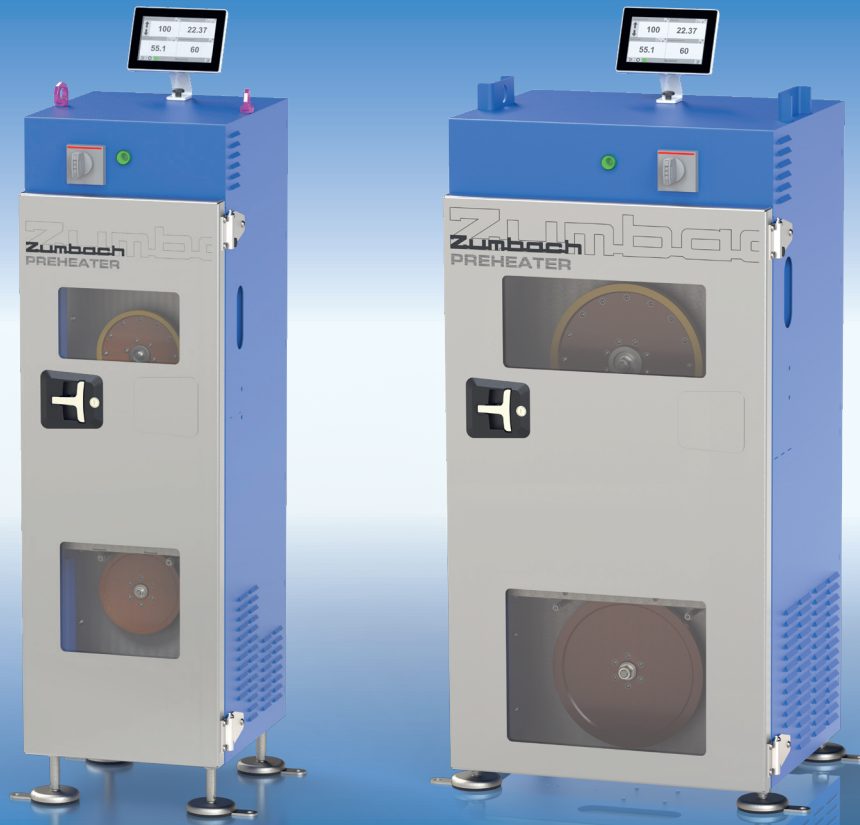


# Zumbach

SWISS PRIME MEASURING SINCE 1957

## PREHEATER



In-Line Induction

## WIRE PREHEATING – THE KEY TO BETTER EXTRUSION RESULTS

In-line inductive wire preheating enhances productivity and product quality. Repeatable and uniform conductor temperature helps shorten start-up times and reduce scrap production. Many compounds can only be extruded onto an adequately preheated conductor.

### Main benefits of wire preheating

- Better product quality and improved consistency
- Dielectric properties of the insulation material are more uniform and the process conditions are reproducible (important for category type data wires)
- Improved cell structure in case of foamed and foam/skin insulating material
- Higher line speeds are possible thanks to lower stress within the insulation materials
- Shorter start-up times = less scrap
- Preheating allows control of the bonding of the insulation material to the conductor
- Uniform conductor temperature maintained even during ramping phases
- Lasting improvements of the Cpk value
- The aging characteristics of the insulation are improved substantially through better uniformity (reduced risk of insulation cracking due to mechanical stress, e.g. bending of the wire)
- Oil and water residues on the conductor surface are cleaned away by evaporation

## FEATURES AND HIGHLIGHTS

### • VISU-Touch – PoE (Power over Ethernet) Webserver Operator Screen

Rugged and compact 7" (178 mm) capacitive Touch Screen. VESA mount installation for flexible operator display positioning at the desired location. Allows for the operator to set up the preheater and turn on/off without having to be local to the preheater (requires optional connection cable).



### • USYS compatibility

Supported by the USYS Software which allows the values for the preheater to be read and the recipes to be managed. Therefore the correct setting for the nominal temperature, material and further parameters can be automatically set when starting a new production.

### • Material recipe

System provides recipes for 20 different materials. 3 fixed and 17 configurable to define custom materials with: Specific Resistance ( $\Omega/m$  [ $\Omega/ft$ ]), Temperature Coefficient of Resistance [ $1/K$ ], Specific Heat ( $J/[K*kg]$ ) ( $J/[K*lbs]$ ) and Specific Gravity ( $kg/m^3$  [ $lbs/ft^3$ ]).

### • Ambient temperature measurement

The preheater measures the ambient temperature to accurately calculate the temperate increase needed to heat the wire from ambient to the desired preheat temperature.

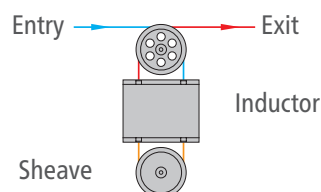
### • Closed loop temperature control

The system provides an optional interface for the connection of an external temperature measuring system. These devices offer the advantage to be placed right at the entrance to the extruder for most accurate wire temperature measurement as it enters the extruder accounting for any heat loss.

## OPERATING PRINCIPLE OF AN INDUCTIVE PREHEATER

The wire to be heated is looped around the sheaves (pulleys) of the preheater and forms a resistive loop. Based on the resistance of the conductor material, the line speed, the temperature of the incoming material (typically at ambient temperature) and the target temperature, the required heating current is calculated and induced in the loop by a transformer, thus without sliding contacts.

### Operating principle



The target temperature can be directly set in degrees (C or F). Preheater will keep that temperature constant, even in case of line speed variations.

Feedback from an independent wire temperature measuring system can be used by the preheater for closed loop temperature control. The preheating action will automatically stop if the line speed drops below a preset minimum, if a wire breaks or if the line stops for any reason.

## SPECIFICATIONS

PREHEATER			
Model	WST.8A.7.20.400-x	WST.16A.12.20.400-x	WST.25A.12.20.400-x
Nominal heat power <sup>1</sup>	8 kW	16 kW	25 kW
Sheave diameter	178 mm (7 in.)	305 mm (12 in.)	
Wire diameter <sup>1</sup>	1.5 - 2 mm (.06 - .08 in.)	2 - 2.8 mm (.08 - .11 in.)	2 - 3.8 mm (.08 - .15 in.)
Min. - Max. Ø (geometrical)	.32 - 3.5 mm (.01 - .14 in.)	.32 - 5.70 mm (.01 - .22 in.)	
Line speed	6 - 2500 m/min. (19.7 - 8202.1 ft./min.)		
Max. wire temperature	200 °C (392 °F)		
Line height	980 - 1130 mm (3.22 - 3.71 ft.)		
Dimensions (w x d x h)	520 x 500 x 1310 mm (20.47 x 19.68 x 51.57 in.)	680 x 560 x 1340 mm (26.77 x 22.04 x 52.75 in.)	
Weight approx.	210 kg (462 lbs.)	330 kg (727 lbs.)	
Mains			
Mains voltage (L1, L2, L3, PE)	400 - 460 VAC		
Mains frequency	50 / 60 Hz		
Current consumption max.	14 A	28 A	57.2 A
Environmental conditions			
Area of application	Indoor only, dry locations only		
Ambient temp. operation	+ 5 - 45 °C (41 - 113 °F)		
Altitude operation	< 2000 m (6561 ft.) over sea level		
Interfaces			
Integrated interfaces	Ethernet interface and, depending on the preheater version one of the following interfaces: – RS: Serial RS-232/-422/-485 host interface – DP: Profibus DP host interface – EN: Ethernet TCP/IP host interface – PN: Profinet IO host interface – EI: EtherNet/IP host interface		

<sup>1</sup> The nominal power applies for round copper wire within the diameter range shown.

Wires outside this range (smaller or larger cross section, or other materials) will still be heated however the max. heating power is lower.

## ACCESSORIES

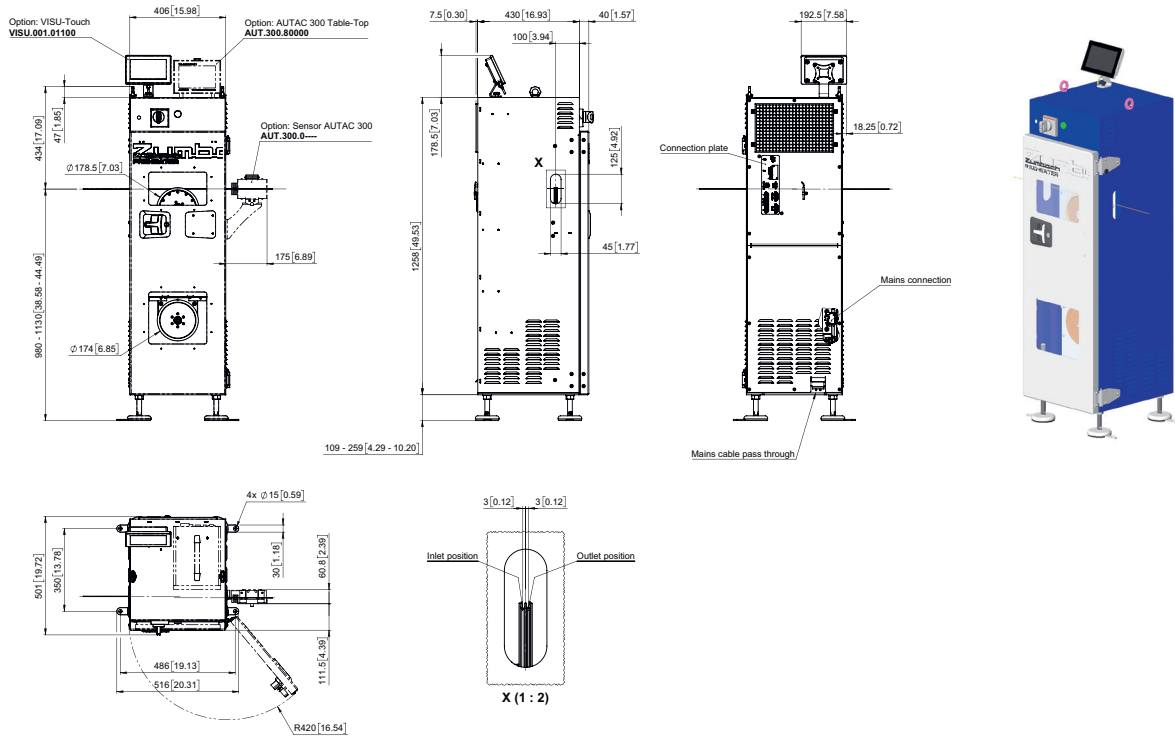
### AUTAC 300 – Wire temperature measurement – The perfect partnership for preheating

The AUTAC 300 is used for temperature measurement and control in applications with conductor preheating or post annealing stages. The system consists of a sensor and a processor unit. Non-contact and precise temperature measurement with "Convective Heat Flow Principle" from 10° C to 300° C on wires and cables with a diameter range from 0.2 mm to 7 mm (.008 in. to .28 in.).

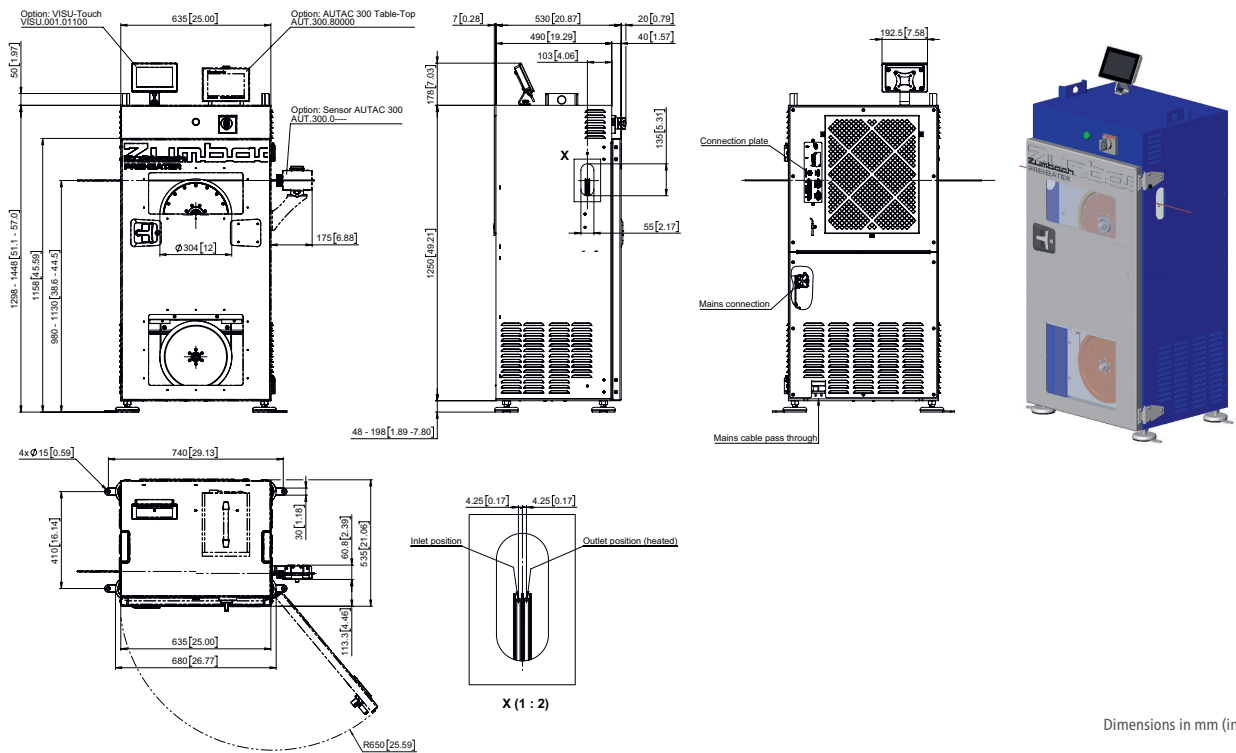
The measurement is independent of influencing factors such as colour, emission, speed, material or surface structure meaning the wire. The measuring head is slotted and can be changed without interruption, there is no need to thread the wire.



## DIMENSIONS PREHEATER WST 8A



## DIMENSIONS PREHEATER WST 16A – WST 25A



Dimensions in mm (inch)

• Technical specifications are subject to change without notice

## WORLDWIDE CUSTOMER SERVICE AND SALES OFFICES

Headquarter:  
Zumbach Electronic AG  
P.O. Box  
CH-2552 Orpund  
SWITZERLAND  
Tel.: +41 (0)32 356 04 00  
sales@zumbach.ch

BENELUX, sales@zumbach.be  
CHINA P.R., sales@zumbach.com.cn  
CZECH REPUBLIC, jvorlicek@zumbach.cz  
FRANCE, ventes@zumbach.com.fr  
GERMANY, verkauf@zumbach.de

INDIA, sales@zumbachindia.com  
ITALY, zumit@zumbach.it  
SPAIN, gestion@zumbach.es  
TAIWAN, info@zumbach.tw  
UNITED KINGDOM, sales@zumbach.co.uk

North American Headquarter:  
Zumbach Electronics Corp.  
140 Kisco Avenue  
Mount Kisco, NY 10549-1407  
Phone +1 914 241 7080  
USA  
sales@zumbach.com

