

# MedEco Thermoforming Guide

## Process information for MedEco XCB/XGH

Thermoforming is a manufacturing process that involves heating a plastic sheet until it's pliable and then shaping it over a mold using vacuum, pressure, or mechanical force. This guide gives a first indication of suitable parameters, but they highly depend on machine type and sheet thickness. Low temperatures compared to PETG allow for significant energy savings.

### Thermoforming methods

- ▶ Best results are achieved with plug-assisted, vacuum and pressure forming
- ▶ Simple tests with low downside vacuum are possible achieving a lower detail level

### Thermoforming process parameters

- ▶ Please assess the technical datasheet for basic material data
- ▶ Glass transition around 60°C enables thermoforming, so 70°C to 160°C is the broad range
- ▶ A good start are parameters of PETG and then decreasing the temperature
- ▶ **Lower surface temperatures (105-110°C) result in the highest ductility of the parts**

Parameter			Value	unit
	min	max	optimal	
Surface temperature - plug assist, vacuum + pressure	70	110	107	°C
Surface temperature - vacuum	100	160	120	°C
Surface temperature - low vacuum, manual operation	110	160	134	°C

### Cutting and Sealing

- ▶ Best practice are sealing layers below melting of the polymer
- ▶ Cutting is best at elevated temperatures around 40°C – 50°C
- ▶ Blisters can be sealed with short cycles at temperatures near the melt temperature around 200°C
- ▶ for more information please contact [be-green@biovox.systems](mailto:be-green@biovox.systems)

### Example

The following example has been thermoformed from 500 µm **MedEco XCB** sheet on a Koch Pac **KBS-C medplus®** blister machine. The surface heater was set to 107°C and pressure was +3.0 bar at the top side and -0.5 bar at the bottom side. Using only vacuum below the part it could successfully be formed at 120°C and -0.7 bar.



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