MAUS ITALIA

CERTIFIED QUALITY SYSTEM
UNI EN ISO 9001/2000
SINCERT DNV

General catalogue

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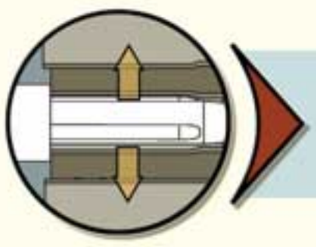

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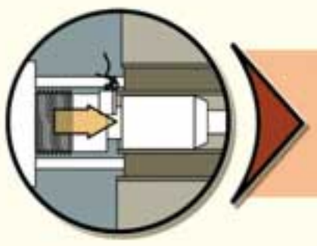

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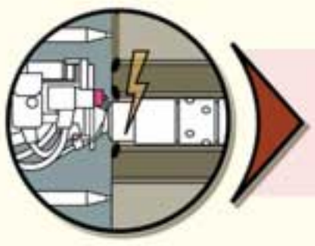

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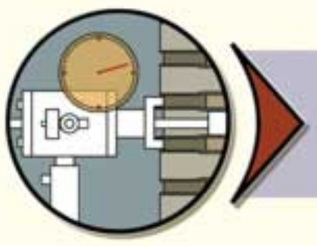

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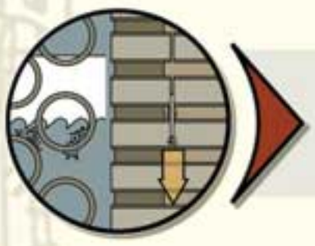

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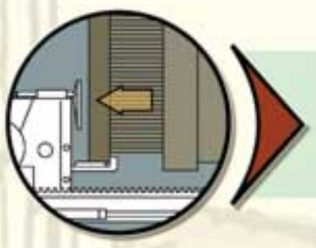

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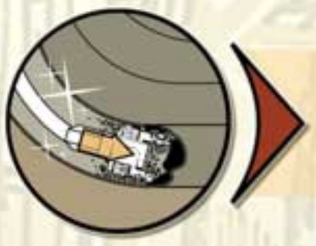

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The company

In 1961 Mr Franco Agostino, the founder of the company, acquired German know-how and permission to manufacture pipe expanders in Italy.

In 1972, he moved Maus Italia to its new headquarters and laid the foundations for the development that he entrusted to his son Stefano, a mechanical engineer, who has been devoting all his efforts since 1976 to placing Maus Italia at the top of the European and world markets.

The PC and CAD functional work environment, computer-controlled production, automatic storage, CNC machine tools and the enthusiasm and skill of its young and capable technicians have created the winning combination that has made Maus Italia the world's leading proponent of this technology.

The company objective is to:

- plan, produce and market tools and machines for the production and maintenance of exchangers, condensers, refrigerators or boilers of chemical plants, oil refineries, power stations, sugar factories, etc.

- accept market challenges to accelerate in-house research in order to provide customers with technological machines and tools that tailored to their specific needs.

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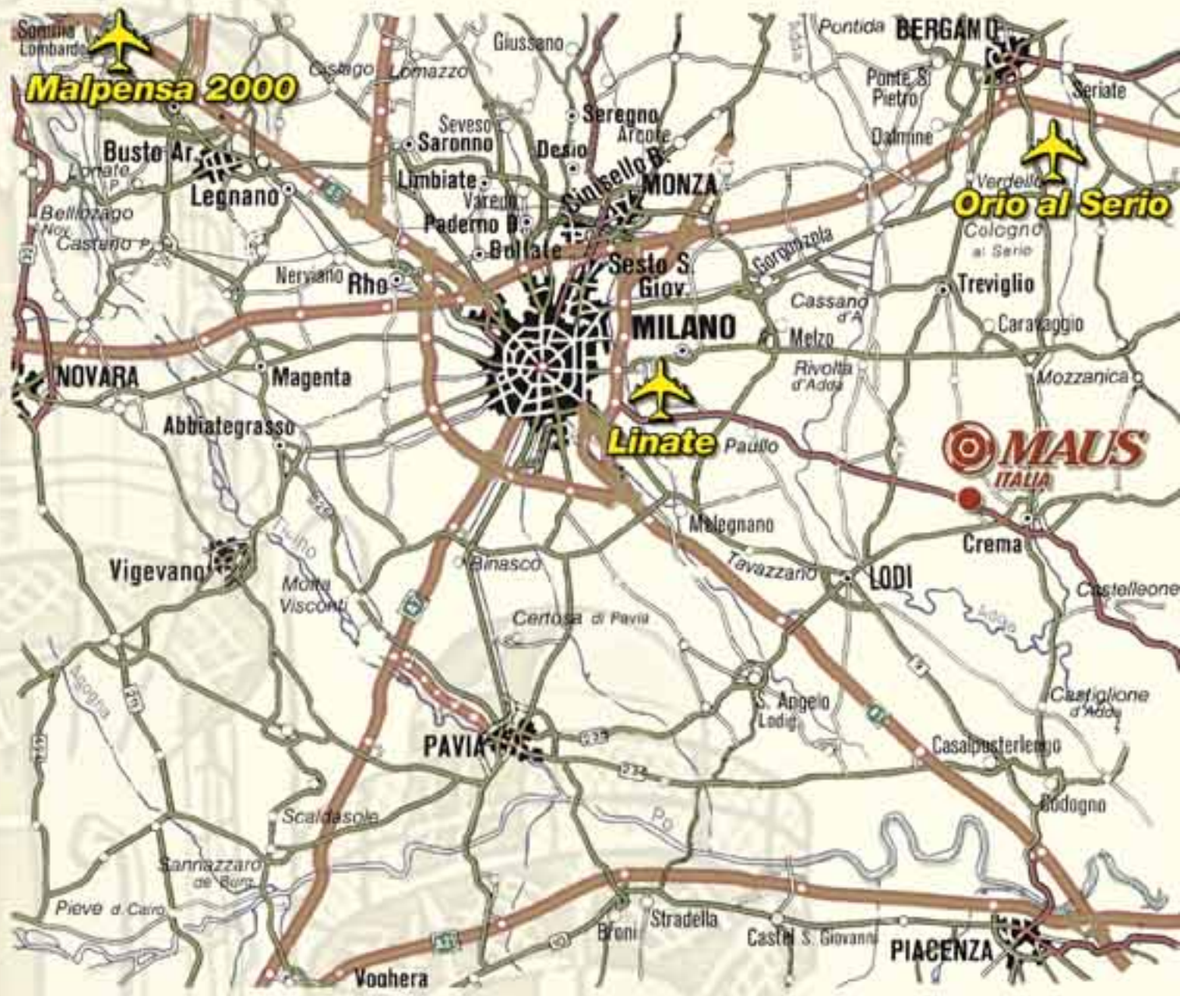
The Agents

See www.mausitalia.it web site

How to find us



Please send a fax or an E-mail to receive the technical catalogue

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MAUS ITALIA

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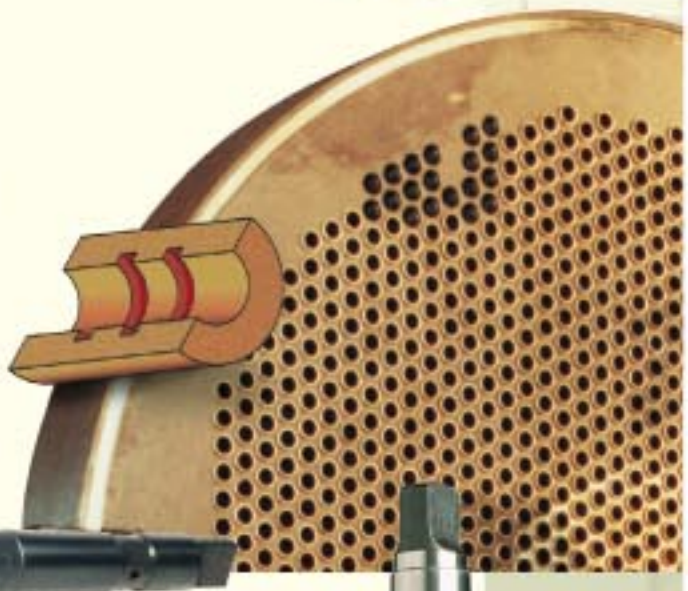
Generale GB-Giu-2004.20

Holetool

Tools for working tube sheet holes with cooling holes



Holetool is a complete tool system proposed by Maus Italia for working tube-sheets of heat exchangers in oil refineries, condensers in power plants, boilers, etc.

F/10

Oil hole **HSS** twist drills - Right hand cut - Execution N
Morse taper shank.

F/11

Oil deep hole **HSS** twist drills - Right hand cut
Execution S - Morse-taper shank

F/12

Coolant inducer sockets for maxima twist drills
Morse-taper shank with cooling holes

F/13

Sleeves or shell for coolant inducer sockets

F/20

Reamer for tube sheet holes - 9.75 to 64.3 mm with widia metal tips

F/26

Self-centering grooving tool for tube sheet with cooling holes. Used also to dress grooves by means of a common portable drill.

F/112

Grooving tool for
holes dia. 7 to 30mm

F/120

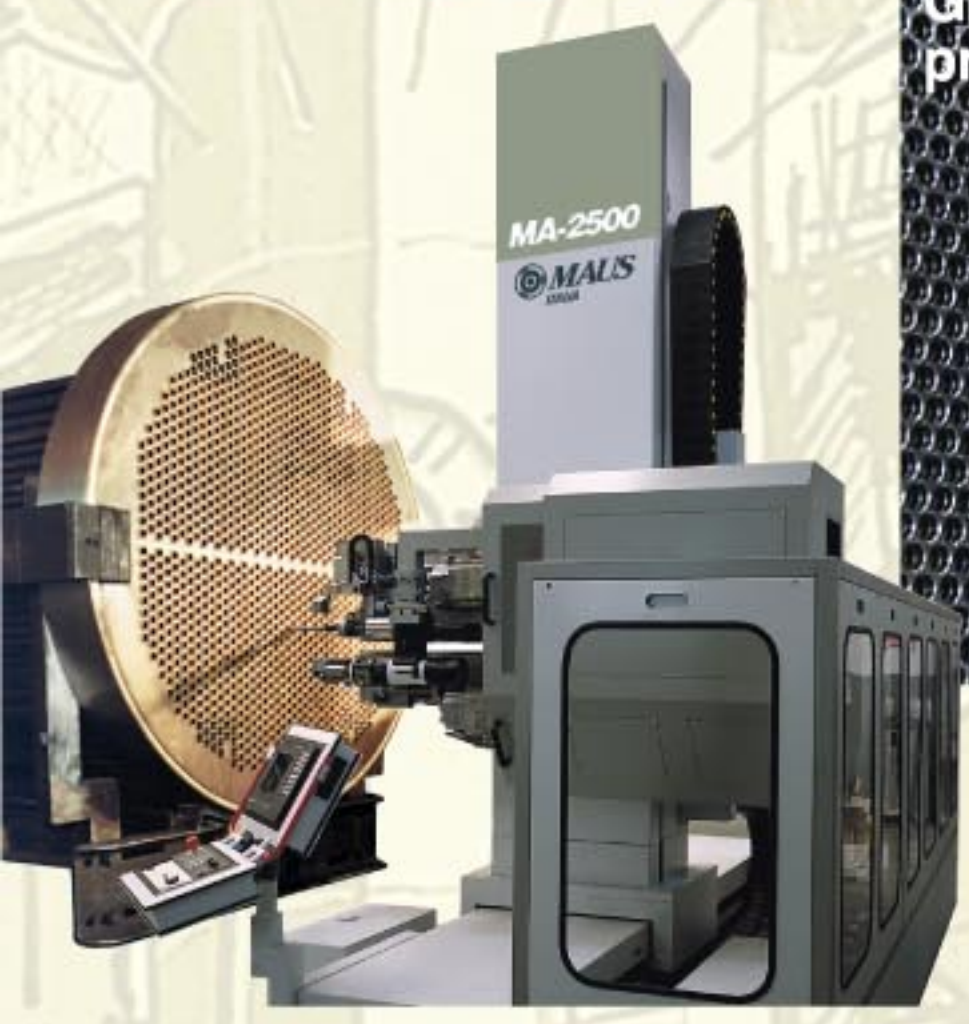
Universal grooving tool
for holes dia. 15 to 120mm

MA-2500

NC Work centre for grooving
tube-sheets holes with
special ***F/26*** on board.

Tube insertion F/780

Tube pilot with steel or aluminium tapered head and a nylon brush used to guide tubes through the holes of tube sheets and baffle plates while tube bundles are being assembled.



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Minirol, Macrol and Masterol

Straight and right angle-Torque control **pneumatic** rolling motors

A complete, portable line designed for tube rolling expansion in workshop and field activities for different application (airconditioning, chemical, petrolchemical, ship yerds....). They are manufactured in aluminium, they are light, sturdy and easy to handle for the rolling of tubes. **Incorporated torque control adjustable system.**
Guaranteed working uniformity.
Masterol model is particularly suitable for heat exchanger tubes.

MRS

Rolling unit with **electronic** torque control

In the specific field of tube expansion in heat exchangers and boilers Maus Italia proposes the rolling unit with electronic torque control MRS which combines high quality, sturdiness and reliability with low cost; it suits all kinds of applications in carpentries, refineries, power plants, shipyards and sugarplants.

Matex

Tube expansion system with torque-based speed continuous variation

The new ***Matex*** system, intended mainly for demanding users, is similar to the traditional ***MRS*** configuration and consists of:

- digital microprocessor controller ***Matex Pro/2300***;
- ***Matex V4*** low voltage rolling machine complete with suspension;
- ***F/308*** telescopic shaft.

MRP 91/2000

Hydraulic mechanical rolling unit with electronic torque control for **parallel rolls expanders**

It reduces to the minimum the tube stretching and stress after the expansion and it makes it possible to get a better and homogenous tube to tube-sheet contact for the whole expansion length.
It uses tube expanders with the axis of the roll slots parallel to the axis of the cage.

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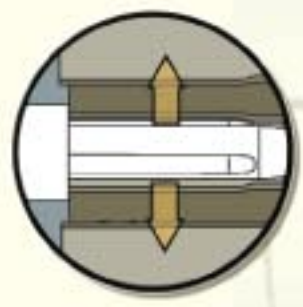


Hydrex 5001

High-pressure hydraulic expanding machine for fixing the tubes of heat exchangers

In line with the most demanding specifications of designers of heat exchangers in the nuclear and chemical fields, Maus Italia proposes ***Hydrex 5001***, an extremely high-pressure hydrodynamic expanding machine for fixing tubes of heat exchangers.

An automatic cycle regulated by microprocessor ensures high quality machining with easy-to-use tools at low costs.

Hydrex 5001 guarantees:

- Speed
- Repeatability
- Lack of metal scale on the tube inside surface
- Lack of materialwork hardening, typical of mechanical machining.

The dimensional tolerances of the inside diameter of the tube are calculated for good expansion. However, for this purpose, Maus Italia has fine-tuned an efficient well-tested operative system, which is available to customers.

MA500 MA-1000 MA-2500

Automatic rolling, facing and welding single axis and double-axis centre

MA-500, ***MA-1000*** and ***MA-2500*** are the most innovative and efficient solution proposed by Maus Italia for automating working cycles for the assembly of heat exchangers.
Easy and intuitive use is guaranteed by CNC **SIEMENS** 840D control and by programming on a Windows platform.

Thanks to these three centres, Maus Italia makes it possible to automatize the operations described for tubes having outside diameter (***de***) from 6 mm up to 50 mm.

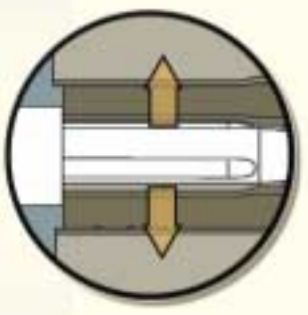
The ***full optional*** version (with CAD-CAM software system) of the ***MA-2500*** is made up of

10 axes controlled by CNC

that allow:

- step by step rolling of two tubes at the same time
- facing of two tubes at the same time
- orbital welding of tubes at the tube sheet.

Automatic rolling motors



Rolling expansion

Condensers and heat exchangers

R/11-R/13

Tube expander for small diameter tubes from 1/4" to 1/2" **thrust collar with plane shoulder.**

R/11/80 • R/13/100
Tube expanders for reach up to 80 -100 mm

R/30-R/31

Adjustable long reach tube expander for **thin or medium thickness** tube-**sheets** and for tubes with ø from 1/2" up to 1,1/2".
.0 thrust collar with plane shoulder
.1 thrust collar with 3 mm recess
.2 thrust collar with deep recess

R/50-R/51

Adjustable long reach tube expander for **thick** tube-sheets and for tubes with ø from 1/2" to 1.1/2".
.0 thrust collar with plane shoulder
.1 thrust collar with 3mm recess
.2 thrust collar with deep recess

R/50/260 • R/51/100
R/50/360 • R/51/280
R/51/380

Tube expanders for reach up to 100 - 280 - 380 mm

R/41

Tube expander for **thick tube sheets** with adjustable reach **up to 100 mm**, for tubes with Ø from 1.3/4" to 3".
.0 thrust collar with plane shoulder
.1 thrust collar with 3mm recess
.2 thrust collar with deep recess

R/41/130
R/41/180
R/41/260
R/41/360

Tube expanders for reaches up to 130, 180, 260 and 360 mm

R/141-R/161

Step by step tube expanders for tubes with Ø from 5/8" to 1" with manual release which makes it possible to position the thrust collar with quick operations in fixed points calculated for the correct overlapping of double-radiuses rolls.

5R

5R: Code used to indicate the tube expanders type ***R*** with **5 rolls** and not with 3 rolls as the standard ones described up until now. They are suitable for the rolling expansion of thin titanium or stainless steel tubes,

5R/70 • 5R/70/S
5R/80 • 5R/80/S
5R/71 • 5R/71/S
5R/81 • 5R/81/S

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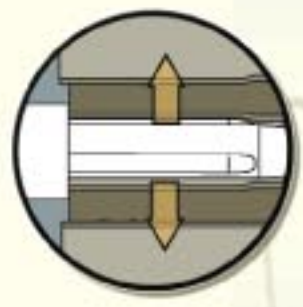
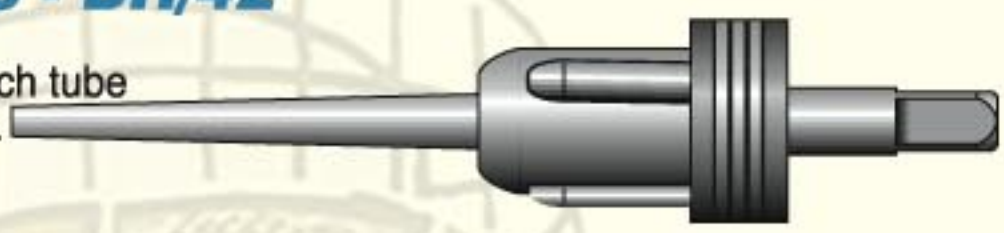


Boilers

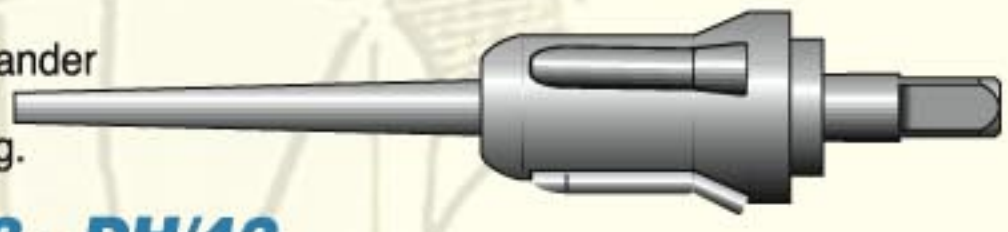
BH/28 - BH/42

Fixed reach tube expander.



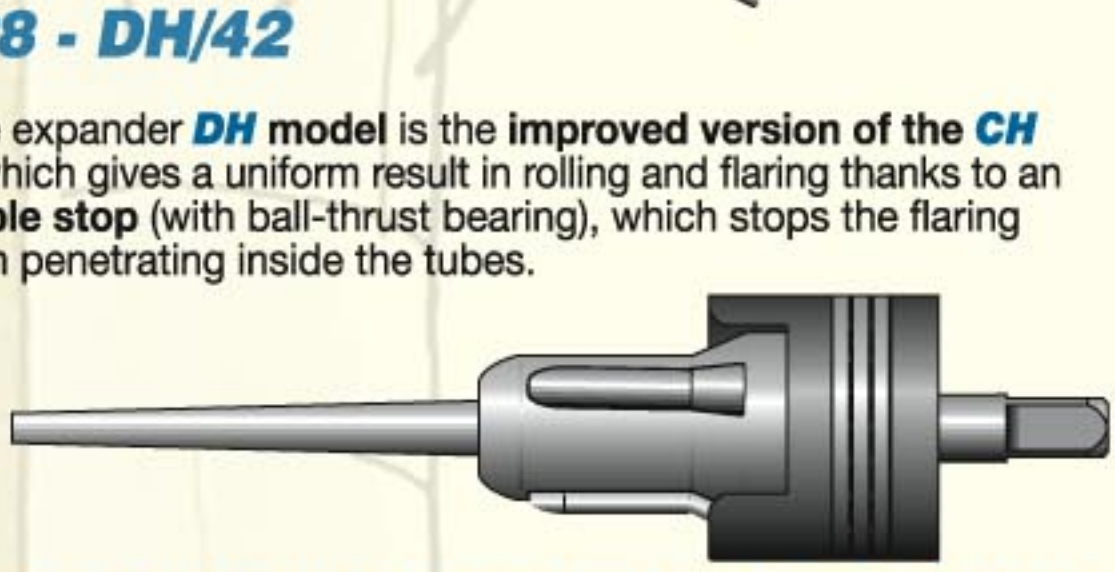
CH/28 - CH/42

Tube expander for rolling and flaring.



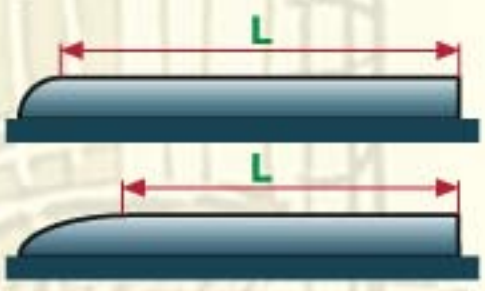
DH/28 - DH/42

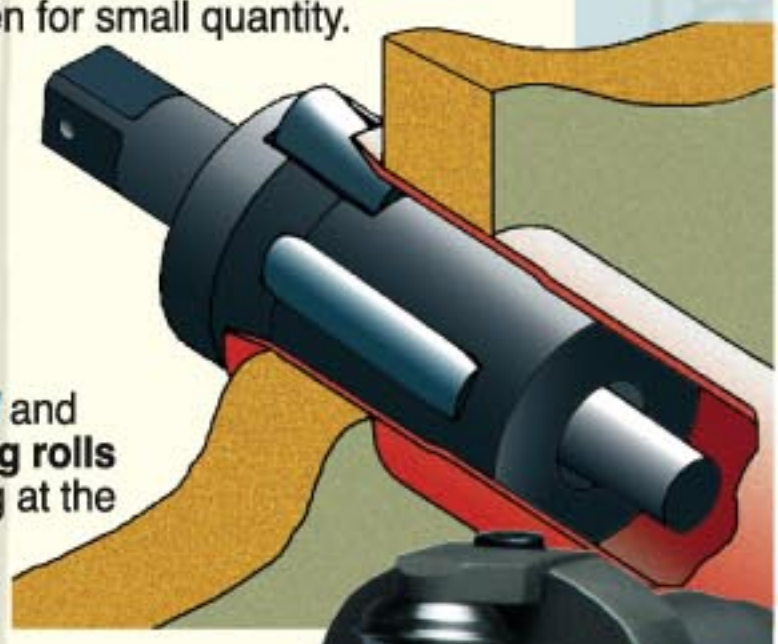
The tube expander ***DH*** **model** is the **improved version of the** ***CH*** **model** which gives a uniform result in rolling and flaring thanks to an **adjustable stop** (with ball-thrust bearing), which stops the flaring rolls from penetrating inside the tubes.



BH/28-BH/37-BH/50-BH/55-BH/60-BH/65-BH/70-BH/75-BH/80
CH/22-CH/37-CH/50-CH/55-CH/60-CH/65-CH/70-CH/75-CH/80
DH/22-DH/37-DH/50-DH/55-DH/60-6DH/5-DH/70-DH/75-DH/80

The modification of the roll front ogive makes it possible to reduce the useful length of the rolling expansion **L** thus keeping the same cages of the ***/60***, ***/70*** and ***/80***; the customer will be provided with customized rolling expansion lengths at low cost even for small quantity.

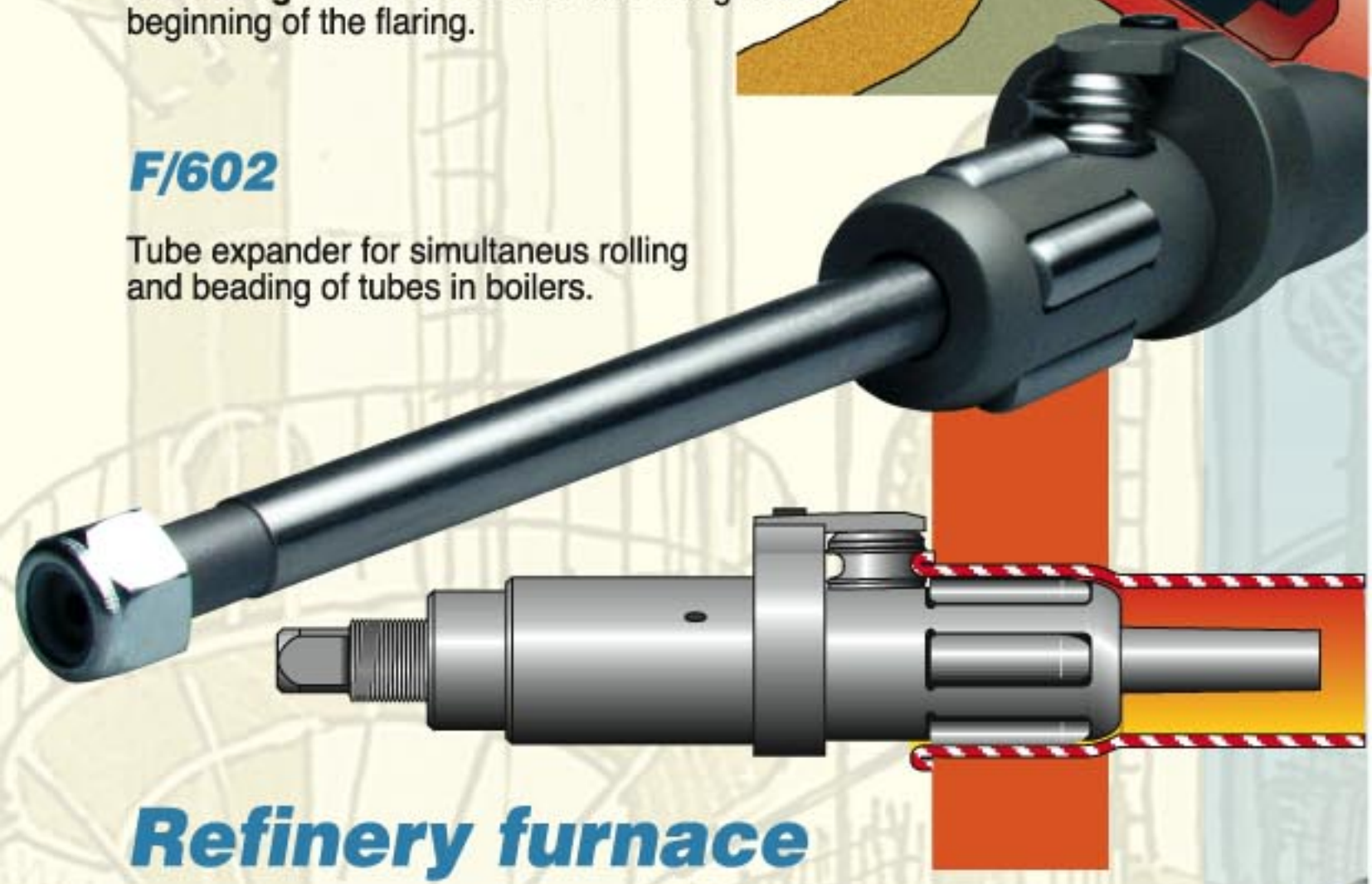




• Upon request, the tube expanders ***CH*** and ***DH*** can be manufactured with **expanding rolls** and **flaring rolls** to reduce the tube lining at the beginning of the flaring.

F/602

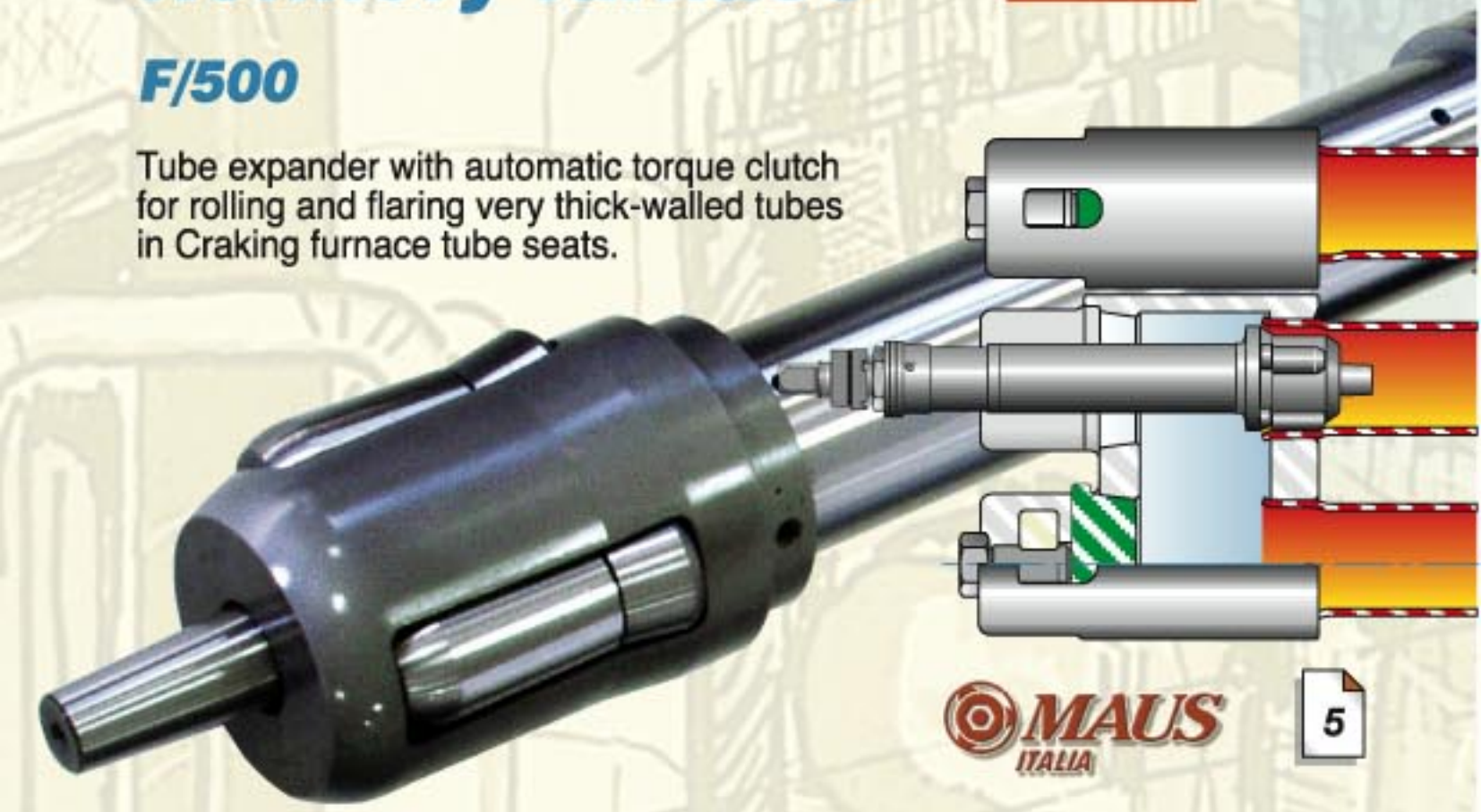
Tube expander for simultaneus rolling and beading of tubes in boilers.

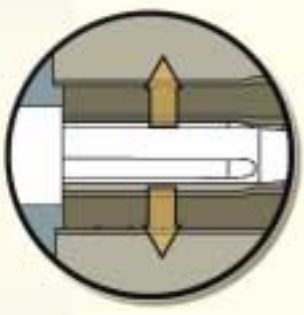


Refinery furnace

F/500

Tube expander with automatic torque clutch for rolling and flaring very thick-walled tubes in Craking furnace tube seats.





Rolling expansion

Sugar plant

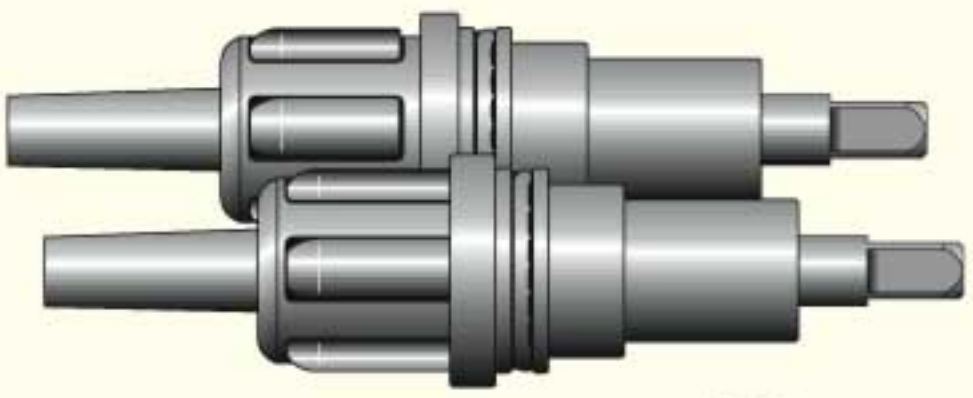
VP/100 - SG/100

Tube expander for vacum pan sugar boiler with parallel or inclined tube-sheets.

Milk & accessories

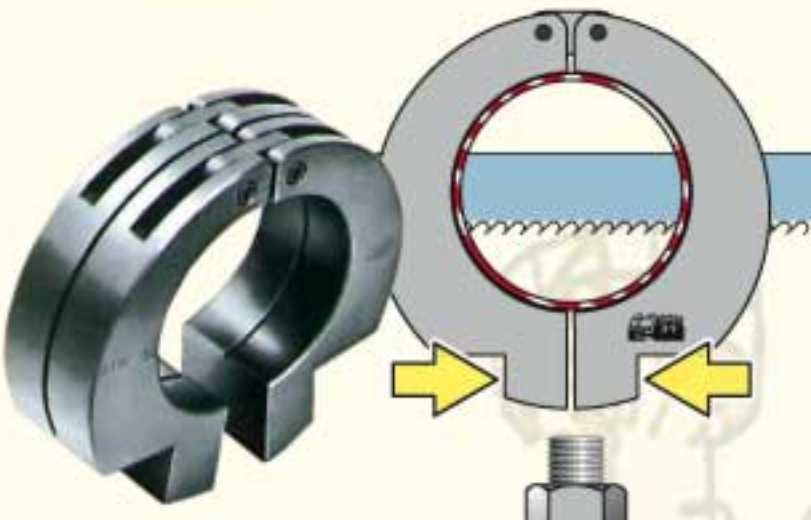
DIN - BS

Tube expander with **5 rolls** for stainless steel tubes and bends.



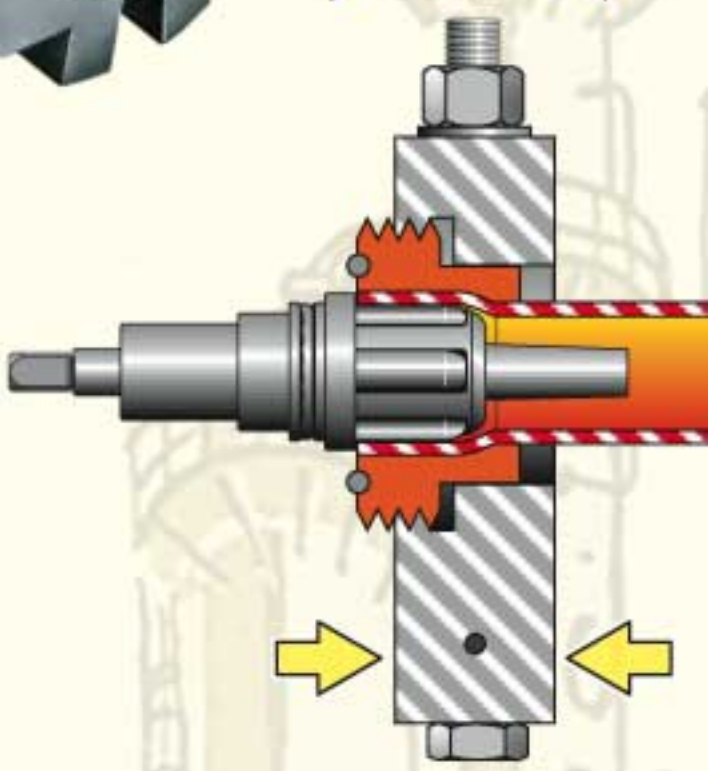
MTT/DIN - BS

Clamping lugs for cutting tubes from 25 DIN to 100 DIN.
Clamping lugs for cutting tubes from BS 1" to BS 4".



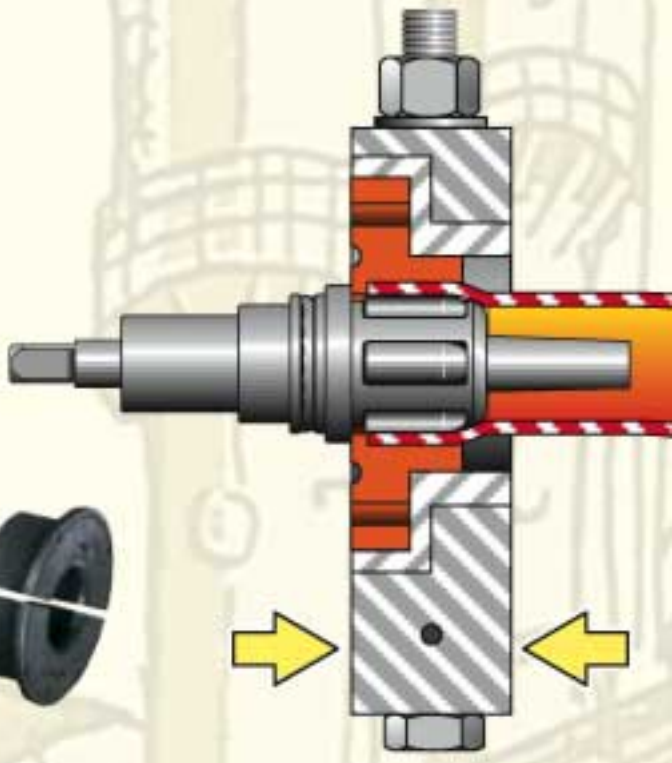
MSS/DIN - BS

Single clamping lug for rolling tubes from 25 DIN to 100 DIN and from 1" BS to 4" BS.



MSM/DIN

Multiple clamping lug for rolling tubes from 25 DIN to 50 DIN, with interchangeable rings.



Valves

Tube expanders for valves DN - BS

Special

Maus Italia designs and manufactures customized tube expanders upon customer's specifications combined with the experience of its designers.

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Facing

Tubend

Maus Italia proposes three systems for machining the tube ends of tube bundles.

•Tool•

Machine tool to be used on Maus Italia tube rolling equipment.
A system of tools with separate electric or pneumatic motorizations, for the facing, bevelling and removal of welding from tubes.

The **F/796** is particularly suitable for tube protrusion exceeding 20 mm. In one movement it removes the whole piece of the tube in excess.

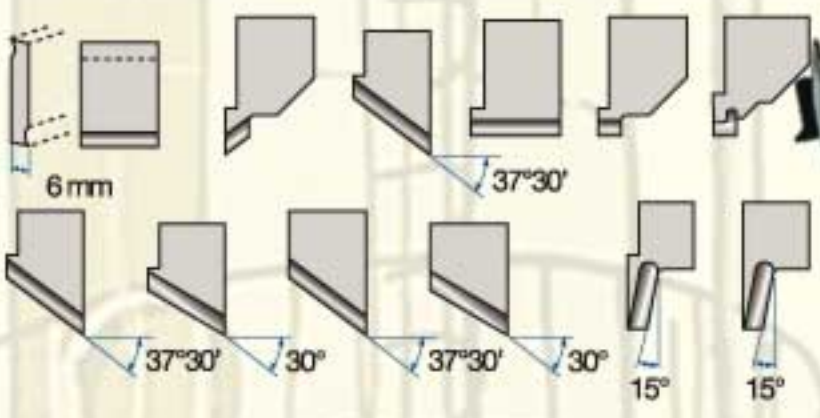
The **F/751R** faces the tubes after tube expansion at the same protrusion. The rotating bell protects the surface of the tube sheet from machining marks.

The **F/752** is to be used in the preparation for welding or to face boiler tubes. It is also useful in the maintenance of welded tube boilers for removing the weld bead.

The **F/753** removes the cutting burr and at the same time creates the internal and external bevel, facilitating the entrance or exit of the fluid.

•Mac•

A range of portable facing machines.
Portable pneumatic machines for the facing, bevelling and removal of welding from tubes in automatic or semi-automatic version.



•Matic•

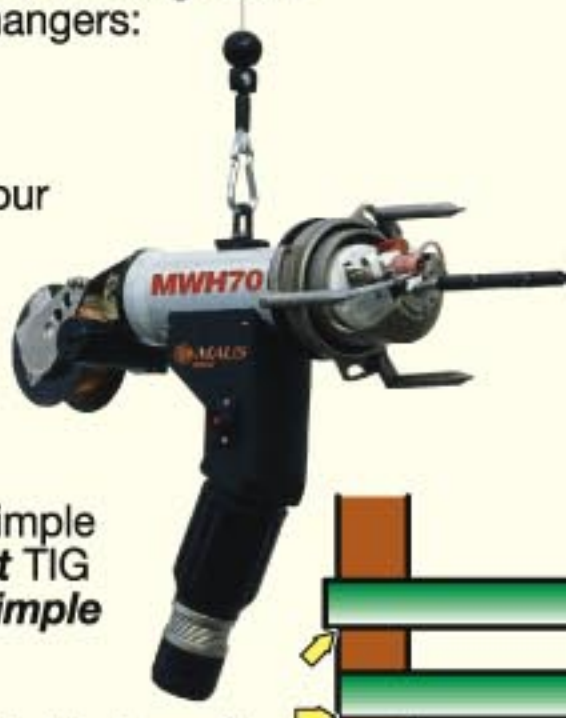
NC Work centre **MA-2500** for facing tubes, uses milling widia bit tools that can be replaced.

Tubweld

Maus Italia offers three TIG ***orbital*** welding systems systems for the ***tube to tube-sheet and tube to tube*** orbital welding in the manufacture and maintenance of heat exchangers:

- 2 ***semiautomatic systems***
- 1 ***fully automatic system***

Maus Italia specialized technicians are at your disposal to suggest the ideal solution for any type of welding.



Basic-S

Basic portable unit conceived for simple applications for ***tube to tube sheet*** TIG orbital welding. It is ***economical***, ***simple*** and ***sturdy*** and is composed of:

- ***MW-240 group*** on a wheel-mounted trolley with:
  - inverter power source
  - head digital analog programmer
  - cooling unit
  - digital remote control for setting time and ampere
  - remote control for manual controls (cycle start, stop, emergency)
  - motor driving modules

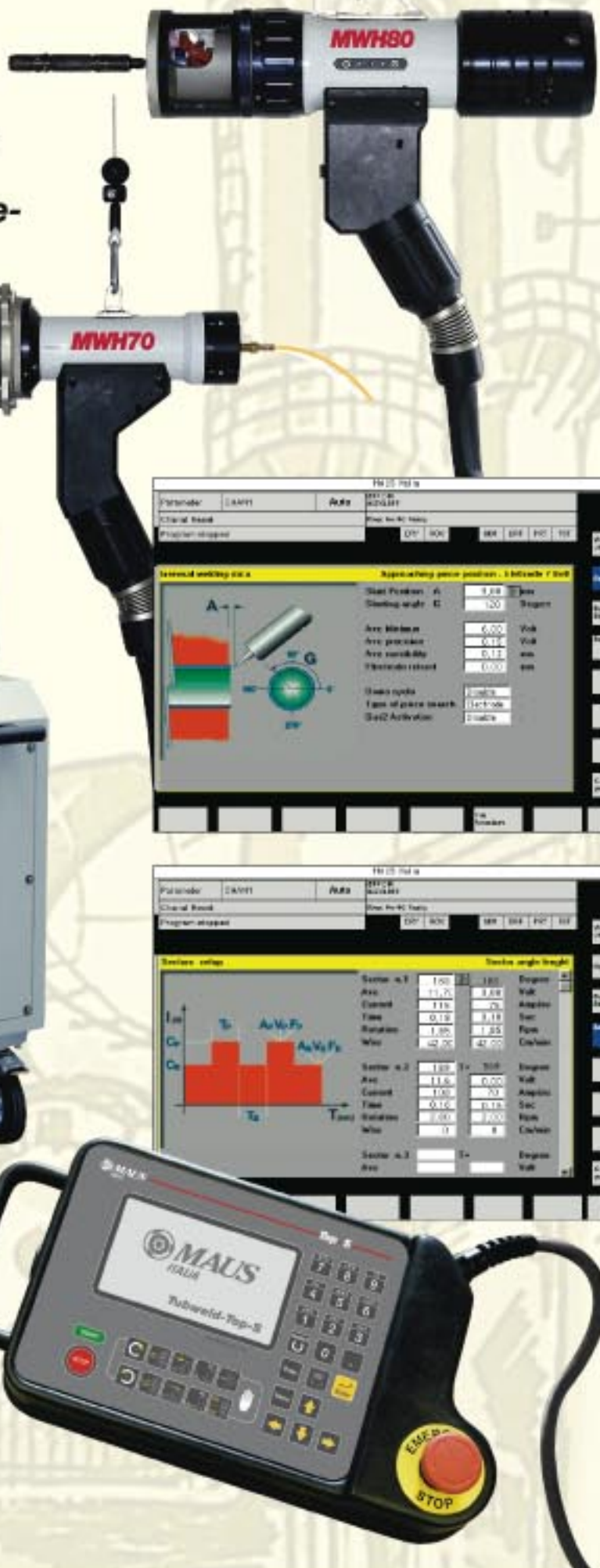
- ***MWH70 welding head*** for ***tube-tube sheet*** welding.

Top-S

Is the professional solution conceived to meet quality, control and repeatability-related needs for ***tube to tube and tube to tube sheet*** TIG orbital welding in heavy productions. It is composed of:

- ***MW-280 wheel-mounted control board*** with superior protection suitable for heavy duty welding cycles; it includes:
  - inverter power source
  - CNC digital programmer with LCD screen, program memory
  - cooling unit
  - remote control
  - motor driving modules
  - Gas management module

- ***MWH welding head*** to be selected among the following models:
  MWH80, ***MWH80M*** for ***tube-tube sheet*** welding.



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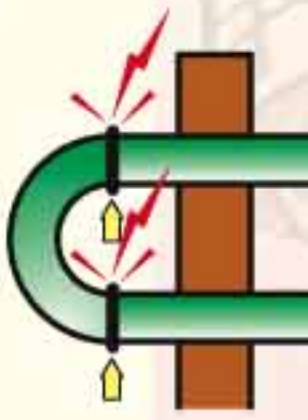
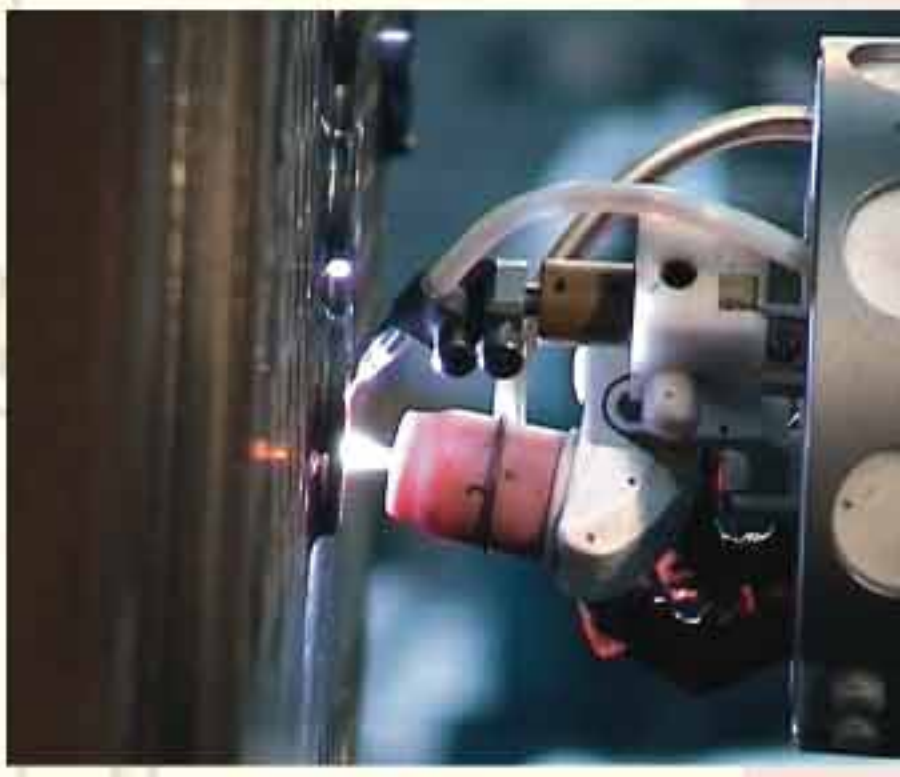
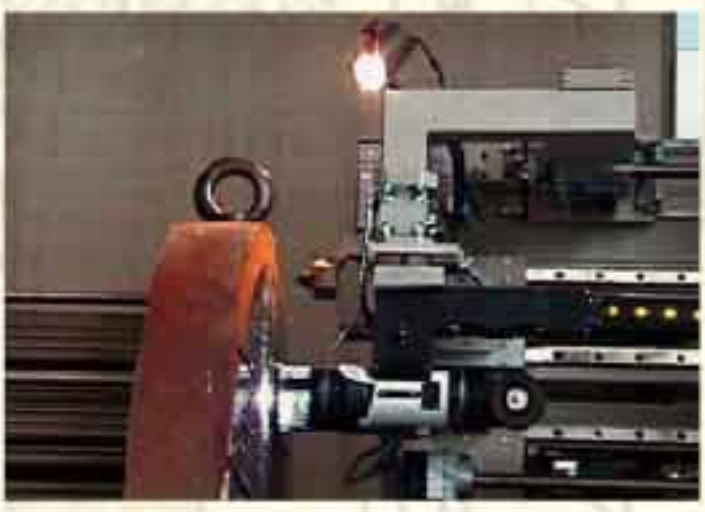
MWH33, ***MWH34***, ***MWH35***, ***MWH35M***, ***MWH36***, ***MWH36M*** for ***tube-tube*** welding.



MaTIG

Is the ideal solution for the complete automation of the ***tube-tube sheet*** TIG orbital welding cycles. This system, already widely used in the ***MA2500*** working centers, is proposed for welding exclusively with one or two heads.
All welding and positioning parameters are set through operating system with the latest graphic and multi-tasking features.
The full optional version is composed of **6** CNC-controlled axes which make it possible to weld **2 tubes simultaneously**.





- Up to 250 welding/hour
- Fully automatic simultaneous orbital welding cycle of 2 tubes
- Elimination of the head centering and positioning mechanical devices
- Automatic positioning error compensation with laser sensor
- CNC-controlled electrode-workpiece distance management and control with continuous compensation (AVC).
- Programming graphic interface

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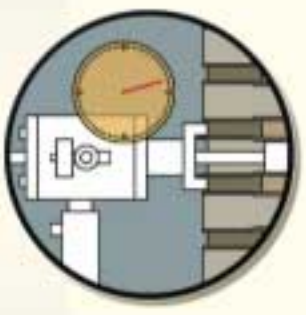


Testing

Tubetest

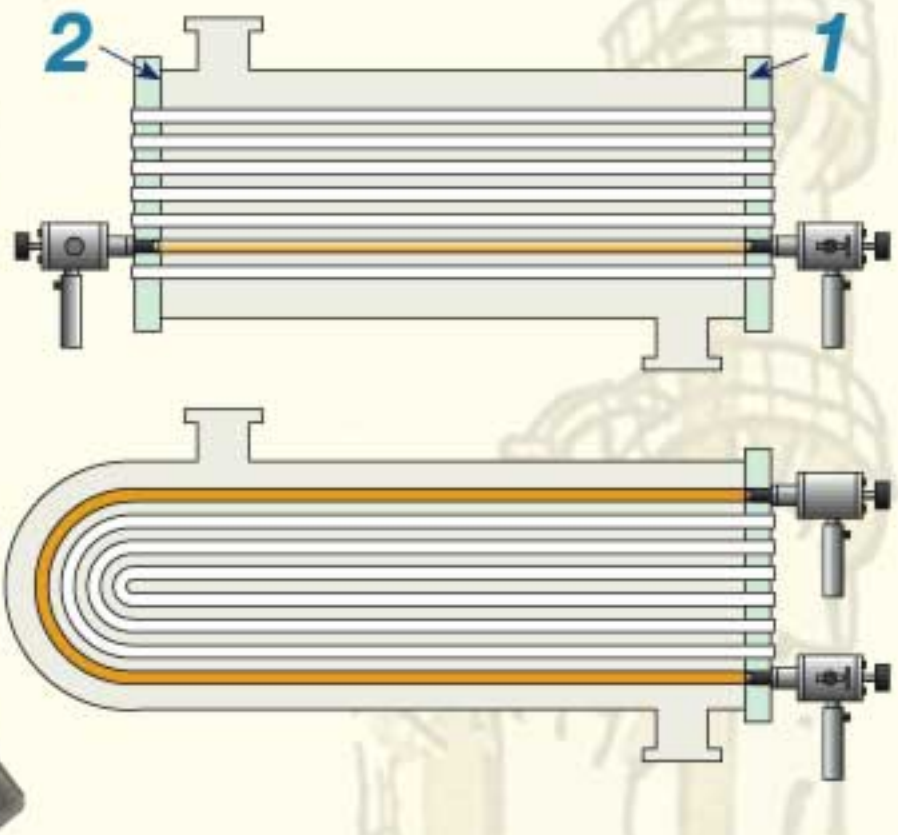
Pneumatic testing guns for tubes

With a view to solving the problem of pneumatically testing the leakage in the tube and in the junctions between tube and tube sheet in heat exchangers when *assembled , operative or in use*, Maus Italia proposes the guns of the **G** series which are fast, efficient, easy to use and to handle.

G-150

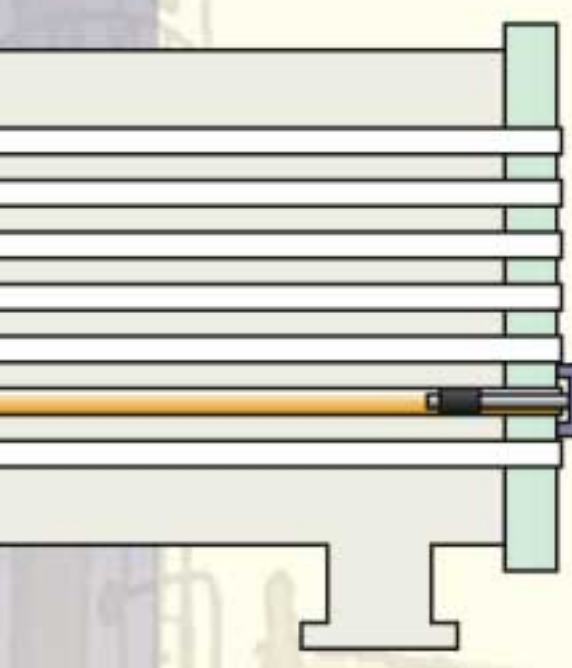
It is used to test single lengths, U-shaped tubes, or tubes with only one end open; the kit is composed of an air gun and a tube plugging gun (in case of tubes open at both ends). They have been conceived to pneumatically test the leakage of the smallest hole. They weigh 1 Kg approx.as they are made in aluminium; they make it possible to test tubes with ID from 0,280" to 1,230".

After making **the gaskets of both guns expand simultaneously** and after the pressure has **stabilized** inside the tube, every small leakage is easily detected.

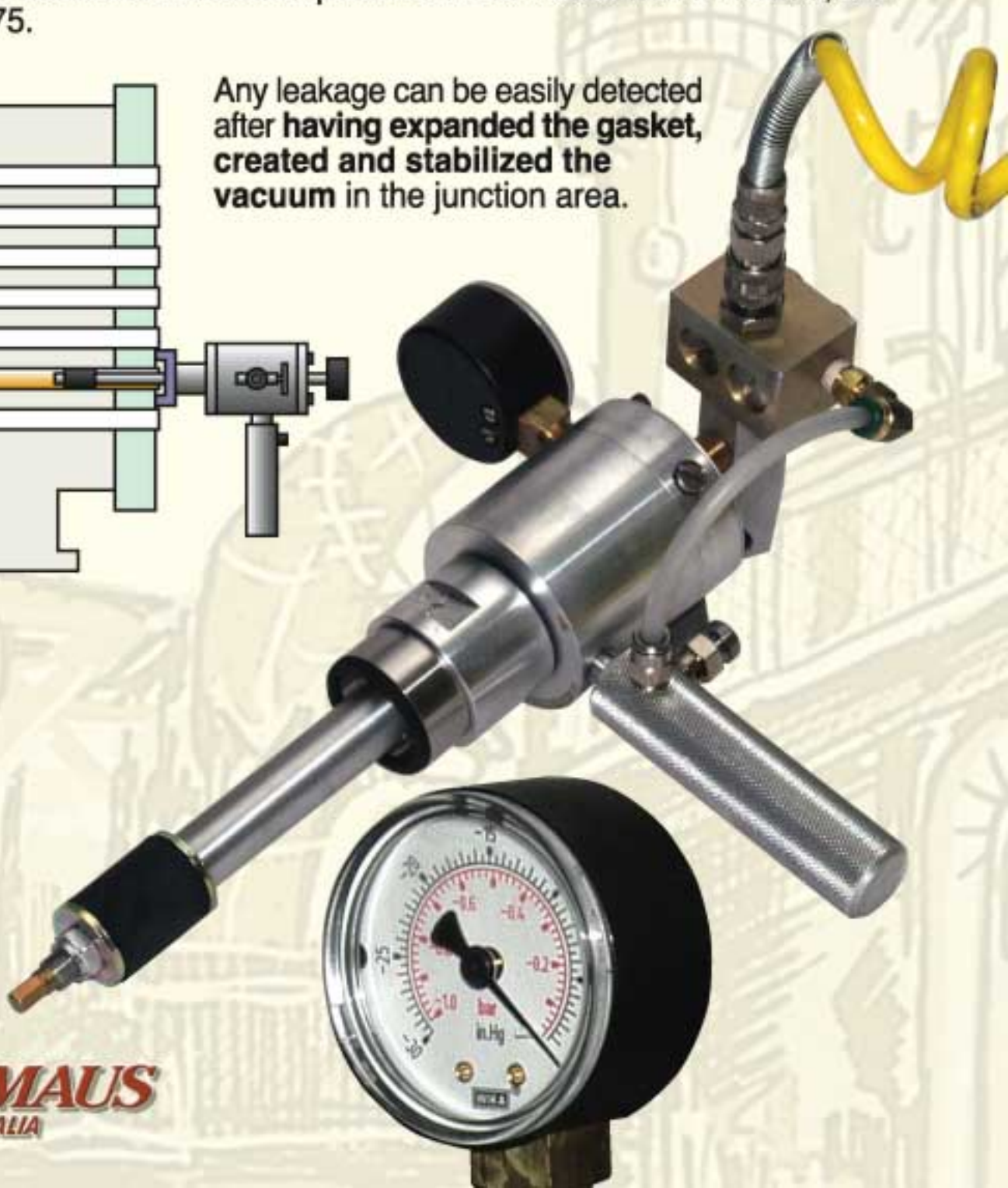


G-650

This gun is referred to as a vacuum gun as it has been conceived to test the gasket between the tube and the tube-sheet creating a vacuum in the junction area between the two parts.
This gun weighs 1 kg approx.as it is made in aluminium, it is very easy to handle and makes it possible to test tubes with ID from 0,250 to 2,375.



Any leakage can be easily detected after **having expanded the gasket, created and stabilized the vacuum** in the junction area.

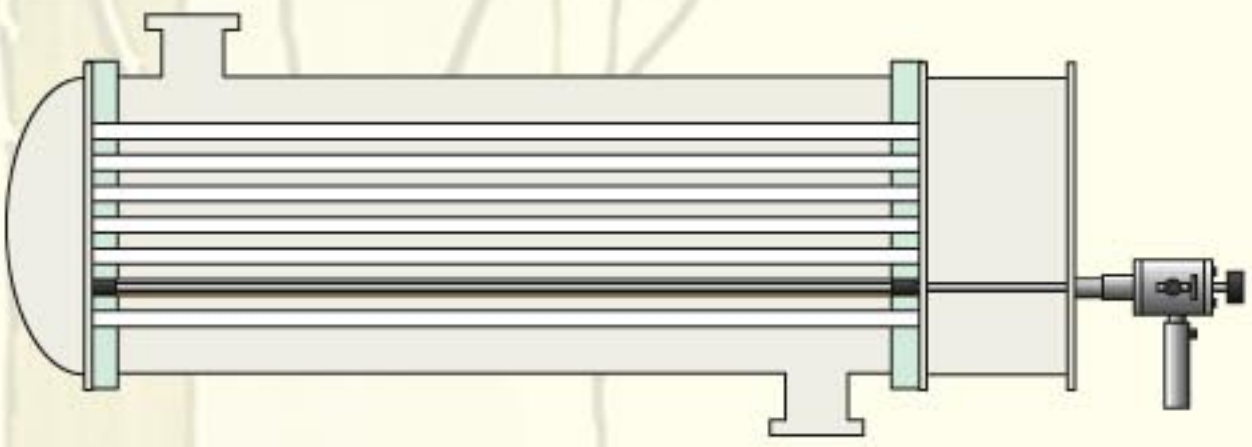


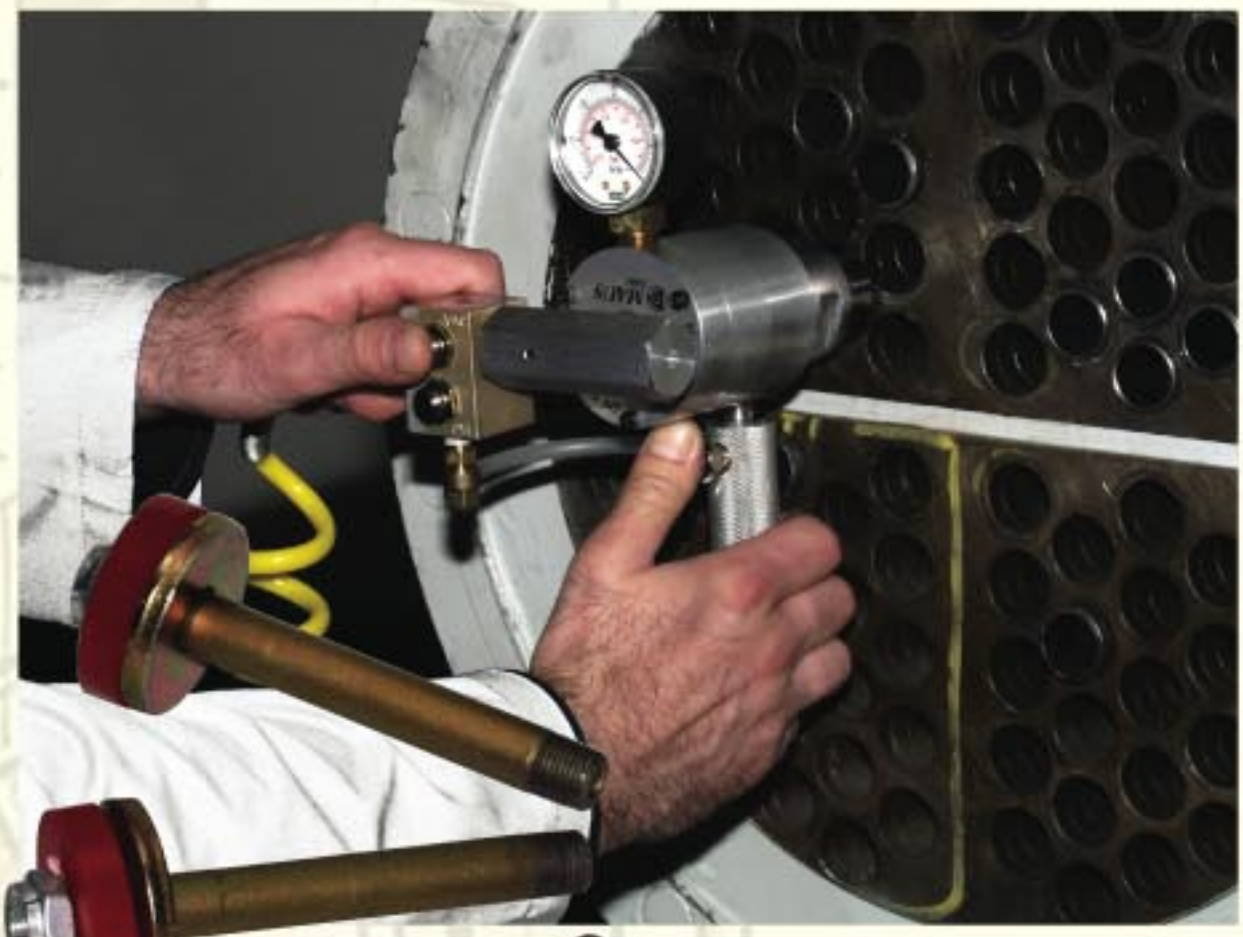
MAUS ITALIA

G-450

Conceived to test **an entire tube** when it can be accessed **only from one end**. It is supplied with a connection and fixed test length; it is available in lengths from 2 to 6 feet (from 0.61 to 1.83 mt.).
The test length can be assembled up to a length of 24 feet (7.32 mt.)
It weighs 1Kg approx. as it is made in aluminium; it is very easy to handle.
Tubes with ID from 0,480 to 1,230" can be tested.

After inserting the entire test length and **expanding the two gaskets at the ends and after the pressure has stabilized** inside the tube, the slightest leakage will be easily detected.





Holetest

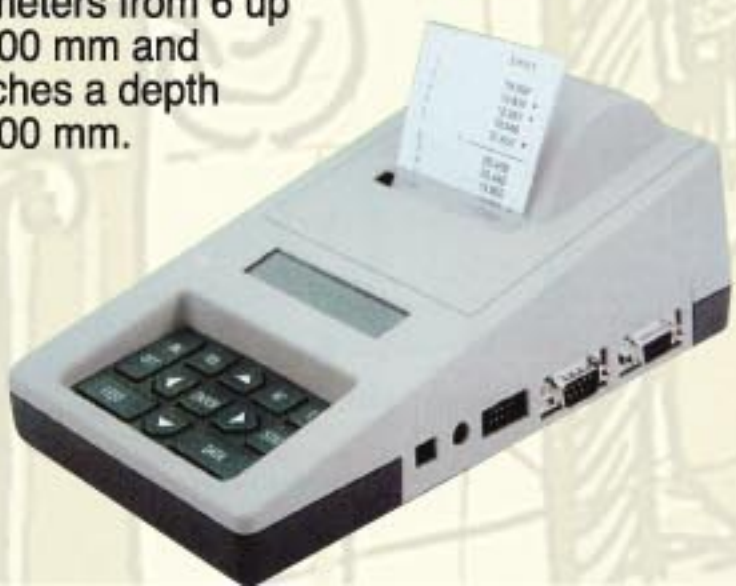
Inside testing micrometer caliper

F/700

mechanical solution with **2 points**.

F/703

digital solution with **3 point** which measure diameters from 6 up to 100 mm and reaches a depth of 500 mm.



MAUS ITALIA

Cutting

F/794

The tube cutter for tubes from 1/2" to 1,1/2" designed to be used in maintenance of heat exchangers and boilers, allows the cut of 3-4 mm thick tubes made of high resistance material.

The tool is operated by a portable **electric** three-phase low voltage 42V **motor** or by a pneumatic motor.

Motor operated tube cutter

BundleCut 2000

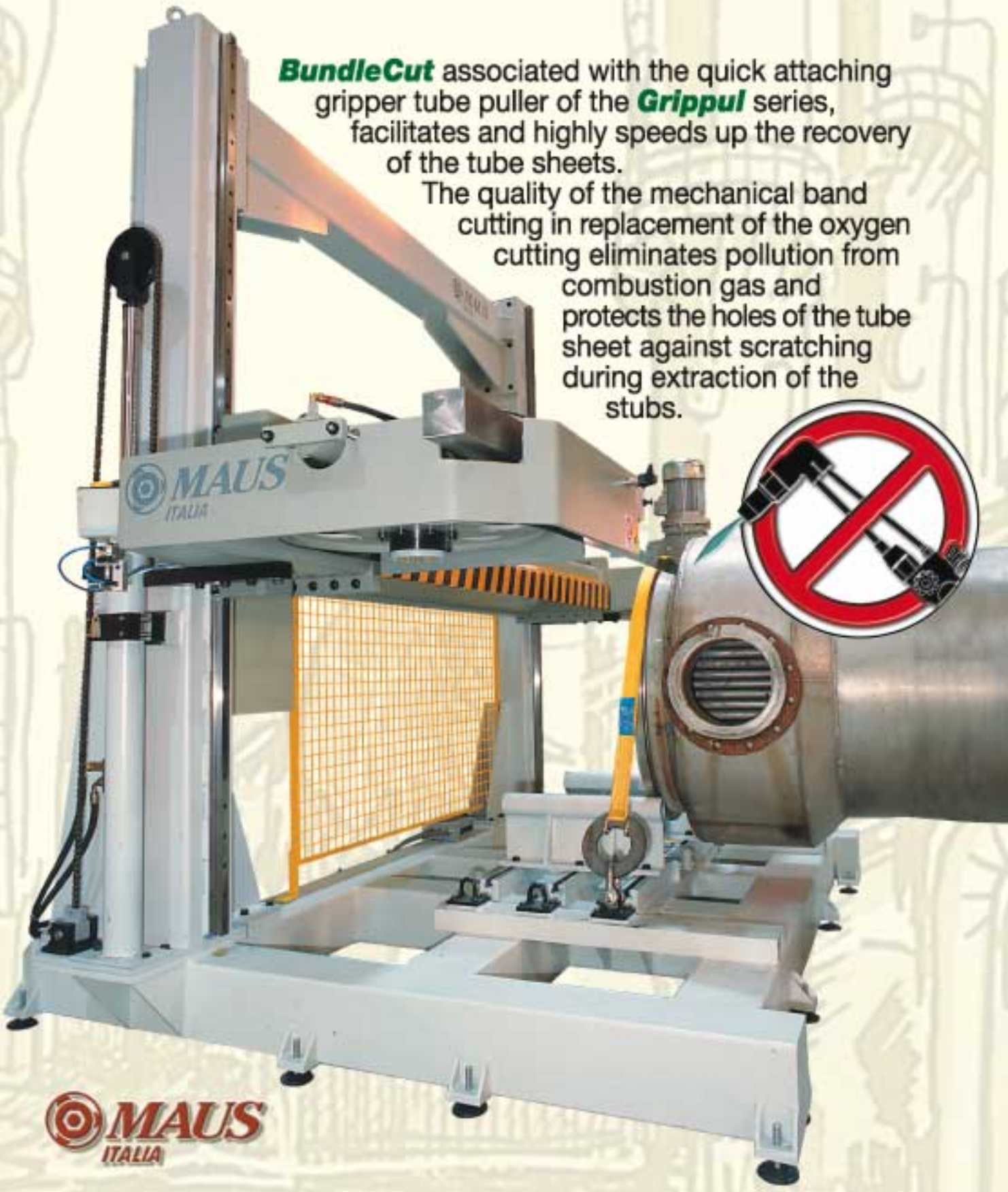
Band saw for the dismantling and recovery of heat exchanger tube bundles.

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.

Band saw machine

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

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.



MAUS ITALIA

Cutting

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

Fastening
The heat exchanger is fastened with an anchoring belt with tightener.

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

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

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

Band saw machine

Pulling

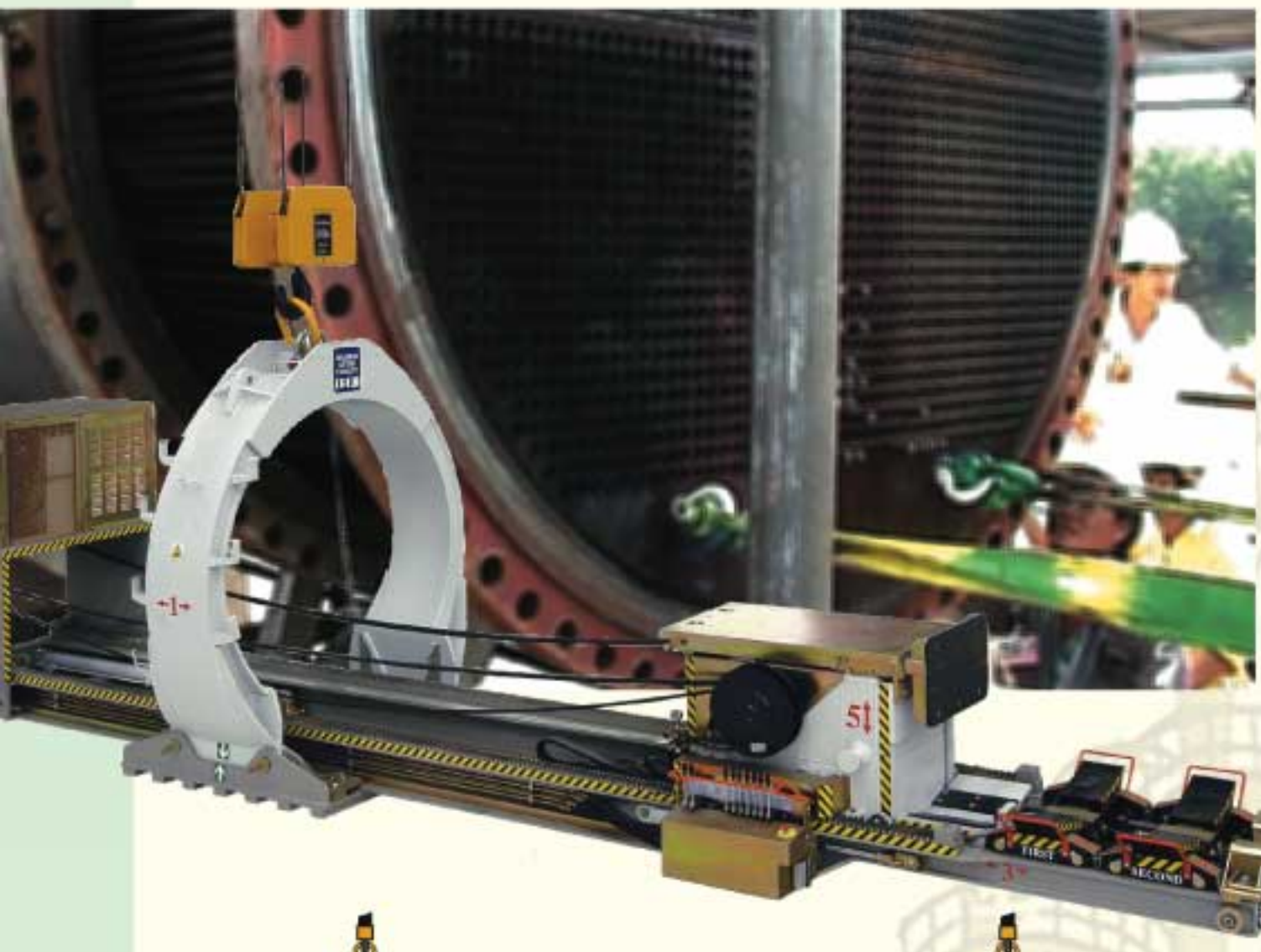
Mef express

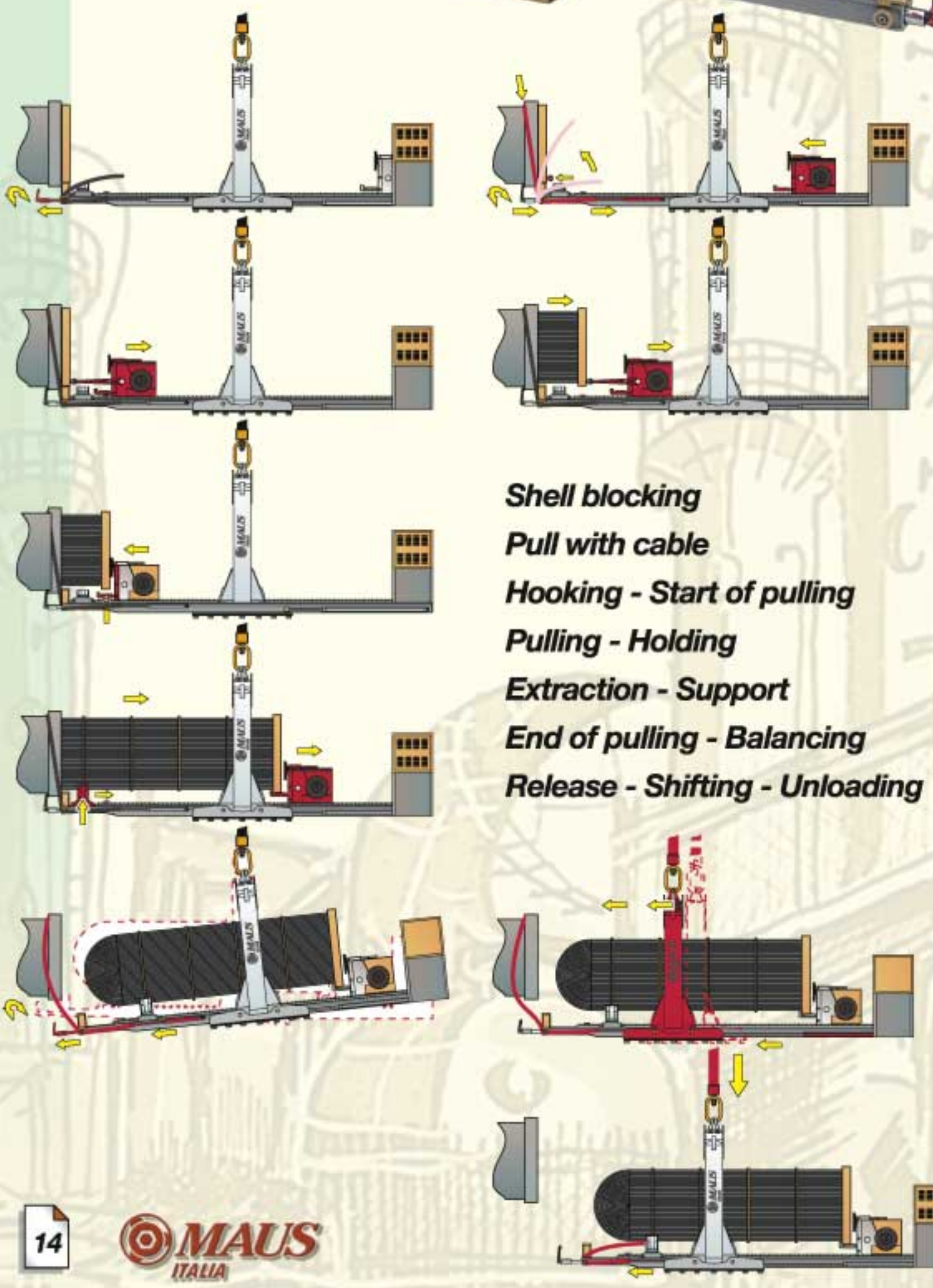
Quick hooking tube bundles puller

It is the quick hooking version of the already existing ***Mef*** model. It has been entirely designed and manufactured by Maus Italia for the maintenance of heat exchangers tube bundles in petrolchemical plants.

The hydraulic hooking of the tube plate makes it possible to quickly inıisert and pull out the tube bundles when the refineries are at a standstill with a consequent work time reduction.
The great solidity and sturdiness of the structure as well as the innovative improvements make this machine an extremely reliable work tool.

Mef express puller is proposed in three dimensions according to the weight, the length and diameter of the tube bundles. A portable console enables the remote control of all the operations with consequent reduction in the personnel and increase in the final safety margins. In the diesel version a console with cordless remote control is available. It is supplied with diesel or pneumatic motorization.





Shell blocking

Pull with cable

Hooking - Start of pulling

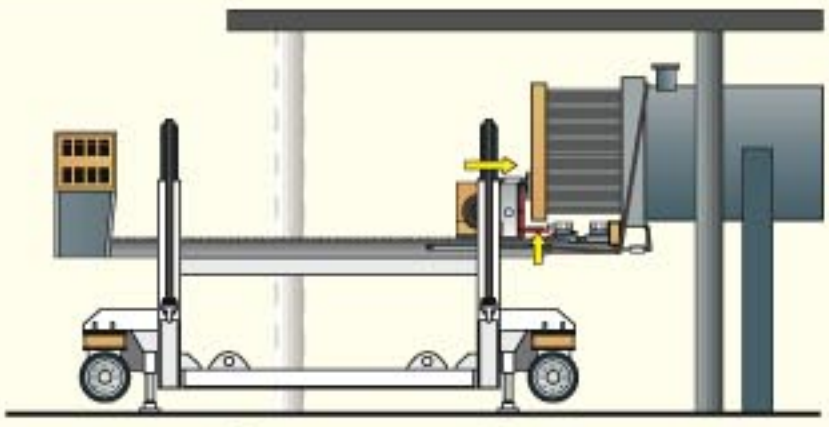
Pulling - Holding

Extraction - Support

End of pulling - Balancing

Release - Shifting - Unloading

MAUS ITALIA



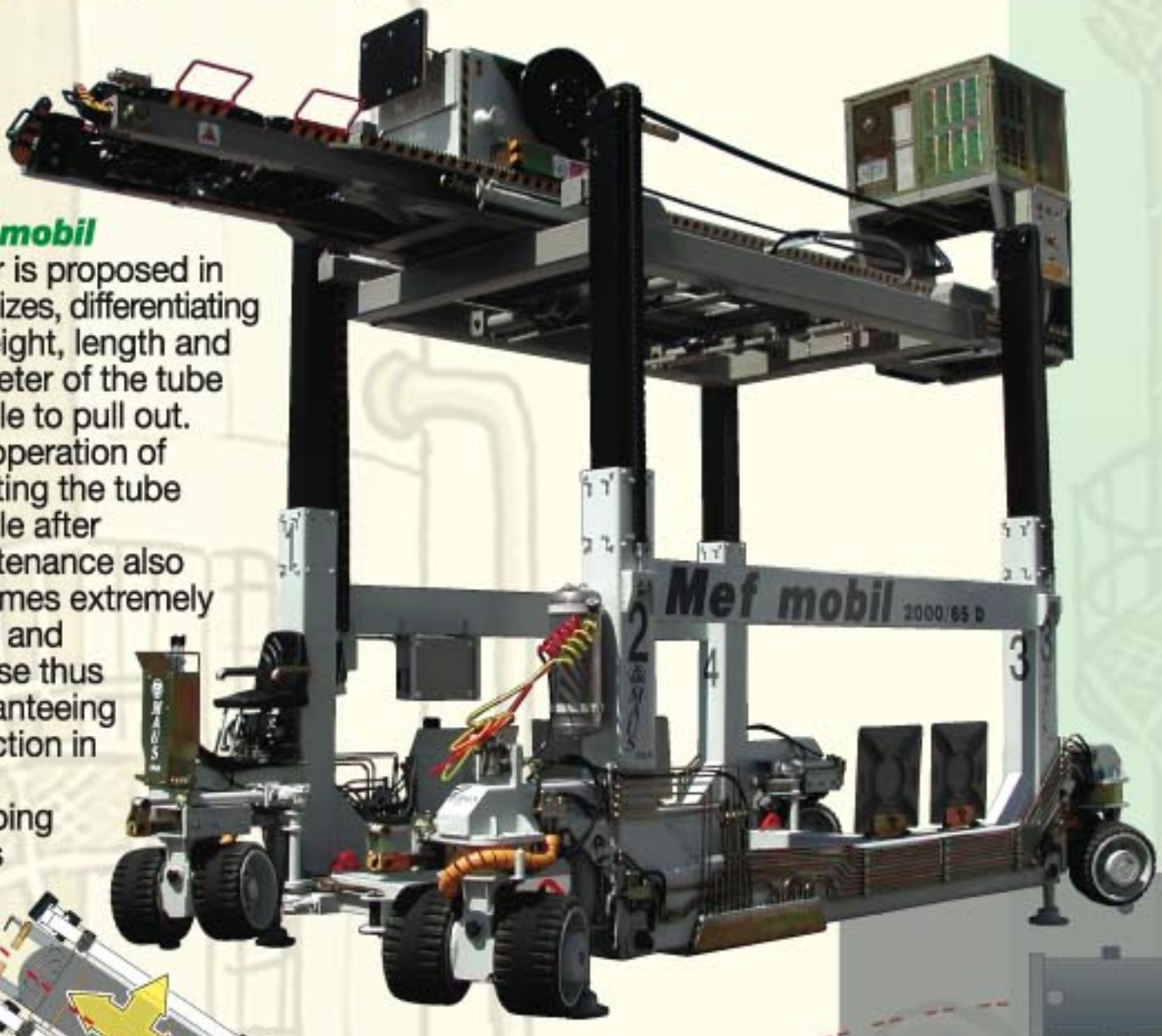
Mef mobil

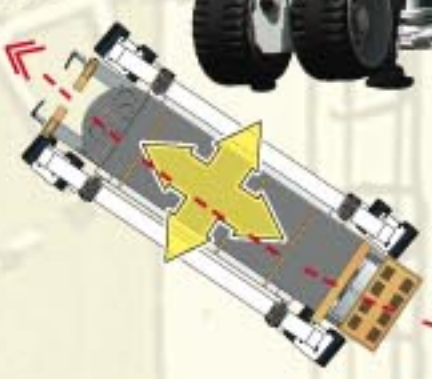
Self-positioning Puller, remote controlled for extraction, hoisting and movement of tube bundles.

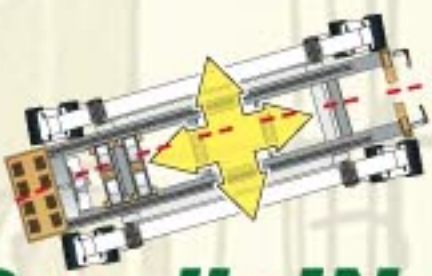
It has been designed for cases of difficult access, is completely self-sufficient, as is presented as a global solution in petrochemical plants for the extraction of tube bundles up to 4.2 mt in height.
The tested rapid quick-hooking system ***Mef express*** is used for the extraction and insertion of the bundle.

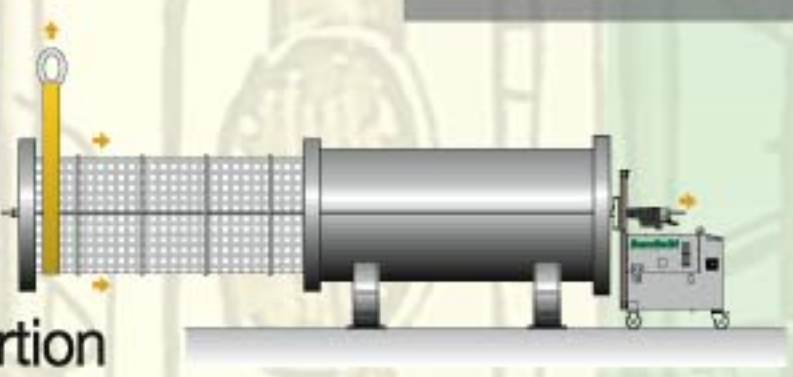
The ***Mef mobil*** puller operates autonomously without the assistance of a crane for positioning and hoisting or trucks for transport to the tube bundle maintenance area after extraction.
It is solid, robust and stable and autonomously raises to a height of 4.2 mt enabling a rapid and precise approach to the heat exchanger.
The use of the portable remote control (cordless also available), can control all the operations, leading to the inevitable reduction in personnel and increasing the final safety margins.

The ***Mef mobil*** puller is proposed in two sizes, differentiating in weight, length and diameter of the tube bundle to pull out.
The operation of inserting the tube bundle after maintenance also becomes extremely rapid and precise thus guaranteeing reduction in plant stopping times









BundleIN

Automatic machine for insertion

hydraulic equipment for bundle insertion in the heat exchanger shells model ***BundleIN*** composed by:

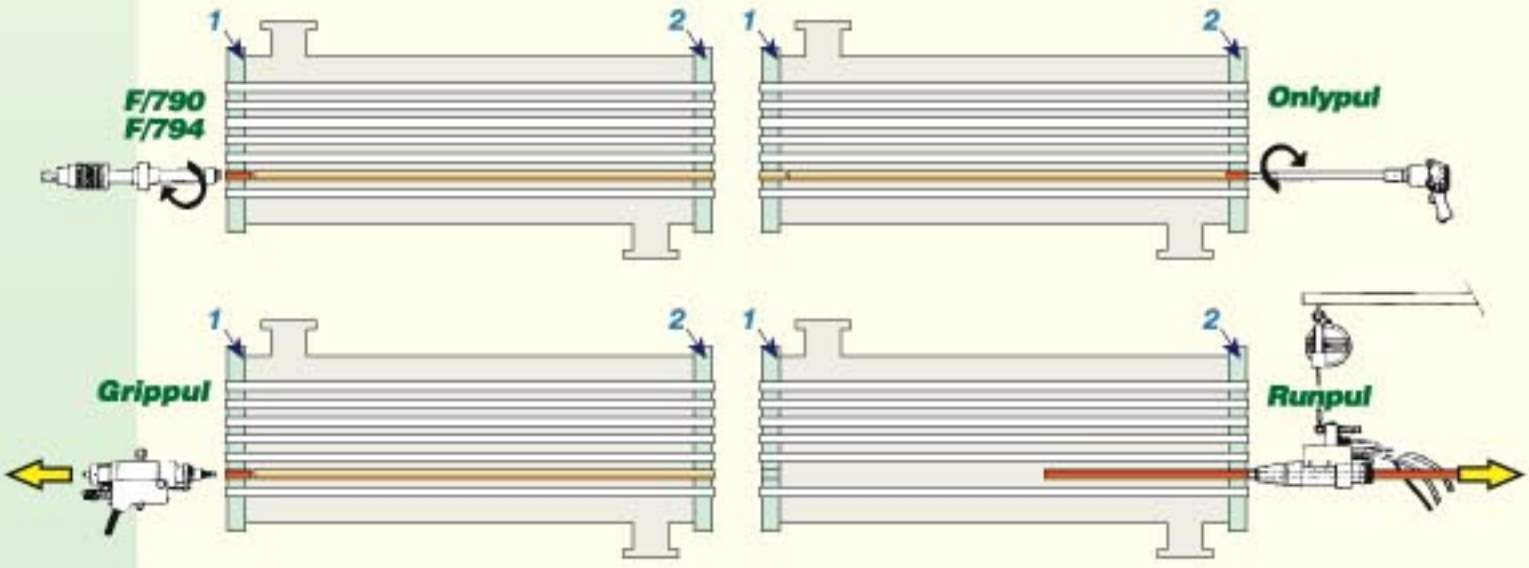
- suitable for an **unlimited range** of bundle length
- complete unit on trolley assembled;
- hydraulic unit c/w variable delivery pump, control and pressure regulation valves;
- pulling force adjustable **up to 60 tons**.;
- remote control with 5m cable;

MAUS ITALIA

MTP

Unit for the continuous pulling of tubes from 1/2" to 4"

For pulling out tubes from heat exchangers in oil refineries, condensers in power plants, from boilers in sugarplants boilers, Maus Italia offers six different pulling units equipped with different hydraulic pump units in pneumatic or electric version and three different pulling units equipped with the three following guns:

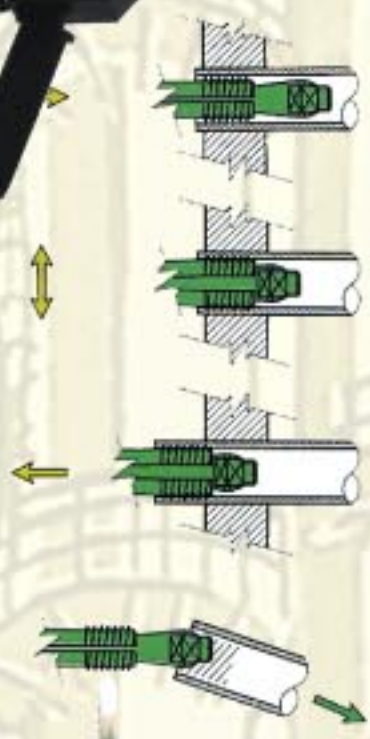


Onlypul

Tube semiautomatic hydraulic puller. It is cheap, easy to handle and suitable for small maintenance interventions.

Grippul 11

Quick attaching gripper tube puller.
It is cheap, handy and suitable for small maintenance interventions. It has been conceived to quickly pull tube stubs out of the tube sheets. It is available in the 10-20-30 versions for tubes having different diameters and extraction power.



Runpul

Automatic hydraulic tube puller
It is equipped with an automatic device for the continuous pulling of tubes at high speed; it is suitable for big maintenance interventions in condensers and heat exchangers.

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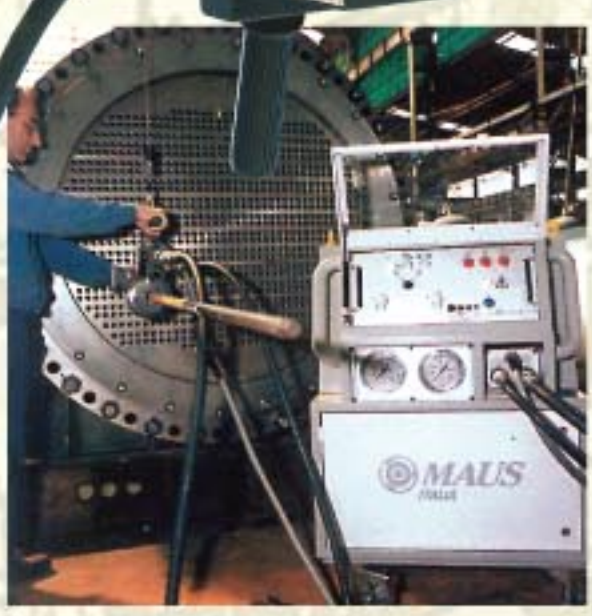


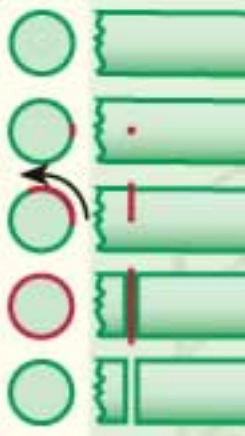
MAUS ITALIA

Cheaptool

Tools for the manual and cheap maintenance of the tube in heat exchangers

F/790

One revolution **tube-cutter**, adjustable reach from 50 to 150 mm. It has been conceived for hand use with a tap wrench and its functioning is based on the **eccentricity** of the blade.



F/791

High-speed steel (**HSS**) reamers with Morse taper connection.
To be used to reduce the thicknesses of tubes to be replaced for a depth of about 80% of the thickness of the sheet.

F/792

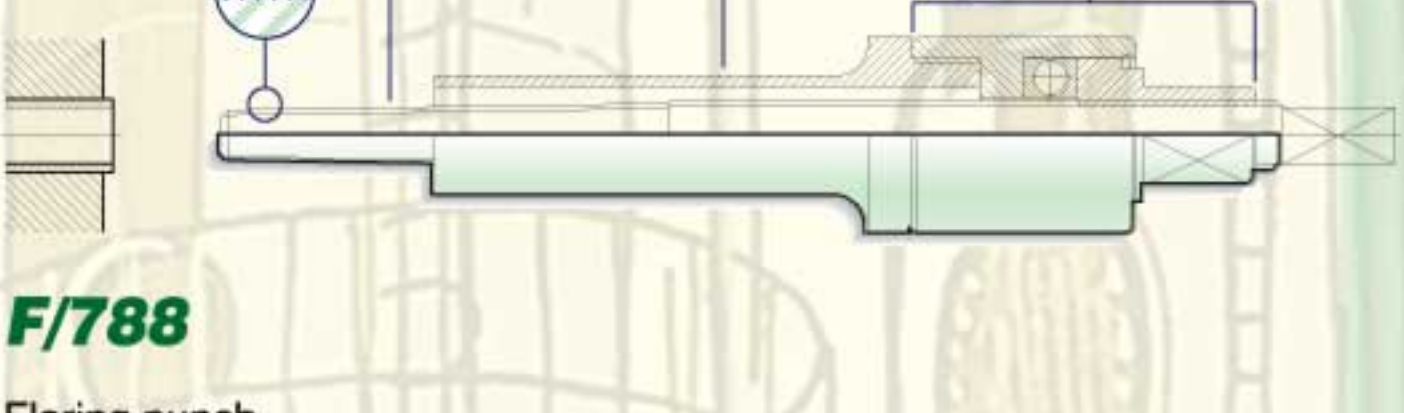
Tube collapsing tool used for crumpling tubes of non-ferrous alloys or ferrous alloys made lighter with the use of the reamer ***F/791.***

F/793

Tube expeller to be used preferably with a pneumatic hammer.

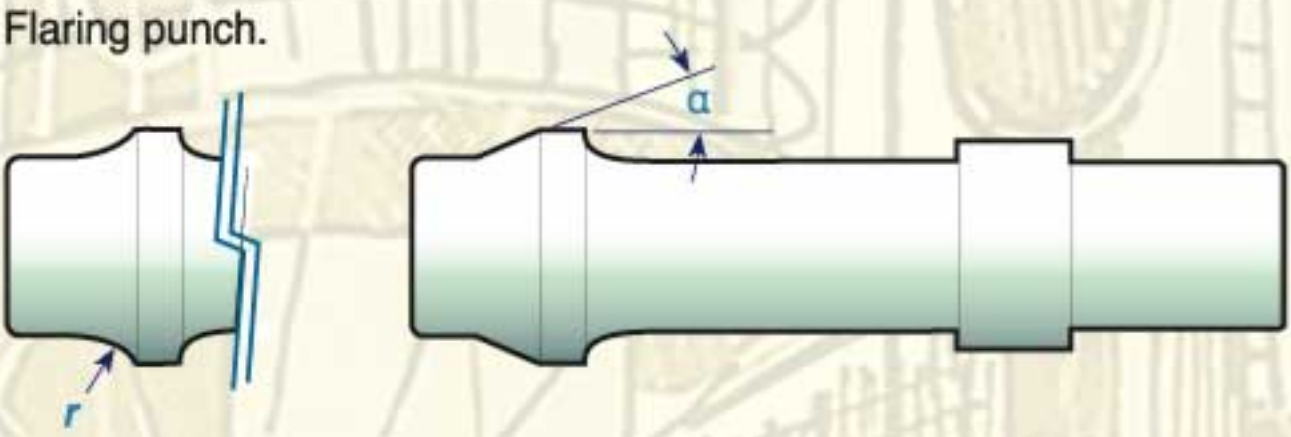
F/800

Manual puller



F/788

Flaring punch.



F/789/1 - F789/2

Two pneumatic hammer specific for ***"Cheaptool".***
/1 For flaring punch.
/2 For tube collapsing and tube expeller tools.

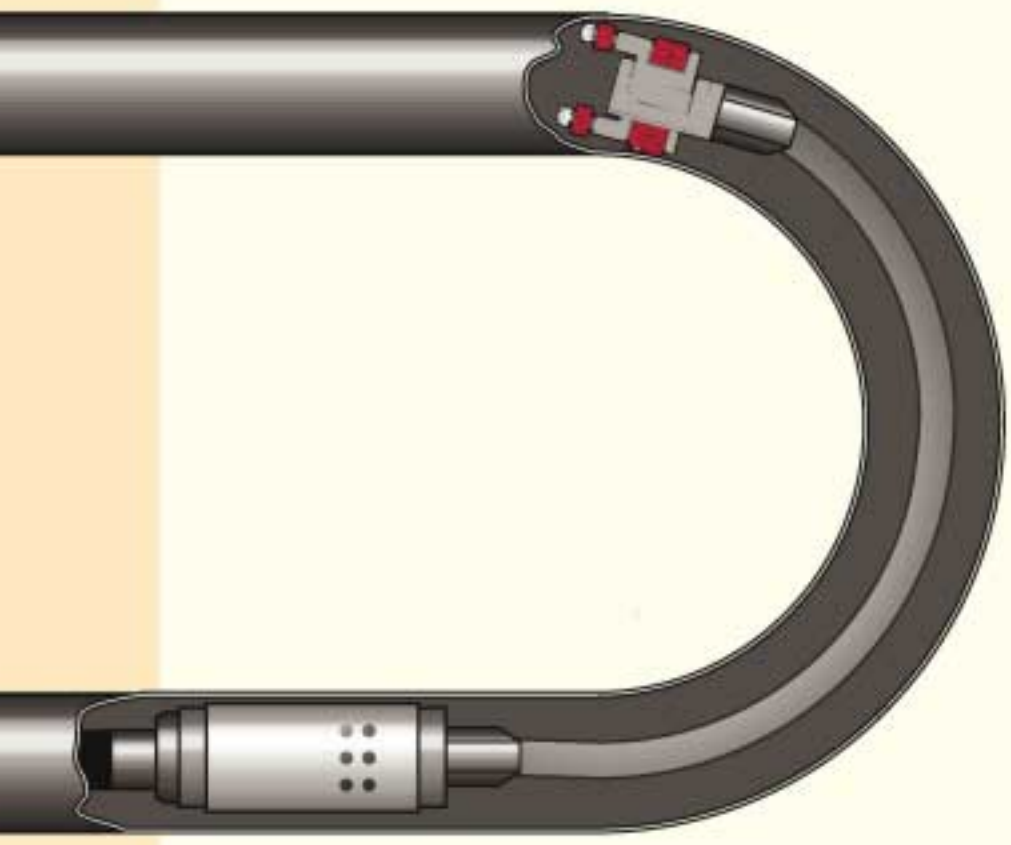
Cleaning

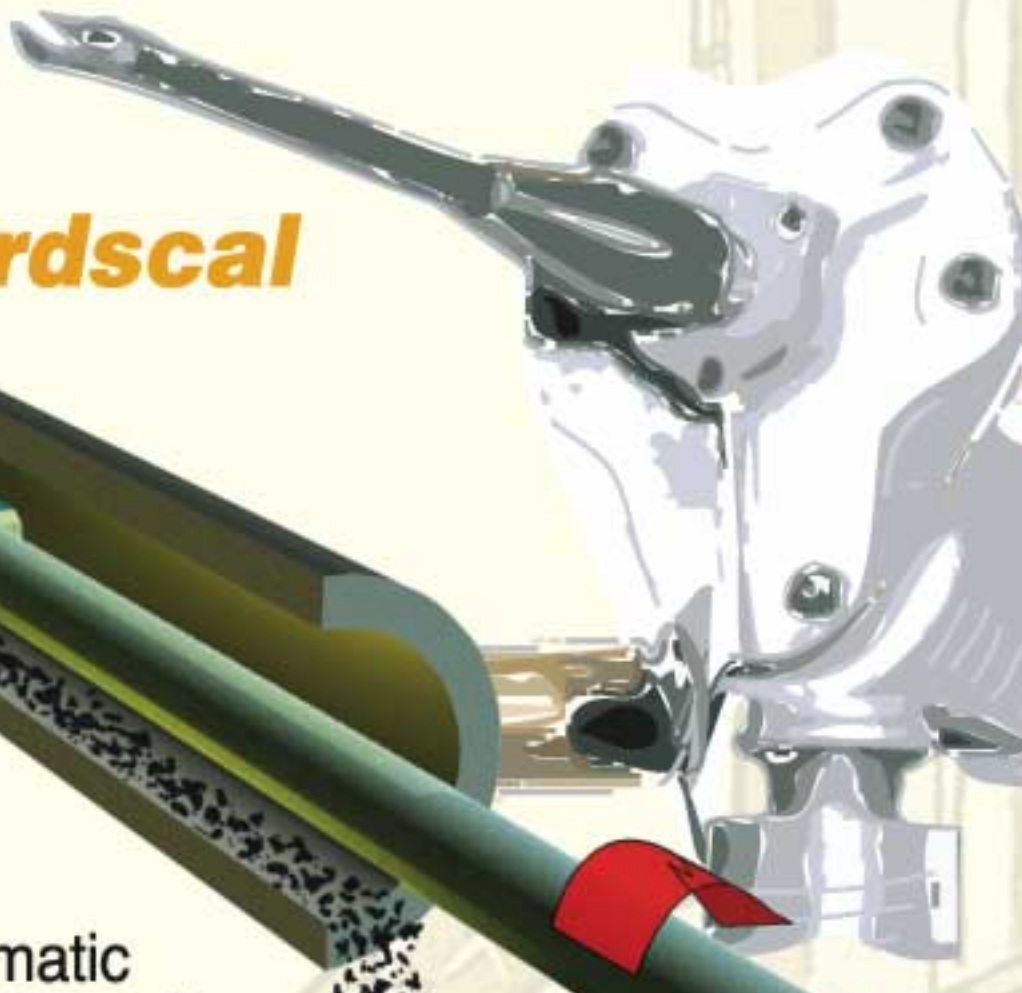
Flescal

Pneumatic and electric scaling equipment

Have been designed for the correct maintenance and inside cleaning of boilers pipes, exchangers, refrigerators, condensers, and also of pipes and tubes in chemical and food plants and so on.

MAUS ITALIA has different kinds of scaling units to propose: pneumatic and electric, turbine and flexible shaft version, according to the needs. A complete range of accessories and tools for dealing with the most varied problems.





Hardscal

Pneumatic descalers with stiff extensible rods for heat exchanger tubes.

They are equipped with a tool water cooling system and they are the simplest and most effective solution for descaling heat exchanger tubes, even totally clogged tubes.

MAUS ITALIA

Idroscal

Hydrodynamic descaler for heat-exchangers, with electric motor.

Our high pressure hydraulic descalers for heat exchangers are an indispensable supplement to our already wide range of machines for use in the chemical industry, refineries and petrochemical plants.

We supply our descalers already assembled on a mobile four-wheeled unit and are complete with all the devices and high quality components necessary to guarantee absolute safety, resistance and perfect operation.

The ***Idroscal*** model has a triplex plunger pump, manometer and mechanical pressure gauge, safety valve, coupling joint and joint cover, piping and fittings.

Idre and Idri

The equipments designed for the automatic cleaning of the complete tube bundles, working in combination with the high pressure cleaning pumps ***Idroscal***.

Idre *Robot for external bundles cleaning*

Idri *Robot for internal bundles cleaning*

Plug

F/785

Tube plug composed of ring and tapered pin in carbon steel (CS), brass (B), stainless steel (SS) or aluminium (AL).

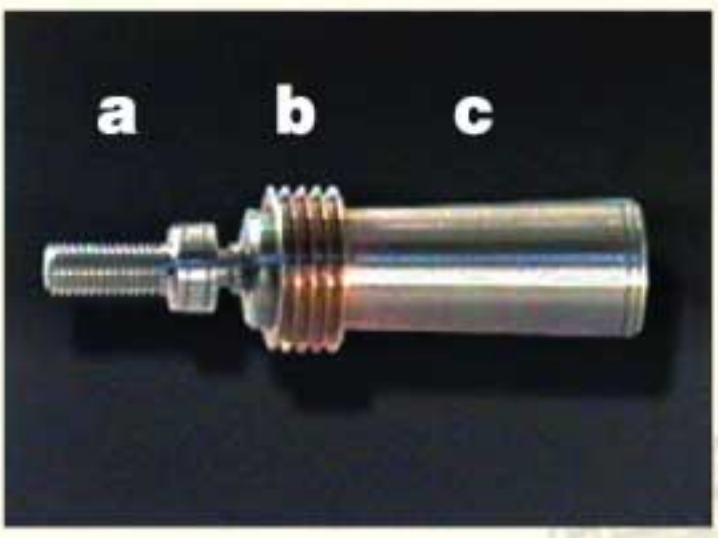
Pop a plug

Internal expansion plugs for tubes in heat exchangers

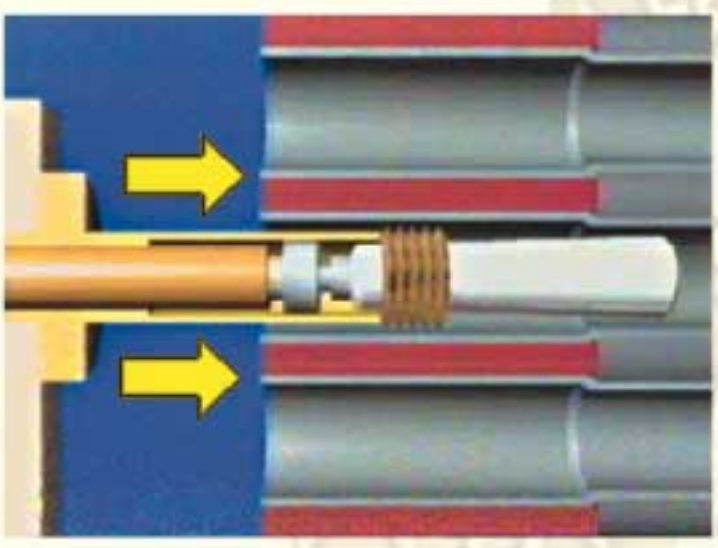
Pop a plug is undoubtedly an innovative proposal which enables the tubes in the heat exchangers to be plugged, by using a very easy, safe method with a plug which can be removed up to pressure of 4500 psi without welding.

It is made up of three mechanical parts:

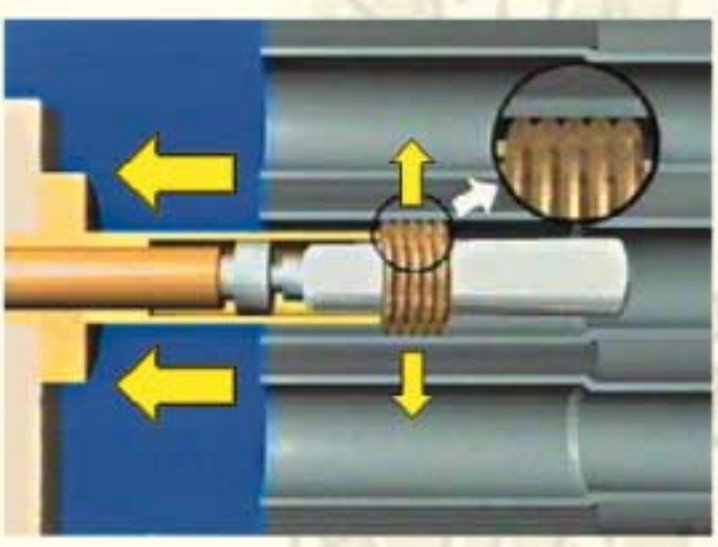
a a threaded adapter.
b a sealing ring
c a tapered pin



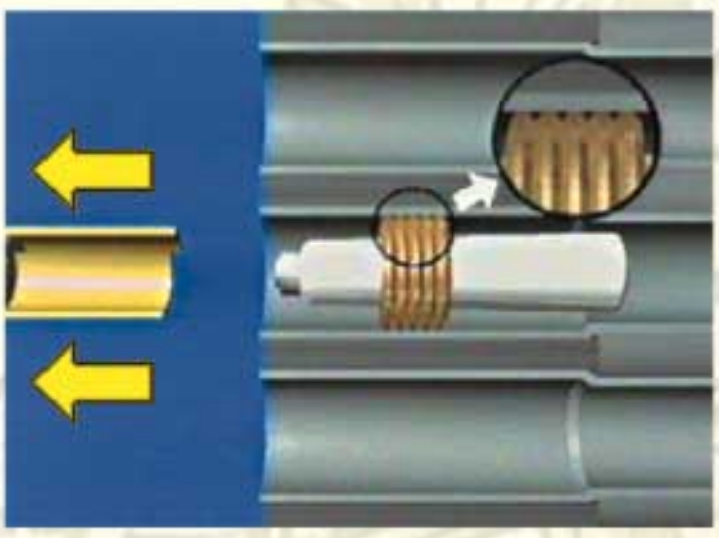
The threaded adapter is fixed to the hydraulic pump and is then inserted in the tube at a minimum reach of 1.3/4" (about 45 mm) ; it must however be in the tube sheet area to guarantee safe anchoring.



When the pump is activated, the tapered pin is pulled, by the threaded adapter, and passes through the sealing ring which expands and presses with its wings against the inside part of the tube thus guaranteeing the requested sealing.



After reaching the pulling necessary to plug the tube, the threaded adapter detaches from the pin and remains attached to the gun.



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