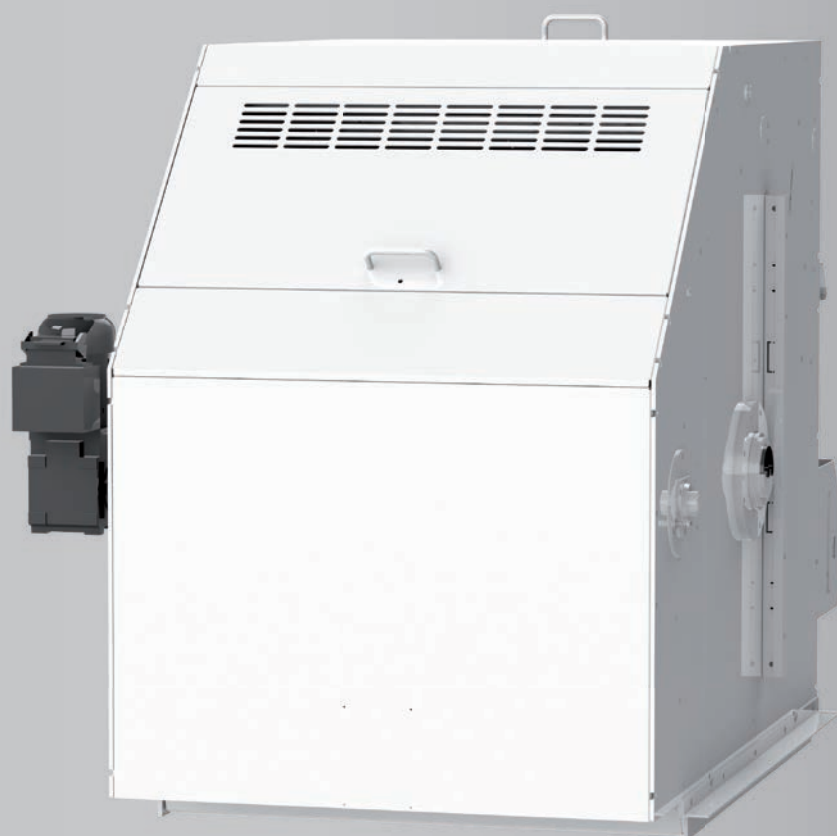


Compact filter KF

**KNOLL**  
.It works

Issue 08-2019



## Properties

Compact design

Good price-performance ratio

Greater hydrostatic pressure as compared to flat-bed filters

Sweeping strips and scraper

Can be used universally for different working processes, materials, cooling lubricants, delivery rates and degrees of purity

## Benefits

Space-saving setup

Short amortization time

Higher delivery rate, lower fleece consumption and better degree of purity

Problem-free discharge of chips, even light metal ones

Simple design and planning

## Application

KNOLL compact filters KF are belt filters for cleaning cooling lubricants of machining processes

- Use as stand-alone cleaning unit or combined with chip conveyors (e.g. in machining centres)
- Local (for one machine tool) or central (for several machine tools) use possible

## Description

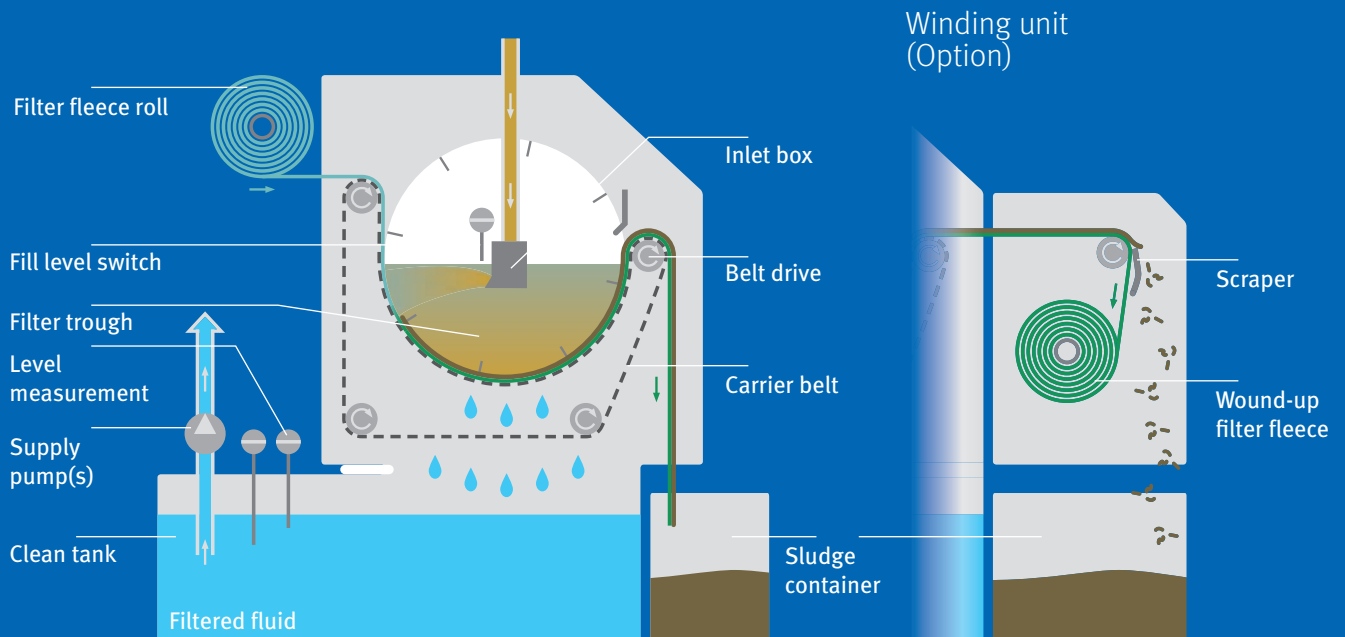
### Filtration process

1. Contaminated liquid flows from the side through the inlet box into the filter trough
2. The filter fleece holds back the contaminant particles during streaming
3. The contaminant particles form a filter cake, which separates even tiny dirt particles
4. The filtered fluid collects in the clean tank

### Regeneration process

1. The growing filter cakes increase the flow resistance
2. The fluid level in the filter trough increases
3. The belt drive switches on at a defined level (alternatively: time-controlled)
4. The carrier belt transports a piece of clean filter fleece to the filter surface
5. The fluid level decreases again
6. A sludge container or a winding unit (Option) takes up the dirty filter fleece

# Scheme



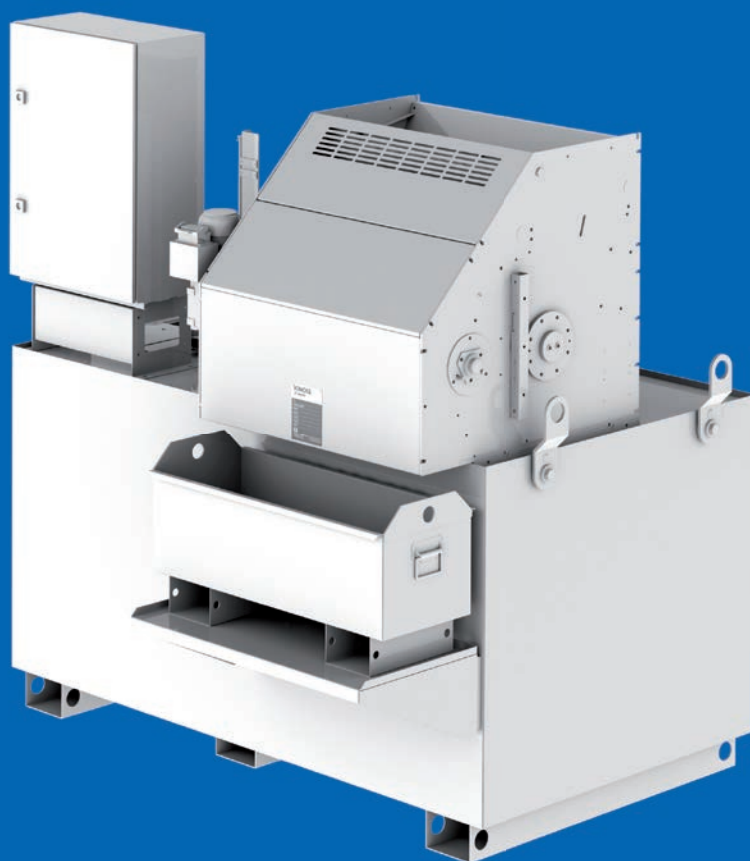
## Equipment

Belt drive	●
Circulating carrier belt	●
Filter fleece (original equipment)	●
Fleece shortage switch	●
Fleece roll integrated into housing	●
Fill level measuring technology i.a.w. WRA	●
Control system	●
Magnetic roller as pre-separator	○
Cooling lubricant tank system with supply pump(s)	○
Duplex switch filter	○
Tempering (cooling/heating)	○
Fleece roll arranged on the back (standard starting with KF 300)	○
Winding unit with drive and scraper	○
Sludge container	○
Filter fleece shortage early warning	○
Side panel	○

● Standard equipment  
○ Option

# Design example

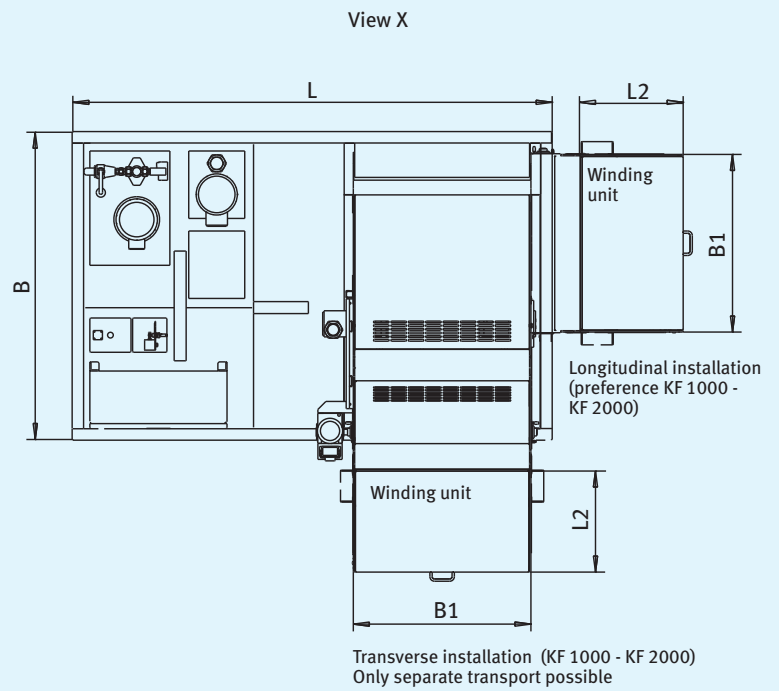
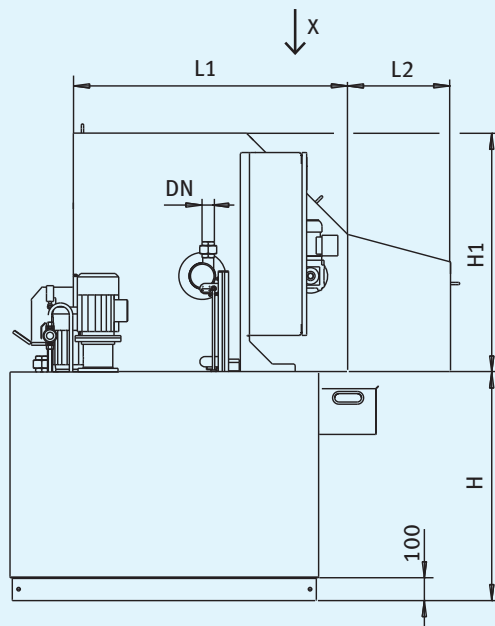
Version A



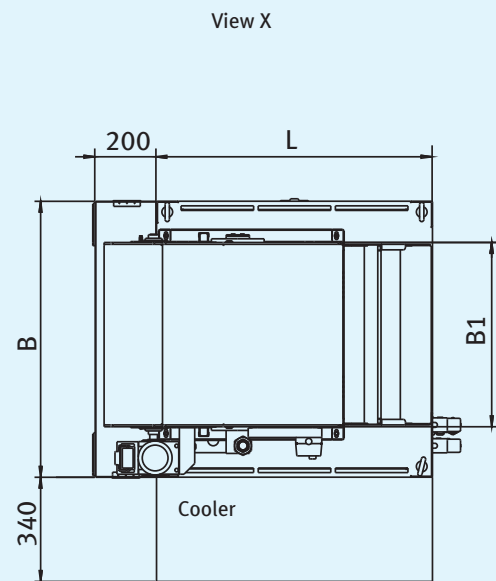
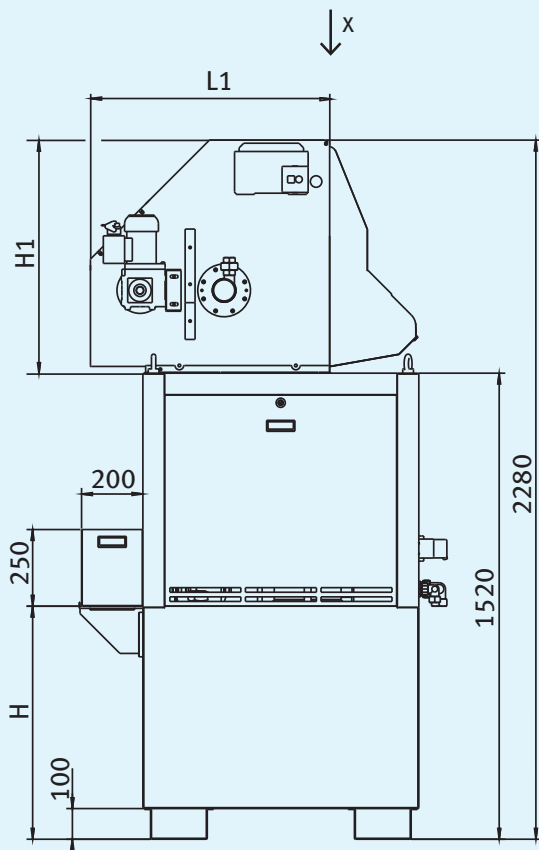
Version B/C  
without winding unit



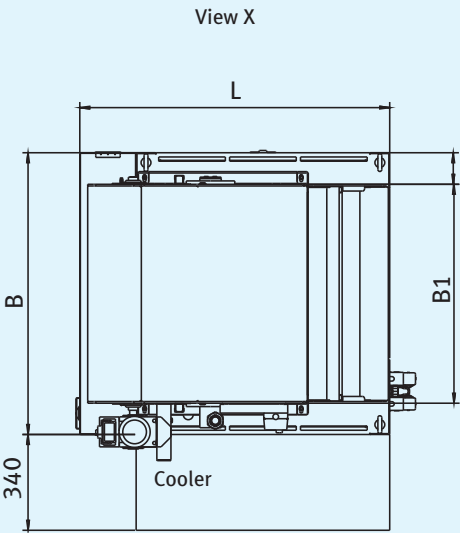
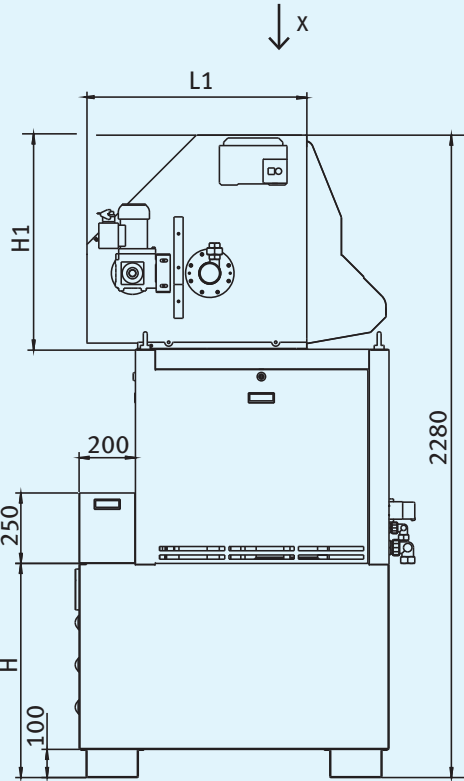
## Version A



## Version B



Version C



## Dimensions and technical data

Type	Version	Filter capacity** (l/min)		Inlet DN	Tank capacity (l)	Fleece-width	H	H1	B	B1	L	L1	L2 (Option)
		Emulsion	Oil										
KF 110*	A	110	40	25	700	390	650	740	1100	455	1450	780	415
KF 150*	A	150	60	25	900	540	700	740	1100	600	1600	780	415
KF 200*	A	200	90	25	1200	710	800	740	1100	780	1800	780	415
KF 300*	A	300	130	40	1800	540	800	1045	1350	600	2200	1200	450
KF 400*	A	400	175	40	2200	710	1000	1045	1350	780	2100	1200	450
KF 600*	A	600	250	40	3400	1020	1100	1045	1500	1100	2500	1200	450
KF 1000*	A	1000	450	100	6000	1020	1100	1240	1950	1100	3400	1495	450
KF 1500*	A	1500	750	100	9000	1520	1100	1240	1950	1605	5000	1495	450
KF 2000*	A	2000	1000	100	12000	2000	1100	1240	1950 <sup>3</sup>	2080	6800	1495	450
KF 110	B	110	40	25	480	390	760	740	900	455	900	780	
KF 150	B	150	60	25	480	540	760	740	900	600	900	780	
KF 150	C	150	60	25	650	540	760	740	1000	600	1100	780	
KF 200	C	200	90	25	650	710	760	740	1000	780	1100	780	

Dimensions without units given in mm.

\* KF 110 – KF 200, KF 1000 – KF 2000 fleece roll at the top,  
KF 400 – KF 600 fleece roll back (standard)

\*\* Metal cutting with standard fleece

<sup>1</sup>  $\nu = 1 \text{ mm}^2/\text{s}$

<sup>2</sup>  $\nu = 10 \text{ mm}^2/\text{s}$  (at operating temperature)

<sup>3</sup> during longitudinal installation min. 2200 mm

**KNOLL Maschinenbau GmbH**

Schwarzachstraße 20

DE-88348 Bad Saulgau

Tel. +49 7581 2008-0

Fax +49 7581 2008-90140

[info.itworks@knoll-mb.de](mailto:info.itworks@knoll-mb.de)

[www.knoll-mb.com](http://www.knoll-mb.com)

Compact filter KF

KF



# Standard filter system KF 400/1700

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Version 02-2020



## Areas of application

The compact filter KF is a band filter for cleaning cooling lubricants in metal machining. As a cleaning and supply unit for chip-producing machine tools, it is usually combined with chip conveyors.

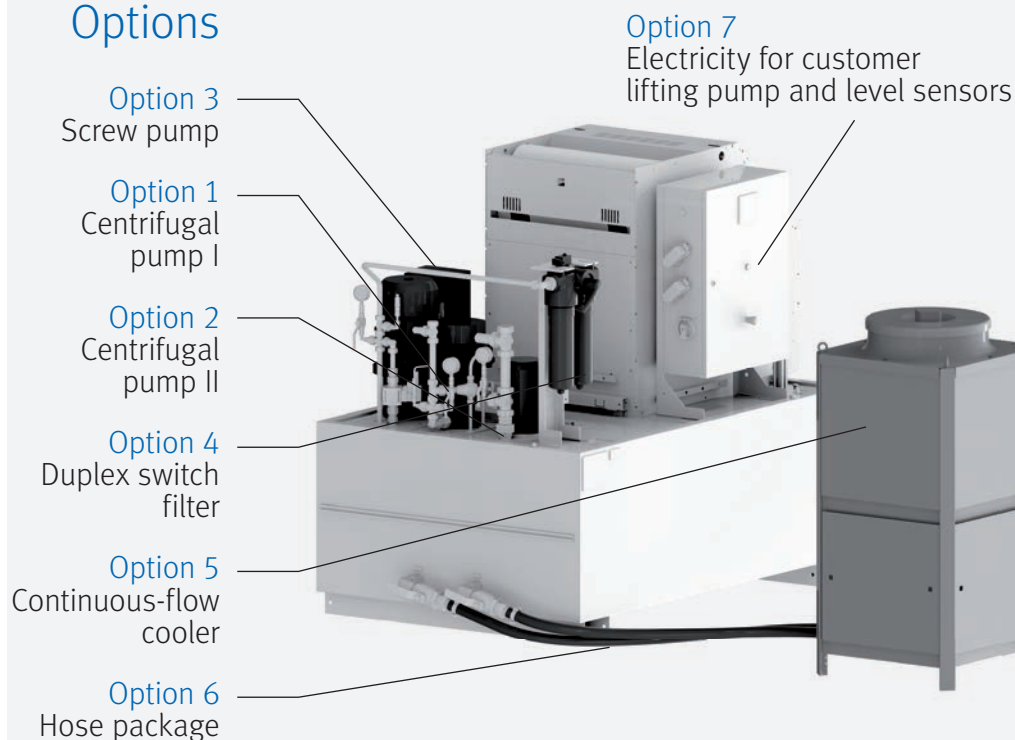
## System configuration

Machine manufacturer:	freely selectable
Number of machines:	1
Processing:	turning, drilling, milling (others after consultation)
Customer specification:	no, KNOLL standard model
Energy supply:	400 V, 50 Hz
Compressed air connection:	min. 5 bar, provided by the customer
Volumetric flow:	400 l/min for emulsion and steel or aluminum < 8% Si 200 l/min for emulsion and cast (GG, GGG) or aluminum > 8% Si 160 l/min for oil up to max. 10 mm <sup>2</sup> /s at operating temperature and steel
Filter fineness:	nominally 40 µm with filter fleece PW70/70
Chip pre-separation:	via chip conveyor provided by the customer (with edge filter or strainer basket)
Colors:	system RAL 7035*, control cabinet RAL 7035*, components RAL 9005, cooler RAL 7005*
Documentation:	on CD, languages: German / English / French / Italian / Spanish / Czech / Dutch / Swedish
Equipment labeling:	local languages named + English
User guidance:	local languages named / English / German

\* Other colors available at extra charge (see price list) after consultation with KNOLL. All systems and components except electrical users are powder-coated (textured paint Emil Frei GmbH & Co., gloss level 60% at an angle of 60°, tolerance of gloss level +/- 10%).

## Equipment

### Options



### Basic equipment

- Compact filter KF 400
- Electric control cabinet
- 2 level sensors
- Coolant container FKA 1700
- Connection for continuous-flow cooler

## Basic equipment

**Compact filter KF 400**, fleece installation on top | **Coolant container FKA 1700**, content 1,700 l, holders for max. 2 low-pressure pumps, holder for max. 1 high-pressure pump, connection for continuous-flow cooler | **2 level sensors** with visual display (overflow alarm, cooling lubricant min. alarm) | **Electric control cabinet** (see back)

### Option 1 – Centrifugal pump I (for external cooling lubricant supply)

- 0 without pump, holder sealed with sheet metal piece
- 1 TG 40-42/22533, 150 l/min @ 2.5 bar (75 l/min @ 2.7 bar | 200 l/min @ 2.3 bar), 2.2 kW Han-Drive, pressure gauge
- 2 MTR 5-18/18, 40 l/min @ 11.5 bar (100 l/min @ 9 bar), 3.0 kW Han-Drive, DBD and pressure gauge
- 3 MTR 5-18/8, 40 l/min @ 5 bar (80 l/min @ 4 bar), 1.1 kW Han-Drive, pressure gauge

### Option 2 – Centrifugal pump II (for flushing)

- 0 without pump, holder sealed with sheet metal piece
- 1 TG 40-55/30533, 200 l/min @ 3.2 bar (250 l/min @ 3.1 bar | 300 l/min @ 2.9 bar), 3.0 kW Han-Drive, pressure gauge
- 2 TG 40-42/22533, 150 l/min @ 2.5 bar (75 l/min @ 2.7 bar | 200 l/min @ 2.3 bar), 2.2 kW Han-Drive, pressure gauge

### Option 3 – Screw pump (for internal cooling lubricant supply)

- 0 without pump, holder sealed with sheet metal piece
- 1 KTS 25-60-T, 37 l/min @ 70 bar, 7.5 kW Han-Drive, Vario valve SPB-H-15 with pressure gauge
- 2 KTS 25-38-T with FI (PQ-Tronic), 5.5 kW with FI Kostal (piggyback), Vario valve SPB-H-15, with pressure gauge | 8.7 l/min @ 70 bar @ 1,450 mm-1 | 24.2 l/min @ 70 bar @ 2,900 mm-1 | 30.6 l/min @ 70 bar @ 3,500 mm-1
- 3 KTS 25-38-T, 26.8 l/min @ 40 bar, 3.0 kW Han-Drive, DBD with pressure gauge

### Option 4 – Duplex switch filter (as police filter)

- 0 without duplex switch filter
- 1 duplex switch filter PI3730 DRG100

### Option 5 – Continuous-flow cooler

- 0 without continuous-flow cooler
- 1 continuous-flow cooler alpha 9 for emulsion, cooling capacity 8.3 kW, air-cooled, at ambient temperature 42 °C, medium 20 °C, temperature completely controlled, own control, own power supply, length 715 mm, width 715 mm, height 1,545 mm
- 2 continuous-flow cooler alpha 9 for oil, cooling capacity 8.3 kW, air-cooled, at ambient temperature 42 °C, medium 25 °C, temperature completely controlled, own control and power supply, length 715 mm, width 715 mm, height 1,545 mm

### Option 6 – Hose package (cooler to coolant container)

- 0 without hose package
- 1 hose package 5 m (2 oil flex hoses à 5 m, each with mech. ball valve, ready for connection)
- 2 hose package 10 m (2 oil flex hoses à 10 m, each with mech. ball valve, ready for connection)

### Option 7 – Electricity for customer lifting pump and level sensors

- 0 without
- 1 for lifting pump with motor 1.8 – 2.5 A
- 2 for lifting pump with motor 2.2 – 3.2 A
- 3 for lifting pump with motor 2.8 – 4.0 A
- 4 for lifting pump with motor 3.5 – 5.0 A
- 5 for lifting pump with motor 4.5 – 6.3 A
- 6 for lifting pump with motor 5.5 – 8.0 A

## Order key

The performance data of the pumps named above refer to operation with emulsion. In case of operation with oil, the performance data of the low-pressure pumps is reduced by 10-20% depending on viscosity.

**KNOLL Maschinenbau GmbH**

Schwarzachstraße 20

DE-88348 Bad Saulgau

Tel. +49 7581 2008-0

Fax +49 7581 2008-90140

info.itworks@knoll-mb.de

www.knoll-mb.de



### Electric control cabinet

E-Plan 30-38557.00.x.x.x.x | Electricity for compact filters

Control cabinet AE1058 (600x800x250)

PLC control VIPA SLIO | text display KTP400

#### Power sections

1 x KF drive (Han-Drive)

1 x low-pressure pump 1\* (Han-Drive)

1 x low-pressure pump 2\* (Han-Drive)

1 x high-pressure pump 1\* (Han-Drive)

#### Please note

400 V interface for the cooler is not included | If a cooler unit is required, it must be supplied directly via the hall energy supply | The cooler is released via a potential-free contact from the cooling lubricant system | Signal is located on the terminal strip (without connector)

#### Sensor system

2 level sensors KF filter | 1 light sensor fleece end |

1 button fleece transport manual operation |

1 level sensor (overflow alarm) | 1 level sensor

(cooling lubricant min. alarm) | 1 bypass valve  
high-pressure pump\*

#### Interface to machine tool

- 400 V supply via 35 A Harting connector  
with mating plug (supplied loose)

- Signal exchange via 24-pin Harting connector  
with mating plug (supplied loose)

- Requirement low-pressure pump 1\* | Requirement  
low-pressure pump 2\* | Requirement high-  
pressure pump 1\* | Requirement pressure stage  
high-pressure 1/2/3\* | Release signal charge KF  
filter possible

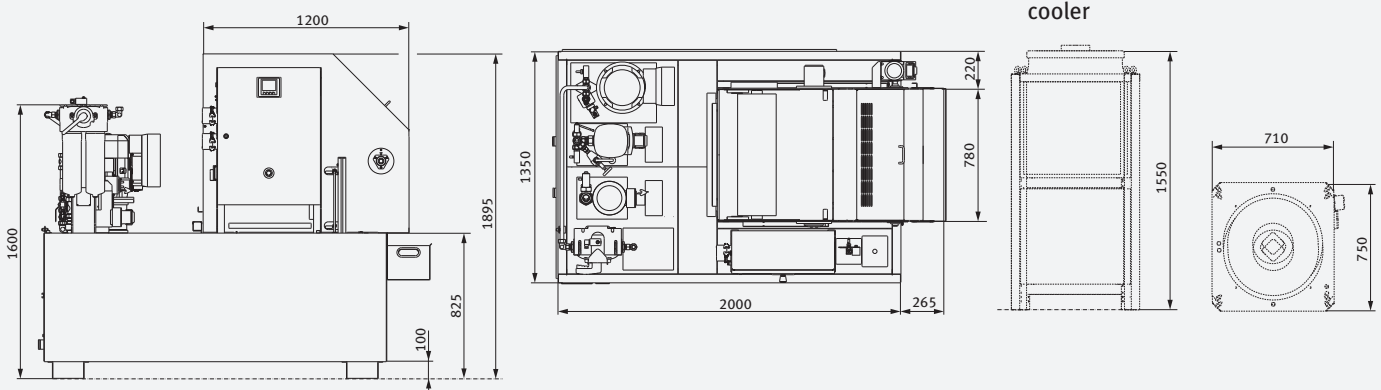
#### Equipment/Version

Wire marking printed wires | Range selector switch  
black (Eaton) | Power switch Sirius (Siemens) | Con-  
tactor Sirius (Siemens) | PLC control (VIPA) | Visuali-  
zation (Siemens) | Power supply (Murr) | Terminals  
(Phoenix) | Connector (Harting) | Frequency inverter  
(Kostal) | Installation PUR line (Lapp)

Connection voltage 3 x 400 V | Frequency 50 Hz

\* Only included if the associated option was selected

### Dimensions

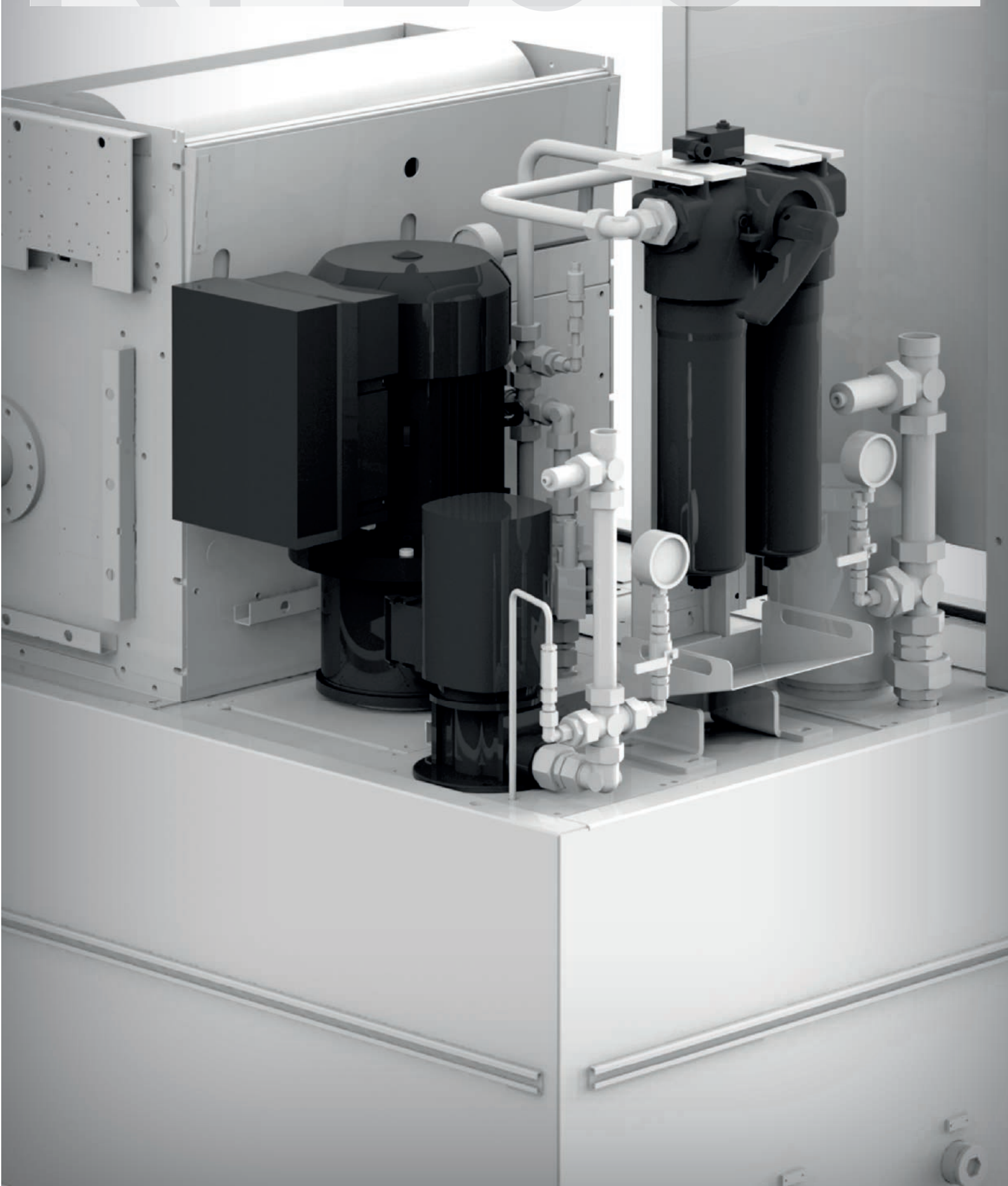




Standard filter system KF 200/950

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Version 02-2020



## Areas of application

The compact filter KF is a band filter for cleaning cooling lubricants in metal machining. As a cleaning and supply unit for chip-producing machine tools, it is usually combined with chip conveyors.

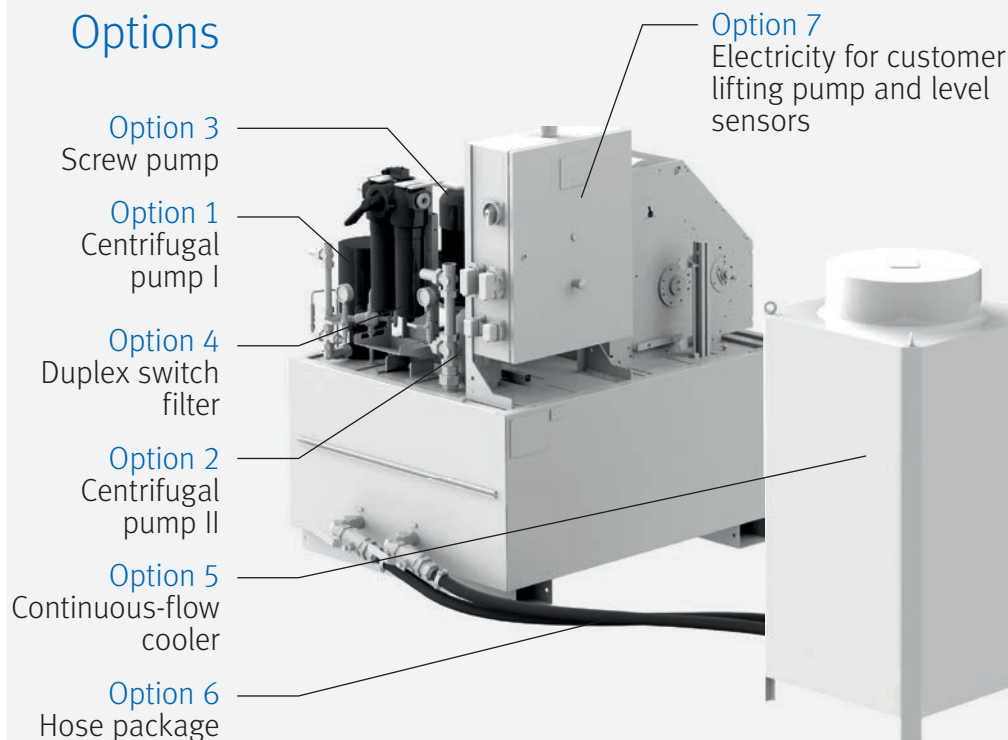
## System configuration

Machine manufacturer:	freely selectable
Number of machines:	1
Processing:	turning, drilling, milling (others after consultation)
Customer specification:	no, KNOLL standard model
Energy supply:	400 V, 50 Hz
Compressed air connection:	min. 5 bar, provided by the customer
Volumetric flow:	200 l/min for emulsion and steel or aluminum < 8% Si 100 l/min for emulsion and cast (GG, GGG) or aluminum > 8% Si 90 l/min for oil up to max. 10 mm <sup>2</sup> /s at operating temperature and steel
Filter fineness:	nominally 40 µm with filter fleece PW70/70
Chip pre-separation:	via chip conveyor provided by the customer (with edge filter or strainer basket)
Colors:	system RAL 7035*, control cabinet RAL 7035*, components RAL 9005, cooler RAL 7005*
Documentation:	on CD, languages: German / English / French / Italian / Spanish / Czech / Dutch / Swedish
Equipment labeling:	local languages named + English
User guidance:	local languages named / English / German*

\* Other colors available at extra charge (see price list) after consultation with KNOLL. All systems and components except electrical users are powder-coated (textured paint Emil Frei GmbH & Co., gloss level 60% at an angle of 60°, tolerance of gloss level +/- 10%).

## Equipment

### Options



### Basic equipment

- Compact filter KF 200
- Electronic control cabinet
- 2 level sensors
- Coolant container FKA 950
- Connection for continuous-flow cooler

## Basic equipment

**Compact filter KF 200**, fleece installation on top | **Coolant container FKA 950**, content 950 l, holders for max. 2 low-pressure pumps, holder for max. 1 high-pressure pump, connection for continuous-flow cooler | **2 level sensors** with visual display (overflow alarm, cooling lubricant min. alarm) | **Electric control cabinet** (see back)

### Option 1 – Centrifugal pump I (for external cooling lubricant supply)

- 0 without pump, holder sealed with sheet metal piece
- 1 MTR 5-18/18, 40 l/min @ 11.5 bar (100 l/min @ 9 bar), 3.0 kW Han-Drive, DBD and pressure gauge
- 2 MTR 5-18/8, 40 l/min @ 5 bar (80 l/min @ 4 bar), 1.1 kW Han-Drive, pressure gauge

### Option 2 – Centrifugal pump II (for flushing)

- 0 without pump, holder sealed with sheet metal piece
- 1 TG 40-42/22533, 120 l/min @ 2.7 bar (75 l/min @ 2.7 bar | 200 l/min @ 2.3 bar), 2.2 kW Han-Drive, pressure gauge

### Option 3 – Screw pump (for internal cooling lubricant supply)

- 0 without pump, holder sealed with sheet metal piece
- 1 KTS 25-60-T, 37 l/min @ 70 bar, 7.5 kW Han-Drive, Vario valve SPB-H-15 with pressure gauge
- 2 KTS 25-38-T with FI (PQ-Tronic), 5.5 kW with FI Kostal (piggyback), Vario valve SPB-H-15 with pressure gauge | 8.7 l/min @ 70 bar @ 1,450 mm<sup>-1</sup> | 24.2 l/min @ 70 bar @ 2,900 mm<sup>-1</sup> | 30.6 l/min @ 70 bar @ 3,500 mm<sup>-1</sup>
- 3 KTS 25-38-T, 26,8 l/min @ 40 bar, 3.0 kW Han-Drive, DBD with pressure gauge

### Option 4 – Duplex switch filter (as police filter)

- 0 without duplex switch filter
- 1 duplex switch filter PI3730 DRG100

### Option 5 – Continuous-flow cooler

- 0 without continuous-flow cooler
- 1 continuous-flow cooler alpha 9 for emulsion, cooling capacity 8.3 kW, air-cooled, at ambient temperature 42 °C, medium 20 °C, temperature completely controlled, own control, own power supply, length 715 mm, width 715 mm, height 1,545 mm
- 2 continuous-flow cooler alpha 9 for oil, cooling capacity 8.3 kW, air-cooled, at ambient temperature 42 °C, medium 25 °C, temperature completely controlled, own control and power supply, length 715 mm, width 715 mm, height 1,545 mm

### Option 6 – Hose package (cooler to coolant container)

- 0 without hose package
- 1 hose package 5 m (2 oil flex hoses à 5 m, each with mech. ball valve, ready for connection)
- 2 hose package 10 m (2 oil flex hoses à 10 m, each with mech. ball valve, ready for connection)

### Option 7 – Electricity for customer lifting pump and level sensors

- 0 without
- 1 for lifting pump with motor 1.8 – 2.5 A
- 2 for lifting pump with motor 2.2 – 3.2 A
- 3 for lifting pump with motor 2.8 – 4.0 A
- 4 for lifting pump with motor 3.5 – 5.0 A
- 5 for lifting pump with motor 4.5 – 6.3 A
- 6 for lifting pump with motor 5.5 – 8.0 A

## Order key

The performance data of the pumps named above refer to operation with emulsion. In case of operation with oil, the performance data of the low-pressure pumps is reduced by 10-20% depending on viscosity.

**KNOLL Maschinenbau GmbH**

Schwarzachstraße 20

DE-88348 Bad Saulgau

Tel. + 49 75 81 20 08-0

Fax + 49 75 81 20 08-140

info.itworks@knoll-mb.de

www.knoll-mb.de

## Standard filter system KF 200/950



### Electric control cabinet

E-Plan E-102578.00.x-x-x-x-x | Electricity for compact filters

Control cabinet AE1058 (600x800x250)

PLC control VIPA SLIO | text display KTP400

#### Power sections

1 x KF drive (Han-Drive)

1 x low-pressure pump 1\* (Han-Drive)

1 x low-pressure pump 2\* (Han-Drive)

2 x high-pressure pump 1\* (Han-Drive)

#### Please note

400 V interface for the cooler is not included | If a cooler unit is required, it must be supplied directly via the hall energy supply | The cooler is released via a potential-free contact from the cooling lubricant system | Signal is located on the terminal strip (without connector)

#### Sensor system

2 level sensors KF filter | 1 light sensor fleece end |

1 button fleece transport manual operation |

1 level sensor (overflow alarm) | 1 level sensor

(cooling lubricant min. alarm) | 1 bypass valve high-pressure pump\*

#### Interface to machine tool

- 400 V supply via 35 A Harting connector with mating plug (supplied loose)
- Signal exchange via 24-pin Harting connector with mating plug (supplied loose)
- Requirement low-pressure pump 1\*
- Requirement low-pressure pump 2\*
- Requirement high-pressure pump 1\*
- Requirement pressure stage high-pressure 1/2/3\* | Release signal charge KF filter possible

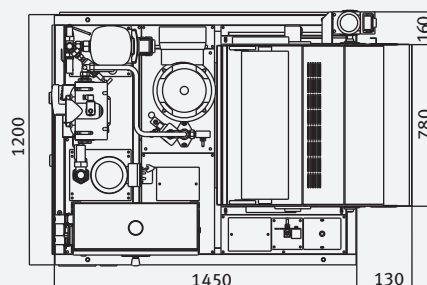
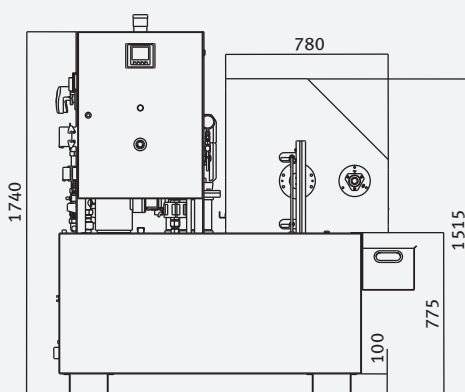
#### Equipment/Version

Wire marking printed wires | Range selector switch black (Eaton) | Power switch Sirius (Siemens) | Contactor Sirius (Siemens) | PLC control (VIPA) | Visualization (Siemens) | Power supply (Murr) | Terminals (Phoenix) | Connector (Harting) | Frequency inverter (Kostal) | Installation PUR line (Lapp)

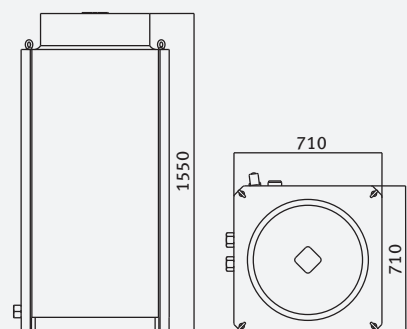
Connection voltage 3 x 400 V | Frequency 50 Hz

\* Only included if the associated option was selected

### Dimensions



#### Option Continuous flow-cooler

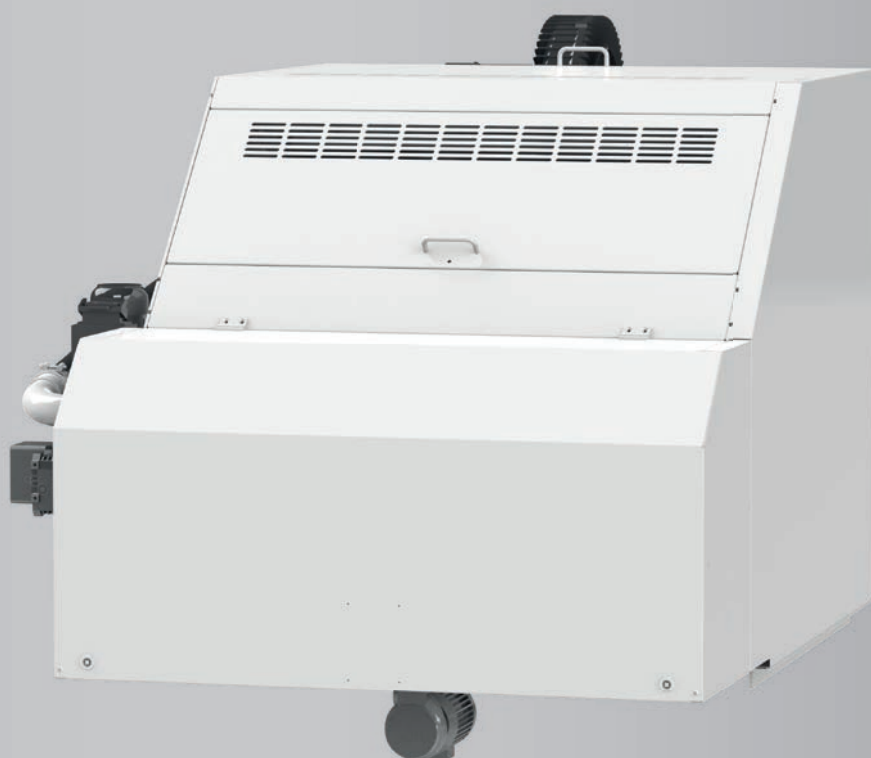




Compact Filter KF-E

**KNOLL**  
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Issue 08-2019



## Properties

Compact design

Good price-performance ratio

Greater hydrostatic pressure as compared to flat-bed filters

Sweeping strips and scraper

Endless filter belt

No carrying of cooling lubricant by the filter fleece

## Benefits

Space-saving setup

Short amortization time

Higher delivery rate and better degree of purity

Problem-free discharge of chips, even light metal ones

Reduction of consumable and disposal costs

Reduction of costs for cooling lubricants

## Application

KNOLL compact filters KF-E are belt filters for cleaning cooling lubricants of machining processes

- Use as stand-alone cleaning unit or combined with chip conveyors (e.g. in machining centers)
- Suitable as pre-separator for downstream superfine filters
- Local (for one machine tool) or central (for several machine tools) use possible

## Description

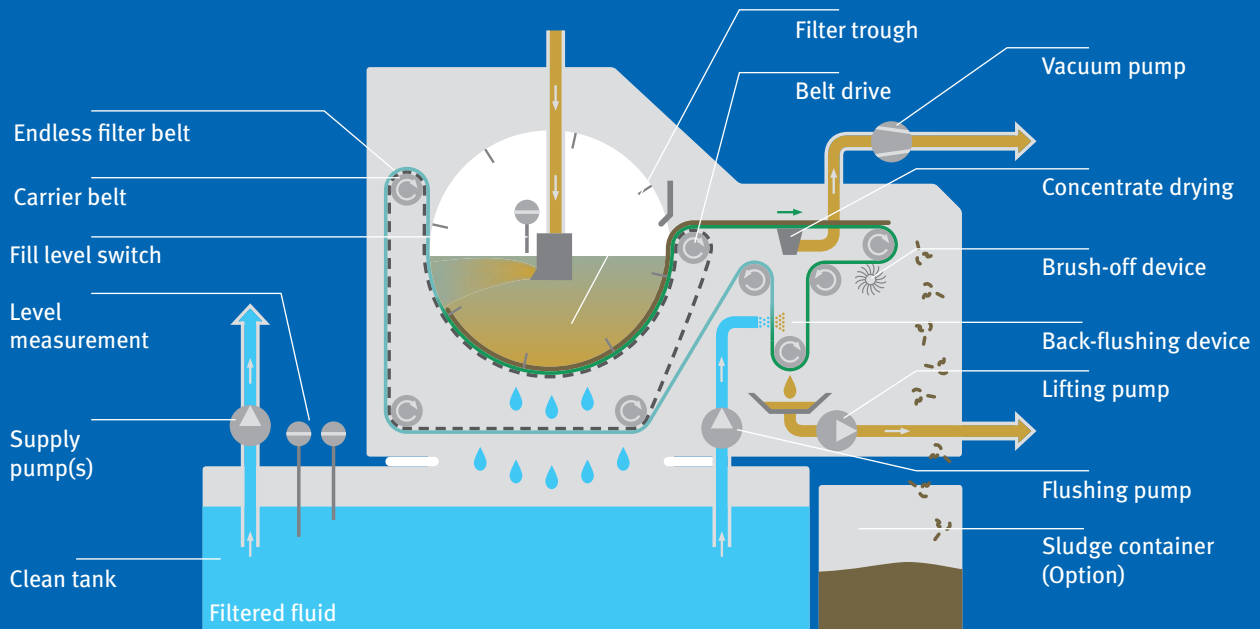
### Filtration process

1. Contaminated liquid flows from the side through the inlet box into the filter trough
2. The filter fleece holds back the contaminant particles during streaming
3. The contaminant particles form a filter cake, which separates even tiny dirt particles
4. The filtered fluid collects in the clean tank

### Regeneration process

1. The growing filter cakes increase the flow resistance
2. The fluid level in the filter trough increases
3. The belt drive switches on at a defined level (alternatively: time-controlled)
4. The carrier belt transports a piece of clean filter belt to the filter surface
5. The fluid level decreases again
6. A brush and back-flushing device clean the filter belt

# Scheme



## Equipment

Belt drive	●
Circulating carrier belt	●
Endless filter belt	●
Brush-off device	●
Back flushing device	●
Fill level measuring technology i.a.w. WRA	●
Control system	●
Concentrate drying with vacuum pump	○
Magnetic roller as pre-separator	○
Cooling lubricant tank system with supply pump(s)	○
Duplex switch filter	○
Tempering (cooling/heating)	○
Sludge container	○
Side panel	○
Fleece holder for bath maintenance	○

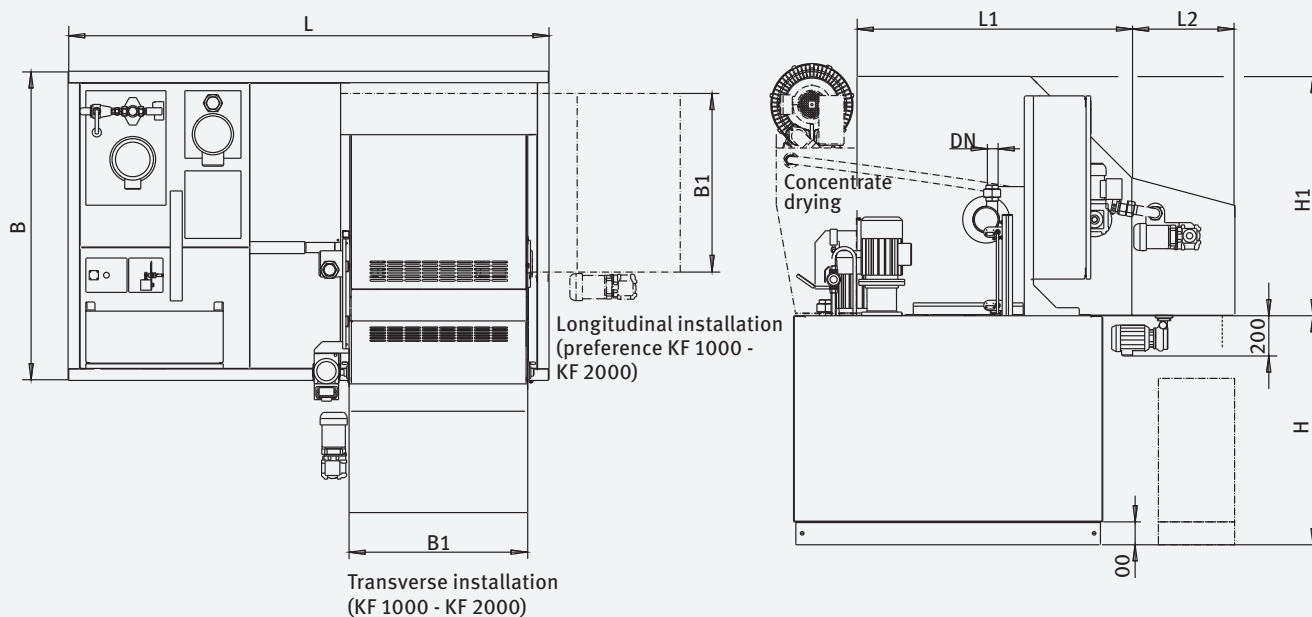
● Standard equipment

○ Option

**KNOLL Maschinenbau GmbH**

Schwarzachstraße 20  
DE-88348 Bad Saulgau  
Tel. +49 7581 2008-0  
Fax +49 7581 2008-90140  
info.itworks@knoll-mb.de  
www.knoll-mb.com

### Dimensions and technical data



Type	Filter capacity** (l/min)		Inlet DN	Tank capacity (l)	Fleece width	H	H1	B	B1	L	L1	L2
	Emulsion <sup>1</sup>	Oil <sup>2</sup>										
KF 150-E	150	40	25	900	540	700	740	1100	600	1600	780	430
KF 200-E	200	90	25	1200	710	800	740	1100	780	1800	780	430
KF 400-E	400	280	40	2200	710	1000	1045	1350	780	2100	1200	490
KF 600-E	600	400	40	3400	1020	1100	1045	1500	1100	2500	1200	490
KF 1000-E	1000	720	100	6000	1020	1100	1240	1950	1100	3400	1495	460
KF 1500-E	1500	1100	100	9000	1520	1100	1240	1950	1605	5000	1495	460
KF 2000-E	2000	1430	100	12000	2000	1100	1240	19503	2080	6800	1495	460

Dimensions without units given in mm.

<sup>1</sup>  $\nu = 1 \text{ mm}^2/\text{s}$

<sup>2</sup>  $\nu = 10 \text{ mm}^2/\text{s}$  (at operating temperature)

<sup>3</sup> uring longitudinal installation min. 2200 mm