The Italtecno Compact powder coating plant has been designed and engineered to coat, by means of polyester thermosetting powders, aluminium profiles and sheets. These items are loaded on suitable bars (complete with hangers).

Standard models 1250 - 1500. Maximum load dimensions must be within 7000 x 300 x 1250/1500 mm; production up to 8-9 loads/hour for a standard plant.

Plant design has been conceived to be able to carry out a particularly quick colour change.

The advantage of the Compact plant compared to vertical and horizontal powder coating plant is the small room required and the limited initial investment when a low/medium production is required (300-500 kg/h).

**Treatment Cycle**

In horizontal powder coating plants profiles loaded on flightbars are transported lengthwise the booth by a chain overhead conveyor.

In the COMPACT plant, instead, the flight bars proceed step by step while the booth moves on special rails and paints the profiles; in fact electrostatic guns spray the painting powder on the profiles. The flightbars then move to the following sectors:

- Hooking/unhooking area, where two operators unhook the painted profiles and load the ones to be painted.
- Powder coating: the booth, equipped with four or six spray guns installed on two pneumatic reciprocators, moves and stops automatically;
The oven is placed on top of the line i.e. over the hooking/unhooking area and over the area where the painting booth moves. The oven has two opposite opening, one on each end of the bottom wall, for flightbars entrance and exit.

Advantages

- Only two operators are required for the whole plant
- Given the small dimensions of the booth a perfect cloud of powder is achieved which allows a uniform painting of the complete surface of the profiles without the need of any manual touch-up
- Colour change is carried out in a very quick and easy way thanks to the reduced dimensions of the booth walls
- Very low energy consumption, thanks to the piece passage openings which are located on the bottom wall of the oven as the heat tends to rise
- Thanks to the small volume of the booth the suction and powder recovery systems work perfectly, thus permitting a very reduced powder consumption
- If the plant is equipped with two booths, while one is working, the second can undergo cleaning without any downtime for colour change.
- Very reduced space is required to install the plant.

Plant Composition

The plant is made of:

1. Polymerisation oven
2. Double conveyor
3. Painting system
4. Electrical control board

1. Polymerisation oven
- Housing fabricated in steel profiles, welded and bolted
- Internal and external walls in zinc plated sheet, thermally insulated with rock wool panels
- No. 1 gas burner
- No. 1 combustion chamber, resistant to high temperatures
- No. 2 helical fans for air circulation inside the oven
- Automatic temperature control by means of a thermostat
- Working temperature 180–200°C

2. Double Conveyor
- Rail in bent sheet and steel profiles, welded and bolted
- No. 1 towing unit, equipped with gear reduction unit and no. 2 gear wheels
- No. 2 chain lines
- No. 9 flightbars in tubular steel sections, 7 m. long
- The conveyor is supported on one side by the same bearing structure of the oven, on the other by the oven itself
3. Powder Coating System

3.1 Painting Booth (1 o 2)

- Bearing structure in steel sections, trailer-mouted, complete with supports and wheels to allow sliding on rails gun feeding
- Booth body in stainless steel panels, prearranged for piece passage and spray gun templates
- Suction by means of tanks with vertical manifolds
- Powder container, with vibro-sieve and fluid bed for powder recovery and spray gun feeding
- Quick blocking release system for hooking to the driving group
- Mini-cyclone placed inside the booth for the separation of air/powder coming from the collection tank placed underneath the cyclone

3.2 Ventilation and filtration unit with automatic powder recovery

- Bearing structure in steel sections, trailer-mounted, complete with supports and wheels connected to the driving group, and quick blocking/release system for hooking to the towed booth
- Gear box for forward/backward automatic motion of the booth, with variable speed
- Powder recovery cyclone with 96% efficiency, in painted steel sheet plate with hinged opening bottom for easy cleaning.
- Upper part connected to the suction hopper of the booth
- Easy-to-clean glass tank to recover and reuse powders collected inside the booth by means of the Venturi pump
- Filter unit with automatic back-pressure sleeve washing, with rotating ramps complete with 2+2 filter cartridges, pneumatic membrane valves, and control panel allowing regulation of time and quality of air for cleaning
- Connection channel cyclone/filtering group in

3.3 Electrostatic Spray Guns (4 o 6)

- Powder coating equipment
- Adjustable electrostatic generators
- Pneumatic Venturi pumps with adjustable capacity, installed on the powder drawer for spray guns feeding
- Pipets and cables for spray guns connection

3.4 N.2 Reciprocators

- Pneumatic or electromechanical functioning
- Adjustable speed with electronic control

4. Electrical Control Board (in compliance with C.E.I. norms)

- Metal box, dust-proof
- All switches and control buttons on the front side of the box work at low voltage
- All high-voltage switches, transformers and electrical equipment are placed inside the box
- Feeding voltage three-phase + neutral + ground
### Main Technical Data

<table>
<thead>
<tr>
<th></th>
<th>COMPACT 600</th>
<th>COMPACT 1250</th>
<th>COMPACT 1500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Load Height</strong></td>
<td>MM</td>
<td>600</td>
<td>1,250</td>
</tr>
<tr>
<td><strong>Load Length</strong></td>
<td>MM</td>
<td>7,000</td>
<td>7,000</td>
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<tr>
<td><strong>Trolley Spacing</strong></td>
<td>MM</td>
<td>1,200</td>
<td>2,000</td>
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<tr>
<td><strong>Average Booth Speed</strong></td>
<td>M/1'</td>
<td>1,2</td>
<td>1,5</td>
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<tr>
<td><strong>Painting Cycle</strong></td>
<td>1'</td>
<td>8</td>
<td>8</td>
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<tr>
<td><strong>Electrostatic Guns</strong></td>
<td>N.</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Reciprocators Stroke</strong></td>
<td>MM</td>
<td>1000</td>
<td>1500</td>
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<tr>
<td><strong>Trolley Output</strong></td>
<td>TROL/H</td>
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<tr>
<td><strong>Average Load</strong></td>
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<tr>
<td><strong>Hourly Output</strong></td>
<td>Kg./H</td>
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<tr>
<td><strong>Average Daily Output</strong></td>
<td>Kg/G</td>
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<td>1,800</td>
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<td><strong>Thermal Power</strong></td>
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<td>200,000</td>
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<tr>
<td><strong>Electrical Power</strong></td>
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<td>25 (35**)</td>
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<tr>
<td><strong>Plant Length</strong></td>
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<td>13 (18**)</td>
<td>14 (23**)</td>
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<tr>
<td><strong>Plant Width</strong></td>
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<td>10</td>
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<tr>
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<tr>
<td><strong>Required Height</strong></td>
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<tr>
<td><strong>Compressed Air</strong></td>
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<td>140</td>
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</table>

**Value for two booths**