“UNIVERSAL”

AUTOMATIC MACHINE FOR WINDING STIFF AND ELASTIC RIBBON ONTO CORES, FLANGED CORES, SPOOLS AND FLAT PACKS

- Fully automatic, extremely versatile machine designed to produce a variety of different packs with quick and easy adjustable functions. This machine can retrieve the ribbon or tape either from cases, from an integrated unwinder unit or it can be synchronised with other machines.
- The machine takes a core from the appropriate loader, fixes the ribbon or tape on with a sticker, winds it, stops at the desired length, cuts it, fixes the tail to the roll with another sticker before ejecting it and starting a new winding procedure without any intervention by the operator.
- The ribbon or tape is kept in tension while being wound by a 1,5kW motor featuring an electronic control system, to ensure good quality packages even when processing extremely demanding materials. The tension value is set via the keyboard so that it is kept constant for each diameter. The roll is thus prevented from collapsing and uniform package quality is always guaranteed.
- The positive forward-feed unit driven by a 2,2kW motor serves to retrieve the ribbon or tape from containers positioned up to 30÷40m away, thereby preventing damages and unexpected knots or tangles in the roll being wound. The two acceleration ramps and the linear winding speed (40 to 400m/min) can be adjusted via the keyboard.
- To stop the machine and to prevent ribbon joints, coils or other defects being included in the packs, an electronic detection system controls ribbon or tape thickness, via which it is possible to set the minimum and the maximum thickness range. The minimum detectable thickness amounts to 0,5mm, with a 0,01mm accuracy tolerance. This system also serves to control the number of defects present in an individual package and to be able to select the required option, in the event that the type and number of defect limits set and entered in the system, is reached.
- The ribbon guide is controlled by a specific motor that either gradually monitors the increasing roll diameter in order to ensure high quality packages even when processing demanding ribbon and tape qualities, or immediately moves up to the set diameter.
- The ribbon or tape cutting operations are provided with a long-life, top-notch quality blade. Ribbons woven with iron and/or brass wire or other material inserts can be cut without any problem. Steel or stainless steel wires are not recommended.
- The measurement system is extremely accurate and reliable with any possible ribbon or tape thickness and is perfectly synchronised with machine starts and stops. The maximum admissible error tolerance amounts to ±0,5% of measured tape. It is possible to measure packages of up to 9999,9m accordingly.
- A counter unit is provided for setting the machine to stop once the number of packages set and entered and selectable from 1 to 9999, has been reached.
- The take-up of the cores or of the empty bobbins is provided by way of suction cups without there being any need for any further expensive device during size changes.
The stickers are picked-up via vacuum cups and a specific vacuum pump. The stick-on pressure can be adjusted, based on the type of ribbon or tape and type of package being processed. Stickers must be self-gluing and provided with a silicon paper support. They must be positioned transversally and also be suitable for quick peel-off operations. Printed or blank paper stickers or transparent plastic stickers can be implemented, but they must not be too soft, to prevent making the labelling machine operations too difficult. The label roll must have a 35 to 80mm internal diameter whilst the external diameter cannot be higher than 250mm. The possible label size options range from a 6 to 16mm width and a 33 to 38mm width. We can provide for standard labels or special adhesive sticker labels for ribbons that are difficult to glue.

The electronic keypad enables entry of all the winding parameters and display of all the alarm messages that may possibly come up on screen, making relative operation and maintenance extremely simple.
“UNIVERSAL” BASIC MACHINE VERSION

The basic machine version features a positive forward-feed unit, a labelling unit, a measuring system, overload and traverse motion as well as defect control functions. However, to make said machine operative, it is necessary to customise it based on the types of packages that need to be produced.

➢ To unload rolls and spools with a maximum diameter of 320mm it is essential to order the "DBU GR3 00" discharge device, whilst the "DBU GR4 00" is required for unloading rolls having a diameter of up to 400mm.

➢ For rolls without flanges it is necessary to order the "U MAN 00" chuck, plus the relative "DBU CPT 00" tailstock suitable for cardboard cores as well as the "GDUR 3/105" adjustable ribbon guide with the relative "LGDUR 3/105" pressure plate.

This guide is necessary for holding the ribbon closer to the roll being wound although use can be limited to roll packaging operations.

Roll diameter = 45±400mm
Internal diameter of the core = 35±80mm
Width of the core = 8±105mm
Ribbon or tape width = 2±105mm
Tape or ribbon thickness = 0,5±2mm

When ordering chucks and tailstocks, the core diameter sizes need to be checked accurately. Otherwise, simply send in a sample for each type.
For rolls with flanges and bobbins it is necessary to order the appropriate "U MANBC 00" chuck with the relative "DBU CPT 00" tailstock. It is also necessary to order the fixed-size ribbon or tape guides for each one of the "GDU ..." fixed-size ribbons or tapes, with the relative "LGDU ...." pressure plate. The ribbon or tape guide and the relative pressure plate must have exactly the same dimensions as the ribbon itself as they are required to enter between the spool flanges in order to guide the ribbon or tape being wound.

Spool flange diameter = 45÷200mm
Distance between flanges = 8÷200mm
Spool winding diameter = 35÷80mm
Tape or ribbon thickness = 0,5÷2mm

It is possible to use the “DBU ZETT 00” traverse motion element only for winding rolls. It cannot be used for winding spools. It is therefore mandatory to order the “DBU VV 00” option.
ADDITIONAL OPTIONAL DEVICES FOR WINDING LACE AND ELASTIC RIBBONS OR TAPES

- **DB ANSA 00 “RIBBON OR TAPE FEED COMPENSATOR DEVICE”**
  Ribbon or tape feeding from the forward-feed unit to the winder is adjusted by the compensator device, which controls and maintains the ribbon or tape tension constant whilst the ribbon is being wound and measured. This system enables the machine to provide additional winding power when winding stiff ribbon or tape qualities or additional care and control when processing elastic or delicate lace ribbons and tapes. The minimum weight of the compensator device’s mechanical feeler is 30 grams and can be increased with special weights up to a maximum of 125 grams.

- **DBU AA 00 “MOTORISED ROLLER AFTER THE COMPENSATOR DEVICE”**
  The motorised roller after the compensator device serves to feed the winder with elastic ribbons or tapes in a particularly light and tensionless manner, thus maintaining size and measurement precision and softer packages, of course.

- **DBU AA 00 “MOTOR-DRIVEN ROLLERS BEFORE & AFTER THE COMPENSATOR DEVICE”**
  The motor-driven rollers prior to and after the compensator device serve to feed the winder with elastic ribbons or tapes in a particularly light and tensionless manner right from the infeed to the machine. This option requires the least possible weight applied to the compensator unit’s mechanical feeler. This to avoid any stress being applied to the ribbon or tape being processed, to guarantee extra accuracy in sizing and measuring and also for softer packages.

- **DBU ETCS 00 “MECHANICAL LOCK ON LABELLING UNIT’S STRIKER ROD”**
  This option is a mechanical lock for application to the labeling unit’s striker rod. It is necessary for reduction of the pressure on the package wrappings when processing ribbons very light and delicate ribbons and tapes.
DBU AST 00 “ANTISTATIC DEVICE”
This option is implemented in order to eliminate the electrostatic tensions generated by the ribbon or tape being passed through the various rollers. On very dry days, it is essential to have this device to prevent the ribbon or tape from acquiring electrostatic charges causing it to stick to the metallic parts or to tangle on the unit rollers and thus stopping the machine.

DBU DN 00 “TAPE OR RIBBON RELAXATION DEVICE”
The tape or ribbon relaxation device is customized to the customer’s spool sizes. It enables the ribbon being wrapped on the spool to relax and eliminate the tensions accumulated during the first few turns of the winding process.

DBU RP 00 “COUNTERPRESSURE ROLLER”
The machine can be equipped with a pressure roller that rests down on the roll being wound in order to have increasingly compacted rolls, up to a maximum diameter of 350mm. This system is essential in order to make the very most of the machine capabilities even in the event of difficult tape and strap qualities and/or with roll diameters bigger than 200mm.
DBU PROSUP 00 - DBU PROSUP SM  “MACHINE TOP COVER CASING”

This option is constituted by a transparent safety cover casing of the top part of the machine. It is useful for noise reduction and to contain dispersion of the dust produced by the ribbon or tape during winding. With this safety cover casing, the machine height increases up to 1980mm.

PACKAGE WRAP FINISHING UNIT

DBU C 00  “CELLOPHANE”

This optional device provides for package wrapping in a cellophane film, or in a film made of similar materials. The cellophane film is fixed to the end of the ribbon or the tape using a sticker. After one turn around the roll, the film is cut and then fixed on with another sticker. Without requiring any adjustment, it is possible via the keyboard to select whether to enable or to disable the option, to adjust the cellophane application rotation speed and to adjust the position of the sealing label applied. In the event of anomalies, machine stop alarms are provided for “sealing label not applied to cellophane” and the “end of cellophane roll”.

RIBBON/TAPE HOOK-UP AND ROLL SEALING

DBU P4 00 - DBU P8 00  “STAPLER UNIT”

Pneumatic stapler unit providing the application of one metal staple to fix the ribbon or tape to the core at winding start and on the roll itself at the end of the roll winding operation. Stapler units are available with staples 4mm long and with a 16mm prong-depth (0.9mm thick) and 8mm long with a 16mm prong-depth (1mm thick). We furthermore have the capability of supplying metal staples with very sharp, divergent ends in order to avoid damaging the ribbon or the tape. Via the keyboard, it is also possible to set whether to start the winding process with a sticker or a staple and finish with sticker or staple hook-up, without any further adjustments.
ROLL SEALING OPTION

- **DBU C 00 “PIN SEALING DEVICE”**

  A mechanical arm featuring a suction unit picks the pins up from the special loader and pushes them in to the end of the roll to seal it. Via the keyboard, it is also possible to select whether to seal the roll with a sticker, a staple or a pin, without any further adjustments.

  We can provide nickel-plated brass pins as follows: 0,8mm pin body, 14mm length.

  ![](image1.png)

TRAVERSE MOTION DEVICE FOR ROLLS AND SPOOLS

- **DBU V 00 “TRAVERSE MOTION”**

  The “Traverse Motion” system improves winding versatility, as the traverse motion provides for a transversal movement during the winding operations, making the roll packages highly compact and uniform. The electronically controlled system is driven by a stepper motor which is managed via keyboard entry of the relevant parameters, ensuring impressive traverse motion accuracy and inversion adjustment factors. The adjustments settings have a 0,1mm tolerance range and can be set and entered both for the step (0,5÷30mm) and for the stroke (8÷200mm) selection options.

  ![image2.png](attachment:image2.png)

  This system is suitable for winding virtually any type of ribbon and tape qualities. Due to the fact that it has independently adjustable winding edges, it is possible to apply a light traverse motion to compensate the different thickness gradients along the edges of the tapes.
Via this option it is possible to produce not only normal packages but also flat packages on cardboard or plastic supports. However to do so it is essential that the machine is equipped with the above “Traverse Motion” option. For the manufacturing of these types of packages the machine needs to be equipped with the appropriate “DBU CP MAN 00” chuck that is suited to the sizes and the dimensions of the support plus the “DBU CP CAR 00” loader device, for the feed-in of the flat cardboard supports.

Maximum ribbon or tape width = 80mm
Maximum ribbon or tape thickness = 2mm
Maximum package winding width = 100mm

The loader contains a number of cardboards reaching a 70mm height *(this number depends on the thickness of the cardboard)*.

Installation into the machine of this option is very simple and takes no longer than 5 minutes.
TAPE OR RIBBON TAKE-UP

DB SM4A 00 - DB SM4B 00 “ACTIVE COMMAND ROLL AND BOBBIN UNWINDER DEVICE”

Via the unwinder device it is also possible to wind roll packages from very much heavier rolls or bobbins, as a specific motor commands and synchronizes the unwinder device rotation to the new roll package winding speed. The unwinder device is suitable for both stiff and elastic tape and ribbon operations and can be positioned inside the machine cover casings in either high or low position. It increases the overall machine length by only 600mm. It is possible to access the unwinder device via an appropriate door.

For the various processes, it is possible to implement the following rolls or bobbins:

- Maximum external Ø 400mm
- Minimum internal tube Ø 100mm
- Maximum length 450mm

The accessories supplied on issue with the machine are the “SM4 MA 00/00” chuck and the “SM4 CO 00/00” tailstock, that are customised to the dimensions of the customer’s rolls and spools.
DB SM6B 00 “ROLL AND BOBBIN UNWINDER DEVICE”
The features of this unwinder device are the same as those of the “DB SM4B 00” unwinder, but are only applicable for rolls and spools with a 600mm maximum diameter and for ribbons and tapes with a 105mm maximum width. The whole device is positioned inside the machine cover casings and increases the overall machine length by only 800mm. For the various processes, it is possible to implement the following rolls or bobbins:

- Maximum external Ø 600mm
- Minimum internal tube Ø 100mm
- Maximum length 450mm

The accessories supplied on issue with the machine are the “SM6 MA 00/00” chuck and the “SM6 CO 00/00” tailstock, that are customised to the dimensions of the customer’s rolls and spools.

DB SM8B 00 “ROLL UNWINDER DEVICE”
The features of this roll unwinder device are the same as those of the “DB SM4B 00” but here they are specifically applicable only for rolls and spools with a 850mm maximum diameter and for ribbons and tapes with a 105mm maximum width. The whole device is positioned inside the machine cover casings and increases the overall machine length by only 800mm.

For the various processes, it is possible to implement the following rolls or bobbins:

- Maximum external Ø 850mm
- Minimum internal tube Ø 100mm
- Maximum length 450mm

The accessories supplied on issue with the machine are the “SM8 MA 00/00” chuck and the “SM8 CO 00/00” tailstock, that are customised to the dimensions of the customer’s rolls and spools.

DB MONT 01 “LIFTER DEVICE”
The lifter is a manual device for easy lifting of very heavy rolls and spools and for easy insertion into the unwinder device.
The unwinder table enables the unwinding of big-diameter rolls of stiff ribbon and tape, by laying them down on their sides. The unwinder table comes in two versions. It can either be built to accommodate a roll with a maximum diameter of 1000mm, or to accommodate two 600mm diameter rolls. At the end of the roll, a photocell stops the machine winding process to make the head to tail junction with the new tape roll much easier.

### TECHNICAL FEATURES

**POWER SUPPLY VOLTAGE**

3x230V+T - 3x400V+T 50÷60Hz 4,5kW

**COMPRESSED AIR SUPPLY**

7÷10bar  200 Nℓ per minute

**PRODUCTION OUTPUT AT MAXIMUM SPEED**

<table>
<thead>
<tr>
<th>Roll Length</th>
<th>Production Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>3m rolls</td>
<td>8 rolls per minute</td>
</tr>
<tr>
<td>5m rolls</td>
<td>7 rolls per minute</td>
</tr>
<tr>
<td>10+25m rolls</td>
<td>6 rolls per minute</td>
</tr>
<tr>
<td>50m rolls</td>
<td>3 rolls per minute</td>
</tr>
<tr>
<td>100m rolls</td>
<td>2 rolls per minute</td>
</tr>
<tr>
<td>300m rolls</td>
<td>1 roll per minute</td>
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</tbody>
</table>

**ROLL SWITCHOVER TIME**

4 seconds

**CELOPHANE APPLICATION TIME**

2,5 seconds

**OVERALL DIMENSIONS OF THE STANDARD MACHINE**

2530 x 1250 x h 1960mm

**NET WEIGHT**

850Kg

**OVERALL DIMENSIONS WITH THE UNWINDER OPTION**

3100 x 1550 x h 1960mm

**NET WEIGHT**

950Kg

*The features described above may vary and must be confirmed based on your products.*