PULSAR
INNOVATIVE VERTICAL YARN DYEING SYSTEM
THE BIRTH OF A NEW CONCEPT

Our new PULSAR yarn dyeing machine is the consequence of a brave intuition that is going to be the Milestone for a new Era of yarn dyeing.

The main questions that we wanted to be answered at the beginning of our R&D three years ago were essentially two:

1. What can be done to improve dyeing quality and give a substantial cut on running costs in the meantime?
2. Why do yarn dyeing machines necessitate so much water and electric power to accomplish their tasks?

We really had to reset all the information we had collected along more than 60 years of brilliant and experienced career in the yarn dyeing industry and start thinking out of the box on something different, something that not necessarily had to be stuck with the common sense of the industry.

Today, after 3 years of industrial testing led by our Engineering Team, LORIS BELLINI is finally ready with a new line of package dyeing machines that is the very essential summary of our devotion to both the community and the environment.

PULSAR package dyeing machine: achieving the impossible.

THE CONTENTS OF AN INNOVATIVE IDEA

By looking at our new PULSAR yarn dyeing machine from a distance, no one could ever tell it is fed up with such a ground-breaking and revolutionary technology: it is the typical vertical kier system made up of that same upper quality 316L stainless steel that we always employed for the rest of our production range.

It has the usual pneumatic opening/closing lid on the top end and nothing else in particular could possibly draw attention to other “different” details. Things dramatically change as soon as that distance will become closer, as many fundamental new components would become evident even to the less expert eyes: main circulation pump is much smaller than what the industry is used to consider for a particular installed capacity and the new hydraulic circuit is definitely out of the ordinary. These exquisite technical solutions will translate in few astonishing numbers:

1. Electric load (Installed capacity) for main circulation pump is 70% lower* than what installed on an ordinary machine
2. Liquor ratio is now set to 1:3.8**
3. Average consumption of chemicals, steam and compressed air is directly proportional with a reduction from 20 to 30%

In addition to this, our new PULSAR yarn dyeing system will work combined with a revised and dedicated version of our Leonardo process controller that will automatically adjust all those critical parameters that a dyer normally needs to take care of: this will almost eliminate the risk of human error and will give the chance to focus the attention on other important aspects of a dye house management.

Our new PULSAR yarn dyeing machine does not require any specific dyeing cycles, but the ones already used by ordinary yarn dyeing machines: the general approach will not change. Even the size of the packages for each different fiber will remain unaltered and no particular configuration is required to achieve what this machine is promising.

WHAT CAN BE EXPECTED

Right-first-time dyeing is now assured by even lower ΔΕ differences inside-outside the packages, while great savings of electric energy, water, chemicals, steam and compressed air will bring extremely fast payback times over the initial investment cost and a virtual higher profit once that same cost has been completely covered.

It’s not just a matter of dyeing quality and profit, of course. It’s a matter of environment as well.

Lower consumptions will make our new PULSAR dyeing machine fully compliable with the carbon footprint and water saving regulations that most of the countries worldwide today are imposing to guarantee a greener tomorrow for our future generations.

At the time we are writing these lines, at the beginning of year 2014, more than 20 industrial-scale PULSAR package dyeing machines are successfully working in the most demanding dye houses worldwide, dyeing big cones (1,8 Kg) and warping-beams up to 60 Kg each.

---

*This is an objective information that could be easily verified by checking on motors’ identification plates

**This liquor ratio has been confirmed for the majority of the fibers available
SOME FIGURES

There are no other words to add when numbers come into play.

Here below a very simple chart with a direct confrontation on installed powers of main circulation pumps between our ordinary RBNVI yarn dyeing machine, which is much appreciated worldwide for its lowest consumptions on the market, and our new PULSAR yarn dyeing system. These figures will compare machines with the same installed capacity expressed in kg, using our standard big-sized packages for cotton yarn.

<table>
<thead>
<tr>
<th>MACHINE MOD.</th>
<th>INSTALLED CAPACITY (kg)</th>
<th>INSTALLED POWER ON MAIN CIRCULATION PUMP (kW)</th>
<th>MACHINE MOD.</th>
<th>INSTALLED CAPACITY (kg)</th>
<th>INSTALLED POWER ON MAIN CIRCULATION PUMP (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>680/1965</td>
<td>100</td>
<td>18.5</td>
<td>680/1965 PD</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>840/1965</td>
<td>150</td>
<td>22</td>
<td>840/1965 PD</td>
<td>150</td>
<td>4</td>
</tr>
<tr>
<td>1040/1965</td>
<td>250</td>
<td>30</td>
<td>1040/1965 PD</td>
<td>250</td>
<td>5.5</td>
</tr>
<tr>
<td>1280/1965</td>
<td>400</td>
<td>45</td>
<td>1280/1965 PD</td>
<td>400</td>
<td>11</td>
</tr>
<tr>
<td>1400/1965</td>
<td>500</td>
<td>55</td>
<td>1400/1965 PD</td>
<td>500</td>
<td>11</td>
</tr>
<tr>
<td>1600/1965</td>
<td>700</td>
<td>55</td>
<td>1600/1965 PD</td>
<td>700</td>
<td>15</td>
</tr>
<tr>
<td>2000/1965</td>
<td>1000</td>
<td>110</td>
<td>2000/1965 PD</td>
<td>1000</td>
<td>30</td>
</tr>
</tbody>
</table>

The new extraordinary installed powers on main circulation pumps now available with our PULSAR yarn dyeing system are not subjected to specific circumstances, nor to any other ideal situation, but they are a very objective outcome of years of R&D.

It’s a simple matter of fact: lower installed powers on equal dyeing times will generate enormous savings of electric energy with particularly fast payback times over the ordinary technology.

11 PULSAR yarn dyeing system were successfully installed in a renowned yarn dyeing company for shirting in China, dyeing packages and beams.