

# Rope Chain Production Process

The Ciemmeo rope production process is the most efficient and speedy process available today for the manufacture of high quality rope chain, both hollow or solid. Its unique (and patented) work cycle is such that it runs at a guaranteed 150 links per minute.

It is a production cycle which is designed to obtain the maximum production efficiency possible, meaning hardly any scrap whatsoever and minimum machining time. Signifying use of almost all of the initial material melted down, and the most rapid turnaround for your gold, enabling you to market it soon after initial fusion.



The production process itself is divided into 3 phases.

## 1<sup>st</sup> Phase – Link making

Once having prepared the wire on a spool, the latter is loaded onto the **MTSM** machine. This machine sees to the making of the link which will be used in the rope chain. The machine is fed wire, solid or hollow (with a core of iron, copper...). The unit automatically cuts the wire and forms the link. The link produced is an open end link. The speed of the machine is 230 links per minute.

## 2<sup>nd</sup> Phase – Link calibration

This is the most critical phase of the process. The one where each and every link is made to conform to the specific pre-set dimensions of the links. The link coming from the MTSM unit, after being opportunely washed and degreased

from the link making process is then loaded into the **MBM** unit. The links are loaded into a hopper from which they are automatically selected and sent to the calibration system. The calibration of the link is had on all dimensions, the outer and inner diameters, the top, bottom and thickness of the link.

During this process the link is slightly flattened giving it more shine when mounted in the chain.

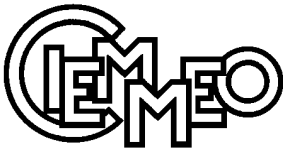
This unit processes 180 links per minute, thus ensuring that time taken to load and/or carry out adjustments on the MTSM does not influence the production speed of the MBM.



## 3<sup>rd</sup> Phase – Chain assembly

The final phase is carried out by the **ATMC** unit. After the links have been singularly calibrated on the MBM, they are then loaded into a hopper on the ATMC. From here they are extracted in 2 rows and mounted onto one another. The actual work of mounting the links onto each other and then into chain is carried out continuously at a speed of 150 links per minute. This speed is obtained because the machine is not making a chain in such that it is rather assembling a chain from a series of identical links. The speed also allows for any time necessary in loading and/or adjusting the MBM unit.

Note. The above data, features and characteristics are not binding. CIEMMEO s.r.l. retains the right to vary them at any time without prior notice



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The soldering of the links together is carried out directly on the ATMC assembling machine. A laser with a patented focusing head solders the links together internally so that no soldering can be seen on the chain itself. The weld is a full weld, therefore not requiring any further soldering treatment.

The chain obtained (either solid or hollow) is finished there right off the machine

## **Advantages of the Ciemmeo system over traditional rope chain machinery.**

- The main advantage is the production speed, 150 links per minute, more than twice the speed of other rope chain machinery, greatly reducing payback time.
- The production process is carried out in 3 different phases on 3 different machines, thus simplifying each process stage.
- The separation of phases allows different links to be placed in the chain on automated machines.
- The separate calibration stage hammers more shine into each link.
- The separation of the phases allows individual adjustments of the machines to be carried out if necessary without having to stop the assembling machine, thus guaranteeing continuous production.
- Machinery can be run 24 hours per day
- No soldering alloy is added to the chain during the soldering process therefore always maintaining the purity of the initial alloy.
- No soldering marks left on visible parts of the chain since the soldering is carried out internally.
- Very thin (lightweight) links can be soldered with the laser since they are not exposed to open flames
- No consumables required such as soldering alloys, twin containment wires, soldering gases, soldering pastes, cleaning fluids
- The chain is never exposed to any type of flame so no oxidisation of the chain occurs at any time.
- No need to clean the oxidisation from the chain.
- Since there is no flame soldering, there are no problems concerned with the running of the alloy through the links.
- The chain maintains its colour and wire texture, since it is not made to undergo any heat intensive treatment.
- Turnaround speed of the gold after melting is reduced to a minimum, thus returning the investment more rapidly.
- Ciemmeo Laser welded rope chain is now the world's industry standard

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