

## RENOLIN FF 68 SPINDELÖL

### Superclean spindle oil ISO VG 68

### Cleanliness class 15/13/10 (ISO 4406)

#### Description

RENOLIN FF 68 SPINDELÖL is an superclean, zinc-containing lubricating oil based on special semi synthetic base oils with high shear-stable viscosity index (VI > 150) and deterging and dispersing properties which prevent sediments and adhesions in tool spindles. The partly synthetic base oil is extracted from a special high-pressure hydrating process (hydrocrack procedure) and provides a high oxidation and ageing stability. Due to the complex multi-pass filtration the spindle oil fulfills the cleanliness class 15/13/10 according to ISO 4406. RENOLIN FF 68 SPINDELÖL minimizes friction and wear in bearings and allows longer service intervals.

#### Application

RENOLIN FF 68 SPINDELÖL is primarily used for the lubrication of tool spindles. For the lubrication of bearing in motor- and high frequency spindles.

#### Specification

The products meet or exceed the requirements according to:

- DIN 51524-3: HVLP (exception: demulsifying properties)
- ISO 6743-4: HV

#### Advantages

- **Cleanliness class: 15/13/10 (ISO 4406)**
- **High oxidation and ageing stability**
- **Prevents sediments and adhesions**
- **Excellent air release properties**
- **Low foaming tendency**
- **Very good wear protection**
- **High and shear-stable viscosity index (high VI) – multigrade character**
- **Extension of service intervals**
- **Excellent deterging and dispersing properties (DD – detergent/dispersant)**
- **Prevents electrostatic charge**

#### Approvals

- **Medical Device Services**, test report May 2020: Cytotoxicity: EN ISO 10993-1, EN ISO 10993-5, EN ISO 10993-12
- **Schaeffler oil test**: Functional test M6, December 2019
- **Kessler approval**, February 2020
- **Fischer Spindel**, Listing in manual

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#### Typical data:

Product name		RENOLIN FF 68 SPINDLE OIL	
Properties	Unit		Test method
ISO VG		68	DIN 51519
Kinematic viscosity at 40 °C	mm <sup>2</sup> /s	68	DIN EN ISO 3104
at 100 °C	mm <sup>2</sup> /s	11.2	
Viscosity index	-	157	DIN ISO 2909
Density at 15 °C	kg/m <sup>3</sup>	870	DIN 51757
Colour	ASTM	1.5	DIN ISO 2049
Flash point in open cup acc. to Cleveland	°C	253	DIN ISO 2592
Pourpoint	°C	-42	DIN ISO 3016
Neutralisation number	mgKOH/g	0.5	DIN 51558-1
Air release at 50 °C	min	9	DIN 51381
Foaming: Seq. I: 24 °C	ml	10/0	ASTM D 892
Seq. II: 93.5 °C	ml	30/0	ASTM D 892
Seq. III: 24 °C after 93.5 °C	ml	10/0	ASTM D 892
Sludge-carrying/ detergent property acc. to DBL 6571-4, high detergency	mm	72	DBL 6571-4
VKA shear stability, four-ball-test: Relative shear loss (viscosity reduction, V40 and V100) after 20 h	%	< 10	DIN 51350-6
Scuffing and scoring test FZG A/8.3/90	Schadens- kraftstufe	11	DIN ISO 14635-1