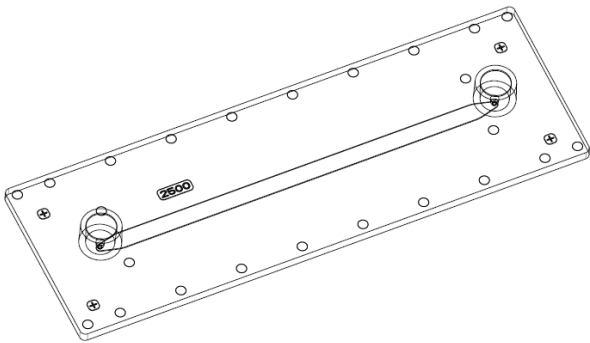


General Handling Guide - Open Chip Platforms for Self-Assembly

Example: Straight Channel Chip Fluidic 268 with Double-Sided Adhesive Tape



Introduction

The straight channel chip with double sided adhesive tape represents a microfluidic chip system for self-assembly that enables customized reagent and assay integration for various kinds of applications. For these purposes several chip types are at hand, having one or more integrated fluidic channels that remain open for manipulation at customer's side.

The chips are equipped with a double-sided adhesive tape in medical grade quality that has a thickness of 140 μm . The pre-cut adhesive tape is precisely mounted onto the blank chip with open channels. After processing at customer's side, the protective layer of the adhesive tape has to be removed to apply the cover lid of choice.

Please note: the channel depth of the finally assembled device will be the sum of the initial channel depth of the molded part plus the thickness of the adhesive tape.

Substrates to be mounted on the top can either be a thin foil, a slide of the same material or a glass slide.

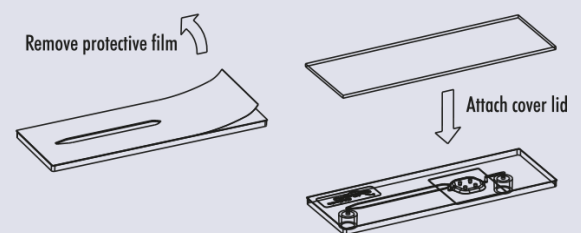
Application cases

Spotting

Customized reagent and assay integration, e.g. for the integration of protein or DNA arrays into chip modules

Readout

Hybrid chips e.g. with a glass cover lid



Customization - design rules

microfluidic ChipShop offers several standard formats for open chip platforms summarized in *Off-shelf open chip platforms for self-assembly*. However, in general most of our catalogue chips can be provided without a bonded cover lid and assembled with a precut adhesive, in order to connect the chip with a specific bottom of your choice.

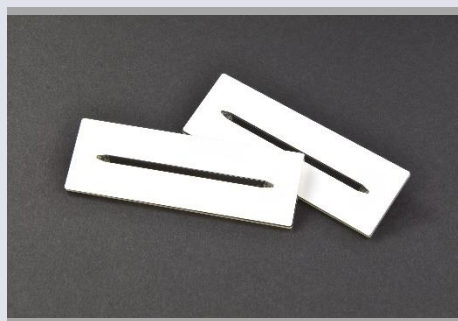
For customized open chip platforms, the following generic design rules, have to be taken under consideration:

- Minimum channel width that can be cut into the double-sided adhesive tape: 200 μm
- Minimum radius of curvature of the structures cut in one line in the tape: 500 μm
- Minimum distance between two adjacent cut-out structures: 1 mm
- The remaining tape film should have as much mechanical stability as possible for mounting onto the molded substrate. This means, the shorter the cut-out sections and the more widely spaced, the better.

Please contact our Marketing team at inquiries@microfluidic-ChipShop.com for feasibility and pricing.

Handling procedure

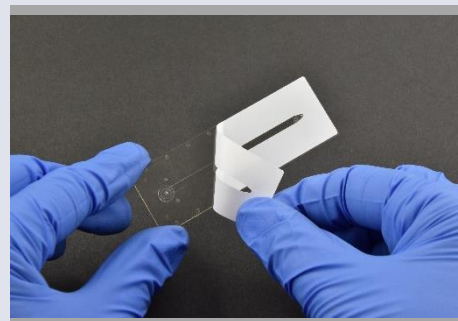
Though various designs for open chip platforms are available, their operation procedure is similar. As example the following step-by-step description highlights the handling of our straight channel chip Fluidic 268.



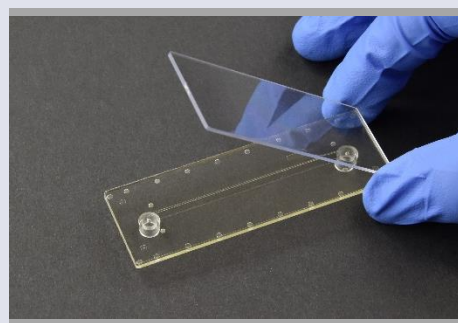
Fluidic 268, Straight Channel chip with double-sided adhesive tape



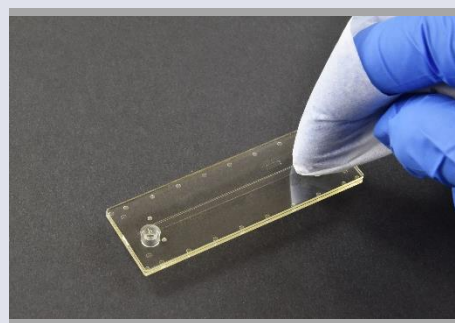
Peel off the protective film of the double-sided tape starting from one corner



Remove protective film in one quick movement



Attach a cover lid of choice aligned at one edge of the chip



Press the lid to remove trapped air especially where structures and interfaces are located

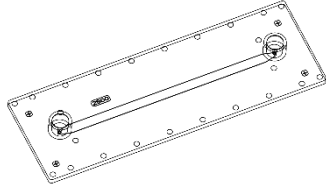
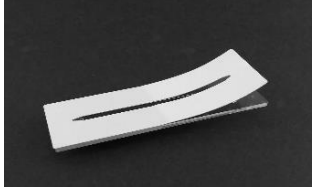
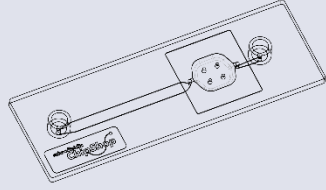
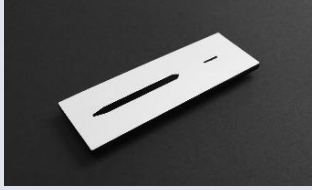
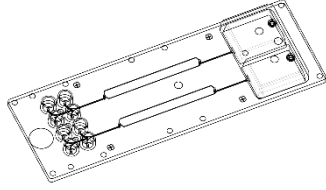
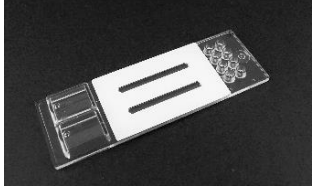
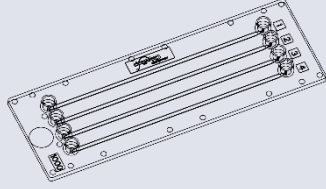
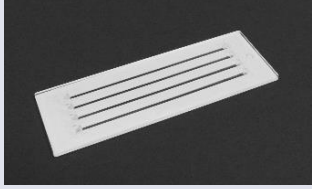


Check for remaining air inclusions by holding the chip against the light

General Handling Guide

Off-shelf open chip platforms for self-assembly

Several chip types are at hand, having one or more integrated fluidic channels that remain open for manipulation at customer's side. Available off-shelf open chip platforms for self-assembly are summarized below.

Description	Material	Product Code		
Fluidic 268 One channel chip	PMMA	10000376		
	Topas	10000306		
	Zeonor	10001136		
Fluidic 95 One channel chip with waste chamber	PMMA	10000429		
	Topas	10000417		
	Topas (black)	10000430		
Fluidic 272 Two channel chip with waste reservoir	PMMA	10000346		
	Topas	10000347		
Fluidic 138 Four channel chip	PMMA	10000313		
	Topas	10000307		