



Products overview



MADE IN ITALY

The company

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for **Production** *and tube bundle assembly*

6

- > Automation and special machines
- > Tube rolling equipment
- > Tube expanders
- > Tube-to-tube sheet orbital welding
- > Accessories:
 - > Measuring
 - > Hole preparation
 - > Tube insertion
 - > Tube facing
 - > Mechanical drives
 - > Lubrication

for **Maintenance** *and tube bundle dismantling*

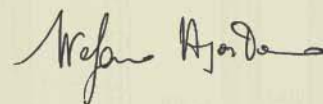
64

- > Tube bundle extraction
- > Tube bundle transporting
- > Tube bundle cleaning
- > Tube bundle cutting
- > Tube cutting
- > Tube extraction



Ing. Stefano Agostino
President

"A company's growth
is sometimes natural and inevitable;
it is the management's task to seek
harmony and pursue its objectives
without losing sight
of the fundamental characteristics
to which the company
owes its success."

A handwritten signature in black ink, reading "Stefano Agostino".

The company



since **1961**

Franco and Luisa Agostino
Founders

*To Luisa and
Franco Agostino
with affection*

At the end of the 1950s, Franco Agostino seized the opportunity to learn the art of manufacturing tube expanders which the experienced German manufacturer, Albert Otto, passed on to him. Then, thanks to his indomitable spirit, intuition and the support of his wife Luisa, Mr. Agostino founded the small Italian factory that a few years later would become Maus Italia.

In 1972 Maus Italia established its new premises and laid the foundations for its development. Mr. Agostino has now entrusted this to his son Stefano, a mechanical engineer, who in 1976 successfully devoted all his efforts to bring Maus Italia to the top of both the European and global sectors.



ALBERT OTTO OHG
SPEZIALFABRIK FÜR
WERKZEUGE

ALBERT OTTO di F. AGOSTINO
FABBRICA ITALIANA MANDRINI ALLAR



A functional working environment, computer-delegated production control, storage systems and CNC machine tools combine with young and talented engineers who, with their input, enthusiasm and ability, create an atmosphere that allows a successful Maus Italia to be the major point of reference in the global technology sector.

The company's goal is to:

- design, manufacture and sell equipment and machinery for the production and maintenance of heat exchangers, condensers and boilers of chemical plants, oil refineries, power plants, factories, etc.
- Accept the challenges posed by the market to give impetus to the Company's quest for machines and tools that offer customers more specific high-tech solutions.

for **Production** *and tube bundle assembly*

*Complete line of equipment
for tube expansion*

for **Production** *and tube bundle assembly*

Automation	8	> Automation and special machines
Control	16	> Tube rolling equipment
Tube expanders	34	> Tube expanders
Tubweld	42	> Tube-to-tube sheet orbital welding
Accessories	50	> Accessories



*For more details,
please request detailed catalogues*



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Free
tubes



Parallel
rolls



Automatic
compensation
of the expansion
limit depth

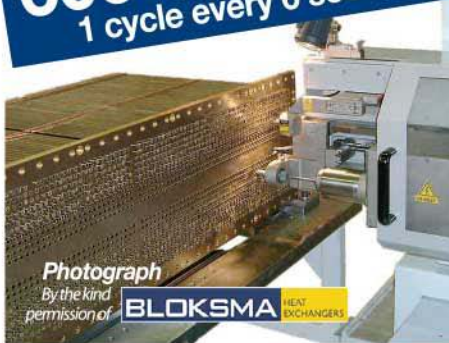


Mandrel
forward
movement
digital control



Speed
continuous
variation

600 tubes/h
1 cycle every 6 sec.



Pendulum process with trolleys
Continuous positioning in front of
the machine eliminates load/unload
downtimes, thus increasing
production.

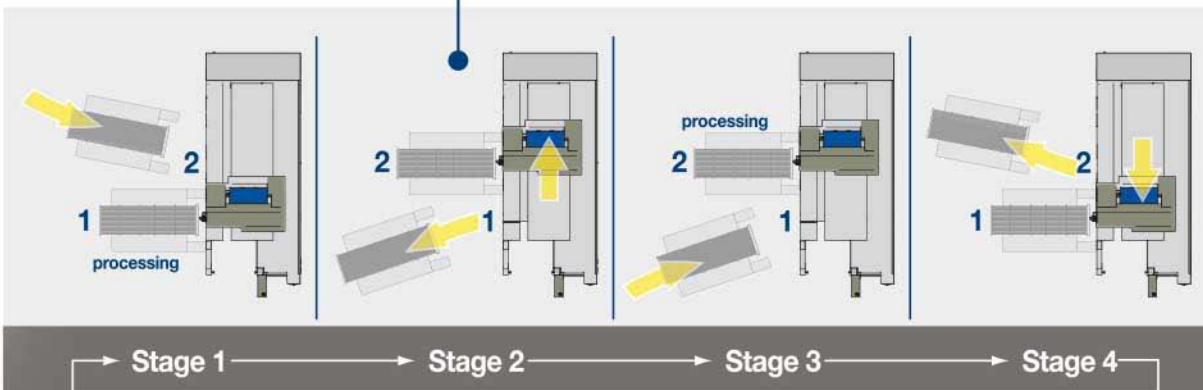
MA-500

Single axis cnc working centre
for **rolling and facing** ideal for
serial production.

Tube sheet max diameter
1000 mm (40")

The **MA-500** is the most innovative and effective
solution ever offered by Maus Italia for automating the
process cycles of small heat exchanger assembly for
high volume production.

- High technology
- Maximum productivity



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10



Free
tubes



Parallel
rolls



Automatic
compensation
of the expansion
limit depth



Mandrel
forward
movement
digital control



Speed
continuous
variation

MA-2501

Single or double axis
cnc working centre
with movable machine for
rolling, facing, grooving
and **TIG orbital** welding.

The ability to lean the
MA-2501 makes the machine
suitable for any type of
transport



The **MA-2501** is the most innovative and effective
solution ever offered by Maus Italia as an automatic
process for the assembly of medium and large sized
heat exchangers.

MA-3501

Up to a
tube sheet diameter
of 3500 mm (140")



- High technology
- Maximum productivity
- Maximum manoeuvrability



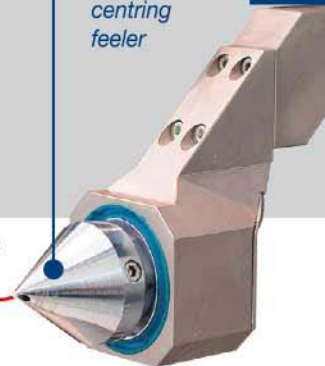
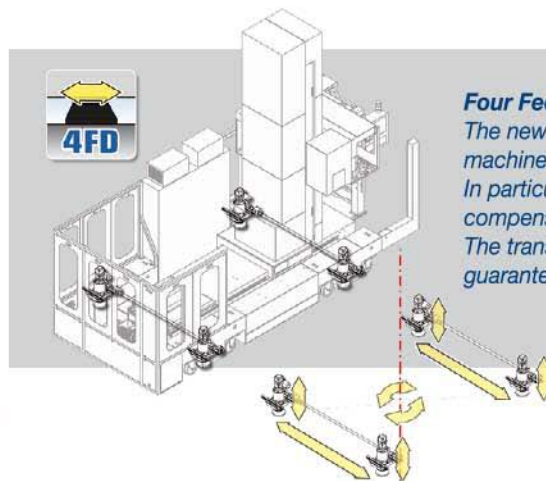
Four Feet Drive

The new **MA-2501** and **MA-3501** servo hydraulic
machine base guarantees durability and precision.
In particular, the 4 positioning stabilizers help to
compensate for horizontal positioning errors.
The transmission system on each stabilizer
guarantees continuity and precision in movement.

FOCS

self-learning
centring
feeler

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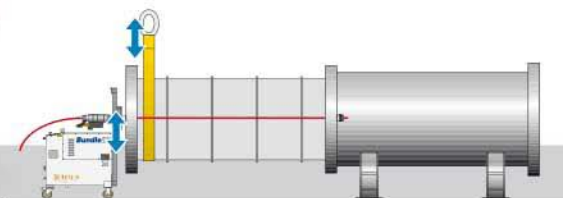


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Patented **hicos** system to compensate for crane oscillations on the Y axis.

The patented **hicos** system allows the **Bundle-M** to rapidly, accurately and safely achieve bundle insertion.





BundleIN

Tube **bundle** inserter
for heat exchangers with
patented **↑↓COS** system to
compensate for crane
oscillations on the Y axis

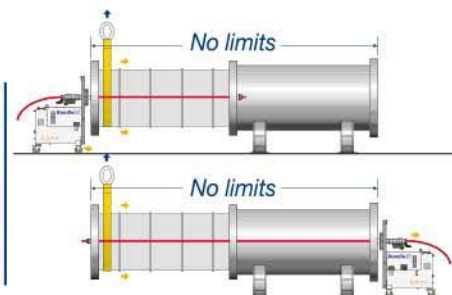
According to heat exchanger manufacturers, the insertion of long and heavy tube bundles floating inside the shells is one of the most challenging steps of the assembly cycle.

With the **BundleIN**, Maus Italia offers a piece of equipment that can solve this type of problem quickly, accurately and safely.

Once the fixing points of the ropes are attached to the shell, the **BundleIN** can insert the tube bundle at a speed of 2m/min (6.5 Ft/min)

The adjustable generated coaxial force of 60 T (132300 Lb) brings the tube bundle inside the shell smoothly and safely.

Example of
bundle insertion:
either pushing the
tube sheet or
pulling from behind
the shell



— Traction rope



Up to
60 Ton (132300 Lb)

Total safety
for both operator and product

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Power unit
Independent electric
hydraulic power unit
assembled on a
four-wheeled trolley
for easy movement





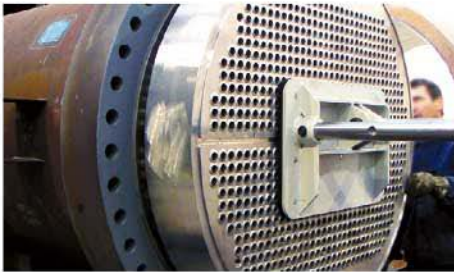
Mef shopIN

Self-positioning tube bundle inserter/extractor

The **Mef shopIN** is an free-standing machine (no crane required) capable of inserting/extracting the bundle quickly, accurately and safely.

Thanks to its experience in the manufacture of maintenance extractors, Maus Italia offers a machine which is dedicated to modern heat exchanger manufacturers.

Max load capacity 22 T (48500 Lb)





*Air conditioner
and air cooler assembly*

*Heat exchanger
on-site maintenance*

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Minirol

Up to
1/2"
(12,7 mm)



Macrol

Up to
2 1/4"
(58 mm)

Pneumatic rolling machines

Torque control pneumatic rolling machines

Maus Italia pneumatic rolling machines are quick, light, and safe and are the ideal solution for **heat exchanger manufacturers** and **maintenance operators** who want to operate on-site in a **safe environment** and with **high quality equipment**.



Boiler assembly



Masterol

Up to
4"
(101,6 mm)



Control

MAUS
ITALIA

**Three-phase
400 V system**

Portable

**Low price
Easy to handle**

Onboard controls
24V
Onboard controls



Emergency button with
magnetic latching

Portrol 400

**Up to
1.1/4"
(31,75 mm)**

Repeatability $\pm 5\%$
High quality
Long life
Reliable
Robust

Portrol 400

Portable electric controller
Port 400 with **400 Volt**
3-phase PR-1000 motor for
controlled tube expansion

A good compromise between quality and price.
Specially designed for quality maintenance operations
or for small heat exchanger batch production.
Maus Italia has designed and manufactured the first fully
portable three-phase 400 Volt expansion machine which,
meet strict European standards.

Maximum portability • Maximum portability • Maximum portability
Only 13Kg (28Lb)

Port 400

Portable electronic controller
for tube expansion



Port 400

- Expansion torque selection
- Automatic motor rotation stop
when selected torque is reached
- Expansion torque display
- Manual rotation reversal
- Remote controlled
- No-load rolling motor resetting



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HEMACO

Quadrol 90 standard

Quadrol 90 plus

Quadrol 90 executive



Quadrol 90

Mobile semi-automatic expansion stations comprising **F90 V4** electronic expansion controller and **MK** low-voltage, 3-phase electrical rolling motors

MK-800

Up to
1.1/2"
(38,10 mm)

MK-400

Up to
2.1/2"
(63,50 mm)

F90 V4





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HEAT TRANSFER COMPANY

Flex Matex

Up to
3/8"
(9,52 mm)



Port Matex

Up to
3/4"
(19,05 mm)



Quadrol Matex

Up to
3"
(76,20 mm)



Matex

Hi-tech, **low voltage** electrical mobile stations with **R brushless motors** and **torque-based speed continuous variation** for semi-automatic controlled tube expansion.

USB

memory stick

For the saving of expansion data

- program setting
- torque value reports

Instantaneous display of parameters

- Motor absorption (amps)
- Torque delivered to the tube expander (Nm)
- Motor absorption Graph (amps)
- Cycle duration time
- Rotational speed of tube expander
- Successfully completed rolling cycle counter





Quadrol Matex MRP

- high productivity
- quality of the expanded product
- reduction of the tube's elongation (thin tubes)
- better quality of the expanded contact between the tube and tubesheet
- reduction of residual internal stress
- significant reduction of the number of the tools required

Quadrol Matex MRP

Hi-tech
hydromechanically-assisted
expansion system for tube
expanders with **parallel rolls**.

This system is dedicated to the rolling of tubes wherever
it is necessary **to minimize elongation in the tube and
its related stress** to obtain a **perfectly homogeneous
contact between tube and tube sheet** across the
entire expansion length.

**Up to
1"
(25,40 mm)**

On request up to 50.80 mm (2")

Quick joint

**Quick connect
cage-holding joint**
with incorporated rotating
distributor for tube
expander lubrication



With two simultaneously
operating hydraulic motors





Hydrol

Hydraulic tube rolling equipment for the expansion of boiler tubes.

Hydrol equipment comprises two parts: a hydraulic unit and portable hydraulic rolling motors.

Hydrol 40.2

Professional model, due to its capability to independently handle two portable hydraulic rolling motors, **Hydrol 40.2** rolls two tubes simultaneously by controlling oil pressure with a programmed continuous cycle and adjustable speed.

Hydrol 20.1

Manually controlled hydraulic unit for tube rolling expansion with a single hydraulic rolling motor.

HM

Hydraulic rolling motors for tubes up to 219,10 mm (8.625")

Controlled positioning of the tube without contamination

Photograph

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**NO CREVICE
CORROSION**



HDP-4001

Probe holder with quick coupling, standard supply with Hydrex 5003 with Aluminium ergonomic handle and probe shank in material suitable for high pressure.

2TH-400

With a pressure of 400 bars (5800 psi), the two 'noses' are expanded inside the tubes, ensuring precise positioning of the probe for all expansions.



**Up to
5000 Bar
(72500 Psi)**

Hydrex

Ultra high pressure water hydraulic system for tube expansion.

In order to comply with the increasingly stringent specifications coming from the petrochemical, nuclear and chemical fields, Maus Italia has designed and manufactured the **Hydrex 5003**, a **fourth generation** product which has been acclaimed by our customers for more than 16 years. The **Hydrex 5003 S** is the 'full optional' version of the 5003 series, that Maus Italia has developed for specific application in the nuclear sector or in the "high quality" heat exchanger tube working process, and has the following features:

- the **HF 6000** hydraulic gun, used for tack expansion, has been designed for the pre-welding positioning of tubes using a polymer ring to prevent any metal contamination;
- the **2TH 400** hydraulic anchoring device, essential for the proper positioning of the probe to reduce the effects of crevice corrosion.

HF-6000

Tack expansion hydraulic gun for pre-welding positioning of the tube.

This type of expansion allows the welding gas flow between the tube and the tube sheet hole.



Tack expansion



**Controlled tack expansion
without tube contamination**

Photograph

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MaFix 400



MAUS
ITALIA

MAFIX 400

PRESSIONE ACQUA
WATER PRESSURE



AREA INTERNO
AIR PRESSURE CONTROL



MaFix 400

Pre-welding controlled **tube locking without contamination** from metal or hydrocarbons

Maus Italia has designed the innovative **MaFix 400** system which was specifically developed for the locking of tubes with polymer materials in the tube sheet holes. The **MaFix 400** meets all the strict requirements concerning the contamination of tube material by tool.

With its adjustable working pressure, the **MaFix 400** is able to perform locking operations for tubes ranging: from 16 to 25 mm (5/8" to 1").

HF-6000

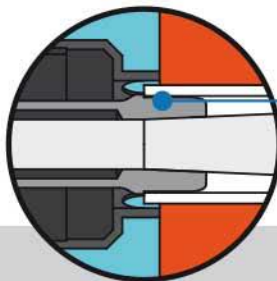
Tack expansion hydraulic gun for pre-welding positioning of the tube.

This type of expansion allows the welding gas flow between the tube and the tube sheet hole.



Tack expansion





Due to the expansion of the front plier, the tube is mechanically expanded for a few mm, brought to the tube sheet holes and fixed in the required position before the welding operation.



Kattex Fix

Hydraulically-operated tube locking system for pre-welding expansion on heat exchangers

Innovative patented system for the instantaneous locking of tubes using a metal expanding plier. The use of the **Kattex Fix** ensures a precise result in a very limited time thus increasing job productivity.



TP2-EQ2

Semi-automatic hydraulic unit with electrical motor and equipped with a timer control system recommended for repetitive tasks.



R/11 - R/13

Tube expanders for **tube with small diameters**, from 1/4" to 1/2" (6,35 to 12,70 mm), having a thrust collar with plane shoulder.



R/30 - R/31

Adjustable tube expanders for **thin or medium thickness tubesheets** and tubes with Ø from 1/2" up to 1.1/2" (12,70 to 38,10 mm).



R/50 - R/51

Adjustable long reach tube expanders for **thick tubesheets** and tubes with Ø from 1/2" to 1.1/2" (12,70 to 38,10 mm).



5R

5R: Code used to indicate type **R** tube expanders **with 5 rolls** (instead of standard with 3 rolls), suitable for the rolling expansion of thin thickness tubes to ensure a better roundness on the expanded tube.



R/41

Tube expanders for **thick tube sheets** and tubes with Ø from 1.3/4" to 3" (44,45 to 76,20 mm).



R/141- R/161

Step-by-step tube expanders for tubes with Ø from 5/8" to 1" (15,87 to 25,40 mm) with quick release device for thrust collar repositioning to expand the entire tube sheet length without removing the expander from tube.





R - 5R

Complete **R-series** (3 rolls) and **5R-series** (5 rolls) line adjustable depth tube expanders for **heat exchangers** and **condenser tubes**

The **R-series** adjustable depth tube expanders have been designed for rolling tubes in heat exchangers and boilers. They are driven by pneumatic or electric rolling machines with torque control.

The **5R-series** tube expanders have five rolls to overcome the problems of rolling thin-walled tubes, especially those made of titanium. These tube expanders perform special expansions and have gently tapered mandrels to reduce the problems connected with residual stress in the expanded tubes.

Step-by-step
positioning
thrust collar



MG

Complete **MG-series** (3 rolls) line variable depth tube expanders for tube sheets of low, medium and high thickness for **heat exchangers** and **condenser** tubes

The **MG-series** variable depth tube expanders have been designed for rolling tubes in heat exchangers.

They are driven by pneumatic or electric rolling machines with torque control.

MG-800 With 1.1/2" short rolls

O.D. tubes
1/2" ÷ 1.1/2"
(12,70 ÷ 38,10 mm)



For low thickness tube sheets

MG-800 With 2.1/4" long rolls

O.D. tubes
5/8" ÷ 1.1/2"
(15,87 ÷ 38,10 mm)



For medium thickness tube sheet

MG-1200 With 1.1/2" short rolls

O.D. tubes
1/2" ÷ 1.1/2"
(12,70 ÷ 38,10 mm)



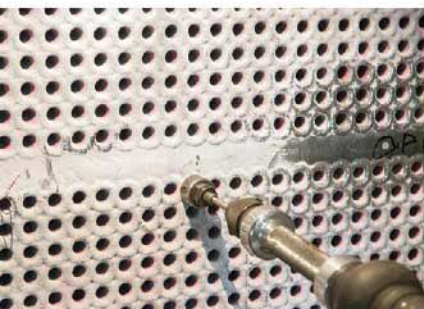
For high thickness tube sheet

MG-1200 With 2.1/4" long rolls

O.D. tubes
5/8" ÷ 1.1/2"
(15,87 ÷ 38,10 mm)



For high thickness tube sheet



BH

O.D. tubes
1.1/2" ÷ 4.1/2"
(38,10 ÷ 114,30 mm)



CH

O.D. tubes
1/2" ÷ 4.1/2"
(12,70 ÷ 114,30 mm)



DH

O.D. tubes
1/2" ÷ 4.1/2"
(12,70 ÷ 114,30 mm)



F/602

O.D. tubes
1.1/2" ÷ 3"
(38,10 ÷ 76,20 mm)



BH - CH - DH - F/602

Complete line of fixed depth tube expanders for **boiler** tubes

The **BH-CH-DH-series** fixed depth tube expanders have been designed for rolling boiler tubes. A development of the B-C-D-series that Maus Italia has produced and sold with great success for more than 50 years.

All the tube expanders of the **BH-CH-DH-series** can be driven by pneumatic, hydraulic and electric rolling machines with torque.

BH-series tube expander with plane shoulder available in the standard version with 3 expansion rolls

CH-series tube expander for rolling and flaring at 15°, available in the standard version with 3 expansion rolls and 3 flaring rolls.

DH-series tube expander for rolling and flaring at an angle of 15°, available in the standard version with 3 expansion rolls and 3 flaring rolls.

This is the improved version of the **CH-series** which gives a uniform result in rolling and flaring thanks to an adjustable stop.

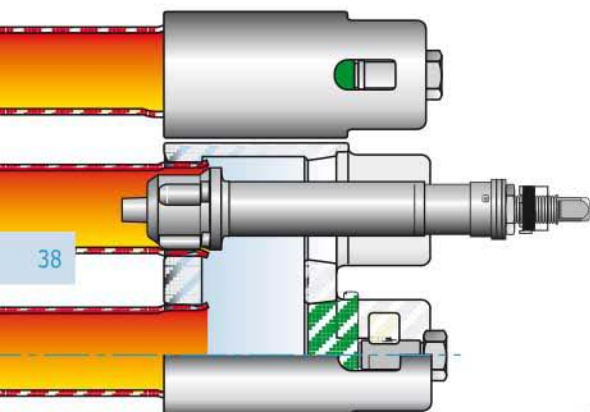
F/602-series tube expander for simultaneous rolling and beading of tubes in boilers.



F/500

Complete line of **F/500-series** tube expanders with adjustable torque clutch, for rolling and flaring thick walled tubes in **cracking furnaces** tube seats

Tube expanders model F/500 with adjustable torque clutch, torque control and mandrel feeding device for tubes up to ASA 8" Sch. 40 (219,1 x 8,18 mm).



F/500

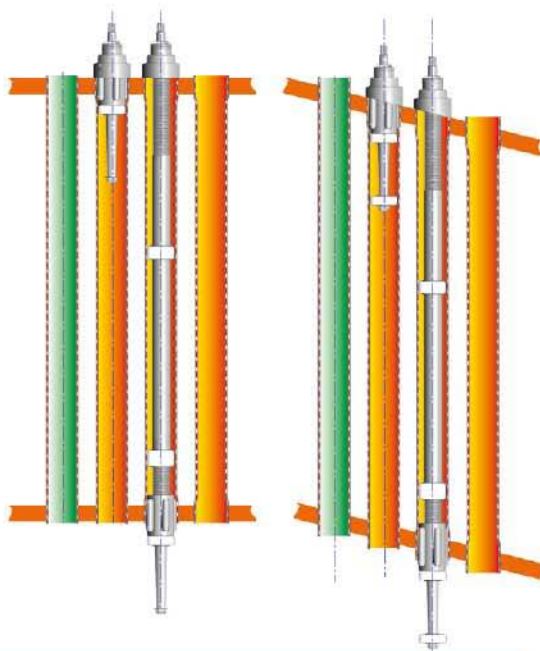
O.D. tubes
ASA from 3" to 8"
(from 88,9 to 219,1 mm)





VP/100 - SG/100

Complete line of tube expanders
for **sugar production plant**
vacuum evaporators.



- **VP/100-model** for parallel tube sheets
- **SG/100-model** for inclined parallel tube sheets

VP/100 - SG/100

O.D. tubes up to 4" (101,6 mm)



DIN - BS

Complete line of **DIN-series**
and **BS-series** (5 rolls)
fixed depth tube expanders
for the **milk industry**.

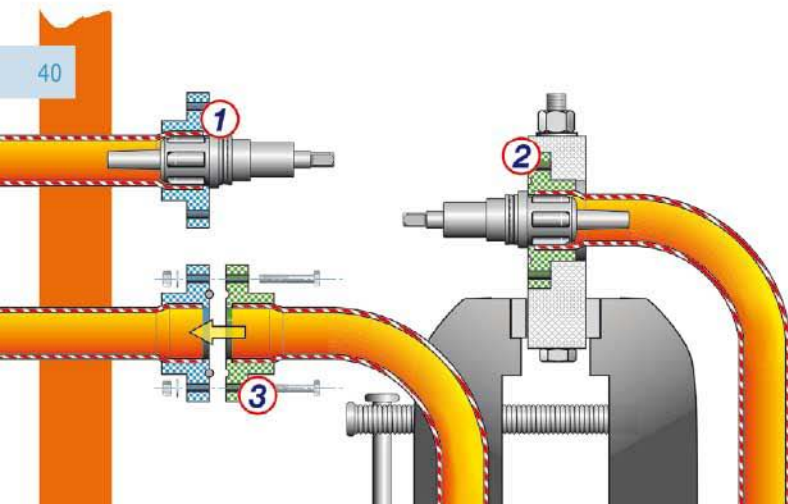


The system consists of:

DIN-series and **BS-series** tube expanders for stainless steel tubes and bends in accordance with DIN 11851, DIN 11852, British Standard 1864:1966

MTT-DIN-series and **MTT-BS-series**
clamping lugs for cutting tubes

MSS-DIN-series and **MSS-BS-series**
single clamping lugs



DIN - Milk

O.D. tubes
28,0 ÷ 104,0 mm
(1.102" ÷ 4.094")



MTT-DIN



MSS-DIN



BS - Milk

O.D. tubes
1" ÷ 4"
(25,40 ÷ 101,60 mm)



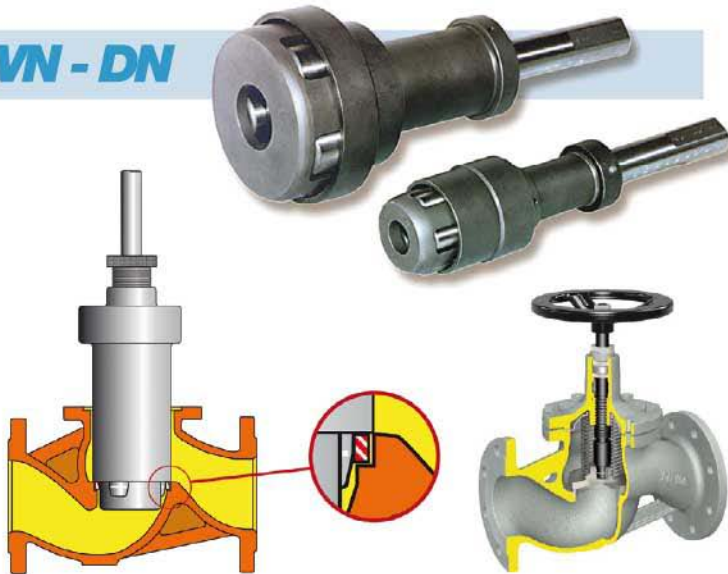
MTT-BS



MSS-BS



VN - DN



VN - DN

Complete line of **VD-DN-series** tube expanders for rolling valve seats.

Special models

For special application

Maus Italia designs and manufactures tube expanders customized for special applications.



Photograph

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SAMEC S.p.A.



MW-270 D

Power source assembled on
two-wheeled trolley comprising:

- inverter power source
- analogue digital programmer
- motor drive modules
- cooling unit



MWH-70

Light and low cost



RC-270 D Remote control (start, stop cycle, emergency)

Basic-S

Semi-automatic TIG orbital welding system for tube-to-tube sheet welding

The **Basic-S** system is a basic low cost portable model comprising:

- **MW-270 D** power source
- **RC-270 D** remote control
- **MWH-70** welding head

Orbital TIG welding on Air Coolers

The torch's extended length allows welding of tubes in the water chamber at depth.

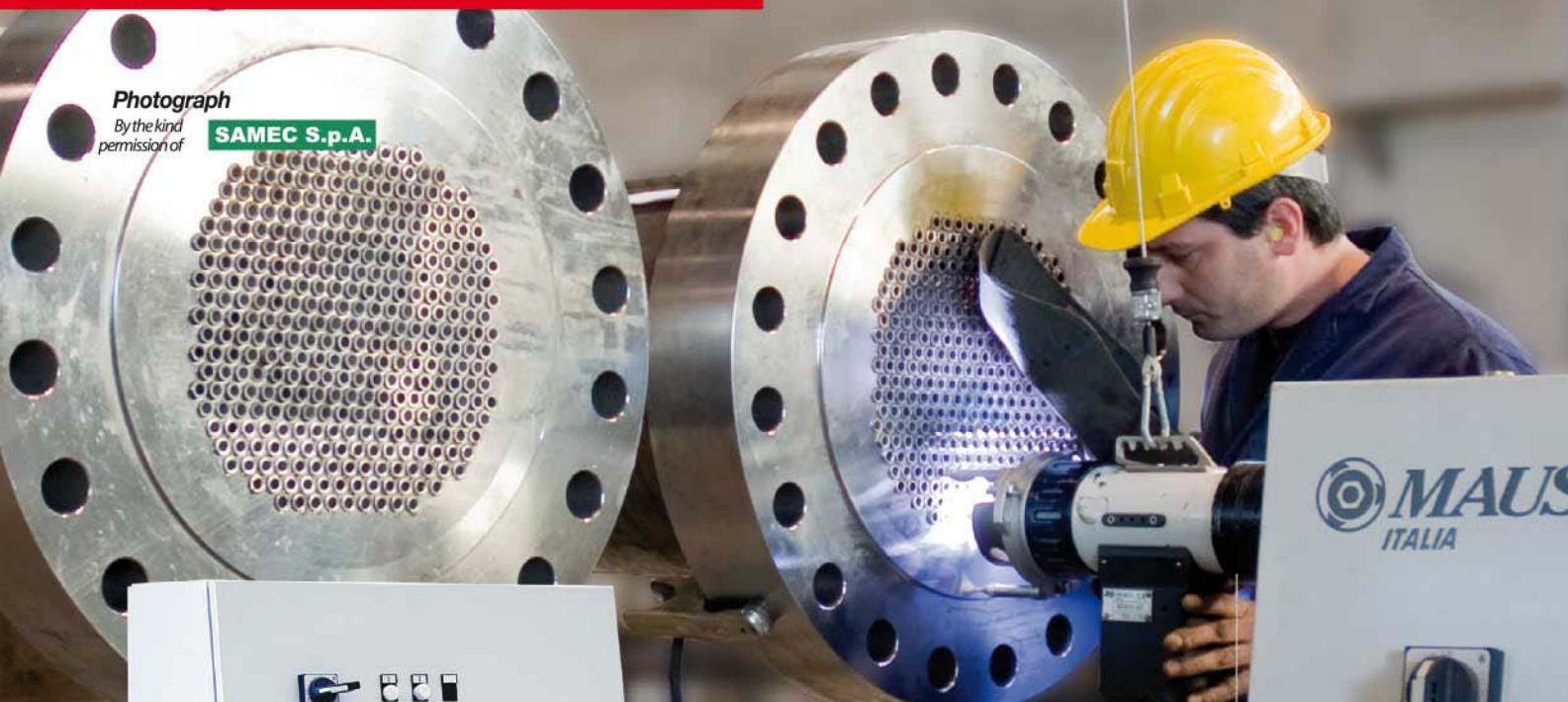
HS + HC
HS spindles and HC
self-centring cartridge



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SAMEC S.p.A.



MWH-80
Welding head



MW-280
Four-wheeled power source
comprising:

- inverter power source
- CNC digital programmer
- cooling unit
- motor drive modules
- Gas 1 control module (Gas 2 optional)



*Inverter
power source*



*Filler material
control*



*Optional -
PC interface kit*



*Simple and intuitive
graphic interface with
multi-task technology, for
the programming and
control of all welding
parameters*



Top-S

Professional tube-to-tube sheet TIG orbital welding system

The **Top-S** system is a professional solution conceived to satisfy the need for quality, control and repeatability of tube-to-tube sheet TIG orbital welding, comprising:

- **MW-280** power source
- **RC-280** remote control
- **MWH-80** welding head



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KOCH
HEAT TRANSFER COMPANY

MaTig-500

MAUS
ITALIA

MaTIG-500

MaTIG-500

MaTIG-500

MAUS



The **FOCS2** laser centring
system combined with the
CNC guarantees extreme
precision of the geometries
of the welded joints

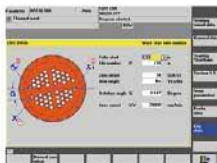


MaTIG-500

Tube-to-tube sheet TIG *orbital* welding **automatic positioning system** for tubes from 1/4" to 2" (6,35 to 50.80 mm)

The **MaTIG-500** has been designed for the complete automation of tube-to-tube sheet TIG *orbital* welding cycles at competitive costs and with a considerable reduction in production time.

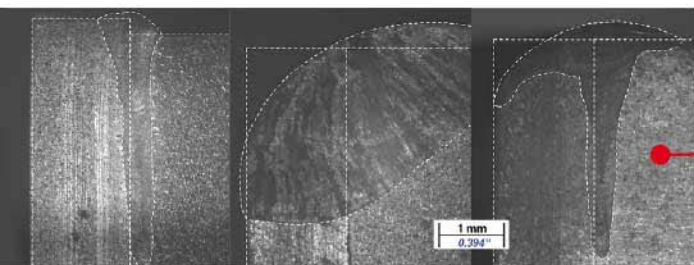
Welding parameters are programmed and controlled by the latest generation Windows® operating system.





Technology licensed by Fraunhofer IPT

48



Control radiograph

WORK IN PROGRESS



Fraunhofer
IPT



MAUS
ITALIA

Laser 

OrbiLas 

Tube-to-tube sheet welding laser technology

Laser welding is 5 to 50 times faster than TIG welding and can produce weld seams with an extraordinarily high depth-to-width ratio.

There is no need for multi-layer welding to achieve an adequate penetration depth and connection length. As a result, only a fraction of the conventional processing time is required for the tube-to-tube sheet welding cycle.

Non-productive times are also reduced as the laser welding process is fully automated.



Dial for
reading in mm



Dial for
reading in inches



F/700

Internal mechanical gauge with 2 contact points.



F/703

Internal digital micrometer with LCD display and 3 contact points.





F/707 - F/703 - F/700

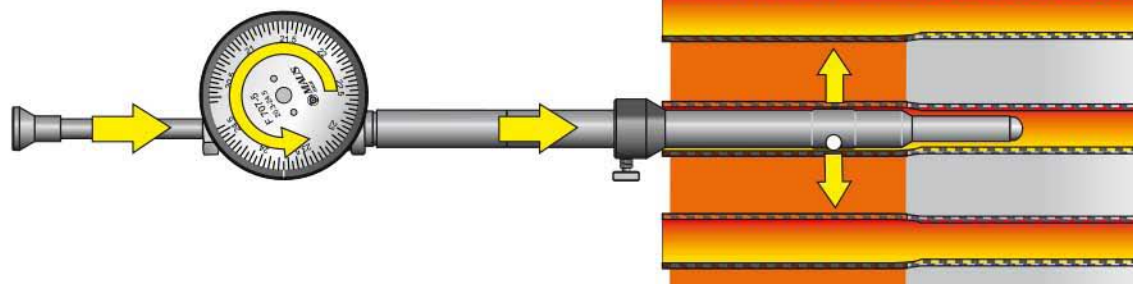
Mechanical and digital instruments for **hole measurement**

Range of instruments designed for measuring tube sheet holes and the tube's internal diameter both before and after expansion.

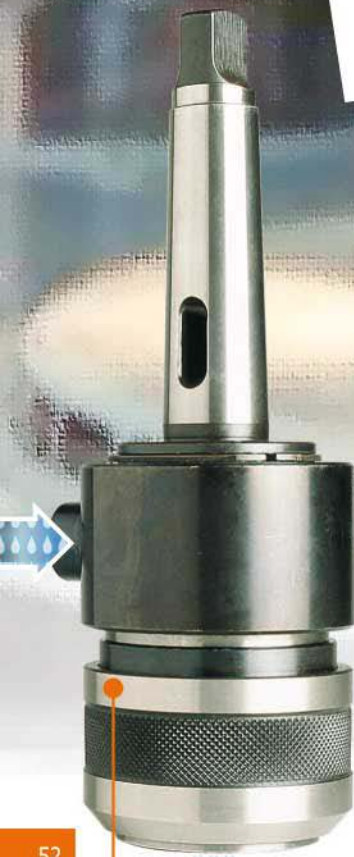


F/707

Maus Italia internal mechanical gauge (resolution 0,05 mm) with 3 contact points.



With coolant
fluid feed channel



F/12

Rotating coolant distributor for coupling with the **F/13** sleeves for use with the **Holetool** series of tools. Allows the coolant to flow from the inside directly to the cutting point; this guarantees the **Holetool** series of tools will be durable and high performance.



F/13

Reduction sleeve



F/10-F/11

HSS twist drills with coolant fluid feed channels



F/12 - F/13 **F/10 - F/11 - F/20 - F/26**

Tools with coolant fluid feed channels for tubesheet **hole processing**.

O.D. tubes from 3/8" to 2"
(9,52 to 50,80)

Range of tools made with extremely high quality and wear-resistant materials, capable of withstanding high speeds due to coolant fluid feed channels.



The F/26 self-centring grooving tool is equipped with interchangeable HSS-Co 10% cutter bits.

F/20

Reamers with Tungsten Carbide tips

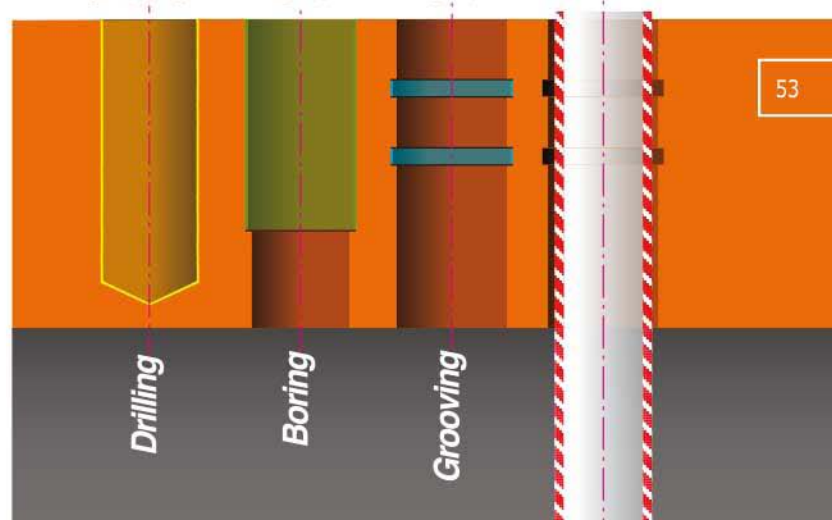
F/26

Self-centring grooving tool, with adjustable **B** depth and interchangeable HSS-Co 10% cutter bits

F/10 - F/11

F/20

F/26



F/112-F/120

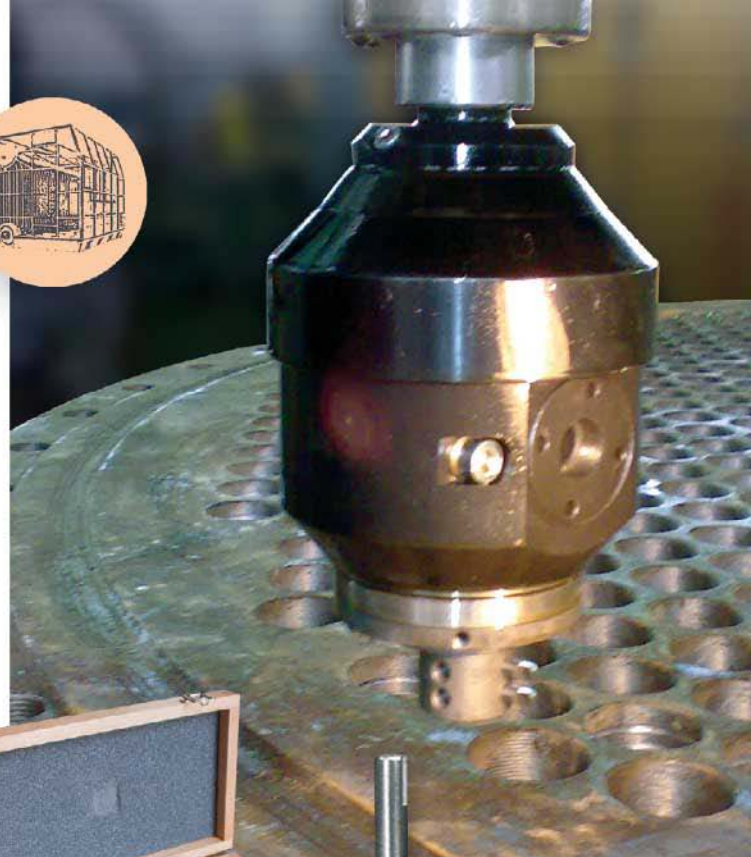
Universal
grooving tools



54

F/112

Universal grooving tool for tube
sheet holes ranging between
7 and 30 mm (0.276" to 1.181")



**Tungsten
Carbide**

F/120

Hydraulic universal grooving tool
for holes up to 120 mm (4.724")

F/780

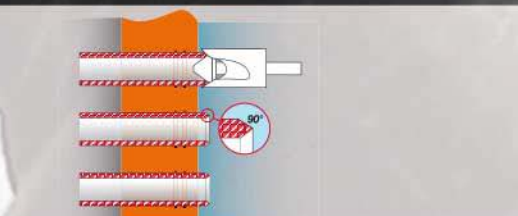
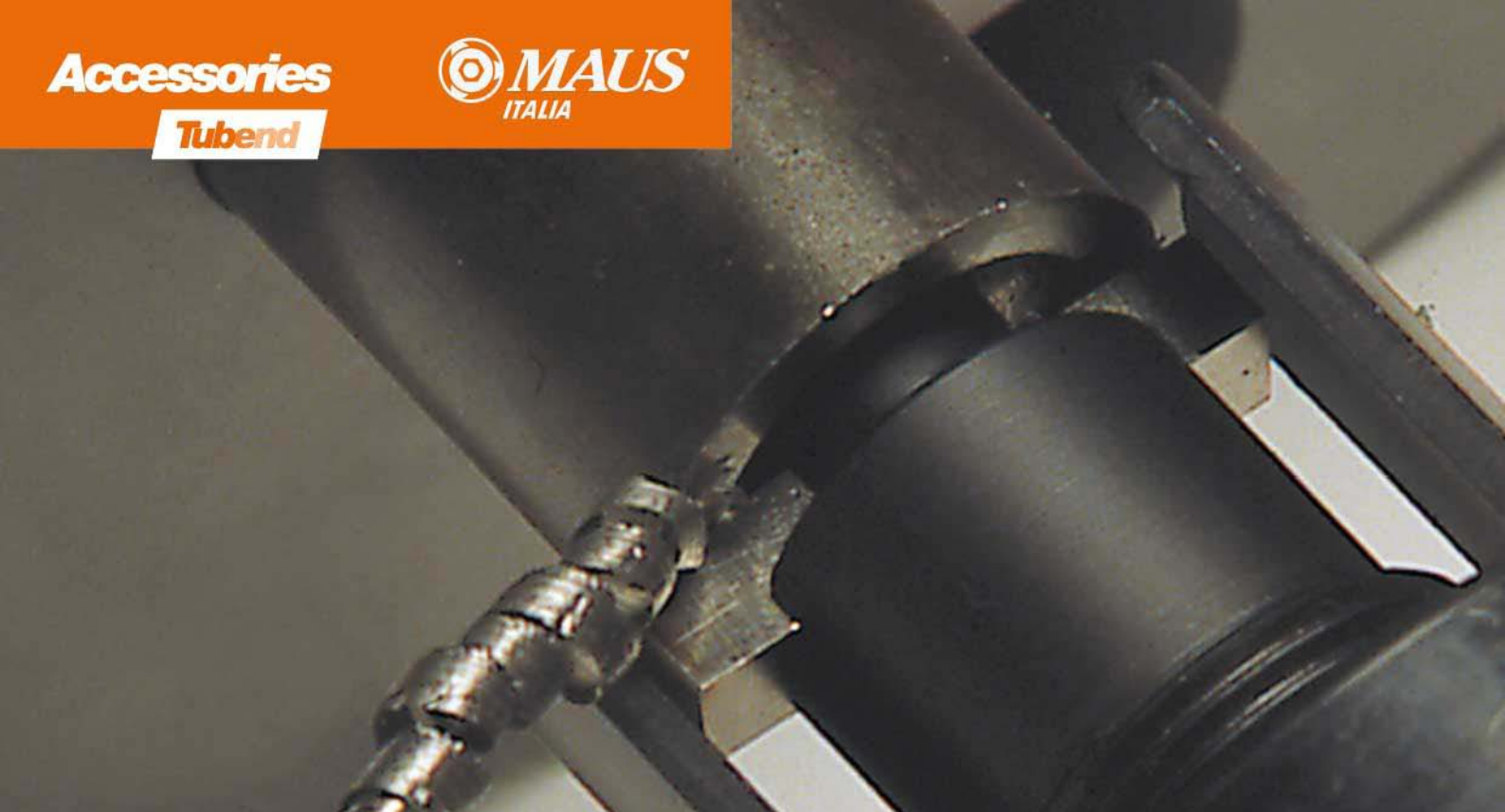
Tube pilots for tube insertion during tube bundle heat exchanger assembly.

The **F/780** series tube pilot comprises an aluminium tapered head (steel, PVC or other materials available upon request) and a nylon brush.

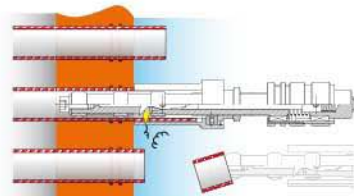
A hole on the tapered head allows easy removal of the tube pilot from the tube.

The **F/780** aids the quick and smooth insertion of tubes through the tube sheet and baffle holes.





56



F/796

Tube cutter to remove
extra tube sections

F/751R

Tube end facer
with HSS cutting bit

F/753

Adjustable combined milling
cutter for simultaneous
deburring/chamfering of tube
outer and inner diameters

F/796 - F/751R - F/753 MBOS 16-2 - MOF

Tube facing tools driven by electrical and pneumatic motors

Complete series of tools for cutting, facing and deburring the tube ends of heat exchangers.

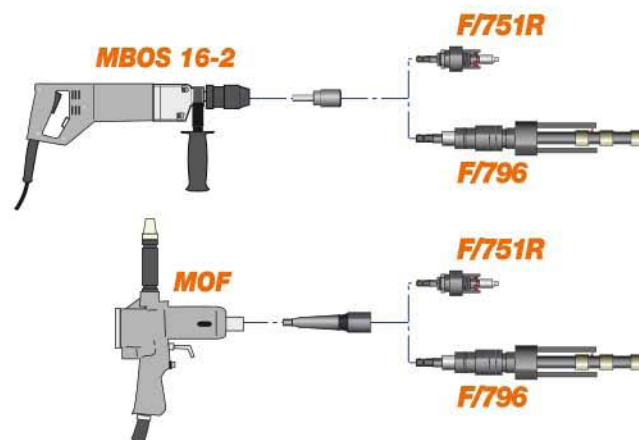
MBOS 16-2

Electrical motor



MOF

Pneumatic motor



Accessories

MAUS
ITALIA

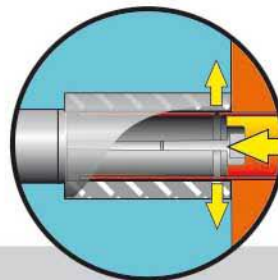
Tubend

Precise
Simple to use
Rapid

patented

Manual device for
cut stub removal

high productivity



Kattex-LTP

Hydraulically-operated single external tube cutting for **long tube protrusion**

Innovative patented system for instantaneous external tube cutting.

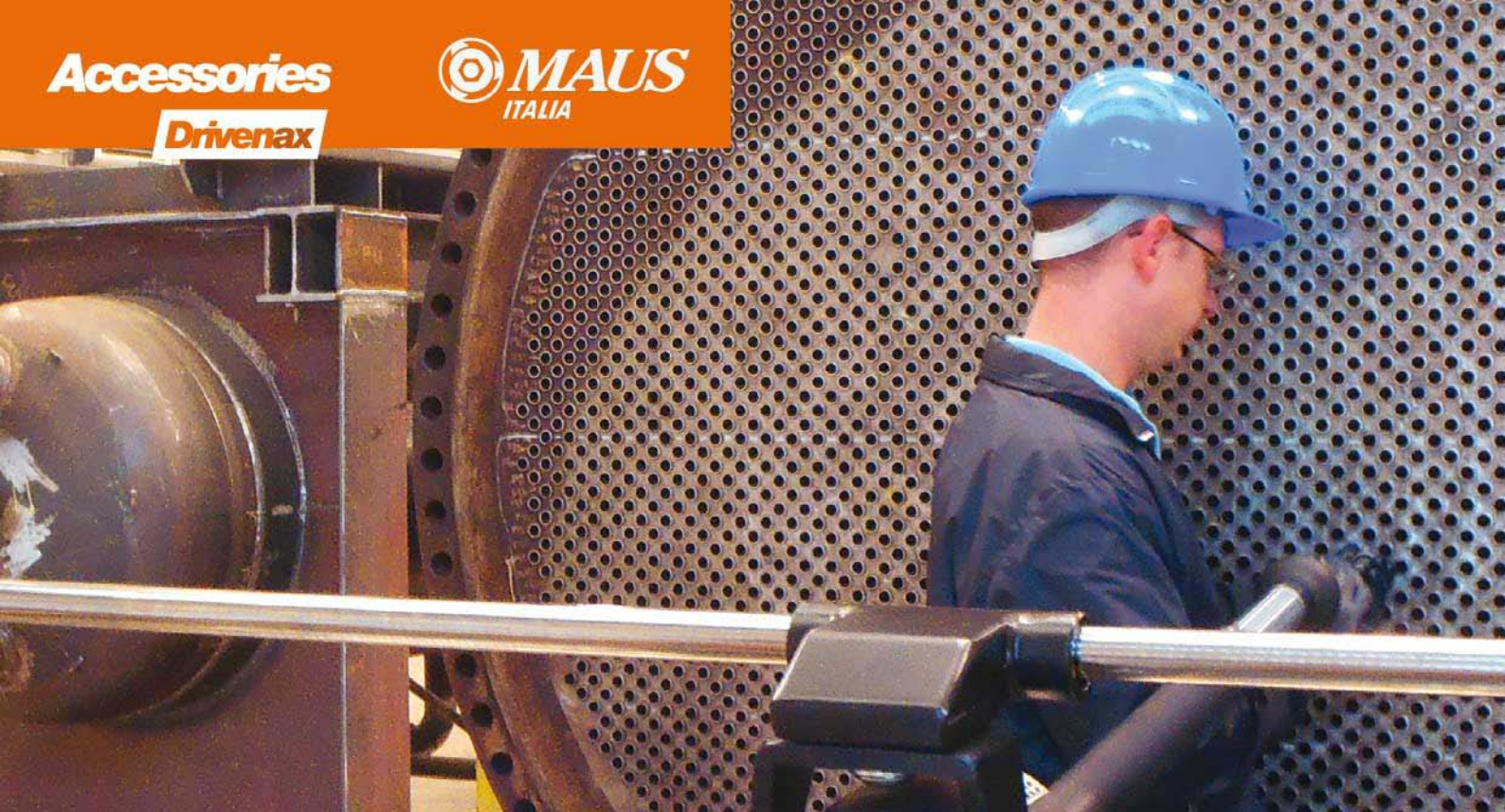
Using the **Kattex** ensures a clean result (no machining chips) and, in a very short time, an increase in productivity.

After the tube protrusion has been cut, the tube edge can be machined with a facer tool.

TP2-E

Hydraulic pump





60

F/314HS F/317HS

Patented adapter with
female/female double
quick coupling
specifically for high
speeds



NO VIBRATION



F/313 F/316

Adapter with
female/female double
quick coupling



F/315 F/318

Fixed female/female
adapter



F/308 HS - F/308 F/314 HS - F/317 HS F/313 - F/316 F/315 - F/318

Mechanical drive for tube expansion

The brand-new **F/308 HS**, the technological evolution of the **F/308** and boasting new innovative design solutions, is recommended for use at speeds exceeding 400 revolutions/min (r.p.m.) due to its accuracy and stability.



**F/308 HS
F/308**

Special
model
available
upon
request

Telescopic shafts with Cardan joints, the **F/308 HS** and **F/308** series, for the rotation and torque transmission from the rolling motor to the tube expander allowing the horizontal movement required.

F/770HS - F/771 - F/680

Rigid extension and universal joint for manual mechanical drive

A full range of extensions and universal joints are available for jobs with difficult access conditions.
Strong reversible ratchet wrenches are available for manual tube expansion.



F/770HS

Rigid extension
with male-male
square drive



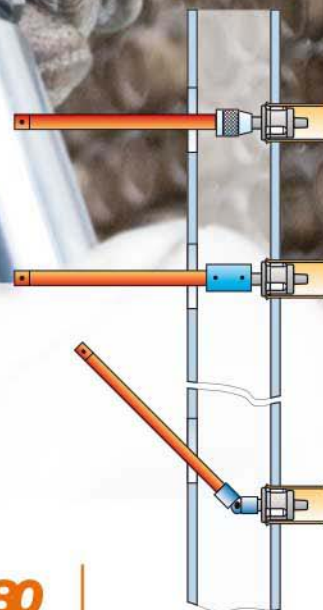
F/771

Universal
joint



F/680

Square hole
reversible
ratchet wrench
for manual
expansion



GSA - LBR

Special **water-soluble lubricating paste and fluids** for tube expander lubrication.

With **Lubrol** products, Maus Italia has selected two lubrication solutions to increase the service life of the tube expander.



GSA

Special
water-soluble
vegetable paste
specifically for
tube expansion



LBR

Special
water-soluble
vegetable fluid
specifically for
tube expansion



f02 Maintenance *and tube bundle dismantling*

*Complete line of equipment
for tube bundle maintenance*

for **Maintenance** *and tube bundle dismantling*

66

> Tube bundle extraction and transporting

80

> Tube bundle cleaning

88

> Tube bundle cutting

90

> Tube cutting

94

> Tube extraction



*For more details,
please request detailed catalogues*

Up to 125 Tons



**ATEX certification
on request**

The **Mef express** is supplied
with a Diesel Engine.
Motors which are suitable for
operation in areas classified as
hazardous are available on
request (complete with ATEX
conformity declaration
covering the whole machine).

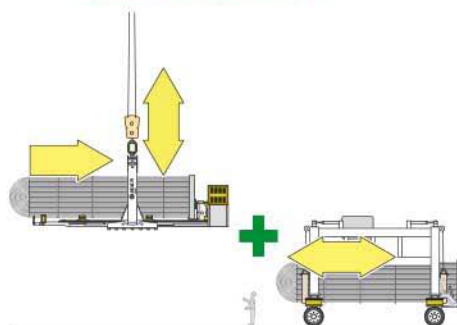
 **SPECIAL MODEL**
for low temperatures
is available on request

 **Wireless
remote control
available on request**

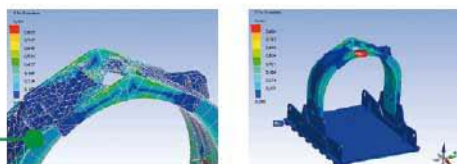




Rocker arm which may be disassembled into 3 pieces for transportation in a container and for an easy machine storage



Designed with FEM model



Loading and lifting test (Dummy weight)



Mef express

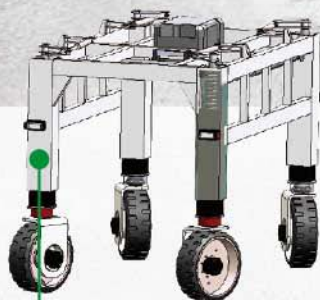
Aerial quick hooking bundle extractors (on-shore)

The quick hooking aerial tube bundle puller is manufactured in different sizes for tube bundles of up to 125 Tons (275500 Lb) and lengths of up to 12,5 m (41 ft).

Maus Italia can also supply customized bundle puller models to meet special customer requirements (on submission of all the required documents, drawings and calculations).

For rapid transportation of the bundle to the cleaning area or maintenance workshop, Maus Italia offers the new **Mammut** tube bundle transporter.

**Lifting capacity up to
40 Tons (88000 Lb)**



Double portal frame

Designed in accordance with Class FEM A3 of the European Movement Federation and in compliance with CE 98/33 regulations.

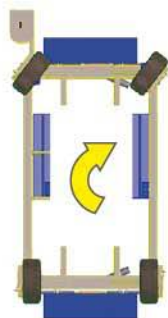


Hydraulic lifting

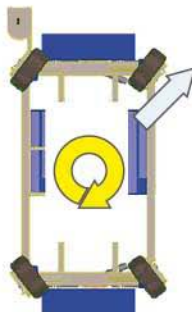
The synchronization the movement of hydraulic cylinders in combination with transmission ropes is controlled by manual levers located by the driving seat.

Superelastic tyres

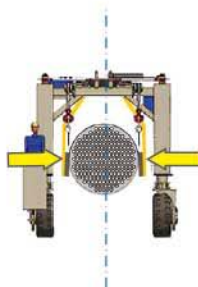
These noticeably reduce noise, vibrations and deformations in full-load and rolling friction with consequent fuel reduction. Extremely cut resistant. Do not require any maintenance.



Front-wheel drive
Standard supply for basic performance.



Options
Full steering allows a smaller turning circle with quicker movements. Moreover, it can be moved transversally and is very effective during positioning.



Options
Anti-oscillation hydraulic vices Bundle locking for eliminating oscillation during transportation, allowing safe and rapid movement.

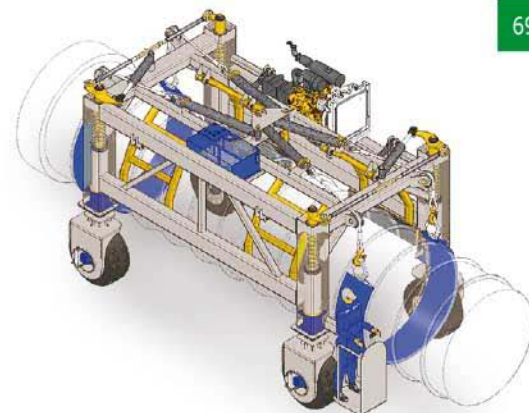


Mammut

On-site self-propelled bundle heat-exchanger transporter

The **Mammut** bundle transporter is a self-propelled, mobile solution for fast tube bundle transportation from the extraction area to the maintenance workshop, thus eliminating the use of trucks and mobile cranes while speeding up the process in complete safety.

Driving seat and hydraulic lifting/vices control



Tube bundle
**extraction and
transporting**

MAUS
ITALIA



**Up to
5850 mm (230")
height**

Mef mobil



**ATEX certification
on request**

70



Bundle elevation



Lateral frame translation



Longitudinal frame movement



**Wireless
remote control
available on request**



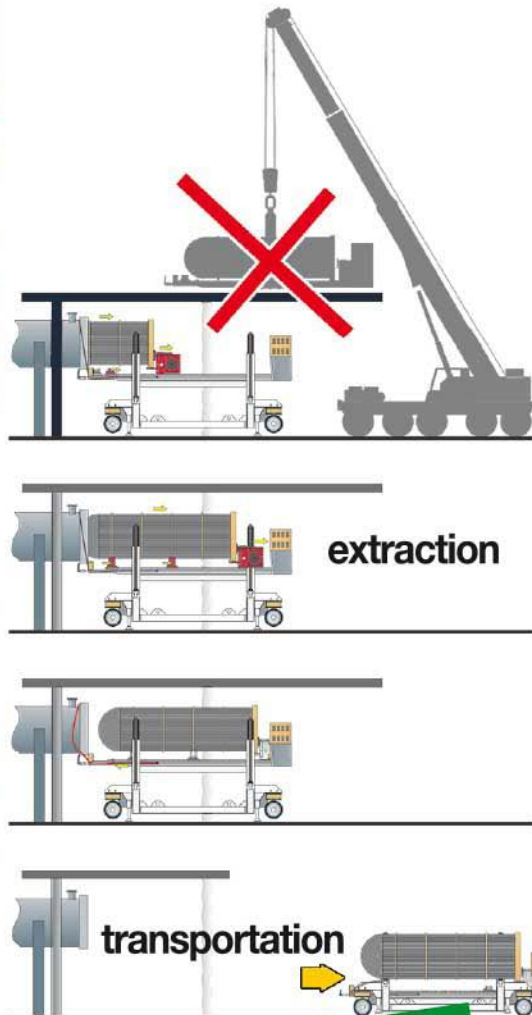
**SPECIAL MODEL
for low temperatures
is available on request**

Mef mobil

Self-propelled tube bundle puller (on-shore) for the **extraction and transportation** of tube bundles max. weight up to 20 Tons

The **Mef mobil** self-propelled tube bundle puller is designed for areas which are difficult to access in petrochemical plants for the extraction and transportation of tube bundles.

The **Mef mobil** operates autonomously without the need for cranes and trucks for positioning and transportation of the tube bundle to the maintenance area.



**Solution for
difficult access areas
(under shelter)**

Hydraulically-
controlled
bundle supports



Bundle elevation from 600 up to 7000 mm
(from 24" up to 275")

Lateral frame translation ± 100 mm ($\pm 4"$). Hydraulic device for centring the **Mef TT 23** with the bundle without moving the truck

Adjustable tube sheet anchoring plate (Left/Right)

Longitudinal frame movement to easily reach the bundle position

Bidirectional carriage -Able to extract/insert the tube bundle on both sides without turning the truck

Thrust bearing for rotation of the entire lifting device. Stroke rotation up to 100°

**Up to
70000 mm
(275")
height**

Wireless
remote control
available on request

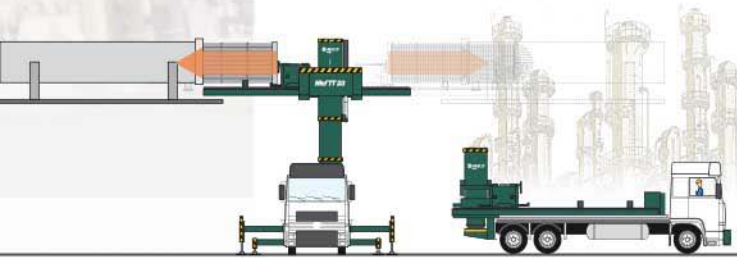




Mef TT 23

Tube bundle puller to be mounted on the truck

**Lifting capacity
up to 23 Ton**



The **Mef TT 23** model tube bundle puller is designed to be mounted easily on the truck for the extraction of the tube bundle **without the use of a crane**.

This system is particularly advised for maintenance companies who constantly operate in the petrochemical plant field.



EOC Electronic Overturning Control system

Advanced system to control load movements under safe conditions, prohibiting any commands which could jeopardize the **Mef TT 23** machine's stability, levelling and guaranteeing compliance with **CE** certification requirements.

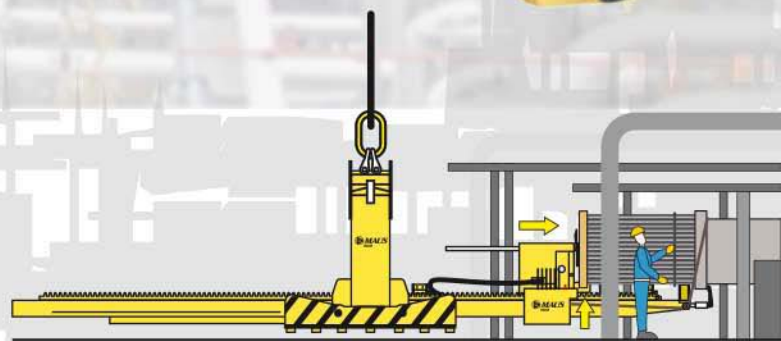


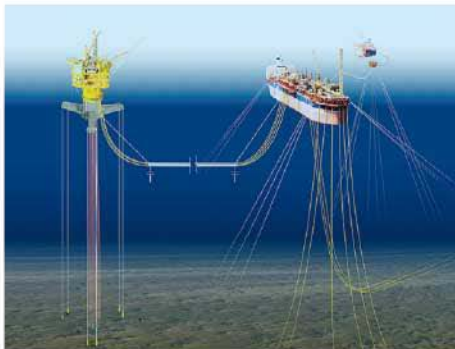
Customized



ATEX

Mef express NAVY
is designed to be
operated in areas
classified as
hazardous.





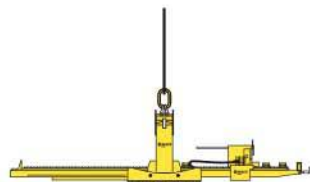
*Circular
rocker arm
for lifting*



*Hydraulic
vice*



*Manual
hydraulic
commands*



*Main carriage
with bundle
locking
system*



Mef express NAVY

Aerial Quick hooking bundle extractors (off-shore)

Mef express NAVY aerial bundle extractor, suitable for ocean platforms and FPSO installations.

This is a special model of the **Mef express**, designed and manufactured to meet the specific demands for safety and off-shore maneuverability.

Van Motor NAVY

To reduce dimensions and weight of the **Mef express NAVY** the motor and the hydraulic unit are assembled on a four-wheeled trolley.



Customized



ATEX

Mef mobil NAVY
is designed to be
operated in areas
classified as
hazardous.

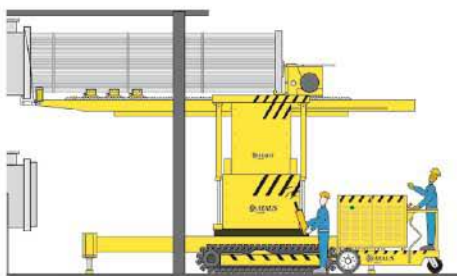


Mef mobil NAVY



Self-positioning tube bundle puller, remote controlled for extraction, hoisting and movement of tube bundles (off-shore)

Self-positioning tube bundle extractor **Mef mobil NAVY**, suitable for ocean platforms and FPSO installations. This is a special model of the **Mef mobil**, designed and manufactured to meet the specific demands for safety and off-shore manoeuvrability.



Van Motor NAVY

*To reduce dimensions and weight of the **Mef mobil NAVY** the motor and the hydraulic unit are assembled on a four-wheeled trolley.*



Customized



ATEX

Mef mobil NAVY
s designed to be
operated in areas
classified as
hazardous.

78



Mef fixed NAVY 1500/56-E
CSA model classified area
Class 1- Zone 1- IIBT3.

Mef fixed NAVY

Fixed tube bundle puller,
remote controlled for
extraction of tube bundles
(off-shore)



Mef fixed NAVY fixed tube bundle extractor, suitable for
ocean platforms and FPSO installations.

This is a simplified version of the **Mef mobil**, designed and
manufactured to meet the specific demands for safety and
off-shore manoeuvrability.



*In order to reduce the
dimensions and weight of
the **Mef fixed NAVY** the
motor and the hydraulic
device are assembled in a
separate unit.*



Available skid-mounted
or trolley-mounted

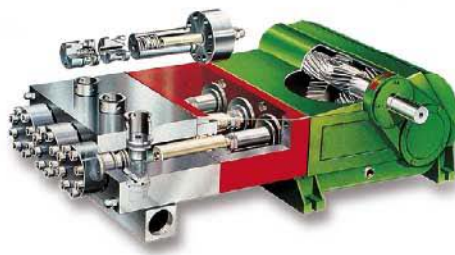


Idroscal NAVY
**ATEX certification
on request**

*Idroscal pumps can
be supplied on
request on the **NAVY**
model with suitable
motors for working
areas classified as
hazardous (complete
with **ATEX**
conformity
declaration)*



Diesel and Electrical version



Idroscal

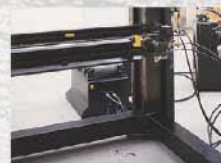
Hydrodynamic pump unit with
**Electric motor or Diesel
engine** for cleaning of heat
exchangers with high pressure
water

Idroscal hydrodynamic pump unit model supplied with
Electric motor or Diesel engine for the cleaning of heat
exchangers with high pressure water as per Customer
requirements / needs.



Soundproof version

STD model for bundles up to
1600 x 8000 mm x 25 Ton
63" x 315" x 55000 Lb



Customized model

Maus supply customized bundle
cleaners to meet particular Customer
requirements.

BCL-X

Robot for the **external automatic cleaning** of tube bundles.

The **BCL-X** robot has been designed for the external automatic cleaning of tube bundles and works in tandem with the **kdrosca** hydrodynamic pump.

The tube bundle is placed on motorized rollers for rotation during the cleaning operation.

Operating procedure

Step 1

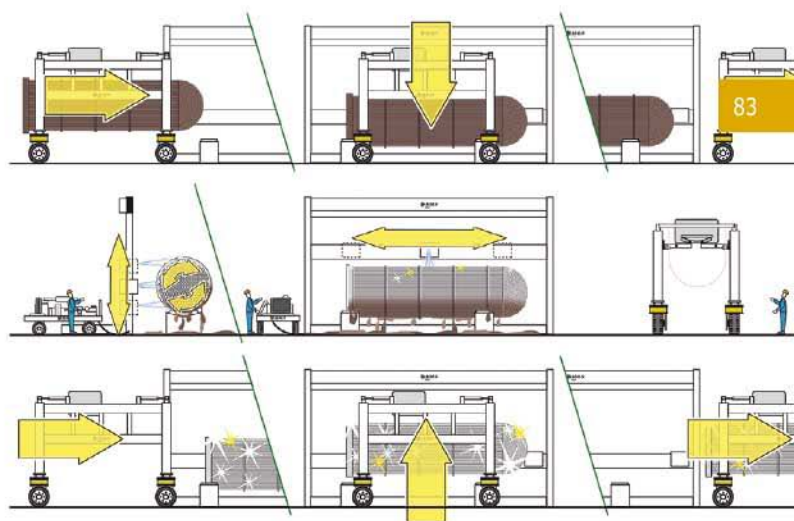
The tube bundle is positioned on the rollers in front of the **BCL-X** using the **Mammut** transporter

Step 2

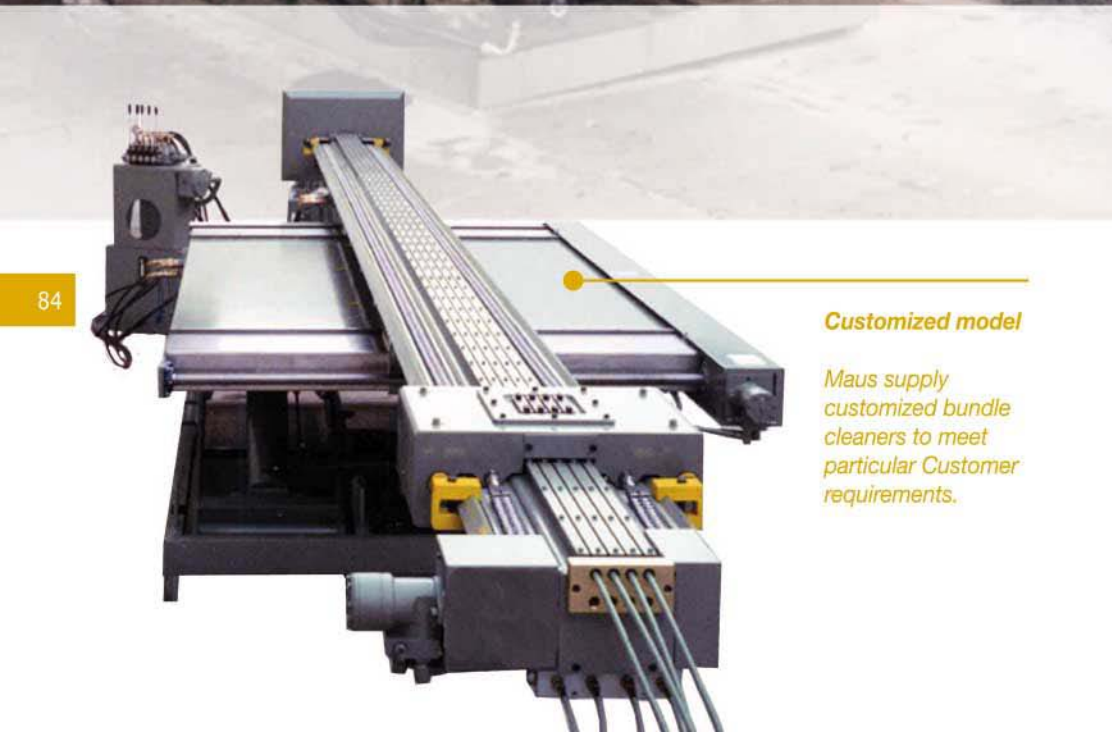
The machine moves along the horizontal and vertical axes while the tube bundle is rotated by motorized rollers enabling the water jets to descale the tube bundle.

Step 3

When washing is finished, the tube bundle is picked up once more by the **Mammut** and taken back on site for insertion.



**Range of tubes
I.D. from 10 to 40mm
(3/8" to 1.1/2")**



84

Customized model

*Maus supply
customized bundle
cleaners to meet
particular Customer
requirements.*



Adjustable pitch
25 to 50 mm (1" to 2")



BCL-IN

Multiple nozzle carrier robot for the **automatic internal cleaning** of tube bundles

The **BCL-IN** robot has been designed for the internal automatic cleaning of tubes in tube bundles and works in tandem with the **Idroscal** hydrodynamic pump.

The robot **BCL-IN** automatically descales and washes the tubes with powerful water jets applied with 4-6 nozzles which move simultaneously along 3 axes.

Operating procedure

Step 1

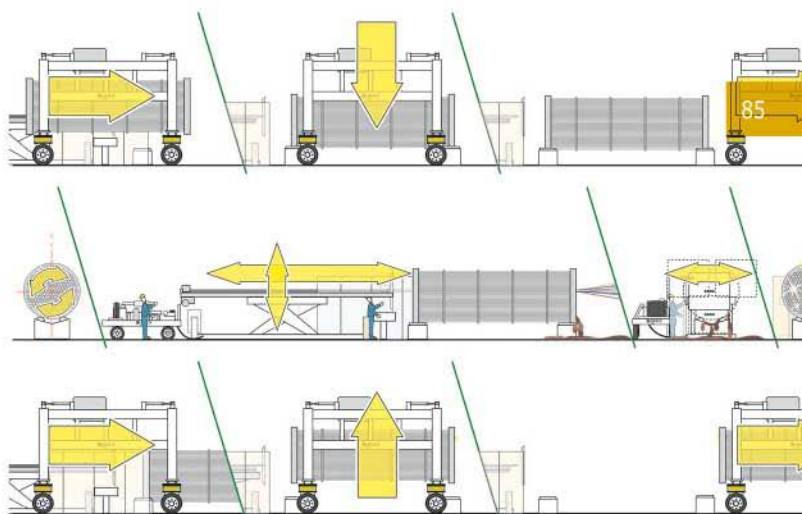
The tube bundle is positioned on the rollers in front of the **BCL-IN** using the **Mammut** transporter.

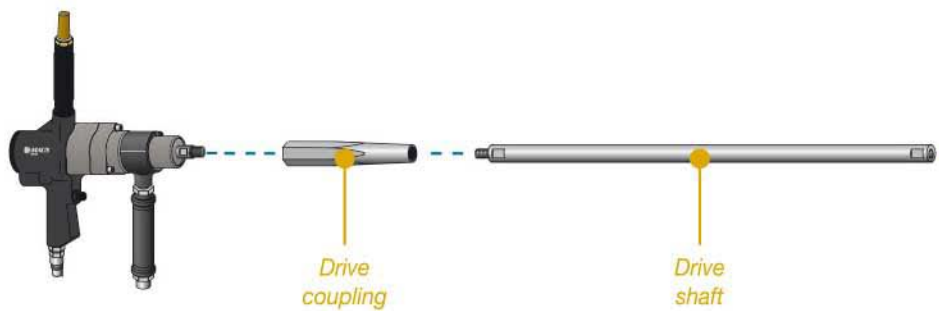
Step 2

The rows of tubes to be cleaned are aligned with the row of nozzle carriers by the motorized rollers. Once the nozzle carriers have been positioned at the tube inlets by the servo system, they can be moved forward for the descaling of the tube interiors.

Step 3

When washing is finished, the tube bundle is picked up once more by the Mammut and taken back on site for insertion.

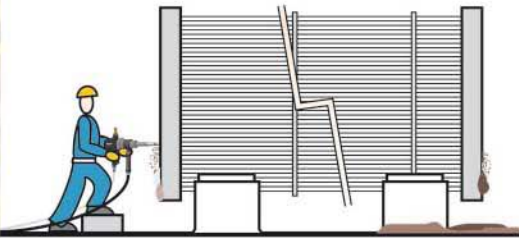
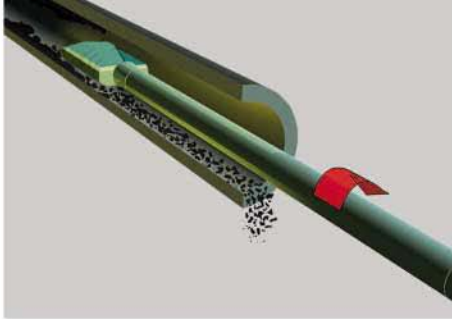




Hardscal

Pneumatic shaft tube cleaners for tube bundle heat-exchangers

The pneumatic shaft tube cleaners with tool water cooling system are the simplest and most effective solution to clean heat exchanger tubes even when completely blocked; the continuous flow of water (max pressure 20 Bar - 290 psi) through the holes in the tools provides cooling during the process and aids drainage of the material removed from the tubes.



Shaft
coupling

Driven
shaft

Cleaning drills
or brushes

**Healthy environment
High safety
High productivity**



*Quick hydraulic tube
sheet locking device
(optional)*

BundleCut



Bundle saw machines for dismantling heat-exchangers

The solid construction of its electro-welded structure, the use of precision guides and pads and a number of fundamental devices make this machine an innovation to be included in any modern heat exchanger maintenance workshop.

The quality of the mechanical band cutting, in replacement of oxygen cutting, eliminates pollution from combustion gas and protects tube sheet holes against scratching during extraction of the stubs.

BundleCut, in tandem with the quick attaching gripper tube puller of the **Grippul** series, facilitates and significantly speeds up tube sheet recovery.



Fence / Barrier for safety

Bundlecut 2000

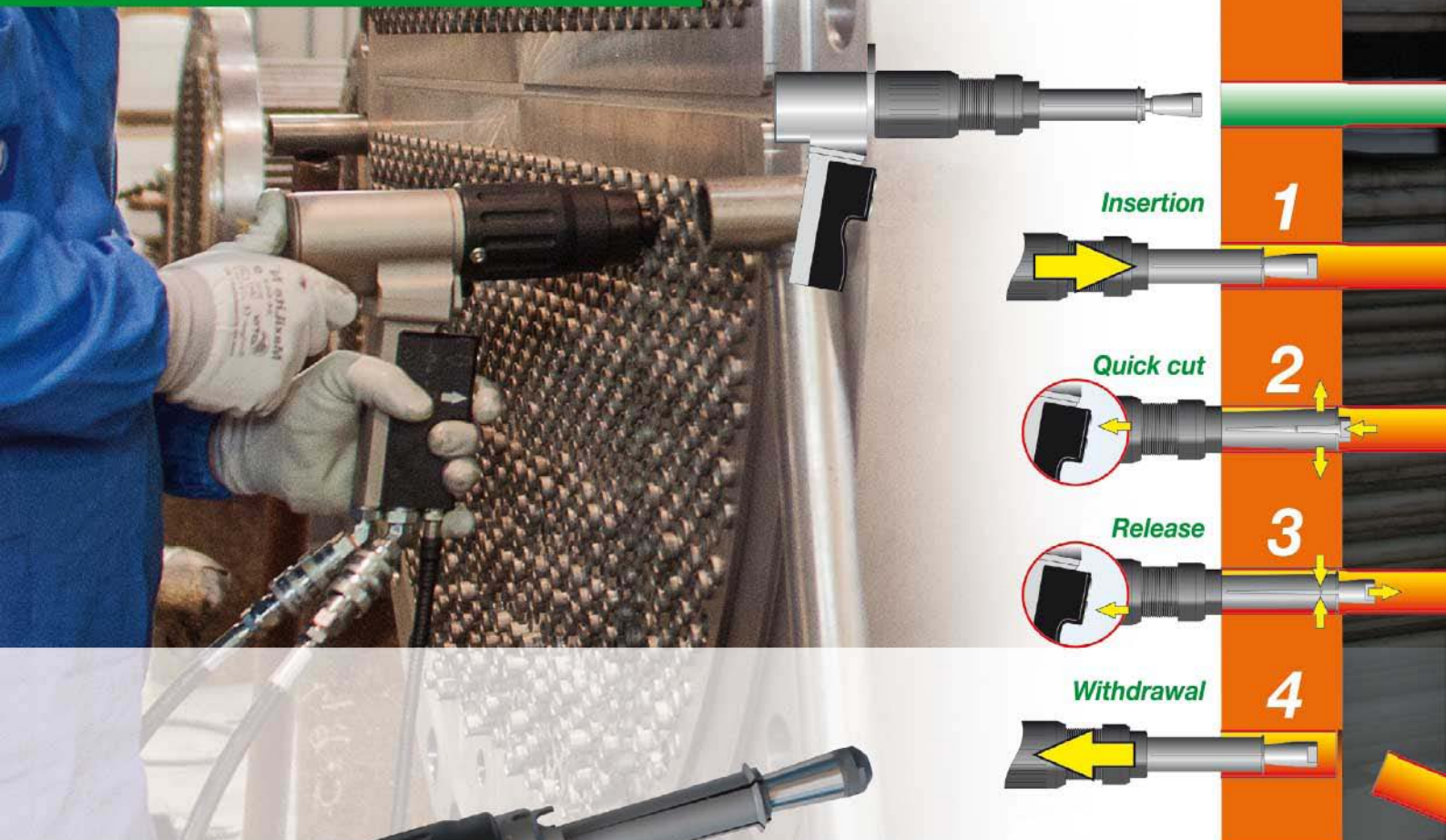
**Up to
78"
(2000 mm)**

Bundlecut 3000

**Up to
118"
(3000 mm)**

Precision
Any stubs that are still attached to the tube sheet are not deformed and are easy to remove.





Kattex-12

From 1" to 4"
(25,40 to 101,60 mm)



Kattex-6

From 1/2" to 1.1/2"
(12,70 to 38,10 mm)



Kattex

Hydraulically-operated tube cutter for heat-exchanger and boilers

Innovative patented device which is hydraulically operated for instantaneous internal cutting of tubes. The **Kattex** ensures a clean result in a short time for dismantling or partial retubing during maintenance.

TP2-E

*Electrical hydraulic
pump unit*

TP2-P

*Pneumatic
hydraulic pump unit*



**Cutting
without shaving**





F/794



92

MBOS 16-2

Portable
electric drill



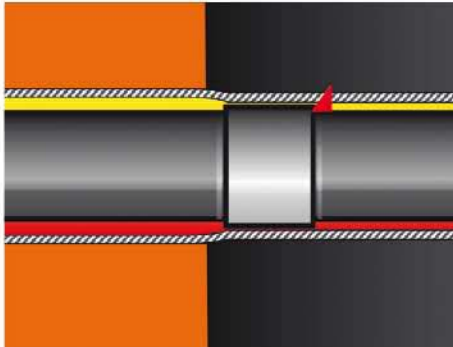
MOF

Portable
pneumatic drill



F/794 - F/794L

Tube cutters for medium and thick tube sheets



Model **F/794** and **F/794L** tube cutters are the traditional solution for internal tube cutting.

The tube cutters are driven by pneumatic **MOF** or electric **MBOS 16-2** motors.

F/794

Up to
1.1/2"
(38,10 mm)

RE_{max}
Up to
6"
(152,40 mm)

F/794L

Up to
1.1/2"
(38,10 mm)

RE_{max}
Up to
12"
(304,80 mm)





TEFC Electrical motor

"Totally Enclosed Fan-Cooled"

An upgrade of the previous version, the **TP60-HDE** electrical hydraulic unit is now available with a 7.8 Kw electric motor to ensure continuous maximum pressure in heavy maintenance applications.

Hydraulic oil Fan-Cooled radiator

The increase of the cooling unit is a further contribution to guarantee a constant power.

TP

Electrical, Pneumatic and Manual **hydraulic units**

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





**High quality
No damage to holes in the tube sheet**



Stub pullers



Grippul 11

From 1/2" to 1.1/2"
(12,70 to 68,10 mm)

Grippul 21

From 1" to 2.1/2"
(25,40 to 63,50 mm)



The **ABTS** (Anti-Breaking Tie-Rod System) allows the force with which the jaw penetrates the tube to be adjusted to suit the tube's diameter and the material from which it is made.



The electric **OPS** (Over Pressure Switch) cuts off hydraulic fluid delivery when the piston reaches the end of its stroke, preventing unnecessary overpressure in the system.



The **RC24** remote control beside the knobs simplifies and speeds up stub extraction. The remote control is fitted on both pneumatic and electric versions.



The **RSR** (revolving support ring), on which the **Grippul** is suspended during use, allows optimal positioning in the tightest of spaces.

Grippul

Quick hydraulic stubs pullers

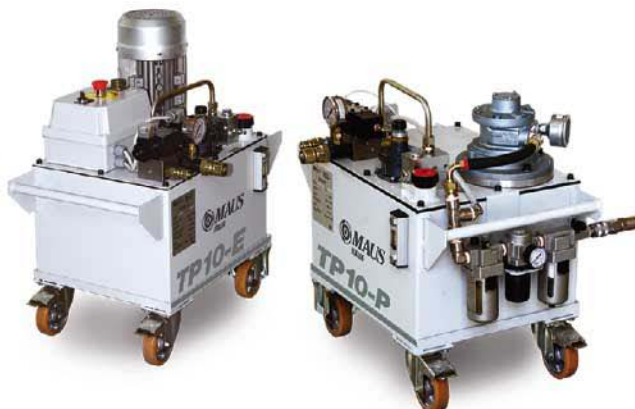
The **Grippul** series of quick attaching gripper tube pullers is designed for the rapid extraction of tube stubs from tube sheets.

In tandem with **BundleCut** or **Kattex**, they facilitate and significantly speed up the tube sheet recovery.

TP10-E

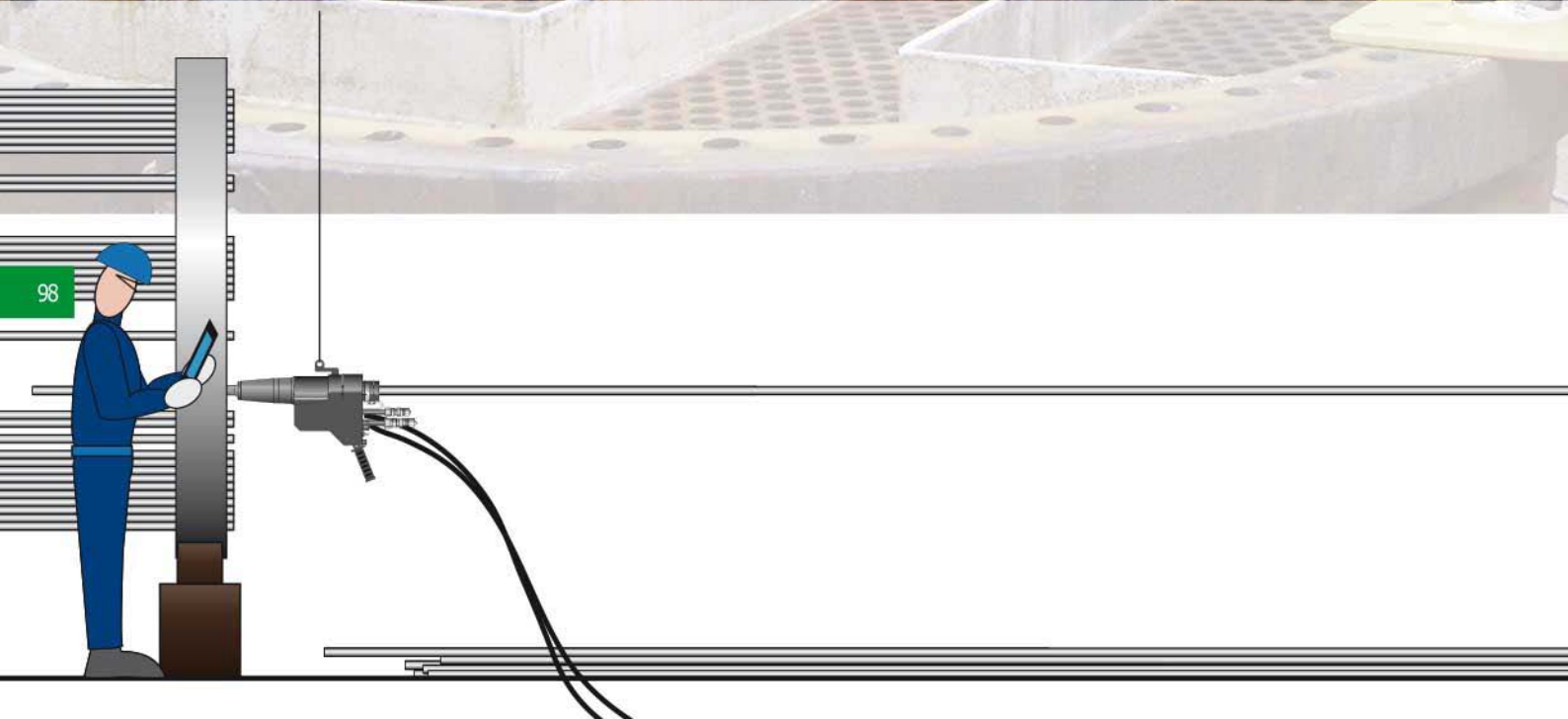
TP10-P

Electrical and
pneumatic
hydraulic
pump unit



Standard supply
Grippul
Set of spare gaskets
Service wrenches set
Pressure gauge
Instruction manual
2 hydraulic hoses







The **USD** (Unclamping System Device) is an emergency hydraulic device for unlocking jaws which have been jammed on to the tube due to rust, etc.



The electric **OPS** (Over Pressure Switch) cuts off hydraulic fluid delivery when the piston reaches the end of its stroke, preventing unnecessary overpressure in the system.



The **RC24** remote control beside the knobs simplifies and speeds up tube extraction. The remote control is fitted on both pneumatic and electric versions.



The **RSR** (revolving support ring), on which the **Runpul** is suspended during use, allows optimal positioning in the tightest of spaces.



Runpul

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

Hydraulic tube puller with double jaws, for automatic continuous tube pulling at high speed.

Suggested for large scale maintenance work on condensers and heat-exchangers.

Runpul 15 from 3/8" to 1.1/8" (9,52 to 28,58 mm)

Runpul 30 from 3/8" to 1.1/2" (9,52 to 38,10 mm)

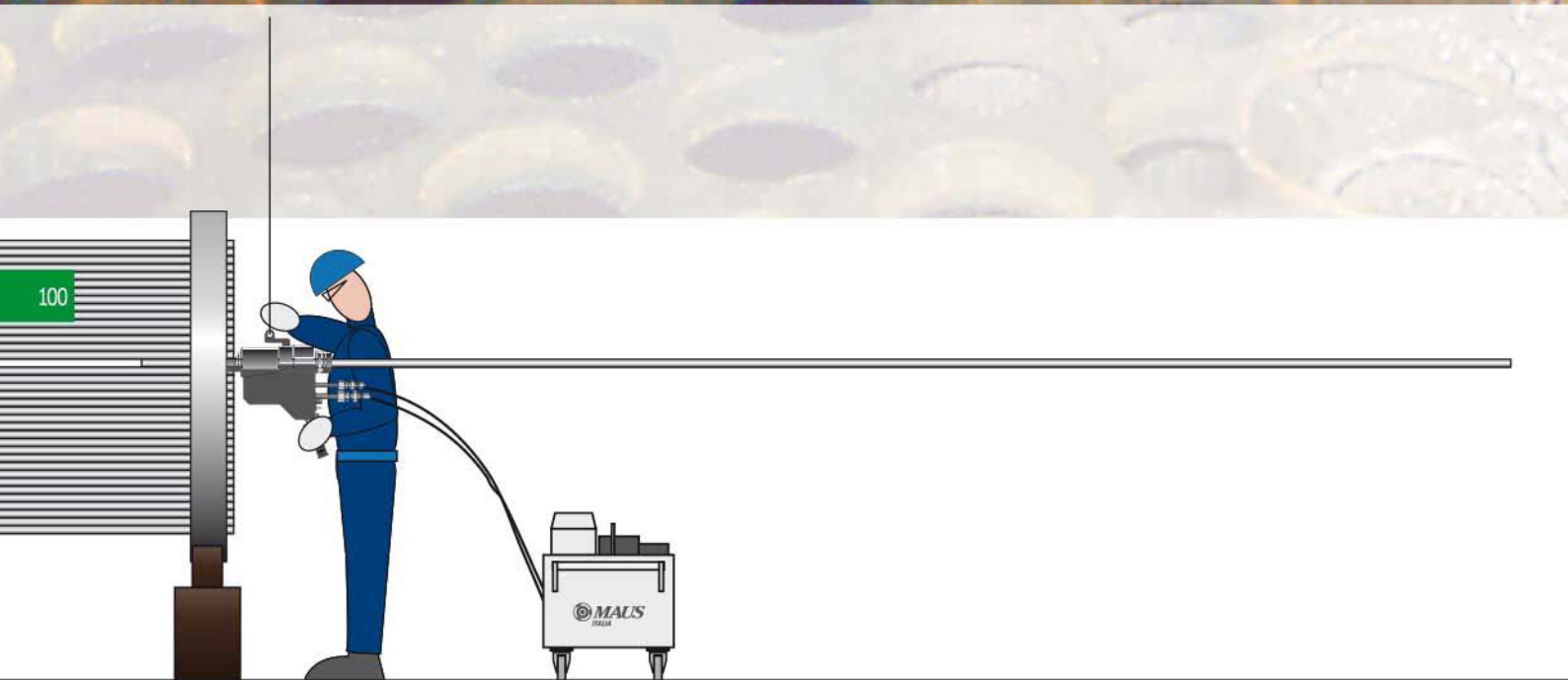
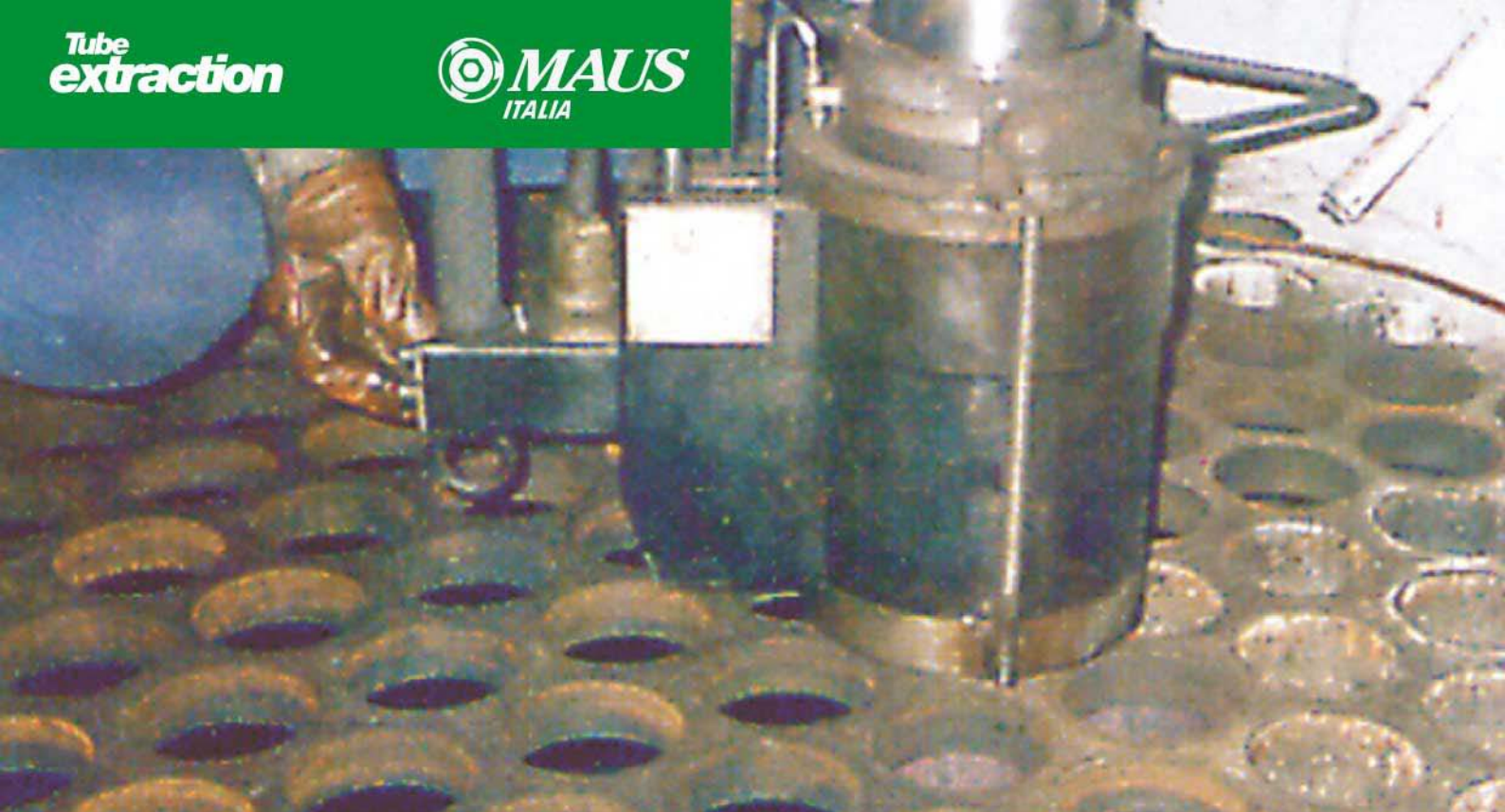
Runpul 45 from 1" to 3" (25,40 to 28,58 mm)

Runpul 60 from 2" to 4" (50,80 to 101,60 mm)



**Tube
extraction**

MAUS
ITALIA





The **RC24** remote control beside the knobs simplifies and speeds up tube extraction. The remote control is fitted on both pneumatic and electric versions.



The **RSR** (revolving support ring), on which the **Onlypul** is suspended during use, allows optimal positioning in the tightest of spaces.

Onlypul

Semi-automatic hydraulic tube pulling for small scale maintenance work.

Hydraulic tube puller semiautomatic continuous extraction. Suggested for small scale maintenance work.

Onlypul 15 from 3/8" to 1.1/8 (9,52 to 28,58 mm)

Onlypul 30 from 3/8" to 1.1/2" (9,52 to 38,10 mm)

Onlypul 45 from 1" to 3" (25,40 to 28,58 mm)

Onlypul 60 from 2" to 4" (50,80 to 101,60 mm)



Standard supply:
Onlypul
 Transport case
 Set of spare gaskets
 Service wrenches set
 Instruction manual
 2 hydraulic hoses





TPMM
Mandrel

TPCM
Collar

F/800
Manual extractor



F/790
One revolution tube cutter





F/789 - F/790 - F/791 F/792 - F/793 - F/800

Tools for **manual
maintenance** of heat
exchanger tubes

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

F/791

Tube reamer



F/793

Tube expeller



F/792

Tube collapsing tool



F/789

Pneumatic hammer



Integrated quality, environment and safety policy for its own success and that of its Customers

Maus Italia is fully aware that a responsible economic strategy should be targeted towards preventing quality and environmental problems deriving from its activities. It also considers the protection of health and safety at work as a fundamental and indispensable aspect of overall company management.

Maus Italia recognises that the continuous improvement of its own performance in terms of quality, environment and safety at work leads to significant commercial and economic advantages that at the same time satisfy customer expectations and lead to an environmental improvement in the territory where the company works and safety at its work sites.

Maus Italia therefore is committed to a policy of continuous improvement of its own performance, with the goals of fully satisfying the needs of its customers and other



interested parties, and minimising, where technically possible and economically sustainable, all negative impacts on the environment from its activities, formally committing itself to activities for the prevention and protection of everyone at its site in Bagnolo Cremasco (CR).

Maus Italia intends to achieve these goals through:

- *ensuring that its own activities are carried out in compliance with current laws and with any accepted codes of practice;*
- *implementing and maintaining an effective Integrated Quality, Environment and Safety Management System according to the requirements of the UNI EN ISO 9001, and BS OHSAS 18001 standards;*

- *ensuring that this policy and the relative management system are included, implemented and maintained at all levels of the organisation and that the system is supported by periodical and systematic training activities;*
- *defining objectives and goals relating to quality, environment and safety at work to be integrated with operative plant management and company development programs;*
- *doing everything possible in organisational, operative and technological terms to prevent pollution of the water, the air or the ground.*
- *minimising the use of energy and water and the production of waste and promoting recovery where possible.*
- *increasing and improving the participation, awareness and skills of those working in the company plants.*

This policy must be constantly adjusted according to the Company's purposes and must be communicated and understood throughout the organisation. For this purpose, the Management has arranged for the policy, in parallel with the objectives, to be reviewed at least once a year during management reviews. The General Management ensures that companies collaborating with Maus Italia and those working on its behalf have the minimum quality requirements to guarantee services and products that are qualitatively compliant with the company's expectations and that these companies provide evidence of implementation of a continuous improvement and pollution prevention system.

This policy applies to the entire organisation and for the activities carried out at the Bagnolo Cremasco site.

www.mausitalia.it

glovestudio.com design studio
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