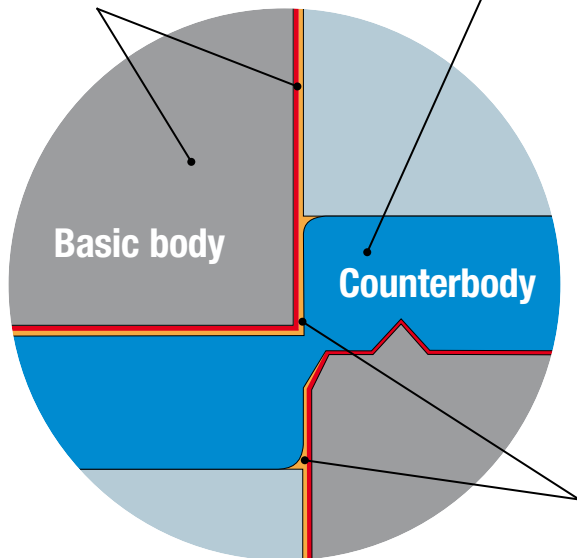
## **Technology data compilation**

Lubricants for the optimal usage

# TRIBOLOGICAL SYSTEM FINEBLANKING

## Influencing factors

### Tool steel/Coating



### Part material



### Lubricants



### Technical explanations

Fineblanking is a manufacturing process used to produce high-precision components from steel and non-ferrous sheet metals.

The friction conditions in the forming zone are a major factor in defining how economical and reliable the shearing

and fineblanking processes are. Increasing material thicknesses, the use of medium alloy steels, increasing difficulty rating of parts and combined forming/fineblanking pose additional challenges for the production process. It is therefore extremely important to investigate and understand the processes taking place in the forming zone and to take

measures to reduce wear, not just in the interests of prolonging tool life but also for the process as a whole. The two main factors limiting the operational life of a punch or fineblanking tool are wear or breakage of its active elements.

# FINEBLANKING LUBRICANTS

## Recommendations

### Lubricants for the general use

Due to special lubricants, which are aligned for the particular process, wear can be reduced significantly. The specific features of the process make it essential to use high-performance lubricants. Feintool Technologie AG has worked together with the lubricant manufacturers Holifa and Wisura to develop a system for determining the performance properties of lubricants and adapting them to fineblanking.

Oils certified under this procedure satisfy Feintool's requirements and, in combination with correctly used fineblanking presses and tools, will ensure that the process is a success. Nevertheless, the statements in this publication cannot be construed as giving a guarantee of correct functioning, since further parameters such as tool machining and coating, cutting rate and the condition of the material being blanked play a crucial role in the perfor-

mance of the entire process. This overview deals with the processing of alloyed and unalloyed carbon steels, stainless steels and aluminium.

If you have any questions on how to use fineblanking oils with copper alloys, please contact our Materials Technology Department to discuss your particular requirements.

### Alloyed and unalloyed carbon steels:

Brandname	chlorine-free?	Viscosity (at 40°C)	Material thickness
Holifa VP1125/11	yes	90mm <sup>2</sup> /s	up to max. 6 mm
Holifa HFF 1	no	75mm <sup>2</sup> /s	up to max. 6 mm
Wisura FMO 5020	yes	114mm <sup>2</sup> /s	up to max. 8 mm
Holifa VP1127	yes	150mm <sup>2</sup> /s	up to max. 10 mm
Holifa HFF 22	no	160mm <sup>2</sup> /s	up to max. 14 mm
Wisura FMO 5010	yes	175mm <sup>2</sup> /s	up to max. 12 mm
Holifa VP1150/250	ja	250mm <sup>2</sup> /s	up to max. 12 mm
Wisura ZW 3356	yes	330mm <sup>2</sup> /s	*

### Stainless steels / Aluminium:

Brandname	chlorine-free?	Viscosity (at 40°C)	Material thickness
Holifa HFF 1	no	75mm <sup>2</sup> /s	up to max. 6 mm
Wisura FSO 4002	yes	90mm <sup>2</sup> /s	up to max. 6 mm
Holifa HFF 22	no	160mm <sup>2</sup> /s	up to max. 12 mm
Wisura FSO 5002	yes	160mm <sup>2</sup> /s	up to max. 12 mm
Holifa VP1150/250	ja	250mm <sup>2</sup> /s	up to max. 12 mm
Wisura ZW 3356	yes	330mm <sup>2</sup> /s	*

\* For applications where a higher viscosity is required.

# PRODUCT INFORMATION



## WISURA ZW 3356

Fine Blanking and Drawing oil - chlorine-free -

### Description

Ester oil-based deep-drawing oil, stamping oil and fine blanking oil with corrosion inhibitors, EP-agents, natural and synthetic lubricants and with good adhesive properties.

### Application

WISURA ZW 3356 is used for extremely difficult forming of steel, stainless steel and aluminium, and also for precision blanking and fine blanking. The lubricant can be applied by brushing, rolling or spraying. Supplied ready for use.

### Degreasing

Aqueous-alkaline cleaners are suitable for degreasing and may be used with the immersion or spraying method.

### Technical Data

Property	Unit	Value	Method
Density at 15°C	g/ml	1,034	DIN 51 757
Viscosity at 40 °C	mm <sup>2</sup> /s	300 – 150	DIN 51 562
Flashpoint	°C	>180	DIN 51 376
Copper corrosion	Corrosion category	4-100 A3	DIN 51759



## WISURA FSO 4002

High performance lubricant for fine blanking and forming

### Description

High performance forming lubricant with EP-additives, free of mineral oil, chlorine and silicones. WISURA FSO 4002 is no dangerous working fluid and in physiological sense a non-relevant product. WISURA FSO 4002 contains no relevant substances of negative lists of car manufactures.

### Application

WISURA FSO 4002 is used in very severe forming processes of steel, stainless steel, aluminum and galvanized metal sheets. WISURA FSO 4002 will be applicable with brush, brush rollers or suitable (regarding viscosity) spraying systems.

### Degreasing

Solvent based systems as well as water based cleaners are suitable.

### Technical Data

Property	Unit	Value	Method
Density at 15°C	g/ml	1,038	DIN 51 757
Viscosity at 40 °C	mm <sup>2</sup> /s	ca. 90	DIN 51 562
Flashpoint	°C	>180	DIN ISO 2592
Copper corrosion	Corrosion category	4-100 A3	DIN 51759





## WISURA FSO 5002

High performance lubricant for fine blanking and forming

### Description

High performance forming lubricant with EP-additives, free of mineral oil, chlorine and silicones. WISURA FSO 5002 is no dangerous working fluid and in physiological sense a non-relevant product. WISURA FSO 5002 contains no relevant substances of negative lists of car manufactures.

### Application

WISURA FSO 5002 is used in very severe forming processes of steel, stainless steel, aluminum and galvanized metal sheets. WISURA FSO 5002 will be applicable with brush, brush rollers or suitable (regarding viscosity) spraying systems.

### Degreasing

Solvent based systems as well as water based cleaners are suitable.

### Technical Data

Property	Unit	Value	Method
Density at 15°C	g/ml	1,037	DIN 51 757
Viscosity at 40 °C	mm <sup>2</sup> /s	165	DIN 51 562
Flashpoint	°C	>180	DIN ISO 2592
Copper corrosion	Corrosion category	4-100 A3	DIN 51759





## WISURA FMO 5010

High performance lubricant for fine blanking and forming

### Description

High performance forming lubricant with EP-additives and mineral oil, free of chlorine and silicones. WISURA FMO 5010 is no dangerous working fluid and in physiological sense a non-relevant product. WISURA FMO 5010 contains no relevant substances of negative lists of car manufactures.

### Application

WISURA FMO 5010 is used in very severe forming processes of steel, stainless steel, aluminum and galvanized metal sheets. WISURA FMO 5010 will be applicable with brush, brush rollers or suitable (regarding viscosity) spraying systems

### Degreasing

Solvent based systems as well as water based cleaners are suitable.

### Technical Data

Property	Unit	Value	Method
Density at 15°C	g/ml	0,948	DIN 51 757
Viscosity at 40 °C	mm <sup>2</sup> /s	175	DIN 51 562
Flashpoint	°C	>200	DIN ISO 2592
Copper corrosion	Corrosion category	4-100 A3	DIN 51759



## WISURA FMO 5020

High performance lubricant for fine blanking and forming

### Description

High performance forming lubricant with EP-additives and mineral oil, free of chlorine and silicones. WISURA FMO 5020 is no dangerous working fluid and in physiological sense a non-relevant product. WISURA FMO 5020 contains no relevant substances of negative lists of car manufactures.

### Application

WISURA FMO 5020 is used in very severe forming processes of steel, stainless steel, aluminum and galvanized metal sheets. WISURA FMO 5020 will be applicable with brush, brush rollers or suitable (regarding viscosity) spraying systems

### Advantages/Benefits

- excellent wetting and adhesive capacity
- large compressive strength and shear stability

### Degreasing

Solvent based systems as well as water based cleaners are suitable.

### Technical Data

Property	Unit	Value	Method
Density at 15°C	g/ml	0,923	DIN 51 757
Viscosity at 40 °C	mm <sup>2</sup> /s	110 - 125	DIN 51 562
Flashpoint	°C	>200	DIN ISO 2592
Copper corrosion	Corrosion category	4-100 A3	DIN 51759





## HOLIFA Fineblanking Oil HFF 1

HOLIFA HFF 1 is a chlorine containing fineblanking oil mainly consisting of mineral oil raffinates, chlorinated hydrocarbons and synthetic high pressure additives. It is developed especially for fineblanking of mild steel qualities up to 6 mm.

The application of this lubricant can be performed by contact lubrication units as well as by spraying units. In addition to that, all common used industrial cleaning systems are suitable for degreasing of the blanked parts.

### Technical Data:

Appearance:	red liquid
Density (at 20°C):	1,04 g/cm <sup>3</sup>
Viscosity (at 40°C):	75 mm <sup>2</sup> /s
Flash point:	> 180°C

For further information concerning handling and storage conditions please consult the current material safety data sheet.

## HOLIFA Fineblanking Oil HFF 22

HOLIFA HFF 22 is a chlorine containing high-performance fineblanking oil, which is especially developed for fineblanking of normal steel qualities up to 14 mm thickness and stainless steel up to 12 mm thickness. HFF 22 mainly consists of mineral oil raffinates and a special combination of high pressure additives including chlorinated hydrocarbons. It shows outstanding properties in extreme fineblanking processes where very high degrees of difficulty of the blanking process demands high-quality lubrication.

The application of this lubricant can be performed by contact lubrication units as well as by spraying units. In addition to that, all common used industrial cleaners are suitable for degreasing of the blanked parts.

### Technical Data:

Appearance:	brownish liquid
Density (at 20°C):	1,14 g/cm <sup>3</sup>
Viscosity (at 40°C):	160 mm <sup>2</sup> /s
Flash point:	> 180°C

For further information concerning handling and storage conditions please consult the current material safety data sheet.

## HOLIFA Fineblanking Oil VP 1125/11

HOLIFA VP 1125/11 is a chlorine-free fineblanking oil, which is especially developed for fineblanking of carbon steel qualities and alloyed steel with high tensile strength and a material thickness up to 6 mm. VP 1125/11 mainly consists of mineral oil raffinates and a special combination of extreme pressure additives. It shows outstanding properties in metal forming processes despite its relatively low viscosity.

The application of this lubricant can be performed by contact lubrication units as well as by spraying units. In addition to that, all common used industrial cleaning systems are suitable for degreasing of the blanked parts.

### Technical Data:

Appearance:	brownish liquid
Density (at 20°C):	0,98 g/cm <sup>3</sup>
Viscosity (at 40°C):	90 mm <sup>2</sup> /s
Flash point:	> 180°C

For further information concerning handling and storage conditions please consult the material safety data sheet.

## HOLIFA Fineblanking Oil VP 1127

HOLIFA VP 1127 is a chlorine-free fineblanking oil, which is especially developed for fineblanking of carbon steel and alloyed steel qualities with a material thickness up to 10 mm. VP 1127 mainly consists of mineral oil raffinates and a combination of special high pressure additives, showing outstanding properties in fineblanking and other metal forming processes despite its moderate viscosity.

The application of this lubricant can be performed by contact lubrication units as well as by non-contact lubrication units. In addition to that, all common used industrial cleaning systems are suitable for degreasing of the blanked parts.

### Technical Data:

Appearance:	brown liquid
Density (at 20°C):	0,98 g/cm <sup>3</sup>
Viscosity (at 40°C):	150 mm <sup>2</sup> /s
Flash point:	> 180°C

For further information concerning handling and storage conditions please consult the current material safety data sheet or ask our technicians.

## HOLIFA Fineblanking Oil VP 1150/250

HOLIFA VP 1150/250 is a chlorine-free high-quality fineblanking oil, which is especially developed for extreme fineblanking operations of alloyed steel grades with high tensile strength and/or complicated geometry of the resulting parts as well as for stainless steel up to 12 mm thickness. VP 1150/250 mainly consists of mineral oil raffinates and a special combination of synthetic high pressure additives, providing outstanding properties in metal forming processes.

The application of this lubricant can be performed by spraying with applicable spraying systems or by rolling on the metal sheet. In addition to that, all common used water-based or hydrocarbon-based industrial cleaning systems are suitable for degreasing of the resulting parts.

### Technical Data:

Appearance:	brown liquid
Density (at 20°C):	0,99 g/cm <sup>3</sup>
Viscosity (at 40°C):	250 mm <sup>2</sup> /s
Flash point:	> 180°C

For further information concerning handling and storage conditions please consult the current material safety data sheet.

# EVERYTHING FROM A SINGLE SOURCE

From market and technology leader

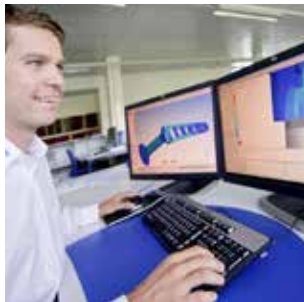
## Meeting targets faster and more reliably with simulation and prototyping

Service at Feintool starts with comprehensive advice, excellent

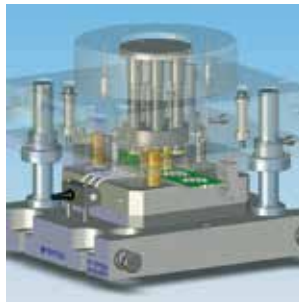
engineering and our unique virtual prototyping, which enables us to help our customers minimize development time.



Engineering



Simulation and optimization



Simulation of tool design



Prototyping

## Technological support – Your guaranteeing for a successful production

Feintool offers you the latest know-how from the market leader.

Our technical experts can assist your workforce all the way along the process chain from parts design, tool design, materials for tools and parts through to lubricants.



Training



Production advice and support



Technology-Service



Tool and production optimization

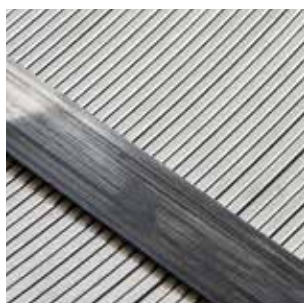
## Knowledge transfer

Feintool makes the wealth of technological knowledge that it has acquired during its 50 years in fineblanking and forming

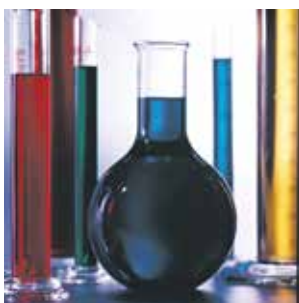
available to its loyal and valued customers on a daily basis. Close global collaboration consistently results in superior concepts and technology solutions.



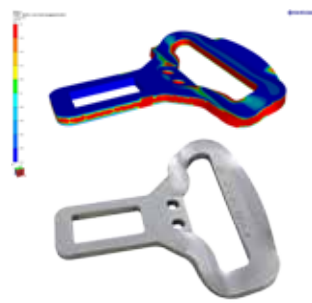
Tool materials



Production materials



Lubricants

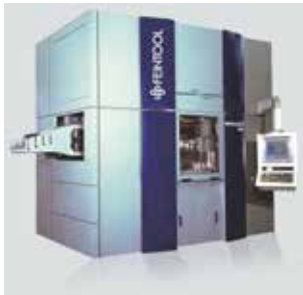


Research and development

**Higher output with customized fineblanking presses**

Whether you require a single press or a complex integrated end-to-end solution, Feintool supplies mechanical and hydrau-

lic presses to suit every need with overall forces ranging from 1,600 to 14,000 kN. Over 2,000 presses and systems are already operating successfully.



Hydraulic fineblanking presses



Servomechanical fineblanking presses



Peripheral-Systems



State-of-the-art control technology

**Optimized tool solutions for reliable production**

Feintool channels the technological skills of its entire global network into the development of state-of-the-art, cost-efficient

tool systems. Our expertise in tool production is one of the most important contributors to our success, and our success is your success.



Consulting



Design



Toolmaking



Field testing

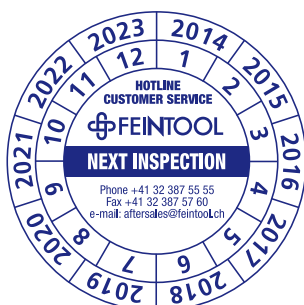
**Service that is close to the customer**

Long-term production success depends on well-maintained presses and tools. Feintool's One Stop Service offers a clever

mixture of preventive and reactive maintenance services. Customers benefit from the extensive expertise of our hotline staff, specialists and global OEM spare parts logistics network.



Remote maintenance



Inspection and Maintenance Service



24-hour Hot-Line



Spare parts service and online eShop

# SOURCES

## Contact addresses

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### **HOLIFA**

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