



TEXTILE DRYERS



*Technology
and innovation
made easy*

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COMPANY AND TECHNOLOGY

RF Systems designs and manufactures Radio Frequency machines for the textile industry that speed up and improve the efficiency of the drying process, cutting energy consumption and operating costs.

Established in 1990, RF Systems manufactures Radio Frequency equipment for the drying of textile products.

Driven by customers' challenges, RF Systems aims at enhancing industrial drying and thermal processes through state-of-the-art RF machines. More than 1000 dryers have been installed worldwide by RF Systems and many processes and devices have been patented during its 30 years' activity.

High-performing, energy-saving and cost-efficient, RF Systems dryers allow the textile dye-houses to make the most of the advantages of RF technology with the best cost / benefit ratio.

Dynamic and forward-thinking, RF Systems strives also in delivering pilot and tailor-made equipment for special applications according to the customers' needs.

RF SYSTEMS supplies the exclusive SmarTouch PLC system for the machine management and control: equipped with a remote access facility, it allows the operator to monitor and modify as far as required every machine parameter and setting in order to guarantee the best operation and efficiency in all circumstances.

THE RADIO FREQUENCY TECHNOLOGY

The Radio Frequency technology is based on electromagnetic fields, specifically at 27.12 MHz, to heat water contained in various substrates.

While exposed to radio frequencies, the water molecules undergo vibration and rotation at a frequency of over 27 million times per second, generating heat and raising the water temperature to evaporation. The heat transfer is endogenous and instantaneous in the entire product mass, making the whole process significantly faster than conventional drying methods.

RF Systems dryers take advantage from the mobile electrode systems: the power regulation is obtained by adjusting the distance between the electrodes, ensuring a higher flexibility and better efficiency in power delivery, compared to the traditional fixed electrode system.

Hybrid

The RF technology is complemented with hot air circulation modules, which ensure the highest drying performance at the lowest operating cost.

XDry

The triode cooling air is recovered and conveyed into the drying cabinet, increasing the evaporation efficiency by up to 15%.

TD
In-line dryer for yarn packages and tops

Accurate moisture control is essential to obtain a high-quality yarn. Our **TD** dryer ensures a high and consistent product quality thanks to the PLC that automatically adjusts the appropriate RF energy delivery during the drying process. The process only takes a few minutes and provides excellent drying uniformity. The process is carried out in-line with water evaporation rates from 20 Kg/h to 120 Kg/h,

depending on the RF generator size, so to satisfy the requirements of any size dye-house. The equipment configuration is extremely flexible and additional modules can be added to cope with higher capacities. The machine can be equipped with the **X-Dry** cooling system and the **Hybrid** version is available on request.

- > In-line non-stop operation
- > Rapid and uniform drying
- > For any size dye-house
- > Flexible and modular structure



X-Dry | Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.

Hybrid | HYBRID version available to achieve the highest drying performance at the lowest operating cost.



> **RF drying of yarn packages**
4 Ton/h throughput

> **RF drying of yarn packages**
7 Ton/day throughput

> **RF drying of tops**
3 Ton/day throughput

TECHNICAL FEATURES

RF Power (kW)	Standard Dimensions LxWxH (mm)	Max Belt Width (mm)	RF Generator Cooling System	Nominal Evaporation Capacity [kg(Water)/h]
20	7000x1500x3400	1100	X-Dry	20-24
30	7600x2124x3400	1750	X-Dry	30-36
40	7600x2124x3400	1750	X-Dry	40-48
50	8600x2124x3400	1750	X-Dry	50-60
60	8600x2124x3400	1750	X-Dry or water	60-72
70	8600x2124x3400	1750	X-Dry or water	70-84
85	9600x2124x3400	1750	X-Dry or water	85-102
105	9600x2124x3400	1750	Water	105-120

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.



TD-LT

In-line dryer for loose fibers and other low-density textiles

The **TD-LT** series is designed specifically for low-density textile products (loose fibers, hanks, tow/top slivers etc.). The drying process is carried out at a low power density and under a gentle airflow, recovered from the triode cooling system (**X-Dry**). In this way the evaporation efficiency is maximized and the product quality is preserved at best, avoiding discoloring and other inconveniences related to high drying temperatures.

The dryer structure is modular and additional modules can be added at a later stage. The equipment can be customized according to the product type and the production requirements. The **Hybrid** version is available on request.

- > Low-temperature drying, perfect for delicate products
- > In-line non-stop operation
- > Rapid and uniform drying
- > Flexible and modular structure



Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.



HYBRID version available to achieve the highest drying performance at the lowest operating cost.



> **RF drying of loose stock**
800 Kg/h throughput

> **RF drying of loose stock**
600 Kg/h throughput

> **RF drying of slivers**
2 Ton/day throughput

TECHNICAL FEATURES

RF Power (kW)	Standard Dimensions LxWxH (mm)	Max Belt Width (mm)	RF Generator Cooling System	Nominal Evaporation Capacity [kg(Water)/h]
20	7000x1500x3400	1100	X-Dry	20-28
30	7600x2124x3400	1750	X-Dry	30-42
40	7600x2124x3400	1750	X-Dry	40-56
50	8600x2124x3400	1750	X-Dry	50-70
60	8600x2124x3400	1750	X-Dry or water	60-84
70	8600x2124x3400	1750	X-Dry or water	70-98
85	9600x2124x3400	1750	X-Dry or water	85-119

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.

RKB
Batch dryer for bobbins

Short production cycles and energy-saving processes are paramount to the textile industry. Based on this consideration, RF Systems has developed the innovative **RKB** dryer (patented): in this batch equipment hot air is forced through the yarn by a centrifugal fan at a controlled temperature in combination with the RF energy (**Efficient Synergic** system), removing up to 2.2 Kg of water per kW(RF) against 1.2 Kg of a standard RF dryer.

With an outstanding evaporation rate, **RKB** is the most eco-friendly dryer available in the market. The equipment is compact in size for an easy integration in any working environment.

- > Lowest drying cost in the market
- > **Efficient Synergic** system
- > Suitable for small and medium size dye-houses
- > Batch system



> **RF drying of bobbins**
3 Ton/day throughput

> **RF drying of bobbins**
6 Ton/day throughput

> **RF drying of bobbins**
5 Ton/day throughput

TECHNICAL FEATURES

RF Power (kW)	Standard Dimensions LxWxH (mm)	Max Belt Width (mm)	RF Generator Cooling System	Nominal Evaporation Capacity [kg(Water)/h]
40	4500x2250x3900	Batch	X-Dry	up to 70 kg/h
85	7600x3000x3900	Batch	X-Dry or water	up to 140 kg/h

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.

EBT
In-line dryer for hosiery

The drying of hosiery (stocking, tights etc..) after dyeing is particularly difficult given the nature of the product. In **EBT** dryers the product is submitted to a gentle drying at a low temperature and achieves a perfect moisture leveling in a few minutes. The hosiery can be dried both in dozens or bags, regardless of thickness and yarn count. No additional finishing process is required, the product can be packed soon after drying.

All major hosiery producers worldwide are currently using the **EBT** dryer in their production facilities. The machine can be equipped with the **X-Dry** cooling system and the **Hybrid** version is available on request.

- Low power density, delicate drying
- Final cooling section for a better finishing
- Ready for packing after drying
- In-line non-stop operation



X-Dry | Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.

Hybrid | HYBRID version available to achieve the highest drying performance at the lowest operating cost.



➤ **RF drying of ladies' stockings**
2200 doz/h throughput



➤ **RF drying of ladies' tights**
1800 doz/h throughput



➤ **RF drying of ladies' hosiery**
1500 doz/h throughput

TECHNICAL FEATURES

RF Power (kW)	Standard Dimensions LxWxH (mm)	Max Belt Width (mm)	RF Generator Cooling System	Nominal Evaporation Capacity [kg(Water)/h]
20	7000x1500x3400	1100	X-Dry	20-28
30	7600x2124x3400	1750	X-Dry	30-42
40	7600x2124x3400	1750	X-Dry	40-56
50	8600x2124x3400	1750	X-Dry	50-70
60	8600x2124x3400	1750	X-Dry or water	60-84
70	8600x2124x3400	1750	X-Dry or water	70-98
85	9600x2124x3400	1750	X-Dry or water	85-119

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.

TD-F
In-line dryer for fabrics

The **TD-F** dryer has been designed for the drying of fabrics, either dyed or printed. Equipped with a feeding roller system, it allows consistent product input and a perfectly uniform drying. Hot air circulation is added to the radio frequency tunnel, ensuring high energy efficiency and enhanced color fixing. The equipment is small in size for an easy integration in any working environment.

- Equipped with a feeding roller system
- Drying in minutes, great color fixing
- High production in a small footprint
- Enhanced softness, volume, drape, dimensional stability, elasticity and sewability



TD-NW
In-line dryer for non-wovens

Exclusively designed for non-woven fabrics, the **TD-NW** dryer guarantees a perfect moisture levelling even in thick and dense products, avoiding overheating, migration of chemicals or yellowing. Powered with a single or multiple RF generators, it can cope with high production speed up to 50 m/min or even higher.

- High production speed
- Suitable also for thick and dense products
- No migration of chemicals, no yellowing
- Final cooling section for a better finishing



TECHNICAL FEATURES

RF Power (kW)	Nominal Evaporation Capacity [kg(Water)/h]		
	1 module	2 modules	3 modules
60	60-72	120-144	180-216
85	93-102	186-204	279-306
105	115-126	210-252	315-378



Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.



HYBRID version available to achieve the highest drying performance at the lowest operating cost.

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.

TECHNICAL FEATURES

RF Power (kW)	Nominal Evaporation Capacity [kg(Water)/h]		
	1 module	2 modules	3 modules
60	60-72	120-144	180-216
85	93-102	186-204	279-306
105	115-126	210-252	315-378



Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.



HYBRID version available to achieve the highest drying performance at the lowest operating cost.

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.



TD-C In-line dryer for carpets and moquette

The **TD-C** dryer is the widest radio frequency dryer available in the market (up to 4500 mm working width), perfect for the drying of carpets and moquette after printing or washing. Equipped with an outlet cooling section, the **TD-C** dryer provides an unmatched moisture removal speed. The gentle heating treatment ensures a high product quality, avoiding yellowing or discoloring.

- Rapid and uniform drying
- Suitable for any product width
- Final cooling section for a better finishing



LAB AND SPECIAL EQUIPMENT

Developed for laboratories and small working environments, our lab and pilot equipment is perfect for small production, R&D projects and special products. They ensure the same quality and drying performance as larger machines, but with a proportionally reduced production capacity. Batch or in-line models available, either for rent or sale.

- Very small footprint
- User-friendly operation
- Batch and in-line models available



TECHNICAL FEATURES

RF Power (kW)	Nominal Evaporation Capacity [kg(Water)/h]		
	1 module	2 modules	3 modules
60	60-72	120-144	180-216
85	93-102	186-204	279-306
105	115-126	210-252	315-378



Heat recovery from the generator cooling system - up to 15% increase in evaporation efficiency.



HYBRID version available to achieve the highest drying performance at the lowest operating cost.

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.

TECHNICAL FEATURES

RF Power (kW)	Standard Dimensions LxWxH (mm)	Max Belt Width (mm)	RF Generator Cooling System	Nominal Evaporation Capacity [kg(Water)/h]
5	1350x900x2200	Batch	Air	5-6
5	2500x1700x2300	110	Air	5-6
10	7000x1500x3400	110	Air	10-12
15	7000x1500x3400	110	Air	15-18
20	7000x1500x3400	110	Air	20-24

Note: Production rate depends on product type, moisture content etc. The equipment can be customized to accomplish any production requirement.



TECHNICAL SPECIFICATIONS

> GENERATORS

Units available from 5 to 105 kW

Unit from 5 to 50 kW	Air cooled
Unit from 50 to 85 kW	Air cooled / water cooled
Unit to 105 kW	Water cooled

> EVAPORATING CAPACITY

Dryers equipped with air cooled generators	1.1 - 1.2 kg H ₂ O/kW
Dryers equipped with water cooled generators	1.0 - 1.1 kg H ₂ O/kW
Dryers TD-LT/EBT	1.0 - 1.4 kg H ₂ O/kW
Dryers RKB	1.4 - 2.2 kg H ₂ O/kW

> POWER DENSITY | PD

Very low power density	PD < 6 kW/m ²
Low power density	6 < PD < 10 kW/m ²
Medium power density	10 < PD < 15 kW/m ²
High power density	15 < PD < 30 kW/m ²

> ELECTRODE TYPE

Perforated plates
Alluminium bars
Combination of perforated plates and alluminium bars

> ACCESSORIES (OPTIONAL)

- PLC with SmarTouch panel for fully automatic operation
- Outlet cooling device
- Stabilizer for the triode filament or for the complete equipment
- PP rigid belt
- Lateral teflon protection guards for loose products
- Additional heating device by means of resistors or steam battery

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