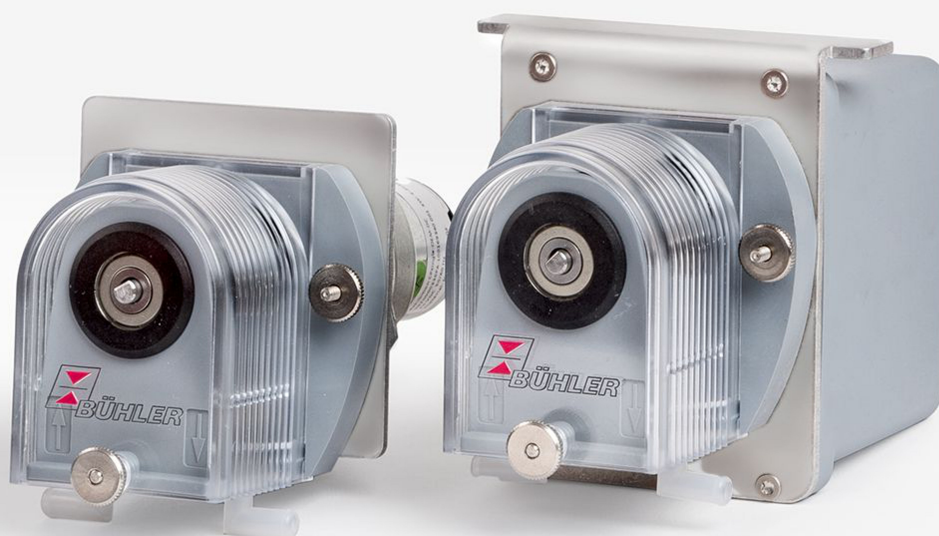




Peristaltic condensate and metering pumps

CPsingle 11

Installation and Operation Instructions

Original instructions





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: analyse@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.

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Document information

Document No.....BE450034

Version.....11/2020

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1 Introduction

1.1 Intended use

This unit is intended to discharge condensate from cooled process fluids. The temperature of these media is approx. 5 °C (41 °F). The unit is suitable for use in normal, non-hazardous areas.

1.2 Scope of delivery

- 1 x Peristaltic pump
- Product documentation
- Connection- and mounting accessories (only optional)

1.3 Ordering instructions

The item number is a code for the configuration of your unit. Please use the following model key:

4492	1	X	X	0	1	1	X	Product Characteristic
	1							Gas path
								Single gas path
	1							Version
								Housing version
	2							Built-in version
	7							Supply voltage
								115 V, 60 Hz
	8							230 V 50 Hz
	0							Area of application
								Standard applications – CE
	1							Hose material
								Tygon (Norpren)
	1							Flow rate/hour
								1 L/h
	1							Hose connection
								1 straight hose nipple
								2 angled hose nipple
								3 straight and angled hose nipple
								4 Screw connection (metric) DN 4/6
								5 Screw connection (US) 1/6"-1/4"
								6 angled hose nipple and screw connection (metric)
								7 angled hose nipple and screw connection (US)
								8 straight hose nipple and screw connection (metric)
								9 straight hose nipple and screw connection (US)

2 Safety instructions

2.1 Important advice

Operation of the device is only valid 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

These instructions use the following warning signs:

	Warns of a general hazard		General information
	Warns of voltage		Unplug from mains
	Warns not to inhale toxic gasses		Wear respiratory equipment
	Warns of corrosive liquids		Wear a safety mask
	Warns of explosive areas		Wear gloves

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.

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.



DANGER



Toxic, corrosive condensate

- a) Protect yourself from toxic, corrosive condensate when performing any type of work.
- b) Wear appropriate protective equipment.
- c) Please note the national safety rules!



DANGER



Use in explosive areas

The equipment is **not** suitable for use in explosive areas.

3 Transport and storage

The products should be transported only in its original packaging or a suitable replacement.

When not in use, protect the equipment against moisture and heat. Keep it in a covered, dry and dust-free room.

4 Installation and connection

4.1 Installation site requirements

Be sure to maintain the approved ambient temperature. Please also note the technical data of the add-on gas cooler.

When mounting to a subframe, it is screwed directly to the cooler housing.

The unit is intended for use in enclosed areas. Adequate protection from the weather must be provided when used outdoors.

4.2 Mounting

WARNING**Hazardous electrical voltage**

The device must be installed by trained staff only.

CAUTION**Wrong mains voltage**

Wrong mains voltage may damage the device.
Regard the correct mains voltage as given on the type plate.

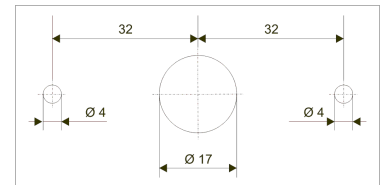
There are two holes at the bottom of the mounting bracket. These can be used for screws.

Connect the tubes to the connectors and assure they are close. The pump direction is given on the cover.

4.2.1 Installing the built-in style

The built-in style (without housing) of the CPsingle is delivered pre-assembled. Proceed as follows to install:

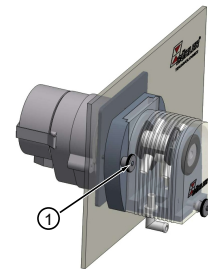
Prepare the mounting plate for the pump. The locations of the bores are indicated in the adjacent drawing. The mounting plate must not be thicker than 3 mm.



Remove the knurled nuts M3 (1) at both ends.

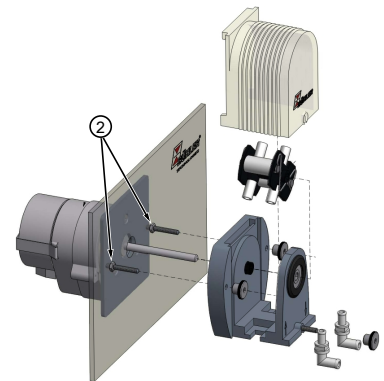
Pull the entire pump head off the gear axle with a slight back and forth motion.

You will see two hex nuts M3 (2).



Remove the two hex nuts and insert the drive motor including retaining plate and pressfit stubs into the prepared coupler from the back.

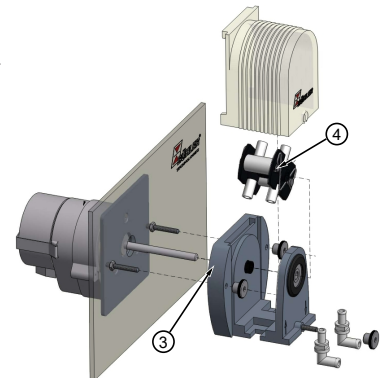
Tighten the hex nuts M3.



Attach the pump head bracket (3) to the gear axle.

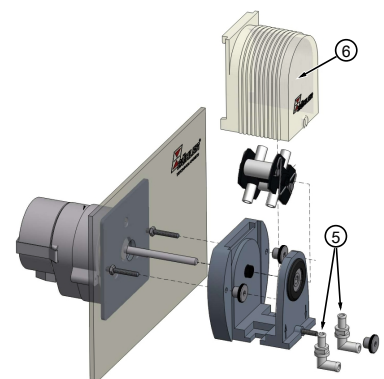
Insert the rotor (4) – cylindrical neck forward - into the pump head bracket, now slide the entire assembly onto the gear axle and the retaining bolts.

Tighten (1) knurled nuts.



Insert the hose fitting (5) with hose into the square breakouts.

Finally, attach the hood (6) and secure with the knurled nut.



4.3 Electrical connections

4.3.1 Electrical Connections (housing version / 115 V or 230 V)

Verify the pump motor has the correct voltage and frequency (voltage tolerance $\pm 5\%$ and frequency tolerance $\pm 2\%$).

Peristaltic pumps housing style type SA-AC (230/115 V) come standard with a 2 m connecting cable.

The fixed connection cable for the housing version has three numbered braids and one PE connection.



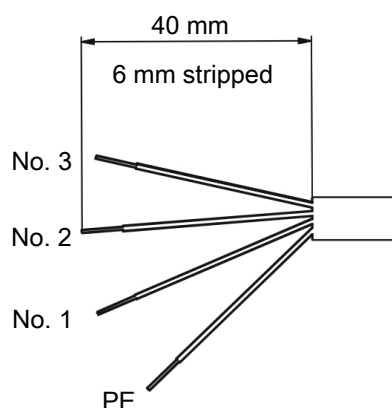
Connect the protective conductor to the yellow/green wire of the connecting cable.

The supply line and earthing cross-sections must be aligned with the rated current.

Use a minimum line cross-section of 0.5 mm^2 for the electrical connection and particularly the protective earth.

Be sure to observe any varying information in the rating plate. The conditions at the site must correspond with all rating plate information.

When connecting to a 115 V or 230 V supply, connect the following braids:



Power supply	Connection
115 V	Braid 2; 3 and PE
230 V	Braids 1; 3 and PE

4.3.2 Electrical Connections (built-in version / 115 V or 230 V)

The wires moulded into the motor have a length of 500 mm.

When connecting to a 115 V or 230 V supply, connect the following braids:

Power supply	Connection
115 V	white and blue
230 V	black and blue

5 Operation and control

NOTICE

The device must not be operated beyond its specifications.

The pump does not have a power switch. It starts running as soon as the power supply is turned on.

NOTICE

Installing peristaltic **CPsingle** peristaltic pumps limits the **maximum operating pressure** in the system!
Operating pressure ≤ 1 bar

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.
- When performing maintenance of any type, observe the respective safety and operation regulations.

DANGER



Electrical voltage

Electrocution hazard.

- Disconnect the device from power supply.
- Make sure that the equipment cannot be reconnected to mains unintentionally.
- The device must be opened by trained staff only.
- Regard correct mains voltage.



DANGER



Toxic, corrosive condensate

Protect yourself from toxic, corrosive condensate when performing any type of work. Wear appropriate protective equipment.



The hose inside the pumps is a wear item and must regularly be checked for leaks. Replace as described in chapter "Replacing the hose".

6.1 Replacing the hose

- Close gas supply.
- Switch off device and disconnect all plugs (e.g. connector plug alarm output, supply input, etc.).
- Disconnect supply and discharge tube on peristaltic pump (**observe safety notes!**).
- Loosen but do not remove centre knurled nut on the hammer-head screw. Flip down screw.
- Pull cover up and off.
- Unplug external connections and remove hose.
- Replace hose (Bühler spare part) and install peristaltic pump in reverse order.
- Restore the power and gas supply.

NOTICE



Never grease the pump hose!

Check all parts for contamination prior to assembly and clean as necessary.

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

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 Safety instructions

- The device must be operated within its specifications.
- All repairs must be carried out by Bühler authorised personnel only.
- Only perform modifications, servicing or mounting described in this manual.
- Only use original 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.



DANGER

Toxic, corrosive condensate

Protect yourself from toxic, corrosive condensate when performing any type of work.
Wear appropriate protective equipment.



7.2 Spare parts and accessories

Please also specify the model and serial number when ordering parts.

Upgrade and expansion parts can be found in our catalog.

Available spare parts:

7.2.1 Ordering information replacement hoses for 0.3 l/h pumps

4492	0	0	3	5	1	1	X	Product Characteristic
								Output per litre*
								1 L/h
								Hose material
								1 Tygon (Norprene)
								Hose connection
								1 straight hose nipple
								2 angled hose nipple
								3 straight and angled hose nipple
								4 Screw connection (metric)
								5 Screw-in connection (US)
								6 angled hose nipple and screw connection (metric)
								7 angled hose nipple and screw connection (US)
								8 straight hose nipple and screw connection (metric)
								9 straight hose nipple and screw connection (US)

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

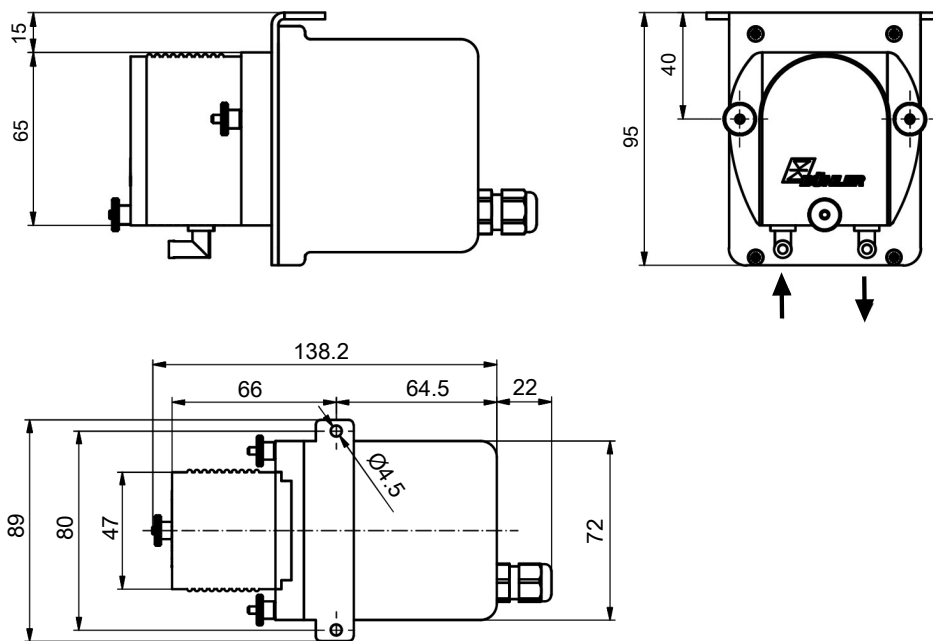
9.1 Technical data

CPsingle 1l Peristaltic Pumps Technical Data

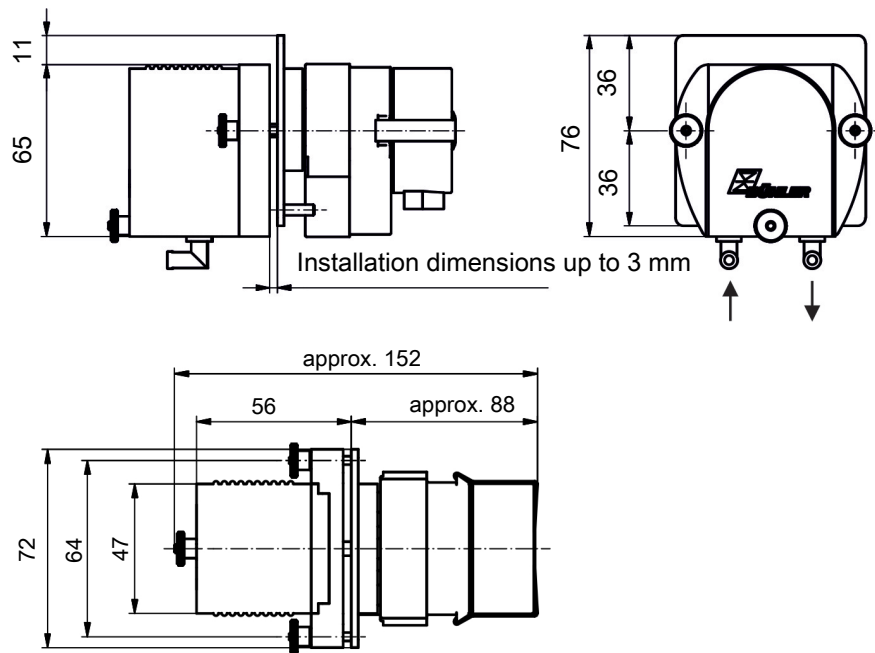
Nominal voltage / Power input at $T_{amb} = 20\text{ °C}$ and under load	230 V 50 Hz 0.025 A 115 V 60 Hz 0.044 A
Flow rate:	1.0 l/h (50 Hz) / 1.2 l/h (60 Hz)
Inlet vacuum:	max. 0.8 bar
Inlet pressure:	max. 1 bar
Outlet pressure:	1 bar
Weight:	CPsingle-SA: 0.7 kg (housing version) CPsingle-OEM: 0.47 kg (built-in version)
IP rating:	IP 44 (housing version) IP 40 (built-in version)
Ambient temperatures:	$T_{max} = 55\text{ °C}$ (housing version) $T_{max} = 60\text{ °C}$ (built-in version)
Cable lengths:	2 m (housing version 115/230 V) 500 mm (Built-in version 115/230 V)
Parts in Contact with Mediums	
Hose:	Tygon (Norpren), others on request
Connections:	PVDF Straight 5 mm (recommended hose 4/6) Elbow 6 mm (recommended hose 5/8) Screw-in connection DN 4/6 or 1/6" – 1/4"

9.2 Dimensions

9.2.1 Housing version



9.2.2 Built-in version



10 Attached documents

- Declaration of Conformity KX 450012
- 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.

Die Produkte sind Maschinen nach Artikel 2 a).

Folgende Richtlinie wurde berücksichtigt:

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

2006/42/EC
(MD)

in its actual version.

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

The following directive was regarded:

2014/30/EU (EMV/EMC)

Produkt / products: Peristaltische Kondensatpumpe / *Peristaltic condensate pump*
Typ / type: CPsingle, CPdouble

Das Betriebsmittel ist zur Ableitung von Kondensat aus Gasanalysesystemen bestimmt.
The equipment is designed to discharge condensate from gas analysis systems.

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 809:1998 + A1:2009

EN 61326-1:2013

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 01.11.2022

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

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

The following legislation were regarded:

Electromagnetic Compatibility Regulations 2016

Product: Peristaltic condensate pump
Types: CPsingle
CPdouble

The equipment is designed to discharge condensate from gas analysis systems.

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

EN 809:1998 + A1:2009

EN 61326-1:2013

Ratingen in Germany, 01.11.2022

A handwritten signature in blue ink, appearing to read 'Stefan Eschweiler'.

Stefan Eschweiler
Managing Director

A handwritten signature in blue ink, appearing to read 'Frank Pospiech'.

Frank Pospiech
Managing Director

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

Gerät/ Device

Anzahl/ Quantity

Auftragsnr./ Order No.

Ansprechpartner/ Person in charge

Name/ Name

Abt./ Dept.

Tel./ Phone

E-Mail

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



☐
gesundheitsge-
fährdend/
harmful to
health



☐
gesund-
heitsschädlich/
health hazard



☐
umweltge-
fährdend/
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 commission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature



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 assemblies 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.

