

INDIGO NEWS

by MASTER

THE NEW TECHNOLOGY OF “ECOTURBODYNAMIC” WASHING

WATER

H₂O: formula of the life, water.

Two atoms of hydrogen and one of oxygen: H₂O is the only chemical formula that everybody, all over the world, knows.

Polluted, contaminated, wasted, water is the big neglected among natural resources.

If, indeed, for years there is a sensitivity and it has been started an international debate about the air quality and about the reduction of greenhouse emissions in the atmosphere, regarding water, the alarm of the scientific community is almost unheeded and we continue to consider this fundamental element, as if it were inexhaustible and able to bear any kind of exploitation.

But it is not: while water consumption is destined to double within 2025 in developing Countries and to increase by 18% in developed Countries, the access to drinking water is not guaranteed to all the world population yet.

It seems to be paradoxical that the planet of water has to face such a serious crisis, but it is a fact that the fresh waters and drinking waters are a small portion and the irrational use, intensive farming, industrial processes and pollution, are further exhausting them.

Everything we do pollutes or is a burden to Earth somehow, but there are things that we can do as individuals and as factories to limit our impact on environment. The topic is cultural, not only technological.

Progressively we have to direct towards a greater sharing of services and a reduction in consumption that are heavily aggressive towards environment and resources.

Water is a primary good like air, land and energy, use it well and save it has become a civil imperative. It is a problem that to many people and for long time seemed to be only theoretical: today it reveals itself to be tangible and central.

IN TEXTILE INDUSTRY

In textile industry and more specifically in the production of denim fabrics, water represents

a fundamental process component and of the higher consumption, especially in processes of pre-treatments, dyeing, post-treatments and finishing.

In the specific field of continuous dyeing of warp chain with indigo and sulphur dyestuffs, the several washing phases that are necessary to remove and take away solute and insoluble substances, not fixed dyestuff, etc... require a big water consumption.

With the intention of reducing that big consumption, the washing vats have been continuously subject of several updates, like counterflow feeding among them, the internal division in counterflow compartments, the adding of pumps with sprayers or water blades, etc..., unfortunately these solutions for one reason or another have not achieved completely the predetermined aim.

When the warp chain runs into a slasher unit immersed into water, a layer or film of liquid on its surface is created, in accordance to laws of hydrodynamics, which runs parallel to it. Hence to improve the washing we need to disturb the formation of this layer and get the maximum possible turbulence into the liquid.

The ideal slasher washing unit should have: maximum water/yarn exchange, maximum removal of the insoluble substances, absolute respect of the regular disposition of the yarn ends, reduction to the minimum of the tension, minimum consumption of energy and water.

The washing technique is considered simple and it seems to not concede to the designer to elaborate any revolutionary principles when he wants to comply as much as possible to the concepts expressed for the ideal unit, above all if you want to maintain a simple mechanics and with the minimum maintenance.

On the contrary, a brilliant idea, verified and tested in our laboratory, has allowed us to realize the "ECOTURBOWASH" (Pat.) device which extraordinary high efficiency, industrially proven, confirms it as fully in conformity to the requirements of the ideal washing.

ECOTURBOWASH® (Pat.)

This revolutionary washing intensifier that equips our machines surely is the most intelligent means for washing.

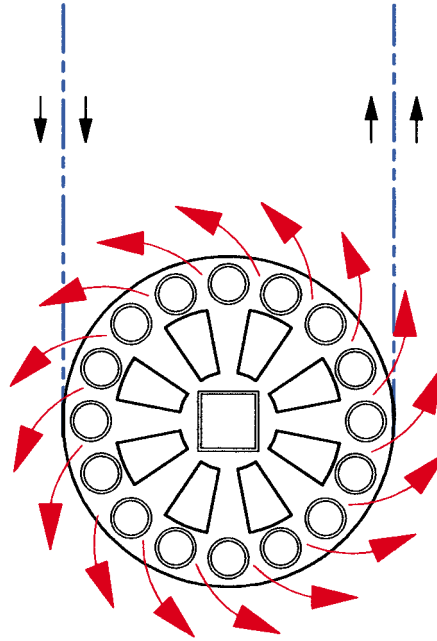
Autonomously, in a simple way, it creates turbulences that are conveyed to all width of the warp chain, forcing, during its rotation, part of the big quantity of water that it moves to pass through the yarn, multiplying the washing effect and reducing drastically the water consumption.

It is the answer to the pressing necessities for saving the good by now precious as the water is, a way to economize it, thinking to the future.

HOW IT WORKS

Basically it is a particular roller with a multi tubular structure, in which a special turbodynamic rotor, at each revolution, forces the whole amount of water contained inside to go out,

moving in that way in less than a minute almost the total volume of water contained into the vat, forcing a large part of water to pass through the portion of warp chain that partially envelops the roller.



The first of the above said two effects disturbs the formation of the superficial film of water on the warp chain, thus increasing the water-yarn exchange, while the latter, i.e. the forced passage of the moved water through the yarn, increases the washing significantly with the removal of the unfixed pigment.

Continuous feeding of exchange water therefore can be drastically reduced and consequently the wastewater, compared to the water of the normal vats, will be less in quantity but more concentrated with impurity and this also will give the advantage to reduce the operational costs at the final water treatment plant.

The innovation brought by us to the washing process, after all, is based on the principle of “let the water to pass through warp chain” instead of the traditional process of “let the warp chain to pass through water”. A real novelty!

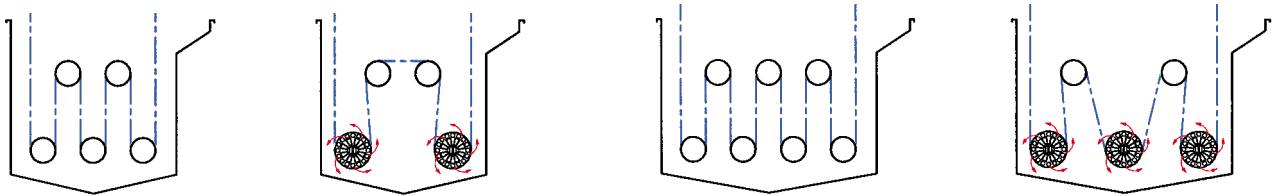
ADVANTAGES

- Drastic reduction of the washing water consumption
- Intense and efficient washing, in many cases also with cold water, with saving in thermal energy
- Working autonomy without energy consumption

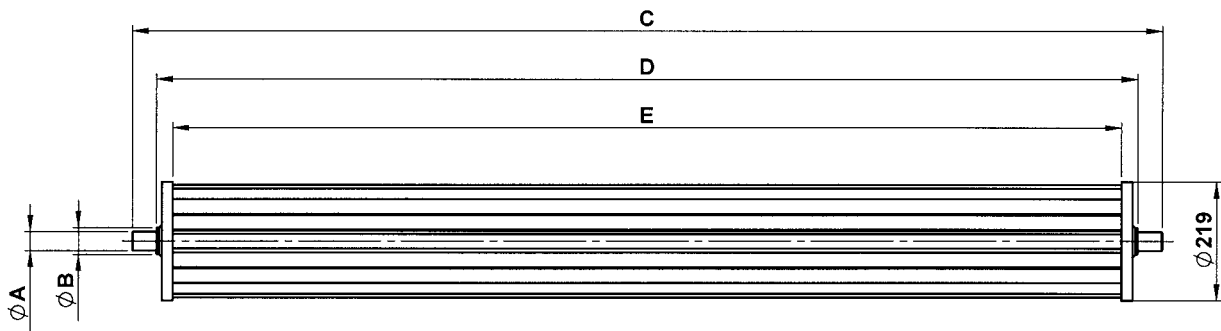
To these ecological and economical advantages you must add also the one to obtain a cleaner yarn and consequently better predisposed to wet finishing processes, with an increase in the qualitative performance.

HOW TO FIT IT

This particular washing intensifier can be fitted in more units in replacement of the normal lower rollers for any kind of washing vats, for any kind of dyeing machine for warp chains, both slasher and rope.



These drawings show the possible insertion solutions to be adopted to compensate the possible differences of encumbrance of the ECOTURBOWASH (Pat.) intensifiers compared to normal rollers that they replaces.



Ø A	Ø B	C	D	E

If you are interested, please send to us copy of this drawing completed with the necessary dimensions for the realization.

TECHNOLOGICAL INNOVATION FOR A SUSTAINABLE FUTURE.

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