TUBE DECOILING AND STRAIGHTENING LINE

STRAIGHTENING LINE WITH SCORE AND BREAK FLYING CUT OFF AND UNLOADING OF THE CUT PIECES

WATCH THE VIDEO

It is a line designed to straighten tube and cut it to length with a flying cut off, starting from loose coils.

Summary

COMPOSITION OF THE LINE

De-reeler

The standard dereeler is a double vertical dereeler with the following characteristics:

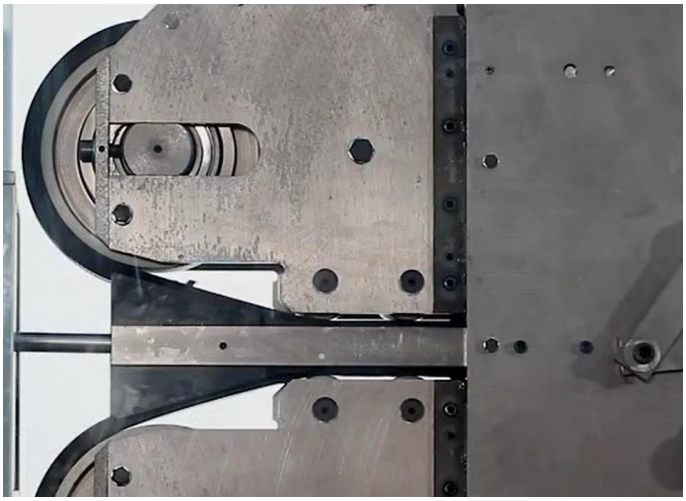
- Max coil weight: 400+400 kg
- Internal coil diameter: min 280 max 750 mm
- External coil diameter: max 1400 mm
- Coil width: max 250 mm

Traction system (caterpillar)

This device has two tracks rubber lined which pull the tube away from the de-reeler and push it through the calibration unit, into and through the straightening device.

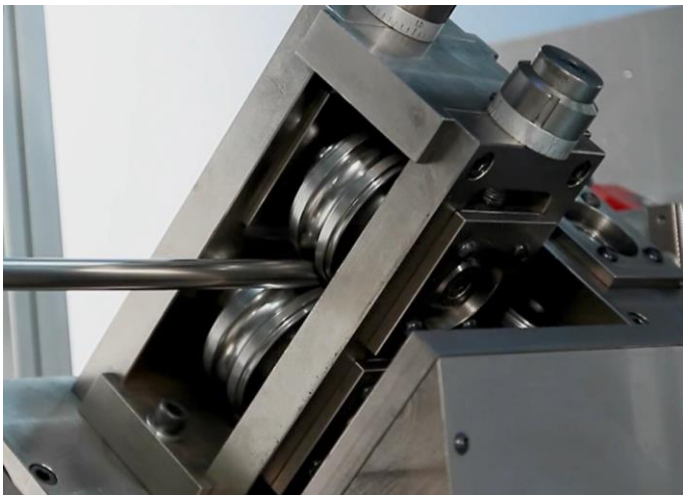
The top track can move up (open) or down (close or running mode) by means of a pneumatic cylinder. The pressure applied by the cylinder can be adjusted so as to suit the tube diameter and wall thickness.

As a standard the top track is motorized but there is also the possibility to motorize the bottom track with a small modification.



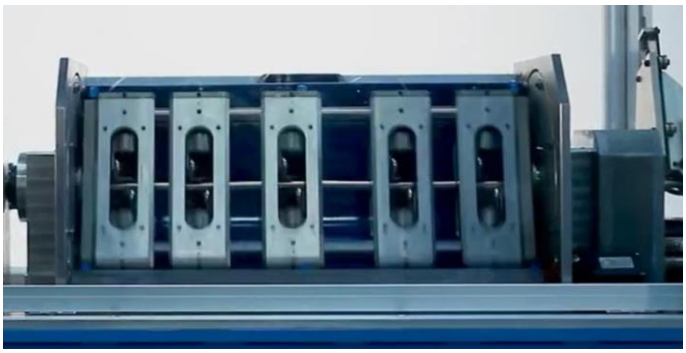
Calibration system

The machine is supplied with two calibration heads. The heads are idle. When various diameters of tube are to be processed, it is recommended to purchase additional calibration units complete of base, roll supports and rolls to minimize the change over time. Otherwise for each diameter change it is necessary to replace the rolls and guide bushes on the calibration system



Straightener

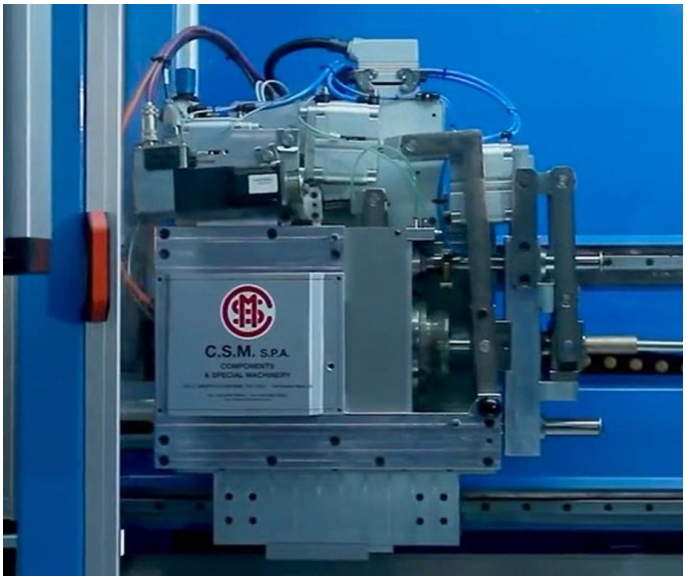
Rotating straightener with 5 pairs of idle hyperbolic rolls.



Cut to length: flying cut off - type score and break

This device is an enclosed unit where the mechanism to cut will move when the cut command is given. The cut operation will take place once the carriage has reached the speed of the tube. At that moment the pincer collet grubs onto the tube and the cutting knife starts moving into the tube while the cutting head is rotating. The cutting bit will penetrate the tube and when the set depth is reached the knife moves back while the "break" collet starts pulling the tube away from the cutter until the tube breaks (completing the action score and break).

The tube is then discharged on the offload tray.



Electric console

Electric cabinet and operator console complete with touch-screen display, where the operator can program:

- Length of tube to be cut
- Number of pieces to be cut
- Line speed

Tooling

The machine is supplied complete for one diameter of tube and wall thickness. Additional tube diameters need additional tooling which will be quoted separately

OPERATION

Set up

Ensure that the line is set for the diameter required. If not the operator must change:

a) pincer collets and bushes on the cutting mechanism
b) guide bushes on the straightener and adjust position of the straightener rolls to suit the diameter of the tube
c) rolls and guide bushes
d) as the tube moves through, adjustments to
   - pressure of the caterpillar
   - calibration rolls straightener
   - position of the encoder
   may be necessary to give the final outside diameter required.

The operator loads the coil on the dereeler, then picks the end of the tube and introduces it into the open caterpillar. Once there is enough material to ensure that the caterpillar can pull the tube through the top track can be closed on the tube. The manual commands are used to activate the caterpillar tracks forward so as to push the tube through the calibration rolls into the straightener. Before the tube enters the straightener, the operator needs to check the tube at the exit of the caterpillar as well as at each of the calibration stands and eventually make corrections to ensure that the tube has the outer diameter required. Now with the manual commands the operator moves the tube forward until it gets to the cutter.

The straightness of the tube is achieved by the rotation of misaligned rolls around the tube as it is moving forward.

The tube is moved forward and introduced into the cutting mechanism until it just protrudes past the device. Set the cutting knife and test. Once the desired cut finish is achieved the machine is ready to operate.

Running

The operator sets the requested parameters (line speed, number of pieces, cut length) through the operator interface. Select start from the operator console. Once the line starts, the operator needs to let the machine run and as the tube moves through, he can make further fine tuning. The operator will check the first tube against the required internal specifications. If the tube is compliant the machine can be started to operate in automatic.
The machine will stop when the required quantity is reached. The machine will also stop automatically if the cutting system notices that the cut is deteriorating.

GENERAL CHARACTERISTICS

Mod. 110/37.SBM000

Tube materials[1]	: stainless steel, copper, mild steel, aluminium	
Tube diameter	: mm	between 6 and 25
Wall thickness[2]	: mm	between 0,4 and 1,2
Max length of tube to be defined	: mm	to be defined
Shortest cut length[3]	: mm	50
Max speed of line	: m/min	from 0,5 to 25
Max cut rate with saw	: cuts/min	12
Tolerance on cutting length	: mm/m	+/-0.2
Straightness	: mm/m	1.5-3
Height of the tube centre line from floor	: mm.	1.100
Electrical supply	: V/Hz	3x400V 50Hz
Installed power	: KVA	4
Pneumatic supply	: Bar	6
Machine colour (standard)	: Ral	5012

[1] depending on diameters, hardness and wall thickness
[2] Note: the wall thickness cut on a machine is based on stainless steel. Other materials may have a different range of cut.
[3] the shortest length affects speed of line

OPTIONS

Offloading tray

Mod. 100/38.L0XXXX

Device to collect and offload the tube, one off-loading side

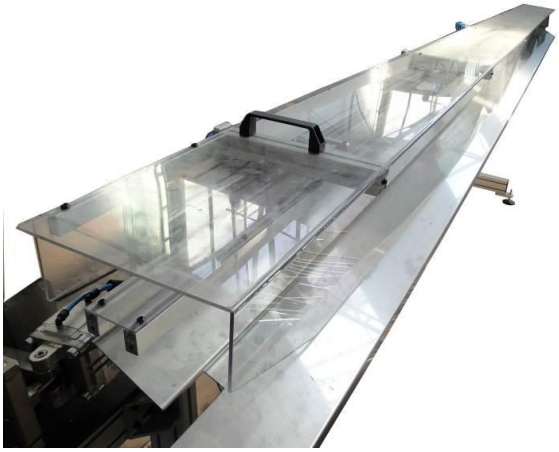
Offloading tray

Mod. 100/38.M0XXXX

Standard device to collect and offload the tube with two off-loading sides (left and right)

Offloading tray with motorized belt, Mod. 100/38.D0XXXX

Automatic device to collect and offload the tube with motorized belt



Alternative drive system: motorized pull calibration system, Mod. 110/38.SB0000

As an alternative to the caterpillar we can offer roll driver system, which will also calibrate the tube diameter. In this case a reduction of 0,2 mm in diameter must be accounted for.