

CENTRAL IMPRESSION DRUM FLEXOGRAPHIC PRESS TYPE

"ONYX 876 GL" MOD. 120

8 COLOUR FRAME
HAS BEEN UPGRADE TO 8C

MIRROR TYPE

SERIAL NUMBER 2040

MACHINE MAIN TECHNICAL FEATURES

UNWINDER "TA-U 800"

WEB INFEED GROUP

PRINTING GROUP

MOVEMENT OF THE COLOUR UNIT

COMPONENTS OF THE COLOUR UNIT

DRYING SECTION

OUTFEED UNIT

WEB OUTFEED UNIT

REWINDER "TA-R 800"

ELECTRICAL CABINETS AND MAIN CONTROL PANEL

GENERAL SALES CONDITIONS

SALES CONDITIONS

MACHINE MAIN TECHNICAL FEATURES

NUMBER OF PRINTING STATIONS AND PRINTING POSSIBILITIES

Number of printing stations: **8**
Printing possibilities: **(8+0)**

MATERIAL AND PRINTING WIDTH

Material width: min. : 50% of the max. material width and according to the "tension range" hereunder specified.
Printing width: max : 1250 mm (49")
max : 1200 mm (47")

PRINTING REPEAT

Printing repeat range: min. 350 mm (13,8") (*) - max. 760 mm - 30"(**)
It is possible to set the printing repeat by steps of 0,1 mm .
During the production the correction is possible by steps of 0,01 mm up to a maximum of ± 3 mm.
(*) NOTE: for hard sleeve
min. printing repeat 350 mm with total plate thickness (cliches + cushion) < 1,7 mm (.067")
min. printing repeat 360 mm with total plate thickness (cliches + cushion) < 3,2 mm (.126")
(**) NOTE: One or more carriers are needed to get the maximum repeat range.

MACHINE SPEED

Mechanical speed: 365 m/min max.
Printing speed:
- min.: 30 m/min. (98 Fpm) (depending on the type of inking system, type of inks, type of solvents and model of the machine).
- max.: depends on all the following printing conditions:
- type of material;
- repeat of printing cylinders and clichés;
- inks, lacquers and solvents;
- required print quality;
- solvent retention level (if any).

REFERENCE DRAWINGS AND WEB DIRECTION

Reference drawings: **web threading P7164-0C dated 22.06.2006**
foundation plan P7271-0B dated 22.06.2006
Web direction: **from right to left (from operator's side) - MIRROR TYPE** - with unwinder positioned between the central impression drum and the out-feed nip roll group.

MATERIALS TO BE PRINTED

Materials to be printed:

NOT EXTENSIBLE FILM

Gauge Polyethylene from 0.0008" to 0.008" (max. width in this case 36")

Polipropylene from 1 mil to 3 mil

No other material overcome 0.004" on poliethylene

Note: thickness and width of the materials to be processed in the machine must match with the "tension range" specified here under.

Furthermore low thickness flexible materials are subject to snap backs which have to be taken into consideration when choosing the proper printing parameters.

TENSION RANGE

Tension range:

2 ÷ 35kg

In any case with min./max. standard ratio = 1:10 (0.1 to 1.5 pli)

[the infeed nip-roller is necessary when working with minimum total tension less than 3 Kg (30N); anyway the minimum tension cannot be lower than 20 N (about 2 Kg - 4.5 pounds)]

TYPE OF INKS

Type of inks used :

solvent based (the machine will be explosion-proof)

TOTAL PLATE THICKNESS

Total plate thickness:

0.067" + 0.020" (including stickyback)

PLATE CYLINDER GEARING

Gearless:

The central drum, the printing sleeve cylinders and the anilox sleeve cylinders are equipped with an independent electrical motor. This system replaces the gear system.

CUSTOMER'S PLANT POWER SUPPLY

Customer's plant power supply :

208 V, 3PH ± 5 % : with autotransformer supplied by Uteco.

The customer must specify the actual power supply.

MACHINE POWER SUPPLY

Machine voltage:

400 V -three phases with ground (T) and without neutral (N)

LINE FREQUENCY

Main line frequency:

60 Hz ± 2%

AUXILIARIES VOLTAGE

Auxiliary voltage:

110/115 Volts single phase

(Single phase line supplied by Uteco with transformer)

SERVICES VOLTAGE

Services voltage

(supplied by the customer):

110 V single phase

Note: The customer must inform Uteco on the value of his own single phase voltage for the maintenance plugs, provided in the electrical cabinet and for lighting.

ELECTRICAL INSTALLATION

Electrical standards: According to mentioned rules (see DIRECTIVES paragraph).

COLOUR OF MACHINE

Colour of machine : Standard for flexo presses
White RAL 7035 + Green RAL 5021(*)
(*) Machine colour refers only to the main structures manufactured and directly supplied by UTECO. Any ancillary equipment not manufactured by UTECO is painted according to current directives.
(*) Different colours, promptly requested by the customer, will imply an extra price.

NOISE LEVEL

Machine maximum noise level, only for equipment supplied by Uteco: within curve 85 dB

NOTE: The noise level shall be measured at a distance of one meter (40") from the machine, in the operator console area and along the whole length of the machine, operator side. Readings shall be taken with only the UTECO machine running, and only when the insulated delivery/exhaust air vents (customer's supply) are connected.

ROOM TEMPERATURE

Plant environment temperature: from 10° up to 35° C (50° to 95° F)
According to specific room conditions, modifications to the press design could apply and consequently the quote overall price could be revised.

RELATIVE HUMIDITY

Plant relative humidity: from 30 to 80% (at 20°C - 68° F)
According to specific room conditions, modifications to the press design could apply and consequently the quote overall price could be revised.

ALTITUDE

Altitude : max 1000 metres (3300 feet) above sea level.

DIRECTIVES

The press has been designed and manufactured according to UL 508A and NFPA 79 standards.

Any modification requested by the competent authority of the State of destination of the proposed equipment, must be carefully verified by Uteco in order to determine its technical feasibility. In case of such modification, it must be quantified in terms both of costs and production delays.

All the values regarding the tension (Lb), speed (f.p.m.), temperature (°F), thickness (mil) on the machine will be indicated by using the Anglosaxon system.

COMPRESSED AIR AND CHILLED WATER

Compressed Air Supply: Non-lubricated, dried and filtered
Pressure: 6 Bar 86 PSI
Dew point: + 2°C 36°F

Compressed Air Supply for

sleeve change system (if installed): Non-lubricated, dried and filtered
Pressure: 6 Bar 86 PSI
Capacity: 750 liters/min
Dew point: + 2°C 36°F

Chilled water specification:

Filtration clarity: less than 20 µ
Pressure:
Min. 2 bar 29 PSI
Max. 3 bar 44 PSI
Inlet temperature (chilled rollers, with room temperature 20°C (68°F)):
15°C to 18°C 59°F to 65°F
Hardness (Ca CO₃):
2.5 to 4 mg/l 2.5 to 4 ppm
pH: 7 to 8.2

MACHINE COMPONENTS

This is a general list which only refers to the components installed in the machine.

COMPONENTS OF WHICH THE BRAND MAY BE CHOSEN BY THE CUSTOMER

Expanding shafts	Svecom, Sideco
Videocamera units	BST, Eltromat
Edge guides	Fife, BST
Corona treaters	Ferrarini & Benelli
Solvent concentration control system	Heck
Anilox rolls and anilox sleeves	Praxair, Simec
Printing sleeves/rubber sleeves	Rossini
Viscometers	Fasnacht, Gama
Register control systems	Grafikontrol, Eltromat, Zelo

NOTE :

Any requests for components, other than from the manufacturers listed above should be discussed with Uteco.

Upon Uteco's technical approval of components other than those listed above, price and delivery terms quoted may need to be adjusted to reflect additional costs created by using that particular component.

Delivery terms may be subject to additional changes during machine manufacturing process, depending on the difficulties (availability, design and adaptation problems) found in using these specially requested components.

Uteco is not liable for any reduction of the machine characteristics and performance caused by components specially requested by the customer.

Equipment of other suppliers, herewith not specified, can be used by Uteco as long as it has similar characteristics.

AUTOMATIC TURRET UNWINDER "TA-U 800"

Cast iron frames, G20, 70 mm (2.75") thick, connected by cast iron cross beams, for high rigidity of the group and to minimize vibration under the hardest production conditions.

Outside diameter of reels: 800 mm max.

Minimum diameter of the new reel for reel change: 300 mm (12").

Turret rotation through motor and reducer.

Control panel with the main controls of the unwinder.

SAFETY DEVICES

The unit is equipped with safety devices according to mentioned directives (see DIRECTIVES paragraph).

MOTOR FOR UNWINDER

Two unwinding stations each one driven by an AC motor.

PNEUMATIC DANCING ROLLER

Pneumatic dancing roll for the automatic control of the web tension.

REEL CHANGE FOR UNWINDER

Cut-off unit for the automatic flying splice at production speed (according to the used web and stickyback).

The star is put in the "change position" at the operator command. By means of an encoder the diameter of the new reel is measured. By means of a further command the new reel is "launched" until it reaches the web speed. After a few second this speed is reached and the cut-off takes place: the cut-off unit is activated. The cut-off unit is made of a rubber roller and a cutting knife which are activated in a synchronized way.

The unit is actived by means of a motor reducer. A pair of pneumatic pistons activates the cutting knife. The cutting may be executed on both unwinding directions.

PNEUMATIC EXPANSIBLE SHAFT, I.D. 76 MM (3")

N° 3 (2 + 1 spare)

Shaft, with expansible rubber lathes, for cores having internal diameter 76 mm (3"), made of aluminum.

SHAFT CHUCKS

N° 2

Shaft rotating chucks, brand SVECOM.

SIDE REGISTER

Side register, manually adjustable, 50 mm. The frame of the unwinder is shifted by means of a handwheel.

WEB INFEED GROUP

Aluminium idle rolls, dynamically balanced.

PROVISION FOR EDGE GUIDE

Mechanical provision for the installation of an Edge guide type Kamberoller (Uteco standard).

EDGE GUIDE KAMBEROLLER

N° 1

Edge guide KAMBEROLLER, electromechanical type, with single ultrasonic sensor, adjustable by motor, to guide the edge of the web.(supplier at Uteco's choice).

PRINTING GROUP

PRINTING PRESS MAIN FRAMES

Adjustable aluminium roll installed before the pressure roll, for alignment of the web on to the drum.

Infeed rubber pressure nip roll with double pneumatic control for independent side-to-side control

The press main frames are cast-iron G25 (thickness 110mm - 4,3") and CNC machined for max. 8 printing units.

The frames have openings on the operator side, to allow access both printing and anilox sleeve removal.

The average distance between printing stations is approx. 600 mm (24").

TRANSMISSION

Transmission to the colour units through electronic shaft.

LUBRICATION

Centralized manual (grease) lubrication of C.I. drum bearings.

SAFETY DEVICES

2 (two) safety side doors, positioned between colour units with safety microswitches

PRINTING GROUP DOORS

Steel sliding doors, positioned on the operator side of the printing group. The doors can be opened for sleeve changing and are equipped with a transparent panel and safety interlocks.

CENTRAL DRUM

HASTALLOY COATED DRUM

Double-wall steel drum, with a nominal outside diameter of 1790 mm. The drum is covered by an HASTALLOY COATING for the moisture and corrosion protection.

HASTALLOY is a thin metallic dust plasma spraying coating of an approx. 0,2 mm. thickness, sprayed on the drum at a hypersonic speed.

The chemical composition is as follows: chromium, molybdenum, iron, tungsten, nickel. This composition allows an exceptional corrosion protection and high mechanical performance.

After spraying the drum is smoothed (polish ground).

NOTICE: Damage to the surface of the drum can be repaired at customer's plant, working ONLY on the damaged side.

- Two tapered roller bearings support the central impression drum journals. Each bearing is checked and assembled to guarantee minimum eccentricity.
- Total excentricity tollerance lower than 0,010 mm (10 μ) (.0004").
- Pneumatic brake to stop drum rotation in case of emergency stop.
- Rotary union for the connection of the drum to the water chill unit.

DRUM CONDITIONING

An air-cooled water thermoregulating unit controls the central impression drum temperature as well as cools the outfeed chill rolls and the hydraulic power unit (if included in this supply).

It is a closed-loop system with recirculating pump and heat exchanger, for a a cooling capacity of approximately 25.000 refrigerating units/h (100,000 BTU).

Electrical heating unit for water pre-heating.

Cooling unit included.

Remark: the cooling unit is suited to indoor installation or in a protected area.

CENTRAL IMPRESSION DRUM MOTORIZATION

Motorization of the central impression drum of the printing sleeve cylinders and of the anilox rolls by means of synchronous AC motors, brushless type.

The same motors on the central drum and on printing cylinders are directly connected to the relevant cylinder's end; mechanical joints and/or transmission reducers are never supplied with this type of press (gearless).

PRINTING GROUP CONTROL PANEL

Pressurized printing unit control panel controlled by a pressure switch. This panel is managed by an AIR EXCHANGE system.

AIR EXCHANGE system: when the air exchange panel, which is separated from the machine panel, is activated, the exhaust fan motor of the printing unit will turn at such a high speed as to guarantee a sufficient exhausted air for the air exchange in the printing group. Once the necessary time for the air exchange is passed, it is possible to turn the main machine panel on.

PRINTING GROUP LIGHTING

The printing group lighting consists of 3 (three) explosion-proof lamps:

- 1 (one) positioned over the upper internal color unit.
- 1 (one) positioned under the lower internal color unit.
- 1 (one) positioned over the upper external color unit.

PRINTING DECKS ACCESS

Ladder for control of printing pressures EXCLUDED from supply.

MOVEMENT OF THE COLOUR UNIT (DECKS)

MOVEMENT OF THE COLOUR UNITS (DECKS)

Supports of both printing and anilox air mandrels move on high precision linear slideways.

Slideways are pre-loaded and backlash free, without need for clamping.

4 (four) high precision recirculating ballscrews, for the movement of the slides, controlled by the four CNC motors.

A safety sensor will prevent accidental contact.

OPENING OF COLOUR UNITS (DECKS) FOR SLEEVE REMOVAL

The sleeve change can be easily carried out on the operator side, once the selected colour units have been opened: the bearing supports of both printing and anilox sleeves cylinders are tools-less unlocked by the operator, partially shifted and tilted by 130°, so as to completely free the sleeve change area.

Once the desired sleeves have been replaced, a reverse procedure has to be followed to run the press.

REMOTE CONTROL PANELS (PENDANTS)

The supply includes three remote control panels which can be connected as follows:

- two of them are connectable to suitable sockets placed on the printing press section (internal and external colour units)
- one is connectable to the main control panel.

Following controls are available from each remote control panel (pendant):

- Stop
- Selection colour unit (deck)
- Opening/closing colour unit
- Throw on/off colour unit
- Correction backward/forward printing mandrel front side
- Correction backward/forward printing mandrel rear side
- Correction backward/forward anilox mandrel front side
- Correction backward/forward anilox mandrel rear side
- Longitudinal register forward/backward
- Side register front/rear
- Longitudinal register centering
- Side register centering

ELECTRONICALLY CONTROLLED, MOTORIZED DECK-IN (RACK-IN)

The system includes 4 step motors and 4 encoders for each colour unit: 2 motors control the position of each side of the printing cylinder. The other 2 do the same for the anilox roll.

The system is an independent loop type: each motor is directly controlled by its digital drive to reach a determined location, while the respective encoder monitors the movement. If an error is detected, the whole system is stopped.

Speed (back/forward movement): max. 18 mm/sec. approx. (1" per second)

The system is designed to automatically detect the following:

- encoder failure;
- zeroing end-stroke failure;
- cylinder off-center;
- drives (servomotors) failure;
- overvoltage/overcurrent;
- power black-out;
- maximum correction.

The system control area is located on one or more movable units (movable junior panel/pendants) as well as from the machine main console, where also the current data of the selected cylinders is displayed on the computer screen.

When printing, corrections can be done by "step"-movement (defined movement units).

The final printing job data, complete with all corrections is saved on the buffered RAM memory of the drives.

THROW OFF (DELAYED IMPRESSION RELEASE)

Throw-off of the color unit is automatic, horizontal and activated by the same four motors moving the colour unit.

The throw-off has the same forward/backward direction of both printing cylinders supports.

The throw-off of the colour unit is sequential.

At press stop, the anilox roll automatically backs up, while the plate cylinder rotates for a few more seconds against the web for self-cleaning.

The plate cylinder will then back up as well.

The throw-off can be simultaneous and/or independent for each colour unit.

LONGITUDINAL REGISTER

The longitudinal register is **MOTORIZED**. Register movement commands are located on a remote control panel.

The register adjustment is effected by means of the motor of the printing cylinder.

Correction range: 360°

SIDE REGISTER

The side register is **MOTORIZED** operating directly on the union supporting the air mandrel.

Max. correction range: ± 10 mm (± 0.39 ").

Side register movement commands are located on the same remote control panel (pendant) as the longitudinal register.

PRE-REGISTER

AUTOMATIC PRINT-TO-PRINT REGISTER PRE-SET TYPE "G" (Gearless)

The term "Print-to-print register pre-set" is understood as the procedure used to position the printing plate cylinders on the press in phase one with the other as to achieve a printing register starting with a tolerance limit ± 2 mm.

This procedure yields significant time reduction during the set-up of a new job.

This function is achieved through an industrial computer programmed by Uteco.

Functioning:

- The procedure begins during the plate mounting on the printing sleeves. The plates must be mounted on the cylinders using the reference point of the sleeves.
- After that operation, the sleeves are mounted on the sleeve cylinders on the press. The reference pin of the sleeve cylinder must fit the metallic notch of the sleeve.
- To start the job it is needed to prepare the press setting the printing repeat in use and the eventual ungauging of the printing repeat (if needed).
- Closing the colour decks (anilox and printing cylinder) the motors of the printing cylinders are automatically set in "torque". This means that they do not allow the free rotation of the cylinder and are ready for the simultaneous start. Now the press is ready to start.
- Pushing the start button the printing cylinders rotate and they are positioned so as to get the correct printing pre-register.
- Three seconds later (after the alarm sounds) the press starts the synchronized drive.

REMARK:

After the pre-register setting the position of the printing cylinders is strictly related to the central drum. For this reason, in case of longitudinal register adjustment (both manual or automatic, in case of automatic control of the register) this position is always kept in every condition of the press (stop/go, jog, emergency).

In case the operator needs to open the color deck, when the press is not working, in order to clean it (the printing sleeves and anilox sleeves can rotate), the latest positions of the printing sleeves are automatically memorized and later, when the press starts again, the positioning of the same is effected again. So, even in this case, the position of the printing register is kept.

COMPUTER CONTROLS

The system is composed of an industrial computer equipped with a LCD SVGA colour monitor and diaphragm keyboard. The computer, located on the machine main console, is the interface between the operator and the machine PLC. Dedicated software handles graphic presentation, as well as the real-time data exchange with the press. The main control system of the press allows the following monitoring, control and drive operations:

DATA	DISPLAY	MODIFY	RECALL
LINE SPEED	X	X	X
WEB FOOTAGE	X		
WEB TENSIONS	X	X	X
CHART OF MACHINE SPEED (min. 1 year)	X		
DIAGNOSTIC MESSAGES	X		
ALARMS AND FAILURES	X		
REPEAT OF PRINTING CYLINDERS	X	X	X
PRODUCTION IDENTITY	X	X	X
PRINTING POSITIONS (printing/anilox cylinders)	X	X	X
PRINTING REPEAT ADJUSTMENT	X	X	X
WEB THICKNESS	X	X	X
TEMPERATURE CONTROL	X	X	X

Items included:

- storage of data for up to 5000 jobs.
- data transfer to a standard parallel printer (printer excluded) which consists in the supply of software to manage the serial of the printer for featuring the following:
 - set-up page printing
 - production trend printing.

MACHINE AUTOMATION

PLC programmable logic control system, brand General Electric, model 90-30 with remote peripheral units. 24 V input modules.

Output modules with relays or Triac (when needed).

Industrial computer to interface with the operator.

Software and hardware for modem for possible data transfer with the following features:

- connection to the PC of the machine by means of a phone line supplied by the customer (VERIFY CONNECTION CONDITIONS);

- check of the state of the machine and alarms;

- files transfer from Uteco PC to MACHINE PC and vice versa;

- PLC on-line connection for modification and monitoring of the programm.

This service includes (only during the guarantee period):

- HW, SW for the connection

- free of charge assistance during Uteco working hours (phone expenses at customer's charge).

- 1 (one) additional year of free connection for assistance from Uteco North America.

Note: a screen to be supplied to allow the operator to adjust longitudinal and running register while the press is running up to 200 fpm. This screen to have all controls for all decks on one page.

CONTROLS ON COLOUR UNIT

Mushroom emergency stop.

Normal stop.

Anilox idle running on/off

Opening/closing of chambered doctor blade.

Adjustment and read-out of the doctor blade pressure.

COMPONENTS OF THE COLOUR UNIT

NUMBER OF PRINTING UNITS

N° 8

The standard machine configuration has a total number of color units as above indicated.

Description of the components:

PRINTING SLEEVE CYLINDER

N° 8

Steel-made printing sleeve air mandrel (diameter 105,158 mm), for printing sleeve mounting, complete with flange for side register.

The air mandrel journal on the operator side is supported by one needle bearing running on slideways made of hardened steel, and pressfit on the journal itself.

The air mandrel journal on the rear side is supported by bearings for the support of the mandrel during sleeve change.

The printing cylinder is driven by a brushless motor, shrink fit directly on the end of the cylinder itself.

The customer must communicate the specifications of the remaining 16 sleeves.

REINFORCED SLOT FOR PRINTING SLEEVE

N° 100

On each printing sleeve, where possible, a reference reinforced slot (made of metal or other rigid material depending on the sleeves' supplier) will be fitted.

The slot assures the original shape of the reference lug over a period of operation and therefore an accurate sleeve positioning on the air mandrel.

LUBRICATION OF PRINTING MANDRELS' BEARINGS

Automatic timer-controlled centralized lubrication of the printing mandrel bearings (transmission side).

Easy access for the lubrication of the moveable supports on the operator's side.

ANIOX SLEEVE CYLINDER

N° 8

Mandrel for anilox sleeve, made of steel, external diameter approx. 130 mm (5.1") for anilox sleeve having external diam. 152 mm (6") (sleeve EXCLUDED).

Continuous rotation of the inking roll, when the press is not printing, by means of a brushless motor.

SPLASH GUARDS

N° 8

Pair of stainless steel TEFLON coated splash guards positioned on the anilox sleeve mandrels installed on the press.

CLOSED CHAMBER DOCTOR BLADE

N° 8

Closed chamber doctor blade, made of extruded aluminium treated with NON STICK material, complete with end seals, blade holders and beveled blade.

Positioning of the doctor blade chamber by means of linear precision ball screws.

The blade pressure is kept by two highly sensitive pneumatic cylinders positioned on the two ends of the doctor blade.

The adjustment of the pressure is by means of a pressure reducer.

The commands of the blade chamber movement and of the blade chamber adjustment are located on each printing unit.

The doctor blade chamber is supplied with two strengthening bars with a preloaded assembly support to guarantee the perfect linearity of the doctor blade in all operation conditions.

You can open the doctor blade chamber from above (pivoting system) in order to control the wearing of the blades and for cleaning purposes.

To remove the doctor blade chamber you just have to lift it.

Note: Autolock on doctor blade when machine is running. Blades not to be capable of being switched in or out.

The customer has approved a doctor blade open/close interblock and the controls are positioned inside the side safety guards.

INK TRAY

N° 8

TEFLON-COATED STAINLESS steel ink tray, with ball valve and provision for ink pump hose connection.
The ink trays of all color units are interchangeable.

INK RETURN

N° 8

Closed circuit outlet installed on the chamber blade. The ink return is carried out directly from the chamber blade to the tank, without going through the tray.

SLEEVE CYLINDER FOR PLATE MOUNTING

N° 1

Aluminum mandrel for printing sleeve mounting, diameter 105,158 mm (4,14"), complete with plate for side blocking, for the printing sleeve mounting on plate moulder (unit excluded) or for sleeve mounting not on machine.

PUMPS

N° 8

Double-diaphragm pneumatic pump, installed with ink inlet/outlet hoses, tank excluded (for description of tank, if included, see relative item).

PUMP TANKS

N° 8

Stainless-steel tank and lid of 30 litres (7.9 gallons) for ink pump.

DRYING SECTION

ACCESS TO THE DRYING TUNNEL FRAME

N° 1

Service ladder and overhead walkway for the access of the machine upper structure.
The ladder has a 45° inclination.

BETWEEN COLOURS DRYING EQUIPMENT

Between colour drying boxes made of steel installed on adjustable side supports which allow their overturn for an easy cleaning.

Edges of the box are rubber-protected to prevent the box from damaging the central drum.

Blade-type air supply elements, properly oriented.

Manual air control damper on the supply and on the exhaust of each box.

Ductwork to connect the drying boxes to the main air collector. The latter is made of steel and is mounted on the back side of the press.

One SUPPLY fan with INVERTER (capacity: see table below) provides the air to the drying boxes.

One EXHAUST fan with INVERTER (capacity: see table below) pulls out the air from the drying boxes.

Temperature: thermal rise 60°C

Air flow adjustment according to the model of machine (indicative values):

Model	Supply Fan (Nm³/h)	Exhaust Fan (Nm³/h)	Thermal power (KW)	Thermal power (Kcal/h)	Air speed m/s
120	7300	9100	172.8	150.000	40

The thermal power is affected by a requested thermal rise different from the above-indicated one whose feasibility must be verified and confirmed by Uteco

The thermal power may be affected by the eventual presence of the air ricirculation system, as well. (SEE RELATIVE ITEM)

DRYING TUNNEL

The bottom frames of the tunnel are made of cast iron, 50 mm (2") thickness.

The top part may be opened by a pneumatic piston.

The hood is insulated with a 25 mm (1") thick layer of fibreglass for thermal efficiency and to reduce noise.
 The total length of the tunnel is 4 meters (13 feet).
 The air supply elements are blade type and connected to the supply duct.
 Air blades are positioned to direct air over the rollers supporting the web.
 The web is supported by balanced aluminum rollers, driven via belts; the belts are controlled by their own inverter motor.
 The roller journals are supported by self-ventilating bearings; bearing housing are machined in the tunnel frame to achieve accurate roller alignment.
One SUPPLY fan with INVERTER (capacity: see table below) provides air to the drying tunnel.
One EXHAUST fan with INVERTER (capacity: see table below) removes the air from the drying tunnel to keep it in negative pressure.
 Temperature: thermal rise 60°C
 Air flow adjustment according to the model of machine (indicative values):

Model	Supply Fan (Nm ³ /h)	Exhaust fan (Nm ³ /h)	Thermal power (KW)	Thermal power (Kcal/h)	Air speed m/s
120	7500	9000	162	150.000	35

The thermal efficiency is affected by a requested temperature increase different from the above-indicated whose feasibility must be verified and confirmed by Uteco
 The thermal efficiency may be affected by the use of the air recirculation system, as well. (SEE RELATIVE ITEM)

TYPE OF DRYING SYSTEM

N° 2

Hot air gas burner brand **Stromquist** (**Natural gas - 2 Pounds per square Inch, with MEA certification for installation of the burner in NY.**), with heating capacity up to 150.000 Kcal/h (600.000 BTU), composed of a burner installed inside the main air duct, complete with fan for combustion air, regulatory and safety devices.

THERMOREGULATION FOR GAS BURNER

N° 2

Temperature control through thermoregulator for the number of drying zones as above indicated.
 The thermoregulator is electronic type with temperature setting from the control panel of the hot air generator or from the machine computer, for the control of modulating valves positioned on the generator itself.
 The setting and display of the temperature is in fact interfaced to the machine computer supervisor.

AIR RECIRCULATION

N° 2

Manual air recirculating system for each drying zone (for the above-mentioned number of drying zones), composed of three dampers which regulate the supply and exhaust air, recycling part of the high temperature exhaust air, for energy saving purposes.
 When using solvent based inks, UTECO recommends the use of an automatic solvent concentration control system.
 N.B.: if the solvent concentration system is not supplied, the customer is responsible for the control of the maximum saturation level for the type of solvent used.

OUT-FEED UNIT

OUT-FEED NIP ROLLER

STRUCTURE

Cast iron frames, with strengthening cross-ties.
 Aluminum idler rolls for web threading.

OUT-FEED CHILL ROLLER (CT 101)

One iron chromium-plated chill roll having diameter 350 mm (13.8") for the cooling and feeding of the web.
 Rotary unions connect the roll to the chiller unit

NIP GROUP

Integral rubber roller, driven pneumatically, to nip the web on the chill roller.

TRANSMISSION

The outfeed nip roller group is driven by an AC motor.

The roll with load cells for web tension monitoring and adjustment is positioned at drying tunnel outfeed.

WEB OUTFEED UNIT

OVERHEAD CONNECTING STRUCTURE

Connecting structure, made of heavy electrowelded tubular steel, rectangular shaped, complete with cross bars to provide stability at high printing speeds.

PROVISION FOR VIDEOCAMERA

Connecting structure and idler rolls for the installation of a videocamera for front or back side printing inspection, including a white panel for transparent films inspection (not supplied when printing only on paper).

VIDEOCAMERA FOR PRINTING VISUALIZATION

VIDEOCAMERA brand "BST " type "SUPER HANDY SCAN 3000" (1 CCD), composed as follows.

- colour videocamera, 1 Chip (CCD) with a 17" colour monitor
- visualized printing areas from 9x7 up to 127x101 mm
- motorized cross bar
- Functions: Automatic Camera SCAN X-Y; Split Screen.

Possibility to store one reference image to compare with the visualized image.

AUTOMATIC TURRET REWINDER TYPE "TA-R 800"

Cast iron frames, 70 mm (2.75") thick, connected by cast iron cross beams, for rigidity of the group and to minimize vibration under the hardest production conditions.

Outside diameter of reels: max. 800 mm.

Turret rotation by means of a motor and a motor-reducer.

The operator can rotate the turret by means of a selector.

Additional rubber pressure roller, pneumatically adjustable, to minimize air entrapment in the reel windings.

Control panel with the main controls of the rewinder.

SAFETY DEVICES

The unit is equipped with safety devices according to mentioned directives (see DIRECTIVES paragraph).

MOTOR FOR REWINDER

Two rewinding positions each one driven by an AC motor.

PNEUMATIC DANCING ROLLER

Pneumatic dancing roll for the automatic control of the web tension.

TAPER TENSION

Tension reduction with increase of the reel diameter (in percentage up to 80%).

REEL CHANGE FOR REWINDER

Automatic cut-off unit at production speed (according to the used web and stickyback).

The automatic cut-off can be activated in two different ways:

1. Start of the reel change: At the operator command the turret rotates until it reaches the change position. After this the shaft is launched until it reaches the material speed. After a few seconds this speed is reached and the operator can give the cut-off command.

2. Cut-off: By means of this command the above-mentioned operation is featured without the intervention of the operator. The cut-off unit consists of a pressure rubber roll and a cutting knife. The unit is activated by means of pneumatic pistons. Another pair of pneumatic pistons activates the cutting knife. The cut-off and transfer may be executed in both rewinding directions.

PNEUMATIC EXPANSIBLE SHAFT, I.D. 76 MM (3")

N° 2

Shaft, with expansible rubber lathes, for cores having internal diameter 76 mm (3"), **made of aluminum.**

SHAFT CHUCKS

N° 2

Shaft rotating chucks, brand SVECOM.

PROVISION FOR SHIFTING EDGE GUIDE

Mechanical provision for the installation of a Shifting edge-guide (unit excluded). The provision consists of the following: to place the frame of the winder on high-resistance ball bearings which allow the side shifting of the winder, sliding over mechanical guides.

EDGE GUIDE SHIFTING

N° 1

Edge guide SHIFTING, electromechanical type, with single ultrasonic sensor, manually adjustable, to guide the edge of the web. (supplier at Uteco's choice).

BOW ROLLER

Motorized bow roller, brand FBF, on rewinder. The roller is driven by an A.C. motor controlled by an inverter.

BLADE SLITTING DEVICE

Longitudinal blade slitting device, composed of 3 blades, complete with supports.

The cutting takes place on a grooved roller.

The use of the slitting device during the flying splice, if featured by the rewinder, may reduce both the production speed and the final diameter of the new reels.

ELECTRICAL CABINET and CONTROL CONSOLE

MAIN OPERATOR'S CONTROL CONSOLE

Control console. When the dimensions of the video inspection system fit the Uteco machine (for example if brand BST) the control console is usually located on the nip-roll stand, on operator's side. In case the dimensions do not fit the Uteco machine, the control console will be located on a separate console in front of the nip roll group.

The console houses the following items:

- line commands (normal stop, emergency stop, start, jog-button, speed increase, speed decrease);
- industrial computer, complete with hard-disk and colour monitor (LCD SVGA) for the control and monitoring of the machine status;
- if a videocamera is supplied by UTECO; videocamera monitor complete with control unit.

ELECTRICAL CABINETS

- Keyed locks.
- All components inside the electrical cabinets are provided with identification plates and all cables/binding clamps are numbered.

Main elements and devices included in the cabinets:

- motor drives
- machine master switch
- remote control switches
- overload switches
- fuses

- auxiliary relays
- PLC programmable logic control (type depending on the specific machine supplied).

ELECTRICAL INSTALLATION

Complete pre-wiring of the machine components up to the electrical cabinets and to the control console.
Cables wiring from machine to electrical cabinets and from machine to control console via overhead wireways.
All cables and wires are numbered.
Use of suitable cables against fire propagation.

POSITION OF ELECTRIC CABINETS

The electrical equipment is located inside an air-conditioned container.
The exact position is indicated on the foundation plan drawing.
Any modification of this position to be agreed with Uteco.

Mezzanine excluded from the supply

COOLING OF THE ELECTRICAL CABINETS

The air conditioning of the electrical cabinets is included in the supply.