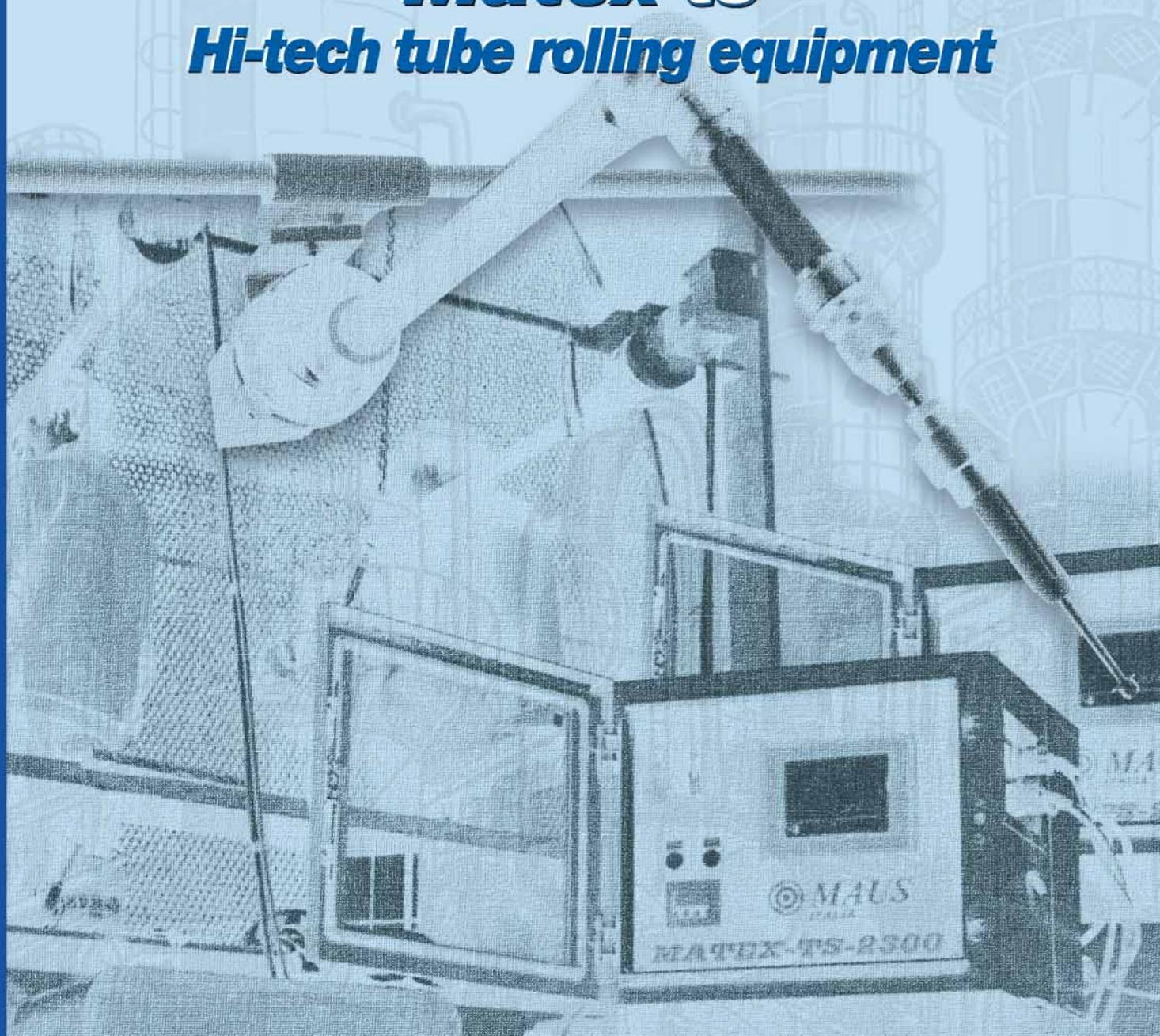


NEW

 **MAUS**
ITALIA

Matex ts 
Hi-tech tube rolling equipment



Productivity
+100%

Quality
+200%

Tool wear reduction
-30%

Maximum safety - low voltage 48V

WHAT IS YOUR HEAT-EXCHANGER WORTH?
DO NOT ACCEPT COMPROMISES:
CHOOSE MATEX TS!

F/308/3

Universal
telescopic spindle

PE/900

Pedal switch
remote control

Matex R V4

Variable speed, low voltage
brushless motor

Photograph
By the kind
permission of **KOCH**
HEAT TRANSFER COMPANY

Matex ts

Hi-tech tube rolling equipment

Matex ts

Tube rolling equipment with torque-based speed continuous variation for tubes of **O.D. from 1/4" up to 2.1/2"** (6,3 to 63,5 mm).

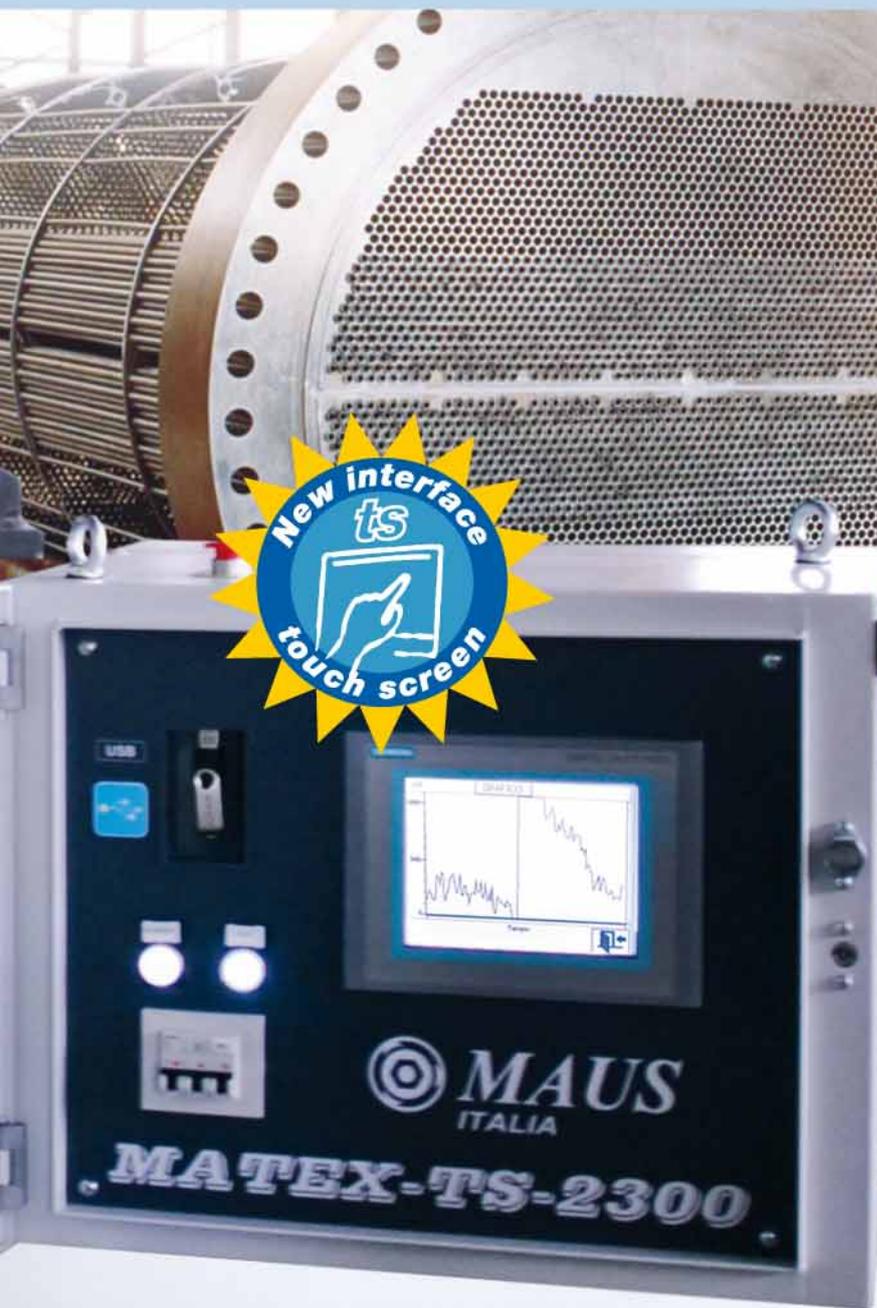
As a leader in the field of research, Maus Italia has designed and produced the **Matex ts** equipment, the digital tube expansion system with torque-based speed continuous variation.

Mainly for demanding users, is similar to the traditional **MRS** configuration and consists of:

- digital microprocessor controller **Matex ts Pro/2300**;
- **Matex R** motors low voltage safety rolling machine (as with the EC regulations) complete with suspension;
- **F/308** telescopic shaft.

Compared to the traditional rolling system with a fixed speed motor, the distinguishing features of the **Matex ts** are high productivity, the quality of the expansion and substantial reduction of tool wear.

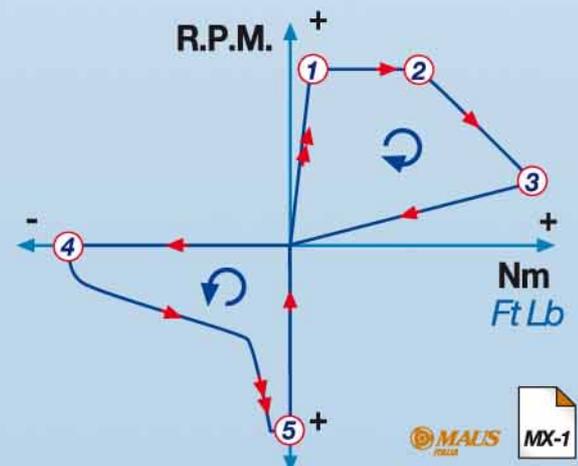
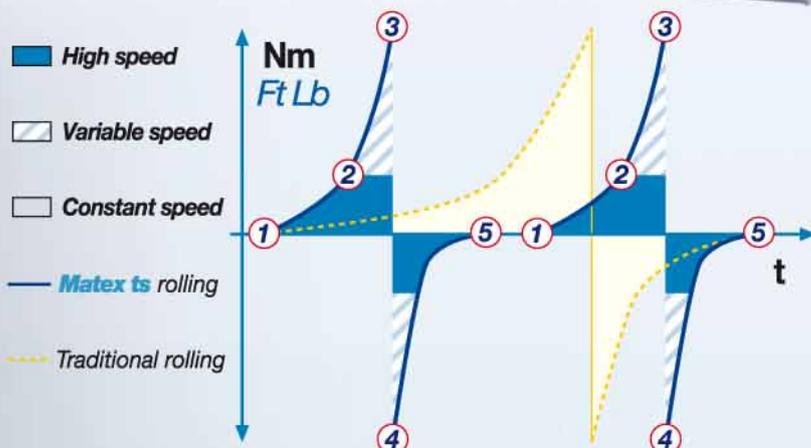
The reason for the extraordinary results achieved by the **Matex ts** rolling machine can be found in the latest generation electronic components selected by the technicians of Maus Italia and the experience acquired in the construction of **MA-2500** working centre.



Description of the working cycle

An analysis of the rotational speed variation of the **Matex R V4** rolling machine in the various phases of rolling is given here below

- 1-2 **approach** of the tube to the wall of the hole in the tube-sheet with **rapid rotation** of the tube expander;
- 2-3 **compression** of the tube thickness with **continuous decreasing variation** of the rotational speed as a function of the torque;
- 3 the preset torque value **reached** with tube expander rotation stop;
- 4-5 **unlocking** of the tube expander with slow rotation, during the unlocking and fast rotation until the tube expander is completely withdrawn;
- 5 instantaneous rotation **blocking** to facilitate the reinsertion of the tube expander in the next tube during the **programmed pause** so that the system is ready to **resume the continuous process** from point 1 automatically.



Matex ts Pro 2300

Continuous cycle digital controller

The **Matex ts Pro-2300** controller is the brain of the system. It is user-friendly, has a 5.7" LCD **touch screen** and dedicated software; it is protected by a robust metal casing. The **Matex ts Pro 2300** provides **automatic tolerance compensation** both for the diameter of the tube-sheet holes and the thickness of the tubes. This results in the achievement of a **safe uniform seal** for all the tubes at the operating pressure of the heat exchangers and, most importantly, estimates **rolling times**.

Photograph
By the kind permission of 1926 Villa & Bonaldi s.r.l.
Maugeri - Italy

VISUAL

Speed 480 Rpm
Saving Stopped
Partial 1480
Current 38.00 Step 12
Torque 38.00
0.689 Amp 38.00 Nm

SPECIAL PARAMETER

Password Level MAUS ITALIA

CURRENT

Real current 18.645 Amp
Current offset A 1.496 Amp
Current offset B 0.845 Amp

MOTOR

Motor Type Matex V4
Maximum speed 800 Rpm
Maximum current 38 Amp
Reduction rate 3.71 N
Torque constant 0.222 Nm/Amp

Torque GRAPHIC

Torque 100 100
Time

SPEED

Maximum speed 800 Rpm
Maximum torque 31 Nm
Speed A 800 Rpm
Speed B 200 Rpm
Gear N
Speed 200 300 540 800 Rpm

Perform the procedure of zero setting absorption engine every time the engine speed is changed

SPECIAL PARAMETER

TORQUES

	Nm	Amp
A	8,000	6,590
B Step 1	25,000	20,600
Step 2	0000,000	0000,000
Step 3	0000,000	0000,000
Step 4	0000,000	0000,000
Step 5	0000,000	0000,000
Maximum	31,000	38,000

Main features

- Automatic no-load calibration on the motor
- Tolerance repeatability +/- 1%
- Selection of desired language
- Set-up for connection of tube expander cooling/lubrication equipment
- Instantaneous visualisation of parameters
- USB-key for memorisation of the data
- Continuous programmed cycle

- program setting
- torque value reports

- motor absorption (amps).
- torque delivered to the tube expander
- cycle duration
- rotational speed of the tube expander
- count of the number of rolling passes

- torque
- speed
- alarms
- cycle times
- access password

Matex ts

Hi-tech tube rolling equipment

Photograph
By the kind
permission of **KOCH**
HEAT TRANSFER COMPANY

Independent from voltage variations $\pm 10\%$

New interface
ts
touch screen

SIEMENS SIMATIC MULTI PANEL

VISUAL	
Speed	480 Rpm
Saving	Stopped
Partial	1480
Current	38.00
Torque	38.00
	0.689 Amp 38.00 Nm

Step 12

MAUS
ITALIA
MATEX-TS-230

(Nm)
done

Safety

Low voltage

Flexible

4 speed range gear

Precision

Costant electrical parameters

Matex R

Low-voltage electrical rolling motors

Different tube rolling electrical motors sizes are available to cover main expansion technical requirements, in accordance with tube dimensions and required expansion characteristics.

They are **robust, variable speed, low voltage** (48V) and brushless motor **Matex R V4** and **Matex R L4** are specifically suitable for rolling applications and has a mechanical gear with 4 speed ranges to optimise speed on the basis of given work parameters.

They has been conceived for use only with the **Matex ts Pro-2300** controller.

Technical data:

- Motor voltage 48V
- Power installed Kw 2,24
- Protection level IP 54



	Tube O.D.				Motor	Max torque		RPM	Dim	Weight		Drive shank	Adaptor / spindle	
	Steel	Non ferrous				Nm	Ft Lb			Min ÷ Max	Kg			Lb
	mm	inches	mm	inches	Cod.			mm	inches				Cod.	
Portable Single speed rolling motors	9,5	3/8"	12,7	1/2"	Matex R P6000	3,5	2,6	0 ÷ 6000		5,0	11,0		F/313	
	15,8	5/8"	22,2	7/8"	Matex R P1500	14	10,3	0 ÷ 1500						
	19,0	3/4"	25,4	1"	Matex R P1000	21	15,5	0 ÷ 1000						
	25,4	1"	31,7	1.1/4"	Matex R P600	35	25,8	0 ÷ 600						
Suspended 4 speed rolling motors	50,8	2"	63,5	2.1/2"	Matex R V4	125	92,2	I 0 ÷ 200		24	53,0	-	3	F/308 /3a + F/316
	44,4	1.3/4"	57,1	2.1/4"		83	61,2	II 0 ÷ 300						
	31,7	1.1/4"	44,4	1.3/4"		47	34,7	III 0 ÷ 540						
	25,4	1"	31,7	1.1/4"		31	22,9	IV 0 ÷ 800						
	63,5	2.1/2"	82,5	3.1/4"	Matex R L4	224	165	I 0 ÷ 110						
	57,1	2.1/4"	76,2	3"		150	111	II 0 ÷ 170						
	44,4	1.3/4"	57,1	2.1/4"		84	62	III 0 ÷ 300						
	31,7	1.1/4"	44,4	1.3/4"		57	42	IV 0 ÷ 450						

F/308

Special sizes upon request

Universal telescopic spindle



Model	N	Handle A	Extensibility B	Max torque	Weight	∅F
		mm	mm	Nm	Kg	mm
F/308 /3a	3	225	650-1060	307	8	18
		inches	inches	Lb Ft	Lb	
		8.86"	25.58"-41.73	226.43	17.64	

Matex ts

Hi-tech tube rolling equipment

Matex ts Pro-2300



Hi-tech tube rolling equipment

The equipment is provided with:

- 1 **Matex ts Pro-2300** control unit
- 1 **Matex R** Motor chosen from the wide range

Only for Matex R V, Matex R V4 and Matex R L4:

- 1 universal telescopic spindle **F/308** series
- 1 quick double coupling adaptors **F/313** or **F/316** series
- 1 **P/900** pedal switch remote control unit with 10 m (32 Ft) cable.

Technical data:

• Supply voltage	220/400 Vac - 50/60 Hz
• Power installed	2,5 Kw
• Motor power feed	2300 VA
• Motor voltage	48V
• Pedal control voltage	24V
• Dimensions	600 x 560x 500 mm(24" x 22" x 20")
• Weight	85 Kg (188 Lb)
• Protection level	IP 55

PE/900



Pedal switch remote control

The **Matex ts Pro 2300** unit supplied with one **PE/900** pedal switch remote controls with three-feet push buttons for **start/reverse/emergency**. Standard electric cable is 6 m (19.6 Ft).

Porter



Trolley for positioning and moving rolling head

Essential factor for optimizing the use of **Matex ts Pro 2300** together with the motor and telescopic spindle is **Porter**, with new, advanced and charming design.

The servo-assisted movement on the vertical axis displacement (**motorized**) allows the operator to work with the motor in line with the tube expander with the simple operation of pushing a button.

Technical data:

• Dimensions		1400 x 800 x 2000 mm (56" x 32" x 79")
• Vertical stroke	Y	1000 mm (39")
• Weight		170 Kg (375 Lb)
• Dimensions		1400 x 800 x 3000 mm (56" x 32" x 119")
• Vertical stroke	Y	2000 mm (78")
• Weight		190 Kg (419 Lb)
• Orizzontal stroke	X	950 mm (37")
• Protection level		IP 54

F/313

Quick double coupling adaptors female-female

Model	∅F	Weight	
		Kg	Lb
F/313 - 6 mm	6 mm	0,15	0,33
F/313 - 1/4"	1/4"	0,15	0,33
F/313 - 9 mm	9 mm	0,18	0,40
F/313 - 3/8"	3/8"	0,18	0,40
F/313 - 12 mm	12 mm	0,20	0,44
F/313 - 1/2"	1/2"	0,20	0,44
F/313 - 14 mm	14 mm	0,21	0,46



F/316

Quick double coupling adaptors female-female

Model	∅F	Weight	
		Kg	Lb
F/316 - 9 mm	9 mm	0,25	0,55
F/316 - 3/8"	3/8"	0,25	0,55
F/316 - 12 mm	12 mm	0,27	0,60
F/316 - 1/2"	1/2"	0,27	0,60
F/316 - 14 mm	14 mm	0,28	0,62
F/316 - 16 mm	16 mm	0,30	0,66
F/316 - 18 mm	18 mm	0,32	0,70
F/316 - 3/4"	3/4"	0,34	0,76



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