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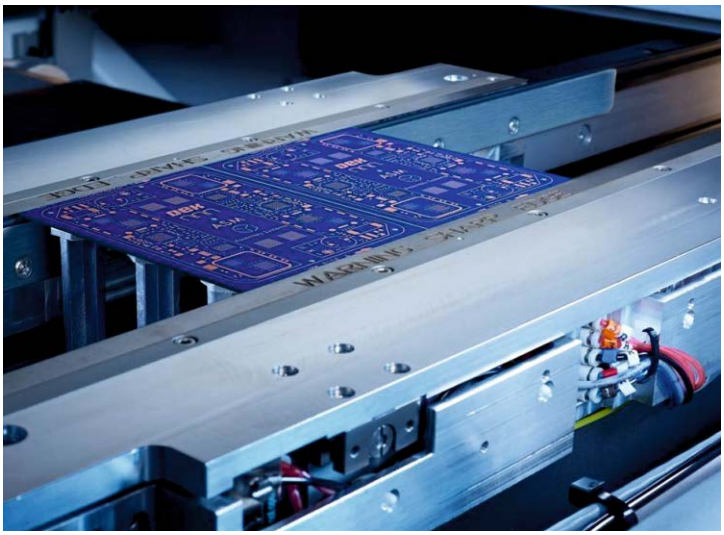

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# DEK APC (All Purpose Clamping)
## Technical Specification

04/2017 Edition

# DEK All Purpose Clamping (APC)

## Description

APC is a substrate clamping system which clamps the substrate flat (eliminating warpage) to enable good tooling contact. Subsequently if desired, the substrate is snugged and the top clamps retract from the substrate top surface to allow close to the edge printing and direct contact of the stencil to the board all the way to the board edges.

APC automatically adjusts for variation in board thickness, eliminating set-up requirements between production batches and compensating for any thickness variation within the batch. APC also has a compliant rear clamp, which automatically adjusts for out of parallel boards.

APC has three modes of operation. As all modes are software controlled via the program, there is no mechanical changing of parts or operator assistance needed to change modes. The three modes are:

1. Clamp- Standard Over The Top clamping (DEK standard foil system)
2. Snug– Clamp, Snug, Clamp Retract
3. Snug and Clamp – Standard Over The Top clamping plus Snug functionality.

Available on the following transport system: Modular Rails.
Compressed air supply min. 0.6Mpa (6bar), max. 0.8 Mpa (8bar), 5 litre/min required for APC

## Function

The full APC clamp/unclamp sequence in Snug Mode is as follows,

**APC Clamp**

- Clamps pull substrate flat
- Snugger engages substrate
- Clamps withdraw from the substrate top surface and sit level with the substrate top surface.

**APC Unclamp**

- Snugger disengages substrate.
- Clamps raise, allowing the release of the substrate, then extend to wait for next board.

The Clamp and the Snug pressures are stored in the product file as they are Product Specific settings.

# DEK All Purpose Clamping (APC)

| Substrate Handling | Specification |
|---|---|
| Rail Type | Modular Rails with Dual Speed Motors is standard with APC for all NeoHorizon 03ix and 01ix models, and not available on any HTC transport system |
| Minimum Substrate Size | Host capability not affected by option |
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| Minimum Substrate Thickness | 0.5mm* |
| Maximum Substrate Thickness | 6.0mm |
| Maximum Substrate Warpage | Board Thickness + Warpage = < 6mm (also substrate rigidity in relation to snug force to overcome) |
| Maximum Substrate Weight | Host capability not affected by option |
| Minimum AWSM Width | 562mm minimum stencil frame size required (using standard 30mm stencil supports) |
| Clamp Length | 380mm |
| Clamp Modes | Clamp<br>Snug<br>Snug and Clamp |
| Clamp Force Setting | 1.5 to 5 bar |
| Snugger Length | 356mm |
| Snug Force Setting | 20 to 60 Newtons |
| Clamp Overhang on Substrate | 1.5mm (Maximum per clamped edge) |
| Transport Direction | Host capability not affected by option |
| Underside Edge Support Thickness | 3.5mm (Maximum per clamped edge) |
| Underside Edge Support Length | Standard 500mm |
| Component Under Clearance | Host capability not affected by option |
| ESD Compatibility | Yes |
| Substrate Edge Straightness | +/- 0.05mm |
| Substrate Edge Parallelism | +/- 0.5mm |
| Board Aspect Ratio | Host capability not affected by option |
| Transport Height | Host capability not affected by option |
| Core Cycle Time | 8 seconds** for both NeoHorizon 03ix and 01ix when using Over the Top Clamping Mode (standard foils) |

* Theoretical minimum, in practice this is dictated by the ability of the substrate to withstand a snugging force and the belt compression of the Modular Rail system. Vacuum tooling is recommended for products 1mm in thickness or less.

** Using the Snug or Snug & Clamp mode will incur an extra time penalty of up to one second, as measured in seconds using the ASM defined core cycle time test parameters, for details contact the Product Manager.

# DEK All Purpose Clamping (APC)

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# Notes

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