

**MEA** Microelectrode Array



| MEA type                       | TiN electrodes, SiN isolator, and Ti contact pads<br>100/10-Ti, 200/10-Ti, 200/10iR-Ti, 200/30-Ti, 200/30iR-Ti, 200/30-Ti-stim with 8 stimulation electrodes, 500/10iR-Ti, 500/30iR-Ti, HexaMEA-Ti (10, 20, 30) | TiN electrodes, SiN isolator, and ITO contact pads<br>100/10-ITO, 200/30iR-ITO, HexaMEA-ITO (10, 20, 30) | ThinMEA<br>ThinMEA (180 µm) 100/10-ITO, ThinMEA (180 µm) 200/30iR-ITO | 3-D MEA-gr                             | EcoMEA               | FlexMEA                                                                                                                                                        |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature compatibility      | 0 °C to 125 °C                                                                                                                                                                                                  | 0 °C to 125 °C                                                                                           | 0 °C to 125 °C                                                        | 0 °C to 80 °C                          | 0 °C to 125 °C       | 10 °C to 40 °C                                                                                                                                                 |
| Dimensions (W x D x H)         | 49 mm x 49 mm x 1 mm                                                                                                                                                                                            | 49 mm x 49 mm x 1 mm                                                                                     | 49 mm x 49 mm x 180 µm (glass part)<br>8 g                            | 49 mm x 49 mm x 1 mm                   | 49 mm x 49 mm x 1 mm | 12 µm height                                                                                                                                                   |
| Weight                         | 8 g                                                                                                                                                                                                             | 8 g                                                                                                      | 8 g                                                                   | 8 g                                    | 8 g                  | < 1 g                                                                                                                                                          |
| Base material                  | Glass                                                                                                                                                                                                           | Glass                                                                                                    | Glass (on a ceramic carrier)                                          | Glass                                  | Gold                 | Polyimide 2611                                                                                                                                                 |
| Contact pad and track material | Titanium                                                                                                                                                                                                        | Indium tin oxide                                                                                         | Titanium                                                              | Platinum                               | Gold                 | Gold                                                                                                                                                           |
| Electrode diameter             | As specified; 10, 20, and 30 µm available                                                                                                                                                                       | As specified; 10, 20, and 30 µm available                                                                | As specified; 10 and 30 µm available                                  | 40 µm (at base)                        | 100 µm               | 30 µm                                                                                                                                                          |
| Interelectrode distance        | As specified; 100, 200, and 500 µm available; not applicable to Hexa (10, 20, 30) MEA layout                                                                                                                    | As specified; 100 and 200 µm available; not applicable to Hexa (10, 20, 30) ITO MEA layout               | As specified; 100 and 200 µm available                                | 200 µm                                 | 700 µm               | 200 µm (16 electrode version), 300 µm (36 electrode version), 600 to 700 µm (72 electrode version)                                                             |
| Electrode height               | Planar                                                                                                                                                                                                          | Planar                                                                                                   | Planar                                                                | Approx. 50 µm to 70 µm                 | Planar               | Planar                                                                                                                                                         |
| Electrode type                 | Titanium nitride                                                                                                                                                                                                | Titanium nitride                                                                                         | Titanium nitride                                                      | Platinum                               | Gold                 | Titanium nitride                                                                                                                                               |
| Isolation type                 | Silicon nitride 500 nm (PEVCD)                                                                                                                                                                                  | Silicon nitride 500 nm (PEVCD)                                                                           | Silicon nitride 500 nm (PEVCD)                                        | SU-8                                   |                      |                                                                                                                                                                |
| Electrode impedance            | 30 kΩ to 400 kΩ, depending on electrode type and diameter                                                                                                                                                       | 30 kΩ to 400 kΩ, depending on electrode type and diameter                                                | 30 kΩ to 400 kΩ, depending on electrode type and diameter             | approx. 400 kΩ (range from 250 to 500) | approx. 30 kΩ        | approx. 50 kΩ                                                                                                                                                  |
| Electrode layout grid          | 8 x 8 (100/10, 200/10, 200/10, 200/30, 200/30 i. r.), 6 x 10 (500/10 i. r., 500/30 i. r.), hexagonal (Hexa (10, 20, 30))                                                                                        | 8 x 8 (100/10, 200/30 i. r.), hexagonal (Hexa (10, 20, 30))                                              | 8 x 8                                                                 | 8 x 8                                  | 8 x 8                | 4 x 4 (14 electrode version), 6 x 6 (32 electrode version), 9 x 8 (72 electrode version)                                                                       |
| Number of electrodes           | 60<br><br>i. r. = with internal reference electrode<br><br>Optional: with 8 stimulating electrodes                                                                                                              | 60<br><br>i. r. = with internal reference electrode                                                      | 60<br><br>i. r. = with internal reference electrode                   | 60                                     | 60                   | Versions with 14, 32, and 72 electrodes available<br>14 and 32 electrode versions with 2 reference electrodes<br>32 electrode version with 2 ground electrodes |

The product type specifies the interelectrode distance and the electrode diameter, that is, 100/10 means 100 µm interelectrode distance and 10 µm electrode diameter.

**Culture chambers for MEAs**

|                     | Glass ring (-gr) | Plastic ring without thread for a lid (-pr) | Plastic ring with thread for a removable lid (-pr-T) | No ring for custom use (-w/o) |
|---------------------|------------------|---------------------------------------------|------------------------------------------------------|-------------------------------|
| Inner diameter (ID) | 20 mm            | 26 mm                                       | 26 mm                                                | -                             |
| Outer diameter (OD) | 24 mm            | 30 mm                                       | 30 mm                                                | -                             |
| Height              | 6 mm             | 6 mm                                        | 6 mm                                                 | -                             |
|                     |                  |                                             | with screw thread for lid                            |                               |