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Single pH/Redox Sensors, Diaphragm Tubes, Compensation Thermometers, Multitrode



pH glass electrodes

- For use in pH measurement, in conjunction with a reference electrode (e.g. 2B-2-G)
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Pressure-resistant up to 10 bar (version with Pg 13.5 S8 threaded cap)

Order details

(1) Basic type

2G pH glass electrode

(2) Connection head

- 1 S7 cap
- 2 Pg13.5 S8 threaded cap

(3) Membrane glass

| | | | |
|-----------------|--|------------------------------|---------------|
| U | universal glass (standard) | operating temp. 0 to + 80°C | pH 0 – 12(14) |
| C ¹ | C glass (fluoride-resistant up to 500 mgHF/l) | operating temp. 0 to + 80°C | pH 0 – 11 |
| HT | high-temperature glass (suitable also for high-alkaline applications) | operating temp. 0 to + 130°C | pH 0 – 12 |
| HA ¹ | high-alkaline glass | operating temp. 0 to + 80°C | pH 0 – 14 |

¹ with spherical membrane only

| | | | | | |
|---------------|-----|---|-----|---|-----|
| | (1) | | (2) | | (3) |
| Order code | 2G | - | | - | |
| Order example | 2G | - | 1 | - | U |

Stock items

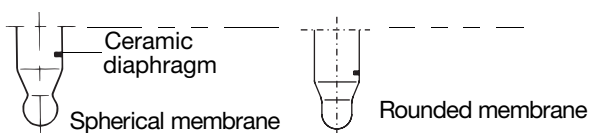
(can be dispatched within 3 working days)

| | |
|------------------|-------------|
| Sales No. | Type |
| 20/00083302 | 2G-2-U |

Non-stock items

| | |
|------------------|----------------------|
| Sales No. | Type |
| 20/00083300 | 2G-1-C (120 mm long) |
| 20/00083301 | 2G-1-HT |
| 20/00083303 | 2G-2-C (120 mm long) |
| 20/00083304 | 2G-2-HT |
| 20/00407004 | 2G-2-U (225 mm long) |

Notes on styles:



Reference electrodes

- For use in pH measurement, in conjunction with a glass electrode (e.g. 2G-2-U)
- For use in redox measurement, in conjunction with a metal electrode (e.g. 2M-2-Pt)
- For use in pH measurement, in conjunction with an antimony electrode (e.g. 2MP-2-Sb)
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- With ceramic diaphragm, 1 mm dia.
- Ag/AgCl conductive system in cartridge style
- Gel or KCl filling free from silver ions



Order details

(1) Basic type

2B Reference electrode

(2) Connection head

1 S7 cap

2 Pg13.5 S8 threaded cap

(3) Reference electrolyte

G gel filling

operating temp. -5 to + 90°C

pressure-resistant up to 10 bar¹

KCl KCl filling

operating temp. -5 to + 100°C

unpressurized applications

¹ only with Pg 13.5 S8 threaded cap version

| | (1) | (2) | (3) |
|---------------|-----|-----|-------|
| Order code | 2B | - | - |
| Order example | 2B | - | 1 - G |

Stock items

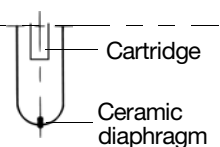
(can be dispatched within 3 working days)

| Sales No. | Type |
|-------------|--------|
| 20/00083865 | 2B-2-G |

Non-stock items

| Sales No. | Type |
|-------------|----------|
| 20/00083361 | 2B-1-G |
| 20/00083362 | 2B-1-KCl |
| 20/00083865 | 2B-2-G |

Notes on styles:



Gel-filled combination pH electrodes with glass shaft

- Standard electrode for general pH measurement
- Salt reservoir as standard, for a longer lifetime
- Versions with PTFE ring diaphragm are suitable for tough operating conditions, e.g. heavily polluted media and media containing oil
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Ag/AgCl conductive system in cartridge style
- Gel filling free from silver ions
- HT gel for high-temperature applications up to +135°C



Order details

(1) Basic type

2GE Combination glass electrode

(2) Connection head

1 S7 cap

(3) Reference electrolyte

G gel filling
(filling spout closed with tubing)

GH high-temperature gel filling
(filling spout closed with tubing)

(4) Membrane glass

| | | | |
|----|--|-----------------------------|---------------|
| U | universal glass (standard) | operating temp. 0 to + 80°C | pH 0 – 12(14) |
| HT | high-temperature glass | operating temp. 0 to +135°C | pH 0 – 14 |
| HA | high-alkaline glass | operating temp. 0 to + 80°C | pH 1 – 14 |
| C | C glass (fluoride-resistant up to 500 mgHF/l) | operating temp. 0 to + 80°C | pH 0 – 11 |

(5) Diaphragm

| | | |
|---|-----------------------|-----------|
| 1 | 1 x ceramic diaphragm | 1 mm dia. |
| 2 | 2 x ceramic diaphragm | 1 mm dia. |
| 3 | 3 x ceramic diaphragm | 1 mm dia. |
| T | PTFE ring diaphragm | |

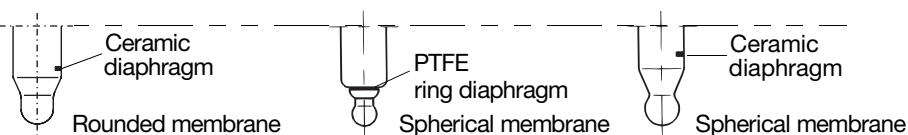
| | | | | | | | | | |
|----------------------|------------|---|------------|---|------------|---|------------|---|------------|
| | (1) | | (2) | | (3) | | (4) | | (5) |
| Order code | 2GE | - | | - | | - | | - | |
| Order example | 2GE | - | 1 | - | G | - | U | - | 1 |

Stock items

(can be dispatched within 3 working days)

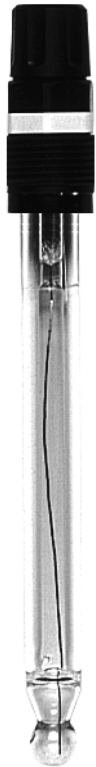
| | | | |
|------------------|-------------|------------------|--------------|
| Sales No. | Type | Sales No. | Type |
| 20/00303348 | 2GE-1-G-U-1 | 20/00332754 | 2GE-2-G-HT-T |

Notes on styles:



Gel-filled, sealed combination pH electrodes with glass shaft

- Standard electrode for general pH measurement
- Versions with PTFE ring diaphragm are suitable for tough operating conditions such as heavily polluted media and media containing oil.
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Ag/AgCl conductive system in cartridge style
- Gel filling free from silver ions
- HT gel for high-temperature applications up to +135°C



Order details

(1) Basic type

2GE Combination glass electrode

(2) Connection head

1 S7 cap

(3) Reference electrolyte

GV gel filling, sealed

GHV high-temperature gel, sealed

(4) Membrane glass

U universal glass (standard)

operating temp. -5 to +80°C

pH 0 – 12(14)

HT high-temperature glass

operating temp. 0 to +135°C

pH 0 – 14¹

(5) Diaphragm

1 1 x ceramic diaphragm

1 mm dia.

T PTFE ring diaphragm

¹ with high-temperature gel filling only

| | (1) | (2) | (3) | (4) | (5) |
|---------------|-----|-----|-----|-----|------------|
| Order code | 2GE | - | | - | |
| Order example | 2GE | - | 1 | - | GV - U - 1 |

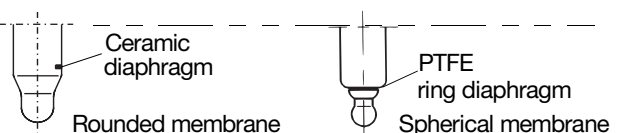
Stock items

(can be dispatched within 3 working days)

Sales No.
20/00300147

Type
2GE-1-GV-U-1

Notes on styles:



KCl-filled combination pH electrodes with glass shaft and insertion membrane

- Standard electrode for general pH measurement
- Possibility of topping up liquid KCl via the filler on the shaft or via the tube nipple
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Pressure-resistant up to 0.5 bar
- Ag/AgCl conductive system in cartridge style
- KCl filling free from silver ions

Order details

- (1) Basic type**
2GE Combination glass electrode
- (2) Connection head**
1 S7 cap
4 attached-cable connection, plain; cable diameter 3 mm; please specify cable length in plain text
- (3) Reference electrolyte**
Gel gel filling
- (4) Membrane glass**
CM Insertion model operating temp. -5 to +80°C pH 0 – 12(14)
- (5) Diaphragm**
2 2 x ceramic diaphragm (standard on insertion model) 1 mm dia.

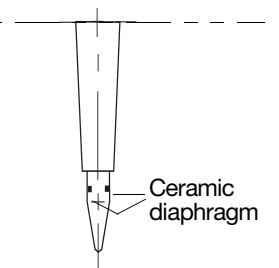


| | (1) | (2) | (3) | (4) | (5) | | | | |
|---------------|-----|-----|-----|-----|-----|---|----|---|---|
| Order code | 2GE | - | | - | Gel | - | CM | - | 2 |
| Order example | 2GE | - | 1 | - | Gel | - | CM | - | 2 |

Non-stock items

| Sales No. | Type |
|-------------|---------------|
| 20/00438915 | 2GE-1-GV-CM-1 |

Notes on styles:



Metal electrodes for redox measurement

- For redox measurement, in conjunction with a reference electrode (e.g. 2B-2-G)
- Active platinum component
for use in e.g. chromate reduction, nitrite oxidation, swimming pool monitoring
- Active gold component
for use in e.g. cyanide oxidation
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Pressure-resistant up to 10 bar (version with Pg 13.5 S8 threaded cap)

Order details

(1) Basic type

2M Metal electrode

(2) Connection head

- 1 S7 cap
- 2 Pg 13.5 S8 threaded cap

(3) Active component

| | | |
|-----|--------------|-------------|
| PtK | platinum tip | 5.5 mm dia. |
| AuK | gold tip | 5.5 mm dia. |

operating temp. -10 to +130°C
operating temp. -10 to +130°C

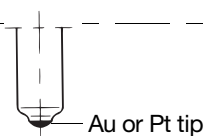
| | | | | | |
|----------------------|------------|---|------------|---|------------|
| | (1) | | (2) | | (3) |
| Order code | 2M | - | | - | |
| Order example | 2M | - | 1 | - | PtK |



Non-stock items

| Sales No. | Type |
|-------------|----------|
| 20/00300402 | 2M-1-PtK |
| 20/00300403 | 2M-2-PtK |

Notes on styles: _____



Twin metal electrodes for redox measurement

- For use in e.g. titration and amperometric redox potential measurements
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Operating temperatures up to 130°C
- Pressure-resistant up to 10 bar (version with Pg 13.5 S8 threaded cap)

Order details

(1) Basic type

2MD Twin metal electrode

(2) Connection head

1 S7 cap

2 Pg 13.5 S8 threaded cap

(4) Active component

Pt-Au platinum pin and gold pin 1 mm dia., length = 8 mm

Pt-Pt platinum pin and platinum pin 1 mm dia., length = 8 mm

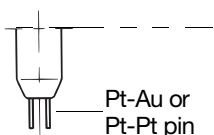


| | | | | | |
|----------------------|------------|---|------------|---|------------|
| | (1) | | (2) | | (3) |
| Order code | 2MD | - | | - | |
| Order example | 2MD | - | 1 | - | Pt-Au |

Non-stock items

| Sales No. | Type |
|-------------|-------------|
| 20/00300398 | 2MD-1-Pt-Au |
| 20/00300399 | 2MD-2-Pt-Au |
| 20/00300432 | 2MD-1-Pt-Pt |
| 20/00328765 | 2MD-2-Pt-Pt |

Notes on styles: _____



Metal electrode for pH measurement (antimony electrode)

- In conjunction with a reference electrode (e.g. 2B-2-G) and an electrolyte bridge, for pH measurement, e.g. in media containing hydrofluoric acid
- NOTE: transmitter must have an antimony input (e.g. 2P1 transmitter to Data Sheet 20.2770 with extra code /40)
- Fracture-resistant high-quality plastic shaft, resistant to acidic and caustic solutions
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Special styles on request
- Pressure-resistant up to 10 bar (version with Pg 13.5 S8 threaded cap)



Order details

(1) Basic type

2MP Metal electrode for pH measurement with a plastic shaft

(2) Connection head

2 Pg 13.5 S8 threaded cap

(4) Active component

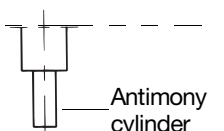
Sb antimony operating temp. -10 to +80°C

| | (1) | (2) | (3) |
|---------------|-----|-----|------|
| Order code | 2MP | - 2 | - Sb |
| Order example | 2MP | - 2 | - Sb |

Non-stock items

| Sales No. | Type |
|-------------|-------------|
| 20/00325951 | 2MP-2-Pt-Sb |

Notes on styles: _____



Product group 202908

Diaphragm tubes

- For constructing an electrolyte bridge
- Diaphragm tubes are used for pH measurement in critical media, in conjunction with a pH glass electrode inside a suitable fitting.
They form the diaphragm of a reference electrode which is inside a separate container (e.g. KCl reservoir) in the sample liquid. This prevents the poisoning of the reference system.
In addition, blockage of the diaphragm (because of the larger surface area) is delayed.
- Applications: emulsions, varnishes, paints, photochemicals, liquids that poison the reference system, media containing sulfide, part-aqueous and non-aqueous media miscible or immiscible in water.
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Special styles on request
- Pressure-resistant up to 6 bar when using a pressure-resistant KCl reservoir
- With PTFE diaphragm, 5 mm dia.
- Supplied together with 3 replacement PTFE diaphragms
- With tube clamp fitting,
for connecting a connection tubing of 6 x 1.5 mm thickness to the KCl reservoir

Order details

(1) Basic type

2908 Diaphragm tubes

(2) Shaft material

| | | |
|----|------|-------------------------------|
| 16 | PP | operating temp. -10 to + 80°C |
| 26 | PVDF | operating temp. -10 to +135°C |

| | | | |
|---------------|------|---|-----|
| | (1) | | (2) |
| Order code | 2908 | - | |
| Order example | 2908 | - | 16 |



Non-stock items

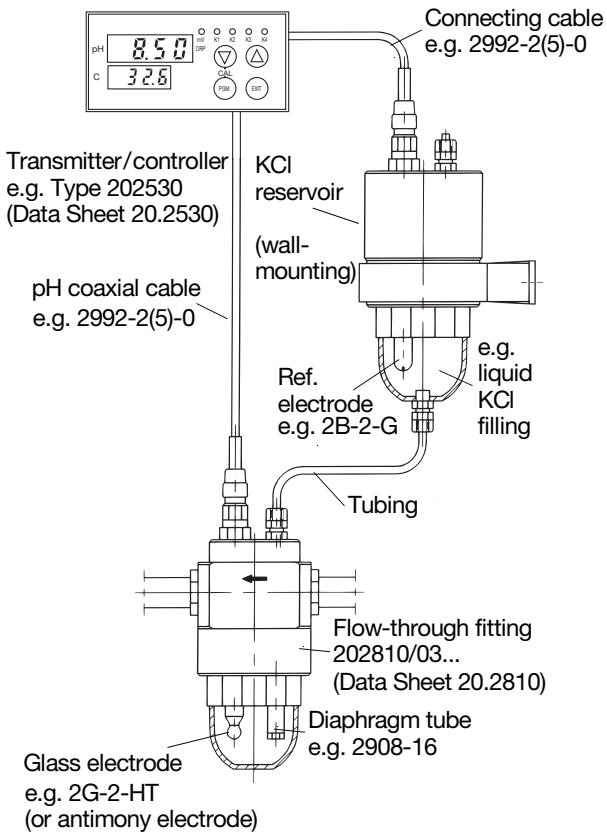
| Sales No. | Type |
|-------------|---------|
| 20/00084582 | 2908-16 |
| 20/00084583 | 2908-26 |

Available accessory

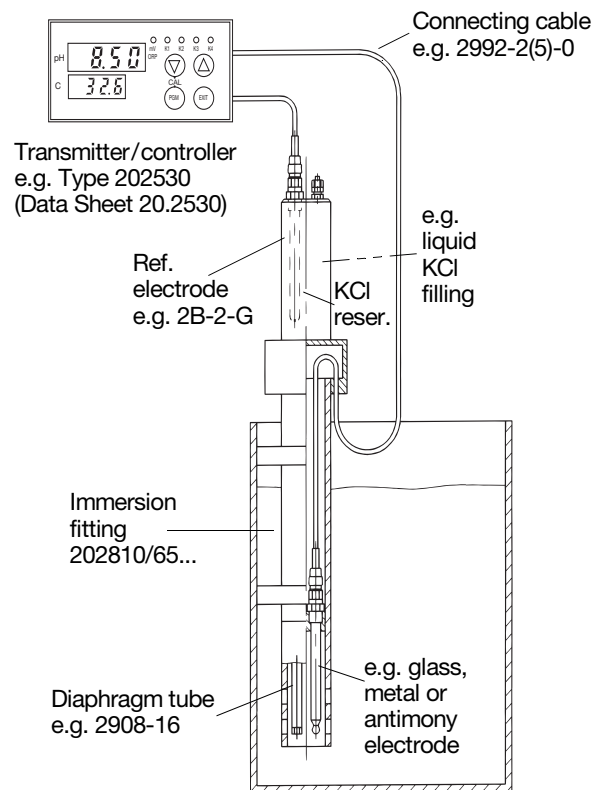
| Sales No. | |
|-------------|--------------------------------|
| 20/00304567 | 10 replacement PTFE diaphragms |

Construction examples

Flow-through measurement



Measurement in vessel



Compensation thermometers

- For temperature measurement and automatic temperature compensation in pH and conductivity measurement
- Standard dimensions 120 x 12 mm (DIN 19 263)
- Other fitting lengths (e.g. 160 x 12 mm, 225 x 12 mm) have to be specified in plain text when ordering
- Sensor: reference value to DIN 43760, Class B (Pt100)
- Pressure-resistant up to 10 bar (version with Pg 13.5 S8 threaded cap)
- Time constant: $T_{0,5} = 0.8\text{sec}$; $T_{0,9} = 4\text{sec}$ (Pt100)
- Special styles on request
- Operating temperature -10 to +135°C



Order details

- (1) Basic type**
 - 2K Compensation thermometer
- (2) Connection head**
 - 1 S7 cap; Pt100
 - 2 Pg 13.5 S8 threaded cap; Pt100
 - 11 S7 cap; Pt1000
 - 21 Pg 13.5 S8 threaded cap; Pt1000
 - 3 twin Pt100; 3 m attached cable; Pg13.5 cemented on
 - 5 3-pole flange connector with Pg13.5 thread

| | | |
|----------------------|-----|-----|
| Order code | (1) | (2) |
| | 2K | - |
| Order example | 2K | - 2 |

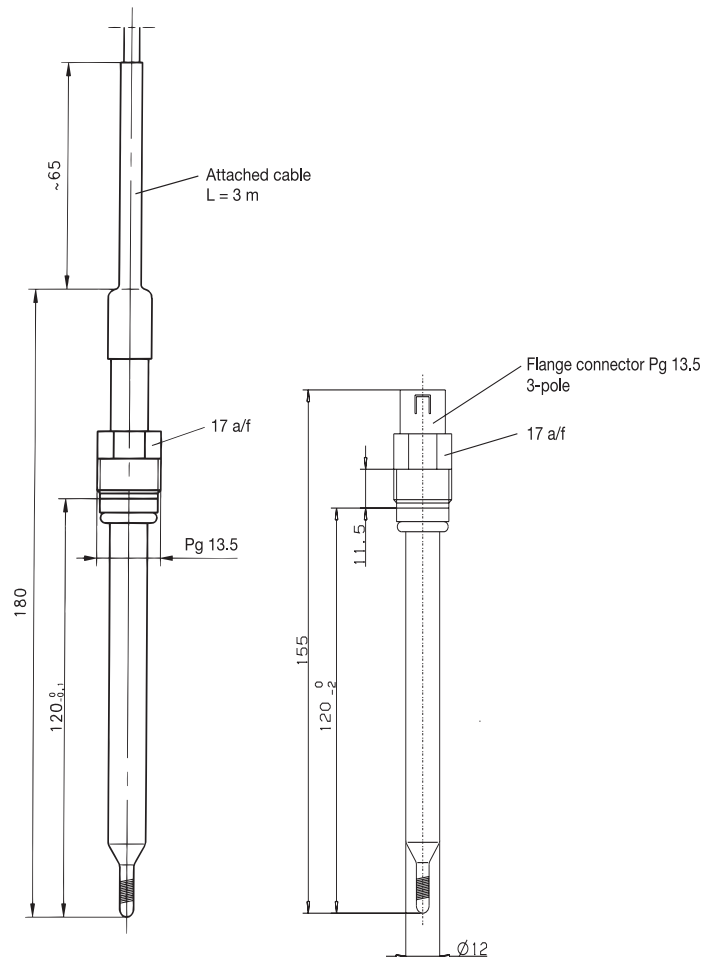
Stock items

(can be dispatched within 3 working days)

| Sales No. | Type |
|-------------|------|
| 20/00300443 | 2K-2 |

Non-stock items

| Sales No. | Type |
|-------------|--|
| 20/00300442 | 2K-1 |
| 20/00414304 | 2K-2 (with Pg13.5 flange connector) |
| 20/00081955 | 2K-3 (twin Pt100) |



| Type | L | Ø dia. |
|-------|----|---------------------|
| 2K-1 | 15 | 4.5 _{-0,5} |
| 2K-2 | | |
| 2K-11 | 24 | 2.8 _{-0,5} |
| 2K-21 | | |
| 2K-3 | 22 | 4.5 _{-0,5} |

JUMO MULTITRODE

Multiparameter sensor for pH, redox and temperature

Standard dimensions 120 x 12 mm (DIN 19 263)



Order details

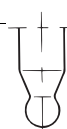
- (1) Basic type**
2GEC- MULTITRODE
- (2) Connection head**
09- SMEK Pg13.5 connector system, with Pt100
(Pt1000 without extra charge, please specify in plain text)
- (3) Reference electrolyte**
G- gel (highly viscous KCl solution), up to 80°C,
pressure-resistant up to 6 bar, tubular seal
GV- gel (highly viscous KCl solution), up to 80°C,
pressure-resistant up to 1 bar, sealed version
GH- high-temperature gel, up to 130°C,
pressure-resistant up to 6 bar, tubular seal
KCL- liquid electrolyte, unpressurized operation, up to 135°C
- (4) Active component: pH**
U- U glass 0 — 12 pH (briefly 14 pH)
HT- high-temperature/ high-alkaline glass 0 — 14 pH
DS- steam-sterilizable glass 1 — 14 pH
- (5) Active component: redox**
Pt- platinum ring
Au- gold ring
- (6) Diaphragm**
1 1 ceramic diaphragm
3 3 ceramic diaphragms

| | (1) | (2) | (3) | (4) | (5) | (6) |
|----------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| Order code | <input type="text" value="2GEC"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> |
| Order example | <input type="text" value="2GEC"/> | - <input type="text" value="09"/> | - <input type="text" value="G"/> | - <input type="text" value="U"/> | - <input type="text" value="Pt"/> | - <input type="text" value="1"/> |

Stock items

(can be dispatched within 3 working days after receipt of order)

| Sales No. | Type |
|-------------|------------------|
| 20/00404584 | 2GEC-09-G-U-Pt-1 |



Spherical membrane