preeflow
by ViscoTec

MICRO DISPEN SING

CONTENTS

PREEFLOW®

MADE BY VISCOTEC

The brand preeflow® was created in 2008 by ViscoTec. Since then, the microdispensing products of the eco-PEN and eco-DUO series have been successfully used in dispensing applications worldwide.

preeflow® systems stand for volumetric, repeatable and economical dispensing of low to high viscosity liquids. They can be used individually as well as easily integrated into semi or fully automated systems. The fluids can range from watery to pasty, from self-lubricating to abrasive, from thixotropic to dilatant. There are almost no limits to the types of materials which can be dispensed.

Customer satisfaction is our top priority. We work as a team to provide the perfect solutions to meet your expectations worldwide.

Sales are carried out via an international distributor network. In addition, the preeflow® team is available to answer any questions you may have. A high quality standard and punctual delivery are very important to us. All standard components are available from stock. Our customers can rely on perfect service and support. And that's a promise!

TECHNOLOGY & USP

HOW IT WORKS EVEN WITH THE MOST SOPHISTICATED MATERIALS

THE ENDLESS PISTON PRINCIPLE

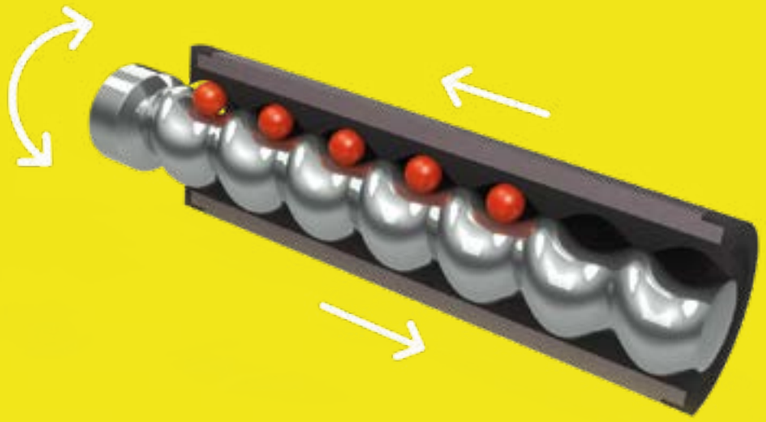
The functional principle of the preeflow® dispenser is similar to that of an endless piston dispenser.

The special conveying geometry enables continuous, pulsation-free dispensing flow. Reversing the direction of rotation (suck-back function) prevents dripping and leads to a controlled thread break of the material. For high-precision and clean dispensing results.

Particularly sensitive material with high viscosities and fillers are treated gently due to the low shear stress and low pressures.

MANY TASKS – ONE PRINCIPLE!

- Volumetric
- Viscosity-independent
- Pulsation-free



MADE IN GERMANY

MADE IN GERMANY

From the initial idea to the outgoing goods inspection: All steps in the process are developed and implemented at the headquarters in Töging. In addition to the quality feature “Made in Germany“ and the “Think global, act local“ approach, we at preeflow® not only ensure the quality of the systems, but also offer optimum coordination and process reliability in all projects.

EXPERIENCE

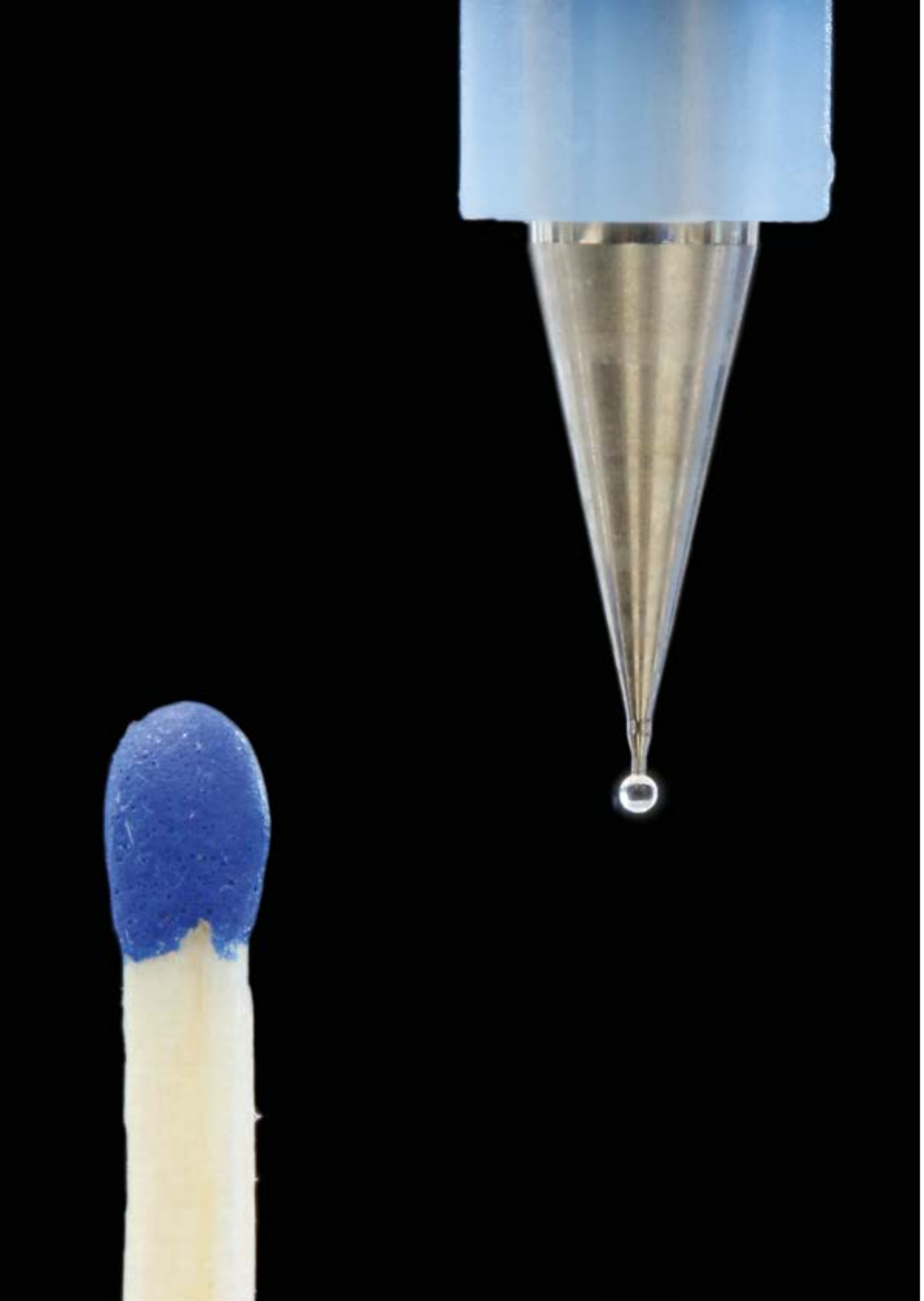
We have more than 20 years’ experience in the dispensing of fluids. This comprehensive know-how in dispensing technology distinguishes ViscoTec. In 2008, this wealth of experience was expanded with the introduction of the preeflow® brand. For 10 years preeflow® has stood for precise and pure volumetric dispensing of liquids in small and very small quantities. A variety of industries worldwide rely on preeflow® products.

INNOVATION

We are convinced: Standstill means regression – only those who move forward progress. Creativity and ingenuity create innovations. In our Customer and Innovation Center (CIC) we have the opportunity to test your application together with you and adapt it optimally to your process.

SERVICE

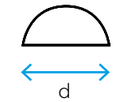
Our team consists of specialists in all aspects of microdispensing technology. Always technically up to date, we assure you the best service and quick response times. Our ultimate goal is the solution to your technical questions and the optimization of your processes.



DOT & BEAD DISPENSING
– INTERESTING FACTS

DROPLET SIZES

One microliter (0.001 ml) is the smallest dose quantity possible with a preeflow® dispenser. For illustration: This volume corresponds to a cube of only one millimetre edge length. As droplets on a substrate with a contact angle of 90°, this has a diameter of only 1.56 mm. Larger droplets are possible at any time during the process thanks to the technology used.

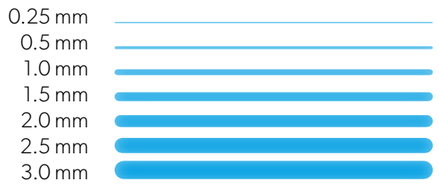


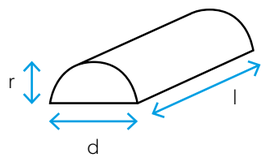
v: ml (volume)
d: mm (diameter)

v: 0.0001	v: 0.0003	v: 0.0005	v: 0.001	v: 0.003	v: 0.005	v: 0.01	v: 0.03	v: 0.05	v: 0.1
d: 0.73	d: 1.05	d: 1.24	d: 1.56	d: 2.25	d: 2.67	d: 3.37	d: 4.86	d: 5.78	d: 7.26

BEAD STRENGTH

Due to pulsationfree dispensing technology, highquality beads can be produced with preeflow® dispensers. Beads with a diameter of less than one millimetre can also be produced. With flow rate linked to speed of movement, consistent and stable beads can be dispensed along multi-dimensional paths.





r: mm (radius)
l: mm (length)
d: mm (diameter)

COMPARISON OF DISPENSING TECHNOLOGIES

preeflow® Endless Piston Principle by ViscoTec

Acetone / Alcohol
0.8 mPas/CPS

Water
1 mPas/CPS

Colour
1,000 mPas/CPS

Engine oil
15,000 mPas/CPS

Epoxy
150,000 mPas/CPS

Thermal paste
500,000 mPas/CPS

JET dispenser

Hose pumps

Screw pumps

Time-Pressure-Systems

Needle valves

eco-PEN

HOW IT WORKS

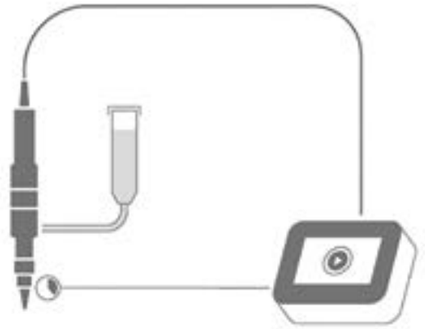
Our eco-PEN is a true volumetric dispensing system that applies the smallest amounts of singlecomponent fluids – for high-precision dispensing technology. Thanks to the proven endless piston principle, watery to pasty liquids are perfectly dispensed. A clean, processreliable dosage is achieved regardless of fluctuations in viscosity.

preeflow® stands for highquality products, from control units to dispensers. Always true to the motto: „smaller, more precise, more economical“. They are suitable for manual workstations, such as workbench applications, or for semi and fully automated operation.

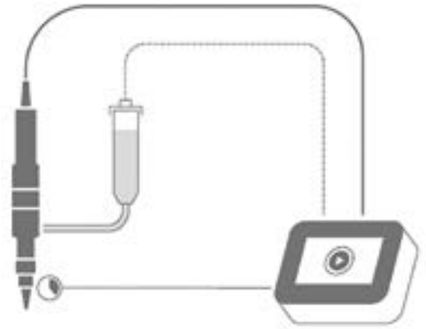
Designation	eco-PEN300	eco-PEN330	eco-PEN450	eco-PEN600	eco-PEN700^{3D}
Art no.	20505	21525	20092	20048	20723
Dimensions	length 216 mm, Ø 33 mm	length 225 mm, Ø 33 mm	length 228 mm, Ø 33 mm	length 274 mm, Ø 40 mm	length 274 mm, Ø 40 mm
Weight	280 g	300 g	300 g	650 g	650 g
Operating pressure (1)	0 – 6 bar	0 – 6 bar	0 – 6 bar	0 – 6 bar	0 – 6 bar
Max. dispensing pressure (2)	20 bar	20 bar	20 bar	20 bar	10 bar
Self-sealing (2)	Approx. 2 bar	Approx. 2 bar	Approx. 2 bar	Approx. 2 bar	Approx. 2 bar
Viscosity	watery to pasty	watery to pasty	watery to pasty	watery to pasty	watery to pasty
Volume flow	0.12 – 1.48 ml/min	0.2 – 3.3 ml/min	0.5 – 6.0 ml/min	1.4 – 16.0 ml/min	5.3 – 60.0 ml/min
Min. dispensing quantity	0.001 ml	0.002 ml	0.004 ml	0.015 ml	0.060 ml
Dispensing accuracy (3)	± 1%	± 1%	± 1%	± 1%	± 1%
Stator material (4)	VisChem	VisChem	VisChem	VisChem	VisChem
Material inlet	G 1/8“ DIN/ISO 228	G 1/8“ DIN/ISO 228	G 1/8“ DIN/ISO 228	G 1/4“ DIN/ISO 228	G 1/4“ DIN/ISO 228
Material outlet	Luer-Lock (patented)	Luer-Lock (patented)	Luer-Lock (patented)	Luer-Lock (patented)	Luer-Lock (patented)
Wetted parts (4)	POM / VisChem / HD-PE	POM / VisChem / HD-PE	POM / VisChem / HD-PE	POM / VisChem / HD-PE	POM / VisChem / HD-PE
Operating conditions	10 – 40 °C	10 – 40 °C	10 – 40 °C	10 – 40 °C	10 – 40 °C
Repeatability	> 99 %	> 99 %	> 99 %	> 99 %	> 99 %

(1) Non-self-levelling liquid.
(2) Max. dispensing pressure and selfsealing decrease with decreasing viscosity, increase with increasing viscosity. Consult with the manufacturer.
(3) Volumetric dispensing as absolute variation relative to one dispenser rotation. Depends on the viscosity of the dispensing material.
(4) The materials listed are standard. Other variants are available on request, e.g. VisLas stator / driveline with diamond-coated rotor / PTFE seals / stainless steel housing.

SYSTEM ILLUSTRATION



Self-levelling liquid, low viscosity material



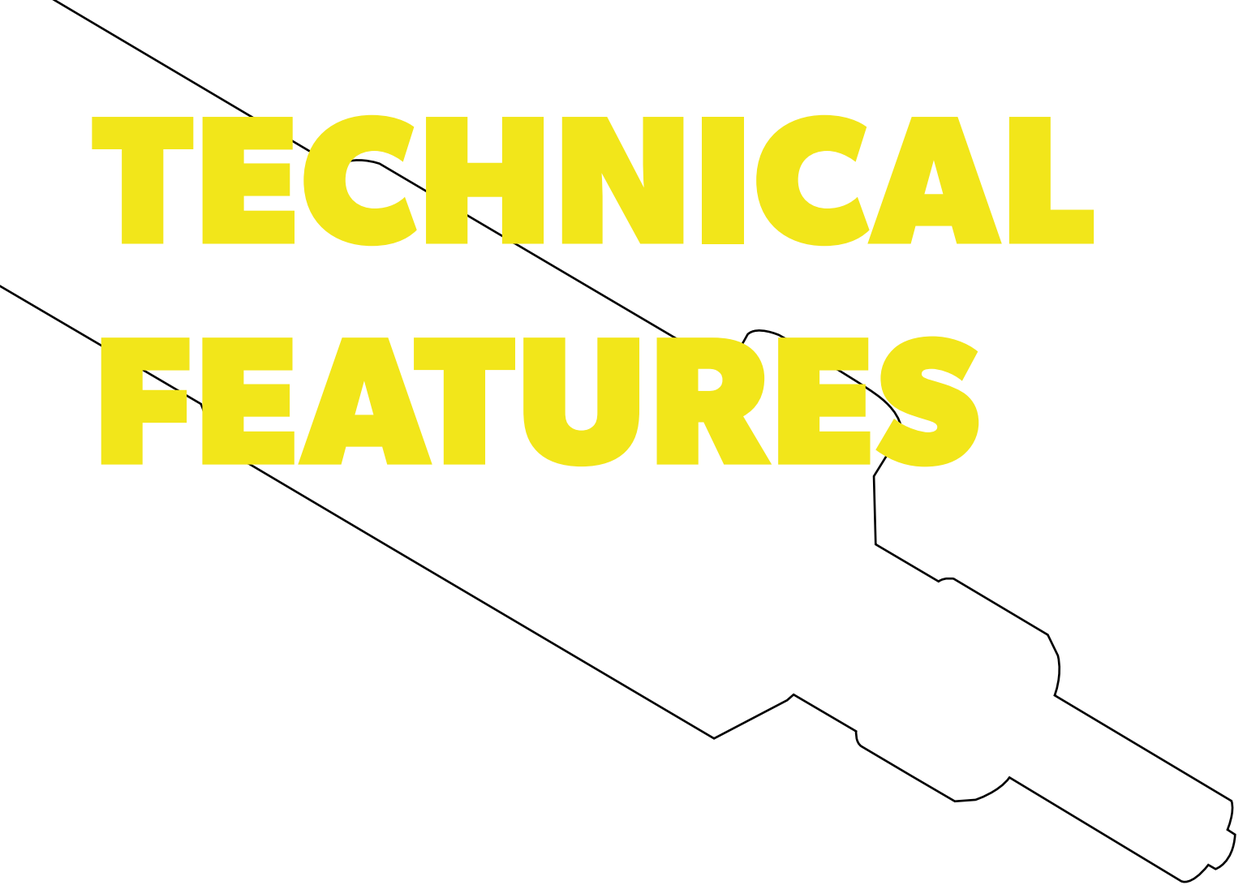
Nonselflevelling liquid, material to high viscosity material, incl. pressure feed

APPLICATION EXAMPLE

In the field of electronics, more and more devices and enclosures are being bonded instead of screwed or fastened. The eco-PEN series from preeflow® meets the demands of the market for miniaturization. The microdispensing units achieve the smallest dispensing results of up to 0.001 ml and can therefore be implemented into almost any dispensing application. Among the advantages that the customer benefits from, through the integration of the eco-PEN into their system, are precision, a repeat accuracy of ≥ 99 %, a stable process and a clean dispensing application.

True to the motto “plug´n´dose“, both the 1-component dispenser eco-PEN and the 2-component dispenser ecoDUO are ready to use after a simple stator installation and connection to the controller. Dispensing is possible immediately. The operation of the dispenser and the controller is intuitive. In addition to the ease of commissioning and the capability of applying a large number of different materials, there are other advantages: the viscosityindependent, purely volumetric dispensing in small and very small quantities.

TECHNICAL FEATURES



MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/1kdispenser/

- Genuine volumetric dispensing
- Dispensing regardless of viscosity
- Dosing independent of input pressure
- Pressure-tight without valve
- Suck-back effect
- Easy cleaning
- Adjustable dispensing flow
- Dispensing pressures from 0 to 20 bar

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eco-PEN XS

Image in original size

HOW IT WORKS

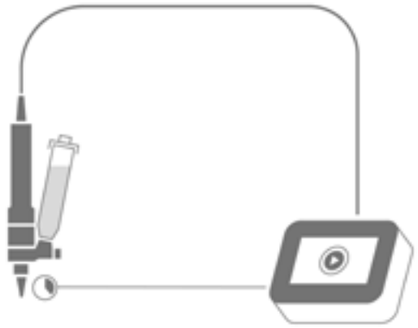
Our eco-PEN XS is a true volumetric dispensing system that applies the smallest amounts of singlecomponent fluids – for highprecision dispensing technology. Thanks to the proven endless piston principle, watery to pasty liquids are perfectly dispensed. A clean, processreliable dosage is achieved regardless of fluctuations in viscosity.

preeflow® stands for highquality products, from control units to dispensers. Always true to the motto: „smaller, more precise, more economical". They are suitable for manual workstations, such as workbench applications, or for semi and fully automated operation.

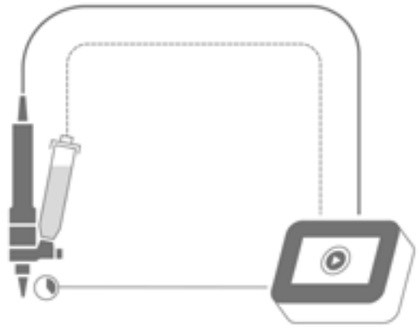
Designation	eco-PEN XS 180
Art no.	176836
Dimensions (without cartridge and holder)	length 178 mm, width 22 mm, depth 65 mm
Weight	175 g (without cartridge and holder)
Operating pressure (1)	0 – 6 bar
Max. dispensing pressure (2)	20 bar
Self-sealing (2)	Approx. 2 bar
Viscosity	watery to pasty
Volume flow	0.0044 – 0.35 ml/min
Min. dispensing quantity	0.25 µl
Dispensing accuracy (3)	± 1%
Stator material	vidur-C1
Material inlet	Luer-Lock adapter for cartridge (cartridge can be rotated 360°) / adapter for hose connection (Ø - 3mm)
Material outlet	Luer-Lock (patented)
Wetted parts	POM / vidur-C1 / stainless steel / HD-PE
Operating conditions	10 – 40 °C
Repeatability	> 99 %

(1) Non-self-levelling liquid.
(2) Max. dispensing pressure and selfsealing decrease with decreasing viscosity, increase with increasing viscosity. Consult with the manufacturer.
(3) Volumetric dispensing as absolute variation relative to one dispenser rotation. Depends on the viscosity of the dispensing material.

SYSTEM ILLUSTRATION



Self-levelling liquid, low viscosity material



Nonselflevelling liquid, material to high viscosity material, incl. pressure feed

APPLICATION EXAMPLE

The miniaturization of components is becoming increasingly important, especially in the electronics sector and in SMT production (SMT = surface mounted technology). As a result, the requirements for dispensing minimal quantities of materials with a wide range of viscosities are also increasing. The eco-PEN series from preeflow® meets these market requirements. The microdispensing units achieve the smallest dispensing results of up to 0.00025 ml (0,25 µl) and can therefore be implemented into almost any dispensing application.

Among the advantages that the customer benefits from, through the integration of the eco-PEN into their system, are precision, a repeat accuracy of ≥ 99 %, a stable process and a clean dispensing application.

TECHNICAL FEATURES

- Genuine volumetric dispensing
- Dispensing regardless of viscosity
- Dosing independent of input pressure
- Pressure-tight without valve
- Suck-back effect
- Easy cleaning
- Adjustable dispensing flow
- Dispensing pressures from 0 to 20 bar
- 360° rotatable cartridge connection

MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/1kdispenser/

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flowplus16

OUR TIP

By continuously monitoring of the dosing process with the flowplus[16], errors can be detected, and a reliable process established.

ONE SENSOR, MANY APPLICATIONS

– FLOWPLUS[16]

Designation	flowplus[16]
Principle of operation	Relative pressure sensor
Measurement range	0 – 16 bar
Measurement tolerance	± 2% from measured value (FS)
Sampling rate	3 kHz
Supply	24 VDC ± 10%
Output signal	0.1 – 10 VDC
Operating temperature	+15°C to +45°C
Mechanical connection	Luer-Lock DIN EN 1707

DESCRIPTION

Incorrect dispensing affects the quality of the entire process and leads to waste of the material. This can be due to a constriction or blockage within the dispensing needle, an incorrect distance to the substrate or air trapped in the material interrupting the material application.

By continuously monitoring of the dosing process with the flowplus[16], errors can be detected, and a stable process established. Thanks to the standardized Luer-Lock connection, the high sampling rate of 3 kHz as well as the integrated pressure sensing and compact size, the fields of application of the flowplus[16] are almost unlimited.

flowplus[16] – the Plug and Play solution for: process monitoring – process optimization – process documentation – process automation.

AREAS OF APPLICATION

Electronics · Analytics · Industrial · Life Science · Photonics

HOW IT WORKS

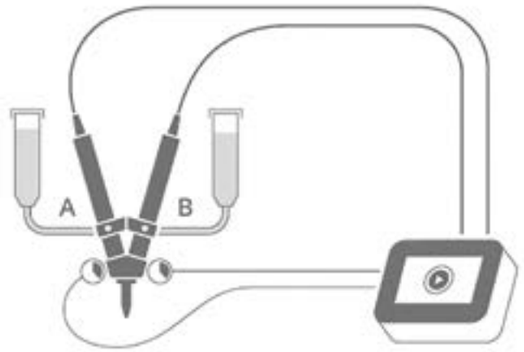
The 2-component mixing and dispensing systems from preeflow®: true volumetric output for 2-component materials. The smallest quantities of 2-component fluids and pastes are precisely mixed and dispensed. The mixing ratio is set to the second decimal place by targeted control of the individual components. A clean, process-reliable dose is achieved regardless of fluctuations in viscosity.

The preeflow® devices of the eco-DUO series are characterised by controlled thread break-off thanks to the suck-back effect, process reliability due to pressure monitoring and further functions. With simple and safe operation, the 2-component dispensers can be used widely. Experience for yourself precise mechanics combined with state-of-the-art digital control technology.

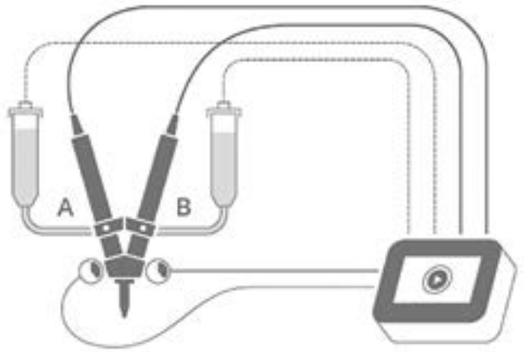
Designation	eco-DUO330	eco-DUO450	eco-DUO600
Art no.	21529	20639	21175
Dimensions	228 mm x 163 mm	228 mm x 163 mm	301 mm x 163 mm
Weight	1230 g	1230 g	1880 g
Operating pressure (1)	0 – 20 bar	0 – 20 bar	0 – 20 bar
Max. dispensing pressure (2) (3)	40 bar	40 bar	40 bar
Self-sealing (2)	Approx. 2 bar	Approx. 2 bar	Approx. 2 bar
Viscosity	watery to pasty	watery to pasty	watery to pasty
Volume flow (4)	0.1 – 6.6 ml/min (at 1:1)	0.2 – 12 ml/min (at 1:1)	0.6 – 32.0 ml/min (at 1:1)
Min. dispensing quantity	0.005 ml	0.010 ml	0.030 ml
Dispensing accuracy (5)	± 1%	± 1%	± 1%
Mixing ratio	1:1 – 10:1	1:1 – 10:1	1:1 – 10:1
Stator material (6)	VisChem	VisChem	VisChem
Material inlet	G 1/8" DIN/ISO 228	G 1/8" DIN/ISO 228	G 1/4" DIN/ISO 228
Material outlet	static mixer, bayonet lock	static mixer, bayonet lock	static mixer, bayonet lock
Wetted parts (6)	Aluminium, anodized / POM / stainless steel / VisChem / HD-PE	Aluminium, anodized / POM / stainless steel / VisChem / HD-PE	Aluminium, anodized / POM / stainless steel / VisChem / HD-PE
Operating conditions	10 – 40 °C	10 – 40 °C	10 – 40 °C
Repeatability	> 99 %	> 99 %	> 99 %

(1) Non-self-levelling liquid.
(2) Max. dispensing pressure and selfsealing decrease with decreasing viscosity, increase with increasing viscosity. Consult with the manufacturer.
(3) Dependent on the mixing pipe.
(4) Max. volume flow is dependent on the viscosity, inlet pressure and mixing ratio.
(5) Volumetric dispensing as absolute variation relative to one dispenser rotation. Depends on the viscosity of the dispensing material.
(6) The materials listed are standard. Other variants are available on request, e.g. VisLas stator / driveline with diamond-coated rotor / PTFE seals.

SYSTEM ILLUSTRATION



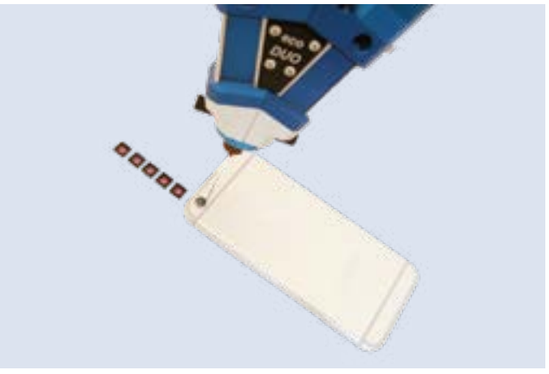
Self-levelling liquid, low-viscosity material, incl. sensor technology



Non-self-levelling liquids, material to high viscosity material, incl. sensor technology and pressure feed

APPLICATION EXAMPLE

Precise application, repeat accuracy, exact dispensing volume, viscosity independence and the right mixing ratio: the eco-DUO450 performs to your expectations. The 2-component micro-dispenser from preeflow® is therefore perfectly suited for applications in medical technology, for example. By using an eco-DUO450, the customer can benefit from numerous advantages such as increased productivity, lower material consumption and reduced waste. Ever smaller, ever thinner and ever more powerful - in the electronics industry, innovative and space-saving joining technologies are in demand that neither stand in the way of miniaturization nor mass production. The micro-dispenser, in particular the 2-component dispenser eco-DUO330, performs well with a minimum dose of 0.001 ml. In every adhesive application, no matter how fine it may be, such as when bonding miniature cameras into smartphones, the micro-dispenser proves itself with its clean adhesive application.



TECHNICAL FEATURES

- Genuine volumetric dispensing
- Dispensing regardless of viscosity
- Dosing independent of input pressure
- Pressure-tight without valve
- Suck-back effect
- Easy cleaning
- Adjustable mixing ratio
- Dispensing pressures from 0 to 40 bar

MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/12kdispenser/

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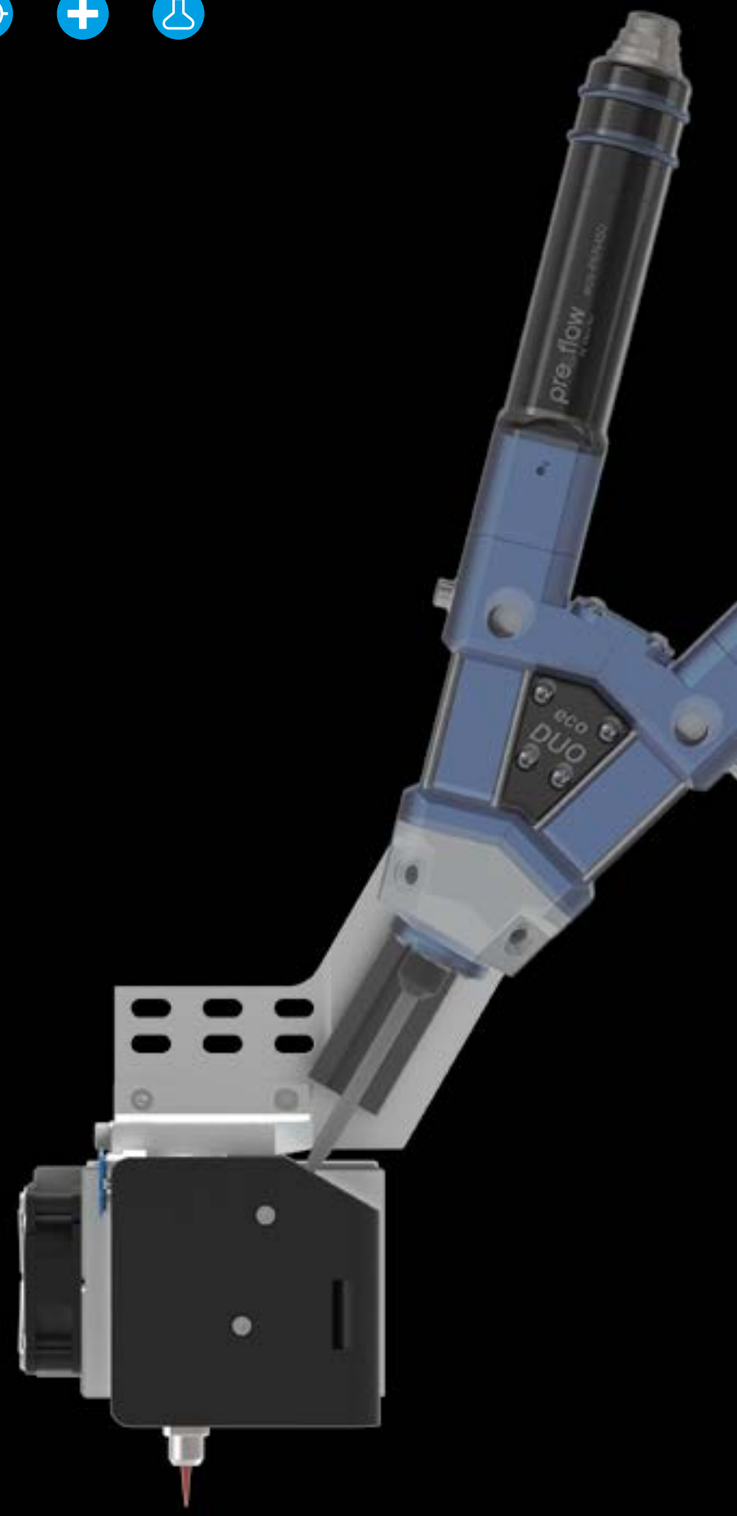
COOLING UNIT eco-DUO



HOW IT WORKS

The cooling unit for eco-DUO allows cooling and dispensing of viscous materials conveyed using the 2-component dispenser (eco-DUO330 or eco-DUO450). The mixer on the 2-component dispenser can be cooled to minus 5 °C (at 20 °C ambient temperature) and thus regulates the thermal reaction of the two components (A + B) in the mixer.

A temperature controller is included to set the desired temperature. A pneumatic valve controls the opening and closing of the Y-valve in the cooling unit and thus the dosing. The pneumatic valve is controlled using the eco-CONTROL EC200 2.0 dosing control unit.

Designation	cooling unit for eco-DUO
Art no.	176836
Adjustable temperature range (1)	to -5 °C (at 20 °C ambient temperature)
Weight (cooling unit only)	approx. 1100 g
Operating pressure (1)	0 – 6 bar
Temperature sensor	PT100 / NTC
Power supply (control unit)	24 V DC
Max. current input (control unit)	4A
Interface (control unit)	USB, RS232
Power supply (Peltier)	0 - 12 V DC
Max. current input (Peltier)	2A
Operating conditions	10 – 40 °C

(1) Depending on ambient temperature

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HOW IT WORKS

The eco-DUOMIX is a purely dynamic 2-component dosing system for all difficult to mix two-component materials. Equipped with a dead space optimized mixing capsule, it effortlessly achieves mixing ratios from 1:1 to 10:1. And this for materials with the same and/or different viscosity.

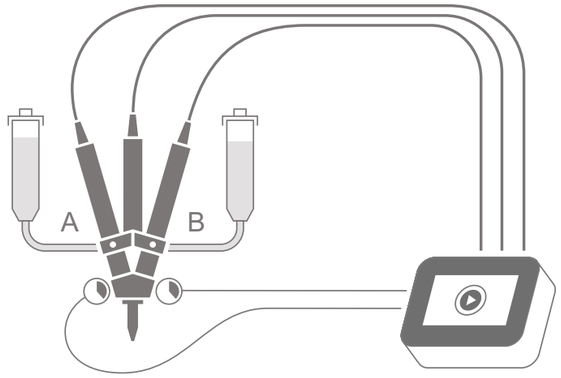
The mixing capsule is available as a consumable and is installed directly at the outlet oft the dispenser. Inside the capsule, the motor-driven propeller ensures an optimal mixing of even components that are difficult to process, despite the small volume.

An exact application of even the smallest sealing beads is achieved by means of a replaceable metal dispensing needle, which is mechanically connected to the mixing capsule.

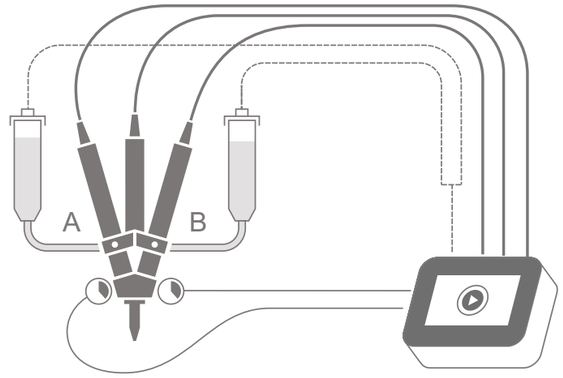
Designation	eco-DUOMIX450
Art no.	22108
Dimensions	228 mm x 163 mm
Weight	1800 g
Max. operating pressure (5)	20 bar
Max. dispensing pressure (1)	20 bar
Self-sealing (2)	Approx. 2 bar
Viscosity	watery to pasty
Volume flow (3)	0.2 – 12 ml/min (at 1:1)
Min. dosing quantity (3)	0.008 ml
Dispensing accuracy (2)	± 1%
Mixing ratio	1:1 – 10:1
Stator material	VisChem (optional VisLas)
Material inlet	G 1/8“ DIN/ISO 228
Material outlet	LuerLock
Wetted parts	Anodised , aluminium/ stainless steel/ VisChem/ FFKM / POM/ PE-HD
Operating conditions	10 – 40 °C
Repeatability	> 99 %
Rotation speed mixer (3)	10 to 1000 rpm

(1) Max. dispensing pressure and selfsealing decrease with decreasing viscosity, increase with increasing viscosity. Consult with the manufacturer.
(2) Volumetric dispensing as absolute variation relative to one dispenser rotation. Depends on the viscosity of the dispensing material.
(3) Depends on viscosity, inlet pressure and mixing ratio.
(5) Non-self-levelling liquid.

SYSTEM ILLUSTRATION



Self-levelling liquid, low-viscosity material, incl. sensor technology



Non-self-levelling liquids, material to high viscosity material, incl. sensor technology and pressure feed

DISPENSING TEST

Comparison of mixing results at static and dynamic mixing with the same volume flow and identical laboratory conditions:

The samples were run with the same control unit (calibration and program were identical) and the same base pump (drives, pump housing, rotor and stator, etc.). Only the way of mixing the material was changed. For the dosing tests, a difficult to process 2-component epoxy adhesive was used. The mixing ratio is 10:1 (A:B) by weight. The samples were prepared at different dosing speeds (0.5 ml/min - 6 ml/min). As can be seen in Figure 1, the test material with the static mixing is not processable by default – the material is only partially mixed and does not cure completely.

For the tests of the dynamic mixture, speeds of ~80 rpm, up to ~800 rpm were used. As can be seen in Figure 2, this material is already homogeneously mixed at the minimum speed, which optically does not differ from the samples with higher dosing speeds and mixer speeds.

Result: The 2-component epoxy adhesive, which could not be processed by static mixing, is reliably mixed by dynamic mixing even at the lowest mixer speed and can be processed optimally.

Comparison: Comparison: Mixing result static mixing (le), mixing result Mixing result eco-DUOMIX (dynamic mixing) dynamic

Mixing result eco-DUOMIX (dynamic mixing)

TECHNICAL FEATURES

- Dynamic mixing
- Genuine volumetric dispensing
- Dispensing regardless of viscosity
- Dosing independent of input pressure
- Pressure-tight without valve
- Suck-back effect
- Easy cleaning
- Dispensing pressures from 0 to 20 bar

MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/1kdispenser/

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eco-SPIN

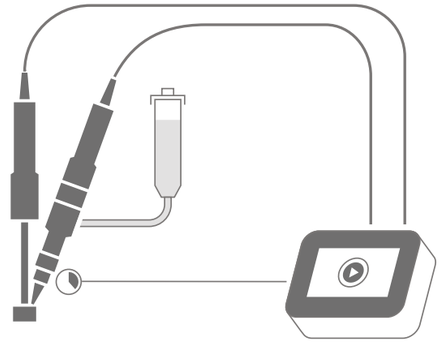
HOW IT WORKS

When combined with the eco-PEN300/330/450, the eco-SPIN is a pure volumetric dosing system that applies very small quantities of single-component fluids using a spinning head – for highly accurate dosing technology.
Thanks to the proven endless piston principle, watery to pasty liquids are perfectly conveyed and then placed at the desired point in the spinning head using the dosing needle.

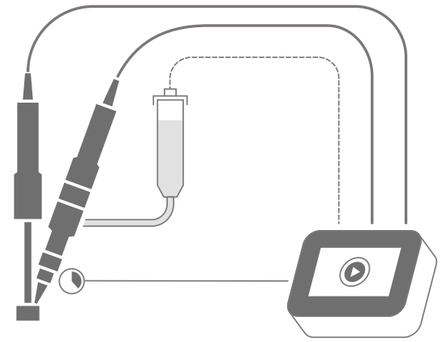
The centrifugal force and the spinning head design then apply the material to interior contours of the component without contact.

Designation	eco-SPIN 2	eco-SPIN 3	eco-SPIN 6
Art no.	177117	177118	177119
Diameter of shaft (mm)	2	3	6
Spinning head diameter (mm) with rear spinning edge	6, 8	9, 10, 12	—
Spinning head diameter (mm) with front spinning edge	9, 10	12, 14 ,16	18, 20, 22, 24, 26, 28, 32, 40
Speed range (rpm) [3]	approx. 100 – 7.000	approx. 100 – 7,000	approx. 100 – 7.000
Max. volume flow (ml/min)	Depends on the dispenser used	Depends on the dispenser used	Depends on the dispenser used
Length of shaft (mm)	approx. 87	approx. 87	approx. 87
Total length incl. spinning head (mm)	253	253	253
External diameter drive motor (mm)	27	27	27
Operating temperature (°C)	10 – 40	10 – 40	10 – 40
Material temperature (°C)	10 – 40	10 – 40	10 – 40
Weight (kg)	~ 0.36	~ 0.36	~ 0.36

SYSTEM ILLUSTRATION



Self-levelling liquid, low-viscosity material, incl. sensor technology



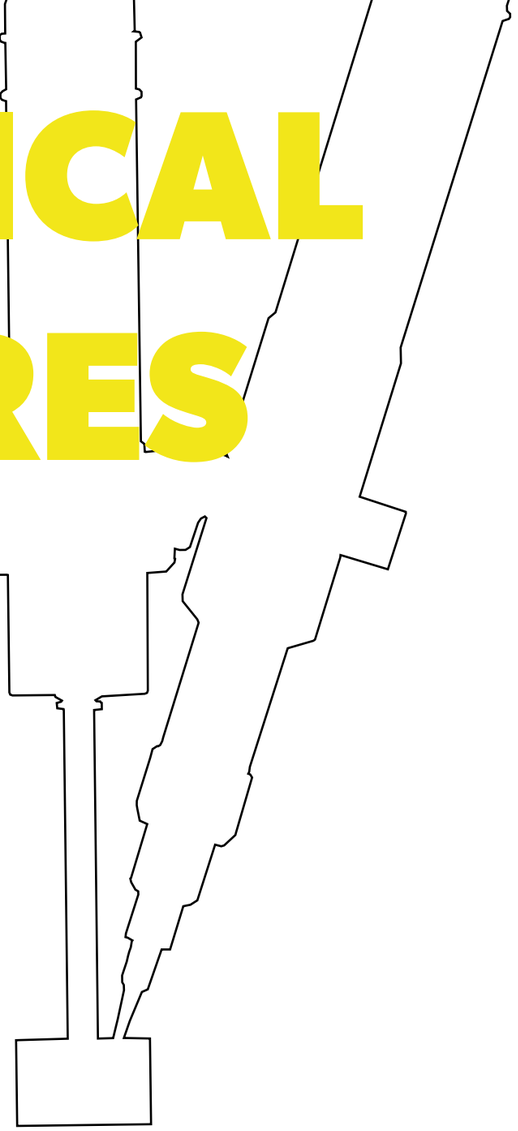
Non-self-levelling liquids, material to high viscosity material, incl. sensor technology and pressure feed

APPLICATION EXAMPLE

The eco-SPIN enables low viscosity to medium viscosity materials to be applied to the cylindrical interior surface of components.
The materials are generally anaerobic curing adhesives, activators and also greases.

The eco-SPIN can be used in conjunction with the preeflow eco-PEN product range.
The eco-CONTROL EC200 2.0 is recommended for operation of the eco-SPIN and is also compatible with the eco-PEN.

TECHNICAL FEATURES



- Genuine volumetric dispensing
- Dispensing regardless of viscosity
- Dosing independent of input pressure
- Control using eco-CONTROL EC200 2.0
- Easy cleaning

MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/2kdispenser/

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eco-SPRAY

HOW IT WORKS

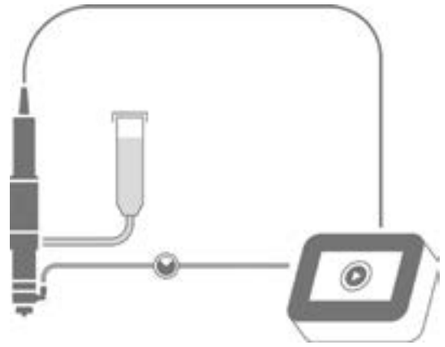
ViscoTec's precision volume dispenser enables applications in a wide variety of spray operations. The spray system consists of a revolutionary combination of the proven endless piston principle and a low-flow spray chamber. This guarantees perfect spraying of low to high viscosity material with high edge sharpness.

The eco-SPRAY is particularly impressive when processing highly viscous materials. The system can apply and precisely position exact quantities independent of viscosity and input pressure. Depending on the desired layer thickness, the dose can be adjusted by simply changing either the air pressure, adhesive volume, distance to the substrate or the speed of the application. The utilization of the eco-SPRAY is intuitive. In addition, the combination of different needle diameters and supplied air caps allows individual adaptation to materials as well as to dispensing processes.

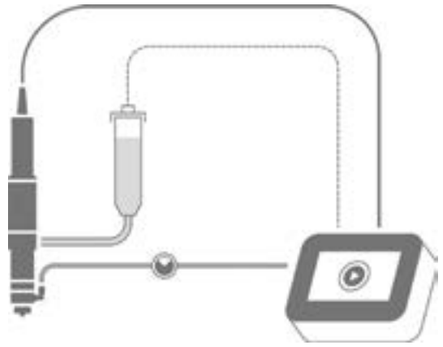
Designation	eco-SPRAY
Art no.	21448
Dimensions	length 228 mm, Ø 35 mm
Weight	650 g
Spray pattern	Round jet (adjustable)
Spray angle	15 – 30 °
Viscosity	watery to pasty
Volume flow (2)	0.5 – 6.0 ml/min
Min. spray quantity	50 µl
Atomized air	0,1 – 6,0 bar
Spray accuracy (3)	± 1%
Nozzle diameter	Ø 0.2 mm / Ø 0.3 mm / Ø 0.5 mm
Stator material	VisChem (optional VisLas)
Material inlet	G 1/8" DIN/ISO 228
Wetted parts	HD-PE / VisChem / stainless steel (optional VisLas)
Operating conditions	+ 10 °C to + 40 °C
Repeatability	> 99 %

(1) Max. dispensing pressure and selfsealing decrease with decreasing viscosity, increase with increasing viscosity. Consult with the manufacturer.
(2) Volume flow dependant on viscosity and inlet pressure.
(3) Volumetric dispensing as absolute variation relative to one dispenser rotation. Depends on the viscosity of the dispensing material.

SYSTEM ILLUSTRATION



Self-levelling liquid, low-viscosity material, incl. sensor technology

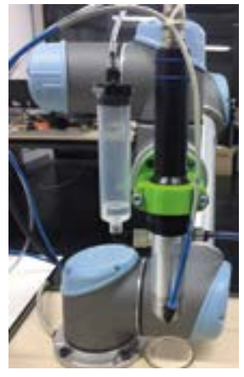


Non-self-levelling liquids, material to high viscosity material, incl. sensor technology and pressure feed

APPLICATION EXAMPLE

The preeflow® eco-SPRAY has become an important element in the production of loudspeakers and headphones. The spray dispenser fulfils the most important aspects when applying a special coating, which acts as a damping layer on membranes of the loudspeakers. The damping material is applied homogeneously over the entire surface using the eco-SPRAY. Thanks to a low spray pressure of less than one bar, the spray pattern is perfectly uniform. For outstanding sound quality of the finished product.

Even materials that change their aggregate condition when the temperature rises can be sprayed automatically with the eco-SPRAY thanks to the optional integrated heating assembly. The temperature in the microspray dispenser, e.g. for wax or ethylenecarbonate or other materials that change when the temperature rises, can be maintained above the melting temperature. Also perfect for high viscosity materials to enhance flowability. The supplied heating assembly cable is compatible with any standard heating controller.



TECHNICAL FEATURES

- Spraying of defined quantities
- Spraying independent of viscosity
- Dosage independent of input pressure
- Pressure-tight without valve
- Optional heating
- Easy cleaning
- Adjustable omnidirectional jet
- Uniform spray pattern

MORE INFORMATION CAN BE FOUND AT

www.preeflow.com/en/products/spraydispenser/

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eco-FEED

HOW IT WORKS

The eco-FEED cartridge emptying system simplifies the emptying of double-chamber cartridges: The fully automated device takes over the function of steady emptying. The materials, separated by the cartridge adapter, are then precisely fed to an eco-DUO dispenser. The eco-FEED scores when automation and process monitoring are required.

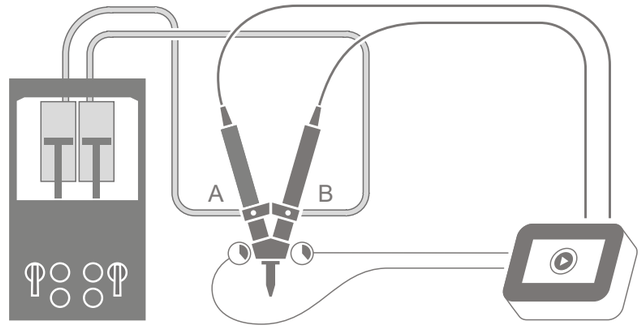
eco-FEED combines many advantages: The pressure can be controlled individually for both material components. Quick and easy cartridge replacement is possible thanks to interchangeable adapter sets. The continuous material supply of the 2-component dispensers allows even more precise material application. And thanks to optical fill level monitoring, high process reliability is achieved. Several optional features, such as retrofittable reed contacts for automatic fill level monitoring or a separate pedestal for easy placement in dosing cells or directly at the dosing workstation are possible. On request, the system can be individually adapted, for example, for other cartridge sizes, and adapter sets, for example.

Designation	eco-FEED								
Art.no.	171447	171448	171449	171450	171451	176650	176649	176648	176647
Cartridge (2)	Mixpac™ F-System					Mixpac™ C-System			
	400 10:1	400 2:1	400 1:1	200 2:1	200 1:1	400 2:1	400 1:1	200 2:1	200 1:1
Filling quantity	490 ml	400 ml	395 ml	215 ml	210 ml	400 ml	395 ml	215 ml	210 ml
Mixing ratio (2)	10:1	2:1	1:1	2:1	1:1	2:1	1:1	2:1	1:1
Dimensions	730 x 350 x 140 mm								
Weight	approx. 16.5 kg								
Operating pressure	0 – 6 bar								
Viscosity (1)	Up to 100,000 mPas								
Material outlet	2x 1/8" thread in cartridge adapter								
Operating conditions	10 – 40 °C								

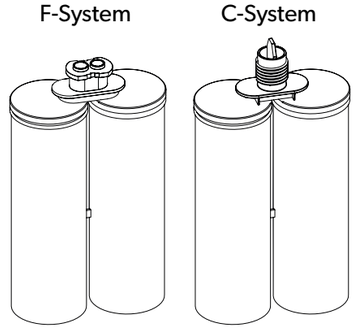
Optional accessories	Description	Art.no.
Pedestal	for eco-FEED	170455
Reed contact set (3)	0.3 mtr.	170666
Connecting cable set	2.5 mtr.	170780
	5.0 mtr.	170781

(1) Higher viscosities after consultation with the manufacturer.
(2) Further cartridge adapters and adapter sets on request.
(3) Set consists of two reed contacts.

SYSTEM ILLUSTRATION



Nonselflevelling liquid, material to high viscosity material, incl. pressure feed



Typical double-chamber cartridge

Realistic illustration of the system

TECHNICAL FEATURES

- Easy handling
- Process reliability due to optical level monitoring
- Separation of material by cartridge adapter
- Flexible setting of material pressure of both components
- Optimized installation space
- Optional pedestal for free-standing installation available
- Reduced material consumption

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eco-FEED PT 5

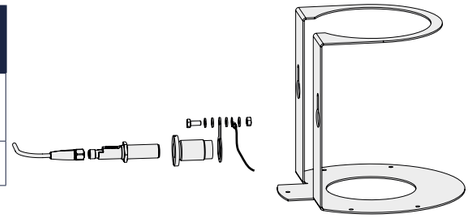
HOW IT WORKS

The eco-FEED PT 5 emptying system enables low to medium viscosity, self-levelling materials to be emptied out of containers, for example bottles, and thus represents a uniform feed and material supply for dispensers and dosing pumps.
Containers or bottles can be easily placed in the stainless steel pressure container. An adjustable overpressure is used to convey the fluid through a material hose, which also acts as a riser, to the supply connection on the dispenser. This greatly simplifies the material supply and significantly reduces the cleaning work required.

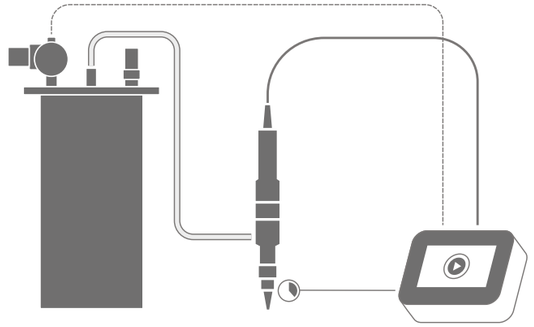
The process does not have to be interrupted by opening the lid to check the level. An optional sensor set can provide an analysable empty signal.

Designation	eco-FEED PT 5
Art.no.	173900
Internal volume / usable volume [litres]	5 / 4.25
Dimensions L x W x H [mm]	Approx. 205 x 205 x 400
Container internal dimensions Ø x H [mm]	Approx. 150 x 300
Container external dimensions Ø x H [mm]	Approx. 154 x 325
Empty weight [kg]	6.0
Permissible operating pressure [bar / psi]	6.9 / 100
Design pressure [bar / psi]	6.9 / 100
Safety valve set pressure [bar / psi]	6.9 / 100
Maximum operating pressure [bar / psi]	6.9 / 100
Test pressure [bar / psi]	12.0 / 174
Pressure supply, pneumatic	Max. 10.0 bar, dry and oil-free
Pneumatic connection	6 mm plug connector
Material connection	6 mm compression adapter
Parts in contact with media	Stainless steel 303 and 304, optional 316 (container and lid), FKM (O-ring in lid), PE (supply hose), PTFE (material hose, seal on screw plug), PA 6.6 (fitting on dispenser), POM (screw-in adapter for optional sensor set)
Operating conditions	+10° C to +38° C; air pressure 1 bar, relative humidity less than 60 % (non-condensing)
Material / operating material, material viscosity	Suitable for low to medium viscosity fluid (1 to 100,000 mPas) Suitable for Fluid Group II media
Safety valve inspection number	TÜV SV.10-20557.5D/G

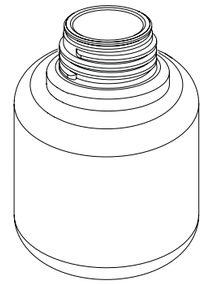
Optional accessories	Description	Art.no.
Sensor set	Sensor, screw-in adapter, 2 m cable, earthing device	173491
Pedestal	For stable installation	174054



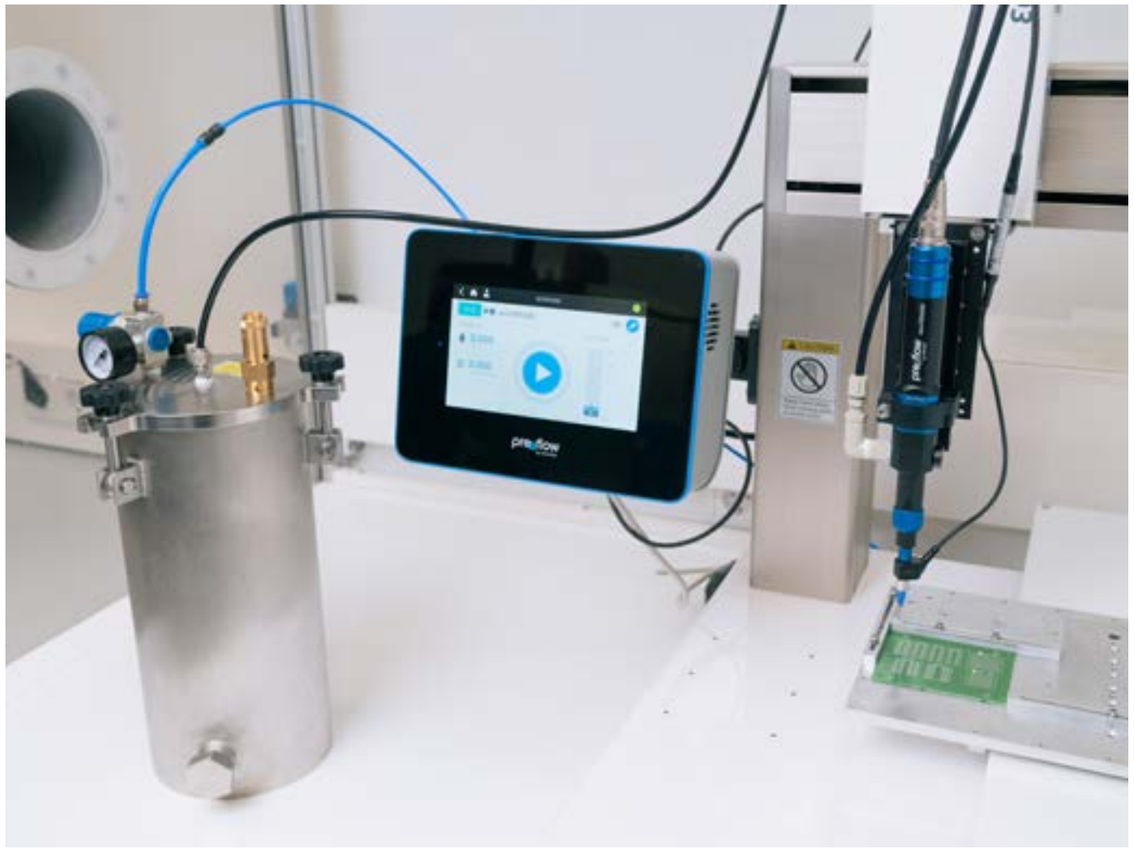
SYSTEM ILLUSTRATION



Self-levelling liquid, low to medium viscosity material, including inlet pressure

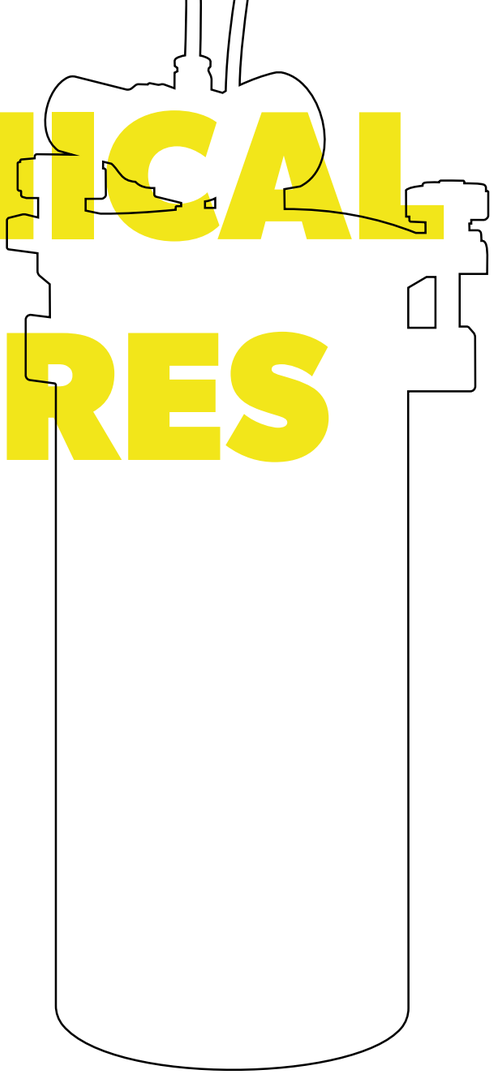


Typical container (plastic container or aluminium bottle).



Realistic illustration of the system

TECHNICAL FEATURES



- Easy handling without tools
- Wide range of applications due to resistant materials
- Reduced cleaning work
- Flexibly adjustable material pressure
- Easy transportation due to low weight
- Optional pedestal for stable installation available
- Optional sensor set for empty signal

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HOW IT WORKS

The preeflow® controllers simplify every dispensing process. They are perfectly matched for all dispensers within the eco-PEN, eco-DUO and eco-SPRAY series.

The eco-CONTROL EC200 2.0 serves primarily to control and parameterize the preeflow® dispensers. In addition, pressure monitoring is carried out by the controller for a reliable process with precise dispensing results. The control unit can be easily integrated into fully automatic systems and meets all requirements of modern dispensing processes.

The eco-CONTROL EC200 2.0 offers a compact solution with an integrated power supply unit. The control unit also offers options for pressure and temperature monitoring, 100 program memory locations and enables fast and clean storage of programs. The control unit can also be integrated with PLC systems.

The plug'n'dose (eco-PEN), plug'n'dose 2.0 (eco-PEN + eco-PEN XS) and plug'n'mix (eco-DUO) are designed for integration into larger manufacturing lines and allow volumetric dosing with a high degree of process reliability.

Designation	eco-CONTROL EC200 2.0	plug'n'dose 2.0	plug'n'mix
Art no.	21793	177047	21129
Dimensions	230 x 175 x 85 mm	112 x 42 x 28 mm	242 x 85 x 50 mm
Weight	2900 g	110 g	500 g
Power supply	110 – 230 V AC, 50/60 Hz	24 V DC	24 V DC
Power consumption	max. 100 VA	max. 65 VA	max. 100 VA
Voltage network adapter	Without	-	-
Input	0 – 7 bar	-	-
Operating modes	Start-stop / Quantity	Start-Stop	Start-Stop
Display	7" TFT with capacitive touch	-	-
Motor control	via programs, external via analog signal 0-10 V oder 4-20 mA	external via analog signal 0 – 10 V	external via analog signal 0 – 10 V
Connector for level sensor	Yes	-	-
External start	24 V via terminal strip	24 V via terminal strip	24 V via terminal strip
Programs	internal memory for max. 100 dispensing programs	-	-
Interface	Digital I/O, analog inputs, RS232, USB, (Ethernet)	Digital I/O, analog inputs	Digital I/O, analog inputs, RS232

INSTALLATION EXAMPLES

DESKTOP VERSION

Due to the solid base and the ergonomic positioning, the desktop version offers maximum operating comfort.

MONITOR VERSION

Alternatively, the controller can be attached to the wall or on profiles using an integral VESA bracket.

BUILT-IN VERSION

The built-in version is used for easier integration with PLC systems. It is produced with an injection-moulded housing seal for air-tight installation.

TECHNICAL FEATURES

- Fast Boot
- Universal interfaces
- Industry 4.0 ready
- Intuitive operability
- Plug ´n´ Play
- Simple machine integration
- Robust design
- Details on request

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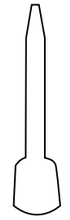
ORIGINAL PREEFLOW® ACCESSORIES & CONSUMABLES

HIGH PRECISION NEEDLES

- Higher precision than standard dispensing needles
- Tapered tips for easy material flow
- Industrial Luer-Lock thread

STATIC MIXERS

- Suitable for a wide range of cartridge sizes and material ratios
- Reduces material waste
- Suitable for low, medium and high viscosity materials



DISPENSING NEEDLES

- Standard dispensing needles for the eco-PEN
- Ideal for highly viscous or filled materials (silicones, solder pastes, greases etc.)
- Luer-Lock thread made of polypropylene

FURTHER ACCESSORIES

The original preeflow® mounting, process and electronic accessories for the eco-PEN, eco-DUO and eco-SPRAY are always in stock.

ACCESSORIES

CONSUMABLES

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IN FOCUS

BONDING

ADHESIVE DISPENSING FOR INDUSTRIAL ASSEMBLY

Bonding is also referred to as structural gluing with a dispenser. Almost all material combinations are bonded with volumetric adhesive dispensing. The adhesive dispensers from preeflow® guarantee a reliable and stable process. Absolute precision makes the dispensing systems for adhesives the ideal application partner.

OPTICAL BONDING

ADHESIVE DISPENSING FOR BETTER IMAGE QUALITY

Optical bonding is the joining of two layers of material with a clear adhesive. The adhesive is applied with a dispenser. Compared to other methods, this method enables a significantly improved display performance. The optical bonding process eliminates the air gap between the glass and the display. This results in increased robustness and excellent image quality.

CONFORMAL COATING

COMPREHENSIVE APPLICATION OF A PROTECTIVE VARNISH

Conformal coating is the application of a protective coating. Opaque or transparent lacquers are applied partially or completely to printed circuit boards. The materials are usually highly viscous, thermal or UV-curing. They are dispensed onto a microscope slide in a thin or thick film process.

DAM & FILL

PROTECTION OF HIGHLY COMPLEX AREAS

Dam and fill methodology is used to protect highly critical areas on electronic assemblies, such as wire bonds. The first step is to apply a highly viscous barrier – the dam. In the next step, the dammed area is filled with a lower viscosity, self levelling material. Accurate amounts of dispensed dam and fill resins are essential for this process.

GLOB TOP

PRECISE DISPENSING FOR RELIABLE PROTECTION

The glob top encapsulation protects highly sensitive electronic components safely and reliably. External environmental influences or mechanical stress no longer have a negative effect on the components. A liquid resin matrix is used for the process. Usually an adhesive (epoxy resin) is used for this purpose. The adhesive is then cured within a few seconds.

UNDERFILL

ADHESIVE DISPENSING FOR CONDUCTIVE ADHESIVES

So-called underfill applications are used for the dispensing of conductive adhesives. The isotropic conductive adhesive is the electrical connection between the microchip and the substrate. The adhesive is cured with thermal or UV radiation. Finally, the resulting cavity is filled. This process is called “underfill”.

MICRODISPENSING

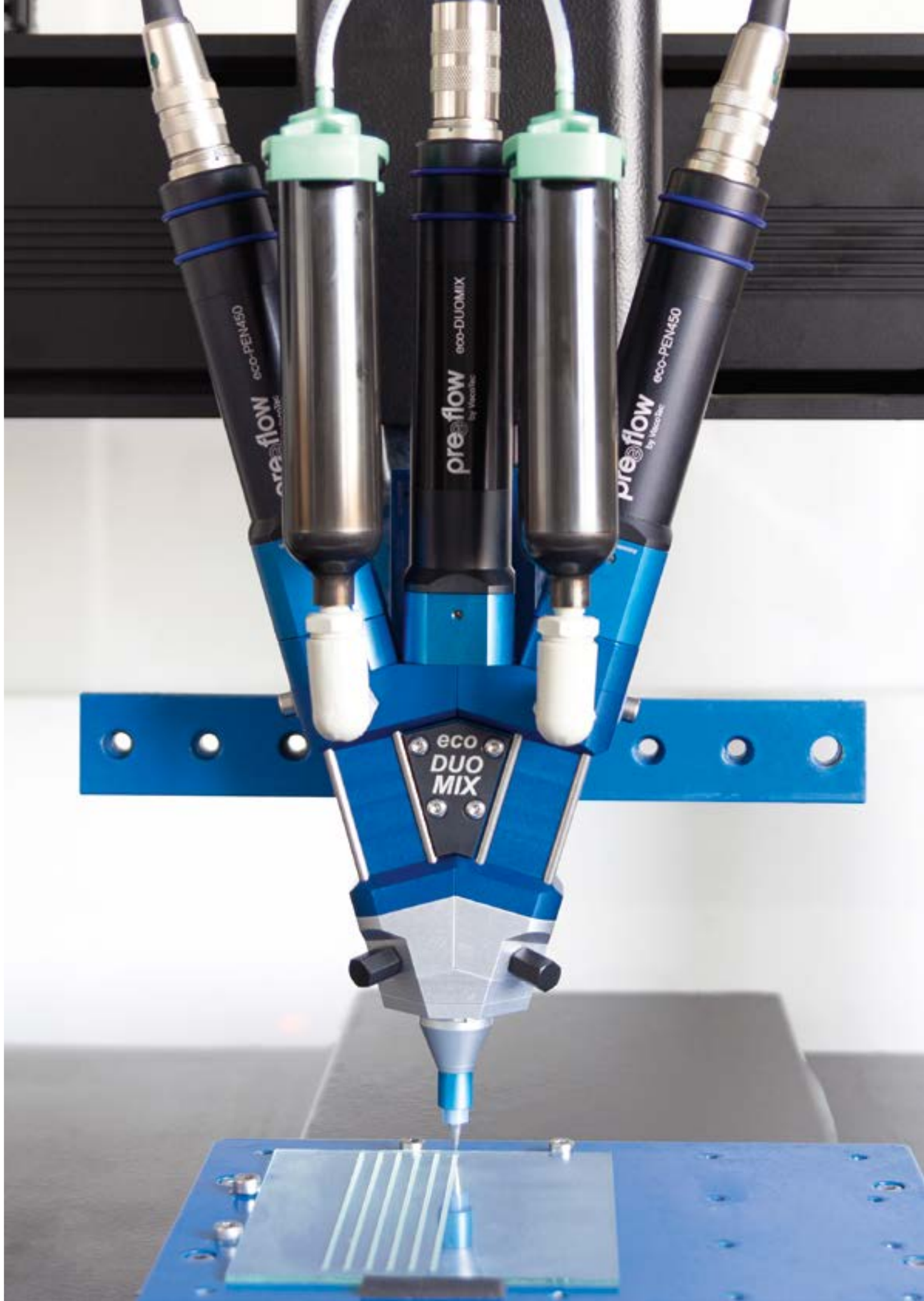
HIGH PRECISION DISPENSING OF LIQUID MATERIALS

Microdispensing means the dispensing of flowable material within a volume range of one microliter. The dosing is carried out by means of a dispenser. The dispensed form can be either dots or beads – as 1-component or 2-component dispensing. Exact precision and a high level of repeat accuracy are of particular importance here. At the same time, the dispensers must be absolutely reliable.

ENCAPSULATING

DISPENSING OF POTTING COMPOUND FOR THE ELECTRONICS INDUSTRY

Electronic potting compound applied to a specific component or surface: this is how the encapsulating process can be described. Adhesive dispensing protects the component during transport or from environmental influences. This includes vibrations, shock, moisture, dust and extreme temperatures. However, the electronic potting compound not only protects. It also improves electrical insulation, chemical resistance and protection against damage.



VISCOTEC PUMPEN- U. DOSIERTECHNIK GMBH

Address: Amperstraße 13
84513 Töging am Inn, Germany
Tel.: +49 8631 9274 0
E-mail: info@preeflow.com
Web: www.preeflow.com | www.viscotec.de

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