# DATA SHEET of Twisting System of Paper Rope M09. (updated 2017)


**Photos of M09 system:** (on the left the Twister Unit, to the right the Winder Unit

M09 is an automatic System that allows you to manufacture twisted paper rope packaged in bobbins with 2-18km of rope each ones (average = 8km).

The innovative aspects of M09 System are the followings:

- Manufacturing of finished Rope packaged into Coils of rope at Once;
- Hi production-speed thanks to a Patented system;
- Possibility to manufacture twisted rope with a single* strip of neutral or colored paper (for bag's Handles, Seats, etc.);
- Possibility to manufacture twisted rope (neutral or colored) as two or more strips of paper (as a classic rope for shopper's Handles);
- Great autonomy of production due to employment possibility of paper rolls of OD=1100mm (43.3") which can contain up to 24km of paper strip (the thickness=0.05mm =0.002") by which you can manufacture more than 22km of twisted rope;
- Since the edges of paper strip are folded inside before its twisting, the colored ropes can come from normal full-base-printed paper printed on only one side, then worked by slitter and rewinder;
- The paper roll Change-Time takes about 10 minutes;

- The Dowload-Time of rope-coil takes about 4 minutes since the rope coil does not need of external plastic wrapping thanks to its twisting process that occurs in the absence of water;
- *The manufactured Rope can be measured by weight-mode [kg per km], and then it can be managed in a reasonable and direct way in respect to the amount of used raw-paper;*
- Possibility Conduction up to 6 machines by a single operator.

## Types of ropes that can be produced:

- Rope of one* twisted paper strip (natural brown or white) with OD 1.0 - 6.0mm (=0.04-0.23 inch) ;
- Rope of more twisted paper strips (natural brown or white) with OD 2.5 - 6.0mm (=0.10-0.23 inch);
- Rope of one twisted paper strip (colored) with OD 1.0 - 6.0mm (=0.04-0.23 inch);
- Rope of more twisted paper strips (colored + natural) with OD 2.5 - 6.0mm (=0.10-0.23 inch);
- The Rope Coil ID=200mm (7.9”), ODmax=600mm (23.6”), WIDTHmax =600mm (23.6”.

## Types & Formats of Machinable Papers:

- Medium and Hi quality kraft paper (ideal pure cellulose and/or semi-extensible) of Average_Thickness = 0.05 to 0.10mm (=0.002-0.04”) and then with 40 to 80gsm approximately ( ideal Kraft paper virgin or semi-extensible, 0.05mm Thickness);
- Rolls ID = 76mm ( = 3 "), OD = 1100mm Max = (43.3"), Width = 80mm Max (=3.1"), (ideal Roll of good kraft paper 0.05mm Thickness, OD=1100mm, Width=70mm).

## General description of machine.

The System M09 is composed of two units, the Twister and a Winder unit.

*The Twister Unit* is structured so as to support high speed and therefore its installation requires a secure anchorage to the floor. A series of fixed and mobile covers provide the machine with a high degree of security for itself and for operators.

Its operation is characterized by a progressive electronic start and a

progressive electronic stop and a controlled rapid stop. Starting and stopping ramps are electronically adjustable.

The Twister unit, once transformed the paper strip into a twisted rope, can send the rope to the Winder unit for the packaging of rope into a rope coil or, as optional by addition accessories, it may directly send the rope to any Handle Making Machine that provides to transform the rope simultaneously in handles (for paper bags with rope-handles).

On first case the Twister unit acts as a Main machine (Master) and the Winder unit serves as a Follower machine (Slave ) which adapts its winding-speed to the rope-production-speed, thanks to an electronic control system.

In the second case the Twister unit acts as a Follower machine (Slave) which must continuously adapt its rope-production-speed according to the amount of rope required by the Handle Making Machine which, in this case, acts as the Main machine (Master).
All that thanks the said electronic control system suitably selected on another operating mode and with the Winder unit that, even in such a case is being unused as winder, its presence continues to be necessary since the command panel is placed on board of it.

The weight of Twister unit is about 1500kg.
Its footprint is 1.4x1.6 m x 2.0 (H) (55x63 inch x 79 H).

The Twister Unit must be powered by 5kw power supply ( 3x380Vac -50Hz + N + G) or ( 3x600Vac -60Hz + N + G).

*The Winder Unit*, which is also robust and safe construction , provides to form coils of twisted rope operand a cross-winding of the rope so that the coils themselves are self-supporting and therefore they do not require spool of containment.

It consists of an expansion winding-axis with diameter =200mm (=7.8 ") and a thread guide system for automatic mechanics reversal which shall distribute the rope inside the space set as the height of rope-coil which can be set into 200-600mm (=7.8 -23.6 ").
It is capable of winding coils up to OD=600mm Max (23.6 ").

The Winder unit does not require anchoring to the floor, and then it can be

moved and positioned downstream of the Twister unit and oriented in according to the needs of the user provided that the rope is able to arrive to its highest point without meet obstacles.

The weight of Winder unit is about 300kg.
Its footprint is equal to m1.3x0.7x2.4H (51x28 inch x94H).

The Winding Unit must be powered by 0.5kw electric power ( 3x380Vac -50Hz + N + G) or 3x600Vac -60Hz + N + G).

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M09 System is equipped with a command panel which ensures a simple, fast and convenient operation.

Using the provided keypad the electronic drivers can be set, changed, stored and recalled at any time by setting all the operative variables.

The two Units are conform to the current European Machinery Directive and are equipped with EC –Conformity Declaration and of CE Manual.

It is assisted by a Technical Service Support always ready and competent and it's guaranteed for one solar year, except for the parts subject to normal wear.

* The rope formed of a single veil and that is melted within the "sandwich" of the handle is opposed with all itself to unthreading; unlike the rope formed of more veils for which the resistance to a similar unthreading is exercised only by the veil of the outer paper.