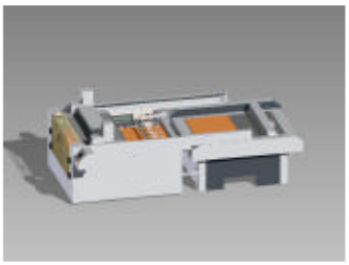
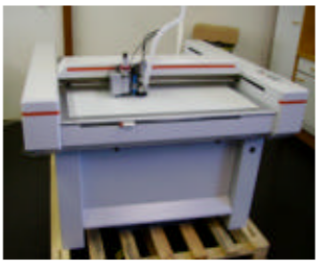
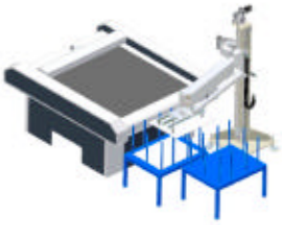
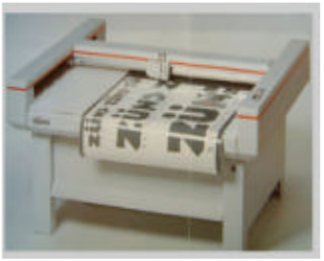
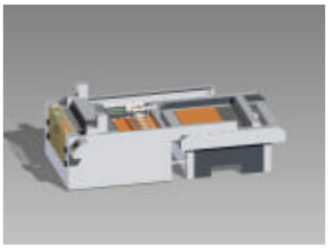
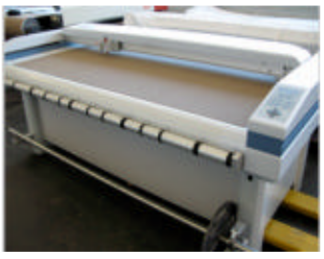
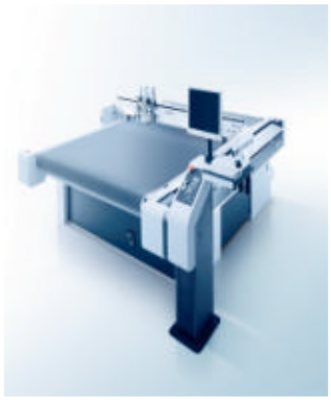
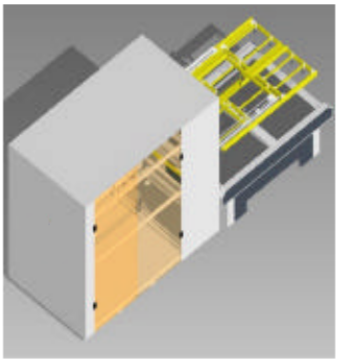
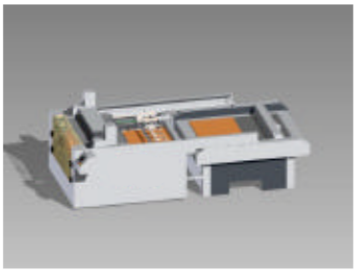
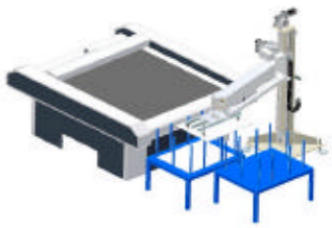
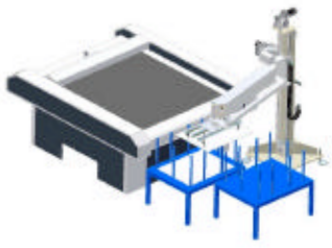
AUTOMATIC SHEET FEEDER

Solaut manufactures three families of products used for the positioning of sheets of paper, cardboard, plastic or metal work tables on the machine for further processing.

Plotter model		Solaut model	
Zund **M 800** (1300 x 800 mm) **M 1200** (1300 x 1200 mm) **M 1600** (1300 x 1600 mm)		• **Sheet feeder ACRAB-T** • **Sheet feeder ACRAB-CT /ST**	
Zund **P 700** (770 x 1000 mm)		• **Sheet feeder 0-90** • **Sheet feeder 0-270**	
Zund **P 1200** (1000 x 1200 mm) **P 1600** (1000 x 1600 mm)		• **Sheet feeder ACRAB-T** • **Sheet feeder ACRAB-CT /ST**	
Zund **L 800 M/MC** (2000 x 800 mm) **L 1200-M/-MC** (2000 x 1200 mm)		• **Panels charger** • **Sheet feeder MC 3200**	
Zund **G3 M** (1330x1600/2500 mm)		• **Sheet feeder MC 3200**	

G3 L (1800x2500/3200 mm) **G3 XL** (2270x1600/3200 mm) **G3 2XL** (2740x1600/3200 mm) **G3 3XL** (3210 x1600/2500/3200 mm)		• **Panels charger**	
Zund **S3 M** (1330x800/1200/1600 mm) **S3 L** (1800x1200/1600 mm) **S3 XL** (2270x1200 mm)		• **Sheet feeder ACRAB-T** • **Sheet feeder ACRAB-CT/ST**	
Trotec **Speedy 100** (610 x 305 mm) a CO2, letto piano **Speedy 100 fiber** (610 x 305 mm) a fibra,con pianale piatto **Speedy 300** (726 x 432 mm) a CO2, pianale piatto **Speedy 300 fiber** (726 x 432 mm) a fibra, letto piano **Speedy 300 flex** (726 x 432 mm)a CO2, a fibra, letto piano		• **Sheet feeder 0-90** • **Sheet feeder 0-270**	
Trotec **Speedy 400** (1000 x 610 mm) a CO2, letto piano **Speedy 500** (1245 x 710 mm) a CO2, letto piano		• **Sheet feeder 0-90** • **Sheet feeder 0-270**	

SHEET FEEDER

The sheet feeder shown in the above picture allows the removal of the sheet from the storehouse and its positioning on the table of the operating machinery.
The machine is equipped with two servomotors: one for the vertical translation of the arm of the coupling of the sheetsand one for the rotation of the arm.

This kind of machines allows to work with very high stocks of sheets - even more than a meter-and it also allows to place the paper on work plans in different units from ground, without any modifications to the machine.

The machine , because of having only a single gripping element, must first perform the removal of the processed sheets and, thereafter, it implements the outlet of the sheet to be worke; this one is finally placed on the plotter. The sheet feeder can be provided of the support structures of the sheets to be machined and the structures of the ones processed.

Solaut manufactures two versions of the sheet feeder:

- **sheet feeder 0-90**
- **sheet feeder 0-270**

SHEET FEEDER ACRAB-C-90

The arm carrying the gripping head of the sheet can rotate 90 °, and can be positioned at any point of the stroke. A second articulated arm prevents the gripping head to rotate during the rotation of the arm. Moving a pin on the mounting plate of the grip head, it is possible to rotate the latter together with the arm: in this situation, by rotating the arm 90 °, it also gets a 90 ° rotation of the gripping head itself.

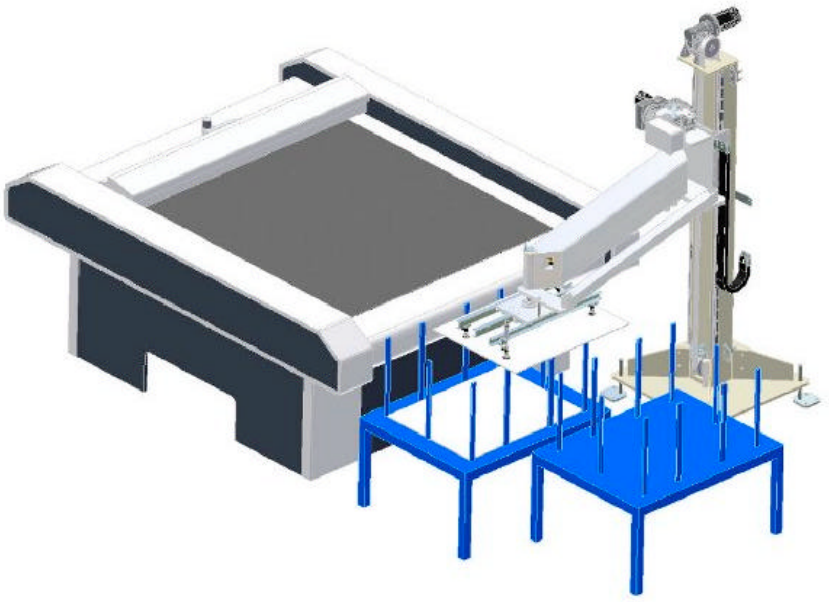
The column positioners are available in two different versions:

- **Model with positioning of the arm in two positions**

The arm can only seek to the end points of the stroke. The extreme points can be varied in a symmetrical manner with respect to the position of the arm perpendicular to the plate of the truck. This type of machine is used when the paper worked should not be removed.

- **Model with two servo motors**

The arm can be positioned anywhere between the extremes of the stroke. The positions can be set from the operator panel. The machine can feed paper to work, from a warehouse, carry on the work table and then remove it and download it in a warehouse of finished products.

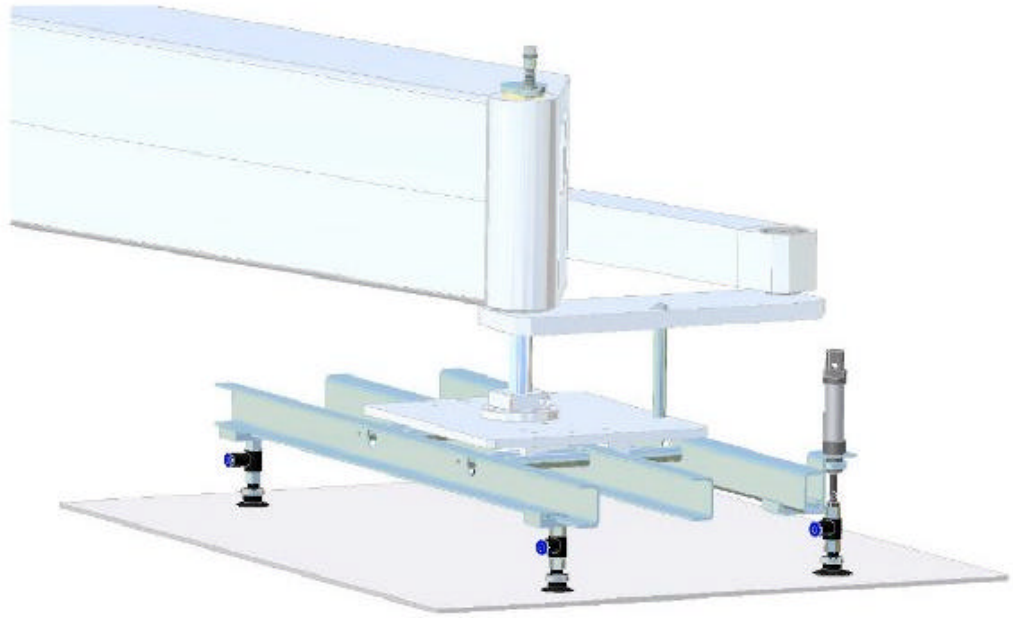


Column positioner (maximum size)

Hooking group with suction cups

Common features to both models of column positioners.

- High-speed positioning.
- Maximum vertical stroke 2000mm
- Maximum horizontal stroke 2200mm
- Speed adjustable from the operator panel
- Ability to rotate the sheet 90 degrees during the translation
- Supply only of the mechanical part, or the complete system and control panel.
- Omron PLC with operator panel and software.



Hooking group with suction cups

The machine consists of a vertical column, two arms and a head for gripping the sheet.

The positioner hooks the sheet through a series of suction cups, lifts it to a predetermined height by the user and it takes it into position above the table of the machine.
The positioner is equipped with electrical panel with PLC and operator panel that allow completely independent operation. The commands, from the machine tool, are received through some digital inputs.

The machine consists of these following essential elements:

Vertical column on which are mounted two linear rails, on which runs a carriage. The carriage is driven by a servomotor Panasonic 750W, mounted on a gearbox Bonfiglioli worm screw.
The maximum height of the column is 2935 mm and it can be modified according to customer's need.
Sheet hooking group, consisting of a carriage with two hinged arms that support the hooking head.
A series of suckers are mounted on the griping head and some of them are mounted on cylinders to flip the first sheet from below avoiding moving more than one sheet.
The electrical panel contains an Omron PLC model CP1L M40DT1-D-model and an operator panel NQ3 monochrome.

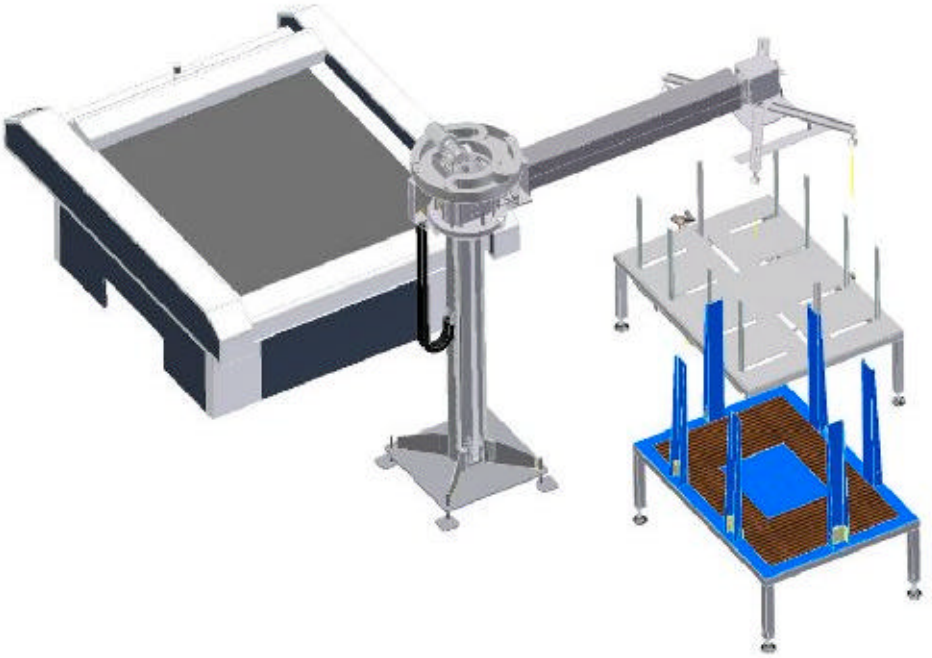
MODEL OF ARM POSITION ON TWO POSITIONS

The arms rotate up to 90 ° by a gear motor worm screw gearboxes which rotates a control arm.
The stroke of the gripper head can be modified by adjusting the position of a wheel on the control arm. And it is possible to reduce the horizontal stroke up to 1000 mm. The suction cup holder head can't rotate when traveling in such a way as to keep the paper parallel to its initial position. If the sheet must be rotated 90 °, it is sufficient to move the locking pin of the torque arm of the suction plate.

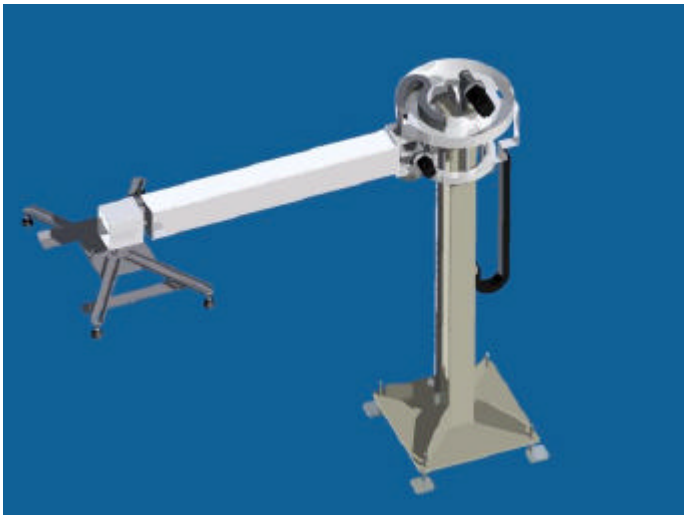
MODEL WITH TWO SERVOMOTORS

The arm can be positioned in any position between the extremes of the stroke.
The arm is directly moved from a motor worm screw gearboxes. The servomotor that controls the rotation is a Panasonic Minas A4 400W.

SHEET FEEDER ACRAB-C-270

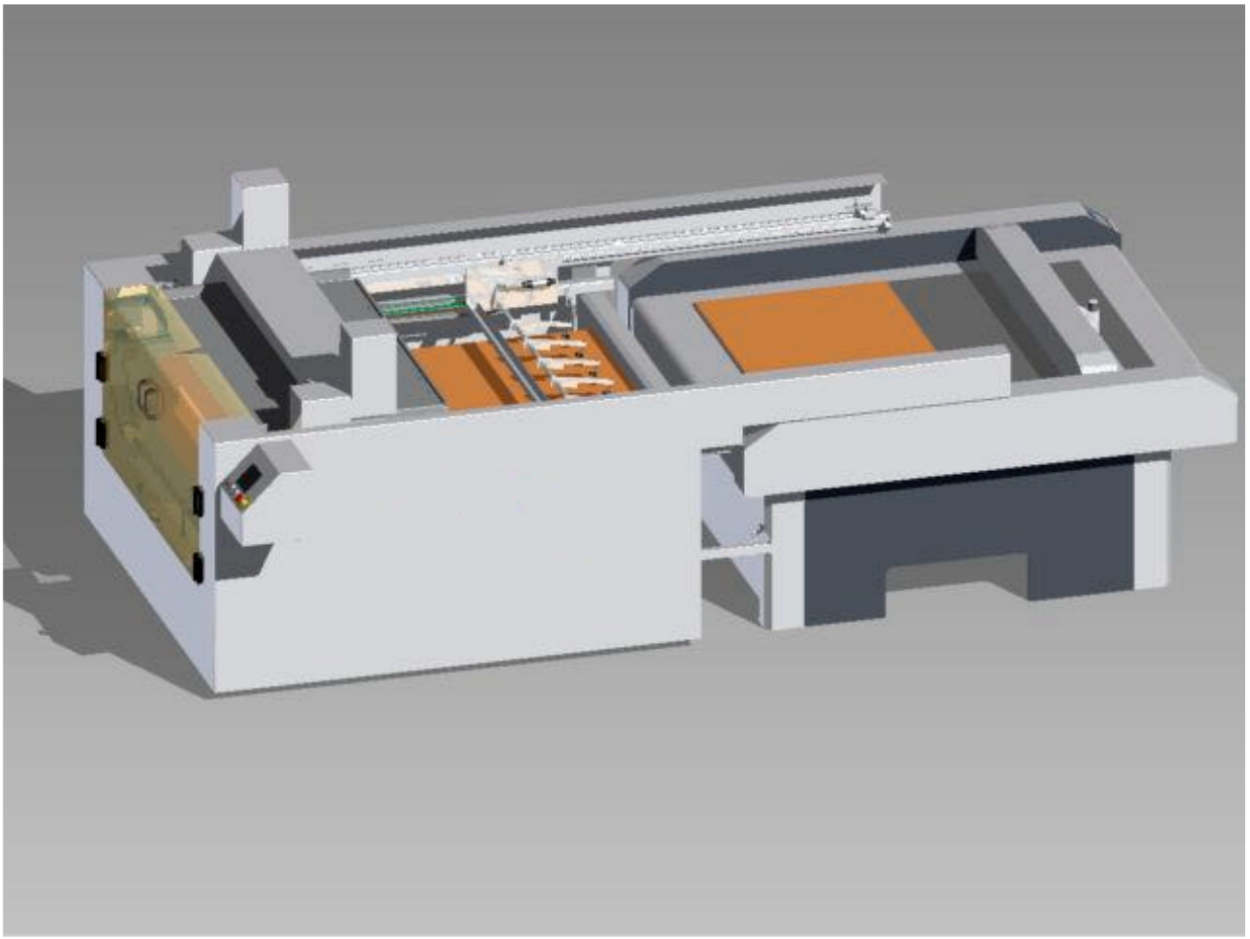


The arm carrying the gripping head of the sheet can rotate 270° and it can be positioned at any point of the stroke. Thanks to a mechanical transmission, the pickup head of the sheet does not rotate during rotation of the arm. The gripping head of the sheet can translate along the axis of the arm with a pneumatic actuator. The stroke can vary from 0 to 250 mm.



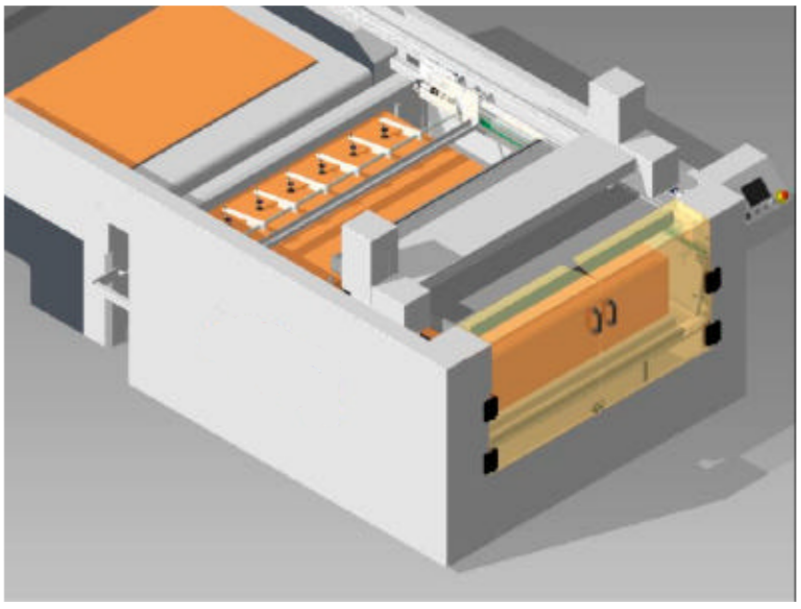
Technical features are the same of the sheetfeeder ACRAB-C-90.

SHEET FEEDER ACRAB-T



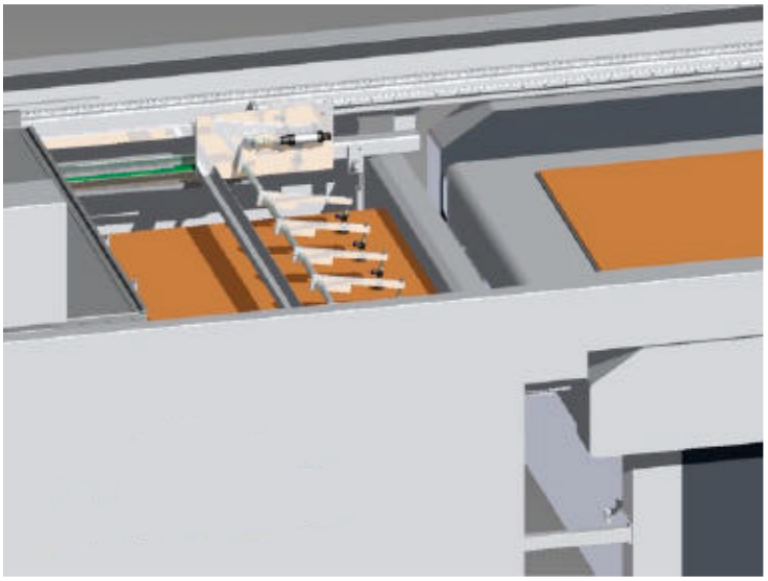
This kind of sheet feeder(illustrated above) is a machine used for the loading, unloading or loading/unloading of sheets and panels.

The machine is made in 3 versions: discharge papers, load sheets and loading / unloading (figure).
The stock sheets from work (close to the plotter) has a support surface that moves vertically to keep the portion of the first sheet constant. A photocell is used to stop the ascent of the stack of sheets.

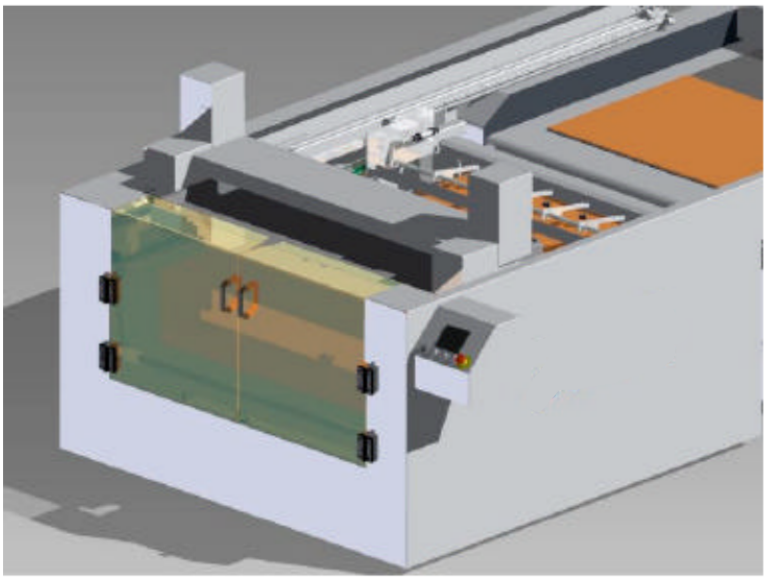


SHEETS FEEDER

The stock finished sheets (opposite to the plotter) receives the cut sheets removed from the plotter. Each stock is interlocked with a gripping element independent. For the load using a series of suction cups, while the drain is employed a vacuum table or a series of suction cups. Thanks to the two groups of outlet independent, the positioning of the new sheet occurs as soon as the processed sheet was lifted from the table of the plotter. The high speed of the machine and the two moving group of heets allow to reduce the time to change the sheets..



The inventory sheets to be cut (figure at right) approaches the sheets to a sheet of containment (vertical blue sheet in the figure) ; on this sheet can be applied to various devices for the separation of the leaves as brushes and air knives . The grip assembly of the sheet can rotate the suction cups to facilitate the detachment of the first from the underlying sheets . For particularly delicate applications , an ultrasonic sensor can be applied to identify the outlets of more than one sheet at a time



The stockcut is similar to the stock sheets to be cut: a plan portfolios is lowered whenever a new sheet is placed. The removal of the sheet from the plotter and its storage in the warehouse takes place so that the stocking is perfectly ordered and precise.
The cut sheets are exatly as they are placed on the table of the plotter.

<u>The machines that perform only the loading or unloading have the same characteristics as the ones described above.</u>
In order to guide the choice between a column feeder and a table one, we compare the main features:

- The ability of the store sheets of the column model is much higher than the one in the table model;
- The column model can be used only for the loading, unloading or only for loading and unloading; the table model for the loading or for unloading is made in two different versions;
- The column model can work with plotter with different height work surfaces, simply by varying a parameter software; the table model is bound to a height of + / - 50mm;
- The table model allows easy installation of systems of separation of the first sheet; in the model in the column it is more difficult;
- The table model for loading / unloading is much faster than the column model;
- The model table is mounted on wheels, to be able to be easily moved;

- From an economic point of view, the two models are equivalent (compared with the pad applicator column with two warehouses).

The warehouse capacity (height) is related to the share of the working plane of the cutting machine. The height of the batteries is about 50%-80mm the one of the working plane.

Maximum size of sheets up to 1300 x 1300.

The handling of the sheets is achieved by means of a pair of servomotors. The electrical panel contains an Omron PLC with an operator panel.

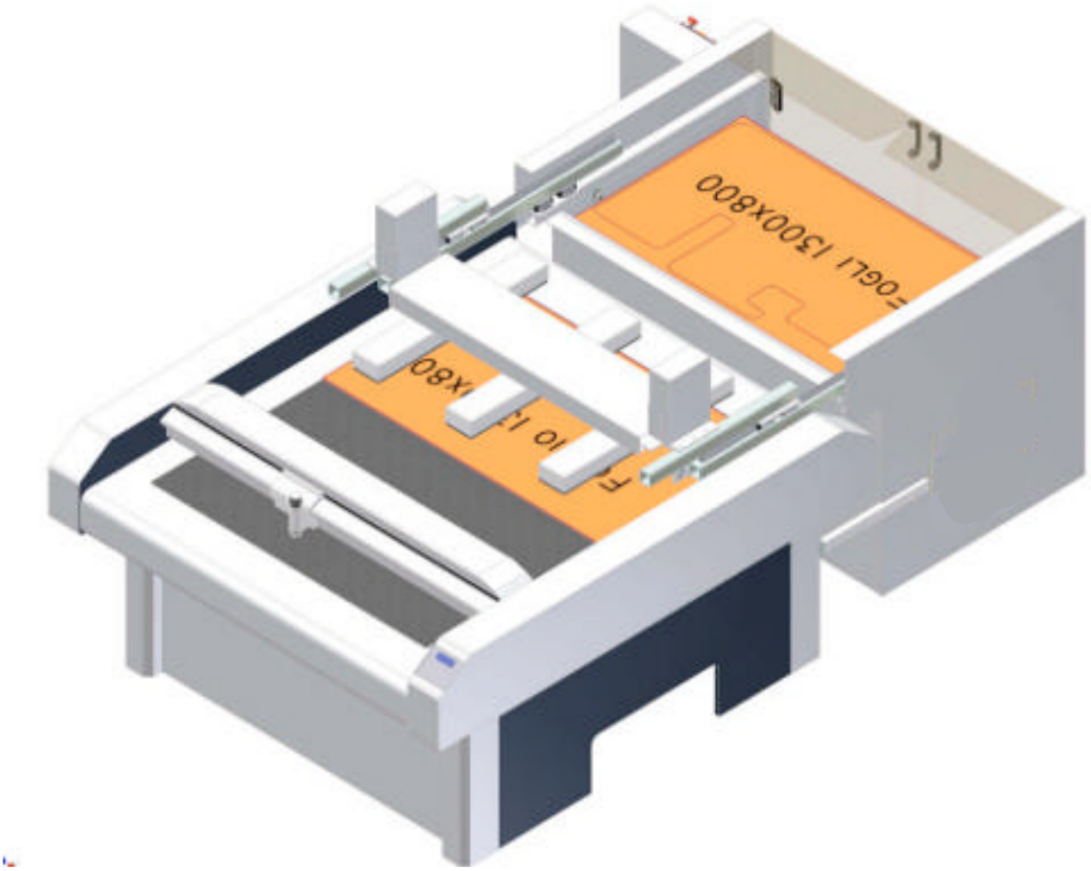
SHEET FEEDER ACRAB-CT/ST

The machine offers the ability to upload from 1 to 5 sheets at once.

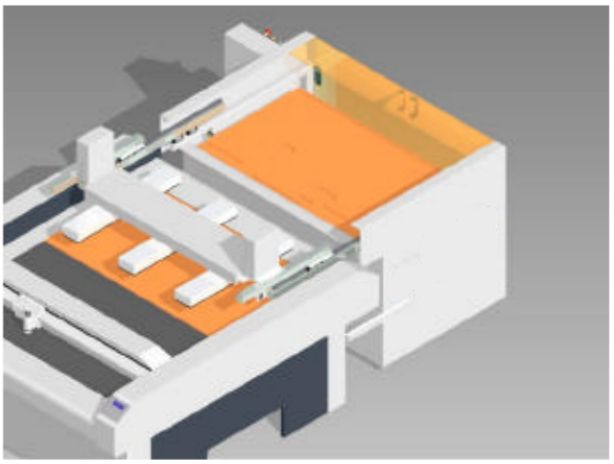
The feeder can be used with flatbed printers inkjet large format. One example is the model DURST RHO P10/250.

The various models are made in relation to the front and depth:

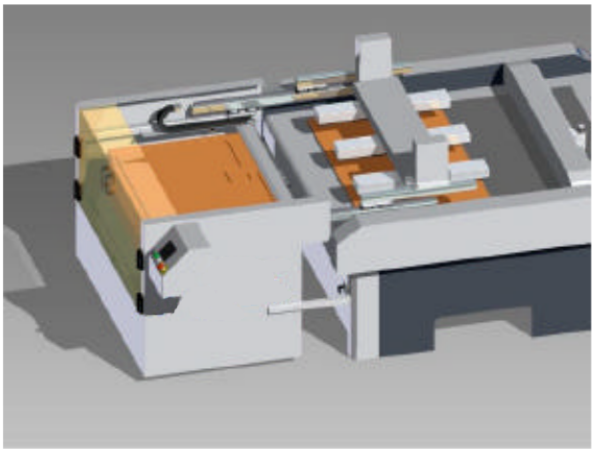
- **FRONT**: 800 **DEPTH**:400/800
- **FRONT**:1350 **DEPTH**:800/1200
- **FRONT**:1800 **DEPTH**:800/1600
- **FRONT**:2270 **DEPTH**:1200/2500
- **FRONT**:2740 **DEPTH**: 1200/2700
- **FRONT**:3200 **DEPTH**:3200/1600



The machine of the above figure has been realized for the feeding of sheets in a machine mounting.
The table is raised to maintain the first sheet in the same position.



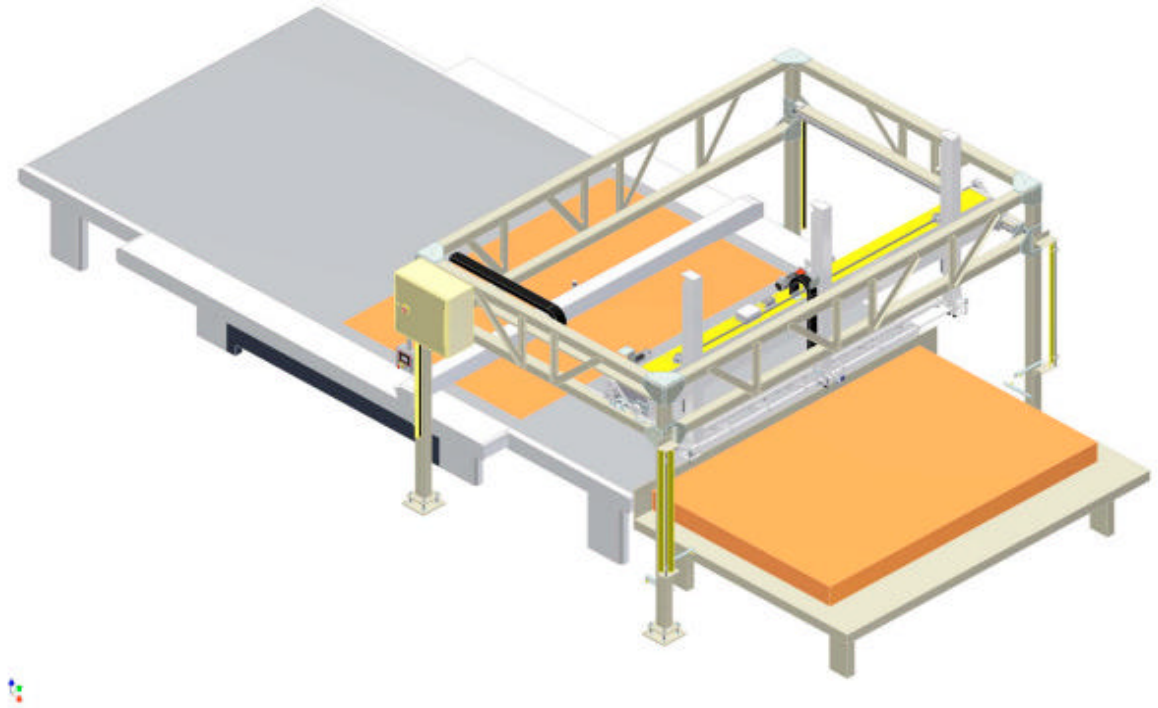
The machine shown in the figure works on automating the loading of sheets and panels on large cutting and tape plotter. The length of the sheet varies only in relation to the capacity of the cutter.
The machinery, at a technical level, is composed of a supporting frame with four columns to the ground on which runs a truss. It is connected to three lifting arms, which, by means of suction cups, proceed to the lifting of the sheet.



The model ACRAB-ST, for the discharge of the sheets, has the same characteristics of the machine described above.

SHEET FEEDER MC 3200

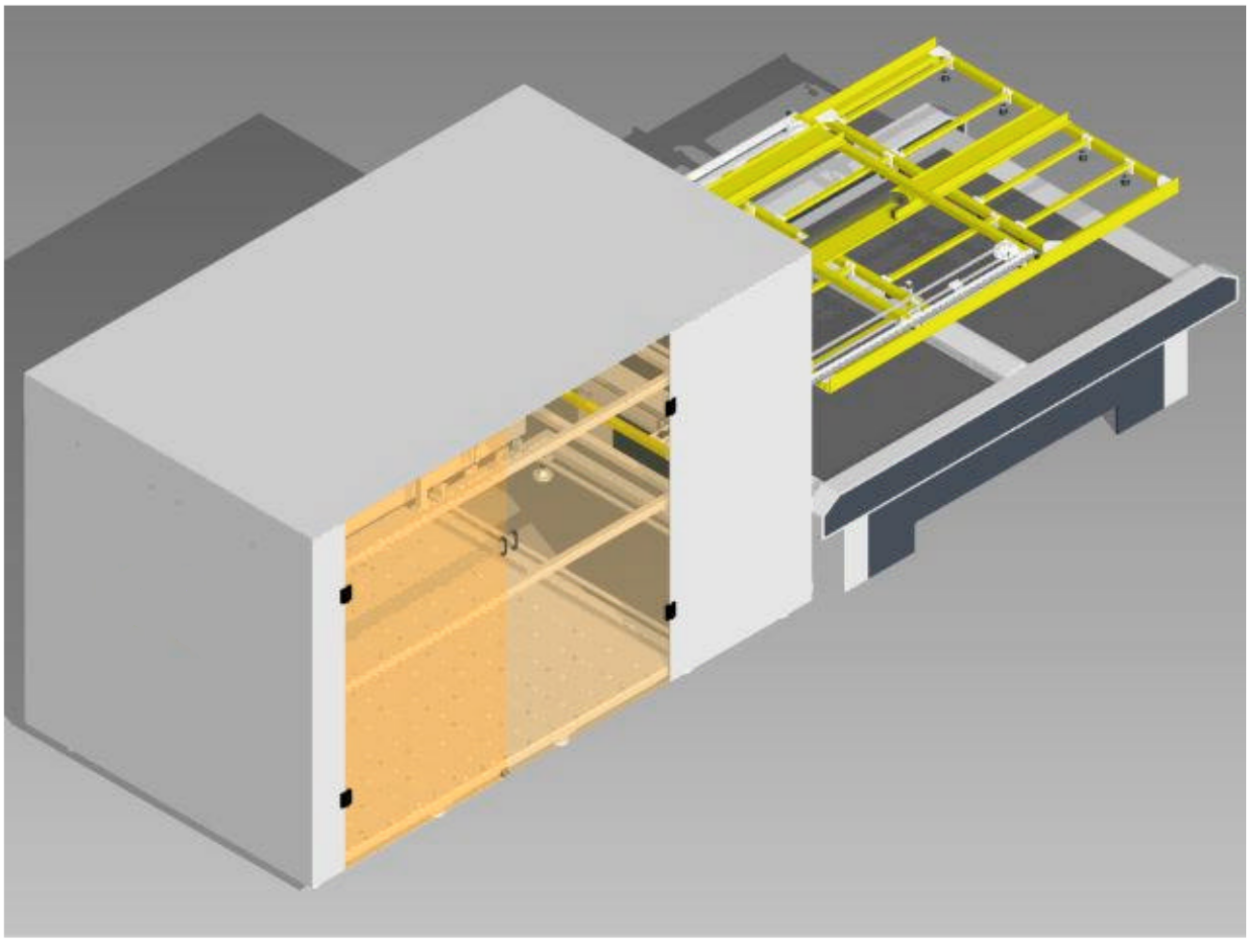
The machine shown in the figure is made to automate the loading of sheets and panels on plotter tape and cutting of large format.
The size can reach a maximum of 3200 mm and the maximum loadable weight is 30 kg.
The length of the sheet has no limits but it depends on the ability of the cutter.
The machinery, from the technical point of view, consists of a supporting frame with four columns on the ground and on which a truss runs. It is connected to the lift arms, which, by means of suction cups, hook and lift the sheet.
The sheets to be loaded are contained in a suitable support provided separately.
The machine also comes with a safety light curtain for the protection of the operating area.
This model of the sheet feeder is also available in MC 2500, in which the dimensions can reach a maximum of 2500 mm and the applicable maximum weight is 30 kg.



OPERATION OF THE MACHINE

The vertical movement of the arms (Z axis) is realized by a transmission and a toothed belt, driven by a planetary gear unit and a servomotor. The conversion of rotatory motion into linear one is realized by means of three pairs spur wheel-rack.
The bar for the suckers can rotate by means of a pneumatic cylinder to facilitate the detachment of the sheet from the stack.
A series of arms that carry the suction cup end is mounted to the bar for the suckers. The arms can be moved along the axis of the bar to allow to adapt the position of the suction cups to the size of the sheet to be machined. If you move the arms, you should be careful to store them in a horizontal position: with the arms rotated downward to place a bubble and make sure they are levelled. If you do not use the entire length of the bar, you can isolate some suckers, unplugging the power.
The end of each arm has a feeler rod which avoids the collision of the arms with the plane of the plotter. The probes of the two side arms is preferable that they are external to the pile of leaves to prevent a slab can take them during the intake of the paper. The pressure side of a probe involves the alarm stop the machine. The probe station performs the dual function of detecting a danger of collision with the plane of the plotter and in phase of hooking sheet to stop the downward movement of the Z axis.

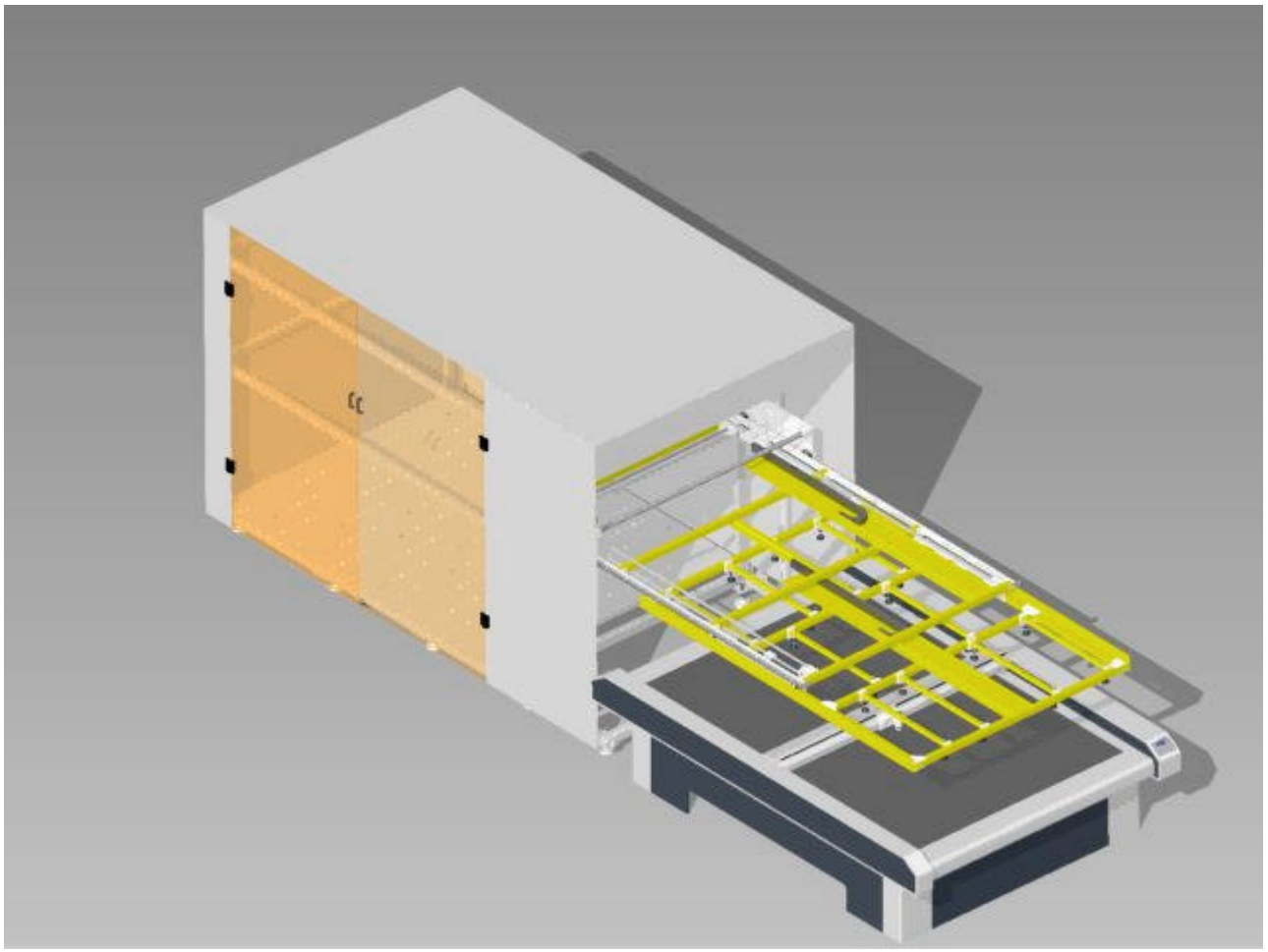
CARICO E SCARICO PANNELLI GRANDI FORMATI ACRAB-G



La macchina della figura sopra è utilizzata per l'alimentazione di pannelli di grandi formato. La macchina è realizzata in 3 differenti modelli a seconda della dimensione massima del pannello movimentabile:

Modello pannello	**Dimensione max pannello**	**Peso max pannello**
ACRAB-G 2500	1600 x 2000	20 Kg
ACRAB-G 3000	2000 x 3000	30 Kg
ACRAB-G 4000	2000 x 4000	30 Kg

Questa tipologia di macchina consente il carico e lo scarico di pannelli di grande formato su macchine con piano di lavoro.
La caratteristica principale della macchina è il ridotto ingombro: le dimensioni in pianta della macchina sono poco superiori alla dimensioni del foglio.
Il gruppo di posizionamento del foglio è telescopico e durante le fasi di lavoro del plotter o fresa rientra integralmente nella sagoma della macchina.
I pannelli da lavorare sono posizionati nella parte inferiore della macchina, mentre i lavorati sono posti nella parte superiore.
I pannelli sono accessibili da tutti i lati della macchina.
Il gruppo traslatore ha una serie di ventose per l'aggancio dei pannelli.



FUNZIONAMENTO DELLA MACCHINA

Il traslatore per l'aggancio del pannello da lavorare si posiziona nella parte inferiore della macchina, per poi abbassarsi fino ad agganciare il primo pannello. Il pannello ed il traslatore si sollevano fino alla quota di posizionamento sul piano di lavoro. Il traslatore esce dalla macchina fino al punto di posizionamento sul tavolo e si abbassa per rilasciare il pannello.
Il traslatore rientra all'interno in attesa che si concluda la lavorazione. Completata la lavorazione del pannello, il traslatore esce dalla macchina fino alla posizione di aggancio; si abbassa fino a toccare il pannello e lo solleva fino alla quota della parte superiore della macchina. Il traslatore ed il pannello rientrano nella parte superiore della macchina e successivamente abbassa il pannello sulla pila dei lavorati.
Dopo aver sganciato il pannello lavorato, il traslatore esce dalla macchina, si abbassa e rientra nella parte inferiore per andare ad agganciare il pannello da lavorare.
I pannelli sono appoggiati su due cassetti estraibili, per facilitare il posizionamento e la rimozione dei pannelli. Il cassetto dei fogli da lavorare ha delle guide per il preciso allineamento dei pannelli.
Il carico massimo sui cassetti è di 300 Kg.
Macchina è completa di quadro elettrico con PLC Omron CJ1 e pannello operatore NQ3.
I movimenti del pannello sono realizzati con una copia di servomotori

SUPPORT FOR SHEETS

In order to realize automated islands with the feeder pillar, we can provide 4 types of media sheets to be processed or processed.

ADJUSTABLE SUPPORTS

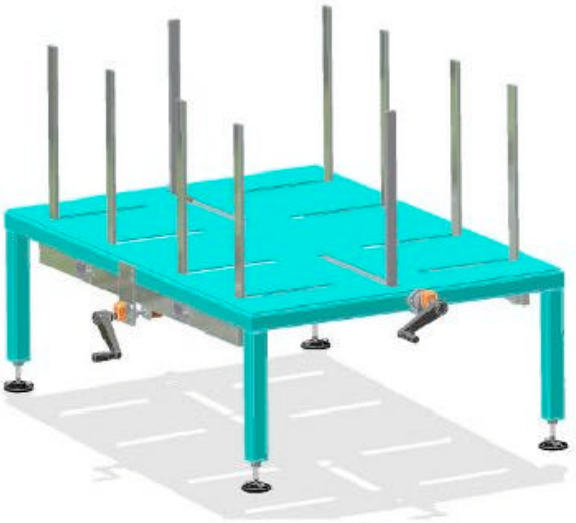
The adjustable supports (photo at right), are produced in two sizes:

Dimensions from 500x400 to 1200x800
Dimensions from 800x600 to 400x300
This product simple and inexpensive, has six guides 800mm height to contain the sheets processed and from work. The adjustment is made by loosening the locking screws and manually translate the position of the single rail.

ADJUSTABLE SUPPORTS SELF-CENTERING

The media chucks , are produced in two sizes:

Dimensions from 400x260 to 1200x800
Dimensions from 800x600 to 250x200
This product has 6 guides 800mm height to hold paper and machined to work with. The adjustment is made by 2 cranks. A crank adjusts the width and a length: turning the cranks side guides widen or tighten remaining parallel and equidistant from the centerline of the machine.
The two cranks have a position indicator which displays the distance between the guides.



SOLAUT s.r.l.
Via Cardano, 36 - 43036 Fidenza (PR) - Italia

E-mail: solaut@solaut.it - **Indirizzo Web**: http://www.solaut.it