

## General Specification # GS 327

### Model # 6836 - XPM<sup>2</sup> Reflow Soldering / Curing Systems

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Revision 2

## XPM<sup>2</sup> - Reflow Soldering / Curing Systems

1.0 DIMENSIONS & WEIGHTS							
		XPM <sup>2</sup> 520	XPM <sup>2</sup> 730	XPM <sup>2</sup> 820	XPM <sup>2</sup> 940	XPM <sup>2</sup> 1030	XPM <sup>2</sup> 1240
Heating zones	#	5	7	8	9	10	12
Cooling zones	#	2	3	2	4	3	4
Total heating length	(cm / in)	168 / 66	234 / 92	264 / 104	305 / 120	335 / 132	TBD
Total cooling length	(cm / in)	66 / 26	91 / 36	61 / 24	122 / 48	91 / 36	TBD
Total process length	(cm / in)	323 / 127	413 / 163	413 / 163	506 / 199	506 / 199	TBD
Total on /off load length	(cm / in)	28 / 11	28 / 11	28 / 11	28 / 11	28 / 11	TBD
Overall system length	(cm / in)	352 / 138.5	443 / 174.5	443 / 174.5	535 / 210.5	535 / 210.5	TBD
Overall system width	(cm / in)	132 / 52	132 / 52	132 / 52	132 / 52	132 / 52	132 / 52
Overall system height	(cm / in)	144 / 57	144 / 57	144 / 57	144 / 57	144 / 57	144 / 57
Machine weight	(kg / lbs)	1275 / 2800	1800 / 3950	1800 / 3950	2275 / 5000	2275 / 5000	TBD
Skidded weight	(kg / lbs)	1825 / 4000	1925 / 4200	1925 / 4200	2375 / 5225	2375 / 5225	TBD
Crated weight	(kg / lbs)	2025 / 4425	2225 / 4850	2225 / 4850	2725 / 5950	2725 / 5950	TBD
<i>Add 272 kg / 600 lbs for Nitrogen configuration, other options may increase weights.</i>							

## 2.0 GENERAL SYSTEM AND STANDARD FEATURES

- 350°C (maximum operating temperature for Lead-Free processing)
- 20" Belt Conveyor (19" [483mm] usable width and 0.5" [12.5mm] pitch)
- Left-to-Right (transport direction)
- Heavy Duty Frame (3" [77mm] diameter leveling feet, welded support members, conveyor height adjustable between 34.25" - 38" [870 - 965 mm])
- Ambient AIR Cooling (for air atmospheres only, not compatible with N2 atmosphere options)
- Individual Cell Inlet and Exhaust™ (Patented - enables optimized gas flow management)
- Flux Flow Control™ (flux evacuation system)
- OCS Oven Control Software (menu driven, closed-loop temperature control, closed-loop conveyor speed control data logging, recipe storage, auto start/stop, multilevel passwords, English)
- HIS Host Interface Software (external communication software)
- "How do I...?" (integrated help function software)
- Windows™ (PC operating system)
- DELL PC (1GHz+, CDRW, 10GB+ hard drive, 128 mb RAM, network interface, serial port for oven)
- DELL Flat Panel Display and Keyboard (integrated onto onload Control Tower)
- Precision Profiling™ (includes 3 thermocouple ports)
- AutoM.O.L.E.® Profiling Software (no OEM hardware required, use of Precision Profiling)
- KIC2000 Profiling Software (no OEM hardware required, use of Precision Profiling)
- Powered Hood Lifts (electro-mechanical)
- Hour Meter (electro-mechanical)
- Emergency Stops (one on each corner of the system)
- Over-Temperature Safety System (bi-metallic sensors)
- NFPA 70 & NFPA 79 (industry compliance)
- Operation / Technical Manuals (1 complete electronic copy and 1 hard copy of schematics in English)
- Grey-White Painted Panels (RAL 9002 with standard Vitronics Soltec texture and gloss)

## 3.0 OPTIONS

### GENERAL CONVEYOR OPTIONS:

- Right-to-Left (changes conveyor transport direction from "left-to-right" to "right-to-left")
- Stepper Motor (conveyor speed reduction (1 - 45 ipm [2 - 114 cpm]))
- Hand Crank (manual emergency product evacuation means)
- UPS Pre-Wiring (prep for user installed UPS system (PC, controller, conveyor and hood lifts))
- UPS Battery Backup (PC, controller, conveyor and hood lifts. Requires Main Disconnect option.)

### BELT CONVEYOR OPTIONS:

- 14" Belt Conveyor (13.5" [343mm] usable fine mesh weave)
- 24" Belt Conveyor (23.0" [585mm] usable width and 0.5" [12.5mm] pitch)
- 24" Belt Conveyor (23.0" [585mm] usable width and 0.286" [7.3mm] pitch)

### EDGE-RAIL CONVEYOR OPTIONS:

- 18" Edge-Rail Conveyor Only (18" [457mm] usable width, Front Rail Fixed, 0.187" [4.8mm] pin length with 0.375" [9.5mm] pitch, and motorized width adjust - systems configured with N2 options are likely to consume less N2 with this edge-rail option versus combination edge-rail & belt conveyor options)
- 18" Combination Edge-Rail and Belt Conveyor (18" [457 mm] usable widths, Front Rail Fixed, 0.187" [4.8 mm] pin length with 0.375" [9.5 mm] pitch, and motorized width adjust - systems configured with N2 options are likely to consume addition N2 with this option)
- 22" Combination Edge-Rail and Belt Conveyor (22" [559mm] usable widths, Front Rail Fixed, 0.187" [4.8mm] pin length with 0.375" [9.5mm] pitch, and motorized width adjust - systems configured with N2 options are likely to consume addition N2 with this option)
- Parking Center Support (requires 0.125" [3 mm] wide unpopulated stripe on bottom side of product, parks beneath fixed edge rail, motorized controlled width adjust of center support and movable edge-rail conveyors. Requires a Combination Conveyor option.)
- Computer Controlled Rail Width Adjust (single lane / single edge-rail)
- Computer Controlled Edge-Rail Lubrication (single lane / all edge-rails)
- Rear Rail Fixed (changes the location of the "fixed rail" from the front to the rear. Requires an edge-rail option.)
- Dual Lane Edge-Rail Conveyor (simultaneously transports up to 8.5" [216 mm] wide products per lane, consult factory for desired configuration and features)

### COOLING OPTIONS:

- Polar Cooling™ (on board, recirculating, coolant supply system with X2 HX Cooling Cells)
- Controlled Cooling (closed loop, on board, recirculating, coolant supply system with process temperature set points, includes Polar Cooling™)
- OEM Chiller (stand alone system, closed loop, refrigerated coolant supply system including HX Cooling Cells and Electrical Auxiliary Equipment Interface for Auto Start / Stop)

### ATMOSPHERE OPTIONS:

- Basic N<sub>2</sub> Package (for continuous nitrogen atmosphere operation - consisting of sealed process tunnel, gas distribution panel, flow meters, atmosphere reduction apertures up to 1" [25 mm] top side product clearance, vertically adjustable baffles, HX Cooling Cells, 4 terminated gas sample ports including source gas, and connections for required user supplied coolant system. Includes regulator / gauge assembly for N2 main gas inlet)
- Quick Atmosphere Purge (reduces atmosphere purge time to reach 100 PPM of residual O<sub>2</sub> to < 30 minutes)
- Basic Automatic N<sub>2</sub> / AIR Switching (allows operation of Basic N<sub>2</sub> Package to operate with an AIR atmosphere requiring minimal compressed air. Includes regulator / gauge assemblies for both Air and N<sub>2</sub> main gas inlets)
- True N<sub>2</sub> / AIR Switching (allows operation of Basic N<sub>2</sub> Package to operate with an AIR atmosphere requiring minimal compressed air and switches atmospheres while maintaining near identical internal process gas flows. Includes regulator / gauge assemblies for both Air and N<sub>2</sub> main gas inlets per GS 280)
- Multiple Atmosphere Sampling Ports (4 plumbed ports to a central location (source, preheat, reflow and cooling), manual port selector, pressure relief valve and quick disconnect)
- OEM Portable Oxygen Analyzer (digital display, PPM-% range, internal pump, hose, filter, regulator and quick disconnect)

- OEM Integrated Oxygen Analyzer (powered, integrated gas sampling filter, source gas pressure regulator, analyzer output displayed on oven PC via Oven Control Software with alarms)
- Low N<sub>2</sub> Package (reduces overall N<sub>2</sub> consumption by as much as 40%, combination aperture and convection control, maintains convection in critical zones without increasing system footprint. Includes cell blower speed control, self-adjusting entrance width aperture and on load & off load table covers.)
- N<sub>2</sub> Conservation Package (conserves N<sub>2</sub> through automatic gas idle and shutdown based on product loading and line throughput. Includes single lane SMEMA, Product Tracking, Quick Atmosphere Purge and Cell Blower Speed Control.)
- OEM N<sub>2</sub> Generator (stand alone system, capable of continuously delivering nitrogen gas with 100 PPM residual oxygen @ 1000scfh [30m<sup>3</sup>/h])
- O<sub>2</sub> Doping (provides the ability to precisely set O<sub>2</sub> levels in a stable N<sub>2</sub> atmosphere by introducing small amounts of air into the reflow zones via manual metering valves. This option will not reduce overall N<sub>2</sub> consumption!)

## GENERAL OPTIONS:

- 4 Color Light tower (integrated on control tower located on control side of on load)
- Product Tracking (provides single lane board tracking)
- DELL PC Upgrade (includes Windows™ XP Pro, additional RAM, USB ports and modem)
- Cell Blower Speed Control (enables simultaneous control of convection levels of all heating and cooling cells)
- Individual Cell Sensing (minimizes diagnostic time by detecting either a specific blower failure or a specific over temperature cell condition)
- Redundant Over Temperature System (provides over temperature detection system utilizing redundant cell thermocouples and independent temperature controller)
- Integrated Exhaust Stack Filter (filters exhaust with filter clog detection, according to GS 295)
- OEM Impell Exhaust Filtering System (filters oven exhaust prior to evacuation to facility exhaust system or for recirculation to immediate environment. Includes ducting connection kit, Auxiliary Equipment Interface and spare filters.)
- Exhaust Sensing System (senses minimum facility exhaust flow and displays a general alarm)
- High Temperature Exhaust Hose Kit (contains two 8" [200mm] diameter by 8' [2.4m] length high temperature exhaust hoses with clamps)
- Main Circuit Breaker Disconnect (integrated main electrical disconnect switch, replaces distribution block)
- 120VAC Courtesy Outlet (mounted within PC cabinet)
- Additional Documentation Package ( 1 printed complete Operation / Technical Manual and Schematics)
- Custom Color (single color specified per customer supplied RAL color code or paint chip)

## INTERFACE and COMPLIANCE OPTIONS:

- SMEMA Equipment Interface (per IPC-SMEMA-9851 for single lane. Includes Product Tracking.)
- Auxiliary Equipment Interface (electrical interface for start / stop of auxiliary equipment)
- Barcode Scanner Package (scanner mounted to on load, scans product barcode, software loads product data and recipe, Requires SMEMA option)
- GEM / SECS II (GEM standard host communications interface, requires Computer Controlled Rail Width Adjust, SMEMA, and Light Tower. Requires SMEMA option.)
- CE Compliance (Europe safety compliance. Local inspections not included if required.)
- UL Compliance (UL 499 safety compliance, also covers CSA and Ontario Hydro. Local inspections not included if required.)
- Remote Diagnostics (enables live remote access of the reflow oven's PC via dedicated modem using PC Anywhere. Includes a PC Upgrade. Requires a customer supplied dedicated analog phone line. Reference GS330. )

## PROFILING OPTIONS: (Most profiling options require PC Upgrade.)

- Traveling TC Extensions (Quantity (3) - for use with oven's on-board TC ports.)
- OEM ECD SuperM.O.L.E.® (Xpert2 Ready Profiling System (E31-0901-00). Includes 120VAC Outlet.)
- OEM ECD OvenRIDER® w/ SPC (16" [406 mm]) Heat-Flow Measuring System (E37-6836-16). Includes VS OvenRIDER fixture. Requires SuperM.O.L.E.)
- OEM ECD Xpert2 (Automated Reflow Oven Set-up System (E43-2875-10). Requires Xpert2 Ready SuperM.O.L.E. Includes Xpert2 site licence for XPM2.)
- OEM ECD OvenWATCH (Oven Monitoring System (E41-6928-00). Includes ECD dedicated PC and KVA switch. Includes VS 120VAC Outlet and Product Tracking.)
- OEM KIC SlimKIC 2000 (9 Channel RF Profiler (SL2K-KIT-DUAL-09). Includes 120VAC Outlet.)
- OEM KIC NAVIGATOR (Profile Prediction Upgrade (NAV). Requires SlimKIC 2000.)

- OEM KIC Navigator w/ Auto Focus (Automated Profiling System (NAV-AF). Requires SlimKIC 2000.)
- OEM KIC 24/7™ (Thermal Process Manager - 24/7. Requires SlimKic 2000.)
- OEM Datapaq Reflow Tracker System (Profiling System. (RS-009-6). Includes 120VAC Outlet).
- OEM Datapaq Surveyor Process Monitor System (RST-014, Requires Reflow Tracker)
- OEM Datapaq Rapid Oven Set-up (Requires Reflow Tracker)

**POWER SUPPLY OPTIONS:** (select one power configuration below)

- Voltage - 200V 3 Ph 50/60Hz
- Voltage - 208V 3 Ph 50/60Hz
- Voltage - 220V 3 Ph 50/60Hz
- Voltage - 240V 3 Ph 50/60Hz
- Voltage - 380V 3 Ph 50/60Hz
- Voltage - 400V 3 Ph 50/60Hz
- Voltage - 415V 3 Ph 50/60Hz
- Voltage - 440V 3 Ph 50/60Hz
- Voltage - 480V 3 Ph 50/60Hz

**SPARES PART OPTIONS:**

- Consumable parts kit (Includes fuses, filters, coolant and lubricants.)
- Base System Spare Parts Kit
- Standard Conveyor Motor Spare Parts Kit
- Optional Stepper Motor Spare Parts kit
- Spare Heater Panels (two unique panels per system)
- Spare Cooling Cell Heat Exchanger Assembly
- Spare Cell Blower and Motor Set Heater Panels (matched set, dynamically balanced)
- Optional Polar Cooling™ Spare Parts Kit
- Optional Controlled Cooling Spare Parts Kit (includes Polar Cooling spares)

**4.0 FORCED CONVECTION HEATING**

- |  |                |
|--|----------------|
| • Enhanced convection reflow cells                             | standard       |
| • Top and Bottom heating cells                                 | standard       |
| • Process length of one heating cell                           | 305 mm / 12 in |
| • Maximum heater temperature set-point                         | 350°C          |
| • Temperature control accuracy                                 | +/- 1°C        |
| • Temperature measurement in each heating cell                 | standard       |
| • Heating power per zone @ 400V                                | 8 kW           |
| • Heating time from ambient to typical process temperatures    | <30 minutes    |
| • Over-temperature safety protection in each heating cell      | standard       |
| • Side-to-Side cell re-circulation (maximizes zone definition) | standard       |

**5.0 FORCED CONVECTION COOLING**

- |  |                |
|--|----------------|
| • Top and Bottom cooling cells                                 | standard       |
| • Process length of one cooling cell                           | 305 mm / 12 in |
| • Temperature measurement in each vertical cooling zone        | standard       |
| • Side-to-Side cell re-circulation (maximizes zone definition) | standard       |

## 6.0 FLUX EVACUATION SYSTEM

- Individual zone exhaust™ (patented) standard
- Flux Flow Control™ (Air and N2 versions) standard
- Integrated Exhaust Stack Filter (filters exhaust with filter clog detection, according to GS 295) option
- High Temperature Exhaust Hose Kit (contains two 8" [200mm] diameter by 8' [2.4m] length high temperature exhaust hoses with clamps) option
- Exhaust Sensing System option
- OEM Impell Exhaust Filtering System (filters oven exhaust prior to evacuation to facility exhaust system or for recirculation to immediate environment, includes ducting connection kit, Auxiliary Equipment Interface and spare filters) option

## 7.0 CONTROLS & SOFTWARE (English)

- PC, monitor & keyboard w/ track ball DELL
- Windows™ operating system Windows 2000
- Oven Control Software (OCS) standard
- "How do I ...?" integrated help function software standard
- Basic Profiling Software VS, ECD, KIC
- Host Interface Software (HIS) standard
- Data logging & Auto Start/Stop standard
- 4 emergency stop buttons standard
- Audible Alarm standard

## 8.0 STANDARD CONVEYOR SYSTEM

- 20" Belt Conveyor stainless steel Flat Flex
- maximum product width 483 mm / 19 in
- pitch 12,5 mm / 0.5 in
- speed range 25 - 90 cpm / 10 – 75 ipm
- speed accuracy 1,3 cpm / 0.5 ipm
- process direction (viewed from control side) Left to Right
- height from floor (INT and SMEMA) 870 - 965 mm / 34.25 - 38 in

## 9.0 GENERAL CONVEYOR OPTIONS

- Conveyor transport direction Right to Left
- Stepper Motor 2 -114 cpm / 1- 45 ipm
- Hand Crank option
- UPS Pre-wiring option
- UPS (Uninterrupted Power Supply) for PC, light tower, conveyor, & hood lifts option

## 11.0 BELT CONVEYOR OPTIONS

- |   |  |
|---|--|
| • 14" Belt Conveyor<br>maximum product width<br>pitch | stainless steel Mesh<br>343 mm / 13.5 in<br>6,4mm / 0.25in weave |
| • 24" Belt Conveyor<br>maximum product width<br>pitch | Stainless steel Flat Flex<br>585 mm / 23 in<br>12,5 mm / 0.5 in  |
| • 24" Belt Conveyor<br>maximum product width<br>pitch | Stainless steel Fine Pitch<br>585 mm / 23 in<br>7,3 mm / 0.286in |

## 11.0 EDGE RAIL CONVEYOR and COMBO CONVEYOR OPTIONS

- |   |   |
|---|---|
| • Edge-rails - single lane<br>min. bottom side, unpopulated product edge space required<br>front rail fixed<br>rear rail fixed<br>parallelism at lead screws<br>minimum product width<br>maximum product width<br>optional maximum product width<br>edge-chain pin length<br>edge-chain pin pitch<br>edge-chain pin pitch w/ Center Support Option<br>maximum product clearance<br>above edge-chain pins (Air)<br>above edge-chain pins (N2)<br>below edge-chain pins<br>Width adjust means | Hard anodized aluminium<br>5,0 mm / 0.200 in<br>standard<br>option<br>0,5 mm / 0.020 inch<br>38 mm / 1.5 inches<br>457 mm / 18 inches<br>560 mm / 22 inches<br>4,8 mm / 0.187 inches<br>9,5 mm / 0.375 inches<br>19 mm / 0.750 inches<br><br>35 mm / 1.45 inches<br>25,mm / 1.0 inch<br>22 mm / 0.88 inches<br>motorized via switch |
| • Computer controlled width adjust via recipe / product files   | option  |
| • Computer controlled edge-rail lubrication   | option  |
| • Edge-rails - dual lane<br>maximum overall process width<br>maximum product width per lane for synchronised processing   | 216 mm / 8.5 in (per lane)<br>559 mm / 22 in<br>216 mm / 8.5 in   |

## 12.0 OPTIONAL PARKING CENTER SUPPORT SYSTEM

- |   |                               |
|---|-------------------------------|
| • Minimum bottom side product unpopulated PCS path required | 3,2 mm / 0.125 in             |
| • PCS pin height  | 22,2 mm / 0.875 inches        |
| • PCS pin pitch   | 38,1 mm / 1.5 inches          |
| • PCS width adjust means                                    | motorized via switch          |
| • PCS home position   | beneath fixed edge-rail chain |

## 13.0 OPTIONAL NITROGEN ATMOSPHERE AND ATMOSPHERE OPTIONS

- Typical nitrogen operating flow rate (actual flow rate dependent on model, product dimensions, loading frequency, blower speed, line speed and process requirements) (12 - 57) m<sup>3</sup>/hr [(400 - 2000) cfh]
- Typical residual oxygen level throughout process tunnel <100 ppm
- Minimum residual oxygen level attainable w/ increased N2 <10 ppm
- Purge time to attain 100 PPM with Quick Purge option <20 minutes
- Multiple oxygen sampling taps (preheat, reflow, cooling, source) standard
- Oxygen doping range (~5 PPM increments) 10 - 5000 ppm
- Low N2 package savings (process & configuration dependant) 10% - 40%
- N2 conservation package savings (process & configuration dependant) 10% - 40%

## 14.0 FACILITIES REQUIREMENTS

		XPM <sup>2</sup> 520	XPM <sup>2</sup> 730	XPM <sup>2</sup> 820	XPM <sup>2</sup> 940	XPM <sup>2</sup> 1030	XPM <sup>2</sup> 1240
Start-up power @ 400 v	KVA	42	45	45	45	45	45
Process power @ 400 v	KVA	10	12	12	15	15	17
Exhaust volume	m <sup>3</sup> /hr / cfm			1000 / 600			
Static pressure	Pa / in-H <sub>2</sub> O			50 / 0.2			
Standard Air:							
Air Process volume	m <sup>3</sup> /hr / cfh			3 / 100			
Air Process pressure	bar / psi			4 / 60			
Air connection type	mm / in			12,7 / 0.5 FNPT			
Optional Nitrogen Purge:							
N <sub>2</sub> Quick Purge volume	m <sup>3</sup> /hr / cfh			75 / 2500			
N <sub>2</sub> Quick Purge pressure	bar / psi			5 / 70			
N <sub>2</sub> Quick Purge time	minutes			<20			
Optional Nitrogen:							
N <sub>2</sub> Process volume (low)	m <sup>3</sup> /hr / cfh	12 / 400	17 / 600	17 / 600	23 / 800	23 / 800	28 / 1000
N <sub>2</sub> Process volume (high)	m <sup>3</sup> /hr / cfh	40 / 1400	45 / 1600	45 / 1600	51 / 1800	51 / 1800	57 / 2000
N <sub>2</sub> Process pressure	bar / psi			4 / 60			
N <sub>2</sub> connection type	mm / in			12,7 / 0.5 FNPT			
Optional N2 / Air Switching							
Air supply volume	m <sup>3</sup> /hr / cfh			6 / 200			
Air supply pressure	bar / psi			4 / 60			

**Facility values are for sizing purposes only.**

**Machine specifications are typically configuration dependent, refer to specific machine documentation.**

**All specifications are subject to periodic review and may change without notice.**

**Vitronics Soltec assumes no obligation for specifications contained herein.**