

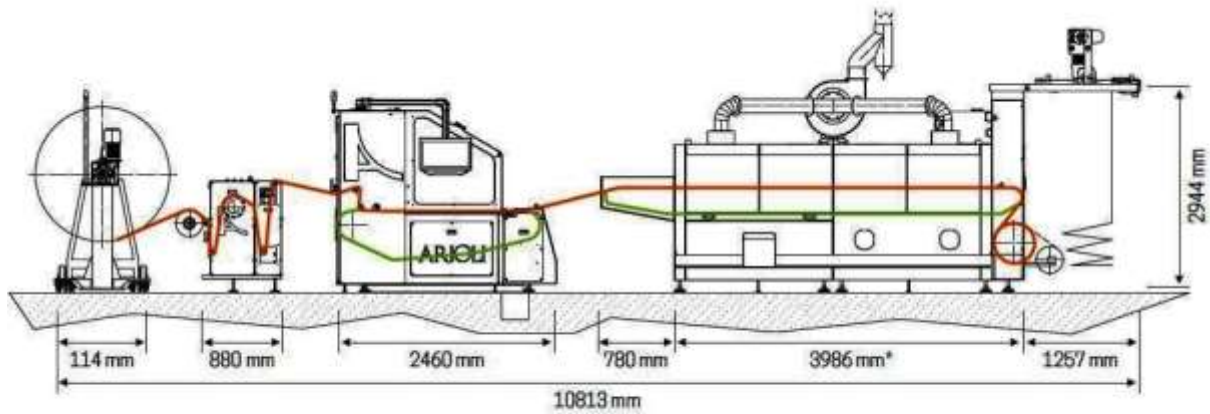
# Arioli SpA

Arioli is a 70 year old world leader operating in the textile finishing field with experience and know-how for Digital printing, Loop Ager (Steamer) and Washer .

1. **ArioPrint - The Digital Revolution -- Digital Textile Printer** - ArioPrint is the digital textile printing machine designed and produced by Arioli.

## Technical Specifications

<b>Printable width</b>	Up to 2000 mm
<b>Media thickness</b>	Up to 40 mm
<b>Print-head type</b>	Kyocera double color - 300 dpi native resolution
<b>Head configuration</b>	16 heads (4 lines, 8 colors per line)
<b>Resolution</b>	From 300 to 1200 dpi
<b>Ink type</b>	Reactive, acid, disperse
<b>Number of colors</b>	Till 8 colors
<b>Rip Software</b>	Open specifications to all Rip software-houses
<b>Belt glue type</b>	Permanent
<b>Belt washing</b>	Inverter controlled brush
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<b>Belt drying</b>	Double squeegees and air blade
<b>Electrical power installed</b>	28 kW
<b>Voltage</b>	380 V
<b>Frequency</b>	50 Hz three phases
<b>Nominal compressed air pressure</b>	6 bar
<b>Maximum water flow rate</b>	18-20 l/min



\* Dryer: two industrial chambers, with single pass (3986 mm length)

Dryer can be supplied with one industrial chamber, with triple pass (1986 mm length)

**Beam:-** Fixed to the monolithic structure by means of joints and extremely resistant tie-rods, the beam guarantees maximum linearity in the printing carriage movement and precision in the fabric/printing head distance across the printing area. The stiffness of the steel monolithic structure ensures essential precision for optimum printing results guaranteed over time.

**Printing Carriage:-** The printing carriage is designed to support Kyocera Bi-Colour heads (KJ4B), arranged in four rows. The possible modes are: Mono-Directional, Bi-Directional and Multi-pass. The complete configuration of the printing carriage covers a 45 cm print step. The possible resolutions vary from 300x300 dpi to 1200x1200 dpi, passing through all the possible combinations. The Multi-pass mode also allows printing the most critical patterns that usually bring out defects (for example banding).

**Aramidic Fiber Belt:-** The aramidic fiber belt and its unique positioning system by means of a very high resolution encoder, guarantees highly precise fabric feeding enabling achievement of high quality printing.

**Color Cabin:-** The ink tanks are positioned laterally on the machine in order to facilitate the refilling activities.

**Inlet System:-** The Arioli fabric feed device is versatile and compact, capable of handling both knitted fabric (with light dance roll) and woven fabric (with pneumatic piston dance roll). Furthermore the system is able to handle the small roll ( $\varnothing$  max 38 cm) as well as the jumbo roll by means of a specific de-roller.

**Optical Fibers:-** The use of optical fibers permits obtaining high speed as well as high quantity data transfer between the PC and the printing heads. Moreover, thanks to the technology used, ArioPrint is not affected by "classical" electromagnetic interferences, thus avoiding possible data transmission problems and consequent interruptions/printing errors.

**Washing and Blowing system:-** The air blade blow system acting on the aramidic belt is studied and positioned to avoid drops of water falling on the surface of the fabric.

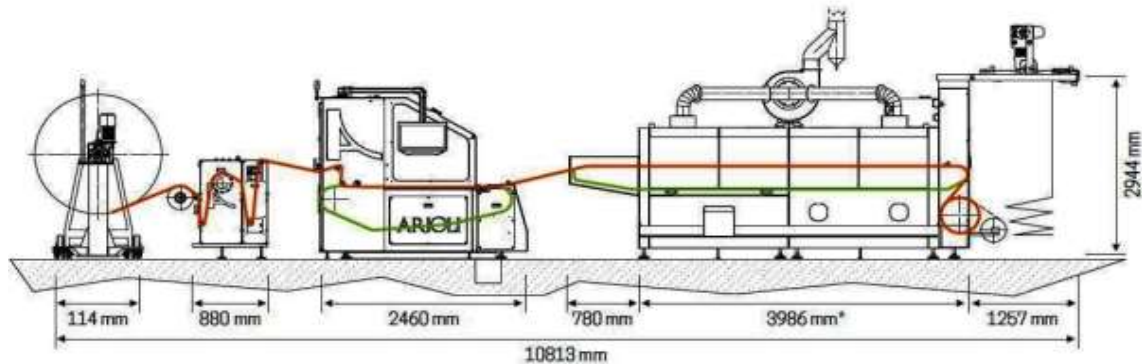
**Production:-**

Resolution [dpi]		300x300	600x600	900x900	1200x1200
Printing mode		Mono-Directional/Bi-Directional/Multi-pass			
Productivity [m <sup>2</sup> /h]	30 kHz	1000	433	218	122
	20 kHz	900	346	148	90
Printing width [mm]		2000			

2. **Steamer - Loop Ager** -- Arioli steamer is highly versatile and flexible model **Vapo 2015** / **Vapo hybrid Eco** can be used in all the continuous production lines for processing all types of fabrics and for various printing recipes

#### Advantages:-

- ✓ The special steam distribution system inside the treatment chamber obtains important advantages, such as:
  - Steam consumption reduced by 30%;
  - Less need of urea in the printing paste and in the digital process preparation;
  - Reduction of steaming time and consequent increase in productivity.
  - Fixed to the transport chains;
  - Equipped with special silicone strips;
  - Designed with specifically studied to allow working with the loop at its maximum length



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#### Loop formation

Handling of the chain by means of a (patented) mechanical guiding system, with loop formation realized by the combined action of the overfeed roller and the modular steam flow that, in addition to pushing the loop, eliminates the possible formation of static electricity.

#### Cylinders and sticks

Specially designed profile of the cylinders and sticks ensures optimum contact of the fabric. The operator can work with the loop at the maximum length (obtaining maximum productivity of the machine). In addition, the new Arioli sticks have the fundamental advantage of being fixed to the transport chain and are equipped with special silicone/Teflon strips.

#### Water injection nozzles and steam spray

It is useful for temperature control when working in saturated steam (102°C), and in order to have correct percentage of humidity to the re-circulated steam.

### **Automatic steam control and PLC**

Temperature and steam flow are automatically controlled by means of an external touch screen set-up comfortably showing effective values.

### **Ventilation section**

Depending on the model chosen, a specific number of fans will be installed in order to obtain high-performance circulation of steam and air. Secondly an appropriate number of water trays will be added to generate saturated steam directly in the steaming chamber, thus ensuring the correct compensation of the overheated steam in the machine and the perfect humidification.

### **Steam distribution system**

Steam distribution system in the treatment chamber enables important advantages including: steam consumption reduction by 30%, less need of urea in printing pastes and in digital preparation process, reduction of the steaming time and consequent increase of productivity

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## **3. Digital Printing: Special Devices for Vapo2015**

The main problem of digital printing has always been the marks between the printed surfaces of the fabric and the back side, once in the dryer or rolled. For this reason, Arioli has developed the following solutions:

### **Fabric introduction system:**

Introduction of the fabric in the chamber without tension and contact on the printed side, thanks to a special laser drum

### **Continuous chains for stick support:**

This technology allows working without loop fluctuations, avoiding colour repetition.

### **Automatic system for the rods distancing ("double step"):**

With the introduction of this new patent, Arioli steamer allows the operator to double the distance of the sticks from 152 mm to 304 mm. This operation is automatically done, in just 45", without having to interrupt the process.

### **Variable rod rotation system:**

This device allows reducing or stopping the standard rotation of rods avoiding reprints or fabric curling.

### **Drying fabric before touching the printed side:**

480 mm diameter drum, heated by steam, dries the unprinted side of the fabric avoiding replicas on cylinders at the outlet.

### **Inverter controlled fan motors:**

Avoid swing of the loop ensuring better energy efficiency.

### **Fabric extraction system**

With laser system it prevents contact and friction between the loops.

### **Pre-humidification chamber:**

By means of the pre-humidification system, the Arioli steamer prevents the fabric from undergoing uncontrolled thermal shock and preventing air entering inside the chamber.

#### 4. **Uniwash** -- The Tensionless fabric washing system

Arioli has been manufacturing open width continuous washing machines for more than 40 years. Due to its geographical location, near Como, the world excellence textile city, Arioli has always dedicated major attention to the tensionless cloth transportation system, because of the high quality of delicate fabrics always manufactured in the area.

UniWash Tensionless Washing Range has multipurpose applications in the following fields:

- Preparation of knitted and woven fabrics;
- Scouring of Jersey and Wool;
- De-sizing of Synthetic Knits;
- Wash off after Printing;
- Boil off after dyeing;
- Relaxation of elastic fabrics.

**Advantages** - Maximum delicacy also on the most difficult fabrics

**Acquajet system** -- It is world famous and unique for the very high flow of recirculated water, is the only existing device that solves the harshest washing problems even with the most challenging fabrics. Thanks to the water blade flow regulation and the special fabric transport system, that minimizes tension, high washing performance and transport smoothness are obtained.

**Modularity and regulations** -- Arioli washing lines are composed of independent tanks allowing the insertion of additional elements according to different needs. Modular tanks are equipped with:

- Automatic regulation of the water flow, with multiple control of the parameters (in-out temperature, water renewal and recirculation)
- Automatic dosing (chemicals and soap)
- Automatic adjustment of the fabric tension (both along the line, and independently on the single tank)
- Load cell and synchronization dancing bar;
- Ph control and Automatic cleaning filter.

