

AIRO<sup>®</sup>

# All in one solution

All-in-one preparation and finishing



# AIRO®

The all-round finishing machine for **washing, drying and softening** any kind of woven, non-woven and knitted fabric.

A high quality finishing style which has no equal in the world.

**The AIRO® style**



### **AVAILABLE IN SEVERAL VERSIONS**

- Two or four channels
- Washing & drying  
or drying only

### **EVAPORATION CAPACITY**

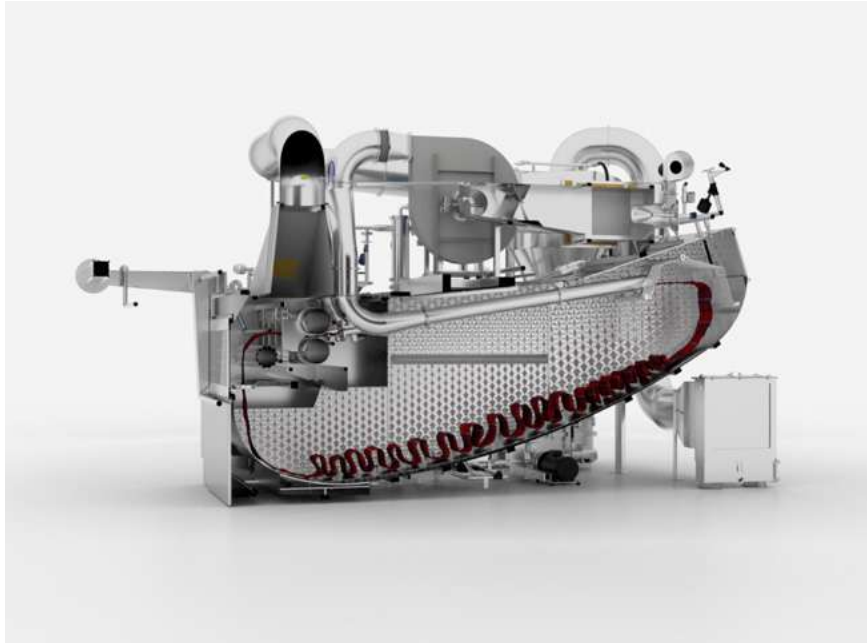
Up to 450 kg  
per hour

### **FABRIC TREATMENT SPEED**

Up to 1000  
metres per  
minute



# All in one solution



## HERE'S HOW IT WORKS

The AIRO® principle, introduced and patented in 1985 by Biancalani, is based on the combination of an air-only fabric transport system and the high-speed impact of the material against a special stainless steel grill. The fabric is driven by an intense airflow and accelerated without any tension inside the processing tubes. It is then ejected against an impact grid positioned at the rear of the machine, where it discharges all the accumulated kinetic energy. After falling onto a Teflon-coated slide, the fabric flows to the front of the treatment vat, ready to be guided by a roller to the beginning of a new cycle.

## FEEL THE POWER OF AIR AND STEEL

The exclusive air-only transport system keeps the fabric safe from any form of mechanical crease or abrasion. It delivers a strong and delicate action during the washing or squeezing process without any friction and with absolute absence of defects, as the fabric is continuously “massaged” by air inside the tubes and immediately opened as soon as it is ejected at high speed towards the stainless steel impact grill. At the same time, the air forces the water to deeply penetrate the fabric, while the impact against the grill quickly discharges it, largely improving the efficiency of the washing process, and providing a mechanical and permanent effect of softening and natural compaction of the fibres, universally known as AIRO® Hand.

## STEAMING OR WASHING?

A double set of steam nozzles, at the entrance of the tubes and in front of the grills, ensures an intensive and uniform steaming, allowing for excellent dimensional stability of woven and knitted fabrics and perfect anti-pilling treatments (lamb skin effect) on polar fleece.

In addition, a sophisticated hydraulic system, equipped with an introduction and re-circulation pump, with bath filtering, direct and indirect heating, chemical tank with mixer, and pH-meter, in combination with the air action, ensures great results with all types of wet treatments.





## THRILL YOUR FABRIC WITH CONFIDENCE

Thanks to the special air transport system and the design of the ejector tubes, AIRO® is able to carry out every treatment, on any type of fabric in absolute absence of defects. For instance, AIRO® can safely perform preparation and finishing of any knitted or woven Lyocell and Cupro fabric without any crease mark and always with perfect results, given by the mechanical beating action that guarantees the complete removal of dust and pilling.

## HIGH-QUALITY PERFORMANCES

The high evaporation capacity and the fast treatment speeds (up to 1000 m/min) for effective grid crashing allow to reach the desired result in a shorter time, increasing the production capacity and minimizing specific energy consumption and treatment costs. The availability of four- and two-channel versions, the inverter-controlled motors, and the possibility to also work with a single channel, allow the AIRO® to flexibly meet the needs of each and every user, always delivering quality, in a cost-effective way.

## LEAVING NO DIRT BEHIND

All AIRO® versions are equipped with an efficient filtering system in order to guarantee clean operation, and to allow for minimal maintenance times. The drying and softening version (AIRO® SL) is supplied with an automatic self-cleaning disc filter with lint compactor, while the versions with washing capabilities feature a cyclone-based system with a cascade filter and water recycling, and provide an automatic self-cleaning system that rapidly cleanses the whole interior of the machine, minimizing the need for human intervention.

## KEEP IN TOUCH

Every parameter in the AIRO® is managed by a PLC, and controlled through a touch screen with a specifically designed user interface that is simple and easy to use.

Programming the various parameters (temperature, air capacity, speed, water inlet, chemicals inlet, steam supply...) allows users to define and store their personalised standards into recipes, and ensures complete repeatability. Constant functional monitoring and an in-line help system permit the rapid identification of any area in need of intervention.

## SUITABLE FOR EVERY FABRIC

AIRO® can process any type of textile surface in a very wide range of materials, always with optimal results. From natural fibres and blends, to artificial (viscose, polyamide, Cupro, Lyocell, Modal) and synthetic ones, woven, knitted, non-woven, coated, or laminated, for different applications ranging from apparel to upholstery to home textile and technical applications. There are no limits in terms of weight and width. Results are obtained in complete safety and without defects.

## CUSTOM TECHNICAL AND FASHION SOLUTIONS

The technological division of Biancalani studies – with expertise and discretion – together with our customers, the process solutions that are most suitable for each type of material and treatment requirement.

**DIRECT CONTACT:** [technologist@biancalani.com](mailto:technologist@biancalani.com)

## WHAT CAN AIRO® DO FOR YOU?

### ON ALL VERSIONS:

- » Airflow tumble-drying and mechanical softening of wet fabric
- » Mechanical, chemical-free softening, on dry fabric or with steam application
- » Mechanical softening after application of chemical products
- » Intensive steaming treatments
- » Single-pass polymerization and softening of resin-treated fabric
- » Cleaning treatment after bio-polishing and surface finishing
- » Compaction, stabilization, relax

### ADDITIONALLY, ON AIRO® VERSIONS WITH WASHING CAPABILITIES:

- » Application of chemicals (i.e. softener) by exhaustion
- » Fibrillation and defibrillation
- » Bio-polishing and enzyme washing treatments
- » Light milling of woollen fabrics
- » Washing, desizing, scouring, bleaching...

## WHICH RESULTS WILL IT DELIVER?



AIRO® HAND label certifies the original AIRO® effect of the fabric finished in a Biancalani machine.

- » Softness, volume, drape (AIRO® HAND)
- » Lamb skin effect on polar fleece
- » Clean surface and inhibition of pilling formation\*
- » Opening of the chenille and three-dimensionality on jacquards
- » Swelling and volume on velvet, corduroy, and pile fabric in general
- » Dimensional stability on knitted and stretch fabrics
- » Perfect preparation of Tencel™ Lyocell\*
- » Relaxation, increase in elasticity, resilience, and “sewability”
- » Délavé effect, colour reduction, vintage effect\*
- » Hand breaking on rigid fabric or laminated materials
- » Casual look and wrinkled effect
- » Softness and uniformity of the surface on printed cloths
- » Touch enhancements such as “paper hand” or “gummy hand”
- » Compaction and light felting on woollen fabric
- » Opalescence and frosted effect\*

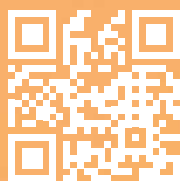
...and many more!

(\*) only on AIRO® machines with washing capabilities



TECHNICAL SPECIFICATIONS

|  | AIRO® 2                  | AIRO® 2 SL               | AIRO® 4                  | AIRO® 4 SL             |
|--|--------------------------|--------------------------|--------------------------|------------------------|
| Number of channels                             | 2                        | 2                        | 4                        | 4                      |
| Drying & softening treatments                  | ✓                        | ✓                        | ✓                        | ✓                      |
| Steam treatments<br>(i.e. for polar fleece)    | ✓                        | ✓                        | ✓                        | ✓                      |
| Wet treatments<br>(i.e. enzyme washing)        | ✓                        | /                        | ✓                        | /                      |
| Loading capacity<br>(according to fabric type) | up to 1.200 m            | up to 1.200 m            | up to 2.400 m            | up to 2.400 m          |
| Fabric treatment speed                         | 30-1.000 m/min           |                          |                          |                        |
| Maximum treatment temperature                  |                          |                          |                          |                        |
| AIR HEATING WITH STEAM                         | 150°C                    |                          |                          |                        |
| AIR HEATING WITH GAS<br>OR DIATHERMIC OIL      | 170°C                    |                          |                          |                        |
| Average evaporation capacity                   | 175 kg/h                 | 175 kg/h                 | 350 kg/h                 | 350 kg/h               |
| Maximum water temperature                      | 70°C                     | /                        | 70°C                     | /                      |
| Tank capacity for chemical products            | 600 L                    | /                        | 600L                     | /                      |
| Installed electrical power                     | 92 kW                    | 77 kW                    | 174 kW                   | 141 kW                 |
| Average electrical power absorption            | 44 kW                    | 40 kW                    | 77 kW                    | 70 kW                  |
| Installed thermal power for air heating        | 400 kW                   | 350 kW                   | 800 kW                   | 700 kW                 |
| Installed thermal power for water heating      | 520 kW                   | /                        | 810 kW                   | /                      |
| Dimensions (W x L x H)                         | 5.100 x 8.350 x 4.200 mm | 3.950 x 8.600 x 4.200 mm | 6.850 x 8.600 x 4.700 mm | 5.500 x 9150 x 4200 mm |



FIND OUT MORE  
[BIANCALANI.COM](https://biancalani.com)

**Biancalani**  
TEXTILE MACHINERY

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