

NEW



Matex
Hi-tech low-voltage
electrical portable equipment
and mobile stations for
semi-automatic
controlled tube expansion

CE

MADE IN ITALY

Matex

MAUS
ITALIA

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HEAT TRANSFER COMPANY



MX-2

MAUS

Matex

Hi-tech portable equipment and electric mobile stations for **semi-automatic** controlled expansion of tubes **1/4" to 3"** (6,35 to 76,20 mm).

The **process of tube expansion** in tube sheet bundles using the traditional tube expander must meet **quality, productivity and repeatability requirements** which are essential to successfully pass the strict **pressure, tightness and safety tests** at which the **tube bundles** are subjected in the final testing stage to meet the strict safety standards.

To **start and control the operation of the tube expander**, Maus Italia offers a **range of motorised control systems and accessories**, divided in three main families: portable, semi-automatic and automatic.

Our experience has selected the **control of the torque measured on the expander axis** as the most appropriate reference technology.

Unlike pure dimensional control, torque control **is able to compensate parameter variability** (e.g. *tolerances on sheet hole diameter and tube thickness*), ensuring **reliability, repeatability and productivity** for heat exchanger manufacturers.

Thanks to its fifty-year experience in the industry, Maus Italia, a company always focused on research, has designed and manufactured the **Matex**, the new **hi-tech** electric mobile stations for semi-automatic expansion of tubes, **top of range in the "semi-automatic" product**, whose innovative solutions allow tube expansion on an industrial scale.

These extraordinary results are achieved thanks to the latest generation electronic components selected by the engineers of Maus Italia thanks to experience gained in the manufacturing of the **MA-2501** working centres.



Flex Matex

Workstation with **flexible shaft**.

Matex flex is the **most practical solution** proposed by Maus Italia for the expansion of **tube bundle heat-exchangers tubes (use of 5X torque multiplier) with OD 6.35 ÷ 19.05 mm (1/4" ÷ 3/4")**.

It consists of:

- 1 **Matex tsx-2300**
Continuous cycle digital **control unit** with microprocessor and touch screen interface
- 2 **Matex R F6000**
Low voltage brushless **electric rolling motor** featuring a high number of revolutions with arrangement for the use with flexible shaft
- 3 **FSD 12/2000**
Flexible shaft for motor-tube expander mechanic drive with optional torque multiplier (5X)
- 4 **PE/901**
Digital input remote control **pedal set**
- 5 **TPB-2**
Balancer to support the flexible shaft
- 6 **Porter flag**
Support/handling **trolley** for the controller with rolling motor support

Port Matex

Workstation with **portable electric tube expander**.

Port Matex is the "**portable**" solution proposed by Maus Italia for the expansion of tubes of **tube bundle heat-exchangers tubes with OD 6.35 ÷ 31.75 mm (1/4" ÷ 1.1/4")**.

It consists of:

- 1 **Matex tsx-2300**
Continuous cycle digital **control unit** with microprocessor and touch screen interface
- 2 **Matex R P####**
Low voltage brushless **electric rolling motor** featuring a high number of revolutions in 4 versions
- 3 **PE/901**
Digital input remote control **pedal set**
- 4 **TPB-2**
Balancer to support the portable rolling motor
- 5 **Porter flag**
Support/handling **trolley** for the controller with rolling motor support



Packaging dim.	mm (inches)	1400 x 820 x 1210	(4.6 x 2.7 x 4.0)
Net weight	Kg (Lb)	190	(419)
Gross weight	Kg (Lb)	300	(662)

Packaging dim.	mm (inches)	1400 x 820 x 1210	(4.6 x 2.7 x 4.0)
Net weight	Kg (Lb)	180	(397)
Gross weight	Kg (Lb)	290	(640)



Quadrol Matex

Workstation with telescopic shaft.

Quadrol Matex is the most complete solution proposed by Maus Italia for the expansion of tube bundle heat-exchangers tubes with OD 9,52 ÷ 76,20 mm (3/8" ÷ 3").

It consists of:

- 1 **Matexsx-2300**
Continuous cycle digital control unit with microprocessor and touch screen interface
- 2 **Matex R V4** o **Matex R L4**
Low voltage brushless electric rolling motors with 4-speed gear
- 3 **F/308 HS**
Telescopic shaft for motor-tube expander mechanic drive
- 4 **F/314 HS** o **F/317 HS**
Adapters with female-female double quick couplings specific for high speeds
- 5 **PE/901**
Digital input remote control pedal set
- 6 **Porter plus** o **Porter executive**
Trolleys for controller support/handling and rolling motor support with manual or continuous servo assisted handling on axis Y

Packaging dim.	mm (inches)	1570 x 820 x 1210	(5.2 x 2.7 x 4.0)
Net weight	Kg (Lb)	250	(552)
Gross weight	Kg (Lb)	360	(794)



Quadrol Matex MRP

Highly advanced workstation.

Quadrol Matex MRP is the niche solution proposed by Maus Italia for parallel rolls tube rolling of tube bundle heat-exchangers tubes with OD 12.70 ÷ 25.40 mm (1/2" ÷ 1") and thin thickness.

It consists of:

On request OD up to ÷ 50.80 mm (2")

- 1 **Matexsx-2300 MRP**
Continuous cycle digital control unit with microprocessor and touch screen interface. Integrates the hardware setup and the control software dedicated to the management of parallel rolls tube rolling.
- 2 **Matex R V4**
Low voltage brushless electric rolling motor with 4-speed gear
- 3 **F/308 MRP**
Telescopic shaft dedicated to the mechanic drive of motor-hydrmechanic gun-tube expander
- 4 **MRP 20** o **MRP 30**
Hydrmechanic gun for parallel rolls tube expander
- 5 **PE/901**
Digital input remote control pedal set
- 6 **TPB-20**
Balancer to support the hydrmechanical gun
- 7 **Porter MRP**
Trolleys for controller support/handling, rolling motor and hydrmechanical gun support with continuous servo assisted handling on axis Y

Packaging dim.	mm (inches)	1570 x 1350 x 1450	(5.2 x 4.5 x 4.8)
Net weight	Kg (Lb)	300	(662)
Gross weight	Kg (Lb)	430	(948)

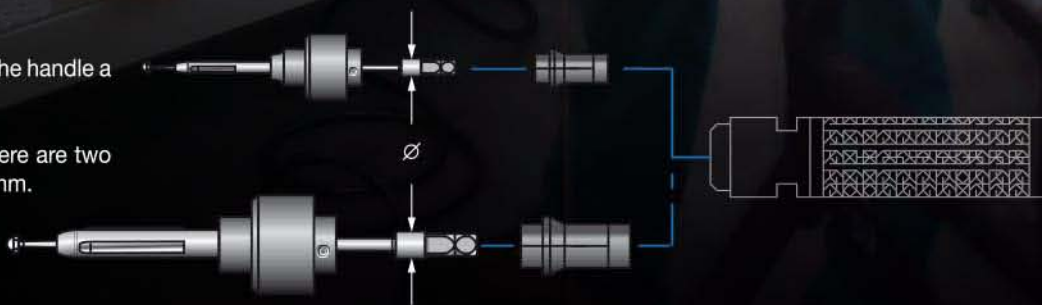




Built-in joint

The flexible shaft **FSD 12/2000** includes in the handle a cylindrical clamp adapter that fits perfectly the standard Maus Italia mandrel.

In the standard supply of the **flex Matex** there are two cylindrical clamp adapters for $\varnothing 8$ and $\varnothing 12$ mm.





Flex Matex

Hi-tech tube rolling system
with **flexible shaft** for tubes
with outside diameter of 6,35
to 19,05 mm (**1/4" up to 3/4"**).

Direct WITHOUT 5X multiplier

Max. speed
6000 rev/min (RPM)
De outside dia. tubes
6,35 ÷ 9,52 mm (**1/4" ÷ 3/8"**)
Max. torque
3,5 Nm (**2.6 Ft Lb**)

WITH 5X multiplier

Max. speed
1200 rev/min (RPM)
De outside dia. tubes.
6,35 ÷ 19,05 mm (**1/4" ÷ 3/4"**)
Max. torque
17,5 Nm (**12.9 Ft Lb**)

In the **Flex Matex** system, to the digital control unit with microprocessor **Matex-2300** (torque-based speed continuous variation) as been added an extraordinary innovation of **flexible shaft FSD 12/2000** mounted on **Porter flag** trolley for quick handling in the workshop.

The **Flex Matex** system, dedicated to demanding users, is recommended for **serial production of small heat-exchangers** where tool lightness and manoeuvrability sensibly reduces the production times.

Compared with the traditional rolling equipment with fixed speed motor, **Flex Matex** excels in terms of high productivity, high quality of the expanded product and significant reduction of tool wear.







Port Matex

Portable hi-tech tube rolling system for **tubes** with outside diameter from 6,35 mm (1/4").

In the **Port Matex** system, the digital control unit with microprocessor **Matex-2300** (torque-based speed continuous variation) is associated with a small powerful portable brushless motor available in 4 versions:

- **Matex R P6000**
- **Matex R P1500**
- **Matex R P1000**
- **Matex R P600**

The **Port Matex** system, dedicated to demanding users, is recommended for the production of small exchangers where tool lightness and manoeuvrability sensibly reduces production times.

The **Porter flag** trolley and the balancer **TPB-2** are options available to ease the use of the portable equipment.

Compared with the traditional expansion system with fixed speed motor, **Port Matex** excels in terms of high productivity, high quality of the expanded product and significant reduction of tool wear.

WITH **Matex R P6000**

Max. speed
6000 rev/min (RpM)
De outside dia. tubes
6,35 ÷ 9,52 mm (1/4" ÷ 3/8")
Max. torque
3,5 Nm (2.6 Ft Lb)

WITH **Matex R P1500**

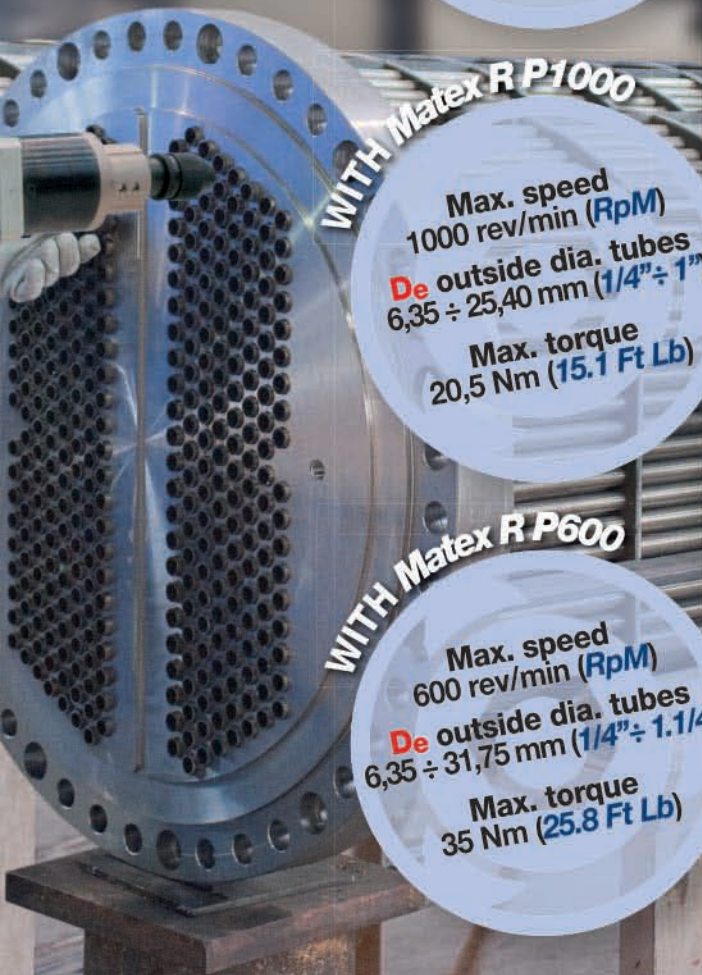
Max. speed
1500 rev/min (RpM)
De outside dia. tubes
6,35 ÷ 19,05 mm (1/4" ÷ 3/4")
Max. torque
13,5 Nm (9.9 Ft Lb)

WITH **Matex R P1000**

Max. speed
1000 rev/min (RpM)
De outside dia. tubes
6,35 ÷ 25,40 mm (1/4" ÷ 1")
Max. torque
20,5 Nm (15.1 Ft Lb)

WITH **Matex R P600**

Max. speed
600 rev/min (RpM)
De outside dia. tubes
6,35 ÷ 31,75 mm (1/4" ÷ 1.1/4")
Max. torque
35 Nm (25.8 Ft Lb)







Quadrol Matex

Hi-tech expansion system with telescopic shaft for tubes with outside diameter from 9,52 to 76,20 mm (3/8" up to 3").

WITH Matex R L4

Max. speed
450 rev/min (RPM)
De outside dia. tubes
9,52 ÷ 76,20 mm (3/8" ÷ 3")
Max. torque
180 Nm (132.8 Ft Lb)

WITH Matex R V4

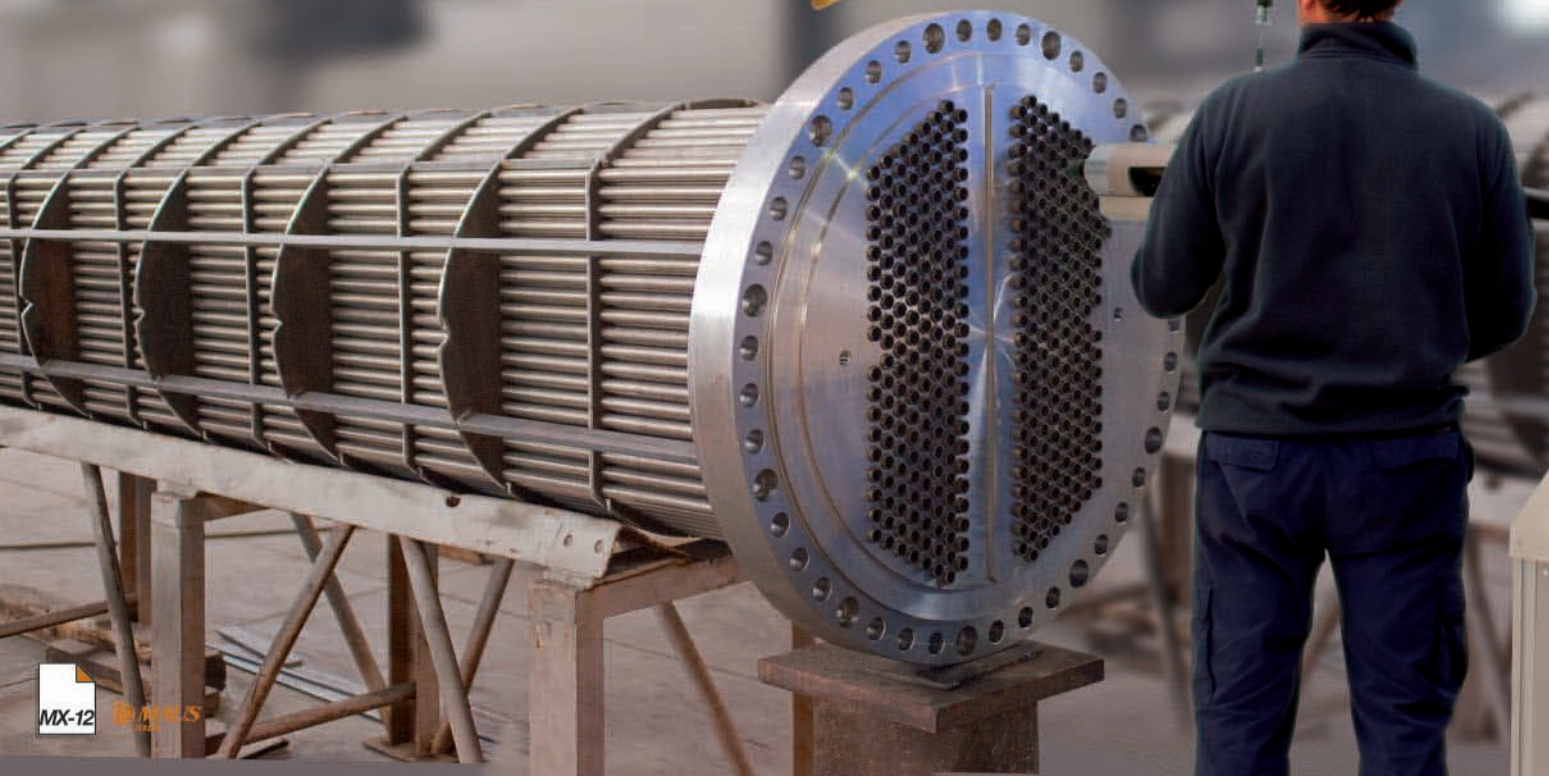
Max. speed
800 rev/min (RPM)
De outside dia. tubes
9,52 ÷ 44,45 mm (1/4" ÷ 1.3/4")
Max. torque
125 Nm (92.2 Ft Lb)

Maus Italia introduces the **Quadrol Matex** system with the digital control unit with microprocessor **Matex-2300** (torque-based speed continuous variation) in conjunction with suspended electric rolling motor (**Matex R V4** or **Matex R L4**). The telescopic shaft **F/308 HS** is used for the mechanical driving of the tube expander.

The dedicated **Porter** trolley is proposed in two versions: **plus** with manual continuous handling on axis Y or **executive** with continuous servo-assisted handling on axis Y.

The **Quadrol Matex** system, dedicated to demanding users, is recommended for the production of medium-big heat-exchangers where tool power and manoeuvrability sensibly reduces production times.

Compared with the traditional expansion system with fixed speed motor, **Quadrol Matex** excels in terms of high productivity, high quality of the expanded product and significant reduction of tool wear.





Max. speed
800 rev/min (RPM)
De outside dia. tubes
12,70 ÷ 25,40 mm (1/2" ÷ 1")
Max. torque
125 Nm (92.2 Ft Lb)

Quadrol Matex MRP

Hydromechanical expansion equipment with parallel roll expansion for tubes with OD from 12,70 to 25,40 mm (1/2" up to 1").

On request OD up to ± 50.80 mm (2")

Once again Maus Italia improves one of his historical products, on the market for over twenty years: MRP91.

The result is the new **Quadrol Matex MRP** system, managed by the **digital control unit** with microprocessor **Matex^{mx}-2300 MRP** and by the integrated hydraulic power unit. The rolling motor **Matex R V4** is connected by the **telescopic shaft** to the **hydromechanical gun** to drive the parallel roll expander.

It excels in terms of:

- high productivity;
- quality of the expanded product;
- reduction of the elongation of the tube (especially for thin tubes);
- better quality of the joint between tube and tube sheet;
- reduction of residual internal stresses;
- significant reduction of wear tools.





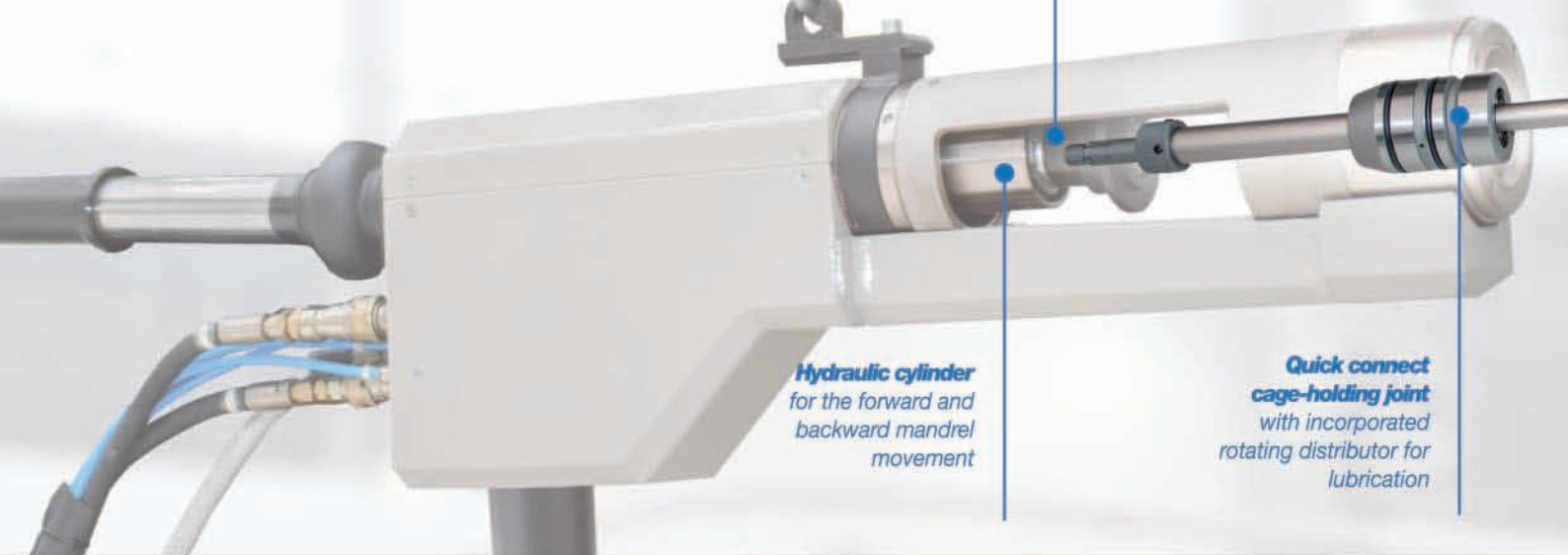
Low voltage controls

Complete safe condition for the operator with low voltage onboard manual controls.



Quick joint

Integral with the piston, locks the mandrel of the tube expander during the entire expansion cycle



Hydraulic cylinder
for the forward and backward mandrel movement

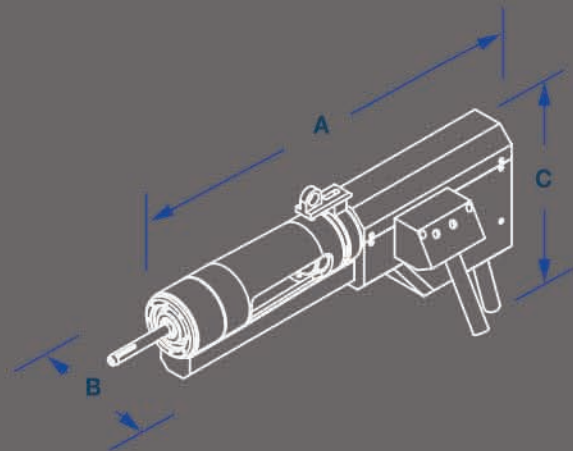
Quick connect cage-holding joint
with incorporated rotating distributor for lubrication

MRP hydromechanic gun

Connected to the hydraulic power unit, the **MRP** hydromechanic gun is easily held and guided by the operator during tube expansion operation thanks to the trolley **Porter MRP** that supports it with the balancer **TPB-20** and ensures the movement of the motor on the Y-axis using the remote control.

The mechanics of the **MRP** has been designed to **drive and control the forward movement of the mandrel during the tube rolling phase** where the tube thickness is reduced. An onboard system for **internal lubrication of the tube expander** increases its operational life.

Two tube expanders support kits allow **MRP 20** and **MRP 30** transformations for the use of the complete range of the parallel rolls tube expanders for tube rolling up to outside diameter of 2" (50.8 mm)



Features		
Power supply	Volt Vdc	24
Dimensions A x B x C	mm (inches)	700 x 240 x 400 (27 x 10 x 16)
Weight	Kg (Lb)	25 (55)



Lubrication System
on board to ensure the
considerable reduction of
tools wearing

Quadrol Matex MRP

Detail of the **hydromechanical system for mandrel feeding adjustment** during tube rolling with parallel rolls

The system **Quadrol Matex MRP** is dedicated for the expansion of tubes wherever it is necessary to **minimize the elongation and the related stress in the tube** in order to obtain a **contact between tube and tube sheet perfectly homogeneous for the entire expansion length.**

Particularly recommended for use with the new materials with a **yield point greater than 350/400 N/mm²** (such as Duplex and Super Duplex).

The system **Quadrol Matex MRP** uses the **MRP** technology, better known as parallel rolls, which was introduced on the working centres of the series **MA** by Maus Italia in 1991.

The system works with **tube expanders with parallel rolls**, having the rolls axis parallel to the cage axis.

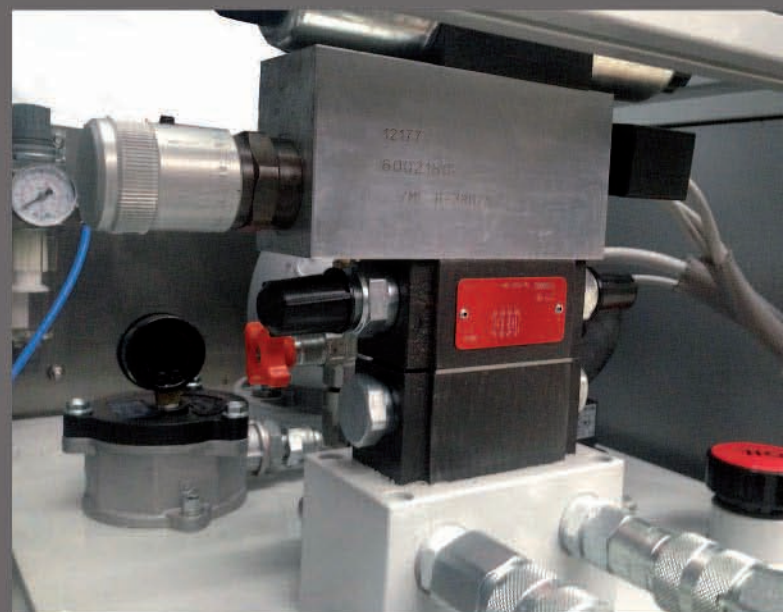
Thanks to the **hydraulic power unit connected to the hydromechanical gun MRP**, it is possible to change the speed of mandrel feeding in order to optimize the use of the parallel rolls expander, causing lower stresses between tube and tube sheet than the traditional expander with inclined rolls, with a great reduction of the tools wearing.



The hydraulic power unit on board

The possibility for the operator to act directly on the output pressure and oil flow of the hydraulic power unit on the basis of the parameters measured during expansion tests, allows to accurately adjust the mandrel feeding speed and force, reducing significantly the stresses between tube and tube sheet.

Features		
Power supply	Volt	400
Max. pressure	Bar (Psi)	90 (1300)
Oil flow	Lt/min (US gpm)	3 (0.79)
Oil tank	Lt (GalUS)	35 (9.25)



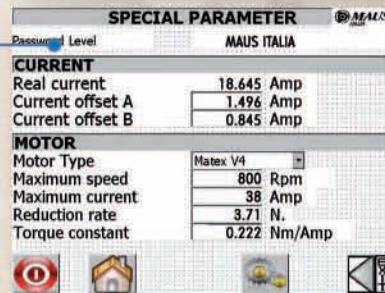
Viewing

During the tube rolling process, this screen is the home page for the operator who needs to control all the parameters involved. Access to all "Setup" screens is controlled by the icon menu on the bottom.



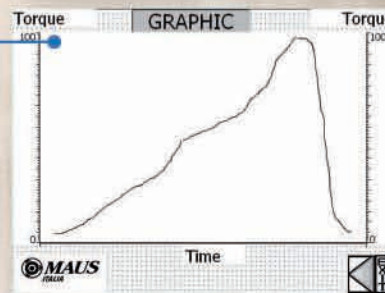
Special parameters

Setup/Verification screen (with password protection) of the configuration of the rolling motors connected to the control unit. Command centre for the automatic setting of the rolling motor offset and for general configuration.



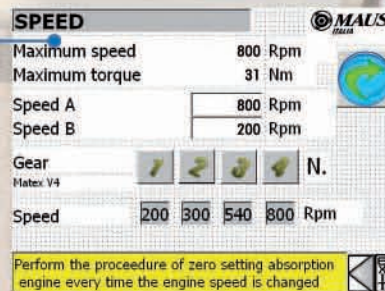
Graph

Displays in real time the graph of the torque delivered by the expander in Nm of the last 30". The displayed "range" is from zero Nm to the value reached by the machine.



Speed

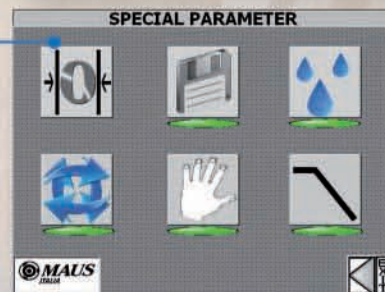
Adapts to the rolling motors of the **R** series connected to the rolling unit and selected in the "Setup". The speed of the two main stages of the tube rolling can be defined; the **approach** (Phase A) and the **crushing** (step B) and if provided the rev/min for each gear.



Main Menu

Screen for quick access to:

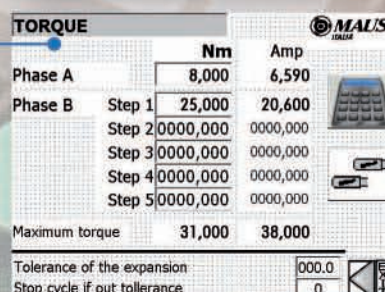
- Motor offset
- Tube rolling report activation
- Activation of lubrication during cycle
- Operation in automatic cycle
- Operation in manual cycle
- Activation of "decreasing speed"



Torques

It is possible to set the torque values of the rolling motors for the two main stages of the tube rolling; **approach** (step A) and **crushing** (step B).

Setting the torque value in Nm, the motor draw value in Ampere is displayed next to the above value.



Matextsx-2300

Matextsx-2300 MRP

Continuous cycle electronic digital control unit with touch screen interface

Independent of the voltage variations
 $\pm 10\%$

The digital control unit **Matextsx-2300** is the brain of the system. Easy to use and equipped with 5.7" LCD touch screen, it has user friendly interface with dedicated software and it is protected by a sturdy metal case with a high degree of protection IP 55.

The **Matextsx-2300** allows the compensation of the tolerances for both the diameter of the holes in the tube sheets and of the thickness of the tubes with consequent **reaching of uniform sealing** of all the tubes at the operating pressure of the heat-exchange equipment, also estimating **tube rolling times**.

Born to match the rolling motors of the **R-series**,

With the additional inclusion of a dedicated software is obtained the model **Matextsx-2300 MRP** designed to control the system **Quadrol Matex MRP** for tube rolling with parallel rolls.



Matex R F

Matex R F6000

Flexible shaft

		F6000 Direct WITHOUT 5X multiplier	F6000 WITH 5X multiplier
Max. speed	rev/min (R.P.M)	6000	1200
Max. torque	Nm (Ft Lb)	3,50 (2.6)	17,50 (12.9)
O.D. tubes Max.	mm (inches)	9,52 (3/8")	19,05 (3/4")*

Matex R P

Matex R P####

Portable

		P6000	P1500	P1000	P600
Max. speed	rev/min (R.P.M)	6000	1500	1000	600
Max. torque	Nm (Ft Lb)	3,50 (2.6)	13,50 (9.9)	20,50 (15.1)	35,00 (25.8)
O.D. tubes Max.	mm (inches)	9,52 (3/8")	19,05 (3/4")	25,40 (1")	31,75 (1.1/4")

* Non ferrous



Matex R L4

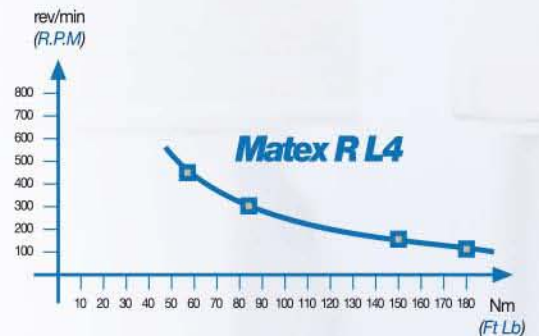
Matex R L4

Telescopic shaft

Mechanical gearbox		I ^a	II ^a	III ^a	IV ^a
Max. speed	rev/min (R.P.M)	110	170	300	450
Max. torque	Nm (Ft Lb)	180 (132.8)	150 (110.6)	84 (61.9)	57 (42.0)
O.D. tubes Max.	mm (inches)	76,20 (3")	63,50 (2.1/2")	50,80 (2")	38,10 (1.1/2")

Flexibility of use

Due to the 4 speed gearbox, the rolling motors **Matex R L4** and **Matex R V4** are able to optimize the "range" of speed on the base of the operating parameters, as described in the below tables and graphs.

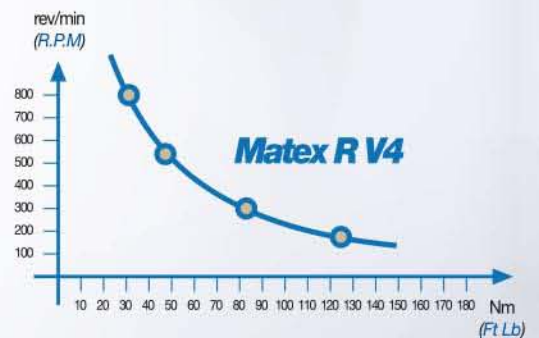


Matex R V4

Matex R V4

Telescopic shaft

Mechanical gearbox		I ^a	II ^a	III ^a	IV ^a
Max. speed	rev/min (R.P.M)	200	300	540	800
Max. torque	Nm (Ft Lb)	125 (92.2)	83 (61.2)	47 (34.7)	31 (22.9)
O.D. tubes Max.	mm (inches)	44,45 (1.3/4")	38,10 (1.1/2")	31,75 (1.1/4")	25,40 (1")



Matex R

Low-voltage electric rolling motors with brushless motor

Several models of electric rolling motors are available to meet the main technical requirements from the market, according to the tube size and to the required expansion characteristics.

Strong and low-noise, the **R** series rolling motors feature a **low-voltage variable speed brushless motor** (48 V) and integrated suspension and are **specially designed to provide**:

- Great increase in sensitiveness;
- Continuous speed variations;
- Flexibility of use.

With the **low-voltage** rolling motors, the strict **safety** requirements set out for portable equipment in **work sites characterised by the presence of great metal masses** are satisfied.

Designed for exclusive use with the control unit **Matex-2300** and **Matex-2300 MRP**, they are paired as follows:

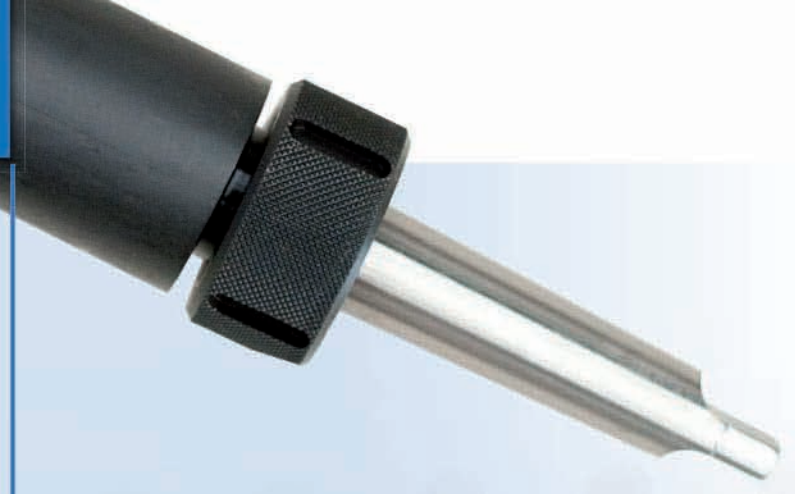
Matex R	F	P	V4	L4
Flex Matex	●			
Port Matex		●		
Quadrol Matex			●	●
Quadrol Matex MRP			●	

Extremely low noise level



F/308 HS

Articulated telescopic shaft
for mechanical drive
from **R L4** and **R V4** motors
to the tube expanders
manufactured by Maus Italia



It is the technological evolution of the previous F/308, with innovative design solutions making it reliable, particularly easy to handle as well as accurate and stable at high speeds.

It increases the operating range along the X and Y axis and it completes motion along the Z axis;

It allows to quickly connect the tube expander by means of the **F/317 HS** joint.

Special executions available upon request

∅ M



F/308 MRP is a dedicated version for the system **Quadrol Matex MRP** for the mechanical transmission to the hydromechanic gun **MRP**

Working cycle

It is hereinafter analysed the evolution of the rotation speed of the rolling motors **Matex R** in the phases of tube rolling, as indicated in the diagram alongside:

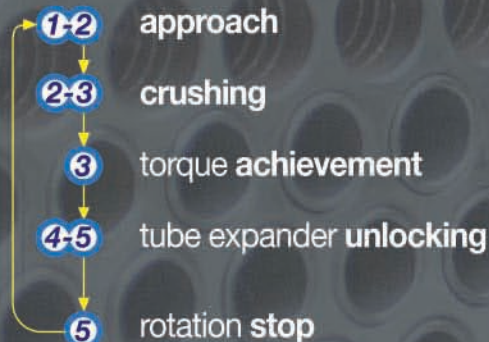
approach of the tube to the wall of the tube sheet hole with **high speed rotation** of the tube expander;

crushing of the tube thickness with torque-based speed decreasing **continuous variation**

reaching the set torque value, with **stop** of the rotation of the tube expander;

unlocking of the tube expander with initial slow rotation speed and fast rotation up to the complete extraction of the tube expander;

instantaneous **stop** of the rotation to permit the reinsertion of the tube expander in the next tube during the **scheduled pause** before the **automatic restart** of the **continuous cycle** from the point **1**



F/314 HS F/317 HS

patented

Joints with **double female-female quick coupling** specific for **high speeds**

The joints with double quick coupling **F/314 HS** and **F/317 HS**, besides allowing to **replace the tube expander in very short time**, with an **accurate and patented design**, ensure that the shaft **F/308 HS** is **perfectly coaxial** with the tube expander mandrel, reducing any vibration and allowing the operator to more easily insert of the tube expander, even if rotating, into the tube.



NO VIBRATION

PE/901

Digital input remote control pedal set



High speed



Variable speed



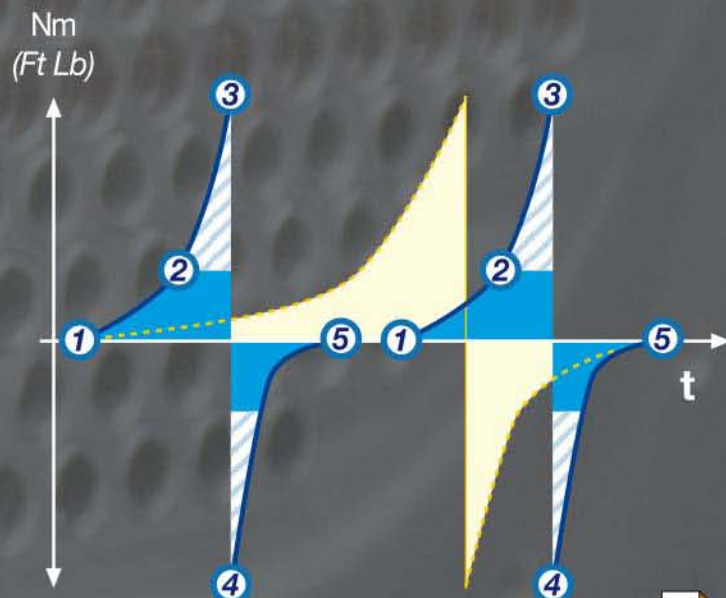
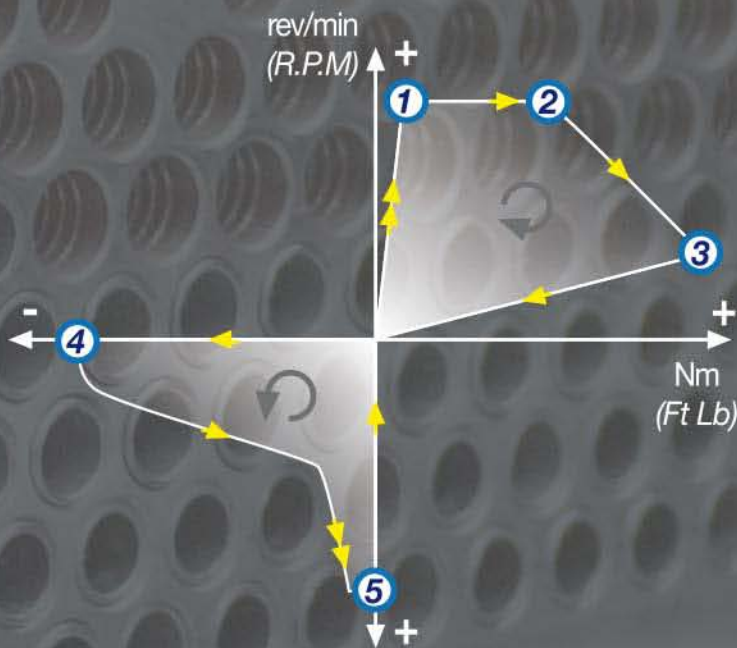
Constant speed



Matex
tube rolling

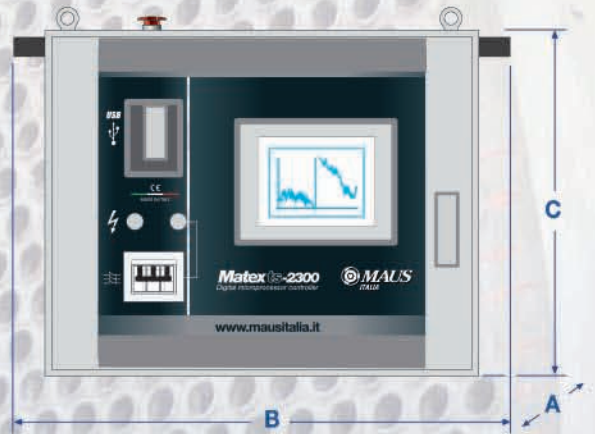


Traditional
tube rolling



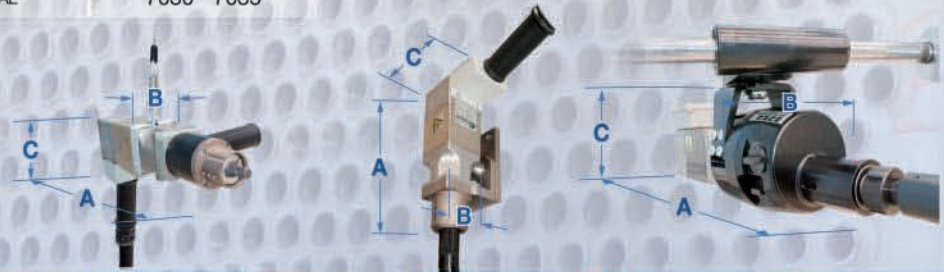
Matex^{tsx}-2300 Matex^{tsx}-2300 MRP

Supply		
Voltage	Volt - Ph	220/400 - 3
Frequency	Hz	50/60
Installed power	Kw	2,5
Motor voltage	V	48
Pedal set voltage	V	24
Dimensions		
Length (depth)	A mm (Ft)	475 (1.56)
Width	B mm (Ft)	600 (1.97)
Height	C mm (Ft)	475 (1.56)
Weight	Kg (Lb)	75 (166)
Degree of protection	IP	55
Colours	RAL	7030 - 7035



On request, the **Matex^{tsx}-2300** control unit is available as well in the 220 Vac single phase version.

Matex R

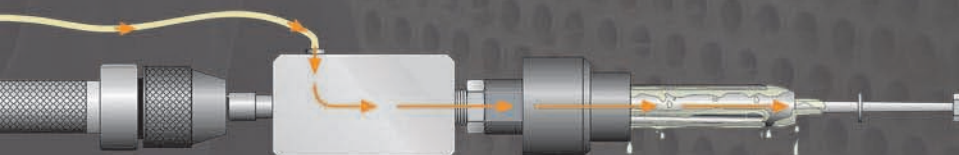


Supply		Matex R P####				Matex R F6000*	Matex R V4	Matex R L4
Motor voltage	V	48				48	48	48
Motor power	Kw / A	0,80 / 38				0,80 / 38	2,24 / 38	2,24 / 38
Working capacity		P6000	P1500	P1000	P600		Mechanical gearbox I° II° III° IV°	Mechanical gearbox I° II° III° IV°
Max. speed	rev/min. (R.P.M)	6000	1500	1000	600	6000	200-300-540-800	110-170-300-450
Max. torque	Nm (Ft Lb)	3,50 (2.6)	13,50 (9.9)	20,50 (15.1)	35,00 (25.8)	3,5(2.6)	125(92.2)	180(132.8)
Max tube Ø	mm (inches)	9,52 (3/8)	19,05 (3/4)	25,40 (1)	31,75 (1.1/4)	9,52 (3/8)	44,45 (1.3/4)	76,20 (3)
Telescopic shaft	Cod.	/				FSD 12/2000	F-308 HS /3	F-308 HS /3
Joints	Cod.	F/314 HS				/	F/317 HS	F/317 HS
Advised shank		∅M				Cylindrical jaw	3	3
Dimensions								
Length	A mm (inches)	340 (13.4)				270 (13.4)	609 (10.7)	609 (24)
Width	B mm (inches)	75 (3.0) Without handle				70 (2.8)	180 (7)	180 (7)
Height	C mm (inches)	250 (9.8)				250 (9.8)	280 (11)	280 (11)
Weight	Kg (Lb)	6 (13.3)				6 (13.3)	24 (53)	24 (53)
Degree of protection	IP	55				55	55	55
Colours	RAL	9005 - 7035				9005 - 7035	9005 - 7030 - 7035	9005 - 7030 - 7035

* Direct WITHOUT 5X multiplier

Lubricator **LCQ1**

To increase the life of the tools, it's possible to add the lubricator **LCQ1** and the related tank with minimum adjustment of the lubricant. This lubricator can be used with specific tube expanders. Lubrication is integrated in the system **Quadrol Matex MRP**.



• For any further items please refer to the "Accessories" catalogue

Technical specifications

F/308 HS

F/308 HS	N	Handle A		Telescopic range B		Extensibility		Max. torque		Weight		∅M
Model	N	mm	inches	mm	inches	mm	inches	Nm	Lb Ft	Kg	Lb	mm
F-308 HS-3	3	225	8.9	650÷1060	25.6÷41.7	410	16.1	180	132	7,9	17.41	18
* F-308 HS-3L	3	225	8.9	850÷1460	33.5÷57.5	610	24.0	180	132	8,9	19.62	18

* F-308 HS-3L

* Version with extra extensibility for use with tube expanders whose length exceeds 500mm (19,7")

F/308 MRP is a version dedicated to the **Quadrol Matex MRP** system for the mechanical transmission to the hydromechanic gun **MRP**



F/314 HS

patented

F/314 HS	∅F	Weight	
Model	inches	Kg	Lb
F-314 HS - 1/4"	1/4	0,18	0.40
F-314 HS - 3/8"	3/8	0,21	0.46

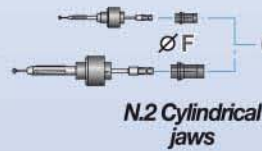
FSD 12/2000

FSD 12/2000	Length		Max. torque		Weight		∅F
Model	mm	inches	Nm	Lb Ft	Kg	Lb	mm
FSD-12-2000	2000	78,7	3,5	2.6	5,8	12.8	8-12

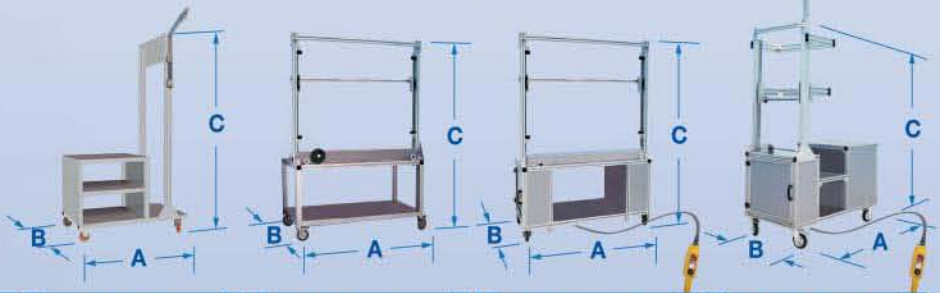
F/317 HS

patented

F/317 HS	∅F	Weight	
Model	inches	Kg	Lb
F-317 HS - 3/8"	3/8	0,29	0.64
F-317 HS - 1/2"	1/2	0,31	0.68
F-317 HS - 3/4"	3/4	0,38	0.84



5X multiplier opzionale



Porter

Work axes		Porter Flag	Porter plus	Porter executive	Porter MRP
X axis	Motion	/	manual sliding	manual sliding	manual sliding
Y axis	Motion	manual sliding	servo manual	motor-driven	motor-driven
Working capacity					
Supported torque	Nm (Ft Lb)	100 (73)	250 (184)	250 (184)	250 (184)
Supported weight	Kg (Lb)	150 (330)	150 (330)	150 (330)	150 (330)
Horizontal stroke	X mm (inches)	/	1000 (39)	1000 (39)	390 (15)
Vertical stroke	Y mm (inches)	/	650 (25)	650 (25)	780 (30)
Dimensions					
Length (depth)	A mm (Ft)	1200 (4.0)	1400 (4.6)	1400 (4.6)	1400 (4.6)
Width	B mm (Ft)	700 (2,3)	700 (2.3)	700 (2.3)	700 (2.3)
Height	C mm (Ft)	2070 (6.8)	2030 (6.7)	2030 (6.7)	2100 (6.9)
Weight	Kg (Lb)	70 (155)	81 (179)	113 (250)	140 (308)
Colours		Anodised aluminium	Anodised aluminium	Anodised aluminium	Anodised aluminium

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