



TS Elino GmbH
Zum Mühlengraben 16-18
52355 DÜREN
GERMANY

Bestellung

Bestellnummer/Datum
[REDACTED] / 25.03.2014

Contact person/Telephone/e-mail
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Your vendor number with us

[REDACTED]

Please deliver to:

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

A/R # 30700120 CONTINUOUS PRE-OXIDATION OVEN

Per Quote 140180A

Sicher haben Sie übersehen, für die nachstehenden Positionen eine Auftragsbestätigung auszufertigen. Bitte lassen Sie uns diese innerhalb der nächsten 3 Werktage zukommen.

Item	Material	Description	Price per unit	Net value
	Order qty.	Unit		

[REDACTED]

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Item	Material Order qty.	Description Unit	Price per unit	Net value
1	1	Preoxidation Oven-20% with order each	106.330,00	106.330,00
Oxidations - Foerderbandofen including shipment, installation, and spare parts *** Position voll beliefert ***				
2	1	Preoxidation Oven-55% at delivery each	292.407,50	292.407,50
*** Position voll beliefert ***				
3	1	Preoxidation Oven-15% after installation each	79.747,50	79.747,50
*** Position voll beliefert ***				
4	1	Preoxidation Oven-10% after prove off each	53.165,00	53.165,00
*** Position voll beliefert ***				
Total Net Value Without Tax in EUR				531.650,00

NOTE: [REDACTED]

AUTHORIZED BY DATE

2.2. Process requirements / design data:

2.2.1 Products: shapes: cylindrical, elliptical or oval tubular sections filled with matrix and specific external contours such as: beading, bead, dimple, etc

Product Diameter range: min. 50 mm
 max 450 mm

Product Height range: min. 50 mm
 max 220 mm;

Mantle Wall thickness: min. 0.5 mm
 max. 3,0 mm;

Product Weight: 8.5 kg max;

Reference product characteristics: \varnothing 254 mm x 175 mm; weight: 8.5 kg;

See alternative in the annex!

2.2.2 System:

Oven: continuous furnace;

Capacity: approx. 65 reference parts / hour;

Clearance height: ' approx. 280 mm;

Occupancy: 4 reference parts side by side

Atmosphere: Air;

Temperature: heating maximum 900 ° C;

Working temperature: Set temp.: 800 ° C;

Heating-up time of the parts: 20 ° C to 800 ° C = approx. 45 min.;

Holding time @ 800° C: approx. 40 min.;

Outlet temperature: In the core (matrix) < 75 ° C
 on the jacket < 35 ° C

Transport speed: depending on the length of the oven; (min. 5.0 m / h, max. 10, 0 m/h)

Operator Working height (entry end): ~ 1000 mm;

Operator Working height (exit end): ~ 1000 mm

2.2.3 Standby mode:

Purpose: to preserve and conserve capital and energy, and not stress the oven

Temperature: approx. 500 ° C;

Time to heat to operating temperature:< 4 hours from standby temp

2.3. Energy/ Power supply:

These are following energy supplies available:

Compressed air: Supply pressure of Max 8 bar

Power line voltage: 480 V

Main frequency: 60 Hz

Current consumption: by demand

3. Control

3.3 Display / process data :

The temperature is controlled by a digital universal controller with PID rule control in micro process technology. The temperature measurement is realized with a NiCr-Ni thermocouple (Type N) (alternative Platinum-rhodium thermocouple, type N, type S).

Using temperature recorders, a graphical logging of the process data in the form of temperature-time diagrams must be provided. The following process data is to be visually displayed:

Current process step;

Actual and setpoint temperature;

Maturity of the process steps;

The oxidation parameters to log are:

Date and time;

Zone temperature;

Fan run;

Conveyor speed

If any alarm or alarm codes

3.4. Errors:

Errors of the system must be visible on a plain text display on the touch panel at a glance.



12.1.2 Furnace

Furnace throughput:	about 65 reference components per hour
Clear height:	about 280 mm
Belt loading:	4 reference products next to each other
Furnace atmosphere:	Air
Heating chamber temperature:	max. 940°C
Heating up from room temperature to about 800 °C:	about 45 minutes
Dwell time:	about 40 minutes
Zone length:	about 7200 mm
Rated load:	about 413 kVA
Control zones:	4 zones
Temperature control:	continuous control
Cooling system:	1 indirect air cooling zone: about 750 mm 1 indirect water cooling zone: about 750 mm 1 direct air cooling zone: about 3500 mm
Exit temperature:	about 75°C internal temp. of filter core about 35°C outside shell temperature
Noise pressure level:	max. 78 dBA measured at a distance of 1 m, except for furnace inlet and outlet areas

12.1.3 Transport system

Conveyor belt type:	circular wire-link belt
Belt width:	1250 mm
Drive:	three-phase motor, speed control with frequency inverter
Transport speed:	10...120 m/min., adjustable
Reference speed:	84 mm/min.

12.1.4 Furnace feeding & discharge

Inlet zone length:	about 1500 mm
Discharge zone length:	about 1500 mm



12 Appendix

12.1.5 Operating supplies (rating)

12.1.5.1 Supply

Electric power:

Total rating:	about 413 kW
Working voltage:	three-phase 460 V, 60 Hz
Control voltage:	110 VAC, 60 Hz

Cooling water

Quantity:	1 m ³ /h
Pressure:	5 bar
Temperature:	max. 20°C

Indirect air cooling zone (technical data of fan)

Flow rate:	about 5000 m ³ /h
Motor:	2.2 kW; 400 V; 60 Hz 1745 rpm

Direct air cooling zone with belt return station (technical data of fan)

Flow rate:	about 2 x 7300 m ³ /h
Motor:	0.37 kW; 460 V; 60 Hz 1745 rpm

12.1.5.2 Removal

Exhaust air:

Exhaust air to atmosphere

Cooling air exhaust from direct and indirect cooling zones	about 11.400 m ³ /h
Furnace inlet exhaust:	about 500 m ³ /h

Cooling water

Quantity:	1 m ³ /h
Pressure:	pressureless



12.2 GT094

Required water quality:

Appearance:	colourless, clear
pH value:	7.02
Total hardness:	10.3 °dH
Carbonate hardness:	5.6 °dH
Conductivity:	390.0 $\mu\text{S cm}^{-1}$
Neutral salt content:	80.0 mg NaCl /l
Carbonic acid:	13.2 mg/l
SO ₄ :	35.5 mg/l
Fe:	0.06 mg/l
Oxygen:	10.3 mg/l
NO ₃ :	14.5 mg/l
Cl:	15.0 mg/l
FeCO ₃ :	11.0 mg/l