

Co-Packaged Optics

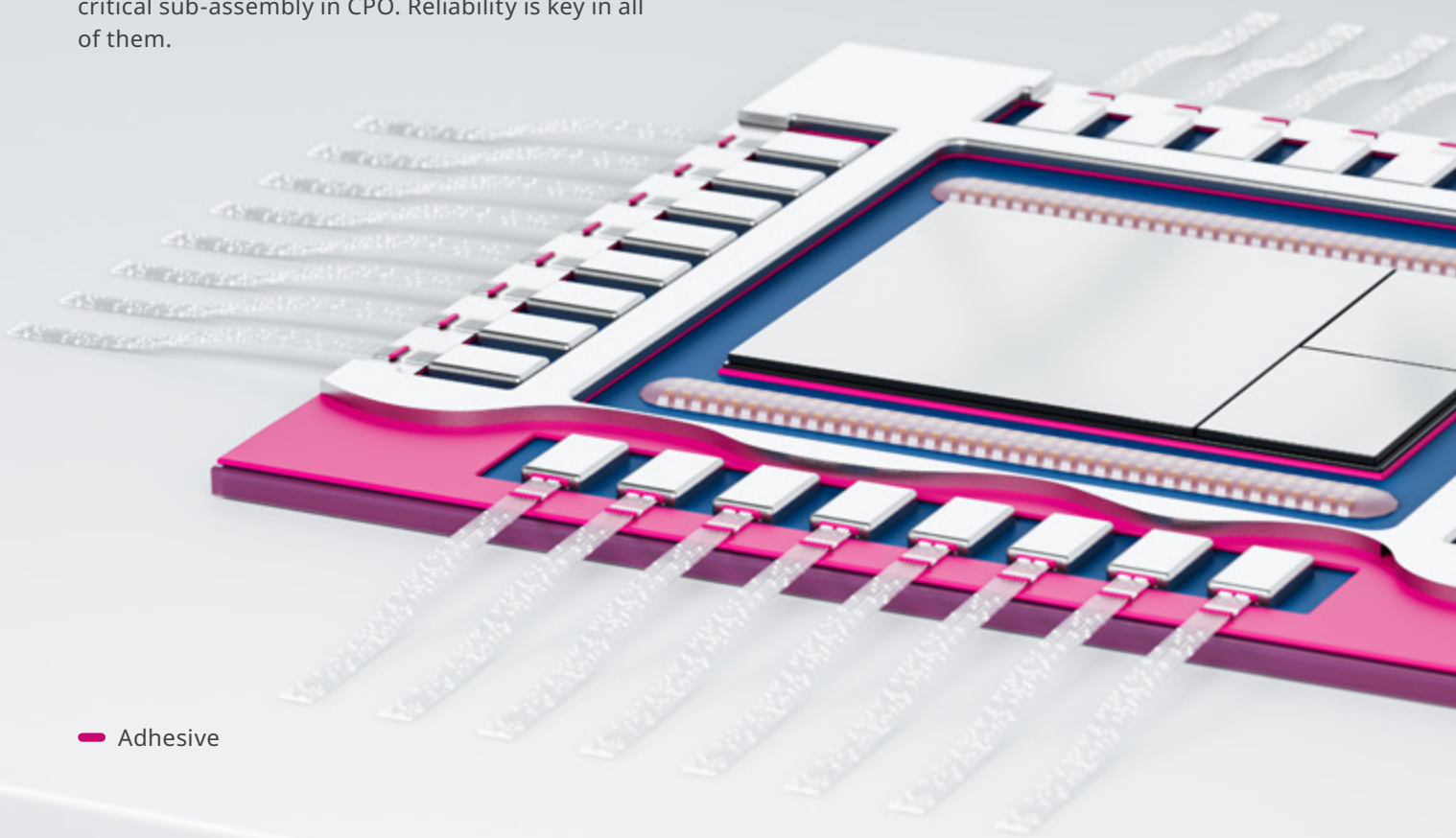
High-Performance Adhesives

for computing with light speed.

DELO adhesives for Co-Packaged Optics (CPO) combine **UV fixation for short cycle times** with stability under harsh testing conditions, backed by our globally acknowledged **alignment expertise**.

Whether for **alignment and coupling methods** or structural bonding tasks, our adhesives cover every critical sub-assembly in CPO. Reliability is key in all of them.

Discover which adhesive from DELO's portfolio matches your production process and ensures **stable, durable bonding for long-lasting**, high-speed computing.



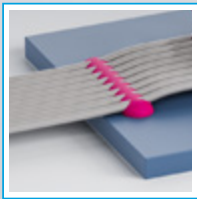
Precision bonding

Powering the next generation of computing.



Sealing

Protection of sensitive optical elements



Strain relief

Tension equalizing

Coupling

Highly precise alignment of optical elements



Edge coupling



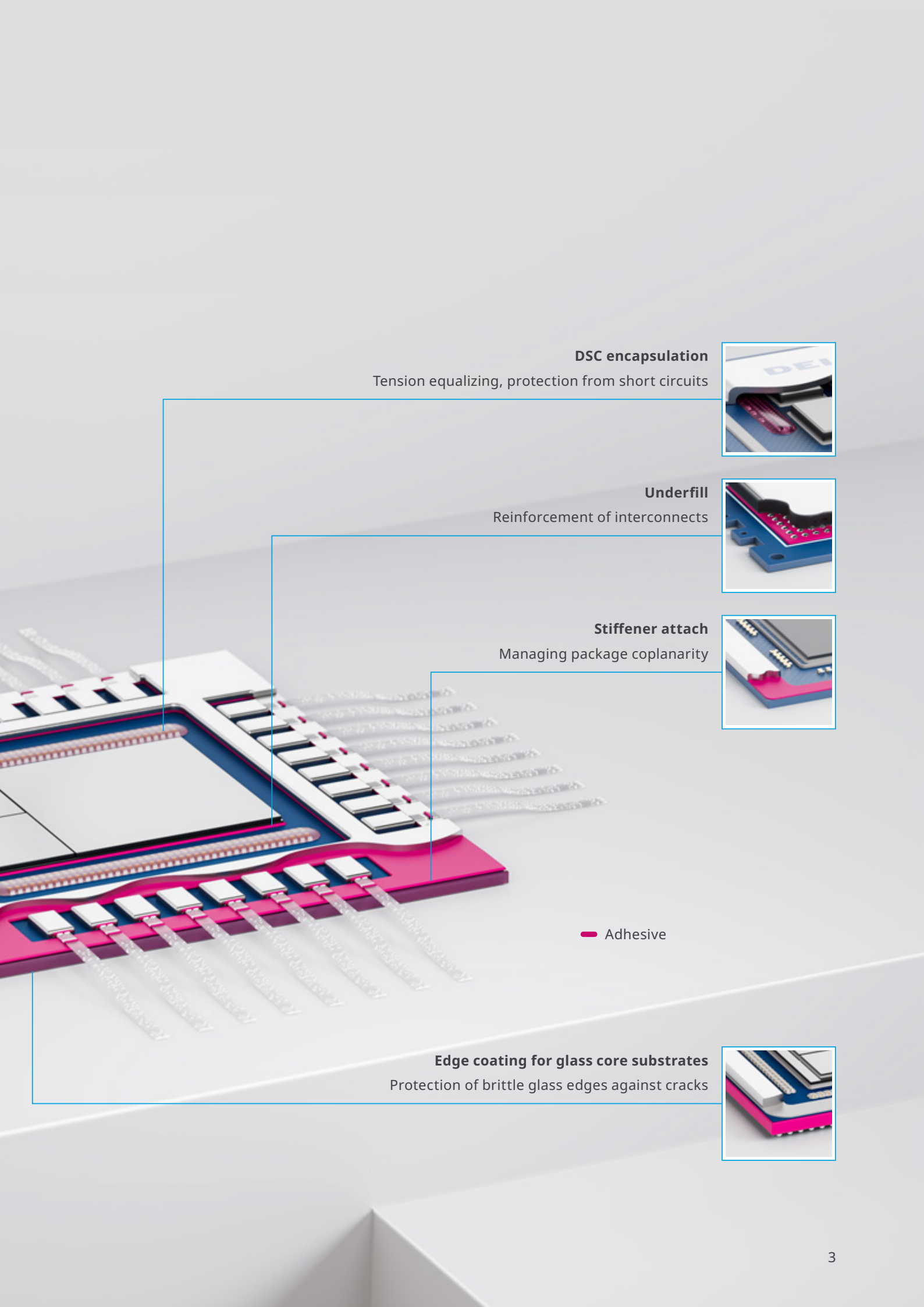
V-groove bonding



Detachable connector



Expanded beam connector with MLA



DSC encapsulation

Tension equalizing, protection from short circuits



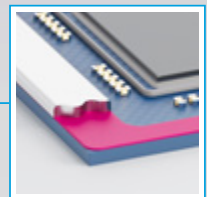
Underfill

Reinforcement of interconnects



Stiffener attach

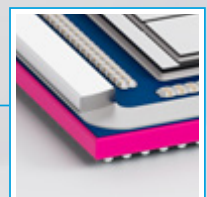
Managing package coplanarity



— Adhesive

Edge coating for glass core substrates

Protection of brittle glass edges against cracks



Adhesive applications and properties in CPO

Edge coupling	V-groove bonding	Detachable connector	Expanded beam connector with MLA
Adhesive outside or inside the light path (between fiber and PIC)	Bonding of fibers into V-grooves and passive fiber to PIC alignment	Several bonding tasks with different uses	Adhesive in light path between FAU and MLA and MLA and PIC
› Inside: high transmission, RI matching › Outside: fast UV-fixation, low shrinkage › Goal for both: minimizing coupling loss	› Optimized flow and wetting behaviour › Reflow and humidity stable › Minimized and repeatable shrinkage	› Strain relief: tension equalizing › Sealing: protection of sensitive optical elements › Receptacle bonding: alignment of receptacle to fiber	› High transmission in O- / C-band › RI-matching › Minimizing coupling loss
Edge coating for glass substrates	Underfill	DSC encapsulation	Stiffener attach
Protection of brittle glass edges against cracks	Reinforcement of interconnects	Protection from short circuits	Managing package coplanarity
› Reflow stable › Passes JEDEC MSL › UV-curable	› Optimized flow behavior into smallest gaps › Excellent thermo-mechanical performance › Low die-electric properties (Dk / Df)	› Minimized adhesive layer thickness › Highest UPH (jet-dispensing + UV curing) › uHast and JEDEC MSL1-stable	› Stable bond line thickness › Adaptability to thermal stress › Compensating thermo-mechanical mismatch
Sealing	Strain relief	Receptacle bonding	
Protection of sensitive optical elements	Tension equalizer for fibers / FAUs	Alignment of receptacle to PIC	
› Hermetic sealing or dust sealing › Low outgassing › Can also be used for component fixation	› CTE, Young's Modulus and elongation matching substrates › Good peel resistance › Curing in shadow zones	› Fast UV-fixation › Minimal and reproducible shrinkage › Reflow and humidity stable	



Visit our website.

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Any questions?

photonics@delo.de

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The data and information provided are based on tests performed under laboratory conditions. Reliable information about the behavior of the product under practical conditions and its suitability for a specific purpose cannot be concluded from this. It is the customer's responsibility to test the suitability of a product for the intended purpose by considering all specific requirements and by applying standards the customer deems suitable (e. g. DIN 2304-1).

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