



FERRARINI & BENELLI

C O R O N A & P L A S M A T R E A T M E N T



HISTORY

Ferrarini&Benelli srl has been involved in the field of corona surface treatment since 1965. The decision to take this direction resulted from the experience of Ezio Ferrarini and Diego Benelli, the company's founders, who had previously worked in plastic film extrusion. In that sector, the corona effect is often used to increase the surface tension of plastic films to make them more suitable for printing and laminating. With years of experience studying and building corona systems, Ferrarini&Benelli has developed innovative products for all extrusion and converting applications in flexible packaging production and also for special applications, such as the treatment of pipes, cables, tubes, shaped sections and sheet metal products.

The company has grown steadily to become a point of reference in its field, both in Italy and globally.

In 2005 the company moved to new premises in Romanengo (province of Cremona – Italy). The new facility was designed for optimum production and logistics to enable Ferrarini&Benelli to

meet growing demand and also to minimise environmental impact. Ferrarini&Benelli has always been committed to destruction of the ozone produced by the corona discharge and has developed technically advanced destruction systems. Moving to the new building provided the opportunity to introduce clean technologies: photovoltaic modules, for example, for the production of electric energy.

Innovation, research and development together with the decades of experience, are the basis of our success at Ferrarini&Benelli – a company which is able to provide customised solutions for any requirement.



1965 Ferrarini&Benelli is established in Soncino (CR) as a plastic films producer. Then develops corona treatment systems.

1970 Corona treatment becomes the company's core business. The main applications are aimed at increasing the surface tension of plastic films during extrusion. A first patent is registered for Silverglass discharge rolls, which achieve enormous market success.

1980 Ferrarini&Benelli establishes relationships with the most important manufacturers of film, foil and sheet extrusion lines, increasing its commercial success. The company initiates export sales and develops the first applications for the converting sector.

A patent is filed for a system of quartz electrodes (precursors of the currently-used ceramic electrodes) for treating conductive materials.

ADDITIONAL SERVICES

Our customer service department provides detailed information on corona treatment and on all Ferrarini&Benelli systems.

We can carry out testing and training activities at customers' premises anywhere in the world.

Technical assistance is provided worldwide by our own personnel and/or our authorised service centres.

Laboratory for testing samples of materials provided by customers. The tests are designed to simulate the customer's working conditions and can be performed on A4-sized sample, easy to send by mail.

Company website with password-protected area for downloading instruction manuals and/or technical diagrams which are made available as necessary.

Links to our worldwide network of authorized service centres (some provided with spare parts warehouse).

Extensive and comprehensive range of spare parts held in stock.

Online tracking system for finding spare parts and technical assistance during holiday closure.

Customized studies for special mechanical applications.

Generator hardware and software developed in house by our highly qualified and dedicated staff.

Documentation available in several languages.



1990 Ferrarini&Benelli, now the established market leader in Italy, prepares to enter the export market.

Sales activities are strengthened and the company takes part in international trade shows. The product range is expanded.

1995 The company reorganises to meet growing demand, updates its product range and strengthens its relationships with manufacturers of converting lines.

2005 The new facility in Romanengo (CR) is opened. New patents are filed, including a treatment system for the pipes used in district heating. The whole product range is renewed. Ferrarini&Benelli enters into partnership with the Corona System Group.

2009 The number of Ferrarini&Benelli corona treatment systems installed in Italy and worldwide reaches 8000.

GENERATORS

F&B corona treatment stations are powered by igt technology high frequency generators with digital circuitry. This generator is very efficient and reliable, cost effective and capable of limiting current absorption. The control system is completely digital. Optimal treatment is ensured by means of interactive software in conjunction with user-friendly symbols and multilingual display panel. Control functions are all integrated into this control system. A wide range of power options is available.

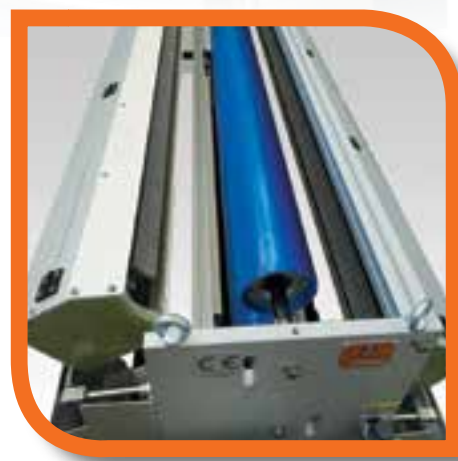


BIKAPPA and ROTARY

Double sided treatment stations for plastic films, particularly suitable for installation on blown-film extruders or flexographic printing units inline with extruders. The stations are equipped with electrodes that can be segmented so as not to treat the areas of film which are to be sealed. The BIKAPPA version is also available with ceramic electrodes for treating conductive materials in printing and laminating processes.

BIKAPPA TUNNEL

Single sided treatment station designed for installation on blown film extruders for treating the inside of the bubble.



CARTONPLAST

Corona treatment station for sheets or hollow profiles. It assures high performances on high thickness (up to 8mm for rigid sheets and up to 13mm for hollow profiles). Cartonplast comes in single or double side models.



TM STRIPE

Mobile unit to treat a small strip of a wide width film. Excellent for treating small areas where a trademark has to be printed. Designed to be mounted on any idle roller of the customer's line that has a diameter of 120-150mm, the unit can be rotated for easy access to allow threading of the film and for maintenance.

Ferrari&Benelli has developed special corona treatment systems for various applications.

Blown-film extrusion: double sided or single sided treatment systems for LDPE, LLDPE, HDPE and multilayer films.

Cast extrusion: High-performance single sided and double sided treatment systems for OPP, CPP, BOPP and PE for high-speed processing.

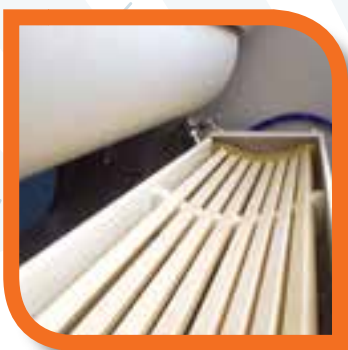
Sheet and hollow profile extrusion: single sided and double sided treat-

ment systems for high thickness sheets or hollow profiles.

Foil extrusion: single sided and double sided treatment systems for semi-rigid or foam foils.

Pipe extrusion: Corona systems for treating the inside of pipes and improving the adherence of polyurethane foams. Suitable for pipes used in district heating (patented system).

Laminating and coating: Corona treatment systems for improving the



POLIMETAL KAPPA PLUS

Universal corona treatment station. Thanks to the technology of the ceramic electrodes it is fitted with, it can treat all types of conductive and non-conductive materials: plastic films, metallized films, paper, aluminium foils and laminates. Due to its versatility, it can be installed on flexographic and rotogravure presses, coating and laminating machines with or without solvent and on all converting equipment. Available in single-side or two-side versions, with different models for different performance levels.



POLIPLAST KAPPA PLUS

Treatment station for non-conductive materials such as plastic films, paper and foam. Equipped with single bar or segmented aluminium electrodes adjustable according to materials thickness. Particularly suitable to be installed on cast film extrusion lines, extrusion coating lines, flexographic and rotogravure presses, coating and laminating machines with or without solvent. A special air-gap system makes this unit particularly effective for treating variable-thickness substrates, such as semi-rigid foils or foam materials. Available in single-side or two-side versions, with different models for different performance levels.



AT

Corona treatment unit for adhesive tapes. Necessary for assuring a good bonding of inks when printing on adhesive tapes.



ET

Narrow web treatment station, mainly used in label-printing lines. Equipped with ceramic electrodes for treating conductive or non-conductive materials. Provided with a simplified system for opening and removing the electrodes. Guarantees excellent adherence of printing inks.



adherence of solvent, solvent-free and water-based adhesives.

Flexographic printing and rotogravure: Corona treatment systems for improving the adherence of solvent, solvent-free, water-based and UV/EB inks.

Extrusion coating: Corona treatment systems for improving the adherence of PE coatings on various substrates, including paper and aluminium.

Narrow web: high-performance narrow web treatment systems mainly used in label and tape printing.

Production of cables, tubes, sections: Corona treatment systems for increasing the surface tension and improving the adherence of inkjet printing or adhesives.

Production of panels: Corona treatment systems for metal sheets.

No-noise effect: Treatment systems to guarantee "no-noise effect" on adhesive tapes.

TTU – PIPE TREATMENT

Patented corona treatment for polyethylene pipes used in district heating systems as protective sheathings of the combination “steel pipe-insulating material”. These pipes are mainly used for transporting hot fluids from thermic-power plants to industrial or household units. Corona treatment is applied inside the pipe for enhancing the adhesion of polyurethane foam.



FORMAT

Corona system for single sheets treatment of different sizes.



TNN FLAT

Corona treatment for metal sheets.



OZO-NO!

Multi-stage catalytic ozone destruction system. Useful for the destruction of the ozone produced by the corona treatment discharge, in compliance with the EC rules (EC Rule 92-72 of 21/02/92). Ozo-no! is an ecological system protecting the environment.

Catalyst regeneration service is available at Ferrarini&Benelli's.

TEST INKS

A wide range of dyne/cm value test ink sets are available from the factory for measuring corona treatment levels.



PLASMA 3D

Atmospheric Plasma Treatment is a surface treatment that enhances wettability properties of polymer-based materials and metals. High surface wettability levels are necessary for good adhesion of inks, glues, coating etc.

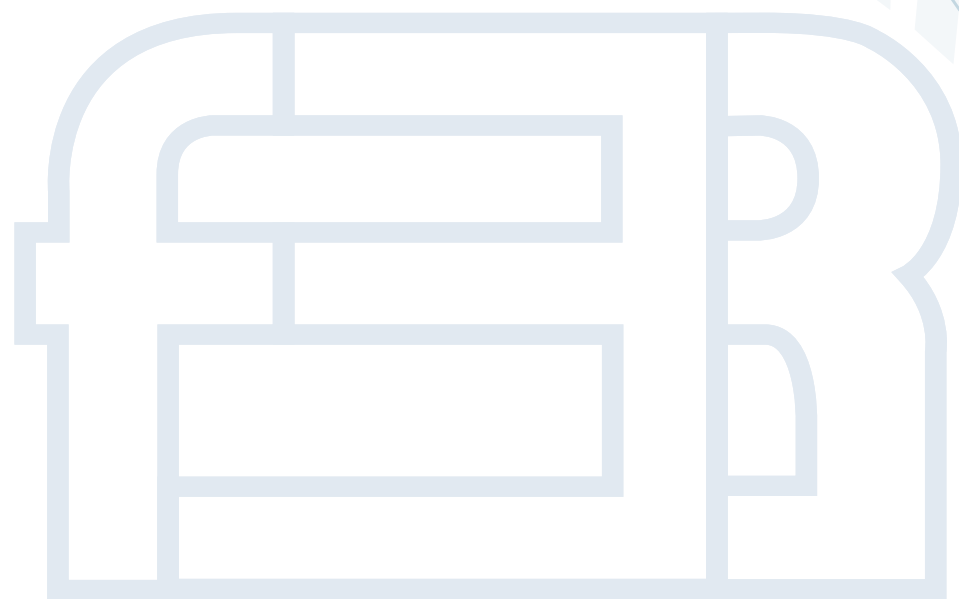
EXPERIENCE AND COMPETENCE The experience gained in years of activity allows us to advise our customers with competence on the working of our systems, on materials and processing methods.

A global view of the production system is crucial for choosing the most appropriate corona treatment.

RELIABILITY Our treatment systems are absolutely reliable and long-lasting.

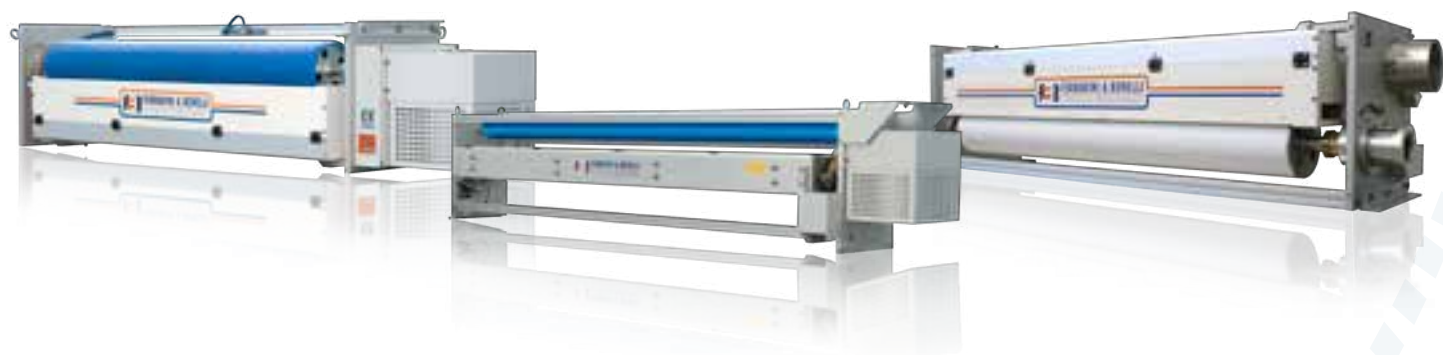
Once installed, you can forget about them. Our systems are subject to extensive and accurate testing before shipment.

RESEARCH AND DEVELOPMENT Ferrarini&Benelli has always invested in research to develop innovative products in a strategy based on constant improvement. Ferrarini&Benelli can help you solve surface treatment problems in any sector and obtain the finest results.



FERRARINI & BENELLI

CORONA & PLASMA TREATMENT



Ferrarini&Benelli has established a global sales network dedicated to customer service. Our agents are present on all five continents. A number of agents can provide technical on-site assistance; they are also equipped with their own spares stock to minimise customer waiting time.

EUROPE AND BEYOND

BENELUX*
CZECH REPUBLIC
FINLAND
FRANCE*
GERMANY
GREECE
SPAIN
UNITED KINGDOM*
ARGENTINA*
AUSTRALIA*
CANADA*
CHILE*
CHINA
COLOMBIA*
COSTA RICA
CYPRUS*
ECUADOR
EGYPT
GUATEMALA
HONDURAS
INDIA
ISRAEL*
KOREA*
MEXICO
NEW ZEALAND*
NICARAGUA
RUSSIA
SALVADOR
SOUTH AFRICA
U.S.A.*
UKRAINE
VENEZUELA



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