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**Humidity content
reduction**

LHV enhancement

**Stabilization and
weight minimization**

**Processes tailored to
feedstock**

CHP integration

BIOMASS ENERGY VALORIZATION THROUGH TROMEL AND STVI DRYERS

The disadvantage associated to biomass with high humidity is that its combustion is defective and it provides a Low Heat Value.

In order to increase and improve the combustion efficiency it is recommended to reduce its moisture by drying processes.

Drying also enhances briquette and pellet densification processes while it reduces the specific weight to be handled.

GROUP VENTO offers driers fully tailored to the nature of biomass, the needs of the client and its production process. Safety and quality standard are also assured by independent certification bodies, and our customers verify their performance in energy efficiency and operational flexibility.



STEAM TUBES INDIRECT DRYER (STVI):

The body is an inclined rotary cylindrical drum. Inside it is equipped with longitudinal tubes through which thermal fluid flows, usually steam, and a physical barrier between the heating fluid and the product to be dried is assured.

Drying temperature is controlled at all times and the product remains apart from the flue gas so the process stands **safe and flexible**.

This equipment requires a lower drying airflow than the rotary direct dryer **decreasing the energy demand 35% in electricity and 15% in fuel**.

**35% ELECTRIC
SAVING**

15% FUEL SAVING



SAFETY, FLEXIBILITY and ENERGY SAVING

TROMEL DRYER:

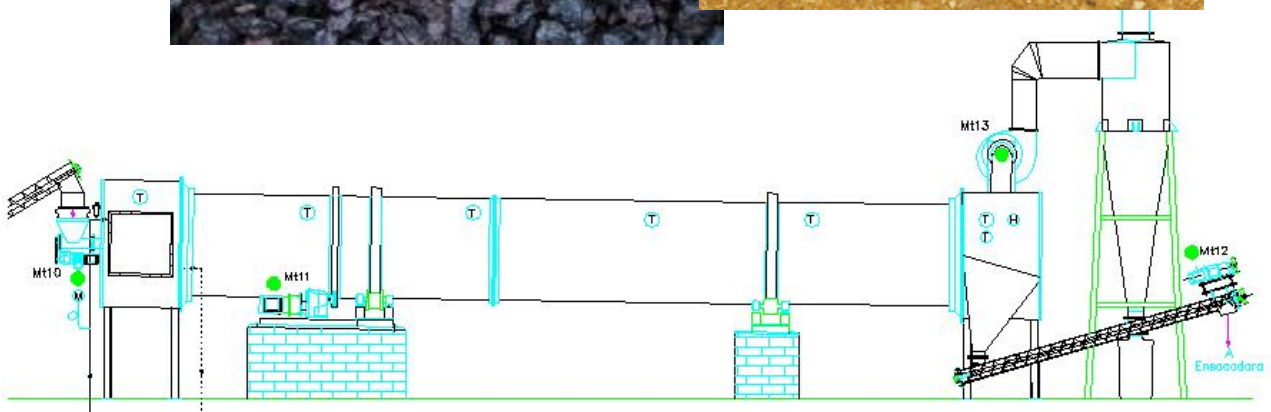
HIGH PRODUCTION RATE

FAST DRYING VELOCITY

It is also a rotary cylindrical drum provided with internal mixing fins. However the heating medium used in this case is hot air in direct contact with the product to be dried. This air can also come from a cogeneration engine, increasing the energy efficiency.

High air flow is used, thus achieving **high drying and production rate**.

In order to increase process security, co-current circulation flow is established between the air and product, thus avoiding the thermal shock between the material and the dry hot air.



ROTARY DRYERS FEATURES

DRYER	TYPE OF DRYING	FEATURES	
TROMEL	Direct	<ul style="list-style-type: none"> - High thermal shock - Fast drying velocity 	<ul style="list-style-type: none"> - High production capacity - High air flow rate required
STVI	Indirect	<ul style="list-style-type: none"> - Process safety - Moderate thermal shock 	<ul style="list-style-type: none"> - 35% electric saving - 15% fuel saving

GRUPO VENTO: TAILORED DRYING SOLUTIONS

REFERENCES

DRYER TYPE	PRODUCT	CLIENT
STVI	Almond shells	COVAERSA
STVI	DDG's bioethanol	MAREX
STVI	Natural extracts	NATRA
TRÓMEL	Grape marc	COVIÑAS
TRÓMEL	Grape marc	SUBVIDOURO
TRÓMEL	Tartaric acid	SUBVIDOURO
TRÓMEL	Molten carob	CIA. GRAL. DEL ALGARROBO
TRÓMEL	Grape marc	DESTILERIAS SAN VALERO