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# Specification GS335

## 6745/6746 mySelective.com Soldering System



## 1.1 GENERAL INFORMATION

### 1.1.1 AVAILABLE MACHINES



6745	6746
Machine with Preheater, <b>SelectFlux</b> and SelectWave	Machine with In-line Preheater, <b>MultiFlux</b> , and SelectWave
For max. 410 mm x 410 mm (16 inch) PCB's	

### 1.1.2 AREA OF APPLICATION

The mySelective.com Soldering System is an automatic recipe driven selective soldering machine, designed to solder printed circuit boards (PCB) with through-hole and/or SMT components. The 6745/6746 can be installed in-line with full Smema functionality, or as a stand alone machine in a cell environment.

A SecureGrip unit offers the flexibility of transporting PCB's over the SelectFlux, Preheat and Solder stations.

This machine can also be extended with a MultiFlux unit and in-line pre-heater for higher throughput.

The mySelective.com is designed to meet the European CE directives.

### 1.1.3 TERMS & DEFINITIONS

Short description of terminology used in this document.

NAME	DESCRIPTION
Dropjet	Unit for applying flux on the product, by means of fluxdrops
Fluxer	Unit for applying flux on the product
Load (pick-up) & Unload	Station to load and unload a product
MultiFlux	A dropjet fluxing station under the conveyer
PalletGrip	Unit for handling pallets or carriers in the machine
PCB	Printed Circuit Board
Preheat	Unit for pre-heating the product in the process
Quartz	Type of heater lamp.
SecureGrip	Unit for handling products in the machine
SelectFlux	Unit for applying flux on a single joint (area) on a product
SelectWave	Unit for solder a single joint on a product
Solder Drainage Conditioner	Shortlyly SDC. This unit is designed to direct the flow of the SelectWave to the desired front side of the nozzle.

### 1.1.4 MATERIALS USED

All customer-used chemicals must be compatible with the Vitronics Soltec used materials, such as: Fluorocarbon Elastomer, PVC (Polyvinyl chloride), PVDF (Polyvinylidene fluoride), steel, stainless steel and aluminium.



To avoid severe corrosion in the machine only the use of non corrosive or so called “no-clean” fluxes is allowed. These are fluxes which need not to be removed from the PCB after soldering.

All stainless steel materials used that are in contact with solder have been treated with a special high temperature protective finish.

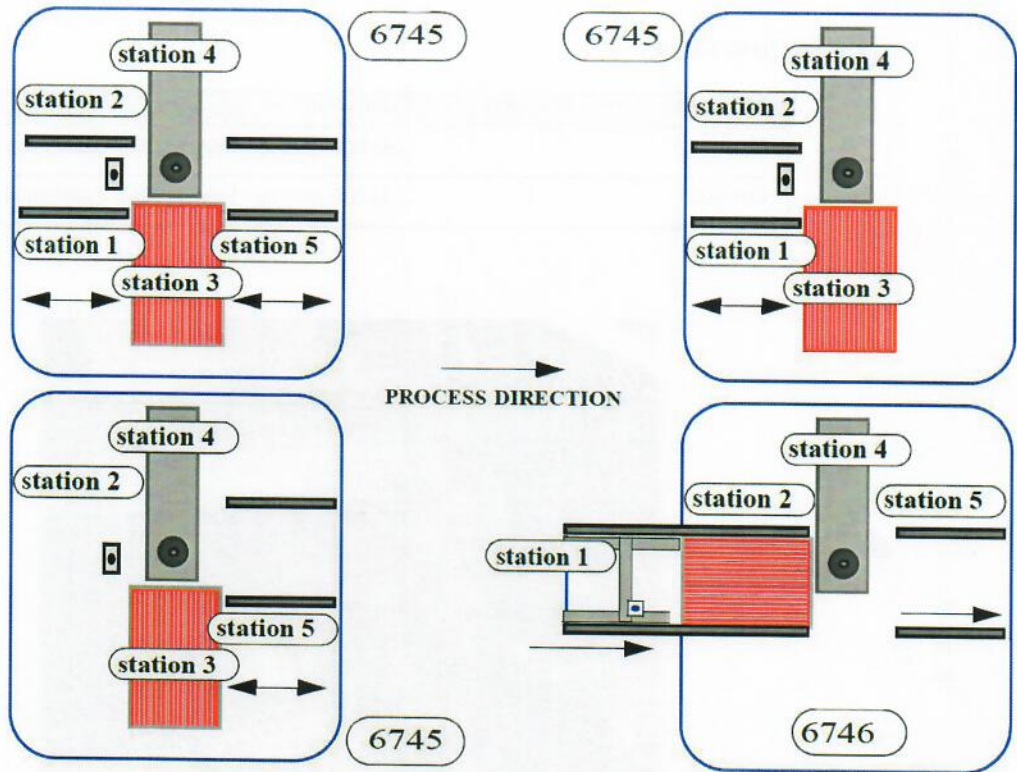
### 1.1.5 PCB, SECUREGRIP & PALLETGRIP SPECIFICATIONS

MACHINE TYPE	6745/6746	
	MIN MM/INCH	MAX MM/INCH
PCB width and length depending on PalletGrip or SecureGrip	100 x 150 / 3.97 x 5.90	410 x 410 / 16.14x16.14
PCB thickness	0.8 / 0.031	3 / 0.118
Component height on topside PCB	N.A.	91 / 3.58
Component height on bottomside PCB	N.A.	12.5 / 0.49
Edge clearance on PCB	4 / 0.157	N.A.
Tolerance on PCB flatness (% of PCB diagonal for transport & pickup)	N.A.	1%
SecureGrip (width x length)	100 x 150 / 3.97 x 5.90	410 x 410 / 16.14x16.14
PalletGrip (width x length)	100 x 150 / 3.97 x 5.90	410 x 410 / 16.14x16.14
PCB weight	N.A.	5 kg / 11.02 lb

N.A. = Not Applicable.

More details on PCB specification, See document "PCB design for Selective Soldering".

## 1.2 CONFIGURATIONS



### 1.2.1 CONTENTS

The machine has a maximum of 5 stations:

	STATION				
	1	2	3	4	5
MultiFlux Single head 130 $\mu$		*			
SelectFlux Single head 130 $\mu$		*			
Preheater Lamps medium wave radiation			*		
Lifting unit	*				*
Load Station (not in station 5 if MultiFlux present)	*				*
Unload Station (not in station 1 if MultiFlux present)	*				*
SelectWave				*	
Solderfeeder				*	
Advanced SDC unit				*	
Advanced SelectWave Process Camera				*	



6746 is only available with left to right configuration

## 1.3 MODULES

### 1.3.1 CONVEYOR

MODULE	STATION	FUNCTION
Conveyor 1	1	Load PCB (pick-up)/ Unload PCB in combination with lift
Conveyor 2	5	Load PCB (pick-up)/ Unload PCB in combination with lift



The machine can also be programmed to pick-up the PCB in station 5 and put-down in station 1.\*

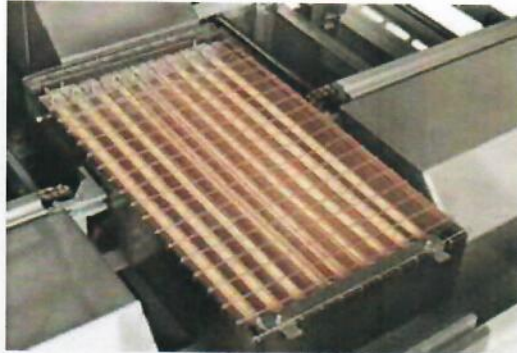
\* = not for 6746

#### 1.3.1.1 SPECIFICATIONS CONVEYOR

DESCRIPTION	6745	6746
Conveyor height (PCB level)	900 mm (-25/+50 mm) 35.43 inch (-0.98/+1.97 inch)	
Conveyor length	480 mm / 18.89 inch	910 mm / 35.83 inch
Conveyor speed fixed	3 m/min. (9.24 ft./min.)	
Pinchain	3 mm (0.12 inch) pin support	
Min. / Max. PCB width	100 - 410 mm (3.93 - 16.14 inch)	
Min. / Max PCB length	150 - 410 mm (5.90 - 16.14 inch)	
Width accuracy setting steps	0.1 mm	
Lifting sections	On Stations 1 and 5.	On Stations 3 and 5.
Conveyor motorcontroller	230 VAC	
Width adjustment motorcontroller	24 VDC	

### 1.3.2 PREHEATER

MODULE	STATION	FUNCTION
Preheater	3	Pre-heating the product in the process



pre-heater 6745



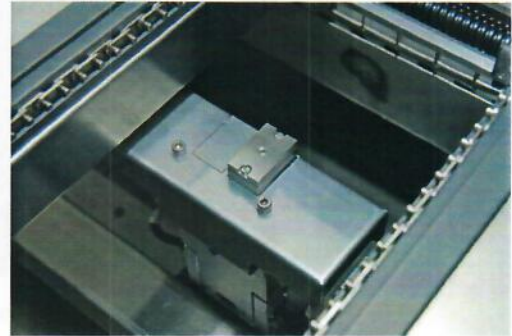
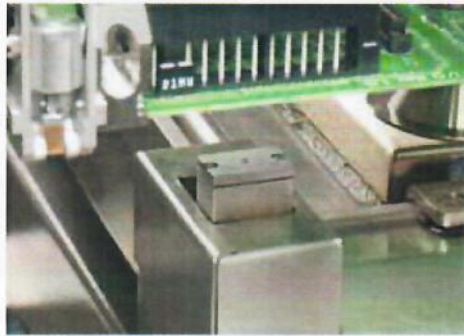
Inline pre-heater 6746

#### 1.3.2.1 SPECIFICATIONS QUARTZ PREHEATER

DESCRIPTION	6745	6746
Power / element	550 VA	550 VA
Total elements	9	16
Total Power	4.95 kW	8.80 kW
Preheater dimension	220x375 mm (8.66x14.76 inch)	375x375 mm (14.76x14.76 inch)
% control of element power (recipe parameter)	yes	yes
Preheater temperature accuracy	+/- 10 °C @ >5 Sigma	+/- 10 °C @ >5 Sigma
Heating element check	Optional	Optional

### 1.3.3 FLUXER

MODULE	STATION	FUNCTION
SelectFlux	2	Applying Flux on the product (for 6745 standard)
MultiFlux	2	Applying Flux on the product (for 6746 only)



Standard set-up with 1 dropjet mounted on SelectFlux and MultiFlux units. Optional 2nd dropjet nozzle

#### 1.3.3.1 SPECIFICATIONS SELECTFLUX AND MULTIFLUX

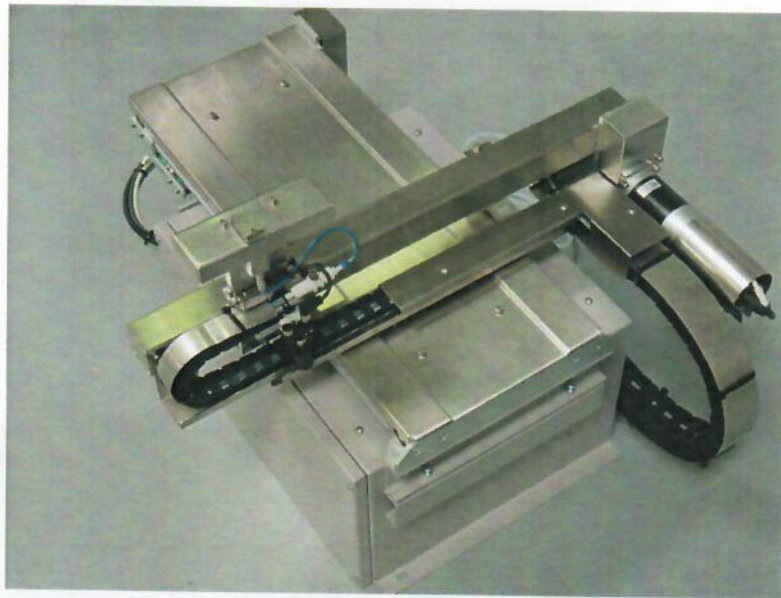
DESCRIPTION	6745 SELECTFLUX	6746 MULTIFLUX
Diameter range dropjet (on PCB level)	3 - 7 mm (0.12 - 0.28 inch)	
Pressure dropjet	See Controller flux supply	
Dropjet control	in milliseconds	
Dropjet type	130 micron	
Capacity of flux container	3.8 liter (1 US gallon)	
Distance dropjet - PCB	Adjustable by Z-axis. Advised is 60 mm (2.36 inch)	60 mm (2.36 inch)
Level control flux container (generates "low level" alarm)	yes	
Recipe controlled	yes	
Flux consumption	Depending on load, PCB and type of flux	
Flux supply controller	Pressurized system manually adjustable between 0.3-0.6 bar. Factory set 0.4 bar	





**1.3.3.2 SPECIFICATIONS MULTIFLUX X-Y UNIT**

DESCRIPTION	6746 MULTIFLUX
X stroke	410 mm / 16 inch
Y stroke	410 mm / 16 inch
Maximum handling speed X-Y axis	200 mm/s / 6.56 ft./s
Repetition accuracy X-Y axis	± 0.1 mm (0.004 inch)
Motor controller X-Y modules	AC Servo



**1.3.4 SOLDER STATION**

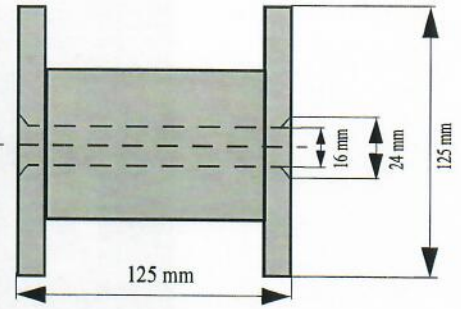
MODULE	STATION	FUNCTION
Selectwave	4	Soldering products



DESCRIPTION	6745/6746
Total Power Consumption	3.6 kVA
Heating-up time from ambient to 300 °C	< 1 hr.
Heating-up time from 270 °C to 350 °C	< .5 hr.
Solderpot volume	6 liters
Solderpot volume weight SnPb37	45 kg
Solderpot volume weight lead-free solder	±40 kg (depending on alloy)
Maximum solder temperature	350 °C (662 °F)
Solder temperature accuracy	+/- 5 °C @ > 5 Sigma
Quick exchange of nozzles	yes
Automatic solder feeder ( see next page)	optional
Solder level control	visual or with optional float
Available standard nozzle diameters *	4, 6, 8, 10, 12 & 14 mm
Wave height measurement with needle in robot	optional
Nitrogen inerting blanket on solderpot & around solder nozzle	yes
Typical nitrogen consumption	30 liter/min for 6 mm nozzle
Solderpot pump motor control	AC a-synchronous

\* other diameters & custom shapes available on customer's request

**1.3.4.1 SPECIFICATION AUTOMATIC SOLDER FEEDER**



DESCRIPTION	6745/6746
Dimensions solder-reel (according to DIN 46399)	See drawing
Diameter solder wire	3-4 mm
Weight solder-reel	max 5 kg
Solder feed	Automatic and manual
Alarm empty solderfeeder	yes
Solder feeder	24 VDC
Solder level control by means of float	optional
Advanced Solderfeeder	optional
	Solder feeder adds the amount of solder per PCB to the solderpot

### 1.3.4.2 ADVANCED SDC UNIT



#### Gas flow and Gas temperature

As the gas flow from the Advanced SDC nozzle hits the solder pin contact area, it breaks the surface tension and prevents bridging.

The nitrogen gas flow rate and temperature are both adjustable in order to optimize the soldering process.

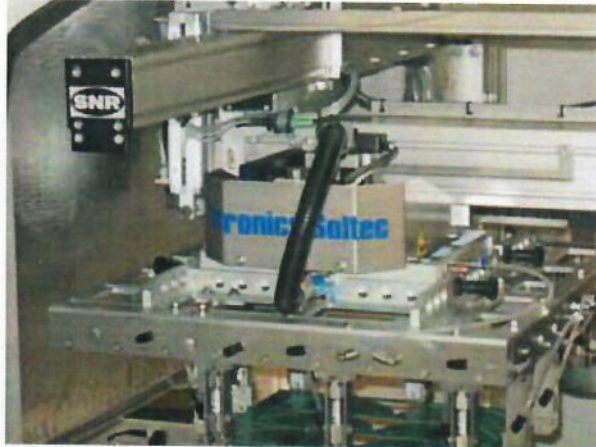
DESCRIPTION	6745/6746
Nitrogen gas flow range	.5 - 15 liters/min
Gas temperature range at board level	320-360 °C

### 1.3.4.3 SOLDERPOT EXCHANGE UNIT



The roll-out unit is used for quick exchange of the solderpot. It features a height adjustable table.

### 1.3.5 ROBOT SYSTEM



#### 1.3.5.1 ROBOT SPECIFICATIONS

DESCRIPTION	6745/6746
X stroke	710 mm (27.95 inch)
Y stroke	580 mm (22.83 inch)
Z stroke	190 mm (7.48 inch)
U rotation (optional)	-180 to + 180 degrees
Tilting angle (optional)	10 degrees
Maximum handling speed X-Y axis	300 mm/s
Maximum handling speed Z axis	300 mm/s
Maximum handling speed V xyz	300 mm/s
Maximum handling speed U axis	< 150 mm/s
Robot accuracy X-Y-Z axis	+/- 0.15mm @ >5 Sigma
Robot accuracy U axis	0.072° @ >5 Sigma
Repetition accuracy tilting angle	± 0.015°
Motorcontroller X-Y-Z- modules	stepper motor

#### 1.3.5.2 SPECIFICATIONS SECUREGRIP & PALLETGRIP

DESCRIPTION	6745/6746
Quickly exchangeable	yes
PCB only	Board in SecureGrip
PCB in a pallet	Board in PalletGrip



When using the 410x410 gripper in a 45° rotation there may be some limitations in soldering the outer corners of the PCB over the solder nozzle.

## 1.4 REQUIREMENTS

### 1.4.1 SUPPLIES

DESCRIPTION	6745/6746
Power supply	3x400 V, 50/60 Hz, max 10 kVA. I <sub>largest load</sub> 15A Supply tolerance + 10%, -10%
Nitrogen pressure (Required) Connection hose barb 9mm.	6 bar (87 PSI)
Nitrogen pressure (Minimal for operating)	4.5 bar (65 PSI)
Nitrogen consumption	3 m <sup>3</sup> /h (5 m <sup>3</sup> /h with Advanced SDC)**
Nitrogen quality	Advised purity 10 ppm O <sub>2</sub>
* Air pressure (Required) Connection hose barb 9mm.	6 bar (87 PSI)
* Air pressure (Minimal for operating)	4.5 bar (65 PSI)
* Air consumption	2 m <sup>3</sup> /h

\*/\*\* Optional Separate Compressed Air and Nitrogen connection will reduce Nitrogen consumption

Pneumatic components are activated with Nitrogen in the standard configuration and can be activated with Air with the optional separate Air connection

### 1.4.2 POWER CONSUMPTION DURING DIFFERENT STAGES

DESCRIPTION	6745	6746
Heating up solderpot (3600 W) in 1 hour from ambient to 300°C	2900 W	2900 W
Standby (solder at setpoint)	1150 W	1150 W
During production - Robot and solderpot	1500 W	1500 W
During production - Robot, solderpot, preheater 70%	5000 W	7800 W
During production - Robot, solderpot, preheater 100%	6400 W	10000 W

### 1.4.3 EXHAUST

DESCRIPTION	6745/6746
Exhaust volume	250 m <sup>3</sup> /h (8829 Ft <sup>3</sup> /h) at 100Pa
Exhaust connection (1x)	Ø 160 mm (6.30 inch)
Exhaust present input	Available, sensor & connection supplied by the customer

**1.4.4 OPERATING CONDITIONS**

DESCRIPTION	6745/6746
Ambient Temperature	18 to 40°C (64 to 104° F)
Relative humidity	30% - 70%
Atmospheric pressure	950 mbar - 1030 mbar

**1.4.5 (GLASS) COVER TEMPERATURE**

DESCRIPTION	6745/6746
(Glass) cover temperature	max 45°C (113°F)

## 1.5 CONTROLS

DESCRIPTION	6745/6746
PC	PC, TFT flat screen monitor, network card, modem and track ball included.
E-stop circuit	4 E-stop buttons
Teach camera for on-line programming or fine-tuning of existing programs	yes
Measured values read-out on PC screen	yes
Weekly timer & calendar	yes
Light tower (green, orange, red and audible alarm)	yes
Easy recipe and process management	yes
Separate machine independent off-set data, for easy machine transfer of recipes	yes
Machine overheat monitoring	yes
Multiple level password control	yes
Working hours counter	yes

### 1.5.1 OPERATING SOFTWARE

DESCRIPTION	6745/6746
Operating system	Microsoft® Windows® XP Professional
Trend analysis	yes

### 1.5.2 COMMUNICATION PROTOCOLS

DESCRIPTION	6745/6746
SMEMA interface on in and outfeed	yes



### 1.5.3 GENERAL CONTROLS AND SOFTWARE OPTIONS

DESCRIPTION	6745/6746
EasyTeach - Offline programming *, including DXF importer	Optional
SelectWave process viewing camera	Optional

\* = EasyTeach - Offline programming

EasyTeach II helps you with the creation of soldering programs for controlling the Vitronics Soltec selective soldering machines. EasyTeach II is an easy and fast method to create soldering programs for all your products.

The created soldering programs can be flexibly used on several selective machines of Vitronics Soltec.

With EasyTeach II version V2.0.9.a you can simply and effectively edit/change existing soldering programs to adapt the new requirements.

With one mouse-click you can add units or groups of units, which where stored in a database.

There is also the possibility to make use of a scanned PCB (bmp format).

EasyTeach II makes it possible to create within shortest time the first soldering program.

With Tools such as Auto reference, you can make multiple copies of areas in a program.

You can use EasyTeachII off-line, without affecting your production.

With EasyTeach II version V2.0.9.a, an optional DXF importer is available.

This option will be enabled with an USB dongle.

## 1.6 SHIPPING

### 1.6.1 SHIPPING AND INSTALLATION MYSELECTIVE.COM

The standard colour of the ESD coated covers is grey white (RAL 9002) in combination with quartz grey (RAL 7036) for the frame.

DESCRIPTION	6745	6746
Length	1250 mm (49.21 inch)	1813 mm (71.38 inch)
Width	1446 mm (60.43 inch)	
Height (exclusive signal column)	1611 mm $\pm$ 50 mm (63.43 inch $\pm$ 1.97 inch)	
Weight (without solder)	700 kg (1543 lb)	1052 kg (2320 lb)
Solderpot volume weight SnPb37	45 kg (99 lb)	
Solderpot volume weight with lead-free	40 kg (87 lb) depending on alloy	
Shipping weight maximum (without packing)	745 kg (1642 lb)	1097 kg (2419 lb)

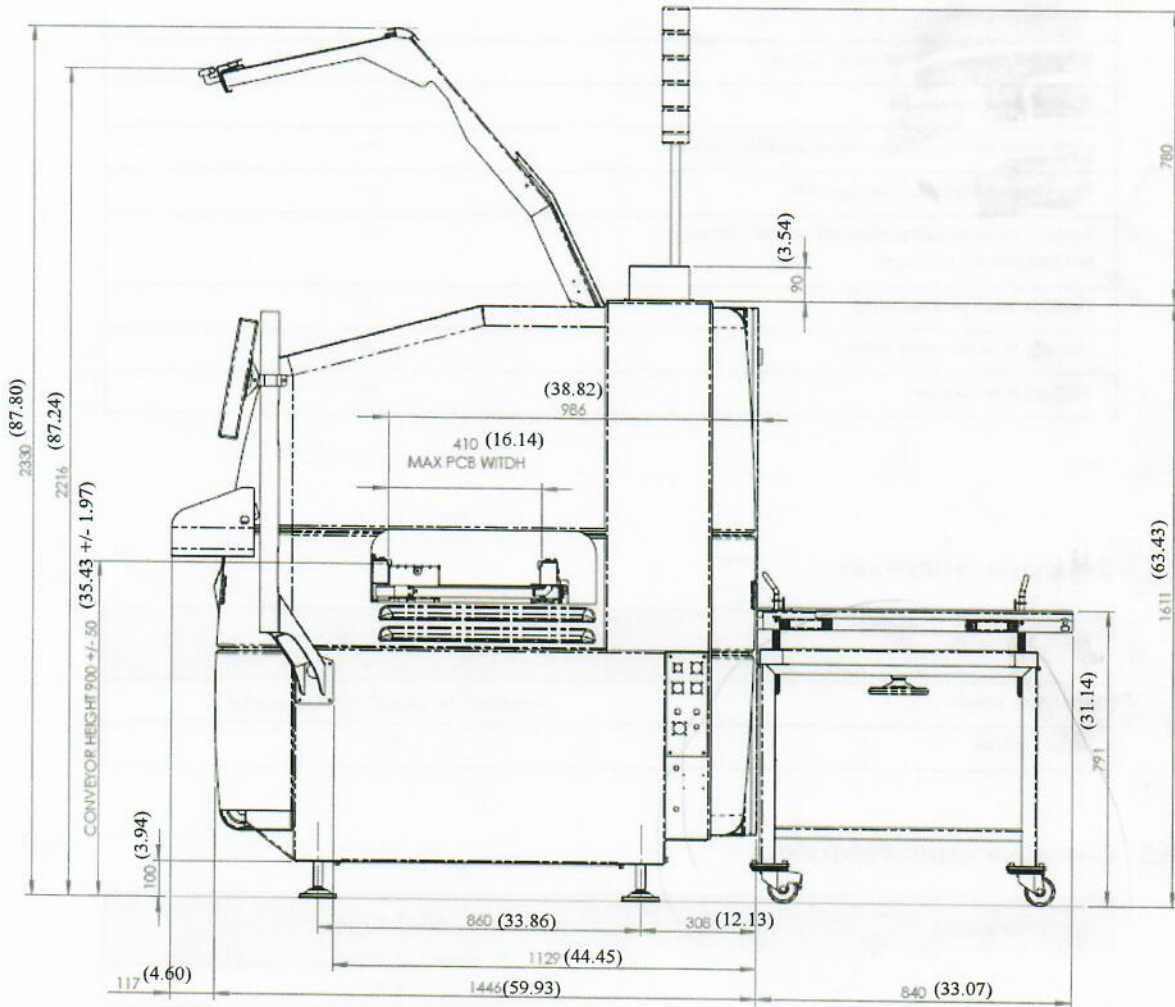
Detailed information see Paragraph 1.7 "Dimensions 6745".

\*\* All specifications are subject to periodic review and may be changed without notice.  
Vitronics Soltec assumes no obligation for specifications contained herein.

All customer-used chemicals must be compatible with materials used by Vitronics Soltec.

## 1.7 DIMENSIONS 6745

Between brackets inches



Dimensions with exchange unit solderpot

## SIDEVIEW 6745/6746

## 1.5 CONTROLS

DESCRIPTION	6745/6746
PC	PC, TFT flat screen monitor, network card, modem and track ball included.
E-stop circuit	4 E-stop buttons
Teach camera for on-line programming or fine-tuning of existing programs	yes
Measured values read-out on PC screen	yes
Weekly timer & calendar	yes
Light tower (green, orange, red and audible alarm)	yes
Easy recipe and process management	yes
Separate machine independent off-set data, for easy machine transfer of recipes	yes
Machine overheat monitoring	yes
Multiple level password control	yes
Working hours counter	yes

### 1.5.1 OPERATING SOFTWARE

DESCRIPTION	6745/6746
Operating system	Microsoft® Windows® XP Professional
Trend analysis	yes

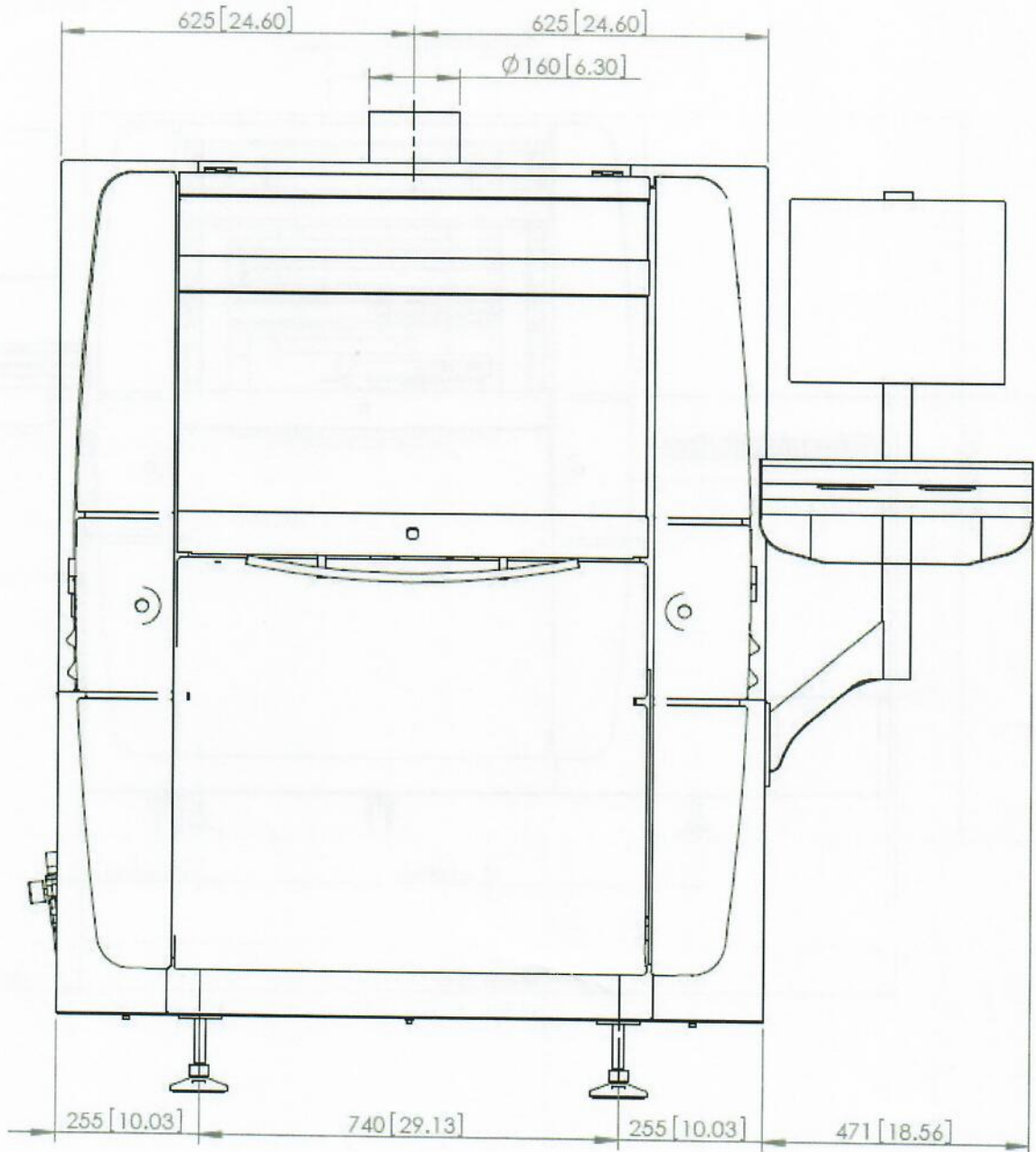
### 1.5.2 COMMUNICATION PROTOCOLS

DESCRIPTION	6745/6746
	yes

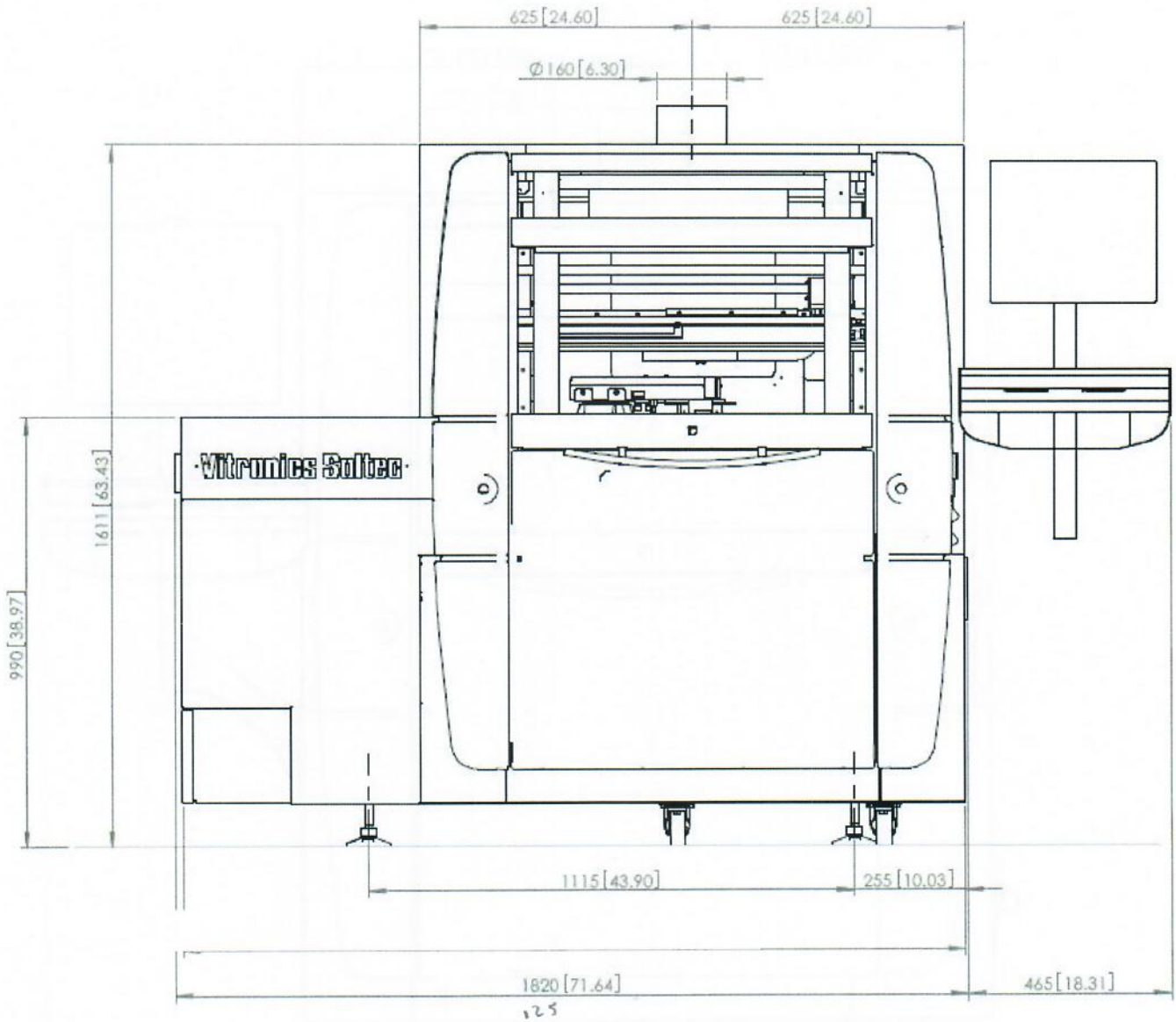
### 1.5.3 GENERAL CONTROLS AND SOFTWARE OPTIONS

DESCRIPTION	6745/6746
EasyTeach - Offline programming *, including DXF importer	Optional
SelectWave process viewing camera	Optional

Between brackets inches



FRONT VIEW 6745



FRONT VIEW 6746