RA VISION

Multiple Bobbins Quality Inspection

THEMA SYSTEM
www.themasystem.com

Ra Vision is an automatic instrument for the first visual control of the yarn bobbins produced into the spinning process (extrusion and take-up winders) to identify possible problems and evaluate the quality of yarn bobbins. Within the same system it can find all types of visual yarn bobbins defects.

This new tool can be installed directly on the automatic sorting system and sorting lines equipped with monorail shuttle, or other solutions, which move the spinning bobbins to the packaging system and the warehouse.

The interface with the PLC for automation management can take place through the computer network or with the assistance of simple digital exchanges. The instrument carries out the whole series of checks, automatically classifying the bobbins by quality, based on the percentage and type of defects detected.

All the detected parameters, in addition of being stored on the instrument PC, can be transmitted by a computer network (wireless or Ethernet cable) to the company management system and shared on a common DB for a complete traceability of the quality control performed and a consequent correct production management.

RA VISION 32

A Ra Vision inserted in a module and monorail shuttle sorting line, takes up to **32 seconds** to view and simultaneously analyse precisely **32 bobbins**.

1 sec/bobbin

244 cm

300 cm

202 cm

232 cm
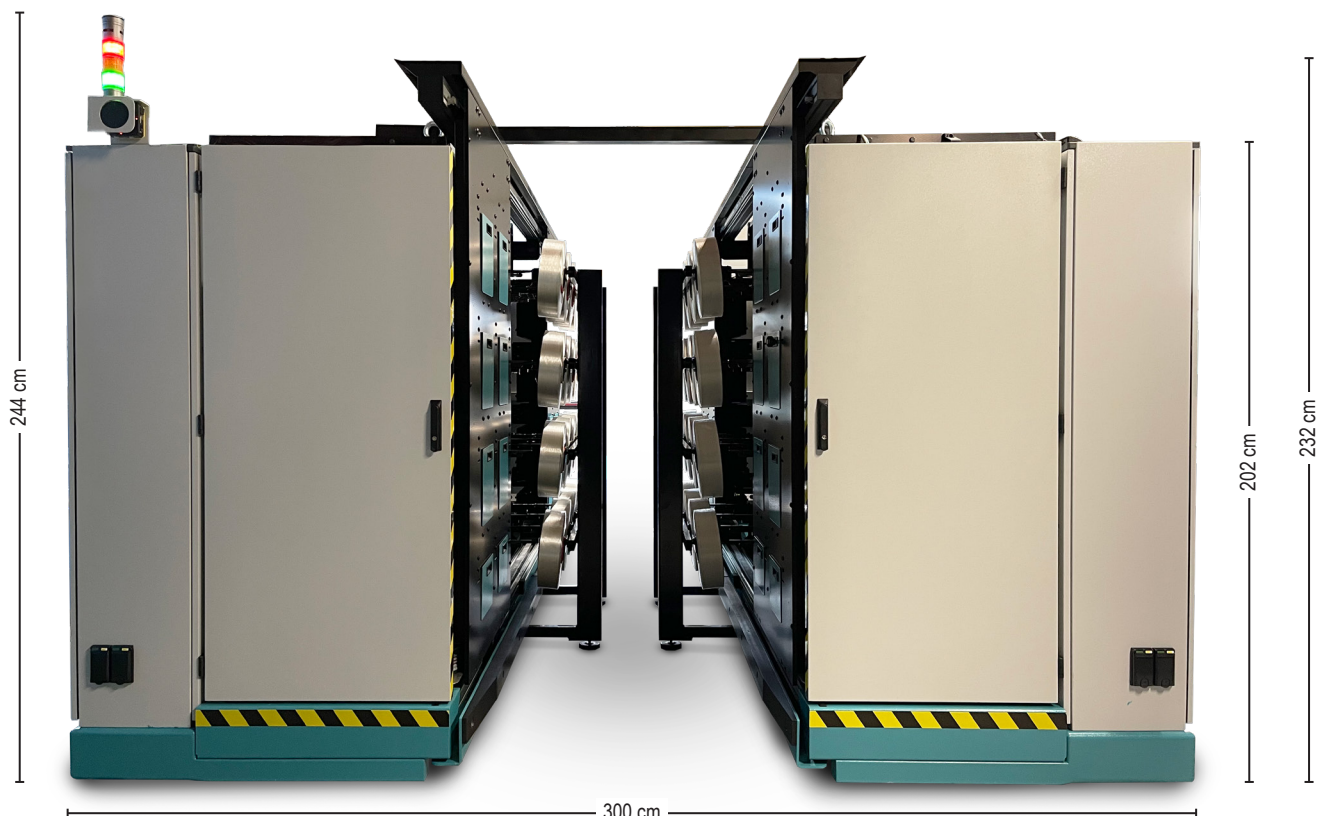
Ra Vision was born from the technical expertise of our team combined with our 30 years experience in the textile field, with the goal of providing objective and repetitive results. Ra Vision combines optical systems, electronic boards, mechanical parts and software code to control the quality of your bobbins. All these elements are designed and managed by Thema2.

Ra Vision is an adaptive system: Thema2 has tested Ra Vision with POY, FDY, HTY, DTY (continuous filaments) with worldwide Yarn Producer. Startup a new machine means to harmonize your know-how with the Ra Vision technology.

The Ra Vision technology patented by Thema2 uses a special acquisition hardware system to:

- **Emphasize morphological defects** that physically emerge from the bobbin outer surface, such as broken filaments, dirt, profile.

- **Soften the correct morphologies** like pattern, spiral effect.

- **Optimize image acquisition and therefore analysis times**, managing to analyse very light bobbins or very dark bobbins while maintaining very fast acquisition times.
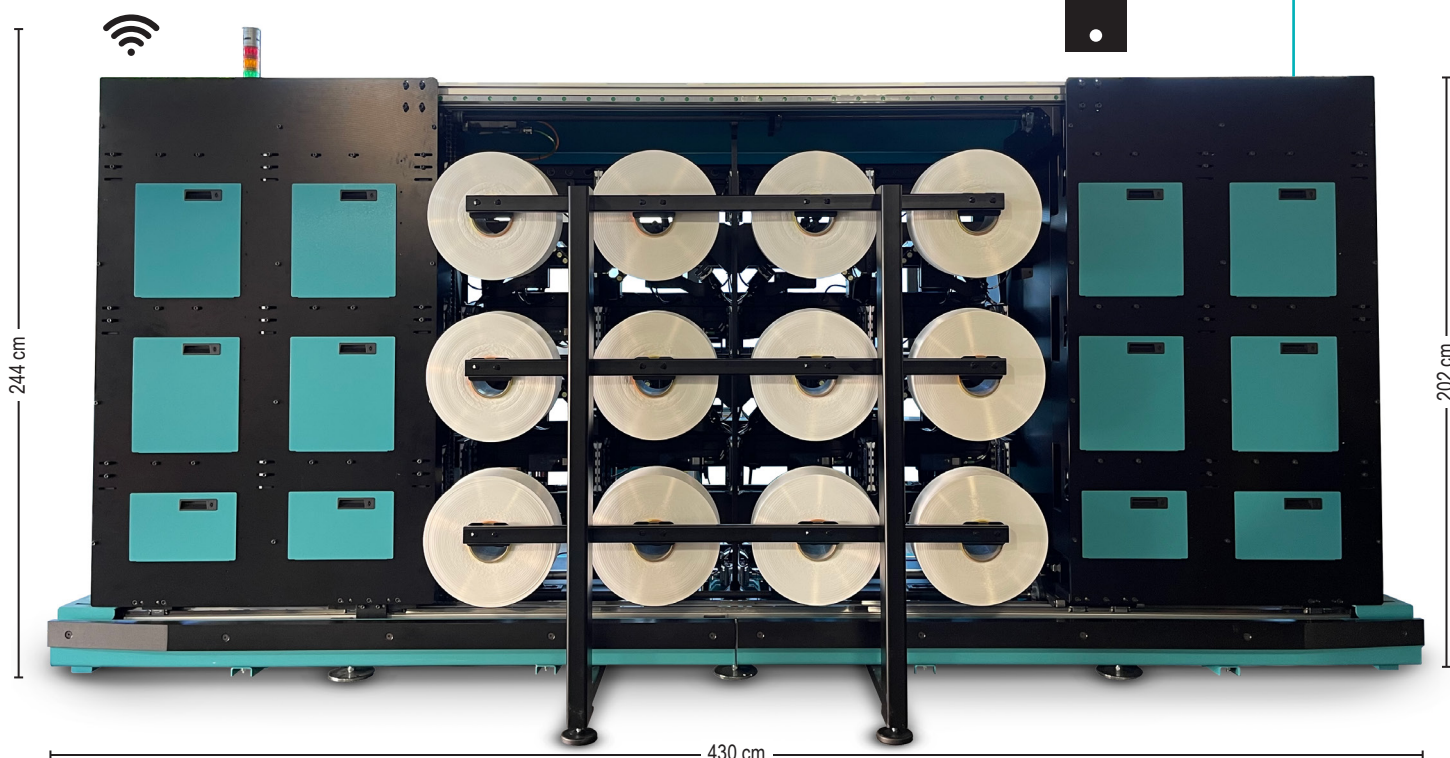
RA VISION 24

A Ra Vision inserted in a module and monorail shuttle sorting line, takes up to **30 seconds** to view and simultaneously analyse precisely **24 bobbins**.
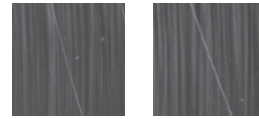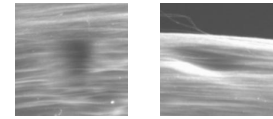
1,25 sec/bobbin

244 cm

202 cm

430 cm

| Tool	Detected defects
1. Vertical Side Defects Hunter	Bobbin with surface yarn damaged
	Waste yarn mix in the bobbin
	Yarn being pulled out by sharp objects
	Oil stained yarn
	Polymer slurry on the bobbin surface
	Fluffs at the bobbin edge
	Broken filaments and fluss > 2-4 mm
	Broken filaments and fluss > 4-6 mm
	Broken filaments and fluss > 6 mm
	Loops > 6 mm
	Defects in the last cm
	Defects near the tube
	Traverses
2. Vertical Profile Analyser	Bobbin with poor shape
	Ridges in top and bottom shoulders
	Position of the bobbin on the tube
	Steps
3. Vertical Side Analyser	Loose bobbin, winder tension < standard
	Loose circle
	Color deviation yarn in the same bobbin
	Stiff yarn
4. Transfer Tail Analyser	No tail yarn
	Crossed tail yarn
	Double tail yarn
	Narrow tail yarn
5. Tube Analyser	Damaged tube
	Batch from tube color
6. Outer Surface Analyser	Surface yarn not removed
	Crossing angle

TRAVERSE   *DAMAGED BOBBIN*
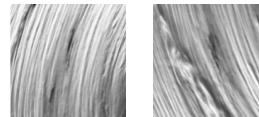
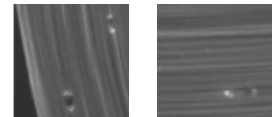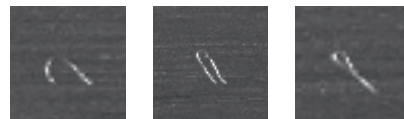### *FLUFFS MORE THAN 6mm*
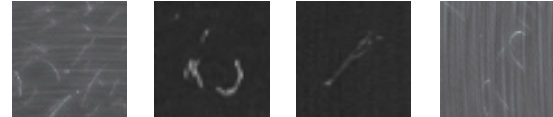
LOOPS MORE THAN 6mm

OIL STAINS   *POLYESTER STAINS*

FLUFFS 4-6mm

AND MORE

The Ra Vision technology uses equipment designed and engineered to find various defects on yarn bobbins.

Several software tools have been created, each of them allows the operator to **find a specific defect**. You can also configure your instrument with only the necessary tools.

We are always designing new software tools, depending on the Client's requirements.

Mechanical Specifications

	RA VISION 24	RA VISION 32
Weight	3000 + 3000 kg	3500 + 3500 kg
Dimensions	430 x 202 x 300 cm	430 x 232 x 300 cm

Weight and dimension values depending on number of bobbins analysable simultaneously.
Ra Vison does not consume compressed air.

Electrical Specifications

	RA VISION 24	RA VISION 32
Max. power	32 KW	35 KW
Nominal tension	380 Vac	
Connection	3Ph + PE	
Frequency	50 / 60 Hz	
IP	IP54	
Communication port	Ethernet	

Max. power value depending on number of bobbins analysable simultaneously.

Bobbins Specifications

Tubes lenght	150 - 200 mm
Tubes diameter	120 - 140 mm
Bobbins diameter	180 - 440 mm

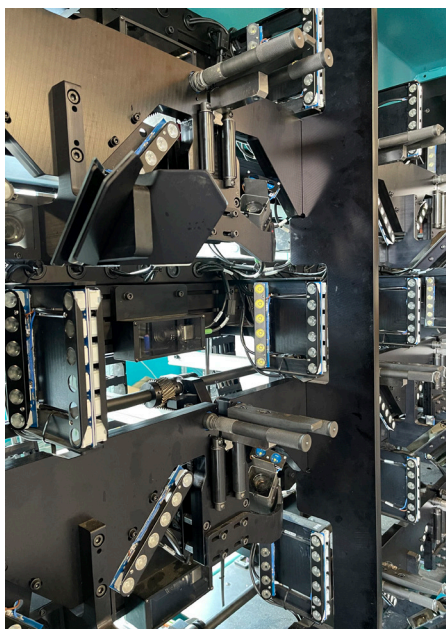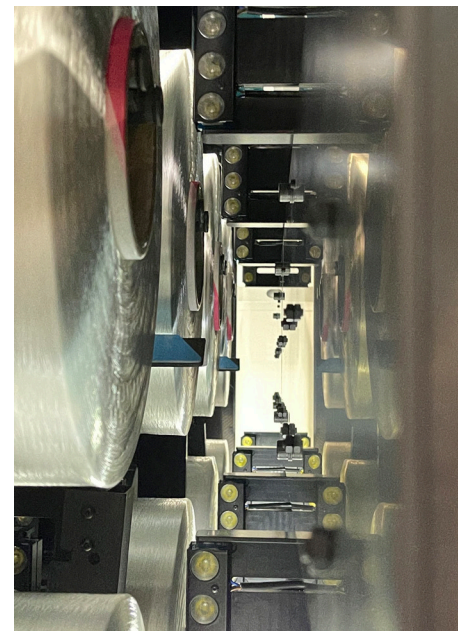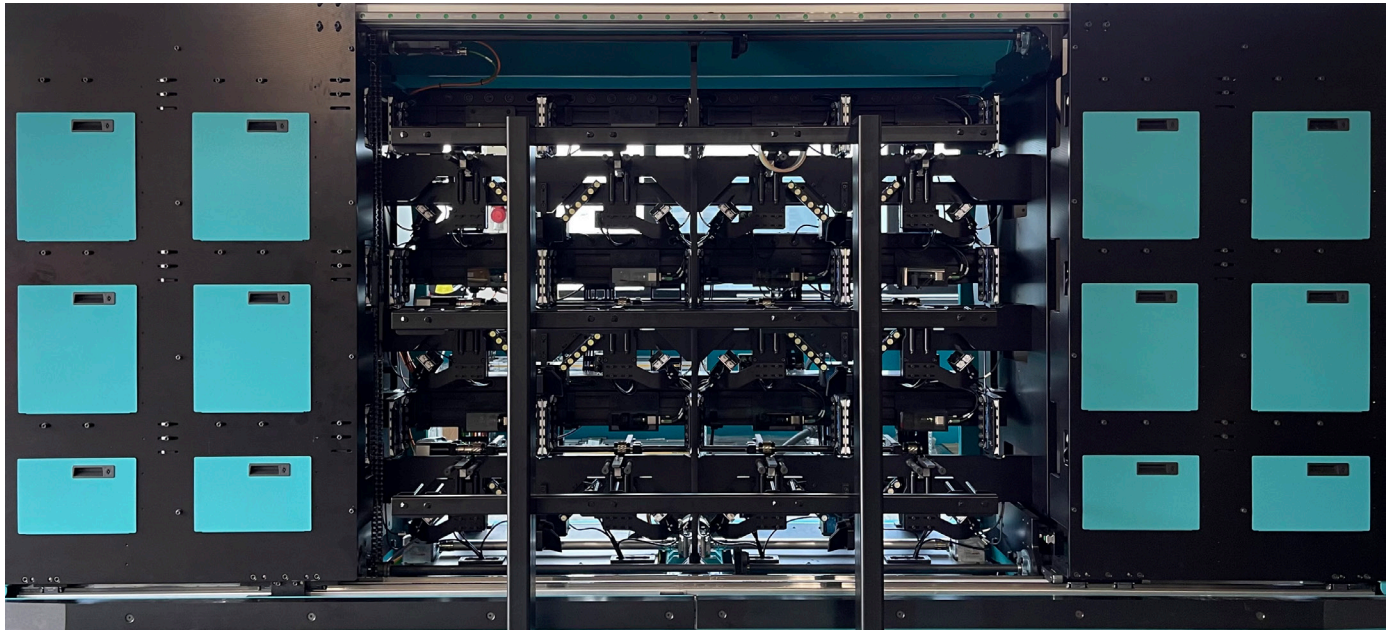Other measures available on request and based on used technologies

Working Conditions

Temperatures	10/40 °C
Humidity	90% (no condensation)

Time for modules movements from and towards Ra Vision, depending on plant movement system.

Swords advancement for bobbins loading procedure

Yarn bobbins lifting from module

Swords retrieving

Bobbins positioning in inspection area

Analysis doors closing

Cameras adjustment

Hue evaluation, diameter measurement and automatic exposure adjustment

Bobbins rotation and grabbing images procedure

Swords repositioning into the parking area

Yarn bobbins repositioning on module

Swords advancement for bobbins unloading procedure

Bobbins lifting from inspection position

Cameras retrieving

Analysis doors opening

Analysis, classification and result exchange with central database

CYCLE TIME

CYCLE START

CYCLE END

In the case of a multiple analysis the tool is inserted in a line with modules and monorail shuttles, the **bobbins transported by the module are analysed by groups, always simultaneously**.

This solution can be applied to a **single side of 8,12,16 bobbins** or a double module system of **8+8, 12+12 bobbins** up to **16+16 bobbins**.
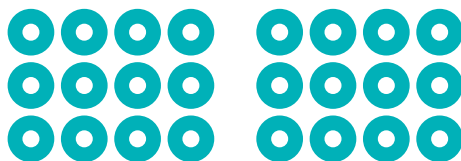
8 + 8 BOBBINS
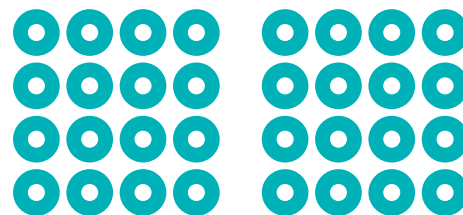

INSPECTION CYCLE TIME

30 SECONDS

12 + 12 BOBBINS

INSPECTION CYCLE TIME

30 SECONDS

16 + 16 BOBBINS

INSPECTION CYCLE TIME

32 SECONDS

THEMA SYSTEM
www.themasystem.com

RA VISION

Made in Italy

THEMA SYSTEM

PARTNER OF

iGH
Irico Gualchierani Handling