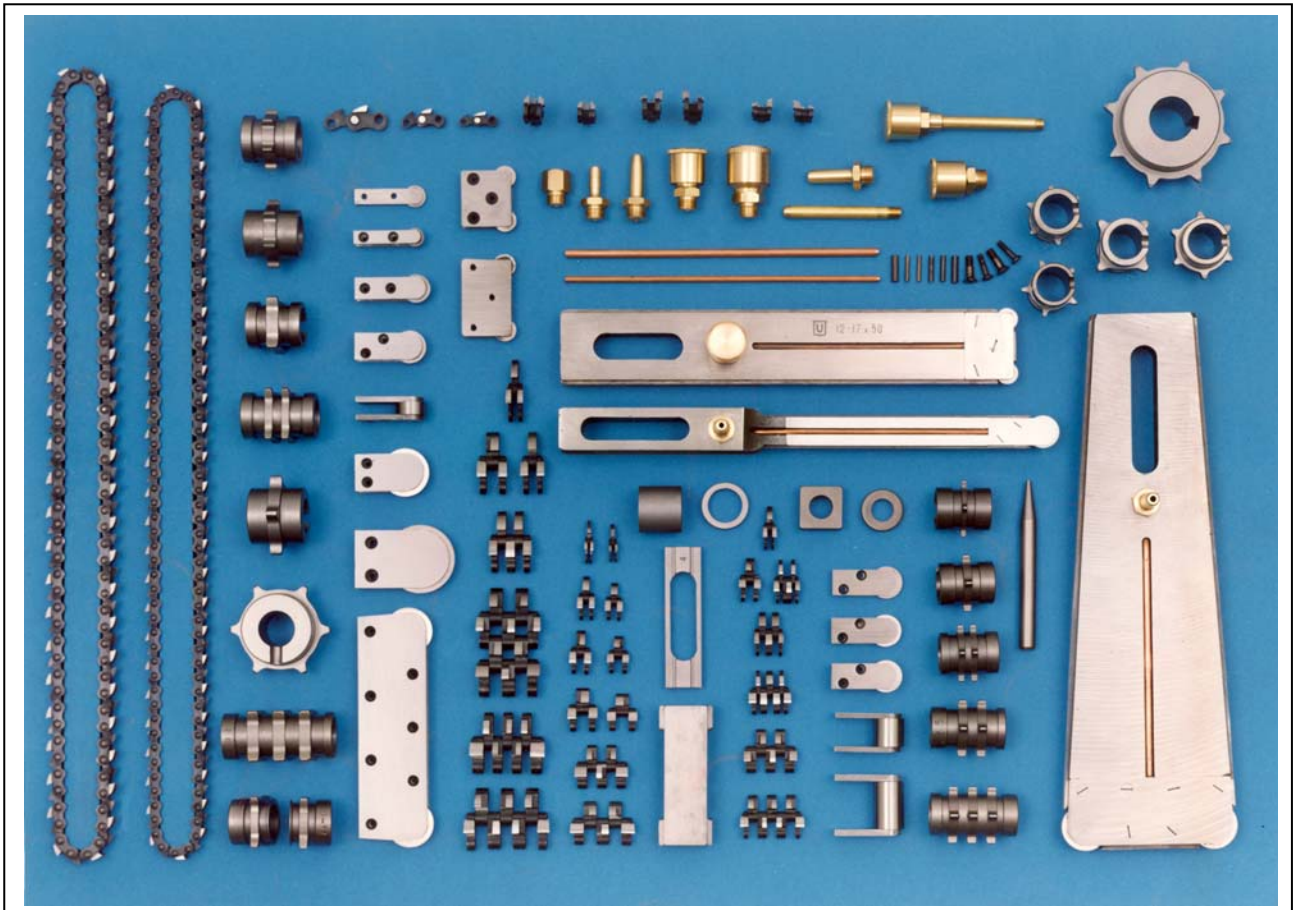




INTERNATIONAL STANDARD mortising chains



Utensilegno



Utensilegno, founded in 1945, is a mainly equipped for series production of high performance mortise chains. The Utensilegno chains are built according to modern automatic systems and are subject to rigorous checks during manufacturing, followed by final testing before being put on the market. Due to our long experience in this specialisation, Utensilegno chains have been consolidated throughout the world for some years now.

Built using specially formulated steels, they guarantee constant, durable cutting quality of a higher level than that found in other products on the market.

The large assortment of chains in stock and our continuous, careful assistance in both the sales and after-sales stages undoubtedly represent added value for our customers.



General

The term “**mortise chains**” is often used as a synonym for set, the complete tool made up of a chain, guide bar and sprocket for the production of rectangular, square and trapezoid slots in medium hardness wood.

The set is mounted on mortising machines, which may be stationary or portable.

- The **stationary** machines are generally of Italian and German manufacture, and have a guide-sprocket centres of 150 mm;
- the **portable** machines are generally of German manufacture, and have a centres of 70 mm.

However, many other mortising machines with different centres are also in operation.

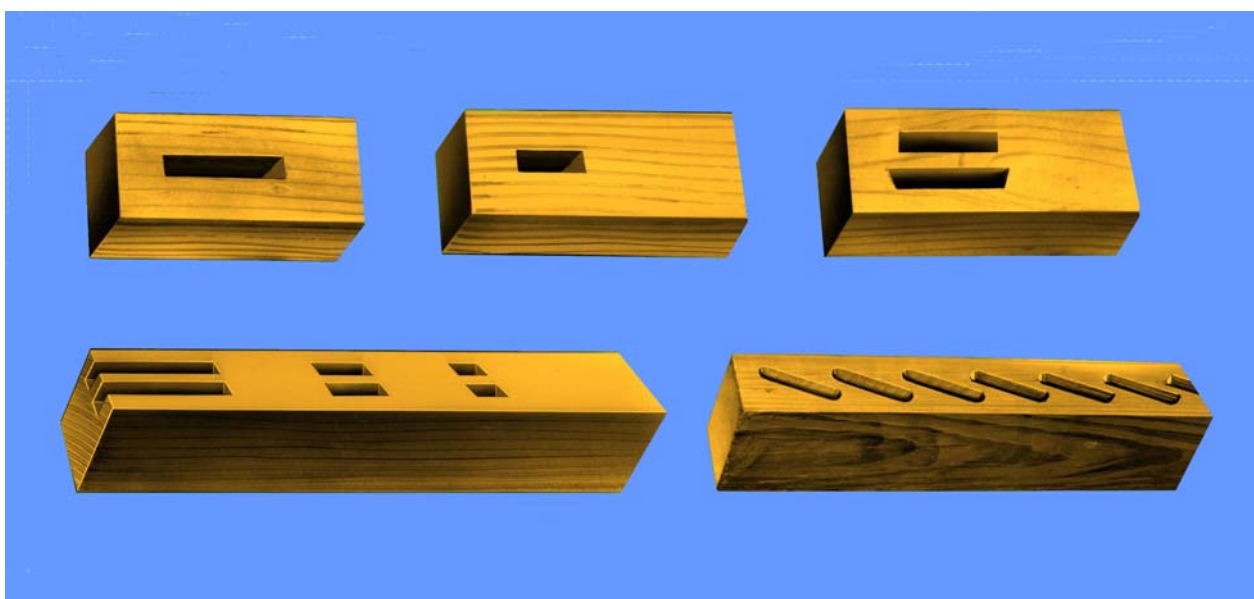
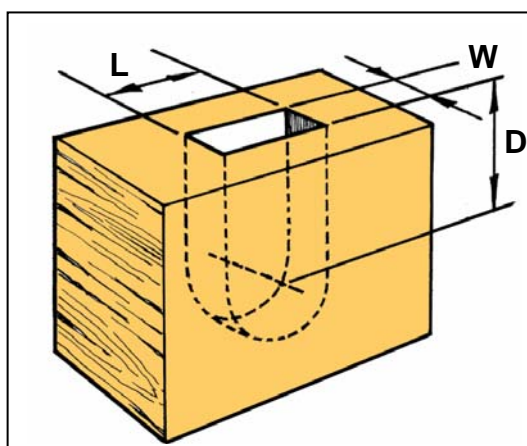
The mortise

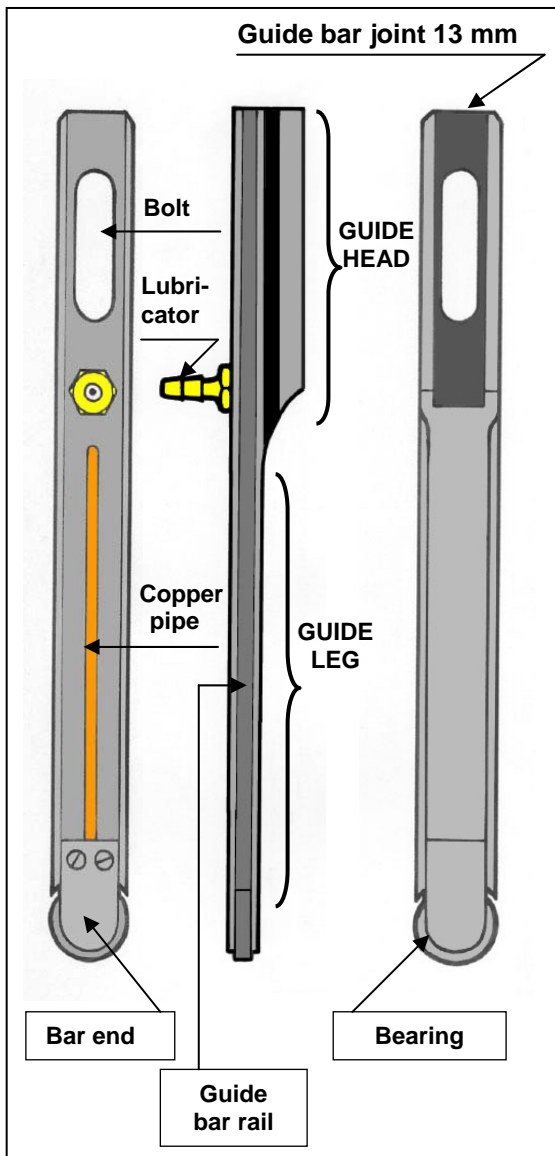
The mortise is identified by three dimensions as shown in the figure to the side:

- Mortise width (**W**)
- Mortise length (**L**)
- Mortise depth (**D**)

These dimensions should always be indicated when ordering. The base of the mortise will be semicircular if obtained with a guid bar with a single bearing, or almost flat if guide bar with two bearing are used.

Some examples of mortises that can be obtained using Utensilegno mortising chains are shown below.





Utensilegno guide bars

This is the part of the set on which the chain slides during the penetration of the wood.

It consists of an upper part known as the **guide head** and a lower part known as a **guide leg**.

In the rear of the head, there is a 13 mm wide slot used for attachment to the mortising machine.

The head contains an elongated 12,7 x 50 mm hole known as the **bolt**, which performs the dual function of maintaining the chain tension, regulating the height of the guide and attaching this to the screw of the mortising machine with a nut.

Along the guide leg, there is a threaded hole for the fixing of the **lubricating oil system**, which may be manual (Stauffer) or automatic.

The oil is taken to the **bearing** in the lower part of the guide from this hole through a **copper pipe**.

Along the sides of the guide is the **guide bar rail**, on which the inner link of the chain slides.

The width of the guide bar rail is not the same in all the guides, and depends on the width of the mortise to be obtained.

Each guide bar may be used for one or more chain sizes, as indicated in the table of "International Standard" below.

The description "12-17" in this table, for example, which is also etched into the guide bar, means that the guide can be used for the mounting of chains with a thickness measurement of 12, 13, 14, 15, 16 and 17.

The Utensilegno guides are of a length that permits the mounting of chains with a standard number of links.

THE INTERNATIONAL STANDARD

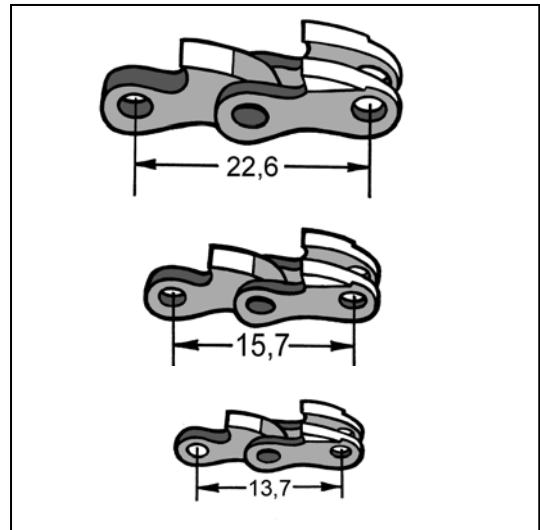
Chain thickness in mm	4	5	6 - 7	8	9-11	12-17	18-21	22-25	26-30	35	40
inner link chain in mm	1,5	2	2,5	3	4	6	12 (3x4)	3x4,5 (13,5)	3x5,8 (17,4)	5x4,5 (22,5)	5x5,8 (29)
Guide bar rail in mm	1,4	1,9	2,4	2,8	3,8	5,8	11,8	13,3	17,2	22,3	28,8



The chain pitches

The pitch is the distance between the one pin in a link and the third successive one, as shown in the figure. Utensilegno chains are produced in the following three pitches:

- **"A" pitch** (22,6 mm or .89") for mortises of 40 or 50 mm or longer.
Used for routine carpentry work.
- **"B" pitch** (15,75 mm or .62") for mortises 30 and 35 mm long.
Used for work requiring high levels of accuracy and precision.
- **"C" pitch** (13,7 mm or .54") for mortises 20 and 25 mm long.
Used for extremely precise work.



The Utensilegno chains

This is the part of the set with cutting teeth that makes the mortise in the wood.

The length of the chains is expressed by the number of links making it up, and depends on the following factors:

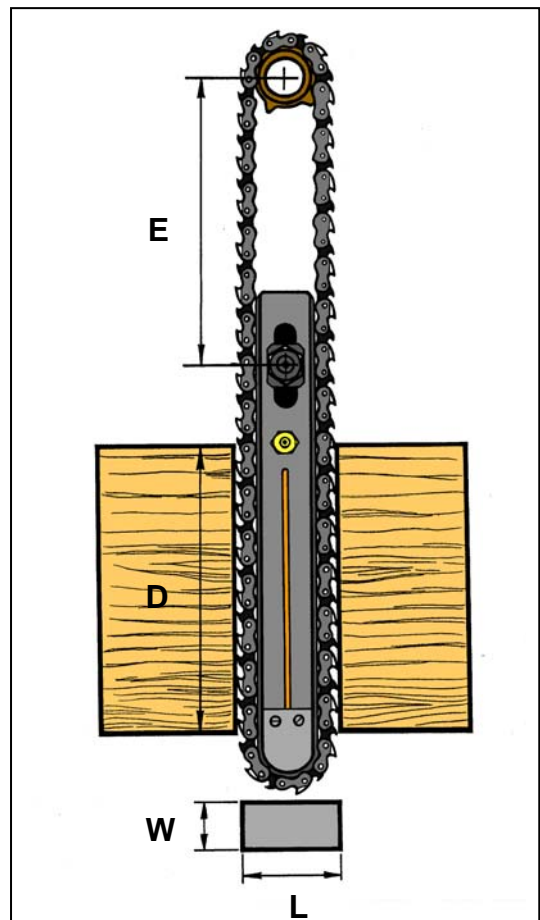
1. chain pitch;
2. length of the guide on which the chain is to be mounted;
3. guide bar - sprocket centres of the mortising machine.

The centres of the mortising machine is the distance between the mid-line of the sprocket and the mid-line of the locking screw of the guide bar to the machine, as indicated in the figure to the side.

The standard production Utensilegno chains are built to be mounted on guide bars with a preset length, for machines with a centres of 150 mm, and are made up of:

- 36 links for pitch "A";
- 48 links for pitch "B";
- 54 links for pitch "C".

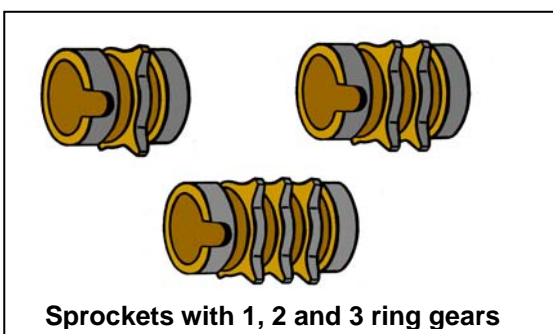
The table of chain lengths in accordance with the mortising machines used is set out at the top of the following page 6.





Utensilegno

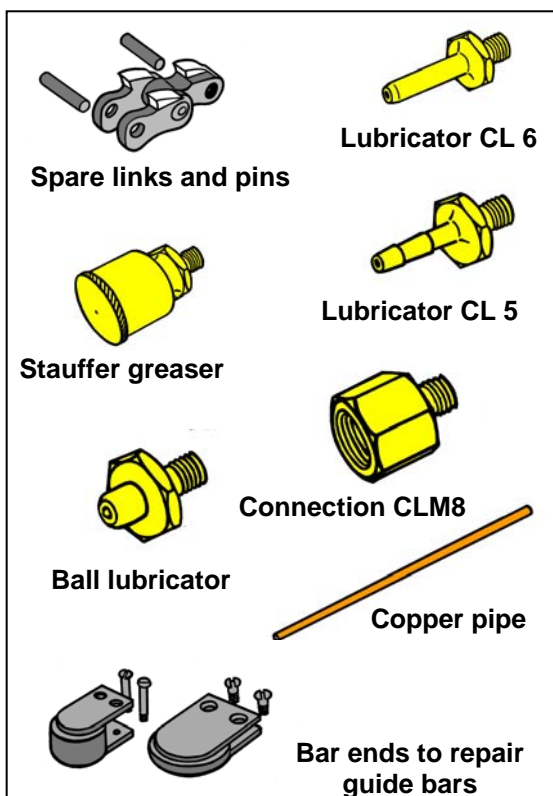
CHAIN LINKS AND GUIDE BAR LENGTHS										
Pitch	Mortise size in mm		Chain length expressed in links for «E»						Guide bar length in mm for E = 150	
			70	90	105	120	130	140		150
«A»	from 6 to 40 X	40 X 150	29	31	32	33	34	35	36	260
		50 X 150	29	31	32	33	34	35	36	250
«B»	from 4 to 17 X	30/35 X 125	38	40	42	44	45	47	48	230
		from 18 to 30 X	30/35 X 125	40	42	44	46	47	49	50
«C»	from 4 to 17 X	20/25 X 125	42	45	47	49	51	52	54	230
		from 18 to 25 X	20/25 X 125	44	47	49	51	53	54	56



Utensilegno sprockets

The sprocket is the third component part of the set. It is fixed to the motor shaft of the mortising machine and transmits the rotary movement to the chain. The sprockets are produced as follows:

- for "A" pitch with 4 and 5 teeth (mortises 40 and 50 mm long);
- for "B" and "C" pitches with 6 teeth (mortises 35, 30, 25 and 20 mm long).



Utensilegno spare parts

For a correct use of the Utensilegno mortise chains and an up keeping easyness, the following spare parts are available:

Links: these are supplied in packages with pieces and six pins each. They should therefore always be ordered in multiples of two. The pins can also be supplied separately.

Lubricators for Utensilegno guide bars: these have a 1/8" GAS thread and are available for the types indicated in the figure by side.

Copper pipes for the lubrication of the guide bars: these are available in different lengths, according to the length of the guide bars. When ordering, please refer to the type of guide bar to which they have to be fitted. On request, the copper pipes can also be provided in other lengths.

Patented bar ends for Utensilegno guide bars: these are available for all the guide bar sizes produced with A, B and C pitches.

They are a completely differently designed in comparison to those of the other guide bars currently available on the market.



Utensilegno tandem sets

The tandem sets are used to make two perfectly symmetrical parallel mortises at the constant distance from each other, in a single operation.

They are made up of two sets specially built for this purpose and a spacer (plate and ring), mounted between the two guides and two sprockets to obtain the required distance between the two mortises.

Each thickness variation of the spacer corresponds to a variation in the thickness of the wood remaining between the two mortises. The mortises may also be of different sizes.

It is not possible to combine simple sets to obtain double mortises. When the chains are ordered, it should be specified that they have to be mounted on tandem guide bars, as they have to have the same characteristics and the same length.

When ordering, customers should always specify the thickness of the mortises and the distance (thickness of the wood) that has to remain between them. For example: tandem set 8-10-8x40-A-CL. To avoid misunderstandings, the spacers should also be ordered with the indication of the three thickness figures: chain - wood - chain.

When ordering loose guides and sprockets, it is necessary to specify whether the "rear" guide and sprocket (in contact with the machine) or the "front" version (at the operator's side) is required. The lubrication of each of the two guides at the same time is obtained by means of a 3-way joint.

The tandem sets may also be supplied:

- **with trapezoid profile chains**, for the coupling of the transverse part of the opening with its mounting with no manual adjustment required, as the chain inclination is identical to that of the transverse profile;
- **mixed**, with rectangular and trapezoid chain profile;
- **with round profile chains**, to make mortises for grilles, shutters, ladders, and so on.

When ordering single or tandem trapezoid sets, always indicate the direction of rotation of the slotting motor and state whether the base of the trapezoid mortise faces the machine or the operator.





Chains for portable mortising machines

Utensilegno also produces chains, guides and sprockets to be mounted on the portable mortising machines of German and Japanese manufacturer, which are widely used for carpentry work directly on site.

These machines have a shorter guide-sprocket centres than those of the stationary machines (generally 70 mm rather than 150), and are only able to be fitted with guide bars, chains and sprockets manufactured with special features and dimensions in accordance with the German standard.

The guide bars, for example, have a reinforced head and a chain stretcher device, and are lubricated with Stauffer manual greaser systems.

The sprockets have two dragging slots and may have different inner diameters, depending on the type of mortising machine to which they are to be fitted.

The Utensilegno sets may be fitted to the following portable mortising machine models:

Elu: MKS 10, MKS 33;

Festo: Tiger;

Haffner: KKF15, KF 15, KF 20, KF 416, SL 100, SL 402 e 403;

Hema: ZKS 15;

Holzher: ZK, ZK 2340;

Lyon Flex: P 43M;

Mafell: S, LS 101, LS 102, LS 103;

Makita: KC 100 and **Ryobi:** CM 40;

Protool: CMP 150;

Sauer: Tiger, KST-L;

Schrauben Schmid: LSK 120, LSK 170, LST 300.



Some portable mortising machines, such as Mafell, Hema and Schrauben Schmid, can be fitted with special devices that make it possible to produce mortises with widths from 6 to 21 mm and depths of 300, 400, 500 mm and more, which are highly appreciated in on-site carpentry work.

These chains are used in major processing centres for the production of plated beams and as equipment in major automatic wood processing centres.

For these machines too, Utensilegno is able to supply complete sets of guide bar, chain and sprocket.





Attachment for narrow mortises

Utensilegno produces an attachment with which it is possible to resolve the problem of very narrow mortises which are impossible to form with normal mortising chains.

It is easy to apply to the chain mortising machine, like a normal set. Made of carefully selected tempered steel, it consists of:

- A main body applied to the mortising machine in place of the normal guide bar;
- A pulley that is screwed onto the motor shaft of the mortising machine in place of the sprocket;
- A belt that transmits the rotary movement necessary to make the mortise.

The length of the belt is calculated for attachment to mortising machines with a guide-sprocket centres of 150 mm.

The attachment for narrow mortises is more precise than similar portable appliances, as it is fitted to heavy duty stationary mortising machines.

Small chisels are applied to the attachment, with which it is possible to make mortises 1, 1.25, 1.5, 1.75, 2, 2.25, 2.5, 2.75, 3, 3.25, 3.5, 4, 4.5 and 5 mm wide.

The minimum length that can be obtained is 22 mm and the depth is 55 mm.



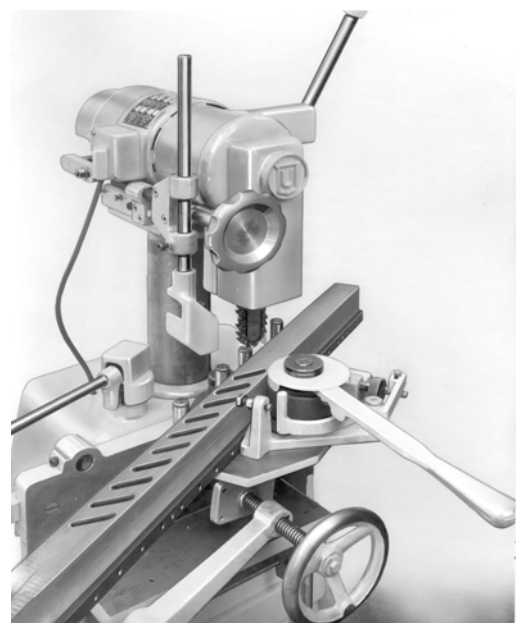
Attachment for louvres

This is useful for the mortising of grilles, shutters, ladders, and so on. Strong in construction, it is practical to use and rapidly forms mortises arranged at regular distances from each other. It is possible to mortise a normal shutter mounting in less than two minutes with this appliance.

It is made up of the rod locking device and a rod attached to the wood to be processed. During the operation, the device fixes the rod in place when it has to make the mortise, and releases it while the wood is moved.

Dividing rods of different pitches, or distance between two mortises, are available, in accordance with the requirements of the user.

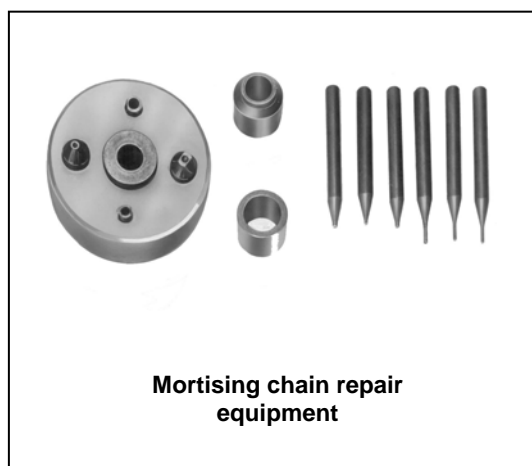
As well as standard guides, Utensilegno also supplies guides with a maximum depth of 60 mm and round profile chains.





Instructions for a correct use of Utensilegno chains

1. Do not use excessive chain tension. When pulled sideways halfway along its length, there should be a clearance of 6 to 8 mm. Check the tension when the chain is warm, after about ten mortises have been made.
2. If the lubrication is not by automatic oil pump, lubricate the chain and guide bar after every fifteen minutes of working with a few drops of medium viscosity oil near the bearing, or rotate greaser by half a turn. (Never use petrol or diesel, even if mixed with oil, non-lubricating or recovery oil or a too fluid oil. Poorly lubricated chains and guide bars seize up and burn).
3. Form the mortise with smooth, even movements to avoid sudden jerking of the chain, especially if the wood is hard or the chains are small sized ones.
4. Do not force the operation, to prevent overheating of the guide bar or breakage of the chain.
5. Never work horizontally on a considerable height.
6. Sharpen the chain frequently and lightly, ensuring that the tooth retains its slope and original profile, as specified below.
7. After works' performance, chains and guide bars should be lubricated as soon as they are removed from the machine, preferably by immersion, to enable the oil to penetrate the pins of the chain and the guide bar bearing.
8. "B" and "C" pitch chains should be employed with particular care, taking twice the time as necessary to make mortises of same width and depth as required with an "A" pitch chain.
9. Excess clearance of the bearing and failure to sharpen or incorrect sharpening of the chains lead to badly cut mortises and cause rapid tool wear a quick wear out of the tools.



Chain repair equipment

With a view to guaranteeing the maximum efficiency of the mortising chains it produces, Utensilegno builds the tool shown to the side for quick chain repairs.



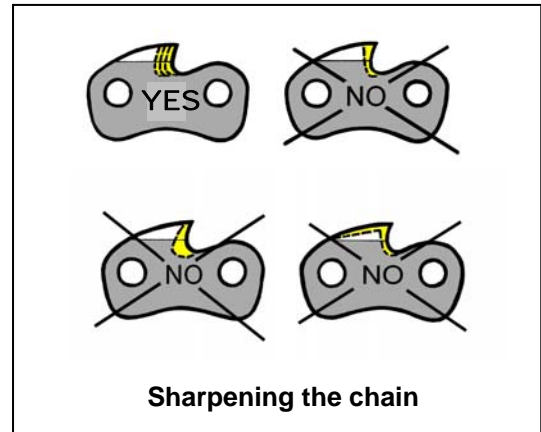
Utensilegno

Sharpening the chains

Sharpen the chains frequently to ensure the original cutting angle is maintained, as shown in the figure. Only the front part of the tooth should be sharpened, never the sides or back, to avoid altering the dimensions.

Correct and frequent sharpening will lead to longer lasting chain cutting capacity and reduced guide bar wear.

We recommend that you always have more than one chain of the same size available, to avoid forced stoppage of the work.



Repairing Utensilegno guide bars

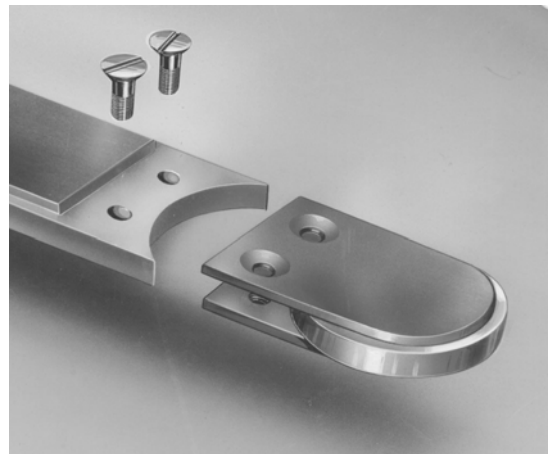
Utensilegno guide bars are supplied with a patented original bar end. They are completely differently designed in comparison to those of the other guide bars currently available on the market. They consist of a bearing and two plates solidly fixed to each other; they are supplied already assembled, run-in and ready for use.

With Utensilegno bar ends, it is possible to repair the entire guide bar by means of a single operation that will take only a few minutes for even an unskilled worker. Simply:

- lock the guide bar in place with a steel clamp, with the screw heads facing downwards.
-
- Remove the screws with a punch and hammer and fit the new spare part.
- Tighten the screws and remove the tip with a sander or grinder.
- Lubricate the bearing

With this simple operation, all the end part of the guide bar - the part most subject to wear and tear - the bearing and the two plates are replaced in full, to obtain a completely new guide that can be repaired again several times, as the worn end part is fully replaced, with significant advantages for the user.

With this system, greater operating precision is obtained due to the excellent coaxial holding of the bearing, which retains its initial play for its entire lifetime. The other guides are often impossible to repair even after they break for the first time, as the bearing housing is worn away completely and can no longer be repaired without long, expensive operations by specialist personnel.





Utensilegno

SINCE 1945 WE HAVE MANUFACTURED MORTISING CHAINS FOR ALL STANDARDS

UTENSILEGNO S.r.l. - Corso Vercelli, 2 - 20145 MILANO - Tel. 0039 - 02.4800.4288 - Fax 0039 - 02.4819.6020

www.utensilegno.it - e-mail: info@utensilegno.it