

BlackLine Lf-GT / -EC electrolytic 2-electrode conductivity cells

Cell constants $K=0.01-1.0$ and 3.0

202922 Series

- for universal application, e.g. drinking and surface water monitoring, ion exchangers and reverse osmosis plant, construction of air conditioning and cooling systems, horticultural technology, sea water and fresh water aquaculture, mildly contaminated industrial rinse and process water, high-purity water monitoring, etc.
- compact style for universal application
- manufactured from physiologically safe materials



BlackLine Lf-GT with the cell constants $K=1.0$ and $K=3.0$

The GT version features a special graphite as the electrode material. The graphite has been especially treated to achieve - in conjunction with suitable evaluation devices - measuring ranges up to 100 mS/cm and above. A temperature probe can optionally be integrated. The conductivity cell with 120 mm fitting length and a shaft diameter of 12 mm can be used in combination with standard pH or redox electrodes in suitable built-in fittings. The sensor is also ideally suited for linking with handheld or laboratory measuring equipment. When used as an online sensor, suitable flow-through fittings must be employed.

BlackLine Lf-EC with the cell constants $K=0.01$, $K=0.1$ and $K=1.0$

The principal features of the EC version are its very compact construction and the Pt100 that is integrated as standard. With a fitting length of just 40 mm (or 63 mm), the sensors can also be screwed into pipelines with a small nominal diameter. To this end, the conductivity cells either have a G1/2" or 1/2"NPT thread. The version with $K=1.0$ achieves a measuring range of 0.1 to about 5000 $\mu\text{S/cm}$ (5mS/cm). Titanium pins function as the measuring electrodes here. The version with $K=1.0$ has been implemented as a coaxial cell and can be used to about 1000 $\mu\text{S/cm}$. Cells with $K=0.01$ cover ranges from 0.05 to 20 $\mu\text{S/cm}$. They are therefore extremely suitable for pure and high-purity water applications. The electrode material for these cells is stainless steel 1.4571.

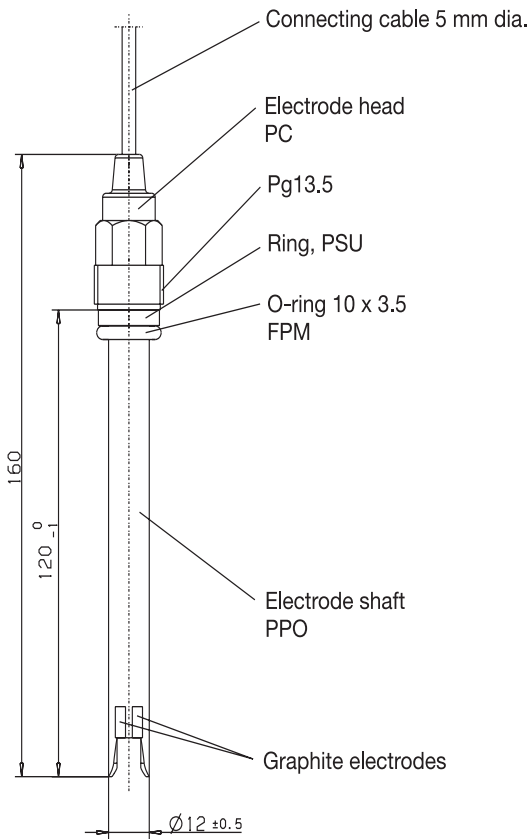
Operating principle

The measuring cells in the 202922 series are 2-electrode cells. A transmitter applies an AC voltage to the cells. The current flowing through the liquid and the electrodes is determined by the conductivity of the liquid.

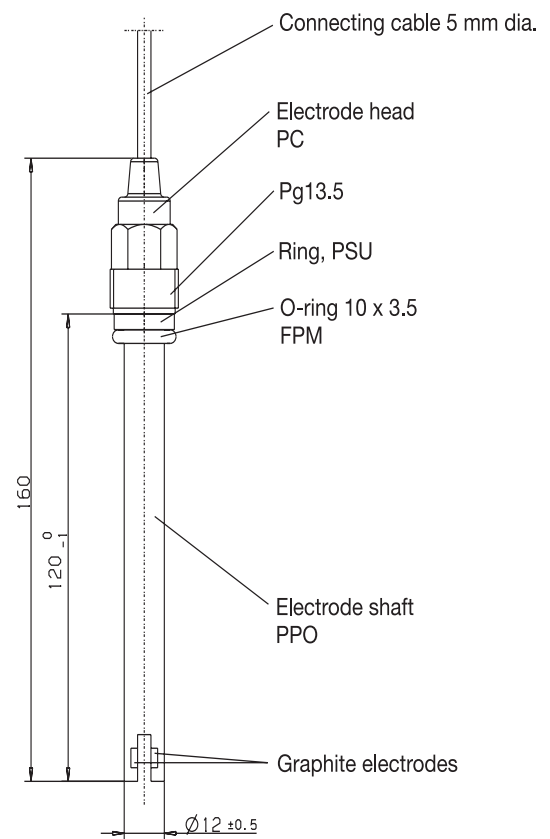
Technical data

| Type | BlackLine Lf-GT | | BlackLine Lf-EC | | |
|--------------------------------------|--|--|--|--------------------------------------|--------------------------------------|
| | K=1.0 | K=3.0 | K=0.01 | K=0.1 | K=1.0 |
| Cell constant ¹ | | | | | |
| Typical measuring range ² | 0.1 to approx. 10 mS/cm (with the appropriate evaluation equipment: up to 100 mS/cm) | 0.1 to approx. 30 mS/cm (with the appropriate evaluation equipment: up to 200 mS/cm) | 0.05 to approx. 10 $\mu\text{S/cm}$ | 0.1 to approx. 1000 $\mu\text{S/cm}$ | 0.1 to approx. 5000 $\mu\text{S/cm}$ |
| Temperature compensation | none / Pt100 / Pt1000 | | Pt100 | | |
| Process connection | Pg13.5 screw-in thread | | G1/2" or 1/2"NPT screw-in thread | | |
| Electrode material | special graphite | | stainless steel 1.4571 | | titanium |
| Body material | PPO (polyphenylene oxide) | | PEI (polyetherimide) | | |
| Operating temperature | -5 to +90°C | | -10 to +90°C | | |
| Maximum pressure | 6 bar (at 25°C) | | 6 bar (at 25°C) | | |
| Electrical connection | attached cable (free cable ends) or M12 connector | | attached cable (free cable ends) M12 connector | | |

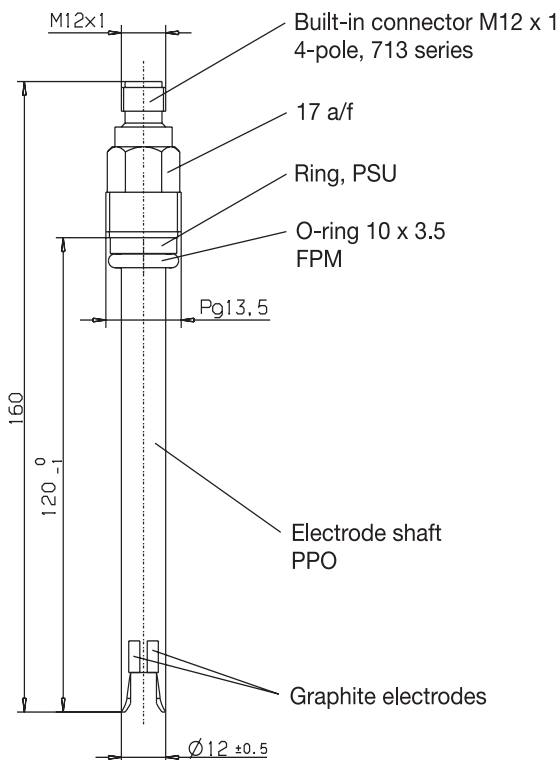
Dimensions for BlackLine Lf-GT



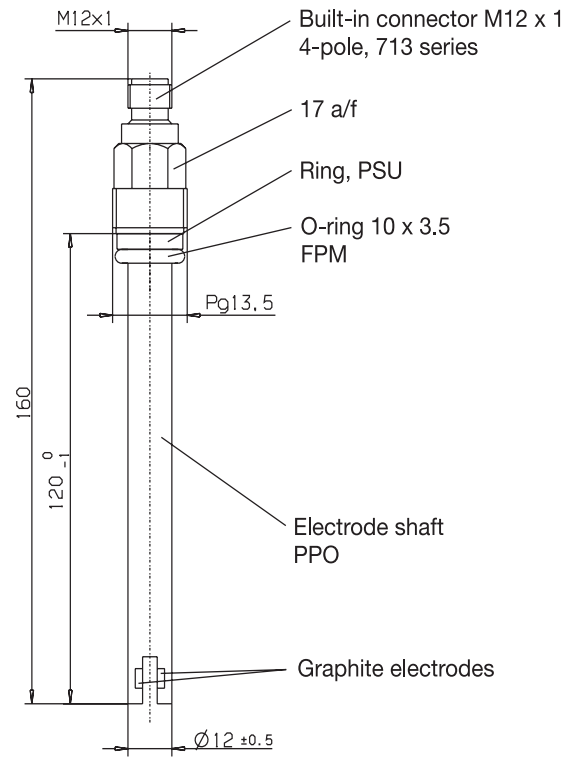
Type 202922/10-0300-xxxx-84-413-20-5000-120/000
Cell constant K = 3.0



Type 202922/10-0100-xxxx-84-413-20-5000-120/000
Cell constant K = 1.0

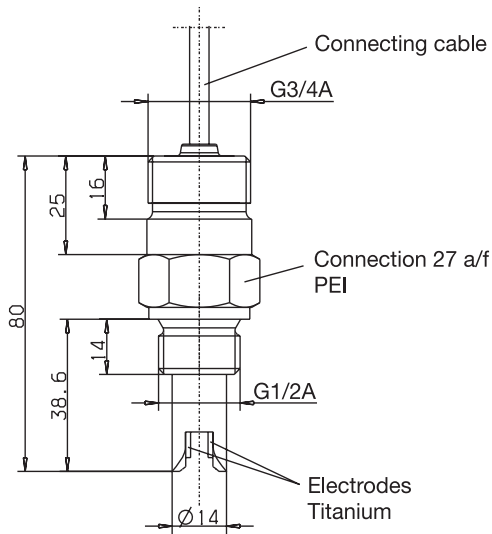


Type 202922/10-0300-xxxx-84-413-83-0000-120/000
Cell constant K = 3.0

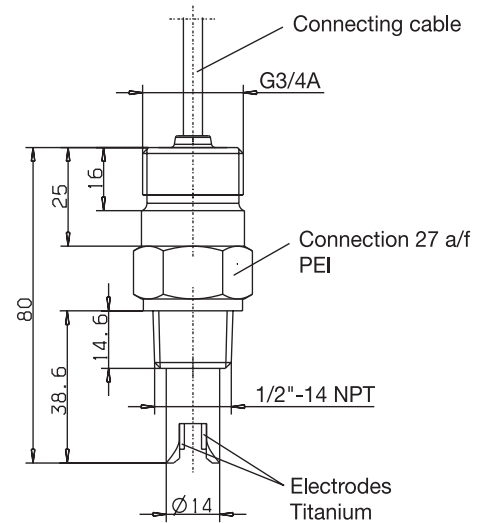


Type 202922/10-0100-xxxx-84-413-83-0000-120/000
Cell constant K = 1.0

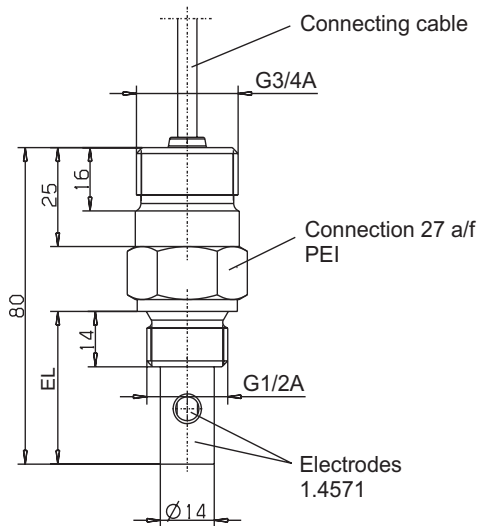
Dimensions for BlackLine Lf-EC



Type 202922/20-0100-1003-60-104-20-5000-040/000
Cell constant K = 1.0

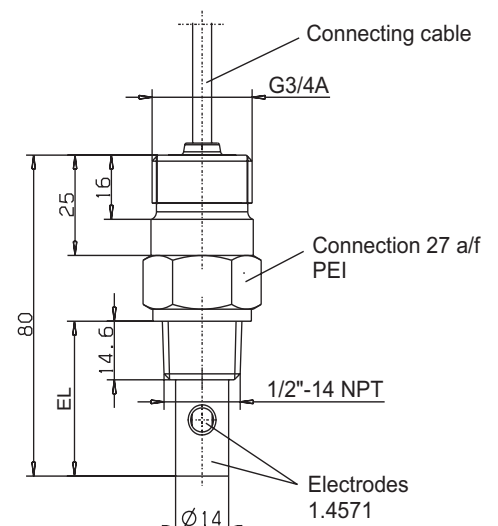


Type 202922/20-0100-1003-60-144-20-5000-040/000
Cell constant K = 1.0



Type 202922/20-0010-1003-26-104-20-5000-040/000
Cell constant K = 0.1

Type 202922/20-0001-1003-26-104-20-5000-040/000
Cell constant K = 0.01



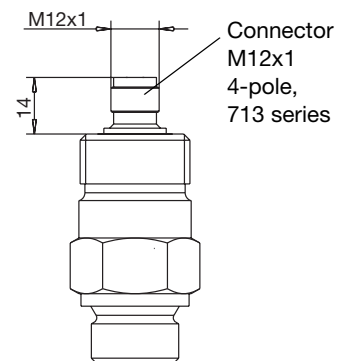
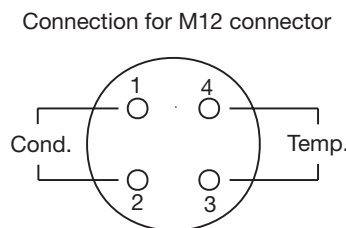
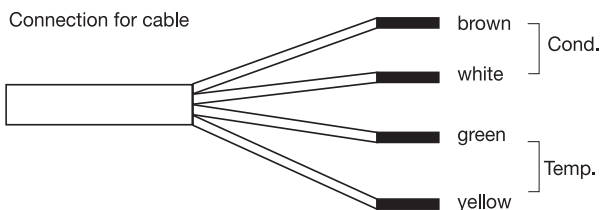
Type 202922/20-0010-1003-60-144-20-5000-040/000
Cell constant K = 0.1

Type 202922/20-0001-1003-26-144-20-5000-040/000
Cell constant K = 0.01

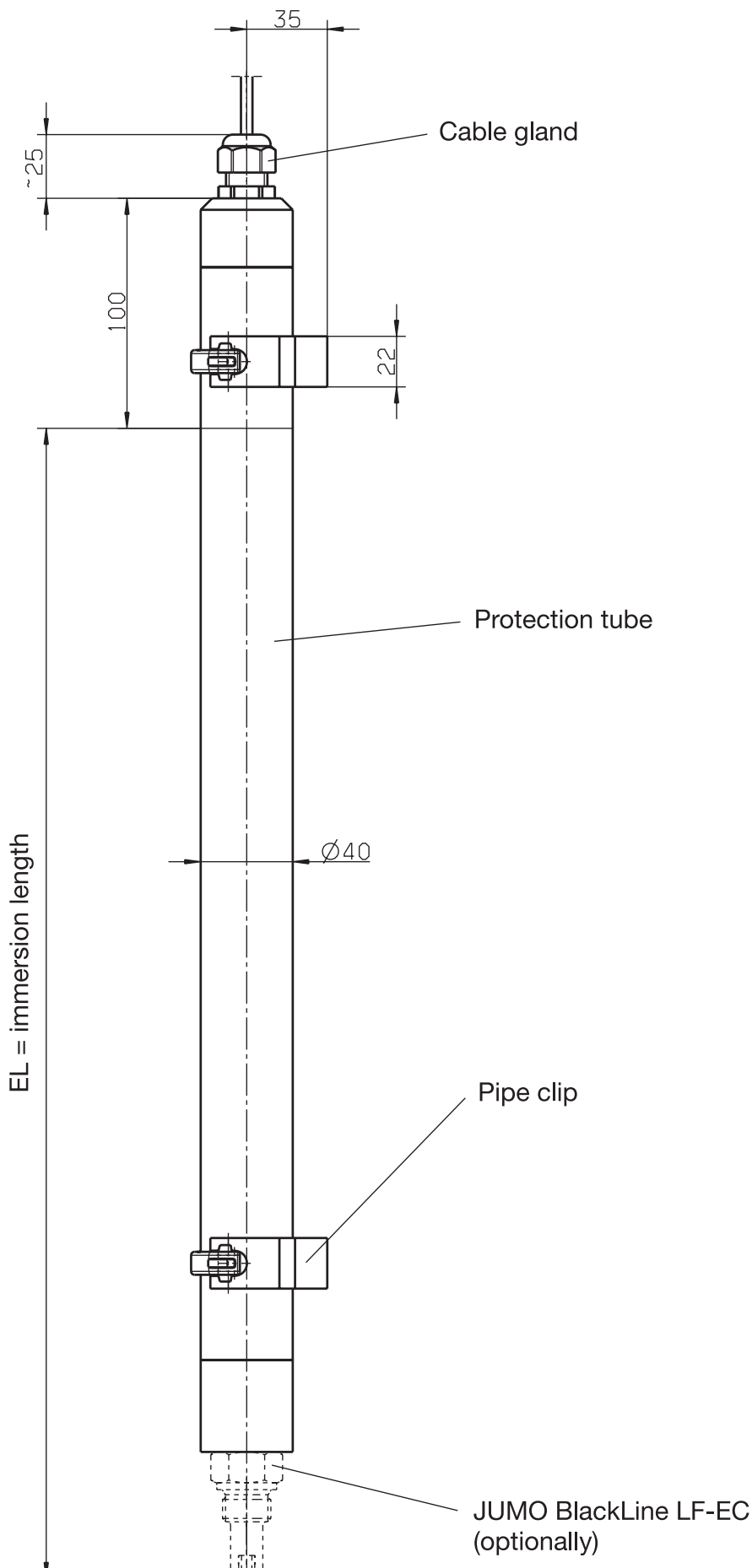
"EL" = 38,6 mm on type 202922/20-0010-...
"EL" = 63 mm on type 202922/20-0001-...

| Type | Fitting length EL mm |
|--------------------|----------------------|
| 202922/20-0010-... | 38.6 |
| 202922/20-0001-... | 63 |

Electrical connection



Accessories for BlackLine Lf-EC



Order details

| | | | |
|-----|--------|--|--|
| | | (1) Basic type | |
| | 202922 | BlackLine Lf-GT / -EC, electrolytic 2-electrode conductivity cells | |
| | | (2) Basic type extensions | |
| | 10 | Style: BlackLine Lf-GT | |
| | 20 | Style: BlackLine Lf-EC | |
| | | (3) Cell constant | |
| - o | 0001 | K = 0.01 | |
| - o | 0010 | K = 0.1 | |
| o o | 0100 | K = 1.0 | |
| o - | 0300 | K = 3.0 | |
| | | (4) Temperature sensor | |
| o - | 0000 | none | |
| o x | 1003 | Pt100 | |
| o - | 1005 | Pt1000 | |
| | | (5) Electrode material | |
| - o | 26 | stainless steel 1.4571 | |
| - o | 60 | titanium | |
| o - | 84 | special graphite | |
| | | (6) Process connection | |
| - o | 104 | G1/2" screw-in thread | |
| - o | 144 | 1/2" NPT screw-in thread | |
| o - | 413 | Pg13.5 thread | |
| | | (7) Electrical connection | |
| o o | 104 | attached cable | |
| o o | 144 | M12 connector | |
| | | (7) Cable length | |
| x - | 0000 | no cable (with process connection 70) | |
| x x | 5000 | length in mm (other lengths on request) | |
| | | (8) Fitting length | |
| - x | 040 | 40 mm | |
| - x | 063 | 63 mm (for cell constant K=0.01 only) | |
| x - | 120 | 120 mm | |
| | | (9) Extra codes | |
| x x | 000 | none | |

X = combination is standard
o = combination is optional
- = combination is not available

Other versions on request!

| | | | | | | | | | | | | | | | | | | | |
|---------------|--------|-----|-----|-----|------|-----|------|-----|-----|------|-----|---|-----|---|------|---|-----|---|-----|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | | | | | | | | | |
| Order code | 202922 | / | | - | | - | | - | | / | 000 | | | | | | | | |
| Order example | 202922 | / | 10 | - | 0100 | - | 0000 | - | 84 | - | 104 | - | 144 | - | 0000 | - | 120 | / | 000 |

Note:
The type code is a type designation, not a modular system.
If at all possible, choose the articles listed under "Stock items" or "Non-stock items".
Any free combination of individual code features must be technically checked by us and released.
Please ask us in case of doubt!

Stock items

| Sales No. | Type | Brief description |
|-------------|--|--|
| 20/00430769 | 202922/10-0100-0000-84-413-20-5000-120/000 | K=1.0, without Pt100, attached cable, Pg13.5, 120 mm |
| 20/00430770 | 202922/10-0100-1003-84-413-20-5000-120/000 | K=1.0, with Pt100, attached cable, Pg13.5, 120 mm |
| 20/00437646 | 202922/20-0100-1003-60-104-20-5000-040/000 | K=1.0, with Pt100, attached cable, G1/2", 40 mm |
| 20/00437647 | 202922/20-0100-1003-60-144-20-5000-040/000 | K=1.0, with Pt100, attached cable, 1/2"NPT, 40 mm |
| 20/00418069 | 202922/20-0010-1003-26-104-20-5000-040/000 | K=0.1, with Pt100, attached cable, G1/2", 40 mm |
| 20/00441398 | 202922/20-0010-1003-26-144-20-5000-040/000 | K=0.1, with Pt100, attached cable, 1/2"NPT, 40 mm |
| 20/00448986 | 202922/20-0001-1003-26-144-20-5000-063/000 | K=0.01, with Pt100, attached cable, 1/2"NPT, 63 mm |

Non-stock items

| Sales No. | Type | Brief description |
|-------------|--|---|
| 20/00442432 | 202922/10-0100-1003-84-413-83-0000-120/000 | K=1.0, with Pt100, M12 connector, Pg13.5, 120 mm |
| 20/00442433 | 202922/10-0300-1003-84-413-83-0000-120/000 | K=3.0, with Pt100, M12 connector, Pg13.5, 120 mm |
| 20/00442434 | 202922/10-0300-1003-84-413-20-5000-120/000 | K=3.0, with Pt100, attached cable, Pg13.5, 120 mm |

Other versions on request!

Accessories for version with M12 connector

| Sales No. | Brief description |
|-------------|---|
| 20/00318906 | 4-pole cable connector M12 x 1, 713 series, angled (supplied without cable), gold-plated contacts |
| 20/00303681 | 25 m connecting cable, for self-assembly, 4-pole + screen |

Accessories for BlackLine Lf-EC

| Sales No. | Brief description |
|-------------|---------------------------------|
| 20/00452567 | immersion fitting, EL = 500 mm |
| 20/00452571 | immersion fitting, EL = 1000 mm |