



# FLEX SOLUTIONS AVANT-GARDE

### Technology variants

PURE.flex	SLIM.flex
<p>PURE.flex 2F</p> <p>PURE.flex 2F-Ri (with stiffener)</p> <ul style="list-style-type: none"><li>Very thin flex film polyimide</li><li>Up to two copper layers</li><li>Partially reinforced by „stiffener“</li><li>Photosensitive solder mask or cover foil (Polyimide Coverlay)</li><li>Delivered individually or as panel array</li></ul>	<p>SLIM.flex 4F-Ri in Anylayer microvia technology</p> <ul style="list-style-type: none"><li>Anylayer microvia flex technology</li><li>Very thin</li><li>Highly resilient, robust</li><li>Flexible and reliable</li><li>Impedance-defined structure possible</li><li>Optionally with solder carrier and stiffener</li></ul> <p><b>Applications</b></p> <ul style="list-style-type: none"><li>Vision technologies</li><li>Medical technologies</li><li>Sensor technologies</li><li>High-tech cable harness</li></ul>
Number of copper layers: 1 to 2	Number of copper layers: 3 to 8

### Design Chain

Idea  
Concept

Specification

Mechanics  
development

Software  
development

Electronics  
development

PCB design

Projects with Flex solutions: Interdisciplinary collaboration during development is essential!

### MECHANICS

- Always provide large contour radii (inner and outer radii) in the flex areas (design suitable for plastics)
- If necessary, provide registration holes for bonding reinforcements or heatsinks
- Arrange flex extensions to save space, combine several extensions if possible, use folding technology

Folded to final shape →

Rigid area

Large contour radii

Notch – danger of tearing

### Standard Stackups

<p><b>PURE.flex</b> <a href="https://www.we-online.com/pureflex-stackups-en">https://www.we-online.com/pureflex-stackups-en</a></p>	<p><b>SLIM.flex</b> <a href="https://www.we-online.com/slimflex-stackups-en">https://www.we-online.com/slimflex-stackups-en</a></p>
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### Combination with other technologies

It is possible to combine flex solutions with other technologies, for example with

- High Density Interconnect MICROVIA.hdi
- DEVICE.embedding
- Printed Polymer
- Heatsink

Adaptation of the individual design rules is usually necessary for this purpose.

### PCB Design

#### Design Rules

Our Design Rules cover all the important parameters you need to make your project successful. Basically, the rules for conductor widths, distances, via and pad sizes as well as for the solder mask apply, which you can find in our BASIC Design Rules.

[https://www.we-online.com/designrulesbasic\\_en](https://www.we-online.com/designrulesbasic_en)

Based on this, the sectional design rules apply to

- PURE.flex ([https://www.we-online.com/designrulespureflex\\_en](https://www.we-online.com/designrulespureflex_en))
- SLIM.flex ([https://www.we-online.com/designruleslimflex\\_en](https://www.we-online.com/designruleslimflex_en))

[https://www.we-online.com/designguideflex\\_en](https://www.we-online.com/designguideflex_en)

In our Design Guide for Flex Solutions you will find an overview of all variants of our flex solutions plus some valuable design tips to bring your application to success, reliably and safely.

### SLIM.flex – Any layer microvia technology

Example: SLIM.flex 6F

left schematic stackup 0.30 mm thick  
right cross sectional picture from a product

BGA pitch 0.40 mm with microvia-in-pad, flat surface

BGA pitch 0.35 mm in the EDA tool

### Solder carriers for thin PCBs / substrates

For the assembly of thin substrates with standard processes, for example in SLIM.flex and PURE.flex technology, there is a simple option with a solder carrier in various designs. The contour is laser-cut and held in place with micro bars for easy removal and separation from the solder carrier.

Removal and separation from the solder carrier:  
<https://www.we-online.com/video-slimflex-en>

**Examples:**

View from solder carrier side: Simple solder carrier for flexible PCBs, assembled on one side

Solder carrier for PCB with thickness reduced stiffener. Left: TOP, right: BOT solder carrier

View from PCB side: soldering carrier with PURE.flex PCB cut out

Solder carrier for PCB with ZIF contact

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