Fluidcontrol

Off-line filter units

FGM 30/60

Installation and Operation Instructions

Original instructions

BE270002
09/2023

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0, Fax: +49 (0) 21 02 / 49 89-20
E-Mail: fluidcontrol@buehler-technologies.com
Internet: www.buehler-technologies.com

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0, Fax: +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com
E-Mail: fluidcontrol@buehler-technologies.com

Read this instruction carefully prior to installation and/or use. Pay attention particularly to all advises and safety instructions to prevent injuries. Bühler Technologies can not be held responsible for misusing the product or unreliable function due to unauthorised modifications.

Document information
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Contents

1 Introduction

1.1 Intended use

FGM off-line filters are used to maintain and extend the life of hydraulic fluids and lubricants. Their scope is indicated in the specifications. Any other applications require the prior approval of Bühler Technologies GmbH.

Since the fluids used are as a rule harmful to the environment, suitable tubing and fittings were used to ensure the screw-in cartridges can drain, the suction and pressure hoses are kept clean and any oil spills are caught.

1.2 Ordering instructions

Filtration units

Item no.	Type	Mains frequency
27002030IE3	FGM 30/Pi 2728-50Hz-57	50 Hz
27002031IE3	FGM 30/Pi 2728-60Hz-57	60 Hz
27002020IE3	FGM 60/Pi 2728-50Hz-57	50 Hz
27002021IE3	FGM 60/Pi 2728-60Hz-57	60 Hz

Screw-in cartridge (not included)

Item no.	Type	Fineness
70541536	PX37-13-2	3 µm
70541537	PX37-13-2	6 µm
70541538	PX37-13-2	10 µm
70541539	PX37-13-2	25 µm

1.3 Scope of delivery

- 1 x mobile off-line filter
- Product documentation

1.4 Product description

Pump unit

The pump unit consists of a gerotor pump with electric drive motor. The transparent suction and pressure hoses allow visual inspection of the flow. The suction pipe has a coarse filter to protect the gerotor pump from coarse particles.

Filter

The built-in low pressure filter has a visual contamination indicator and a bypass valve. The flow is routed through both filter cartridges in parallel.

2 Safety instructions

2.1 Important advice

Operation of the device is only permitted if:

- the product is used under the conditions described in the installation- and operation instruction, the intended application according to the type plate and the intended use. In case of unauthorized modifications done by the user Bühler Technologies GmbH can not be held responsible for any damage,
- when complying with the specifications and markings on the nameplates.
- the performance limits given in the datasheets and in the installation- and operation instruction are obeyed,
- monitoring devices and safety devices are installed properly,
- service and repair is carried out by Bühler Technologies GmbH,
- only original spare parts are used.

This manual is part of the equipment. The manufacturer keeps the right to modify specifications without advanced notice. Keep this manual for later use.

Signal words for warnings

DANGER	Signal word for an imminent danger with high risk, resulting in severe injuries or death if not avoided.
WARNING	Signal word for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	Signal word for a hazardous situation with low risk, resulting in damaged to the device or the property or minor or medium injuries if not avoided.
NOTICE	Signal word for important information to the product.

Warning signs

In this manual, the following warning signs are used:

	Warning against hazardous situations		Warning against high pressure
	Warning against electrical voltage		General notice
	Warning against hot surface		Disconnect from mains
	Warning against environmental hazard		Wear protection gloves
	Warning against potentially explosive atmospheres		

2.2 General hazard warnings

The equipment must be installed by a professional familiar with the safety requirements and risks.

Be sure to observe the safety regulations and generally applicable rules of technology relevant for the installation site. Prevent malfunctions and avoid personal injuries and property damage.

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal,
- compliance with national installation regulations.
- Nearby equipment is EMC protected, e.g. through shielding.
- The current and voltage supply for the aggregate has a (mains) separator with adequate switching capacity. National requirements must be observed.

Maintenance, Repair

Please note during maintenance and repairs:

- Repairs to the unit must be performed by Bühler authorised personnel.
- Only perform conversion-, maintenance or installation work described in these operating and installation instructions.
- Always use genuine spare parts.
- Do not install damaged or defective spare part. If necessary, visually inspect prior to installation to determine any obvious damage to the spare parts.

Always observe the applicable safety and operating regulations in the respective country of use when performing any type of maintenance.

DANGER — **Electrical voltage**

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

CAUTION — **Hot surface**

Burning hazard
Let the device cool down before maintaining.

CAUTION — **High pressure**

Hazard of injury due to flung off parts or oil, environmental hazard due to oil.

a) Before starting any maintenance or repair to the oil circuit, make sure that the device is depressurized. This applies to the threaded plugs as well.

b) Avoid environmental pollution (oil spills) during cleaning or maintenance of the oil circuit.

c) Use drip pans.

DANGER — **Potentially explosive atmosphere**

Explosion hazard if used in hazardous areas.
The device is not suitable for operation in hazardous areas with potentially explosive atmospheres.

3 Transport and storage

Only transport the product inside the original packaging or a suitable alternative. Ensure secure fastening and mooring.

Only use the engine transport eyes to hoist the engine without add-ons.

Step on the wheel stops to prevent the unit from rolling away. Pull the stops up to release.

The equipment must be protected from moisture and heat when not in use. It must be stored in a covered, dry, dust-free room at room temperature.

4 Installation and connection

4.1 Requirements to the installation site

Aggregate

The aggregate must be set up to allow for unobstructed air flow and adequate room for maintenance/repairs. For outdoor operation, please note the protection rating of the motor (IP 55) and the electrical plug (IP 44), and if necessary ensure adequate protection from the weather.

Ensure the surface is suitable and level. If necessary, align the unit. Be sure the connection side faces the cleaning oil tank (machine). Secure the wheels with the wheel stop.

Additional chocks or tilt protection may be required on uneven surfaces.

When using a filter with visual service indicator, the aggregate must be set up so as not to block the service indicator.

4.2 Hydraulic connection

Carry out the hydraulic connection per the attached data. When connecting the tubes, make sure they are strain-free and without kinks. The max. oil temperature is 50 °C, or briefly 65 °C.

Tighten the hose lines with a suitable torque (see appendix).

Contaminated fluids impact the life of the cooling system, we therefore recommend a minimum purity class of 23/19/13 per ISO 4406.

When permanently connecting the aggregate to a hydraulic system featuring switchover and shut-off valves, we recommend protecting it with an additional pressure relief valve. In this case the PVC tubes should also be replaced with conventional rubber tubes.

4.3 Electrical connections

The unit is equipped with a VDE-approved control. The pump unit is switched on and off via the main switch.

A 5-pin CEE plug is used to connect the unit. A motor circuit breaker with undervoltage release is built in as a safety device and switches the motor off when overloaded.

DANGER **Electrical voltage**

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

CAUTION **Electric voltage**

An incorrect mains voltage can destroy the unit
The connection must be made by a trained professional. Observe the mains voltage indicated on the type plate. Make sure the cables have sufficient strain relief.

Fusing
Fusing must comply with applicable standards!

Polarity
Please note the direction of rotation of the motor when connecting. The direction of rotation is indicated on the pump housing with "M" and an arrow. If the motor turns in the wrong direction after being switched on, correct the polarity inside the CEE socket.

The motor circuit breaker is set according to the current rating specified on the motor type plate. The motor comes as standard as a wye connection. Operation outside the specified mains voltage and frequency range limits is prohibited.

Connect the protective earth of the motor to the protective earth on site. Protective earth per DIN VDE 0100 must be connected to the marked earth lead terminal.

The operator of the equipment is responsible for ensuring lightning protection.

5 Operation and control

NOTICE

The device must not be operated beyond its specifications.

5.1 Selecting screw-in cartridges

The contamination level must be determined to be able to select a screw-in cartridge suitable for the respective application. This requires sampling the fluid to be cleaned and determining the purity class.

Please refer to the chart in chapter Selecting the filter fineness [> page 15] for the required purity class and system parameters for the necessary retention rate (ßxValue).

5.2 Before starting

- Check all parts for damage. Do not put a damaged device into operation.
- Verify the connection is correct as described in chapter "Installation and connection".
- Check if all valves or other parts which must be open during start-up were opened.
- Verify all screw connections and all sealing surfaces are tight.
- Ensure the screw-in cartridges required for the planned application are screw in correctly and you have sufficient spare elements.
- The suction and pressure hoses are tightly connected to the oil tank based on the task to be performed. If necessary, secure both hoses (or at least the suction tube) to prevent them from coming off. Make sure the tubes are not kinked!

5.3 During starting

Connect to power with the connecting cable. Do not crush or strain the cable.

Switch on the main switch. The pump will start immediately and the tubes fill with fluid.

Verify the pump turns counter-clockwise. Otherwise change the electrical connection inside the CEE socket. The direction of rotation is specified on the front of the pump housing with an arrow and "M".

CAUTION

Hot surface

Burning hazard
Let the device cool down before maintaining.

CAUTION

High pressure

Hazard of injury due to flung off parts or oil, environmental hazard due to oil.

a) Before starting any maintenance or repair to the oil circuit, make sure that the device is depressurized. This applies to the threaded plugs as well.

b) Avoid environmental pollution (oil spills) during cleaning or maintenance of the oil circuit.

c) Use drip pans.

Noise level

Our pump is supplied with a low noise. If the noise level increases significantly check if the suction line has the right dimension and if the pump works in the appropriate temp/viscosity range. Ask Bühler Technologies GmbH for technical advice.

Operation

For the highest efficiency the fluid to be cleaned should be at operating temperature. Therefore it's almost always beneficial to clean it on running systems or immediately after use.

When cleaning silty systems you should aim the pressure hose in the tank so the cleaning jet disperses the dirt layer and moves it toward the filter. Be sure to also aim it at the corners and if necessary temporarily stop turning and insert the pressure hose in the different tank sections.

Depending on the contamination level the filter elements (screw-in cartridges) will already be depleted after a few minutes. In this case, switch off the main switch and replace the screw-in cartridges.

Determine the cleaning result after initially brief periods (on element change) by determining the purity class achieved. The cleaner the system, the longer the life of the screw-in cartridges. When the purity class is stable, cleaning can be stopped.

5.4 Filter function notes

The screw-in cartridges utilisation will be best when the fluid is at operating temperature (>30 °C). This is because at low temperatures the viscosity of the oil increases, resulting in a higher pressure difference through the filter. The screw-in cartridges are monitored via the visual contamination indicator, which measures the pressure difference from the filter.

Cold oil and increasing contamination of the screw-in cartridge increase the pressure difference and causes the contamination indicator to respond, i.e. the red button pops out. During this phase the bypass valve relieves excess pressure on the filter element. Once the fluid has heated (determined by touching the filter housing) the red button should be pushed in again. If it stays pushed in, the element has sufficient capacity left, if it immediately pops out again (check function), the pressure difference is still too high or the element capacity may be depleted. In this case replace the element.

If the fluid does not heat up properly due to the volume and the viscosity is above 300 mm^2/s, the filter housing will be in constant bypass mode. In these worst cases, the target output cannot be achieved clearly and quickly. The purity class will not improve, as the filter element is partly being bypassed via the bypass valve, i.e. it also will not be depleted.

5.5 Completing cleaning

After completing the rinsing or cleaning process, remove the tubes from the tank, catch any oil drips, and insert in the holder on the unit. Secure the tubes on the transport hooks.

6 Maintenance

During maintenance, remember:

- The equipment must be maintained by a professional familiar with the safety requirements and risks.
- Only perform maintenance work described in these operating and installation instructions.
- Observe the respective safety regulations and operating specifications when performing any type of maintenance.
- Always use genuine spare parts.

DANGER **Electrical voltage**

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

CAUTION **Hot surface**

Burning hazard
Let the device cool down before maintaining.

CAUTION **High pressure**

Hazard of injury due to flung off parts or oil, environmental hazard due to oil.

a) Before starting any maintenance or repair to the oil circuit, make sure that the device is depressurized. This applies to the threaded plugs as well.

b) Avoid environmental pollution (oil spills) during cleaning or maintenance of the oil circuit.

c) Use drip pans.

Under normal operating conditions the aggregates are maintenance free. Preventive maintenance must therefore be routinely carried out by the operating company.

When doing so, please pay attention to:

- Tight screw fittings,
- Tightness,
- Damage to the aggregate (replace damaged parts),
- Abnormal (unusual) noise and vibration,
- Check warning labels for legibility and damage.

Electrical connections must be checked annually by a licensed electrician.

Always ensure the suction pipe is inside the fluid to prevent running the gerotor pump dry. If leaks occur, tighten or if necessary replace the connections.

After long aggregate downtimes the suction hose may need to be filled with a little bit of oil to improve pump intake.

The wheel kit is maintenance free. You will only need to ensure the wheels and swivel casters are in good condition.

The external parts the motors, particularly the cooling ribs and cooling ducts as clean as possible to prevent compromising heat release.

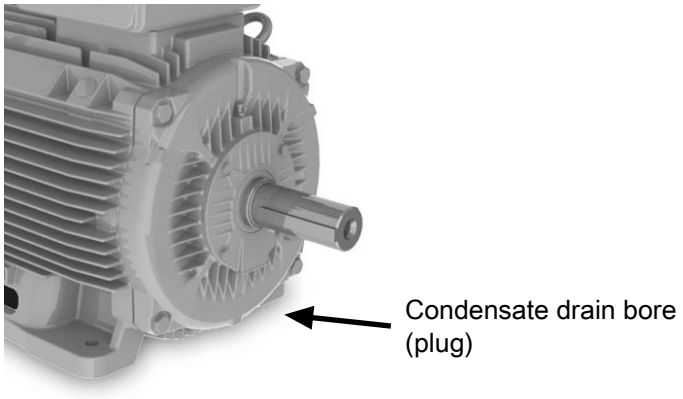
Please note the specified protection against dust and moisture. Pressure cleaning is only permitted if the motor has the respective protection rating.

The motors feature ball bearings sealed on both sides. The grease filling is designed to last for the life of the unit. Greasing is not necessary.

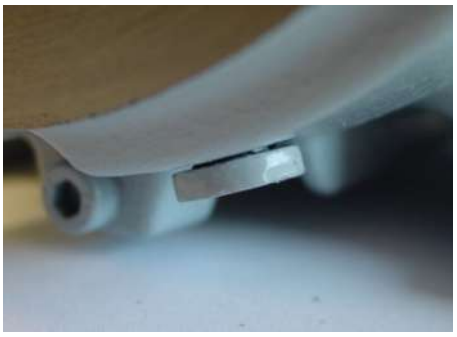
The motor mounts may only be replaced by Bühler Technologies GmbH or a qualified specialist company.

Condensate drain holes at motors from manufacturer WEG

If the motor is used in surrounding with high humidity this could lead, depending on the ambient temperature, to formation of condensate inside the motor housing. Specially at longer nonoperation period. The motors of WEG have a condensate drain plug which can be used for draining off. Pull out the plug according to the pictures and push it then back. If the plug is not pushed back or completely removed, the motor losses the IP degree of protection.



closed position



open position

plug

6.1 Replacing the filter element

- Switch off the aggregate via the main switch.
- Pull the pressure hose out of the tank and secure above the oil level.
- Unscrew the two screw-in cartridges with a strap spanner, turning counter-clockwise.
- Lightly lubricate the seal with oil before screwing in the screw-in cartridges.
- Switch the aggregate on again.

7 Service and repair

This chapter contains information on troubleshooting and correction should an error occur during operation.

Repairs to the unit must be performed by Bühler authorised personnel.

Please contact our Service Department with any questions:

Tel.: +49-(0)2102-498955 or your agent

For further information about our services and customised maintenance visit http://www.buehler-technologies.com/service.

If the equipment is not functioning properly after correcting any malfunctions and switching on the power, it must be inspected by the manufacturer. Please send the equipment inside suitable packaging to:

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

Please also attach the completed and signed RMA decontamination statement to the packaging. We will otherwise be unable to process your repair order.

You will find the form in the appendix of these instructions, or simply request it by e-mail:

service@buehler-technologies.com.

7.1 Troubleshooting

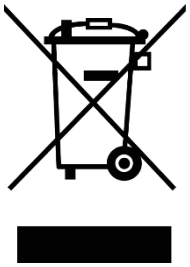
Problem / Malfunction	Possible cause	Action
Filter contamination indicator activated	– Screw-in cartridge dirty	– Replace screw-in cartridge
Motor pump is not taking in oil	– Perforated sheet inside the suction pipe clogged	– Clean perforated sheet
	– Suction pipe not inside the fluid	– Immerse suction pipe in fluid
	– Pump motor not running	– Check power supply and electrical connection
	– Incorrect direction of rotation	– Check and correct polarity inside the CEE socket
Noisy pump operation	– Pump is taking in air	– Immerse suction pipe in fluid
	– Pump isn't taking in oil	– Check suction pipe for damage
	– Pump failure	– Replace pump
	– Oil viscosity too high	– Oil needs to be heated up if the motor circuit breaker is triggered
Pump motor not running	– Motor circuit breaker was triggered	– Reset motor circuit breaker
	– Electrical connection failure	– Replace motor
	– Pump seized	– Replace pump
	– Electric motor coil defective	– Replace motor
	– Screw-in cartridges dirty	– Replace cartridges
Visual contamination indicator	– Failure	– Replace

Tab. 1: Troubleshooting

8 Disposal

The applicable national laws must be observed when disposing of the products. Disposal must not result in a danger to health and environment.

The crossed out wheelie bin symbol on Bühler Technologies GmbH electrical and electronic products indicates special disposal notices within the European Union (EU).



The crossed out wheelie bin symbol indicates the electric and electronic products bearing the symbol must be disposed of separate from household waste. They must be properly disposed of as waste electrical and electronic equipment.

Bühler Technologies GmbH will gladly dispose of your device bearing this mark. Please send your device to the address below for this purpose.

We are obligated by law to protect our employees from hazards posed by contaminated devices. Therefore please understand that we can only dispose of your waste equipment if the device is free from any aggressive, corrosive or other operating fluids dangerous to health or environment. **Please complete the "RMA Form and Decontamination Statement", available on our website, for every waste electrical and electronic equipment. The form must be applied to the packaging so it is visible from the outside.**

Please return waste electrical and electronic equipment to the following address:

Bühler Technologies GmbH
WEEE
Harkortstr. 29
40880 Ratingen
Germany

Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

9 Appendices

9.1 Technical Data

Technical Data	
Pump:	Contaminant-resistant gerotor pump
Colour:	Motor RAL 7024/frame RAL 5002
Operating fluids:	Mineral oils per DIN 51524
Operating oil temperature:	max. 50 °C, briefly 65 °C
Seal:	Perbunan (NBR) or Viton (FPM) on request
Ambient temperature:	-15 °C to +40 °C
Electrical connection:	Motor circuit breaker with overvoltage release, 5 m oil-proof connection cable with 5-pin CEE shrouded plug 16 A IEC60309/3L+N+PE
Filter housing:	PI 2728-57 with optical contamination indicator, parallel flow through filter cartridges
Filter bypass:	Opening pressure Δp 3.5 bar
Contamination indicator:	Response pressure Δp 2.2 bar
Wheel kit:	Steel frame with integrated drip pan with drain, large polyamide wheels, swivel wheels with brake, fold-away handle for pulling the aggregate, storage hooks for connecting cable and hoses
Oil hoses:	clear PVC hoses with integrated steel wire coil, with strainer as suction hose coarse filter, galvanised steel pipe pressure lance

Electric motors	
Voltage/frequency	
FGM 30:	220/380 V - 230/400 V - 240/415 V 50 Hz; 460 V 60 Hz Electr. motor per NEMA; UL, CSA, EAC approval
FGM 60:	220/380 – 245/420V 50Hz 220/380 – 280/480V 60Hz
Thermal stability:	Class of insulation F, utilisation per Class B
Design:	three-phase asynchronous squirrel-cage induction motor totally enclosed, fan cooled
Degree of protection:	Motor IP55 Plug IP44
on request:	other voltages higher motor power for higher viscosities UL- or CSA-approved motors higher protection class
The motors comply with the IEC 60034 standards	

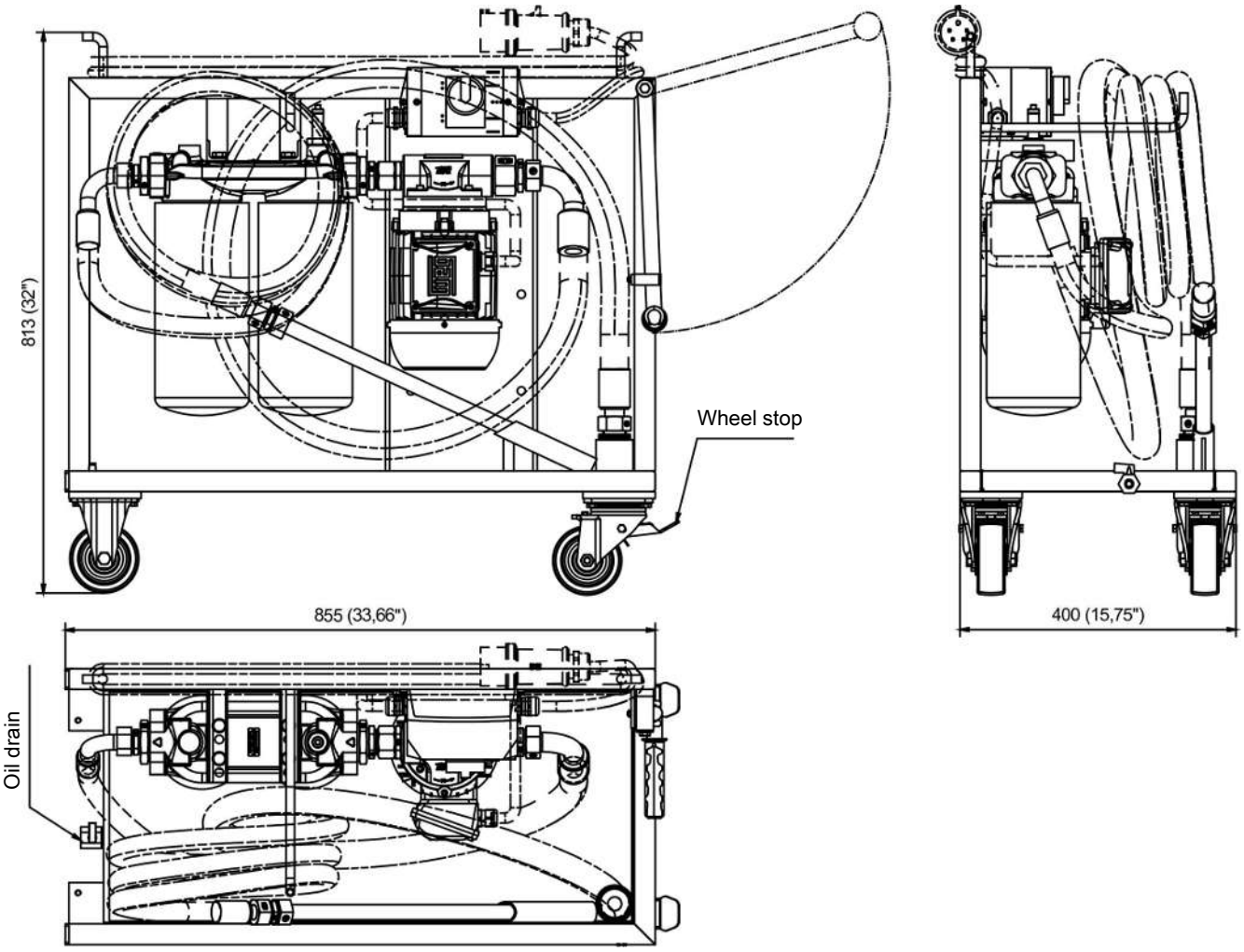
Aggregate	FGM 30	FGM 60
Flow rate:	29 L/min	58 L/min
Power output/number of pins/ rated current at 400 V:	0.75 kW/4/1.6 A	2.2 kW/4/4.6 A
Sound pressure level per ISO 3744:	61 dB(A)	64 dB(A)
Speed (rpm):	1410	1410
max. working pressure:	7 bar	7 bar
Suction pressure: briefly:	-0.4 bar -0.6 bar	-0.4 bar -0.6 bar
max. oil viscosity:	500 mm^2/s	500 mm^2/s
Weight:	approx. 60 kg	approx. 70 kg

Accessories (included)

	30 L/min.	60 L/min.	Length
Suction hose	DN 25	DN 32	L = 2 m
Pressure hose	DN 20	DN 20	L = 2 m

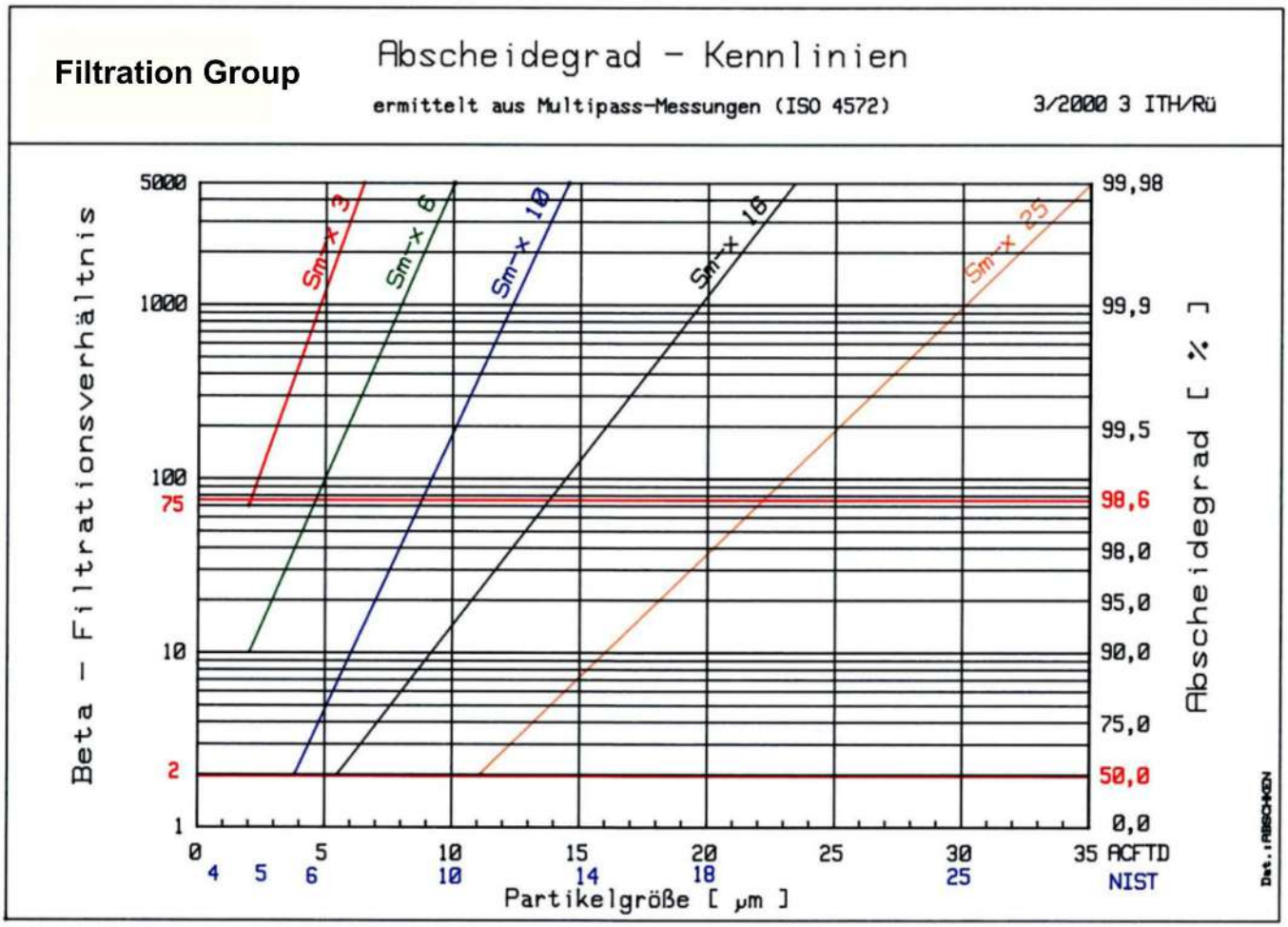
Screw-in cartridge 3 µm, 6 µm, 10 µm, 25 µm (not included)

9.2 Dimensions (mm/inch)



9.3 Selecting the filter fineness

Determining the contamination class per ISO 4406			System type	Recommend filter retention rate	Recommended element
>4 µm	>6 µm	>14 µm			
13	11	8	Highly reliable control systems susceptible to sludge accumulations; laboratory or aerospace	1-2	Sm-N2
14	12	9	High performance servo systems and high pressure systems with a long life; e.g. aviation, machine tool, etc.	3-5	Sm-x3
16	13	10			Sm-x6
17	15	11	High-quality, reliable systems: general machinery construction	10-12	Sm-x10
20	17	12	General machinery construction and vehicles; moderate pressure, moderate capacity	12-15	Sm-x16
23	19	13	General machinery construction and vehicles; low-pressure systems in heavy machinery construction	15-25	Sm-x25 / Mic 10



9.4 Installation torques and clamping range for cable fitting

Size	Strain relief clamping range (mm)	Installation torque (Nm)
M12x1,5	3-6	1,5
M16x1,5	5-9,5	2,5
M20x1,5	8-13	3,5
M25x1,5	11-17	5
M32x1,5	15-21	5
M40x1,5	19-28	7,5
M50x1,5	27-35	7,5
M63x1,5	32-42	13

9.5 Screw torques

Thread	Torque (Nm)
M5	4
M6	8
M8	15
M10	30
M12	51

9.6 Hose torques

Connections/mounts	Torque (Nm)
Hose connections DN20	180
Hose connections DN25	250
Hose connections DN32	350

9.7 Calculations

9.7.1 Calculating viscosity

Valid for VG-oil between 10 - 100 °C at an exactness from ± 5 %.

	Definitions
V_{40}	oil viscosity at 40 °C in cst
T	temperature in °C
υ	viscosity in cst

$$b = 159 \cdot \ln \frac{V_{40}}{0{,}23}$$

$$a = 0{,}23 \cdot e^{\frac{-b}{877}}$$

$$\upsilon = a \cdot e^{\frac{b}{T+95{,}2}}$$

	Example: oil VG 46
V_{40}	46 cst
T	25 °C

$$b = 159 \cdot \ln \frac{46}{0{,}23} = 842{,}4325$$

$$a = 0{,}23 \cdot e^{\frac{-842{,}4325}{877}} = 0{,}08801$$

$$\upsilon = 0{,}08801 \cdot e^{\frac{842{,}4325}{25+95{,}2}} = 97{,}35 \text{ cst}$$

9.7.2 Table of operational viscosity for VG oil

	10 °C	20 °C	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C	90 °C
VG 46	264,45	131,96	73,58	46,00	29,13	20,04	14,43	10,78	8,32
VG 68	444,77	210,85	112,61	68,00	41,63	27,86	19,58	14,32	10,84
VG 220	2.120,17	861,60	404,31	220,00	121,71	74,99	49,00	33,61	24,01
VG 320	3.489,92	1.350,22	607,96	320,00	171,40	102,85	65,66	44,12	30,94

Viscosity given in cst (mm^2/s)

9.7.3 Calculating the pressure loss

Valid for smooth straight piping per meter at laminar current.

	Definitions
υ	Viscosity in cst
ρ	spec. gravity in kg/dm^3
DN	tube diameter in mm
V	flow in m/s
PV	pressure loss in bar

	Example: oil VG 46
υ	97,35 cst
ρ	0,8817 kg/dm^3
DN	20 mm
V	3,18 m/s (60 l/min for tube DN 20)

$$PV = \frac{0{,}32 \cdot \upsilon \cdot \rho \cdot V}{DN^2}$$

$$PV = \frac{0{,}32 \cdot 97{,}35 \cdot 0{,}8817 \cdot 3{,}18}{20^2} = 0{,}22\ bar$$

NOTICE

Pressure loss increases significantly for bends and fittings.
It might be necessary in some cases to determine the final shape of the suction line on site under specific conditions.

Please do not hesitate to contact us for help to calculate the pressure loss of the suction line for you specific application.

NOTICE

To avoid damage of the cooling system, make sure that the maximum pump pressure is not exceeded. High pressure may occur if the system is shut off or throttled at the pressure side.

10 Attached documents

– Declaration of Conformity KX270002
– RMA - Decontamination Statement

EG-/EU Konformitätserklärung
EC/EU Declaration of Conformity

Hiermit erklärt Bühler Technologies GmbH, dass die nachfolgenden Produkte den wesentlichen Anforderungen der Richtlinie

2006/42/EG

(MRL)

in ihrer aktuellen Fassung entsprechen.

Herewith declares Bühler Technologies GmbH that the following products correspond to the essential requirements of Directive

2006/42/EC

(MD)

in its actual version.

Die Produkte sind Maschinen nach Artikel 2 a).

The products are machines according to article 2 (a).

Produkt / products: Nebenstromfilteraggregat / *Off-line filter unit*
Typ / type: FGM 30/60

Die Betriebsmittel dienen der Pflege und Lebensdauerverlängerung von Hydraulikflüssigkeiten und Schmierölen.
The equipment is suited for servicing and life care of hydraulic-liquids and lubricating oils.

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union:
The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

EN 60204-1:2018 **EN ISO 4413:2010**

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit Anschrift am Firmensitz.
The person authorised to compile the technical file is Mr. Stefan Eschweiler located at the company's address.

Ratingen, den 28.06.2023

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen,
Tel. +49 (0) 21 02 / 49 89-0, Fax. +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com

UK Declaration of Conformity

The manufacturer Bühler Technologies GmbH declares, under the sole responsibility, that the product complies with the requirements of the following UK legislation:

Machinery Safety Regulations 2008

Product: Off-line filter unit
Types: FGM 30/60

The equipment is suited for servicing and life care of hydraulic-liquids and lubricating oils.

The object of the declaration described above is in conformity with the relevant designated standards:

EN 60204-1:2018

EN ISO 4413:2010

Ratingen in Germany, 28.06.2023

Stefan Eschweiler
Managing Director

Frank Pospiech
Managing Director

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RMA-Formular und Erklärung über Dekontaminierung
RMA-Form and explanation for decontamination

RMA-Nr./ RMA-No.

Die RMA-Nr. bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service. Bei Rücksendung eines Altgeräts zur Entsorgung tragen Sie bitte in das Feld der RMA-Nr. "WEEE" ein./ You may obtain the RMA number from your sales or service representative. When returning an old appliance for disposal, please enter "WEEE" in the RMA number box.

Zu diesem Rücksendeschein gehört eine Dekontaminierungserklärung. Die gesetzlichen Vorschriften schreiben vor, dass Sie uns diese Dekontaminierungserklärung ausgefüllt und unterschrieben zurücksenden müssen. Bitte füllen Sie auch diese im Sinne der Gesundheit unserer Mitarbeiter vollständig aus./ This return form includes a decontamination statement. The law requires you to submit this completed and signed decontamination statement to us. Please complete the entire form, also in the interest of our employee health.

Firma/ Company

Firma/ Company	
Straße/ Street	
PLZ, Ort/ Zip, City	
Land/ Country	

Ansprechpartner/ Person in charge

Name/ Name	
Abt./ Dept.	
Tel./ Phone	
E-Mail	

Gerät/ Device	
Anzahl/ Quantity	
Auftragsnr./ Order No.	

Serien-Nr./ Serial No.	
Artikel-Nr./ Item No.	

Grund der Rücksendung/ Reason for return

- ☐ Kalibrierung/ Calibration
- ☐ Modifikation/ Modification
- ☐ Reklamation/ Claim
- ☐ Reparatur/ Repair
- ☐ Elektroaltgerät/ Waste Electrical & Electronic Equipment (WEEE)
- ☐ andere/ other

bitte spezifizieren/ please specify

Ist das Gerät möglicherweise kontaminiert?/ Could the equipment be contaminated?

☐ Nein, da das Gerät nicht mit gesundheitsgefährdenden Stoffen betrieben wurde./ No, because the device was not operated with hazardous substances.

☐ Nein, da das Gerät ordnungsgemäß gereinigt und dekontaminiert wurde./ No, because the device has been properly cleaned and decontaminated.

☐ Ja, kontaminiert mit:/ Yes, contaminated with:

☐ explosiv/ explosive	☐ entzündlich/ flammable	☐ brandfördernd/ oxidizing	☐ komprimierte Gase/ compressed gases	☐ ätzend/ caustic	☐ giftig, Lebensgefahr/ poisonous, risk of death	☐ gesundheitsgefährdend/ harmful to health	☐ gesundheitsschädlich/ health hazard	☐ umweltgefährdend/ environmental hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

Das Gerät wurde gespült mit:/ The equipment was purged with:

Diese Erklärung wurde korrekt und vollständig ausgefüllt und von einer dazu befugten Person unterschrieben. Der Versand der (dekontaminierten) Geräte und Komponenten erfolgt gemäß den gesetzlichen Bestimmungen.

This declaration has been filled out correctly and completely, and signed by an authorized person. The dispatch of the (decontaminated) devices and components takes place according to the legal regulations.

Falls die Ware nicht gereinigt, also kontaminiert bei uns eintrifft, muss die Firma Bühler sich vorbehalten, diese durch einen externen Dienstleister reinigen zu lassen und Ihnen dies in Rechnung zu stellen.

Should the goods not arrive clean, but contaminated, Bühler reserves the right, to comission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature

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Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies GmbH. Um eine aussagekräftige Analyse zu gewährleisten muss die Ware möglichst unverändert untersucht werden. Es dürfen keine Veränderungen oder weitere Beschädigungen auftreten, die Ursachen verdecken oder eine Analyse unmöglich machen.

Umgang mit elektrostatisch sensiblen Baugruppen

Bei elektronischen Baugruppen kann es sich um elektrostatisch sensible Baugruppen handeln. Es ist darauf zu achten, diese Baugruppen ESD-gerecht zu behandeln. Nach Möglichkeit sollten die Baugruppen an einem ESD-gerechten Arbeitsplatz getauscht werden. Ist dies nicht möglich sollten ESD-gerechte Maßnahmen beim Austausch getroffen werden. Der Transport darf nur in ESD-gerechten Behältnissen durchgeführt werden. Die Verpackung der Baugruppen muss ESD-konform sein. Verwenden Sie nach Möglichkeit die Verpackung des Ersatzteils oder wählen Sie selber eine ESD-gerechte Verpackung.

Einbau von Ersatzteilen

Beachten Sie beim Einbau des Ersatzteils die gleichen Vorgaben wie oben beschrieben. Achten Sie auf die ordnungsgemäße Montage des Bauteils und aller Komponenten. Versetzen Sie vor der Inbetriebnahme die Verkabelung wieder in den ursprünglichen Zustand. Fragen Sie im Zweifel beim Hersteller nach weiteren Informationen.

Einsenden von Elektroaltgeräten zur Entsorgung

Wollen Sie ein von Bühler Technologies GmbH stammendes Elektroprodukt zur fachgerechten Entsorgung einsenden, dann tragen Sie bitte in das Feld der RMA-Nr. „WEEE“ ein. Legen Sie dem Altgerät die vollständig ausgefüllte Dekontaminierungserklärung für den Transport von außen sichtbar bei. Weitere Informationen zur Entsorgung von Elektroaltgeräten finden Sie auf der Webseite unseres Unternehmens.

Avoiding alterations and damage to the components to be returned

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies GmbH. To ensure conclusive analysis the goods must be inspected unaltered, if possible. Modifications or other damages which may hide the cause or render it impossible to analyse are prohibited.

Handling electrostatically conductive components

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assembles should be replaced in an ESD-safe location. If unable to do so, take ESD-safe precautions when replacing these. Must be transported in ESD-safe containers. The packaging of the assemblies must be ESD-safe. If possible, use the packaging of the spare part or use ESD-safe packaging.

Fitting of spare parts

Observe the above specifications when installing the spare part. Ensure the part and all components are properly installed. Return the cables to the original state before putting into service. When in doubt, contact the manufacturer for additional information.

Returning old electrical appliances for disposal

If you wish to return an electrical product from Bühler Technologies GmbH for proper disposal, please enter "WEEE" in the RMA number box. Please attach the fully completed decontamination declaration form for transport to the old appliance so that it is visible from the outside. You can find more information on the disposal of old electrical appliances on our company’s website.

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