

NEXTERION® bonded substrates

Nexterion bonded products are used in applications which requires a structuring inside the substrate or chip. Bonded substrates are especially interesting for microfluidic applications like NGS, molecular diagnostics and life science research.

Manufacturing takes place in ISO class 5 environment, all relevant processes are in place for diagnostic company needs.

In the following an overview of the available bonding methods including design options.

Tape Bonding

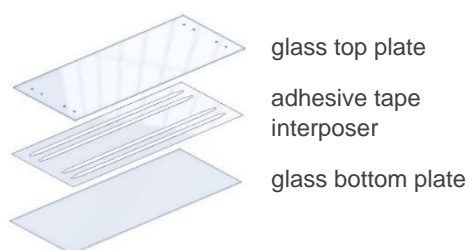
For all NEXTERION® taped-bonded products the channels are formed via adhesive tape. The channel depth is defined by tape thickness.

The bonding process takes place at room temperature. This allows an optional functional coating on either top or bottom plate.

Features

Material

- High-quality borosilicate glass
 - BOROFLOAT® 33
 - D 263® Family
 - Other glass materials upon request
- Polymer adhesive tape



Formats / Markings

- Outer dimensions: up to 150.0 mm
- Thickness of glass layers: 0.1 mm – 2.5 mm

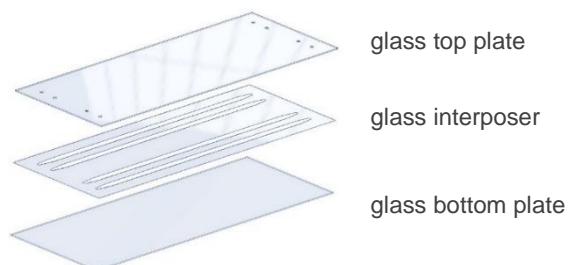
NEXTERION® Tape Bonding with adhesive tape interposer

Markings upon request

	Tape-formed Channel
Inlet / Outlet Hole Diameter	200 µm up to 2 mm
Channel Width	> 200 µm
Channel Depth	25 µm up to 150 µm
Distance between structures	> 1.0 mm
Channel roughness	Top / Bottom: < 1 nm

Fusion Bonding

All NEXTERION® fusion-bonded products are fully glass-based systems either in two or in three layer-designs. The layers are aligned and directly bonded via pressure contacting. The bonding occurs at temperatures of 500-600°C.



Three-layer design with laser-structured interposer



Two layer design with laser ablated channels

Features

Material

High-quality borosilicate glass

- BOROFLOAT® 33
- D 263® Family

Other materials upon request

Formats / Markings

- Outer dimensions: up to 150.0 mm
- Thickness of glass layers: 0.1 mm – 2.5 mm

Markings upon request

Structuring

	Interposer channel	Laser-ablated channel
Inlet / Outlet Hole Diameter	200 µm up to 2 mm	
Channel Width	> 200 µm	> 20 µm
Channel Depth	0.08 mm up to 1 mm Others on request	10 µm up to 100µm Others on request
Distance between structures	> 300 µm	20µm
Channel roughness	Wall: 1 µm Top / Bottom: < 1 nm	Wall: 5µm Top: < 1 nm Bottom: 1 µm
Taper Angle	< 1°	20°

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