

AIRIQ

Partners in Aluminium Processing



Trevisan Vertical Paint Line

Vertical Powder Line

The vertical paint line is made up of 10 key components to enable a company to vertically powder coat Aluminium extrusions with constant batch runs and constant flow.

The line was manufactured by Trevisan from Italy and was installed in 2005. The line has barely run over the past years and is now for sale.



Load and Unload facility

This enables the operators to drill or punch a 6mm hole in the end of the extrusion while in a horizontal form. It then continues along a chain table where a jigger hooks the profile up to a constant chain which in turn drags the profile up to a vertical state.



After completion of the cycle it utilizes a download peg arm, which is driven at relative speed to the main chain but at an angle so as to lay the profile back down to a horizontal state where it can be placed on a chain conveyor and unhooked.



Tunnel

The pre-treat tunnel is a two storey access pre-treat facility which consists of various chemical baths which is then pumped via 10 column pumps through spray rings and risers to adjustable spray nozzles to treat the Mill Aluminium.





Operating data

Profiles maximum dimensions: 150 x 200 x 7000 mm

Conveyor rated speed: 1,5 m/min.

Installed electric power: 150 KW

Installed thermal power: 500.000 kcal/h

Specifications

(times referred to conveyor speed = 1,5 m/min)

Stage No	1	2	3	4
Operation	Alkaline degreasing	Pre-rinse	Recirculation rinse	Clean industrial water rinse
Time (min/sec)	2'42"	6"	30"	6"
Temp. C°	50	Room	Room	Room
Spray rings (nr)	14	1	3	1
Pump delivery (m3/h)	2 x 131	-	85	-
Pump motor (KW)	2 x 18,5	-	11	-
Heating power (kcal/h)	350,000	-	-	-

Stage No	5	6	7	8
Operation	Acid deoxidising	Pre-rinse	Recirculation rinse	Clean industrial water rinse
Time (min/sec)	2'06"	6"	30"	6"
Temp. C°	Room	Room	Room	Room
Spray rings (nr)	11	1	3	1
Pump delivery (m3/h)	2 x 110	-	85	-
Pump motor (KW)	2 x 15	-	11	-
Heating power (kcal/h)	-	-	-	-

Stage No	9	10	11	12
Operation	Chromating	Pre-rinse (industrial water)	Recirculation demineralised water rinse	Clean demi water rinse
Time (min/sec)	1'42"	6"	30"	18"
Temp. C°	30	Room	Room	Room
Spray rings (nr)	9	1	3	2
Pump delivery (m3/h)	110	-	85	12
Pump motor (KW)	15	-	11	15
Heating power (kcal/h)	150,000	-	-	-

As seen in above diagrams there are 12 stages that make up the complete pre-treat process. After pre-treatment the profiles continue onto the drying oven.

DryingOven

This Gas fired drying oven is used to dry profiles after Pretreat Tunnel



Powder Booths x 2

These powder booths allow for ease of color changes and maintenance of the gun parts, reciprocators and powder center.

Powder is sucked up out of a hopper via air pumps and pumped through anti static lines to the gun head where it is electrical charged. The powder is applied to the negatively charged profiles, which helps the powder stick to the now pre-treated metal.



Gelling Oven /Infrared oven

This is a small gas fired electric element catalyst oven, which starts the gelling process by radiated heat and melting the fresh powder coat on the extrusions to eliminate contamination within the curing oven. This oven has 60 elements split into two zones.



CuringOven

Used to cure powder coated metal. Consists on polymerization fans, gas fired tube burners and curing fans which re-circulate air around the heat tubes and through- out the oven.



Main Chain Aerial Conveyor

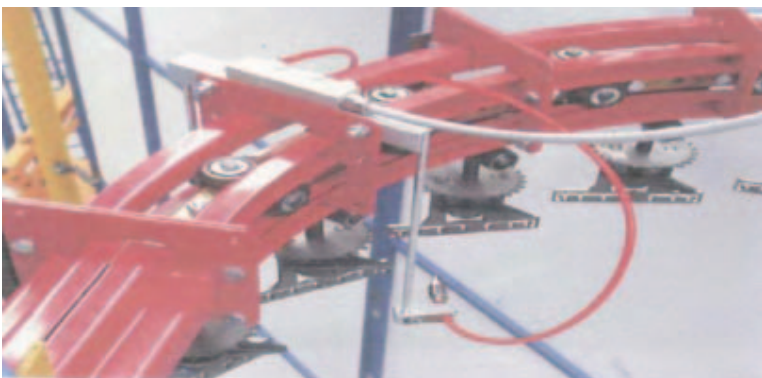
Used to transport profiles the length of the vertical paint line while having the ability to divert different colors to each booth. Trans-Mec aerial conveyor specs:

The plant has been designed and dimensioned for the following use:

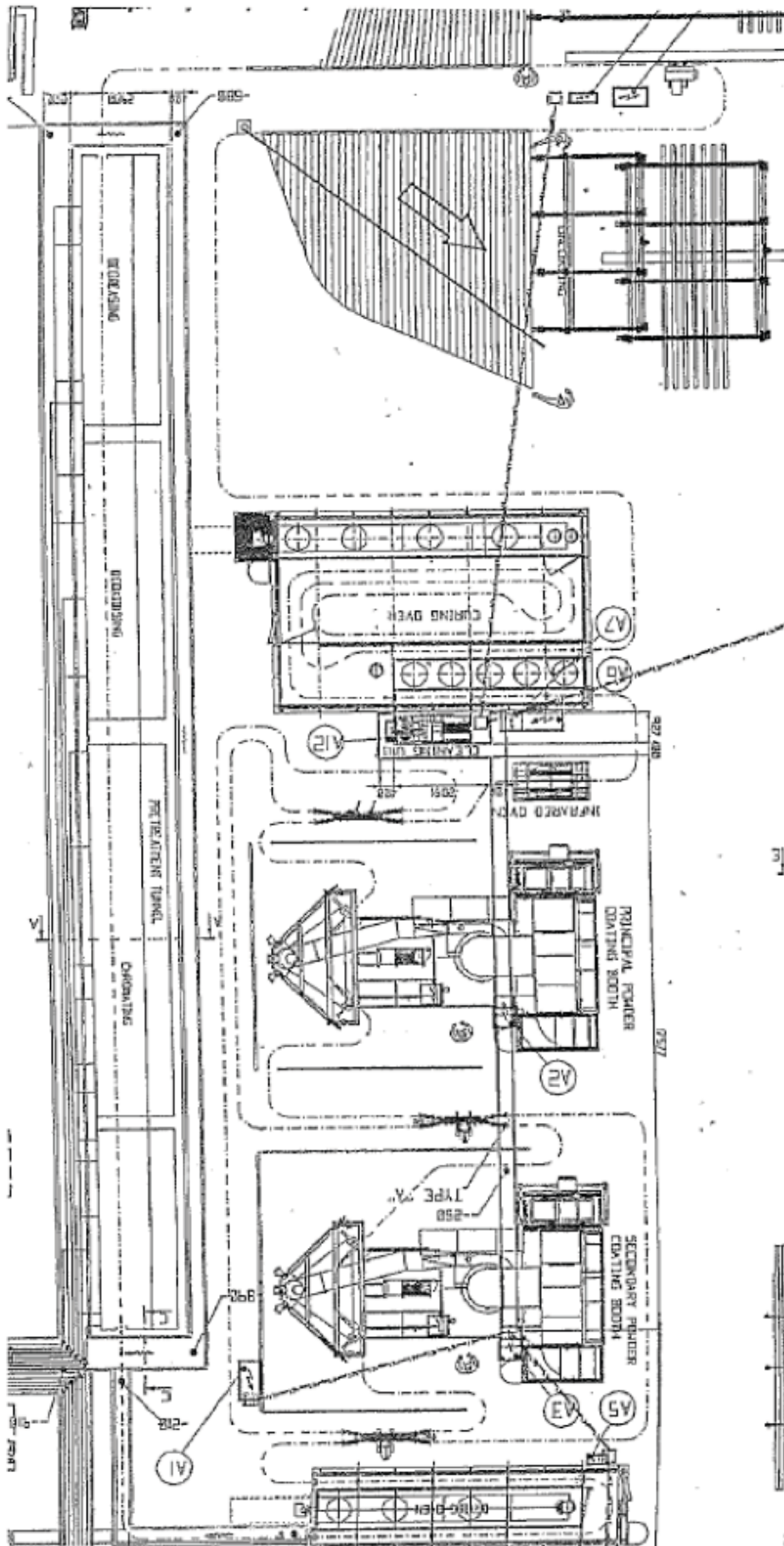
For working extruded aluminium profiles especially for making this kind of process cycle:		
<ol style="list-style-type: none"> 1. pieces loading 2. drying 3. chemical pretreatment 4. vertical powder coating 5. powder polymerisation 6. conveying through the different working steps 7. pieces unloading 		
For aluminium extruded profiles painting (vertical profiles)		
For powder painting		
For profiles with maximum dimensions:		
- height	mm	7000
- width	mm	150
- depth	mm	200
For maximum weight profiles	Kg/each	25
For a total weight on the chain (plant without Effecta)	Kg	9,500
For a maximum weight distributed linearly for only 1 meter	Kg/m of chain	50
For a rated/minimum/maximum conveyor speed	m/minute	1,5/0,8/2,2
For temperatures in the polymerisation furnace	°C	175+185
For hanging pitch along the chain	mm	66/100/133/200
Exclusively for the use stated in this manual and not for others.		
No other articles or products can be used or worked by the plant (in its entirety and in its single parts) described in this manual. For example, as indications and general rule to be followed, are excluded the following uses:		
<ol style="list-style-type: none"> 1. powder coating system and plant are not designed for liquid coating 2. reciprocator has not been designed for conveying people or other things 3. The tanks for the alkaline degreasing, for the acid deoxidising and for the chromating can be used only for these purposes. Therefore the chemicals that are utilized in each tank must comply with the function of that tank. 		
Powder feature:	LEL(1) ≥ 40 g/Nm3	



**USER AND MAINTENANCE MANUAL:
VERTICAL COATING PLANT**



General Plant layout



Waste Cleaning Center

This enables you to spray to waste and also keep your booth area tidy by vacuuming up loose powder.

This unit works in conjunction with the cyclone pneumatic valves to open and close depending on where you need the powder to go, i.e. Re-claim or Waste.



Boiler (Hot Water)

This is used for heating the Pretreat baths. It utilizes a gas-fired burner to heat a closed hot water loop.

