

Retubing

After washing it may be necessary **to retube the tube bundle partially or completely.**

The operations shown below give a summary of the use of our tools, equipments and machines used together in the various steps of retubing (*remaking of the tube bundle*):

- tube cutting
- tube pulling

In this chapter the machines and tools for tube cutting and tube pulling are presented

For other subjects listed below consult the related documents:

- tube sheet refurbishment
- tube bundle assembling
- tube rolling
- tube facing
- tube to tube sheet TIG orbital welding.

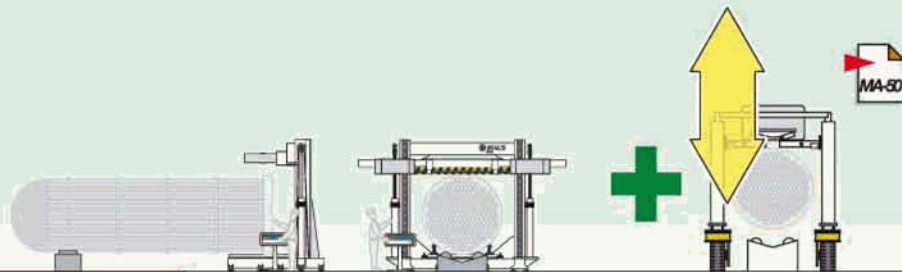
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BundleCut

Bundle saw machine

Maus Italia offers **BundleCut**, the new band saw for the **dismantling and recovery** of heat exchanger tube sheets. Available in the standard version for tube bundles of \varnothing 2000 mm (79") and the larger version up to \varnothing 3000 mm (118").

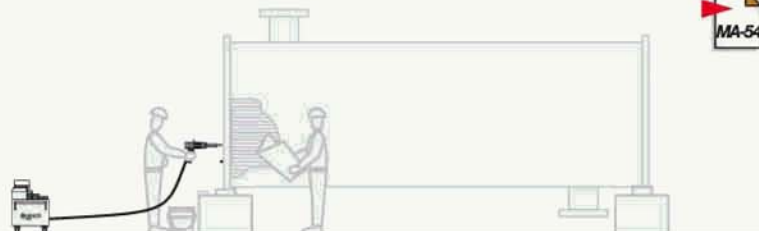


Kattex

Hydraulically operated single internal tube incising/cutting

Innovative pending patented parting tool for instantaneous internal cutting of tubes, particularly useful for fixed tube sheet-type heat exchangers.

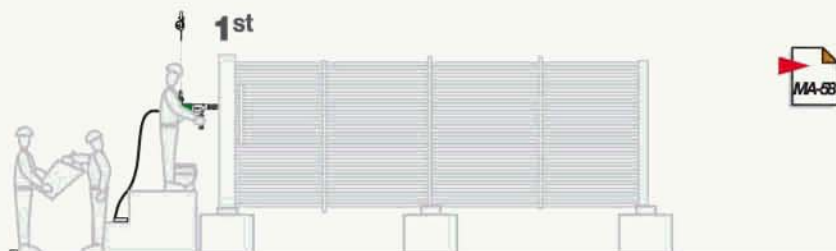
New
pending patented



F/794

Motor operated single internal tube cutting.

Tube cutter model **F/794** is the traditional solution offered for **internal tube cutting**.



Grippul

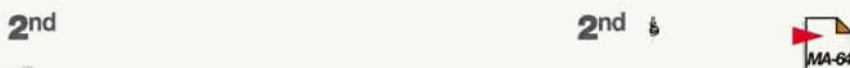
Quick attaching gripper tube pullers

Grippul series **quick attaching gripper tube pullers** is designed and built for rapid extraction of tube stubs from tube sheets. Associated with **BundleCut** or **Kattex**, facilitates and highly speeds up the recovery of the tube sheets.



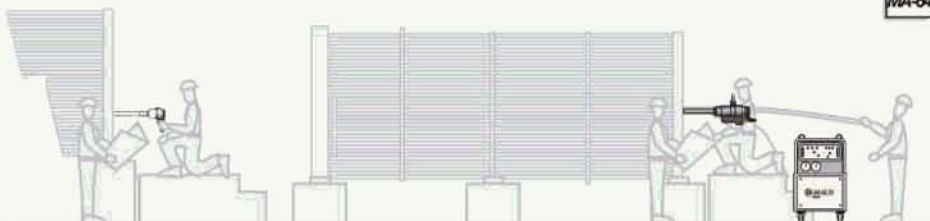
Onlypul

Semi-automatic hydraulic tube pulling for small scale maintenance



Runpul

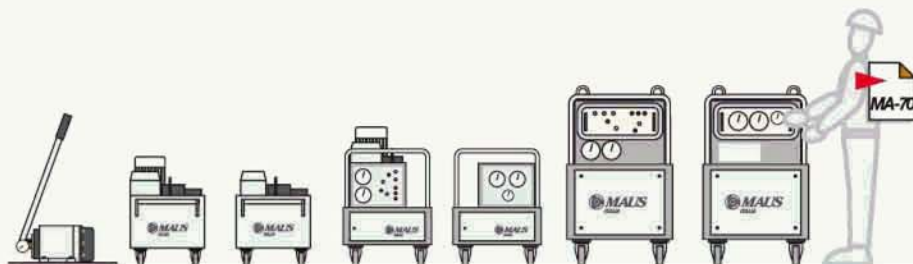
Automatic hydraulic tube pulling complete with **automatism for continuous high speed extraction** of tubes suitable for large scale maintenance work.



TP

Hydraulic units

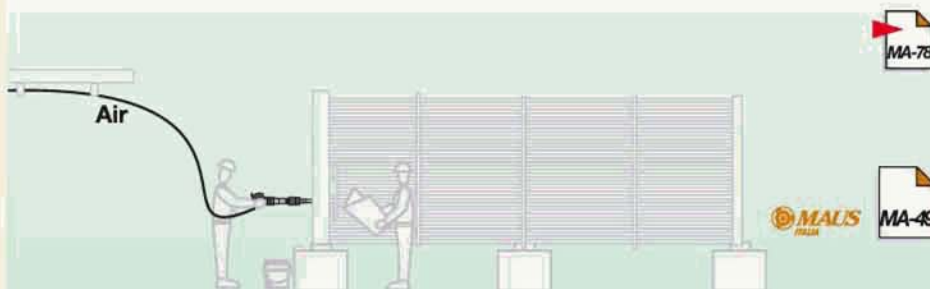
Complete range of hydraulic units capable of satisfying various needs depending on the type of use: from the simple replacement of a tube to the more demanding applications of large scale maintenance work.



Cheaptool

Equipment for the manual maintenance of the tube in heat exchangers

Cheaptool is the complete system that Maus Italia produces for the manual, **low-cost** maintenance of tubes in heat exchangers in oil refineries, condensers in electric power stations, boilers, etc.



Cutting equipments

Pulling equipments

Hand tools

Bundle saw machine

Healthy environment

High safety

High productivity

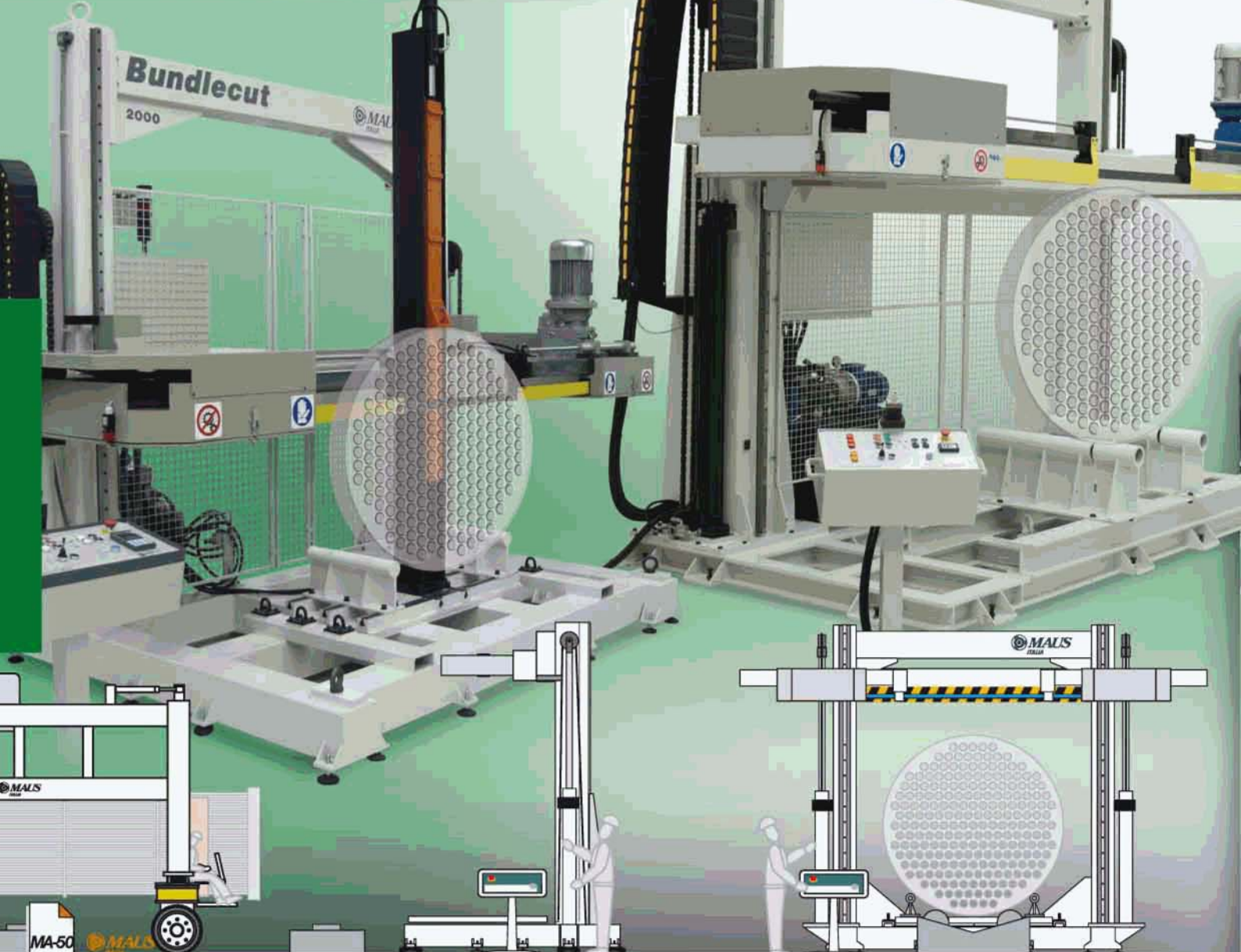
Precise cut

BundleCut

Band saw for the dismantling and refurbishment of heat exchanger tube sheets

Maus Italia proposes **BundleCut**, the new band saw. The solid construction of its electro-welded structure, the use of precision guides and pads and several fundamental devices make this machine an **absolute innovation** to be included in a **modern workshop** of heat exchanger maintenance. The **quality** of the mechanical band cutting in replacement of the oxygen cutting eliminates pollution from combustion gas and **protects the holes of the tube sheet** against scratching during extraction of the stubs.

BundleCut associated with the quick attaching gripper tube puller of the **Grippul** series, facilitates and **highly speeds up the recovery** of the tube sheets.



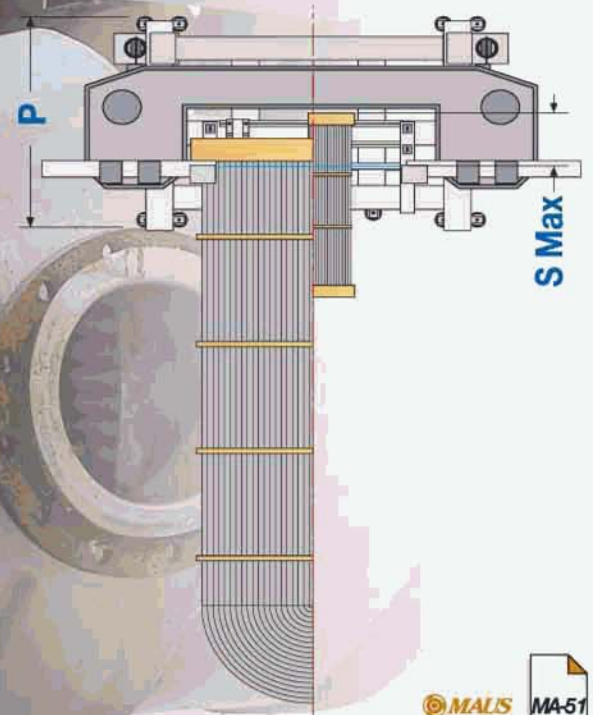
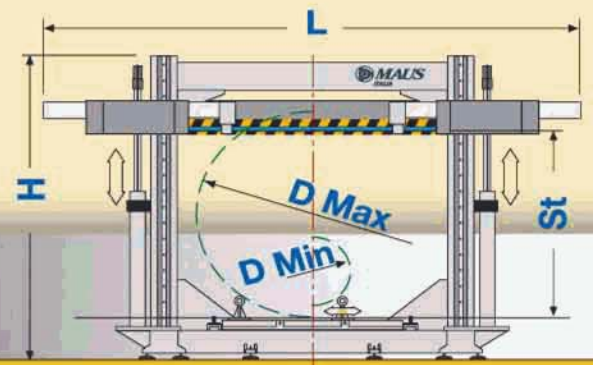
Technical features

On request available also with
QUICK HYDRAULIC
tube sheet
locking device

BundleCut				2000		3000	
Length	L	mm	<i>Ft</i>	3800	12.5	5200	17.1
Width	P	mm	<i>Ft</i>	2300	7.6	2330	7.6
Height	H	mm	<i>Ft</i>	3050	10.0	3850	12.6
Floor space requirement		mm	<i>Ft</i>	5500x2500	18 x 9	6500x3000	21 x 10
Vertical stroke	St	m/min	<i>Ft</i>	2000	6.6	3100	10.1
Cutting speed		mm	<i>Ft/min</i>	20÷250	65÷820	11÷140	36÷460
Bundle diameter Max.	D Max	mm	"	2000	78.74"	3000	118.11"
Bundle diameter Min.	D Min	mm	"	200	7.87"	350	13.78"
Tube sheet thickness Max.	S Max		"	600	23.62"	800	31.50"
Average cutting time only bundle		min		30÷60		100÷200	
Average cutting time h-ex with shell		min		60÷90		120÷240	
Hydraulic unit power		Kw		1.3		4	
Saw motor power		Kw		5.5		11	
Power supply		* V-Ph-Hz		400-3-50/60		400-3-50/60	
Absorbed power		KW		7		15	
Air supply		Bar	<i>Psi</i>	4÷8	58÷116	4÷8	58÷116
Saw blade type		mm	"	7930x41x1,3	312.2"x1.6"x0.05"	10900x54x1,6	429.1"x2.1"x0.06"
Weight		Kg	<i>Lb</i>	4500	9920	7700	16980

Different characteristics from standard are studied on specific request of the customer

* On request
230-3-50/60



Bundle saw machine



BundleCut

Example of right procedure of bundle cutting

Simultaneous cutting of shell-tube bundle.
 Fixed sheet: \varnothing 1100mm (43,30") - Shall: INOX 304 L
 Tubes: \varnothing 25,4 mm (1") x 14 BWG - INOX 304L
 Time: 90 minutes



On request available also with **QUICK HYDRAULIC** tube sheet locking device

\varnothing	mm	600	1000
	Ft	1.97	3.28

Positioning

The heat exchanger is positioned in front of the **BundleCut** and the support brackets are adapted for correct

10' 30'

Fastening

The heat exchanger is fastened with an anchoring belt with tightener (or quick hydraulic tube sheet locking device as optional)

5' 15'

Cutting

The solidity of the structure enables the bundle and the shell to be cut at the same time, even if the materials are highly alloyed.

30' 180'

Separation

When the cutting has been completed the heat exchanger is moved while the sheet remains fixed to the **BundleCut**.

5' 15'

Precision

The stubs that are still attached to the sheet are undeformed and easy to remove.

50' 240'





Control console



Adjustable saw guide



Lubrication plant



hydraulic unit

