Technical Data Sheet

Round Well Plate (48 well MTP, round well) MTP-R48-XXXX

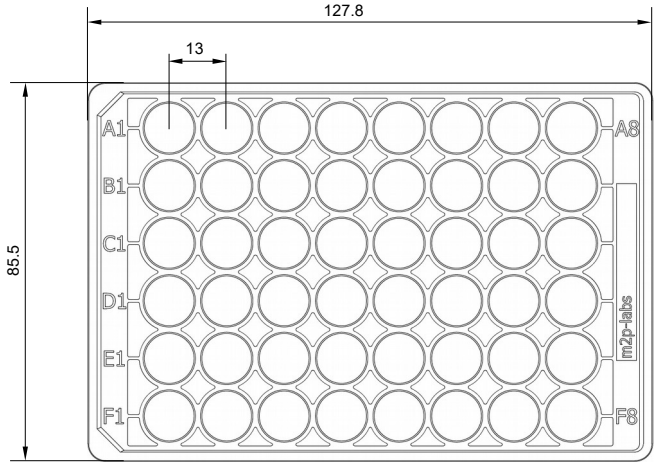
Flat bottom, round well, high-purity polystyrene

Technical parameters

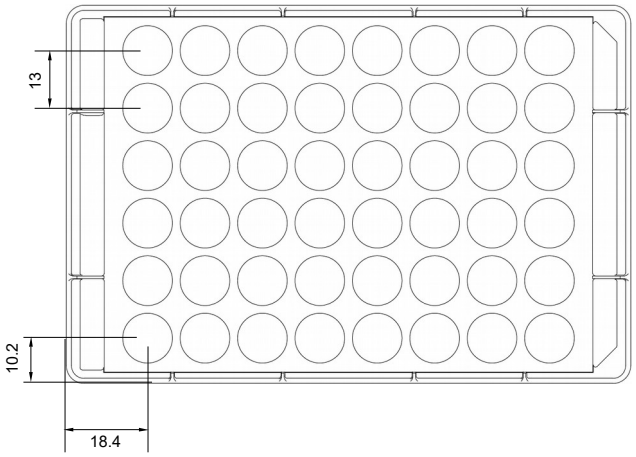
Specification	Description
Type	- High-purity polystyrene microplate - 48 round wells - Transparent polystyrene flat bottom *1 - Free of heavy metal
Dimension (standard SBS/ SLAS footprint)	- Length: 127.8 mm - Width: 85.5 mm - Height: 35 mm - Cavity depth: 33 mm
Volume / well	- Total well volume: 3600 µL - Working volumes: refer to next page - Note: Maximum filling volumes may vary with altered characteristics of fermentation broth
Technical data (performance)	- Refer to next page for detailed data on OTR within recommended conditions - Approx. range of OTR: 5 – 25 mmol/L/h - Approx. range of k_La: 30 – 160 h^{-1} - No optical cross talk from well to well (black plate corpus) - Range of operation temperature: -20 – 60 °C
Measurement options	- Biomass (via scattered light) *1 - Fluorescence (intensity measurement) *1 - pH value with pre-calibrated optodes *1 *2 - DO (dissolved oxygen)with pre-calibrated optodes *1 *2
Sterilization	- 20 kGy (ß-radiation) - Sterile packed (single plate)
Other information	- Sedimentation of biomass may occur at shaking frequencies lower than 600 rpm *3 - Autoclavability: no - For single use only - Centrifugation: max. 4000 x g - (with swinging-bucket rotor for microplates)

MTP geometry for automation purpose [mm]

Top



Bottom



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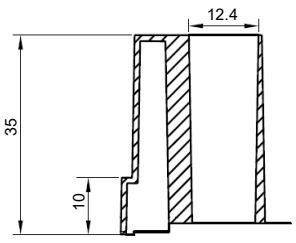

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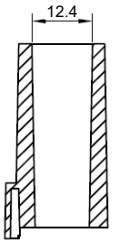

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OTR: Oxygen transfer rate [mmol/L/h]
k_La: Volumetric oxygen transfer coefficient [h^{-1}]
*1: Not for MTP-R48-OFF
*2: Not for MTP without optodes
*3: Shaking diameter 3 mm (measured in BioLector®)

Round Well Plate (48 well MTP, round) MTP-R48-XXXX

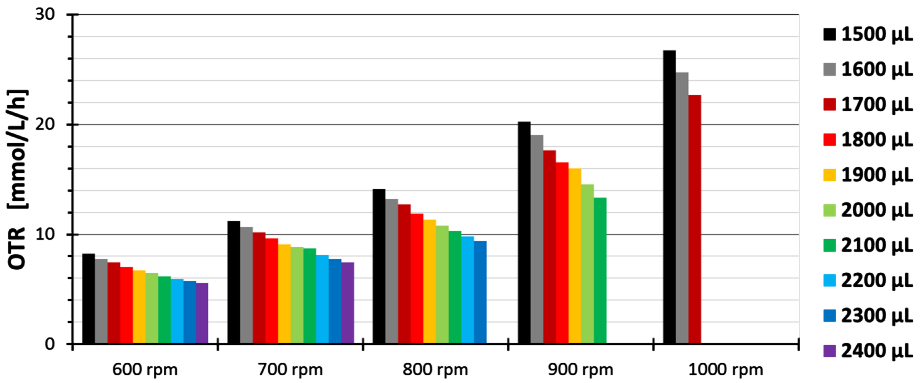
Flat bottom, round well, high-purity polystyrene

Operating conditions in the Round Well Plate

Working volumes *4

Shaking frequency	Maximum filling volume *6	Minimum filling volume
600 rpm	2400 µL	1000 µL
700 rpm	2400 µL	1000 µL
800 rpm	2300 µL	1000 µL
900 rpm	2100 µL	1000 µL
1000 rpm	1700 µL	1000 µL

Oxygen transfer rates for the recommended conditions *4 *5



Optode (optical sensor spots) parameters

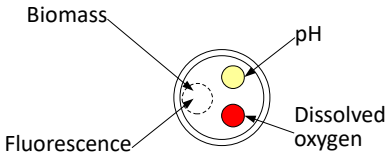
Dissolved oxygen measurement	MTP-R48-BOH1	MTP-R48-BOH2	MTP-R48-BOH3
Measurement range	0 – 100 % O_2 (air saturation)	0 – 100 % O_2 (air saturation)	0 – 100 % O_2 (air saturation)
Accuracy (depending on batch calibration)	± 5 % dissolved oxygen (DO)	± 5 % dissolved oxygen (DO)	± 5 % dissolved oxygen (DO)
Wavelength	ex.: 520 nm; em.: 600 nm	ex.: 625 nm; em.: 775 nm	ex.: 625 nm; em.: 775 nm
Response time (t90)	At 25 °C < 30 s	At 25 °C < 30 s	At 25 °C < 30 s
Temperature range	15 – 50 °C	10 – 40 °C	10 – 40 °C
Compatibility (useable with)	pH 1 – 14, CO_2, H_2S, SO_2, salinity	ethanol (≤ 5 % v/v), methanol (≤ 5 % v/v)	ethanol (≤ 5 % v/v), methanol (≤ 5 % v/v)
Cross sensitivity to	Organic solvents (acetone, chloroform, ...)	Organic solvents (acetone, chloroform, ...)	Organic solvents (acetone, chloroform, ...)

pH measurement	MTP-R48-BOH1	MTP-R48-BOH2	MTP-R48-BOH3
Measurement range	4.5 – 7.5 pH	4.5 – 7.0 pH	4.0 – 6.0 pH
Accuracy (depending on batch calibration)	at pH = 7: ± 0.1 pH	at pH = 7: ± 0.1 pH	at pH = 5: ± 0.1 pH
Wavelength	ex.: 470 nm; em.: 525 nm	ex.: 508 nm; em.: 550 nm	ex.: 625 nm; em.: 750 nm
Response time (t90)	At 25 °C < 30 s	At 25 °C < 30 s	At 25 °C < 30 s
Temperature range	15 – 50 °C	15 – 50 °C	15 – 50 °C
Compatibility (useable with)	Aqu. solutions, ethanol (≤ 5 % v/v), methanol (≤ 5 % v/v)	Aqu. solutions, ethanol (≤ 5 % v/v), methanol (≤ 5 % v/v)	Aqu. solutions, ethanol (≤ 5 % v/v), methanol (≤ 5 % v/v)
Cross sensitivity	At red. ionic strength (< 100 mM); fluorescent metabolites in yellow/green wavelengths (GFP, Riboflavine, YFP)	At red. ionic strength (< 100 mM); fluorescent metabolites in yellow/green wavelengths (GFP, Riboflavine, YFP)	At reduced ionic strength (< 100 mM)

Available plate types

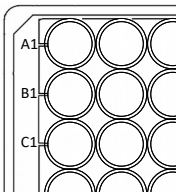
Art. No.	Description
MTP-R48-**B**	Round Well Plate (48 well MTP) without optodes
MTP-R48-**BH**	Round Well Plate (48 well MTP) incl. pH optode/well
MTP-R48-**BO**	Round Well Plate (48 well MTP) incl. DO optode/well
MTP-R48-**BOH1/2/3**	Round Well Plate (48 well MTP) incl. pH and DO optode/well
MTP-R48-**OFF**	Round Well Plate (48 well MTP) for offline cultivation (with non-transparent bottom)
BOH1/2/3	**BOH1**: HP8/PSt3 (ID 202/203); **BOH2**: LG1/RF (ID 221/228); **BOH3**: pH51/RF (ID 424/228)

Measuring position for

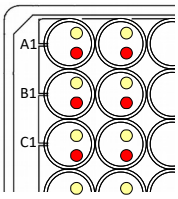


Configuration of optodes

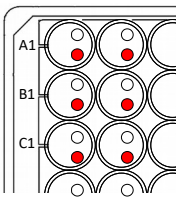
MTP-R48-B/OFF
No Optodes included



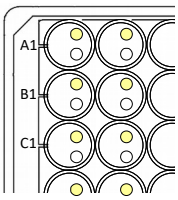
MTP-R48-BOHX



MTP-48-BO



MTP-48-BH



*4: Measured in BioLector®Pro (shaking diameter 3.0 mm, 25 °C, humidity off, horizontal alignment, test fluid: water with Coomassie Blue)

*5: OTR determined with aqueous sulfite oxidation system (0.5 M)

*6: Depending on the composition of the liquid medium, the maximum working volume at a defined shaking frequency may be less.

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