ASM Stencil and frame technologies
Improving the print process and boosting throughput
ASM Stencil and frame technologies

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Stencil technologies

As the market leader in mass imaging technology development, ASM understands the complete printing process. Not only is the printing platform capability vital to process success; the stencil quality, integrity and precision are also essential for high-yield print outcomes. The portfolio of award-winning DEK stencil and frame solutions is unmatched, delivering adaptable, superior quality products for standard SMT applications through to the most advanced assemblies.

Stencil coating technologies

DEK Stencil nano coating technologies encourage more efficient paste release from stencil apertures by coating the aperture walls and/or the underside of the stencil with a thin, fluxophobic material that helps prevent flux and solder residue from remaining on the underside of the stencil following a print cycle.

In addition to encouraging more effective paste release, the nano coating prohibits residues from sticking to the stencil surface, thereby reducing cleaning frequency, saving time and lowering the costs associated with the cleaning process.
DEK VectorGuard™ frame solutions

ASM’s patented, award-winning DEK VectorGuard™ System is the industry standard for high-performance stencil frame technology to facilitate fast changeover, tension control and longer lifetime.

ASM invented the unique DEK VectorGuard™ single-frame stencil system and replaced older industry mechanisms that were cumbersome, malfunction-prone and unsafe for operators with a simple, air pressure-controlled frame design. Today, DEK VectorGuard™ is the industry benchmark for high quality stencil technologies, ideal for fast changeover and product adaptability.

In addition to its changeover advantages, DEK VectorGuard™ delivers consistent tension over the life of the stencil. Traditional mesh-mounted stencils have initial high tension but, with use and cleaning, the elasticity of the stencil mesh can weaken, resulting in areas of “sag” that can adversely affect stencil aperture to pad alignment and printing yields.

Features and benefits:
- Unique mechanical tensioning system that secures the foil in the frame
- Evenly distributed tension across the entire stencil
- Greater, more consistent tension over the life of the stencil as compared to mesh mounted stencils
- No epoxy bonds that can degrade or break down over time
- Easy-to-use and operator-safe
- Reduces stencil storage space requirements by as much as 75%
- Global availability and support

The DEK VectorGuard™ frame system is available in both a classic version and a high tension version to address varying manufacturing needs.

DEK VectorGuard™ Classic frame

The proven, original DEK VectorGuard™ Classic frame system is ideal for standard SMT processes that do not generally employ ultra-fine-pitch, highly miniaturized dimensions. Cost-effective and versatile, DEK VectorGuard™ Classic delivers the benefits of quick changeover, simplified storage, operator safety and low cost-of-ownership.

DEK VectorGuard™ High Tension frame

DEK VectorGuard™ High Tension frame, which is compatible with all DEK VectorGuard™ foils, is designed specifically for processes that integrate miniaturized dimensions and require extreme solder paste deposit definition. The DEK VectorGuard™ High Tension frame provides 45% greater tension than the DEK VectorGuard™ Classic frame, facilitating superior material transfer efficiency for small dimension printing.
## DEK VectorGuard™ FRAME

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
<th>Available stencil types</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP</td>
<td>DEK</td>
<td>Stainless steel</td>
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<tr>
<td>03128711</td>
<td>800023 VG260 High Tension 23 x 23 x 1.2&quot; (584 x 584 x 30 mm)</td>
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</tr>
<tr>
<td>03140822</td>
<td>800028 VG260 High Tension – green frame* 23 x 23 x 1.2&quot; (584 x 584 x 30 mm)</td>
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<tr>
<td>03130410</td>
<td>800029 VG265 wide High Tension 29 x 29 x 1.2&quot; (736 x 736 x 30 mm)</td>
<td>•</td>
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<tr>
<td>03130429</td>
<td>800039 VG265 High Tension 29 x 23 x 1.2&quot; (736 x 548 x 30 mm)</td>
<td>•</td>
</tr>
<tr>
<td>03130213</td>
<td>430584 VG248 23 x 23 x 1&quot; (584 x 584 x 26.4 mm)</td>
<td>•</td>
</tr>
<tr>
<td>03128796</td>
<td>430585 VG260 23 x 23 x 1.2&quot; (584 x 584 x 30 mm)</td>
<td>•</td>
</tr>
<tr>
<td>03161714</td>
<td>800043 VG260 -- green frame* 23 x 23 x 1.2&quot; (584 x 584 x 30 mm)</td>
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<td>03130214</td>
<td>430586 VG265 29 x 29 x 1.2&quot; (584 x 736 x 30 mm)</td>
<td>•</td>
</tr>
<tr>
<td>03130215</td>
<td>430587 VG265 wide* 29 x 29 x 1.2&quot; (584 x 736 x 30 mm)</td>
<td>•</td>
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<tr>
<td>03132464</td>
<td>186770 VG 650 x 550 650 x 550 mm</td>
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</table>

Notes:
1. Only for DEK 248 machines
2. Limited stencil thickness 5, 6, 7 and 8 mils
3. For thin DEK VectorGuard™ platinum stencils. For details please contact your ASM account manager.
4. Green anodized frame signifying lead free process

## DEK VectorGuard™ ACCESSORIES

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP</td>
<td>DEK</td>
<td></td>
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<tr>
<td>03130337</td>
<td>430905 Wash-frame for VG260 stencils</td>
<td>Bottom profile 40 x 40 mm, VG stencil to slide in from the top</td>
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<tr>
<td>03134876</td>
<td>430906 Wash-frame for VG265 stencils</td>
<td>Bottom profile 40 x 40 mm, VG stencil to slide in from the top</td>
</tr>
<tr>
<td>03130339</td>
<td>430907 Wash-frame for VG265 wide stencils</td>
<td>Bottom profile 40 x 40 mm, VG stencil to slide in from the top</td>
</tr>
<tr>
<td>03127432</td>
<td>430887 Repair kit without tools</td>
<td>Kit includes all materials to re-tube a frame</td>
</tr>
<tr>
<td>03131166</td>
<td>186680 Pneumatic fitting</td>
<td>Tube fitting to connect to the tube (red head)</td>
</tr>
<tr>
<td>03128887</td>
<td>430646 Sidebar set to adapt 23&quot; frame to 29&quot;</td>
<td>Adaptor bars to adapt a 23 x 23&quot; or 23 x 29&quot; to a 29 x 29&quot; size</td>
</tr>
<tr>
<td>03132625</td>
<td>431249 Sidebar set to adapt 17&quot; frame to 23&quot;</td>
<td>Adaptor bars to adapt a 17 x 17&quot; to a 23 x 23&quot; size</td>
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<tr>
<td>03130217</td>
<td>430647 Foot pedal kit</td>
<td>Only need as an additional kit</td>
</tr>
<tr>
<td>03138776</td>
<td>168626 BOM 248 VG ROLLER SET OF 4</td>
<td>VG roller set to load VG frame into DEK 248 printer</td>
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<tr>
<td>03132620</td>
<td>430022 AIR PRESSURE FITTING</td>
<td>Replacement air fitting for VG frames</td>
</tr>
<tr>
<td>03133878</td>
<td>430451 VG ESD Cassette 23x23&quot; Black</td>
<td>ESD storage cassette for VG (23&quot;x23&quot;) stencil, black</td>
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<tr>
<td>03133877</td>
<td>430452 VG ESD Cassette 23x29&quot; Black</td>
<td>ESD storage cassette for VG (23&quot;x29&quot;) stencil, black</td>
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<tr>
<td>03132622</td>
<td>430609 ESD Plastic Cassette Hook</td>
<td>ESD Hook for ESD storage cassette</td>
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<tr>
<td>03130224</td>
<td>431394 Pressurebooster</td>
<td>Pressure booster for VG high tension frame loading/unloading</td>
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<tr>
<td>03138778</td>
<td>800033 Tool kit VG System Level 1 Basic Maintenance</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>03138779</td>
<td>800034 Tool kit VG System Level 2 Maintenance &amp; Certification</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>03138780</td>
<td>800036 Tool kit VG System Level 2 Upgrade</td>
<td>Please contact your local PSP sales representative</td>
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<tr>
<td>00152975</td>
<td>800050 Annual Maintenance VG 23x23 (30 mm)</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152976</td>
<td>800051 Annual Maintenance VG 23x29</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152977</td>
<td>800052 Annual Maintenance VG 29x29</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152979</td>
<td>800053 Calibration &amp; Certification VG 23x23 (30 mm)</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152980</td>
<td>800054 Calibration &amp; Certification VG 23x29</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152981</td>
<td>800055 Calibration &amp; Certification VG 29x29</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152966</td>
<td>800059 Annual Maintenance VG 23x23 (26 mm)</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>00152978</td>
<td>800060 Calibration &amp; Certification VG 23x23 (26 mm)</td>
<td>Please contact your local PSP sales representative</td>
</tr>
<tr>
<td>03137294</td>
<td>800062 Annual Maintenance VG 600x550 / VG 650x550</td>
<td>Please contact your local PSP sales representative</td>
</tr>
</tbody>
</table>
DEK VectorGuard™ FRAME SOLUTIONS, SIZES

VG 260
P/N 430585

23" (584 mm)

VG 260 Centre adapted
P/N 430585 with
P/N 430646

29" (736 mm)

VG 265
P/N 430586

29" (736 mm)

VG 265 Adapted
P/N 430586 with
P/N 430646

550 mm

VG 260 Front adapted
P/N 430585 with
P/N 430646

29" (736 mm)

VG 265 wide
P/N 430587

600 mm

VG Asia
600 x 550 mm

VG Asia
Adapted
650 x 550 mm

600 mm

650 mm
DEK Mesh-mounted frame solution

Robust aluminum construction to exact manufacturing specifications ensures DEK Mesh-mounted frames provide optimum stencil stability for modern SMT print processes.

ASM can provide DEK Mesh-mounted frames in a variety of sizes:
- DEK 260 23” x 23” (40 mm x 584 mm x 584 mm)
- DEK 265 29” x 29” (40 mm x 736 mm x 736 mm)
- 40 mm x 600 mm x 550 mm
- 40 mm x 650 mm x 550 mm
- Space saver 29” x 29” (10 mm x 736 mm x 736 mm)

By request, non-standard framed stencils can be supplied; please contact your local representative.
ASM: Stencils from the global No. 1

ASM is the world’s largest manufacturer of stencils for industrial printing applications. One special feature: All of ASM’s factories and partners in the global stencil network operate with the same materials and the same equipment in accordance with strict, certified procedures. This ensures that customers – irrespective of their location – receive their stencils not only quickly, but with a consistently high level of quality.

Stencils are a critical component in the printing process, starting with the selection of the right material and production technology. With its own facilities and a global network of franchise partners, ASM ensures that all customers receive top-quality products and services. Our consulting services are competent and personal, and our ordering processes are local and easy to use. The tight ASM stencil network ensures short distances and quick deliveries in as little as 4 hours with our premium rush option.

**All technologies**

Modern stencil technologies are highly diverse with materials like standard or fine-grain stainless steel, nickel and production technologies like laser-cutting or e-forming, single-level or multi-level apertures, coated or uncoated stencils, and a whole lot more. From laser-cut stainless-steel stencils to multi-level e-formed stencils for ultra-fine-pitch applications – as the world’s largest stencil manufacturer, ASM covers all common stencil technologies and variants. This is a huge advantage and simplifies your operations significantly, particularly when you can depend on the extremely flexible and reliable support from a large global supplier to accommodate frequently changing applications and requirements.

**Dedicated toolings**

Many applications require special toolings to support the stencils. With ASM, you can get stencils and matching toolings from a single source.

**DFM HealthCheck**

As your partner, we check the Gerber or CAD data supplied by you for manufacturability. But that’s not all. We are the world’s only supplier that also provides the unique DFM HealthCheck as a service. We do this with our innovative ASM ProcessExpert system that simulates the printing process – virtually and based on your data.

The DFM HealthCheck identifies potential stencil-related process risks and supplies information about the ideal settings (paste, squeegee pressure, speed, coating, etc.) for the best possible printing process. As a result, you save lots of time and money during ramp-ups and new product introductions.

Take advantage of these benefits and place your trust in the expertise and strength of ASM, the world’s largest stencil manufacturer.

**NEW: ASM SmartStencil**

The tension of stencil is important for a good printing process quality and yield but stencils are losing tension over time (especially mesh mounted). As the only supplier of materials for the total printing process (ranging from printers to stencils to consumables), ASM has developed an RFID-based system for tracking each stencil across its entire service life. The ASM SmartStencil RFID tags are available for all stencils irrespective of their type (DEK VectorGuard™, DEK mesh-mounted frames or other systems) and material.

**For all printers and frames**

Process support products and stencils are a separate division at ASM. We supply not only electronics manufacturers running DEK printing solutions, but users of all other printer brands (including their manufacturers themselves). We supply frameless stencils, stencils for the well-known DEK VectorGuard™ and other framing systems, as well as classic mesh mounted framed stencils.
As a self-learning expert system, the DFM HealthCheck opens the door to a new set of capabilities. By simulating the print job based on the stencil’s Gerber data and an extensive process database, it stabilizes the production process already in the planning phase.
DEK Fine Grain stencils

Achieving a finer grain of stainless steel, DEK Fine Grain stencils provide superior paste release and a smoother stencil surface.

DEK Fine Grain stencils can be used with the DEK Mesh-mounted frames, DEK VectorGuard™ Classic and DEK VectorGuard™ High Tension frame systems. Fine grain stainless steel stencils provide smoother laser-cut aperture walls for improved paste release and better material transfer efficiency. A cost-effective alternative to nickel, fine grain stainless steel is ideal for challenging dimensions and high-density assemblies.

DEK Stencil solutions – stencil technical specification

<table>
<thead>
<tr>
<th>ASM LASER CUT STENCIL</th>
<th>Standard stainless steel</th>
<th>Laser cut nickel</th>
<th>Fine grain stainless steel</th>
<th>Standard E-form nickel</th>
<th>Platinum E-form stencil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material type</td>
<td>304 PHD</td>
<td>Nickel</td>
<td>Fine grain SS</td>
<td>Hard nickel</td>
<td>Hard nickel</td>
</tr>
<tr>
<td>Material hardness (HV)</td>
<td>≥370</td>
<td>&gt;470+</td>
<td>≥370</td>
<td>500 +/-50</td>
<td>500 +/-50</td>
</tr>
<tr>
<td>Grain size (µm)</td>
<td>16-25</td>
<td>1</td>
<td>≤ 2</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Thickness available (µm)</td>
<td>80-250</td>
<td>100-175</td>
<td>80-250</td>
<td>75- 200</td>
<td>20-230</td>
</tr>
<tr>
<td>Thickness tolerance</td>
<td>4%</td>
<td>7%</td>
<td>&lt;2%</td>
<td>10%</td>
<td>&lt;5%</td>
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<tr>
<td>Area ratio window</td>
<td>&gt;0.66</td>
<td>&gt;0.6</td>
<td>&gt;0.55</td>
<td>&gt;0.5</td>
<td>&gt;0.5</td>
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<tr>
<td>Sheet width max</td>
<td>690 mm</td>
<td>584 mm</td>
<td>610 mm</td>
<td>610 mm</td>
<td>584 mm</td>
</tr>
<tr>
<td>Apertures size tolerance</td>
<td>±5 µm</td>
<td>±5 µm</td>
<td>±5 µm</td>
<td>±10 µm</td>
<td>±4 µm</td>
</tr>
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</table>
DEK Multi-level stencils

Ideal for ensuring optimized solder paste height and volume for components that are distributed over a wide area, DEK Multi-level (step) stencils are produced with the latest micro-milling technology to ensure exceptional accuracy and repeatability.

DEK Multi-level (step) stencils are available in stainless steel or nickel and are ideal for printing paste on SMT boards with fine pitch parts arranged over a large area. These stencils provide excellent print performance for applications with micro BGAs, 0.3 mm QFPs and small components such as 0201s metric, as well as packaging applications and release of specialty solder paste formulations.

Multi-level stencils are available mesh mounted onto industry-standard frames and are available for the DEK VectorGuard™ Classic and DEK VectorGuard™ High Tension frame systems.

Benefits:
- Flexible local adaptation to any component mix
- Maximum positioning accuracy
- Improved solder paste homogeneity
- Improved repeat accuracy thanks to extra-smooth surface structure and high-precision edges
- Minimized paste wastage through optimized surface structure
- Significant reduction of paste residue in shadow areas
- Flexible design of pressure-sensitive areas
- Significant squeegee pressure reduction thanks to a modified ramp profile
DEK Electroform stencils

Achieve ultimate material volume consistency control for standard SMT, micro-SMT, semiconductor, solar and LED lighting applications with DEK Electroform stencils.

DEK Electroform stencil technology delivers ultimate control over stencil thickness and uniformity, ensuring outstanding material volume consistency for multiple applications including standard SMT, Micro SMD, semiconductor, piece parts and LED lighting. Produced with an additive process, DEK Electroform stencils can be manufactured in very complex designs to accommodate printing of exceptionally small deposits into cavities, around components and onto or into multiple levels.

For many applications, the use of Electroform stencils is a high-throughput alternative to conventional dispensing or spray coating techniques, offering exceptional UPH (Unit Per Hour) and high yield.

Applications:

- Semiconductor packaging
  - Wafer and substrate bumping
  - Ball placement
  - Leadframe printing
  - 3D printing on wafers, substrates
  - Low-Temperature Co-fired Ceramics (LTCC)
  - Die attach

- LED Printing
  - LED leadframe printing
  - Flux printing for flip-chip mounting
  - Phosphor layer printing on wafer die or over flip chip die
  - Piece parts

- Surface-mount assembly
  - Standard SMT printing
  - VAHT stencils – variable height on different apertures
  - 3D stencils – print apertures on different levels; cover components and print around the covered area

- Piece Parts
  - Electrical test probes
  - Electro-mechanical parts
  - Multiple other parts such as foils and sieves
DEK Electroform 3D stencils

DEK Electroform 3D stencils ensure highest print quality and throughput for jobs that require printing with different height levels and into indentations.

DEK Electroform 3D stencils are single thickness stencils produced to accommodate mass imaging of surfaces that are not flat or include features or structures that would prohibit conventional one-pass printing.

Well-suited for printing inside cavities or cover printing on pre-populated substrates, 3D stencils allow higher throughput and lower costs through the elimination of secondary printing or dispensing steps.

Benefits:
- Enables single pass printing for challenging, non-flat or pre-populated substrates
- Lowers cost by eliminating traditional secondary printing or dispensing steps used to accommodate positive or negative Z axis values
- Improves production throughput
- Can be manufactured to conform to any shape or topography
- Better uniformity and deposit shape control than with dispensing processes

Specifications:
- Requires printing with special slit squeegee
- Proven for a variety of different applications
  - LED cavity printing
  - SMT multi-level printing
  - SMT ceramic substrate cavity printing
  - Semiconductor printing to accommodate wafer embossment
  - Semiconductor die top printing
- Stencil frame size: DEK VectorGuard™ Classic or DEK VectorGuard™ High Tension 23” x 23” recommended
- Stencil foil thickness: 2 mils -10 mils
- Pocket size: 2.0 mm square (min)
- Pocket depth: 2.0 mm (max, depending on pocket size)
- Pocket to pocket gap allowance: 2.5 mm (min)
DEK Electroform Variable Aperture Height Technology (VAHT)

DEK VAHT technology offers a unique alternative to multi-level stencils for non-homogeneous assemblies that call for larger, area-specific paste volumes to accommodate bigger components.

Electroform stencils can be produced with modifications to accommodate specific applications. One such adaptation is a technique called Variable Aperture Height Technology (VAHT), whereby a gasket overgrowth is created around apertures to create more aperture height to allow for increased paste volumes to be deposited.

VAHT is ideal for PCBs that incorporate both small and large components that require varying amounts of solder material. Aperture gasket height can be 1 to 2 mils higher than the base stencil thickness.

Benefits:
- Ideal for heterogeneous assemblies, allowing printing of various solder paste volumes with a single stencil
- Improved throughput
DEK PumpPrint™ / Adhesive stencils

DEK PumpPrint™ technology enables a wide range of adhesive patterns to be successfully deposited using a screen printing platform.

DEK PumpPrint™ / Adhesive stencils enable deposition of adhesives in a single stroke, as opposed to the slower, serial process of dot dispensing systems. With adhesive printing, throughput is dramatically increased and cycle time is constant. Also effective for certain solder applications, DEK PumpPrint™ stencils can be utilized for solder deposition around through-hole component leads or into the base of deep packages.

DEK PumpPrint™ / Adhesive stencils are constructed of an acrylic material and available in standard thicknesses of 1.0 mm to 3.0 mm, or up to 8 mm for special applications. Printing through accurately machined apertures, deposit heights from 75 µm to 1 mm can be achieved. Specially designed DEK PumpPrint™ stencils are also available for use with the DEK VectorGuard™ Classic stencil frame system.

Features and benefits:
■ Significantly improved throughput, efficiency, and flexibility compared to traditional adhesive dispensing
■ Nozzle changeovers eliminated
■ Allows re-deployment of existing resources
■ Underside routing clears components, cut and clinched through-hole leads, paste and solder mask
■ Stencils are lightweight and solvent-resistant
■ Available for the DEK VectorGuard™ Classic stencil frame system
DEK NanoUltra stencil coating

Applied upon completion of the stencil manufacturing process, DEK NanoUltra fluxophobic stencil coatings deliver stencil underside and aperture coating for maximum material transfer efficiency and optimized understencil cleaning performance.

Benefits:
- Coating applied to the bottom surface of the stencil and to the aperture walls for optimized print performance
- Significantly reduces understencil cleaning frequency requirements, lowering costs and improving throughput
- Delivers superior print definition for area ratios below 0.6
- Increases transfer efficiency by 10% to 40% depending on area ratio
- Reduces solder paste bridging
- Encourages more uniform solder paste deposits
- Colored coating provides visual confirmation of coverage, as opposed to clear wipe-on nano coatings
- Micron-thick coating lasts longer compared to wipe-on nano solutions
- Non-ionic, not conductive, and chemically inert
- ECHA REACH, RoHS and RoHS 2 compliance
- Recommended stencil materials: Fine Grain and stainless steel

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Properties</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Gold or red</td>
</tr>
<tr>
<td>Thickness of coating</td>
<td>2 to 4 micron</td>
</tr>
<tr>
<td>Specific gravity @ 25°C</td>
<td>1.5 g/cm³</td>
</tr>
<tr>
<td>Static contact angle, water</td>
<td>103 - 105°</td>
</tr>
<tr>
<td>Static contact angle, n-hexadecane</td>
<td>62 - 64°</td>
</tr>
<tr>
<td>Abrasion resistance, ASTM D2486, isopropyl alcohol</td>
<td>&gt; 2000 cycles</td>
</tr>
<tr>
<td>Abrasion resistance, ASTM D2486, IPA based flux</td>
<td>&gt; 2000 cycles</td>
</tr>
<tr>
<td>Pencil hardness</td>
<td>&gt; 9 H</td>
</tr>
<tr>
<td>Resistivity</td>
<td>&gt; 10 x 10⁻¹² ohm-M</td>
</tr>
<tr>
<td>Ionic residues (ROSE)</td>
<td>0 µg of NaCl / liter</td>
</tr>
<tr>
<td>Ionic species on board (as received)</td>
<td>None detected</td>
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<tr>
<td>Ionic species on board (after reflow)</td>
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DEK NanoUltra STENCIL COATING

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<tr>
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<th>Description</th>
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<tr>
<td>03137311</td>
<td>800109 Europe</td>
</tr>
<tr>
<td>03137312</td>
<td>800110 Americas</td>
</tr>
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</table>
NanoClear® stencil coating

Self-applied fluxophobic stencil coating technology delivers high performance stencils in a cost-effective wipe. Designed to overcome the challenges of smaller aperture sizes, the NanoClear® coating offers a unique solution to improve cleaning effectiveness and reduce cleaning frequency.

**Features and benefits:**

- **Increases efficiency**
  - Reduces the frequency of cleaning
  - Allows time for more production or SPI

- **Reduces cost**
  - Less cleaning uses less USC fabric and solvent
  - Less expensive than alternative wipe-on coatings
  - Easy to apply to new or existing stencils
  - Chemically inert when dry to ensure no possible interaction with paste
  - Forms a permanent bond and can be reapplied as it only adheres to uncovered areas
  - REACH compliant
  - Compatible with stainless steel or nickel stencils
  - One pouch will coat one stencil (measuring up to 29” x 29”)

### NanoClear® STENCIL COATING

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP 03128620</td>
<td>431800 Box of 10 wipes</td>
</tr>
</tbody>
</table>
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