

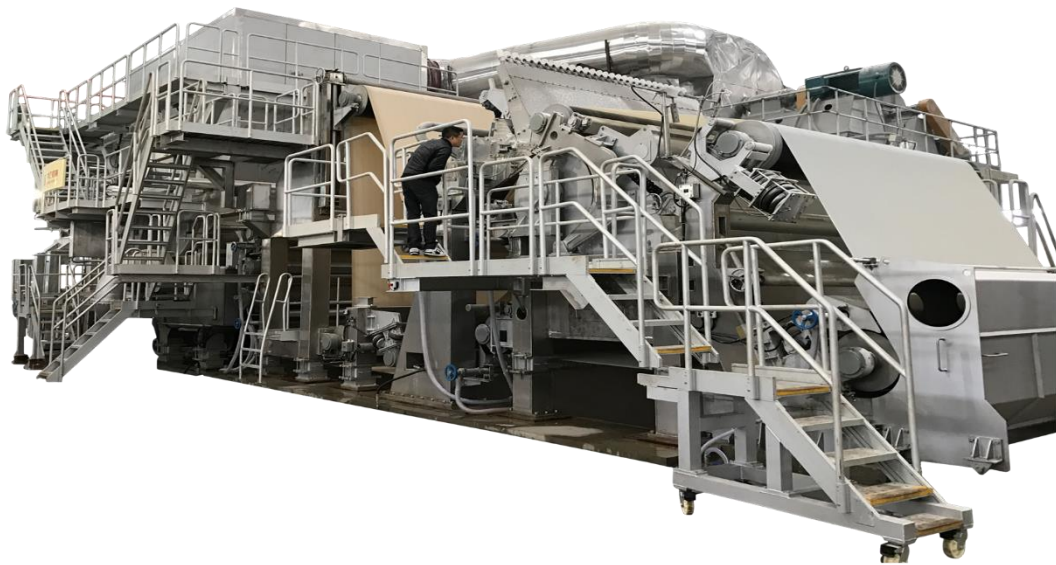
# TECHNICAL DATA SHEET (TDS)

## CTM SERIES CRESCENT FORMER TISSUE

### THE CRESCENT FORMER TISSUE MACHINE SERIES (650MPM ~1100MPM)

The **CTM** Crescent Former tissue machines family, combining the CyberFlow single layer/multi-layers hydraulic headbox, the CyberFormer crescent former and the CyberDry steel shell Yankee/cast iron Yankee, are designed to suit the most critical quality requirements for producing tissue paper grades.

It incorporates European/American technology with enhanced Chinese innovations for a range of operating speeds from 650 MPM up to 1100MPM. It also boasts a patented steam air recirculation system designed to minimize overall energy consumption costs.



#### MAIN TECHNICAL DATA

| Specs                            | Model / Modelo | CTM 05      | CTM 10 | CTM 12 | CTM 14 |
|----------------------------------|----------------|-------------|--------|--------|--------|
| Trimmed Paper Width (mm)         |                | up to 2,850 |        |        |        |
| Basis Weight (g/m <sup>2</sup> ) |                | 11~30       |        |        |        |
| Design Speed, Yankee (m/min)     |                | 600         | 1,100  | 1,300  | 1,500  |
| Gross Capacity (ton/day)         |                | 20          | 40     | 50~60  | 70~80  |
| Yankee Diameter (mm)             |                | 3,000       | 3,660  | 3,660  | 3,660  |
| Furnish                          |                | NBKP, LBKP  |        |        |        |

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| Pos                         | ITEM  | QTY    | Seller Scope | Buyer Scope |
|-----------------------------|---|--------|--------------|-------------|
| <b>Equipment</b>            |   |        |              |             |
| 1.                          | Virgin pulp stock preparation line (35 ADMT/DAY)  | 1 Line | ●            |             |
| 2.                          | Approach flow system  | 1 Set  | ●            |             |
| 3.                          | CTM 700 Eco Crescent Former tissue machine  | 1 Set  | ●            |             |
| 4.                          | Auxiliary equipments for tissue machine<br>(Air recirculation system, steam & condensate system, air compressor, vacuum pump & air-water separator, water pump & water filter,) | 1 Set  | ●            |             |
| 5.                          | Chemicals dosing system   | 1 Set  | ●            |             |
| 6.                          | Blade sharpening machine and doctor blades  | 1 Set  | ●            |             |
| 7.                          | Winder  | 1 Set  | ●            |             |
| 8.                          | Converting machines   |        |              | ●           |
| 9.                          | Boiler and generator  |        |              | ●           |
| 10.                         | Spare Parts   |        |              | ●           |
| 11.                         | Electrification (Electric equipments, switchgears, PCC, MCC)  |        |              | ●           |
| 12.                         | DCS, QCS  |        |              | ●           |
| 13.                         | DAF Clarifier   |        |              | ●           |
| <b>Engineering Services</b> |   |        |              |             |
| 1.                          | Engineering design for mechanical, process, automation and electrification  |        | ●            |             |
| 2.                          | Civil and building design engineering   |        |              | ●           |

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| <b>Erection and Commissioning</b>  |  |  |   |   |
|--|--|--|---|---|
| 1.   | Erection   |  |   | ● |
| 2.   | Erection supervision, commissioning & start-up assistant |  | ● |   |
| <b>List of Excluded Items and/or Services (Supplied By Buyer)</b>  |  |  |   |   |
| <ol style="list-style-type: none"> <li>1. Piping, pipe fittings, manual valves, flanges, air ducting, insulation materials, cables routes, protective pipes, fasteners, etc.</li> <li>2. Transformer, switchgears, PCC, MCC, UPS, power factor capacitor, all electric cables and instrument cables, inverters for fiber line equipment.</li> <li>3. DCS, QCS</li> <li>4. Boiler, generator and steam distribution system.</li> <li>5. Fresh (Feeding) water treatment system, white water treatment system, effluent treatment plant.</li> <li>6. Brokes handling system.</li> <li>7. Pulp chests, water chests, pulp storage tower, trash/rejects tanks.</li> <li>8. Forming wires and felt for tissue machine commissioning and start-up.</li> <li>9. Laboratory testing equipment.</li> <li>10. Converting lines and equipments.</li> <li>11. All spare parts.</li> <li>12. Overhead cranes and its run way, hoist, fork lift, clamp lift, truck.</li> <li>13. Civil work and civil design.</li> <li>14. Transportation cost from the main sea port in China to the Buyer's project site.</li> <li>15. Expenses for traveling, board, lodging and local transportation for the Supplier's personnel as well as the per diem for the Supplier's site service personnel.</li> <li>16. Anything else not expressly specified in the offer.</li> </ol> |  |  |   |   |

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## V. DESCRIPTION OF TISSUE MACHINE

### BASIC CONFIGURATION OF TISSUE MACHINE

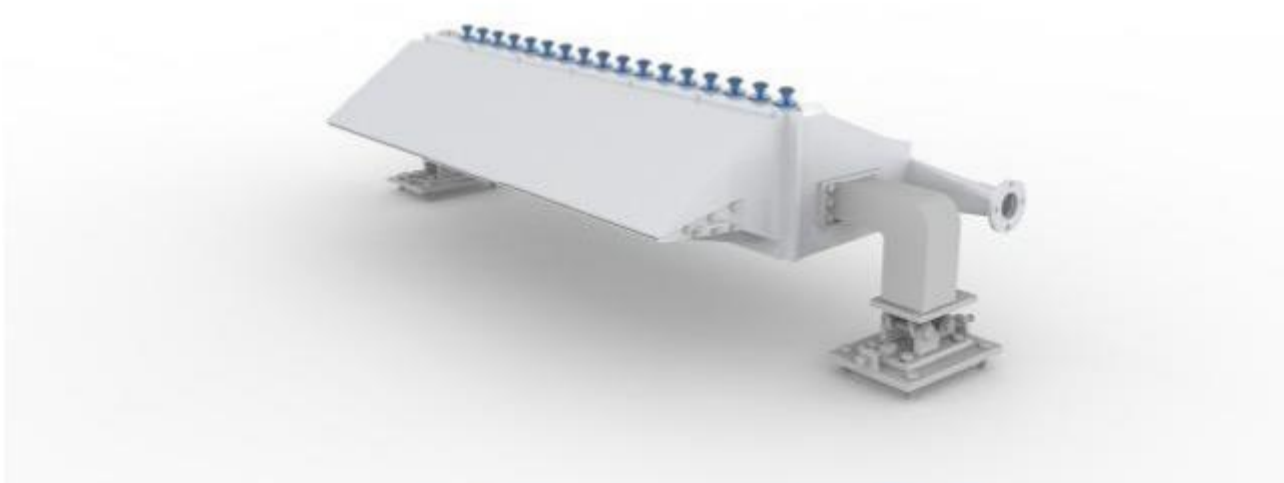
|                |  |
|----------------|--|
| Headbox        | : Single-layer hydraulic, DynaFlo™ T                       |
| Former section | : Crescent former, EcoFormer                               |
| Press section  | : Single suction press, EcoPress                           |
| Yankee section | : Cast iron Yankee with bolted head covers in cast iron    |
| Pope reel      | : Horizontal cylinder reel with primary and secondary arms |
| Hood           | : Medium efficiency steam heated hot air hood              |



## Headbox DynaFlo™ T

The DynaFlo™ T hydraulic headbox has a straight-flow design from tapered header to nozzle. The headbox delivers a jet with uniform cross-machine velocity. The turbulence level is adequate to achieve excellent fiber distribution and formation. The nozzle has a low-convergence angle, and the headbox is designed to give a short free jet length.

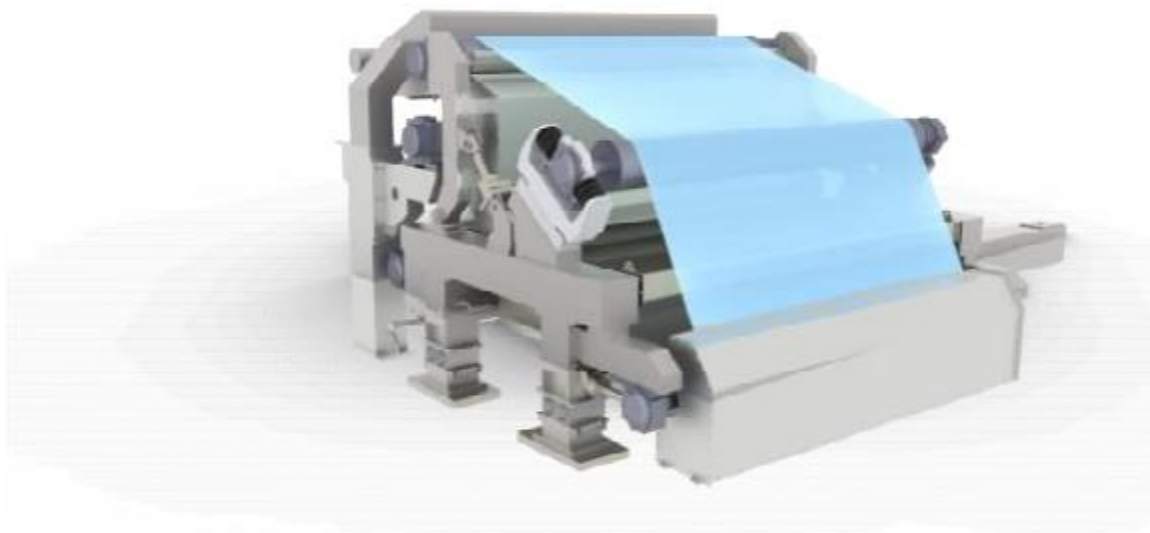
For CD basis weight control the headbox is equipped with slice profile screw micro adjusters. The hydraulic design minimizes build-ups of dirt fiber or chemicals.



### Forming Section, *EcoFormer*

The sheet is formed between a forming wire and felt that wrap a solid forming roll. The save-all tray/deflector collects the water from the headbox jet. The tray is designed with curved perforated vanes absorbing the energy of the jet and minimizing the air entrainment before entering the flume.

When drainage is completed, the formed sheet is already on the felt. Wire cleaning is ensured by high-pressure showers. Framing is welded of carbon steel and clad with stainless steel. Extractable porta-bar for fabric installation is included.

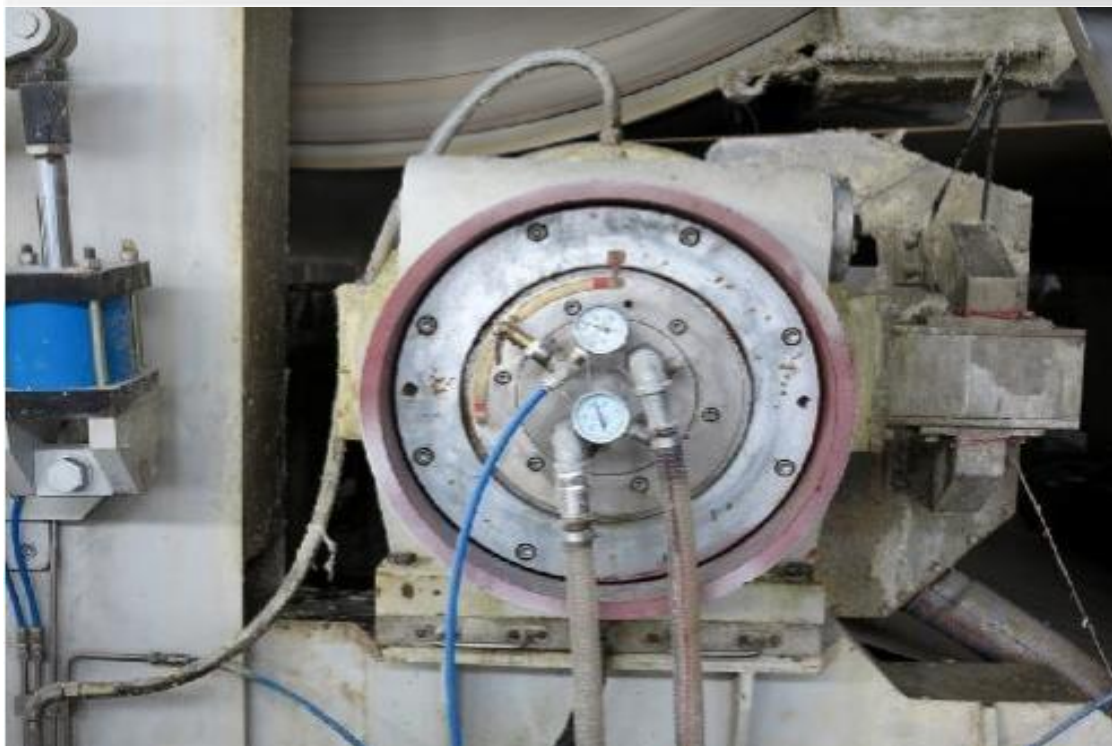
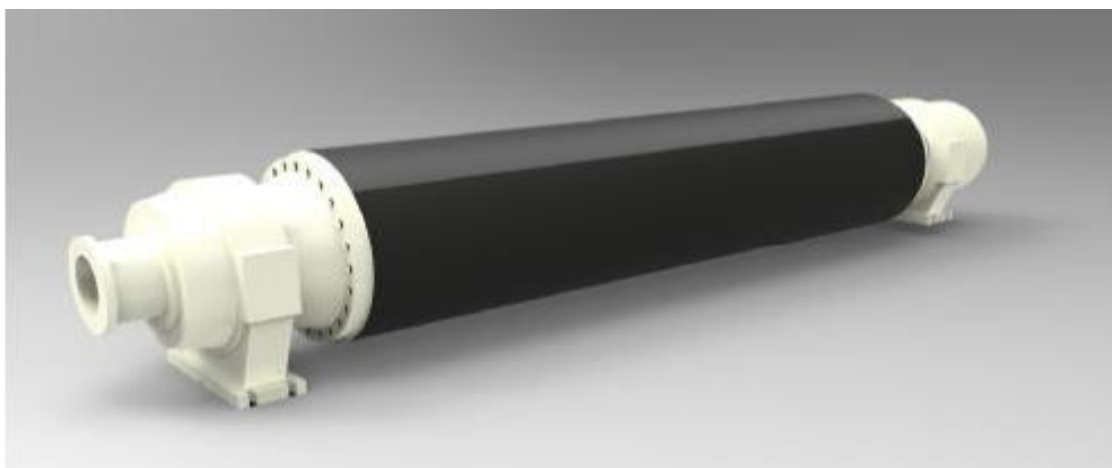


### Press Section, *EcoPress*

The press section consists of the felt run with suction press roll loaded against the Yankee dryer. Press is loaded by pneumatic bellows.

Single press roll configuration improves the bulk of tissue compared to double press roll configuration.

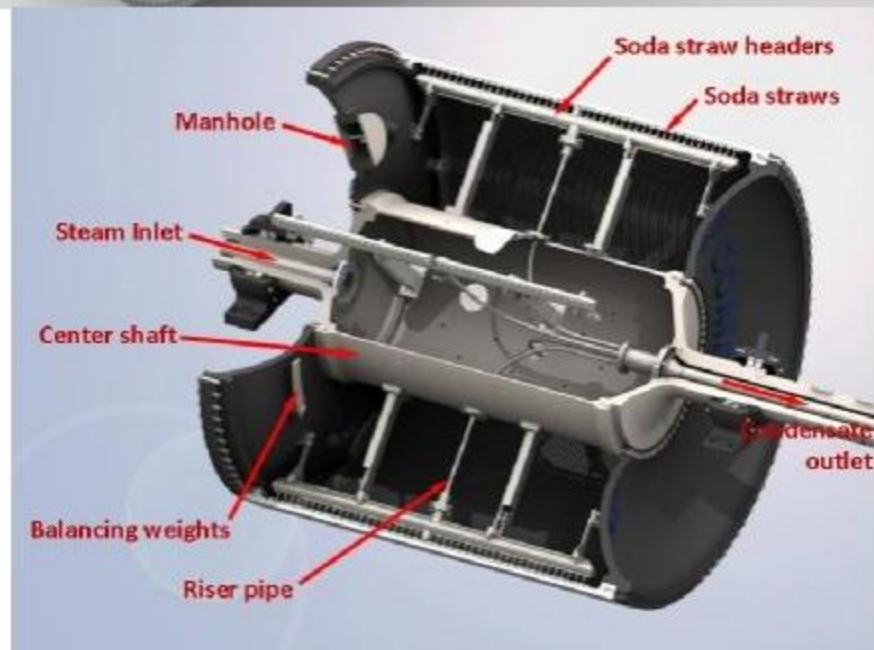
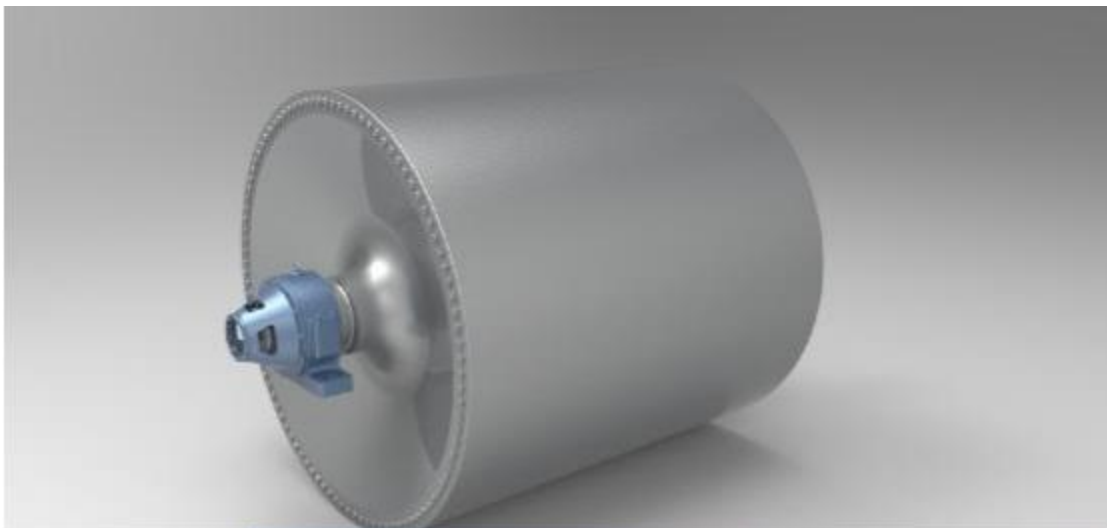
Felt and conditioning is ensured by high pressure shower, flooded nip shower and felt uhle boxes. Framing is wedled of carbon steel painted.



### Yankee Dryer, *EcoDryer*

The dryer shell is made of special-alloy cast iron, machined internally and grinded externally to a high-polish surface. Internal surface of the shell is grooved.

The condensate is removed from the inside of the shell by means of a number of small pipes, "soda straws". The small pipes transport the condensate via the header pipes and riser pipes into the centre condensate shaft of the Yankee Dryer. The condensate is removed, normally through the drive side journal, via a rotary joint. The driving force removing the condensate is the difference in pressure across the Yankee.





## Yankee Section

The creping and cleaning doctors on Yankee dryer are loaded by pneumatic cylinders and electro-mechanically oscillated. Blade holder is pre-set by profiling screws to adapt the load on the Yankee curve. Blade load is operator-set from the control panel.

The coating chemical shower is located prior to the press nip. The shower pipe is equipped with joint nozzles and supported with stationary outer protection pipe.



### **Yankee Hood, *EcoHood***

The Yankee hood is a steam-heated hot air hood, divided in two halves.

Moisture profile regulation takes place in the wet-end which is divided into independent blowing zones across the sheet width. This gives better control/regulation of blowing speed and consequent paper web moisture profile.

Additionally, the dry-end is equipped with two chambers to control edge over-drying.

Both sections are equipped with cross-machine air knives to prevent infiltration of moist air in the wet end toe area and hot air leakages in the dry end toe area.

For paper threading and cleaning, the hood can be retracted 200 mm from the Yankee dryer surface. Access doors allow entry to all parts of both sections.



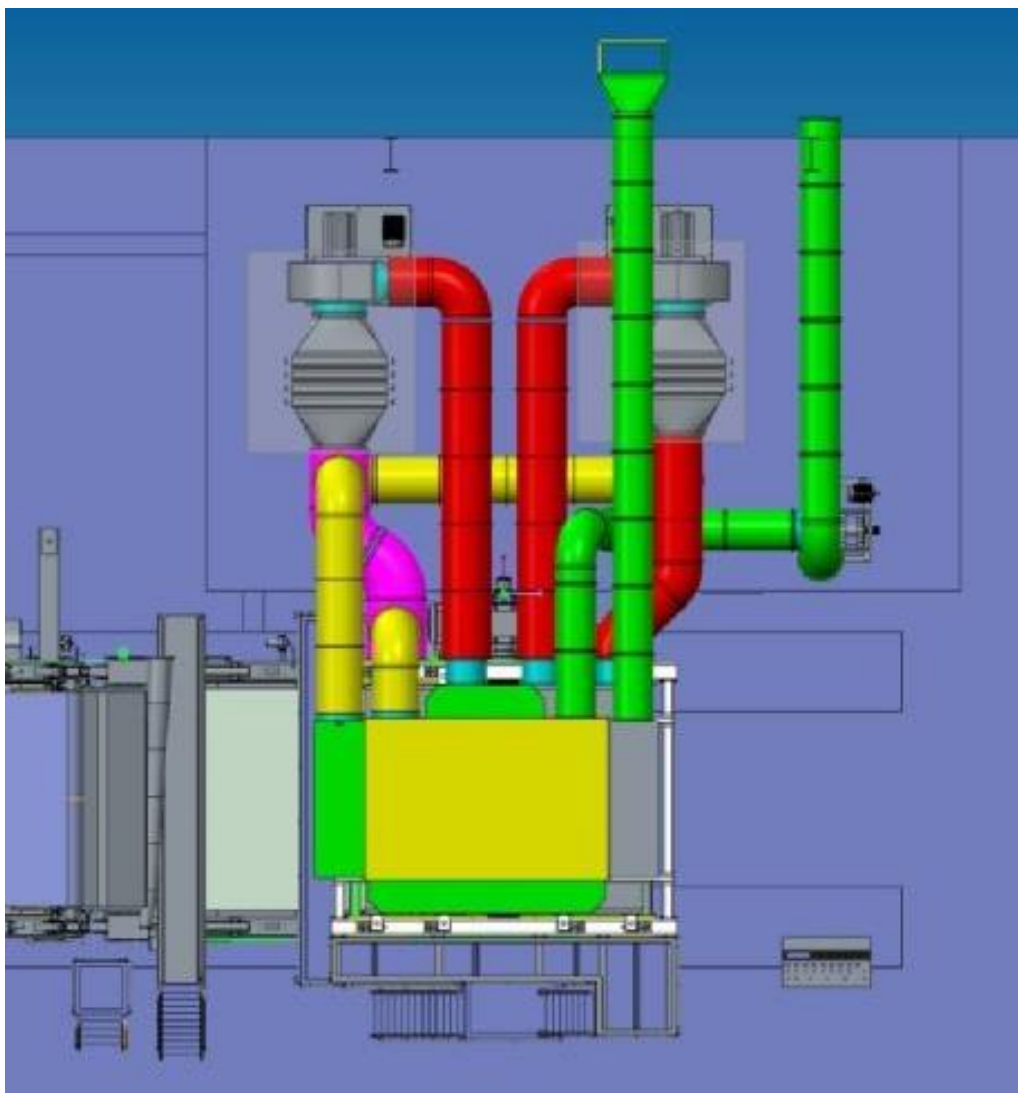
## Air Recirculation & Heat Recovery System

Both sections of the Yankee dryer hood have individual air circulation systems with independent performance, which are connected in parallel.

The speed of the circulation air fan controls the air flow, thus affecting the impingement velocity. The impingement air temperature is controlled with the steam flow to the coils.

When the Hood is retracted circulation air fan speed is reduced.

The exhaust air is taken from the circulation air duct and is controlled by the speed of the exhaust air fan.



## Reeler

The Reeler section is electrically and pneumatically operated. The turn-up sequence is manually.

Before turn-up, reel spool is fed by overhead crane into the primary arms. The nip load between spool and reel drum is maintained by pneumatic clamps. Primary arm movement is electrically operated and synchronized through a cross-shaft.

Secondary arm is pivoted and pneumatically loaded.

The doctor is loaded and unloaded pneumatically.



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## Sectional Drive Control System

A PLC based control system using distributed I/O and are connected via a Profibus. The system is based on a SIEMENS S7-300 CPU, with remote I/O. The operator interface is based on touch screen with control software.

This is proven design, used in all CTM tissue machines. The system is reliable and easy to maintain.

The sectional drive control system will consist of:

ABB inverters

SIEMENS PLC S7-300

SIEMENS touch screen

Other electric components for machine control

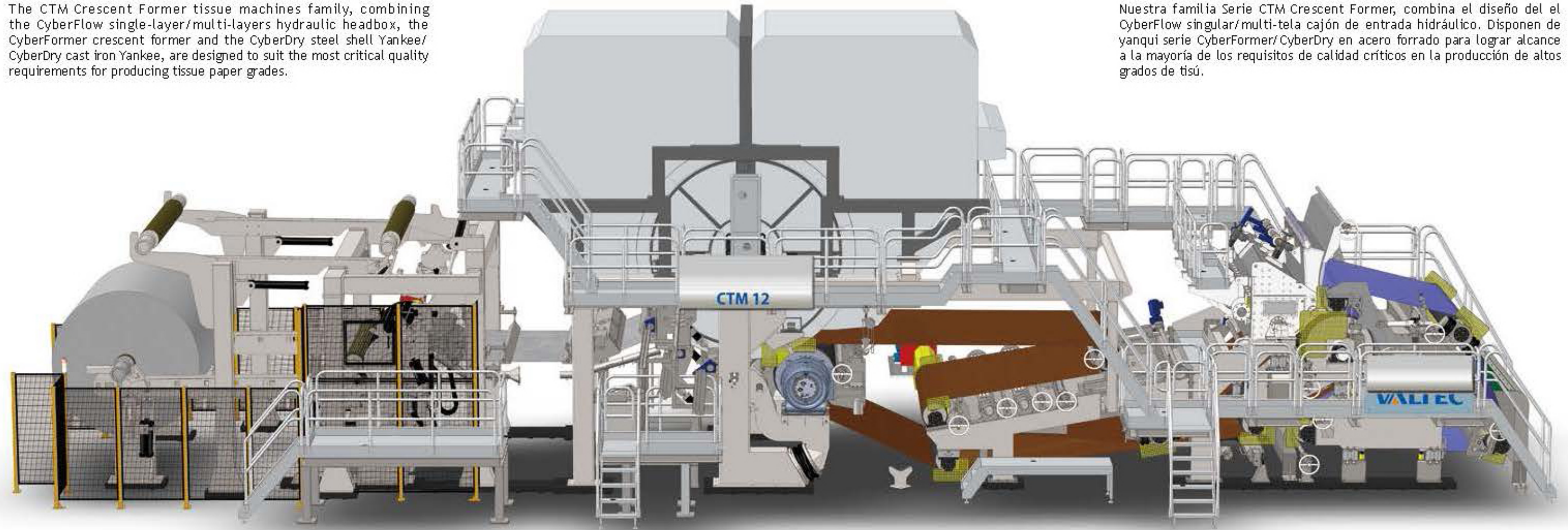
Control cabinets

Operator desk



## ▶▶ CTM Series Crescent Former

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## ▶▶ Máquina Tisú; Crescent Former, Serie CTM

Nuestra familia Serie CTM Crescent Former, combina el diseño del el CyberFlow singular/multi-tela cajón de entrada hidráulico. Disponen de yanqui serie CyberFormer/CyberDry en acero forrado para lograr alcance a la mayoría de los requisitos de calidad críticos en la producción de altos grados de tisú.

### TECHNICAL SPECIFICATIONS / ESPECIFICACIONES TÉCNICAS

| Model / Modelo                            | CTM 07                     | CTM 10 | CTM 12 | CTM 14 |
|---|----------------------------|--------|--------|--------|
| Specs                                     |                            |        |        |        |
| Paper Width, trimmed (mm)                 | up to 2850                 |        |        |        |
| Basis Weight, at Reel (g/m <sup>2</sup> ) | 13-35                      |        |        |        |
| Operating Speed, Yankee (m/min)           | 700                        | 1000   | 1200   | 1400   |
| Gross Capacity (tons/day)                 | 30                         | 45     | 50-60  | 70-80  |
| Yankee Diameter (mm)                      | 3,000                      | 3,660  | 3,660  | 3,660  |
| Yankee Construction                       | C.I. / Steel               | Steel  | Steel  | Steel  |
| Furnish                                   | NBKP, LBKP, Recycled Fiber |        |        |        |

