



RESearch centers of Excellence in the Textile sector

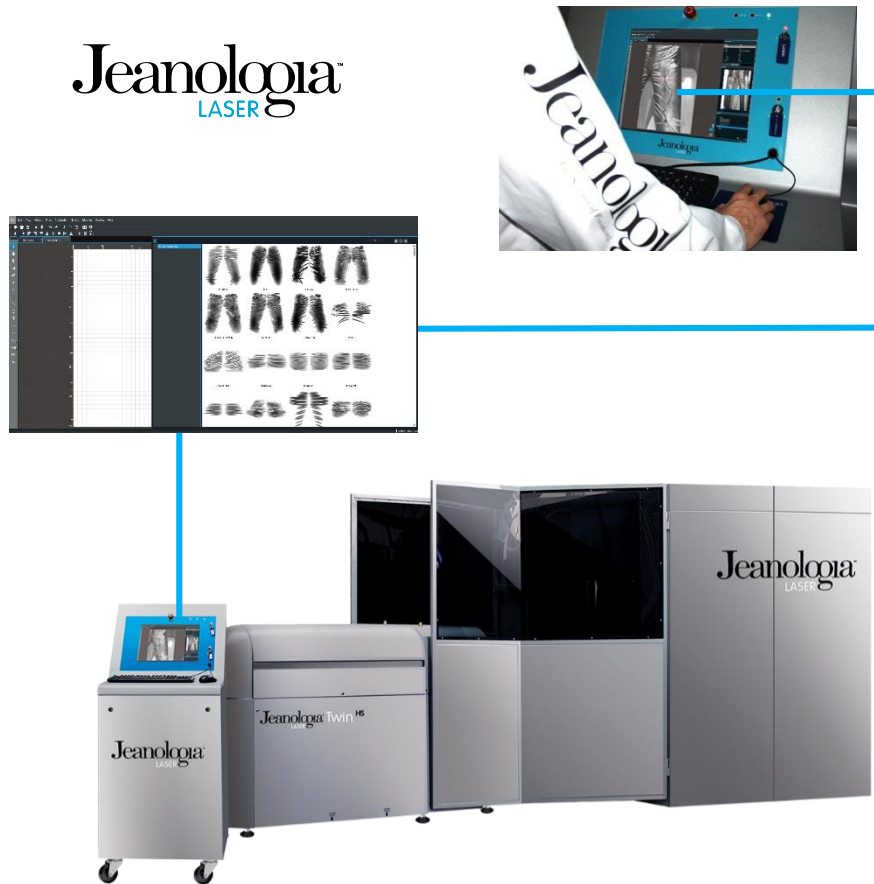
# **Sustainable textile finishing using ozone and nanobubble technologies**

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RESET ILE3 - Bucuresti (Romania), 04/04/17 - INCDTP

# JEANOLOGIA TECHNOLOGIES ON GARMENT: LASER & OZONE



Jeanologia **G2**  
ECO



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# JEANOLOGIA TECHNOLOGY: OZONE ON FABRIC

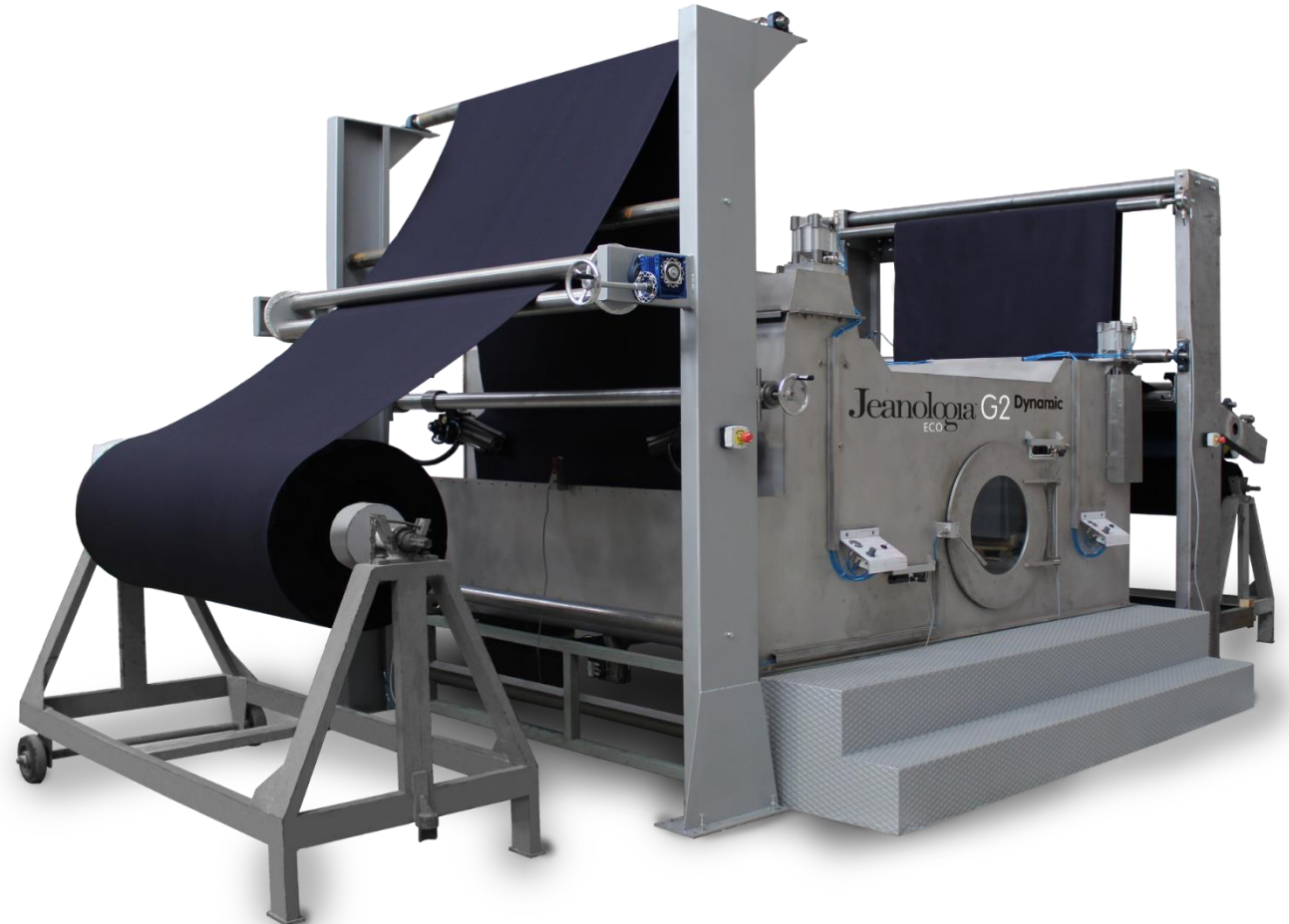
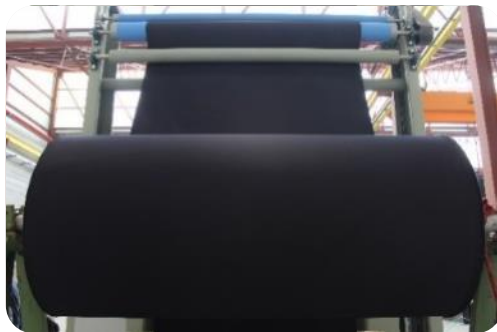
Dynamic G2 springs from the knowledge acquired over the years in technology G2 .

The Dynamic G2 is designed to treat all types of fabrics, from heavier to lighter, with any structure and widths up to 1.80m.

It provides with an entire color range of TIME PASSED BY effect form the same base fabric.

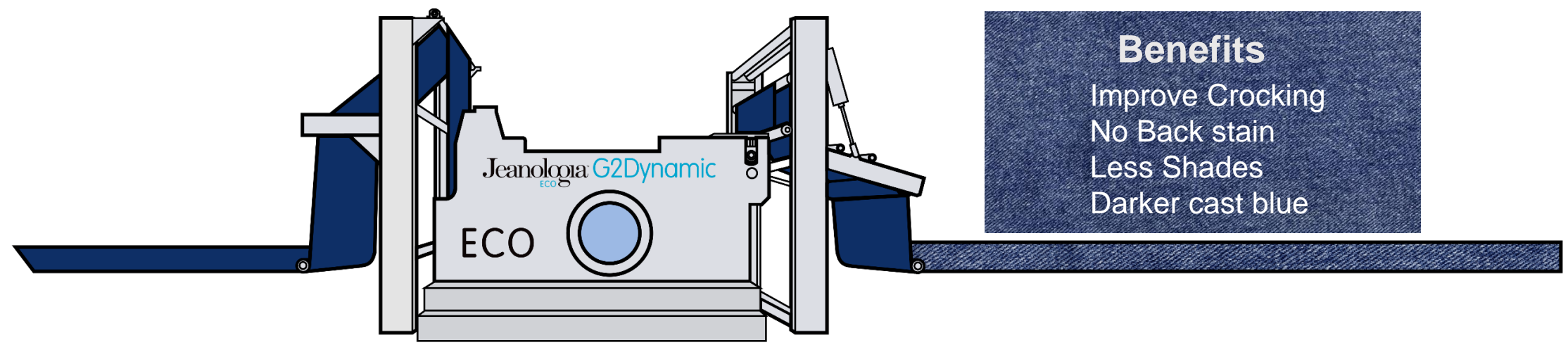
The aged appearance finishes obtained with the Dynamic G2, are not reproducible by applying chemical and conventional systems.

Like other Jeanologia products, DYNAMIC G2 is tightly linked to **EFFICIENCY & ECOLOGY**





# JEANOLOGIA TECHNOLOGY: OZONE ON FABRIC



**Benefits**  
Improve Crocking  
No Back stain  
Less Shades  
Darker cast blue

**Dry Processes**

Avoid Potassium Permanganate  
Laser:  
Better contrast  
Less Intensity  
Faster

## Garment Finishing

Improve the EIM score



**Wet Processes**

Reduce up 60% washing time  
Reduce up 60% water consumption  
Ozone:  
Improve desize steps  
Shorter process  
Better contrast  
More consistency

# JEANOLOGIA TECHNOLOGY: BENEFITS

Average consumption per jean

CONVENTIONAL  
FINISHING



70 l

(7 toilet flushes)



INTRODUCING  
TECHNOLOGIES LIKE  
LASER & G2



20 l

(2 toilet flushes)

2,5 Kwh

(10 h TV)



1,5 Kwh

(6 h TV)

150 gr



50 gr

**EIM** ENVIRONMENTAL  
IMPACT  
MEASURING  
SOFTWARE

If there is no measurement, there is no improvement

JEANOLOGIA  
TECHNOLOGIES

TRADITIONAL WAY



EIM SCORE

30

0-33 LOW IMPACT

EIM SCORE

62

34-66 MEDIUM IMPACT

## And... what about garments???

Traditional finishing processes for garments are based on exhaustion methods, dip-coating, direct impregnation, etc. These processes are **water-intensive systems** producing **high quantities of waste-water**, and **high consumption of chemicals** is also produced.

### DIP PROCESS

- DIP GARMENT IN FINISH BATH (INSIDE OUT, M:L :: 1:5)
- WASHING MACHINE MAY BE USED
- ROTATE FOR 20 min.
- HYDROEXTRACT (70-80% PICK UP)
- TUMBLE DRY AT 70°C, MOISTURE CONTENT 10-12%
- TURN THE GARMENT RIGHT SIDE OUT
- IRO/STEAM PRESS TO SET CREASES AT DESIRED PLACES
- CURE AT 150 °c – 160 °c for 8-10 min





## A breakthrough technology: nanobubbles and 'eFlow'

**Chemical products** for finishing (softeners, easy care/wrinkle free resins, resins for 3D effects, liquid repellents, antimicrobials, dyes, etc.) get in contact with the garments with a minimal amount of water, being **transported to the fibres through micro-nano bubbles** by means of a flow of wet air.



## Implementation on a finishing textile company. Benefits

**eFlow technology** was developed (2013-2015) thanks to **MNB-ECOFINISHING** CIP-Ecoinnovation EU project driven by JEANOLOGIA S.L., and being supported by:

- PIZARRO S.A. (PT).
- AITEX (ES).

**Different finishing processes** can be done:

- **Softening / conditioning.**
- **Functionalization.**
- **Dyeing.**

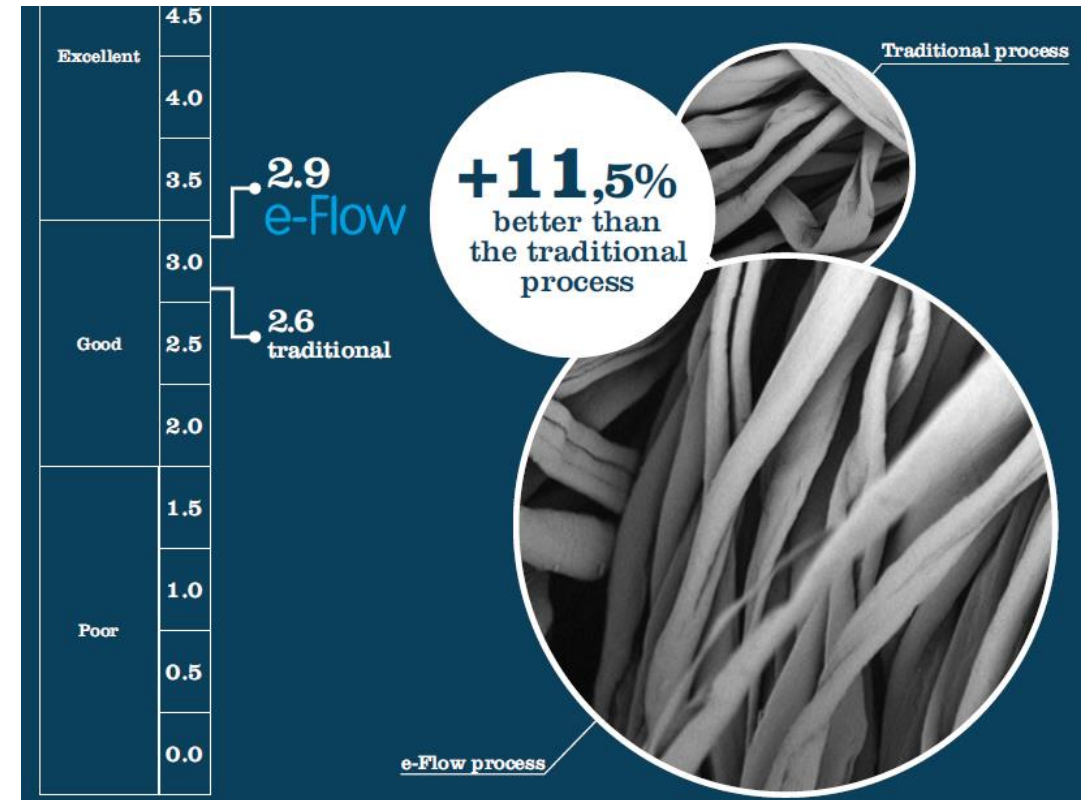
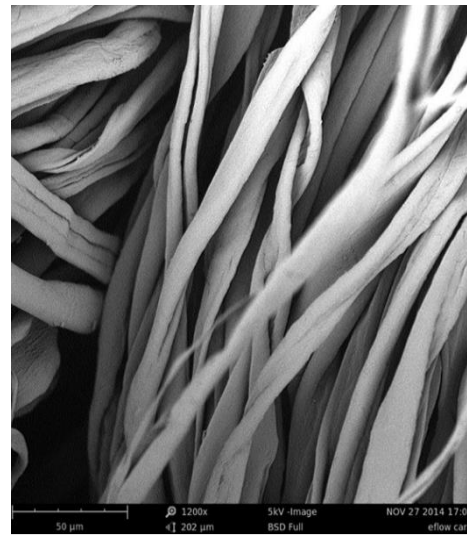




## Implementation on a finishing textile company. Benefits

### Softening process:

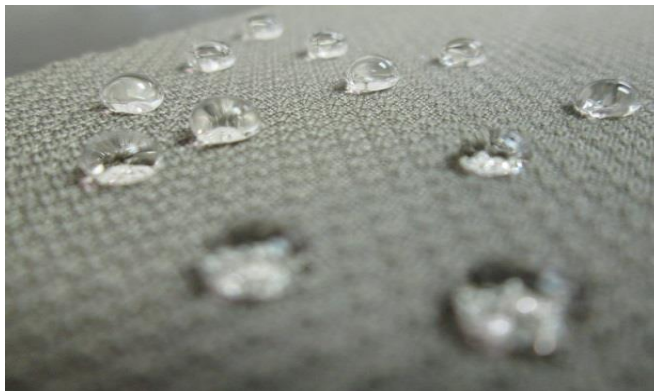
- Garments like T-shirts, shirts, sweatshirts and sweaters.
- Composition: 100% cotton; synthetic blends, polyester.
- **Optimal Liquor ratio: light fabrics 1:0,3; Heavier clothing 1:0,5.**
- Treatment time (50 Kg of charge): < 25min.



## Implementation on a finishing textile company. Benefits

### Functionalization:

- Application of fluorocarbon (C6). Durable Water Repellent finish - DWR.
- Garments to be treated: workwear (jeans and sweatshirts)
- Composition (recommended): cotton and cotton/polyester mixtures.
- **Optimal Liquor ratio 1:0,8.**
- Treatment time (50 Kg of charge): < 40 min.
- **C6 savings: 20%.**

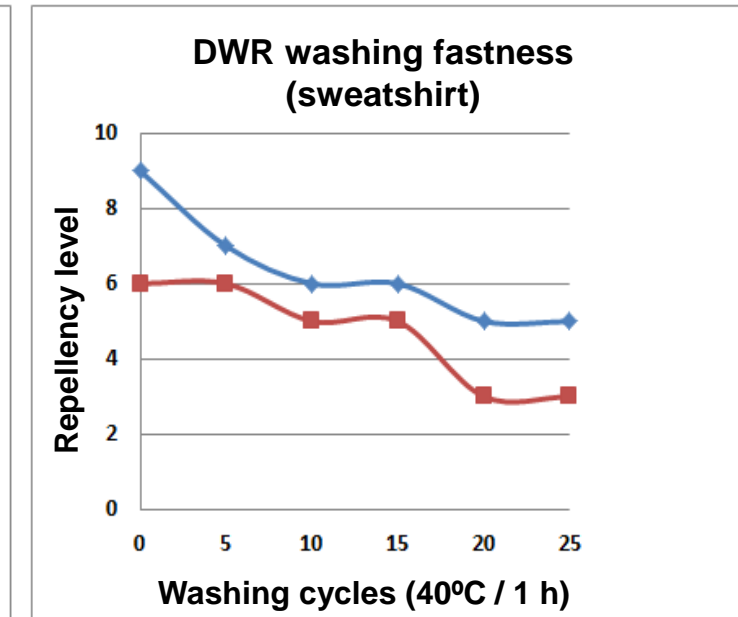
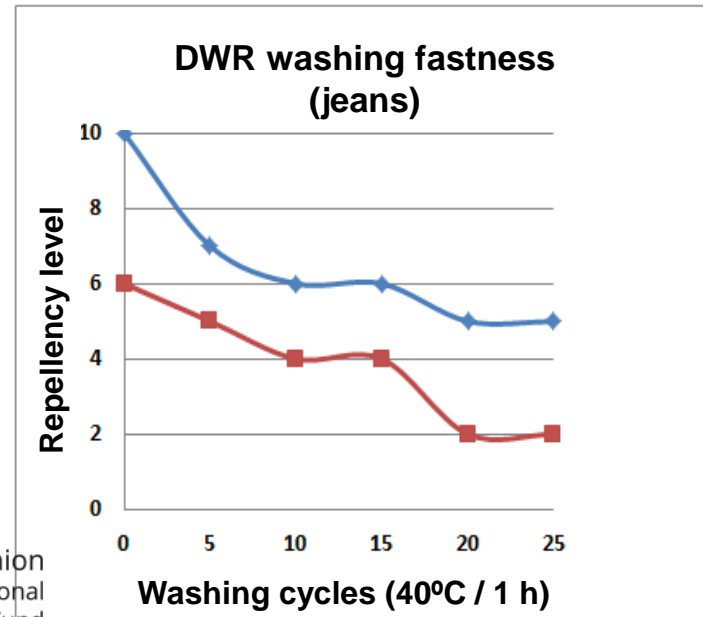


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European Union  
European Regional  
Development Fund



## Implementation on a finishing textile company. Benefits

### Dyeing:

Some interesting fashion effects on garments.

- Overdye (reactive/unitary).
- Tie dye (reactive/unitary): non-homogeneous dye that produces irregular effects (commonly known as the Italian expression: maltinto).
- Dye (reactive/unitary). **NO salt added. Ultra low liquor ratio.**



## Nanobubble technology as a good practice for EU textile finishing industry

- Reduction of 86% of water consumption.
- Reduction of 44% of energy consumption.
- Elimination of 97% of wastewater.
- No need for wastewater treatment.
- **Savings up to 50% of chemical products.**
- Technology/results proven not only at R&D stage but also at industrial level.
- Restrictive legislation not applicable for the nanobubble technology.
- Easy-to-learn and to-operate technology.
- Possibilities to launch R&D and cooperation projects at national/EU level.
- Eco-creativity, creative industries and design/fashion also focused on the technology.



# Closing remarks about ozone and nanobubble finishing technologies as a GP for the EU textile industry:

**G2 Dynamic and e-Flow technology**  
are certified as ecological by AITEX

**aitex**  
textile research institute

**eco-technology**

CERTIFICATE NUMBER: **2014AP0112**      COMPANY: **Jeanologia**

AITEX certifies:

e-Flow technology, developed by the above company, gets the requirements to be considered an ecological production process:

- Without any toxic emissions to the atmosphere.
- With reduction of up to 99% of water consumption.
- Without any dumping
- With reduction of up to 80% of chemicals consumption.
- Reaching reductions of up to 79% in electricity

It is based in the study and audit carried out by AITEX laboratories

**Alcoy, 18.06.2014**

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General Manager

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**aitex**  
textile research institute

**eco-technology**

CERTIFICATE NUMBER: **2014AP0038**      COMPANY: **Jeanologia**

AITEX certifies:

G2 Dynamic technology, developed by the above company, gets the requirements to be considered an ecological production process:

- Without any toxic emissions to the atmosphere.
- Chemical free. Without using chemical substances or auxiliary products.
- Zero discharge. Without any dumping.
- Water consumption per treated meter is NEGLIGIBLE.
- No calorific energy. The process does NOT require thermal energy.

It is based in the study and audit carried out by AITEX laboratories

**Alcoy, 22.07.2014**

**Vicente Blanes Juliá**  
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# Closing remarks about ozone and nanobubble finishing technologies as a GP for the EU textile industry:

CREATIVITY, SUSTAINABILITY, INNOVATION AND TECHNOLOGY  
Are the KEY to the New Industrial Era

# EXCELENCE

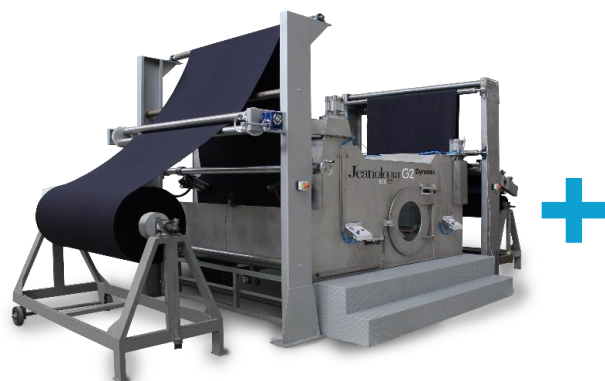
DYNAMIC

LASER

OZONE

H<sub>2</sub>Zero

e-Flow



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**THANK YOU FOR YOUR ATTENTION!!!**

**<http://www.interregeurope.eu/reset>**