Proven Productivity

SOLUTIONEERING
A BOSSARD COMPANY

Operating Instructions

# Dosing unit KDG 1000


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5100/01.15

# Contents

# Contents

## General

Read the entire manual before operating the device!

Please observe the safety instructions in particular.

The symbols used in this operating manual have the following meanings:

*This note provides useful suggestions and information about improving the performance and reliability of the device.*

Store the operating manual in a place easily accessible by the operator.

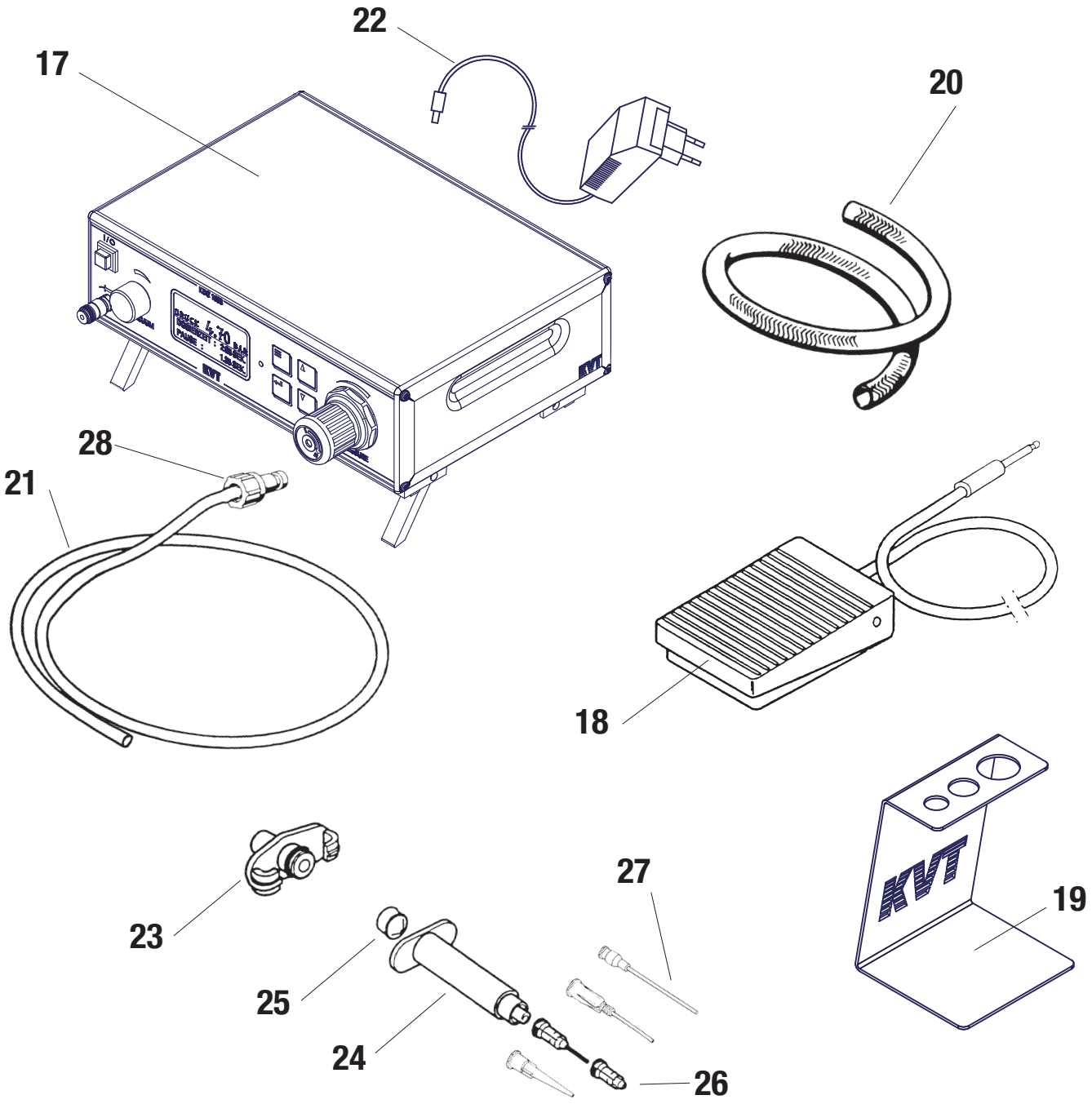
*Only skilled personnel may perform repairs (see EN 62079 Clause 3.17).*

**Immediately replace damaged power supply units and components!**

## Warning!

Always wear EYE PROTECTION when using compressed air and equipment operated by compressed air!

# Scope of delivery




| | | | |
|---|---|---|---|
| 1 Dosing unit KDG 1000 | 17 | 1 Closure heads 5, 10, 30 ml | 23 |
| 1 Foot switch | 18 | 2 Cartridges 5, 10, 30 ml | 24 |
| 1 Stand for cartridge | 19 | 2 Pistons 5, 10, 30 ml | 25 |
| 1 Compressed-air hose 2 m | 20 | 3 Valve gates | 26 |
| 1 Plastic hoses with connector | 21/28 | 1 Nozzle assortment | 27 |
| 1 Power supply | 22 | | |

# Intended use

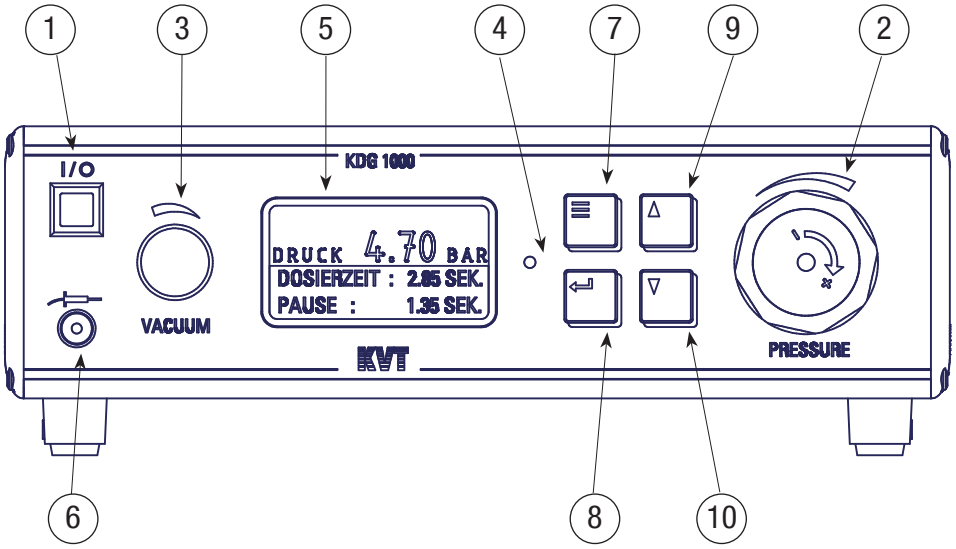
The KDG 1000 dosing unit is suitable for accurate application of fluid media such as adhesives (anaerobes, cyanoacrylates, silicones, epoxies, etc.), lubricants and solvents, paints, inks, pastes, etc. in the viscosity range of:
1 mPa·s (water) to highly viscous and paste-like materials.

The device is designed for an autonomous product delivery point.

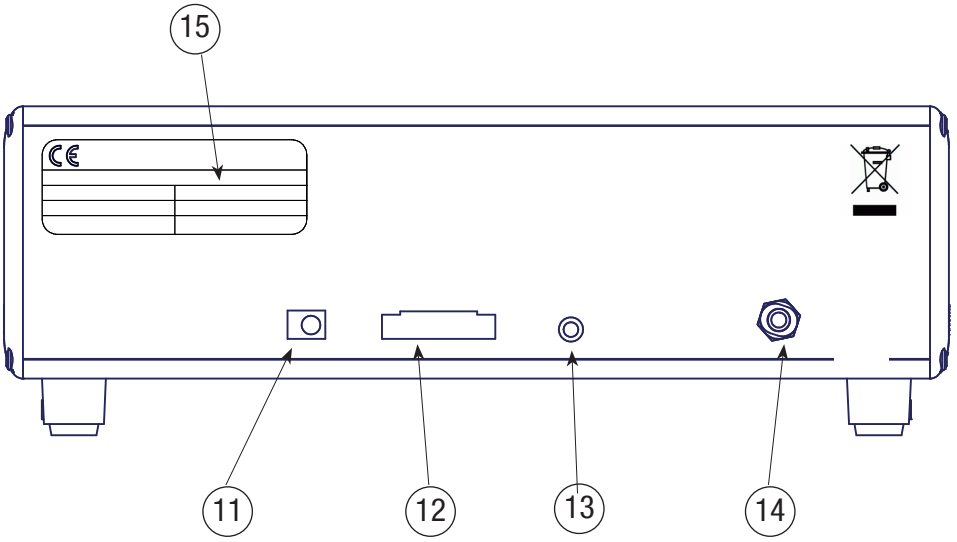
The quantity to be metered depends on the viscosity of the product, time setting, diameter of the dosing nozzle and air pressure.

*The KDG 1000-1 dosing unit is suitable for accurate dosing of liquid and low-viscosity products.*
*The KDG 1000-6 dosing unit is suitable for accurate dosing of high-viscosity and paste like products.*
*In other words, they are intended for creating pressure surges and vacuums with precisely defined and reproducible properties. The pneumatic system in the device never comes into direct contact with the dosing media when handled correctly.*

# Control elements and connections




Front




Back

1. Power switch On / Off
2. Pressure regulator
3. Vacuum regulator
4. LED
5. Display
6. Cartridge port
7. Menu key
8. Enter key
9. Arrow key up
10. Arrow key down
11. Power connector
12. Interface ext. Controller
13. Initiator port
14. Compressed air supply
15. Rating plate

## Basic functions

***Pressure:*** *Manually set by turning the pressure regulator and controls the dosing pressure. Indicator on display (5).*

***Vacuum:*** *Manually set by turning the vacuum regulator (3) and prevents dripping during pauses in dosing.*

***Dosing time:*** *Manually set by pressing the arrow keys (9+10) and controls the dosing duration. Indicator on display (5).*
*(Only possible when the operating mode is set to Time)*

## Parameters

***Operating mode***

| | |
|---|---|
| *Time:* | *Dosing duration based on the time entered.* |
| *Duration:* | *Dosing continues as long as the button is pressed or there is an external signal.* |
| *Repetition:* | *Repeats the starting pulses for dosing based on the time set as long as the button is pressed or there is an external signal.* |

***Triggering***

| | |
|---|---|
| *Manual:* | *Dosing is triggered by manually pressing a button (foot switch).* |
| *External:* | *Dosing is triggered by external control (PLC).* |

***Relay***

| | |
|---|---|
| *On:* | *The starting pulse and corresponding pause time are output to the relay.* |
| *Off:* | *No output to the relay.* |

***Unit of pressure***

| | |
|---|---|
| *bar:* | *Display of pressure in bar* |
| *PSI:* | *Display of pressure in PSI* |

| | |
|---|---|
| *Language* | *Display of texts in:*<br>*• German • French • Italian • English* |

***Contrast***

The arrow keys can be used to set the display contrast.

## Special functions

***Default parameters***

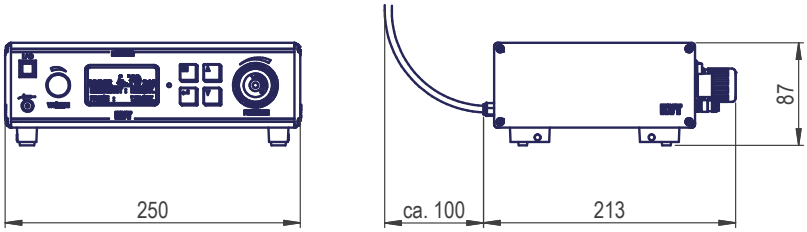
*If the menu key (7) is pressed at the same time the device is switched on, the default parameters are loaded and saved. A signal tone confirms the completed process.*

**Observe environmental conditions:**

- **No condensing air humidity**
- **No splash water**

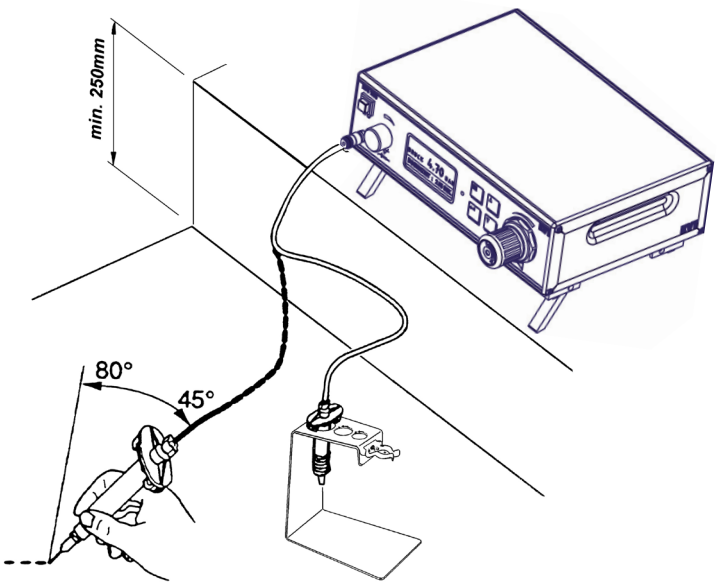
**The media to be dispensed may be negatively affected.**

## Space requirements




## Installation

Install the dosing unit horizontally and in an elevated position (above the working height)!

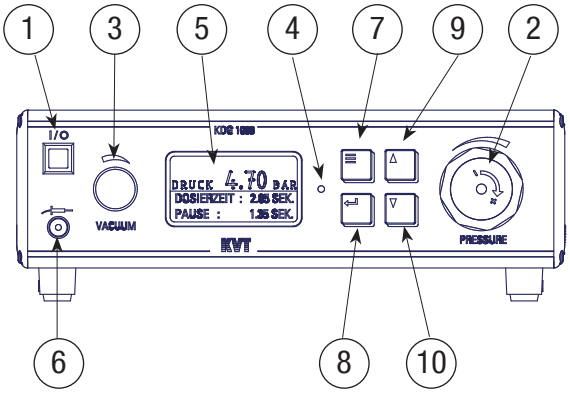



## Pneumatic connection

*Connect the unit via the quick coupling piece (14) to the back of the device with the compressed-air hose (20) to the compressed air supply (operating pressure max. 6 bar). If using a vacuum and there are power fluctuations of more than 0,5 bar, it is imperative to install a pressure reduction valve upstream and to set it to the lowest possible supply pressure. When processing products that react to moisture, a water-separating filter unit is recommended.*

## Connecting the device

- Only use the hose sets and cables included!
- Please note the procedures on pages 11 and 12 before connecting.
- Connect the foot switch (18) to the connection socket.
- Mount the plastic hose with circular connector (21/28) to the cartridge closure head (23) and connect the quick coupling (28) to the cartridge connection (6).
- Connect the empty cartridge (24) to the cartridge closure head (23) and plug in the selected dosing nozzle (27).




## Device default settings

- Set the vacuum regulator (3) to 0 (turn clockwise!)
- Set the pressure regulator (2) to 0 (turn counterclockwise!)
- Use arrow keys (9+10) to set the dosing time to 0.01 second
- Switch on the power switch (1)

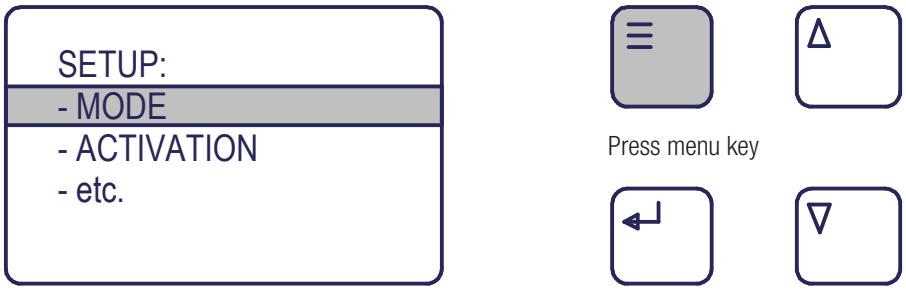
# Setting the parameters


1. Press menu key 7.
2. Select the parameter by navigating with arrow keys 9 and 10.
3. Confirm the parameter by pressing the Enter key 8.
4. Set the parameter value in the submenu by navigating with arrow keys 9 and 10.
5. Confirm the new parameter value by pressing the Enter key 8.
6. Exit the submenu by pressing the menu key 7.
7. Save and return the default screen by pressing the menu key 7.

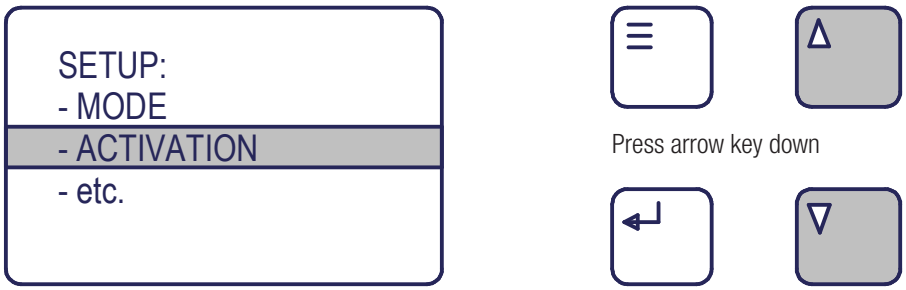
## Switching the triggering operating from MANUAL to EXTERNAL

**Default display**


**Call up parameter list**




**Select parameter**

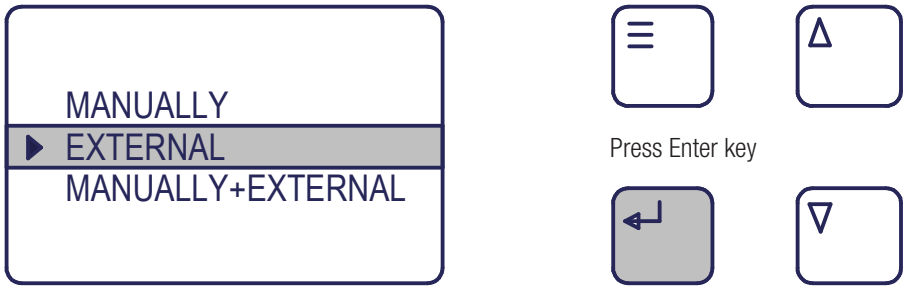



**Call up submenu**

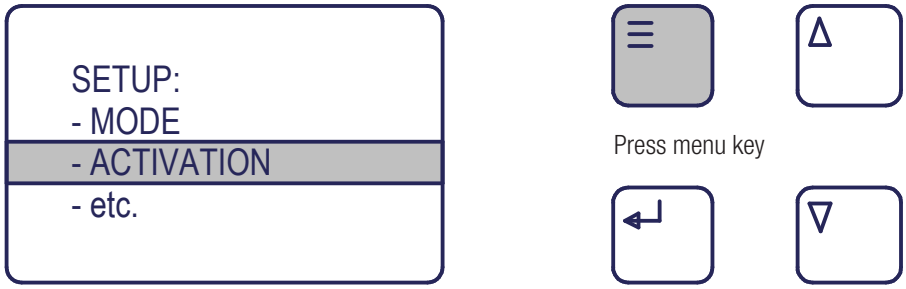
## Switching the triggering operating from MANUAL to EXTERNAL

**Set value**


**Confirm value**



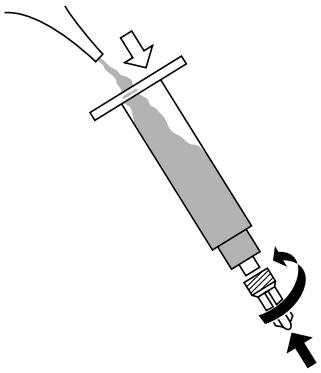

**Back to parameter list**




**Save parameters and back to default display**

## Fill cartridge

**Note the general safety regulations for handling chemical products! Caution: Danger of chemical burn!**

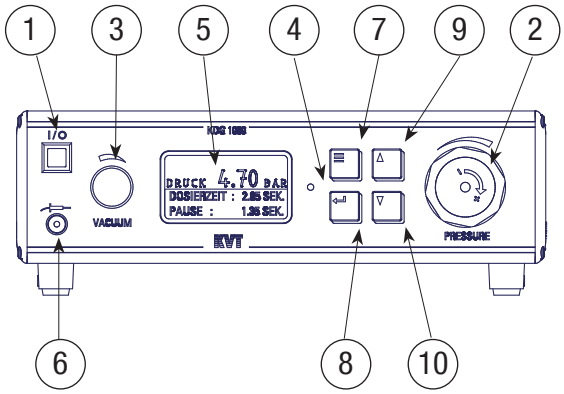


- Use the valve gate (26) to close the cartridge (24).
- Fill the medium through the cartridge opening Fill cartridge max.. 2/3!
- Insert piston (24) into the cartridge. (For paste-like and thick products)

**If the piston (25) is not used, the medium can escape from the cartridge into and damage the dosing unit when handled incorrectly!**

**Do not hold the cartridge high or turn upward!**

**Medium flows into the device. Caution: Risk of clogging.**




## Setting the dosage in time-controlled operation

(Cycle mode)

- Install device (see page 13)
- Set the device to the default settings (see page 13)
- Switch on the power switch (1)
- Fill cartridge (see page 17)
- Press the keys (9+10) for 0.3 seconds to set the dosing time (see page 13)
- Remove the valve gate (26)
- For low-viscosity products, set the vacuum to prevent the product from escaping from the cartridge when removing the valve gate (26) and mounting the dosing needle (27). Allow 1 or 2 drops to flow out of the dosing needle. Then use the vacuum regulator (3) to slowly adjust the vacuum.

☞ *Turn counterclockwise: The back pressure increases.*
*Turn clockwise: The back pressure decreases.*

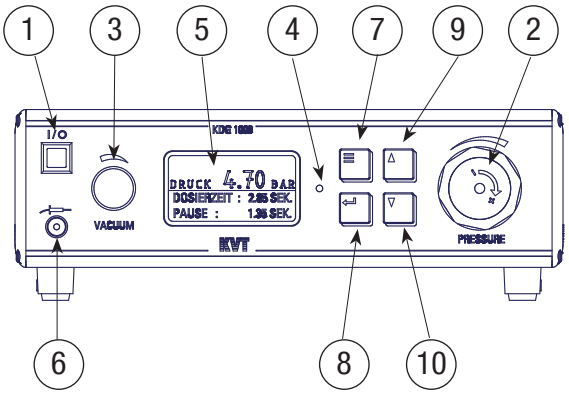
☞ *Depending on the viscosity and size of the cartridge, the vacuum will have to be adjusted again as the cartridge empties!*

**If the vacuum is set too high – when dosing with no piston – the medium can escape from the cartridge into and damage the dosing unit.**

Press the foot switch (18) repeatedly with the pressure regulator (2) to increase the dosing pressure gradually from 0 until the required quantity is reached.

Once the approximate dosage is reached, the quantity can be accurately set by adjusting the dosing time.

☞ *If the required dosage is not reached, repeat the repeat the steps using larger or smaller dosing nozzles.*




**Setting the dosage in continuous operation**
(Continuous mode)

- Install device (see page 13)
- Set the device to the default settings (see page 13)
- Fill cartridge (see page 17)
- Switch on the power switch (1)
- Set operating mode to «Continuous»
- Remove the valve gate (26)
- Press and hold the foot switch (18)
- Use the pressure regulator (2) to increase from 0 to the required quantity
- For low-viscosity products, set the vacuum to prevent the product from escaping from the cartridge when removing the valve gate (26) and mounting the dosing needle (27). Allow 1 or 2 drops to flow out of the dosing needle. Then use the vacuum regulator (3) to slowly adjust the vacuum.

☞ *Turn counterclockwise:* *The back pressure increases.*
*Turn clockwise:* *The back pressure decreases.*

☞ *Depending on the viscosity and size of the cartridge, the vacuum will have to be adjusted again*

**If the vacuum is set too high – when dosing with no piston – the medium can escape from the cartridge into and damage the dosing unit.**

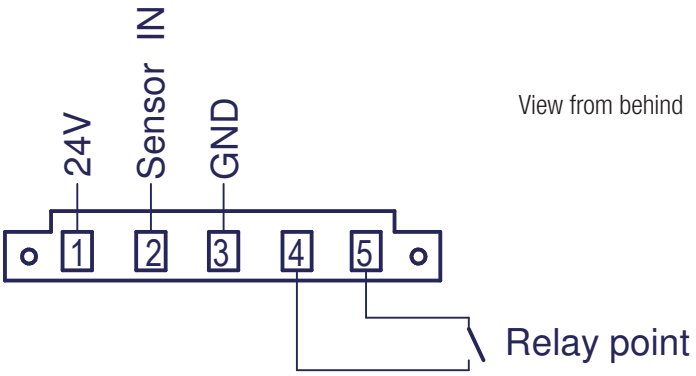
Press the foot switch (18) repeatedly with the pressure regulator (2) to increase the dosing pressure gradually from 0 until the required quantity is reached.

☞ *If the required dosage is not reached, repeat the repeat the steps using larger or smaller dosing nozzles.*

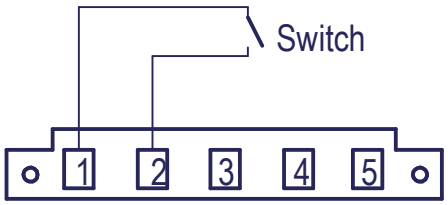
## Interface description

*The interface (12) for external dose triggering is on the back of the device. In addition to the foot switch (18), a potential-free contact or inductive proximity switch can be used for triggering.*

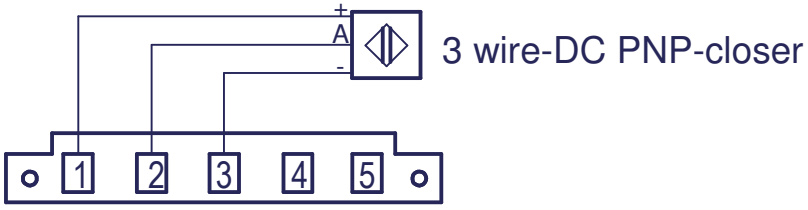
**Pin assignment**




**Connection diagram for potential-free contact**




**Connection diagram for inductive proximity switch**




**Relay**

*The dosing time is output via the device-internal relay contact on pin 4 and 5.*

### Decommissioning

*During longer periods of non-use (more than approx. 5 hours), it makes sense to decommission the system to prevent the product from hardening!*

- Switch the power switch (1) to OFF!
- Use the valve gate (26) to close the cartridge (24) and disconnect the plastic hose with circular connector (21/28) from the device!
- Interrupt the compressed-air supply from the compressed-air system
- Set the device to the default settings (see page 9)

## Care and maintenance

**Only use cleaning agents recommended by the manufacturer.**
**LOCTITE cleaner type 7070, Art. No. 118 225 (400 ml)**

### Storage

*Always keep the KDG 1000 away from electricity and compressed air and in dry rooms.*

| FAULT | CAUSE | REMEDY |
|---|---|---|
| No display | • No supply voltage<br>• Defective power supply (22)<br>• Power switch (1) in OFF position<br>• Defective power switch (1)<br>• Defective display | • Check supply voltage<br>• Power switch (1) in ON position<br>• Replace power switch (1) (service center)<br>• Replace power supply (22)<br>• Replace display (service center) |
| No change in value in the pressure display | • No compressed air<br>• Defective pressure regulator (2)<br>• Defective control unit | • Check compressed air supply<br>• Service center / supplier<br>• Service center / supplier |
| No dosing | • Foot switch (18) not connected<br>• No compressed air<br>• Dosing pressure not set correctly<br>• Connection hose (21) between device and cartridge not plugged in<br>• Dosing nozzle (27) clogged<br>• Defective control unit | • Connect foot switch (18)<br>• Check compressed air supply<br>• Correct dosing pressure setting<br>• Insert connection hose<br>• Replace dosing nozzle (27)<br>• Service center / supplier |
| Too little or too much product | • Dosing pressure not set correctly<br>• Wrong dosing nozzle mounted | • Correct dosing pressure setting (see page 15)<br>• Switch dosing nozzle |
| Product drips | • Vacuum regulator (3) set too low<br>• Vent (14) clogged | • Turn vacuum regulator (3) counterclock-wise until the dripping stops (see page 15)<br>• Check ventilation |

# Spare parts list and accessories

| Designation | | Type | Art. No. | |
|---|---|---|---|---|
| Foot switch | | KDG 146 | 109 116 | 1 |
| Power supply | | KDG 1102 | 173 892 | 1 |
| Interface connector | | KDG 1101 | 173 893 | 1 |
| Cartridge stand | | KDG 147 | 109 050 | 1 |
| Compressed-air hose 2 m | | KDG 170 | 109 047 | 1 |
| Plastic hose with circular connector | | KDG 142 | 109 046 | 1 |
| Cartridge closure head | 5 ml | KDG 201 | 109 028 | 1 |
| | 10 ml | KDG 202 | 109 030 | 1 |
| | 30 ml | KDG 203 | 109 032 | 1 |
| O-Ring, nitrile | 5 ml | KDG 205 | 109 038 | 10 |
| | 10 ml | KDG 206 | 109 039 | 10 |
| | 30 ml | KDG 207 | 109 040 | 10 |
| O-Ring, silicone | 5 ml | KDG 210 | 109 043 | 10 |
| | 10 ml | KDG 211 | 109 041 | 10 |
| | 30 ml | KDG 212 | 109 045 | 10 |
| Cartridge termination | 5 ml | KDG 235 | 109 034 | 40 |
| | 10 ml | KDG 236 | 109 035 | 30 |
| | 30 ml | KDG 237 | 109 036 | 20 |
| Cartridge piston, neoprene | 5 ml | KDG 230 | 109 027 | 40 |
| | 10 ml | KDG 231 | 109 026 | 30 |
| | 30 ml | KDG 232 | 109 025 | 20 |
| Piston FW | 5 ml | KDG 290 | 122 840 | 40 |
| | 10 ml | KDG 291 | 122 841 | 30 |
| | 30 ml | KDG 292 | 122 842 | 20 |
| Cartridge, polypropylene, transparent | 5 ml | KDG 215 | 109 010 | 40 |
| | 10 ml | KDG 216 | 109 011 | 30 |
| | 30 ml | KDG 217 | 109 012 | 10 |
| UV cartridge, polypropylene, transparent | 5 ml | KDG 220 | 113 997 | 40 |
| | 10 ml | KDG 221 | 113 996 | 30 |
| | 30 ml | KDG 222 | 113 986 | 10 |
| Cartridge valve gate | | KDG 240 | 109 037 | 50 |
| Metal nozzles, internal ø | 1.60 | KDG 250 | 109 015 | 50 |
| | 1.37 | KDG 251 | 109 016 | 50 |
| | 0.84 | KDG 252 | 109 017 | 50 |
| | 0.58 | KDG 253 | 109 018 | 50 |
| | 0.51 | KDG 254 | 109 019 | 50 |
| | 0.41 | KDG 255 | 109 020 | 50 |
| | 0.33 | KDG 256 | 109 021 | 50 |
| | 0.25 | KDG 257 | 109 022 | 50 |
| | 0.15 | KDG 258 | 117 493 | 50 |
| Plastic nozzles, flexible, internal ø | 0.5 | KDG 150 | 109 023 | 50 |
| | 0.8 | KDG 241 | 109 216 | 50 |
| | 1.5 | KDG 242 | 109 217 | 50 |
| Special nozzles with Teflon nozzles, internal ø | 0.25 | KDG 247 | 109 058 | 50 |
| | 0.51 | KDG 248 | 109 057 | 50 |
| Polypropylene nozzles, flexible, internal ø | 1.25 | KDG 280 | 111 359 | 50 |
| | 0.81 | KDG 281 | 109 053 | 50 |
| | 0.60 | KDG 282 | 109 054 | 50 |
| | 0.35 | KDG 283 | 109 055 | 50 |
| Polypropylene nozzles, conical, internal ø | 1.20 | KDG 270 | 109 059 | 50 |
| | 0.84 | KDG 271 | 109 060 | 50 |
| | 0.58 | KDG 272 | 109 061 | 50 |
| | 0.41 | KDG 273 | 109 062 | 50 |
| Nozzle assortment | | KDG 300 | 121 864 | 1 |
| Brush tip needle, soft | | KDG 304 | 130 227 | 1 |
| Brush tip needle, hard | | KDG 305 | 130 235 | 1 |

## Electrical components

| | | |
|---|---|---|
| Power connector | : | 100–240 VAC / 47–63 Hz / 400 mA |
| **Power consumption** | : | approx. 6 W |
| Internal control supply voltage | : | 24 VDC |

## Pneumatics

| | | |
|---|---|---|
| **Compressed air supply** | : | Max. 6 bar |
| **Quality** | : | filtered 10 µm, oil-free, non-condensing |
| **Control range of the pressure regulator** | : | 0.1-1.0 bar |
| | : | 0.2-6.0 bar |

## Connections and end connection sizes

| | | |
|---|---|---|
| **Hose sizes** | | |
| **Compressed air connection** | : | PUN 8 |
| **Housing dimensions** | : | 250 x 87 x 40 (W x H x D) |

## Other data

| | | |
|---|---|---|
| **Degree of protection** | : | IP 20 |
| **Operating temperature** | : | +10°C to +40°C |
| **Storage temperature** | : | -10°C to +60°C |
| **Weight** (with no accessories) | : | 1.15 kg |

# EU/UE
# KONFORMITÄTSERKLÄRUNG
# DECLARATION OF CONFORMITY
# DÉCLARATION DE CONFORMITÉ

**Wir**
**We**
**Nous**

KVT
SOLUTIONEERING
A BOSSARD COMPANY

(Name des Anbieters) (supplier's name) (nom du fournisseur)

**Lagerstrasse 8 CH-8953 Dietikon**

(Anschrift) (address) (adresse)

**erklären in alleiniger Verantwortung, dass das Produkt**
**declare under our sole responsibility that the product**
**déclarons sous notre seule responsabilité que le produit**

**Dosiergerät KVT**

**KDG 1000**

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(name, type or model, lot, batch or serial number, possibly sources and numbers of items)
(nom, type ou modèle, no de lot, d'échantillon ou de série, éventuellement sources et nombre d'exemplaires)

**auf das sich diese Erklärung bezieht, mit der / den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt.**
**to which this declaration relates is in conformity with the following standard(s) or other normative document(s)**
**auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s)**

| | | | |
|---|---|---|---|
| **EN 61010-1:2001** | **IEC 61000-4-2** | **IEC 61000-4-5** | **IEC 61000-4-11** |
| **EN 61326-1:2006** | **IEC 61000-4-4** | **IEC 61000-4-8** | **EN 55011** |

(Titel und/oder Nummer sowie Ausgabedatum der Norm(en) oder der anderen normativen Dokument(e)
(title and/or number and date of issue of the standard(s) or other normative document(s)
(titre et/ou no. et date de publication de la (des) norme(s) ou autre(s) document(s) nofmatif(s)

**Gemäss den Bestimmungen der Richtlinie(n); following the provisions of Directive(s); conformément aux disposition de(s) Directive(s)**
(falls zutreffend) (if applicable) (le cas échéant)

**73 / 23 / EWG + 89 / 336 / EWG + 93 / 68 / EWG**

Dietikon, 01.09.2015

Thomas Kraushaar

Marc Rohner

(Ort und Datum der Ausstellung)
(Place and Date of issue)
(Lieu et date)

(Name und Unterschrift oder gleichwertige Kennzeichnung des Befugten)
(name and signature or equivalent marking of authorized person)
(nom et signature du signataire autorisé)