

## HORIZON 02i TECHNICAL SPECIFICATION

Basic Configuration	Specification
Accuracy and Repeatability	1.6 Cpk @ +/- 25µm #
Cycle Core Time	12 seconds
Max. Board Size (Print Area)	508mm (X) x 508mm (Y)
Print Speed	2mm to 150mm/sec
Squeegee Pressure Mechanism	Software controlled, motorised
Tooling	Magnetic tooling pins 19mm dia x 15 4mm dia x 15
Camera	Green digital camera, using IEEE 1394 interface. Multi channel. LED lighting. FOV 5mm x 8.5mm
Fiducial Recognition	Automatic fiducial teach and find
Operating System	Windows XP
Operator Interface	Colour TFT touch screen display, keyboard and trackball with DEK Instinctiv™ software
Stencil Loading	Manual with screen depth adjuster
Stencil Alignment	Motorised via actuators X, Y and Theta
Connectivity	RJ-45LAN (networking) and USB2 interface available
Printer Construction	One piece optimised welded frame
ISCAN™ Machine Control	Motion control using CAN BUS network
Camera Positioning	Rotary motors and encoders, with 4 micron resolution
Machine Interface	Upline and downline FMI included
Squeegee	Clamped double trailing edge squeegee (1 set included)
Documentation	Hard copy manuals comprising: Operator, Installation, Electrical Drawings. On board technical manuals and tutorials supporting operator functions. CD containing manuals and tutorials

Certification	Specification
CE	98/37/EC 89/336/EEC 73/23/EEC Subsequent Amendments
ETL	UL61010A-1 1st Edition 2002 CAN/CSA-C22.2 No 1010.1-92
Accoustic Noise Level	Less than 70dB 2003/1/EC

Services	Specification
Voltage	100 Volts to 240 Volts +/-10% Single Phase 50/60Hz
Max Current @ 115V	20 Amps with vacuum pump 6 Amps without vacuum pump
Max Current @ 230V	10 Amps with vacuum pump 3 Amps without vacuum pump
Over Current Protection	An external circuit breaker ≤ 25 Amps is required to be fitted in line with the machine supply
Air	To ISO 8573.1 Standard Quality Class 2.3.3 Pressure 5 bar to 8 bar at 5 Litres/min

# DEK's machine accuracy and repeatability qualification is undertaken using production environment process variables. Print Speeds, Print Pressures, Rising Table and Camera Movements are included in the process capability figure.

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Transport System	Specification
Type	Single piece with 3mm round transport belts
Rail Justification	Front fixed rail
Width Adjustment	Programmable motorised rear rail
Min. Board Size (Handling)	50mm (X) x 40mm (Y)
Max. Board Size (Handling)	508mm (X) x 508mm (Y)
Transport Direction	Left to right Right to left Left to left Right to right
Substrate Location	Patented over the top clamps
Underside Component Clearance	3mm to 42mm
Substrate Thickness	0.2mm to 6mm
Substrate Max. Weight	1kg
Substrate Warpage	Up to 8mm including substrate thickness

Vision	Specification
Vision System	Cognex
Camera Lighting	Software controlled programmable LED lighting
Fiducials	2
Fiducial Types	Synthetic fiducial library or unique pattern recognition
Fiducial Size	0.5mm to 3mm
Fiducial Locations	Anywhere on substrate
Fiducial Error Recovery	Auto lighting adjustment Auto fiducial search

Operating Environment	Specification
Temperature	10° to 35° C (50° to 95° F)
Humidity	30% to 70% Relative Humidity (non condensing)

Process Parameters	Specification
Print Pressure	0kg to 20kg
Print Gap	0mm to 6mm
Screen Separation	Speed: 0.1mm to 20mm/sec Distance: 0mm to 3mm
Print Modes	ProFlow™ Print/Print Print/Flood Flood/Print Adhesive
Paste Knead	Programmable: number, period, on demand

Shipping Information	Specification
Approx. Weight	820kg boxed 677kg unboxed
Approx. Dimensions	2060mm x 1500mm x 1570mm (81.1" x 59" x 61.8")

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Available Options	Specification
Camera	Gold Camera Hawkeye 400 Hawkeye 1200
Inspection	Basic stencil and board Advanced stencil and board
Max Board Size (Print Area)	610mm (X)*x 508mm (Y)
Print Method	Paste dispenser Paste roll height monitor ProFlow™ ProFlow low volume head
Substrate Transport	Single piece conveyor with flat belts (heavy boards) Snuggers (edge clamping) Foil-less clamps Board clamp regulator Remote board stop (for use with heavy board option)
Substrate Support	Vacuum tooling capability Vacuum Cups Grid Lok tooling
Substrate Handling	Flexible boards Selective print pass through Singulation Soft rail lift/land Virtual Panel Tooling (VPT)
Tooling Deviation Monitor	Verification of tooling set up via squeegee pressure feedback
Software & Communications	Off Line Editor (OLE) GEM on TCP/IP Remote event monitoring
Product Data Capture	Remote bar code reader Hand held bar code reader
Printing Environment Control	Static - Air Ioniser Temperature - Temperature Control Module (TCM) Air Particulate - In-line Filtration Module for use with TCM
Screen Frame	Vector Guard Universal screen frame adaptor
Adjustable Screen Mount (ASM)	Screen Frame Variants - Fully adjustable to accommodate screens in the range of 305mm to 736mm (12" ** to 29") by 38mm height Image Position - centre, front, custom
Statistical Process Control	On board, reported via operator interface (QC-CALC)
Under Screen Cleaning	Paper cleaner, fully programmable with wet/dry/vacuum wipe with external solvent tank Vortex with external solvent tank
Vacuum Assist for USC	On board vacuum unit 25 litres/sec airflow
Speed Up	2 second cycle time upgrade
Time To Go (TTG) Capability	Consumable warnings via level gauges for paper, solvent, paste
Squeegee Pressure Mechanism	Closed loop feedback
Small Fiducials	3
Fiducials	0.1mm fiducial capture
Temperature / Humidity Sensor	Monitoring of the process environment

\* For Paste Dispenser - Max of 508mm. For Paper USC - Max of 508mm. Vortex USC available to 610mm

\*\* Min. screen width limited to 381mm (15") with 300mm USC and 250mm board clamps

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## Machine Footprint

**Plan View**

**CAUTION - OVER CURRENT PROTECTION**

Magnetic/thermal over current protectors protect the machines internal wiring and components from over heating/fire during fault conditions. DEK require additional machine supply protection with the fitment of an external circuit breaker and conforming to national/federal regulations, table below refers.

Voltage	Value of circuit breaker (without Internal Vac Unit)	Value of circuit breaker (with Internal Vac Unit)
115V	10 Amp	25 Amp
230V	4/6 Amp	13/16 Amp

**Services Required**

Voltage: 110V to 240V +/-10%  
Single Phase 50/60Hz

Current (without Vacuum Filtration Unit):  
115V - 6 Amps  
230V - 3 Amps

Current (with Vacuum Filtration Unit):  
115V - 20 Amps  
230V - 10 Amps

Air Supply:  
Air to ISO 8573.1 standard quality class 2.3.3  
Pressure 5 to 8 bar at 5 Litre/min

Operating Envelope:  
Temperature 10° to 35° C (50° to 90° F)  
Humidity 20% to 70% Relative Humidity (non condensing)

Weight: 810kg - Boxed  
660kg - Unboxed

**Note:**  
Board transfer height 840 to 980 mm  
Screen load height 925 to 1065 mm

R632  
Max dimension from pivot point

**Front View**

**Side View (Right)**