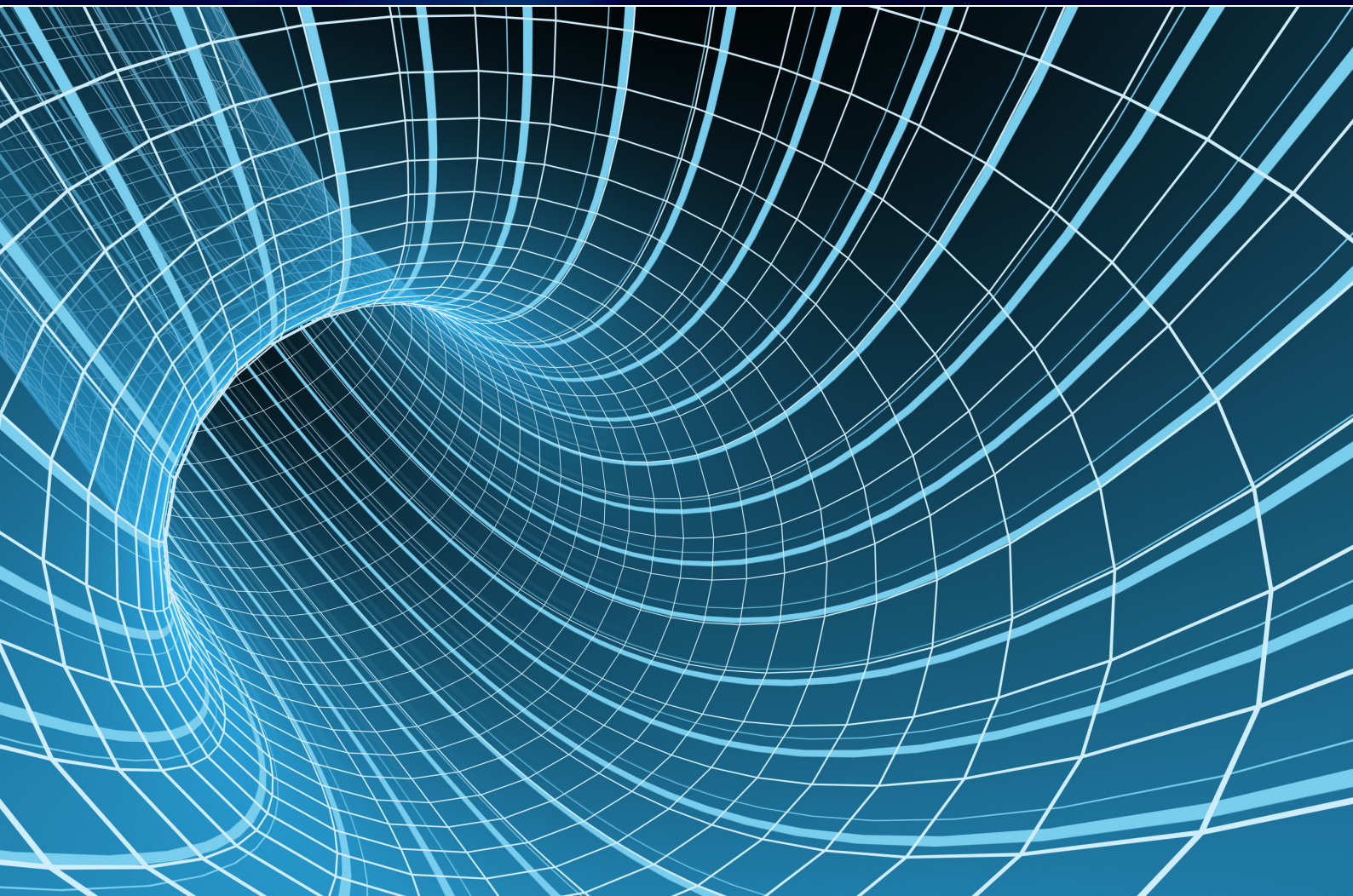


DATA SHEETS

Double hose system

Spezialapparatebau Bircken GmbH
Gew.Hochheid 7 - B-4728 Hergenrath



Double walled tube System

Flexible double walled tube-System

When dosing environmentally hazardous media, the requirements placed on the media-carrying system are becoming ever higher: people, the environment and nature must be protected from leaking chemicals - safely and, if possible, with economically systems.

Flexible double hose lines represent the most economical solution. They are characterized by their simple installation - hose lines of up to 100m per roll are available. Hose connectors allow the hose lines to be extended very easily.


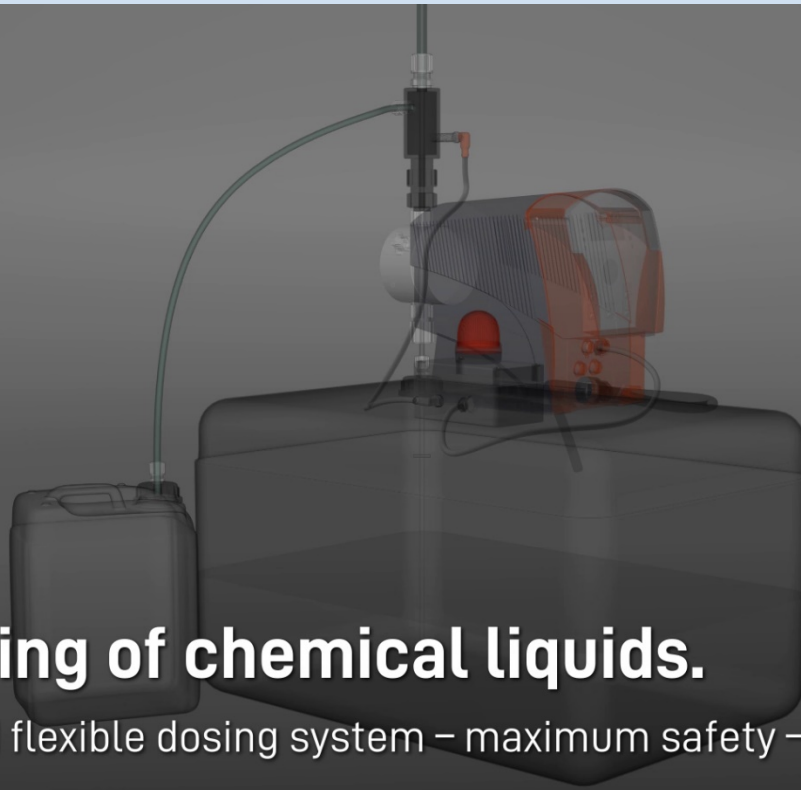
Bircken double hose systems enable a monitorable and safe media transport, including the control of any leakage by the monitoring room.

The monitoring of the media-carrying inner hose is made possible by our leakage monitoring system with controlled overflow.

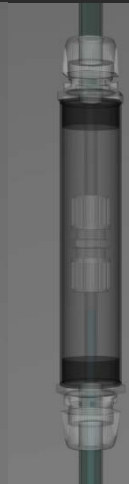


Safe dosing of chemical liquids.

Double walled flexible dosing system – maximum safety – cost-saving.



In case of leakage
no spillage due to
safety-hose!



Connector for
long dosing lines



Sensor unit

Double walled tube System

Double walled tube

Allows the safe dosing of aggressive or dangerous chemicals and substances.

Rigid lines are often used in industry to convey acids and alkalis. This is associated with high installation and repair costs. Our hose-in-hose system is a safe and inexpensive alternative.

The outer hose serves as a protective cover against mechanical influences and is an important accident protection and safety factor in the event of a defect in the inner dosing hose



Safe dosing of liquids

Double flexible tube with outer retaining tube for long distance chemical dosing

Key features:

- Hose in hose system
- Inner tube = pressure tube / dosing tube
- Outer tube = protective hose
- Lengths up to 100m in one piece
- Available in LDPE and PTFE
- Outer hose available in signal colors

Type

PE in PE

Dosing tube and protective hose in Low Density Polyethylene (LDPE).

Temperature range -10°C bis +60°C

Characteristics

Resistant to most acids, alkalis, salts and salt solutions, alcohols, oils, fats, waxes and many solvents.
All PE types are not resistant to strongly oxidizing media (e.g., nitric acid, chromic acid or halogens) and there is a risk of stress corrosion cracking.

UV and weathering resistance

In general, none of the PE types are resistant to UV rays.
Exceptions to this are the black-coloured types, which have better thermal stability and resistance to UV rays.

Type

PTFE in PE

Dosing tube in Polytetrafluorethylene (PTFE) with protective hose in Low Density Polyethylene (LDPE).

Temperature range -10°C bis +60°C

Characteristics

Dosing hose with excellent resistance to chemicals. In the event of a leak, the protective hose made of LDPE is sufficient for short-term protection of employees and systems up to replacement of the defective dosing line.

UV and weathering resistance

In general, none of the PE types are resistant to UV rays.
Exceptions to this are the black-coloured types, which have better thermal stability and resistance to UV rays.

Type

PTFE in PTFE

Dosing tube and protective hose in Polytetrafluorethylene (PTFE).

Temperature range -70°C bis +260°C

Characteristics

Dosing hose and protective hose with excellent resistance to chemicals. PTFE is particularly temperature resistant at high and low temperatures and has a high mechanical strength at high temperatures.
PTFE is self-extinguishing (class V-0)






UV and weathering resistance









PTFE is aging-, weather and UV resistant.







Double walled tube System











Double walled tube

WP: Working pressure BP: Burst pressure R: Bending radius W : Weight

| PE in PE LDPE dosing tube inside LDPE protective hose | | | | | | | | | |
|--|------------|------------|----|------------|--|-------------|-------------|------|-----------|
| Art. N° | Inner tube | Outer tube | | Rol length | Selectable color outer tube | WP Bar 20°C | BP Bar 20°C | R mm | W Kg/m |
| DPE64100* | 6x4 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 12,0 | 38 | 165 | ca. 0,047 |
| DPE85100* | 8x5 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 14,0 | 43 | 165 | ca. 0,061 |
| DPE86100* | 8x6 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 9,0 | 27 | 165 | ca. 0,054 |
| DPE129100* | 12x9 | 18x14 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 9,0 | 27 | 180 | ca. 0,140 |
| DPE1612100* | 16x12 | 22x18 | mm | 100 m | Natural or Black (*N-S)  | 9,0 | 27 | 180 | ca. 0,183 |

| PTFE in PE PTFE dosing tube inside LDPE protective hose | | | | | | | | | |
|--|------------|------------|----|------------|--|-------------|-------------|------|-----------|
| Art. N° | Inner tube | Outer tube | | Rol length | Selectable color outer tube | WP Bar 20°C | BP Bar 20°C | R mm | W Kg/m |
| DPTFE6450* | 6x4 | 12x10 | mm | 50 m | Natural or colored (*N-R-B-G-S)  | 15,0 | 48 | 165 | ca. 0,066 |
| DPTFE8550* | 8x5 | 12x10 | mm | 50 m | Natural or colored (*N-R-B-G-S)  | 14,0 | 56 | 165 | ca. 0,098 |
| DPTFE8650* | 8x6 | 12x10 | mm | 50 m | Natural or colored (*N-R-B-G-S)  | 11,0 | 34 | 165 | ca. 0,080 |
| DPTFE10850N | 10x8 | 16x12 | mm | 50 m | Natural  | 7,0 | 28 | 140 | ca. 0,150 |
| DPTFE12950* | 12x9 | 18x14 | mm | 50 m | Natural or colored (*N-R-B-G-S)  | 8,5 | 34 | 180 | ca. 0,200 |
| DPTFE161250* | 16x12 | 22x18 | mm | 50 m | Natural or Black (*N-S)  | 8,6 | 34 | 180 | ca. 0,460 |
| DPFTE221850S | 22x18 | 32x28 | mm | 50 m | Black  | 7,8 | 31 | 220 | |
| DPTFE242050S | 24x20 | 32x28 | mm | 50 m | Black  | 7,0 | 28 | 245 | |

| | | | | | | | | | |
|---------------|-------|-------|----|-------|--|------|----|-----|-----------|
| DPTFE64100* | 6x4 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 15,0 | 48 | 165 | ca. 0,066 |
| DPTFE85100* | 8x5 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 14,0 | 56 | 165 | ca. 0,098 |
| DPTFE86100* | 8x6 | 12x10 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 11,0 | 34 | 165 | ca. 0,080 |
| DPTFE108100N | 10x8 | 16x12 | mm | 100 m | Natural  | | | | |
| DPTFE129100* | 12x9 | 18x14 | mm | 100 m | Natural or colored (*N-R-B-G-S)  | 8,5 | 34 | 180 | ca. 0,200 |
| DPTFE1612100* | 16x12 | 22x18 | mm | 100 m | Natural or Black (*N-S)  | 8,6 | 34 | 180 | ca. 0,460 |

| PTFE in PTFE PTFE dosing tube inside PTFE protective hose | | | | | | | | | |
|--|------------|------------|----|------------|--|-------------|-------------|------|-----------|
| Art. N° | Inner tube | Outer tube | | Rol length | Selectable color outer tube | WP Bar 20°C | BP Bar 20°C | R mm | W Kg/m |
| D2PTFE6450N | 6x4 | 12x10 | mm | 50 m | Natural  | 15,0 | 48 | 120 | ca. 0,110 |
| D2PTFE8550N | 8x5 | 12x10 | mm | 50 m | Natural  | 14,0 | 56 | 120 | ca. 0,141 |
| D2PTFE8650N | 8x6 | 12x10 | mm | 50 m | Natural  | 11,0 | 34 | 120 | ca. 0,122 |
| D2PTFE12950N | 12x9 | 16x14 | mm | 50 m | Natural  | 8,5 | 34 | 225 | ca. 0,210 |
| D2PTFE161250N | 16x12 | 20x18 | mm | 50 m | Natural  | 8,6 | 34 | 361 | ca. 0,320 |
| D2PTFE64100N | 6x4 | 12x10 | mm | 100 m | Natural  | 15,0 | 48 | 120 | ca. 0,110 |
| D2PTFE85100N | 8x5 | 12x10 | mm | 100 m | Natural  | 14,0 | 56 | 120 | ca. 0,141 |
| D2PTFE86100N | 8x6 | 12x10 | mm | 100 m | Natural  | 11,0 | 34 | 120 | ca. 0,122 |
| D2PTFE129100N | 12x9 | 16x14 | mm | 100 m | Natural  | 8,5 | 34 | 225 | ca. 0,210 |
| D2PTFE1612100N | 16x12 | 20x18 | mm | 100 m | Natural  | 8,6 | 34 | 361 | ca. 0,320 |

All information is based on chemical resistance, proper connection and permissible operating pressure at 20 ° C

Reduction factor for the pressure load at higher temperatures for PTFE hose

At operating temperatures above + 20 ° C, the specified pressures must be multiplied by the reduction factors.

No reduction factors need to be considered for temperatures below + 20 ° C

Temperature range 50°C 75°C 100°C 150°C

Reduction factors 0,87 0,77 0,68 0,53

Double walled tube

Handling

- Install the double hose free of tension and avoid sagging.
- Do not exceed the specified bending radius for bends. Do not kink the hose.
- It is recommended to not leave the hose roll rigidly laying on the ground when unrolling it for installation – this could lead to spirals and kinks. Prior unwinding with a second person is recommended.
- Do not pull or lay the hose over sharp edges or objects.
- Place the hose on larger surfaces and avoid sharp corners.
- Avoid continuous friction or chafing (e.g. through permanent vibrations during dosing)

General information

- Contact the chemical manufacturer for chemical compatibility and temperature limits.
- The installation of safety sensors on the double hose is recommended
- Temperature range: never exceed the specified maximum temperatures. Maximum temperatures are based only on mechanical stress. Certain chemicals significantly lower the maximum safe operating temperature.
- If the inner hose leaks, the entire double hose must be replaced.
- Check the chemical resistance of all components. The chemical resistance can change with the temperature and concentration of the liquids



Double walled tube System

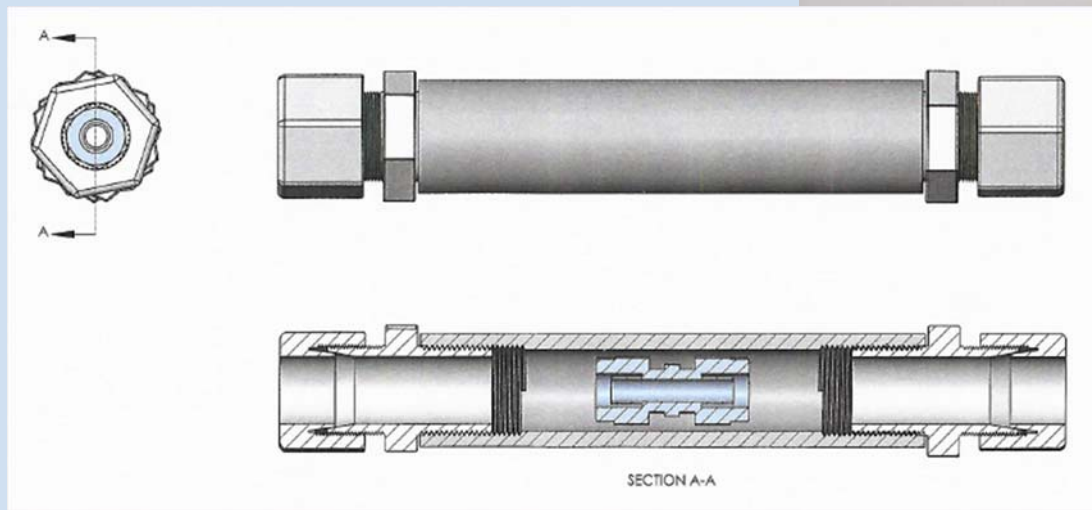
Connector for double walled tube

To connect or extend double-hose dosing lines.

Maintains a closed dosing line – continuous inner and outer tube.

Is used e.g. to extend dosing lines for distances above 100m length.

The liquid to be dosed only comes into contact with the inner connector. The larger, transparent connector for the outer tube protects in the event of a leak.



Type

PE in PE

Connector for double tube
LDPE in LDPE.

Inner connector: PP

Outer tube: transparent PVC-U

Typ

PTFE in PE

Connector for double tube
PTFE in LDPE.

Inner connector: PVDF

Outer tube: transparent PVC-U

Type

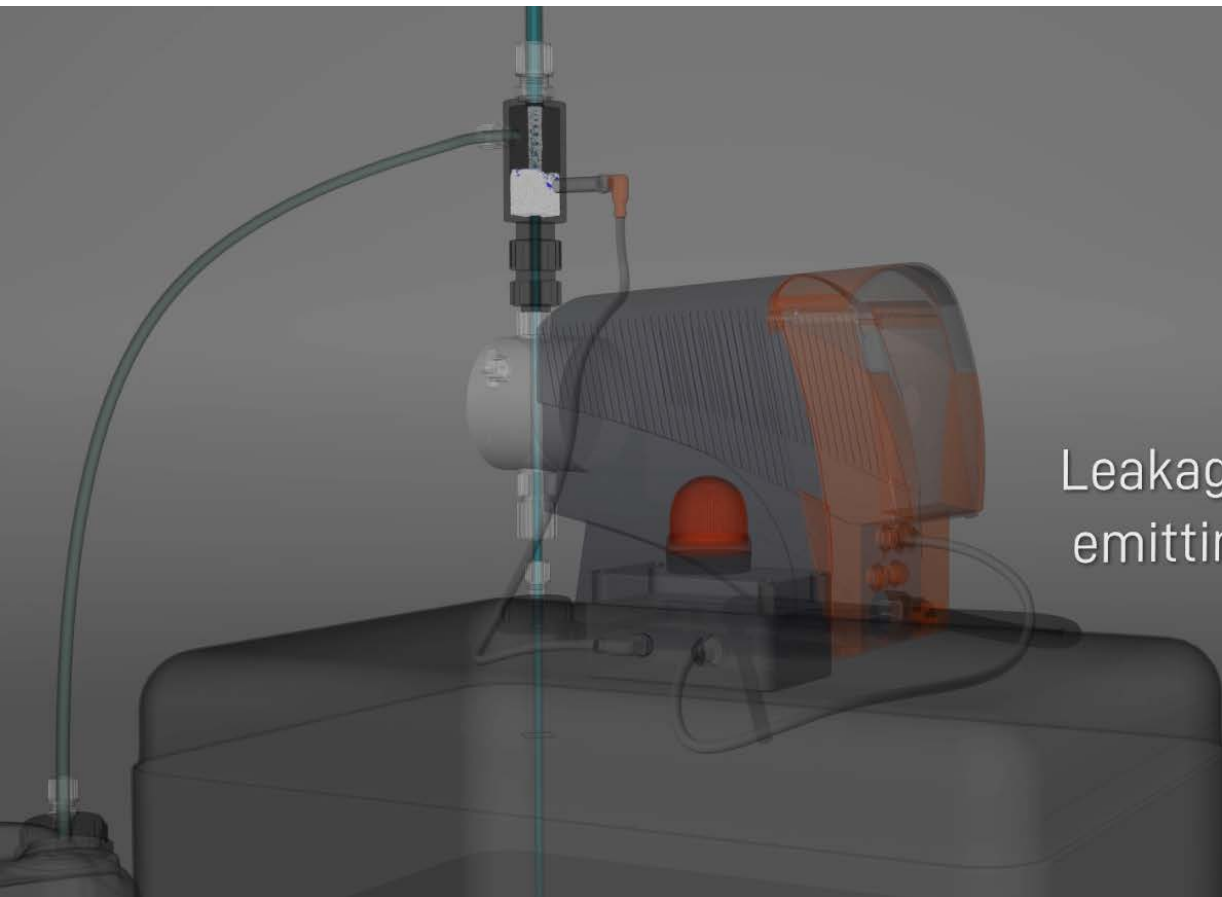
PTFE in PTFE

Connector for double tube
PTFE in PTFE.

Inner connector: PVDF

Outer tube: transparent PVC-U

| For tubes D1 D2 | Lenght in mm | Diameter in mm | PE in PE Art. N° | PTFE in PE Art. N° | PTFE in PTFE Art. N° |
|--------------------|-----------------|-------------------|---------------------|-----------------------|-------------------------|
| 6x4 / 12x10 mm | ca. 200 | 32 | DV-PE641210 | DV-PTFE641210 | DV-2PTFE641210 |
| 8x5 / 12x10 mm | ca. 200 | 32 | DV-PE851210 | DV-PTFE851210 | DV-2PTFE851210 |
| 8x6 / 12x10 mm | ca. 200 | 32 | DV-PE861210 | DV-PTFE861210 | DV-2PTFE861210 |
| 12x9 / 16x14 mm | ca. 200 | 32 | | | DV-2PTFE1291614 |
| 12x9 / 18x14 mm | ca. 200 | 32 | DV-PE1291814 | DV-PTFE1291814 | |
| 16x12 / 20x18 mm | ca. 200 | 40 | | | DV-2PTFE16122018 |
| 16x12 / 22x18 mm | ca. 200 | 40 | DV-PE16122218 | DV-PTFE16122218 | |



Leakage sensor
emitting alarm signal

Leakage detection system

Double hoses have an inner hose carrying the media and an outer hose serving as a protective hose. A leakage monitoring system is required to monitor the uninterrupted transport of chemicals in a double hose. This is installed at the lowest point of the dosing line - either as a connection to the pump or at the dosing point.

With electronic leak monitoring, the operator receives an immediate message in the event of a leak!

Key features:

- > Connection of the outer hose of the double hose by means of a compression fitting made of PVC. Inner hose is passed through the connection - this results in a closed hose-in-hose system
- > Body made of PVC-U with pump connection for pumps from Grundfos and Prominent
- > FPM/Viton seals
- > Electronic leakage sensor (capacitive sensor)
- > Overflow as a controlled drain (connection from POM)
- > Control unit with visual warning signal. 230 V operation, 3 control lights (power, operation, leakage)
The control system stops the pump and transmits a signal to the process control system
Push button to restart the pump (close to the pump to shortcut process control system).

Available for double tube with diameter of dosing tube:
6x4, 8x5, 8x6, 12x9mm





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