Noiseless Hook

Since its foundation CERLIANI has always made Customer Service a business philosophy; many specific requests of sewing machines manufacturers and end-users around the world have been developed over the years by CERLIANI Engineering Department.

The hook noisiness has always been a very important factor in the evaluation of a high quality hook, but becomes a real necessity in some specific fields of application. The specific demand of some of the largest manufacturers of quilting machines in the world gave way for the development of a set of CERLIANI patents to achieve:

THE NOISELESS HOOK!

The purpose is attained through various details which have the purpose of reducing the noise generated respectively by the coupling between hook body and basket and between basket and bobbin case.

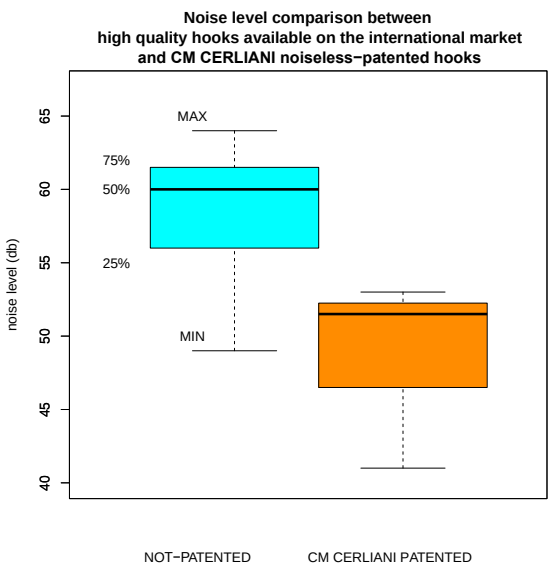
The first part of the implementation, thanks to special magnets, significantly reduces the vibrations of the basket rotating in the race of the hook body, which is the main cause of noise.

CERLIANI developed and patented several designs of this technique using magnets of different shape and size, depending on the type and the dimensions of the different hooks. The most applied solution is that of a toroidal shaped magnet (i.e. as a ring) that is recessed into the inside bottom of the hook body, conveniently modified for this purpose.

The magnet attracts the steel basket gently and significantly reduces vibrations during sewing.
Rigorous statistical analysis performed by the University of Lugano, Switzerland, conducted on random samples (of sufficiently large size to generate a 99% confidence level on the reached conclusions), show, without a doubt, the effectiveness of this patent in the reduction of the noise emitted by the hook in comparison to both, CERLIANI hooks without patent, and other quality hooks on the market.

For example, in the specific case of large capacity hooks used in quilting machines, the noise level of the hooks of well-known, high quality brands ranges from 49 dB to 64 dB (with the hook rotating at 3,000 rpm), with an average of 59 dB (the observed median is 60 dB, meaning that at least 50% of the tested hooks have a noise level higher than 60 dB). With the CERLIANI noiseless-patented hook, the upper bound of the noise level is decreased to 51.9 dB, with an average noise level of 49.5 dB (and the median goes down to 51.5 dB, meaning that at least 50% of the sampled CERLIANI hooks have a noise level less than 51.5 dB).

The conclusion of the statistical analysis by the University of Lugano is that the average noise level has been reduced by 9.5 dB and that the "**noiseless-patent by CERLIANI has consistently and steadily reduced the noise level of their hooks compared to all other high quality hooks available on the international market and considered in this analysis".**



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The second part of the implementation, thanks to special gaskets, eliminates the noise generated by the play existing in the coupling between the bobbin case and basket, which is a secondary, but significant, cause of the noise generated by the hook while sewing.

CERLIANI Hooks & Bobbin Cases has developed and patented various executions of this technique, through the use of gaskets of different shape and size in relation to the type and to the overall dimensions of the different hooks. The most applied solution is that of an O-ring that is recessed on the internal diameter of the basket, suitably modified for this purpose. The gasket exerts a slight pressure on the bobbin case and reduces vibration while sewing, until eliminatng the noise generated by its banging against the basket during sewing.

The rigorous testing and subsequent analysis of the results show that this patent completely neutralizes the source of secondary noise generated by the collisions between bobbin case and basket. In practice, it reduces the overall noise generated by the hook of about 2 dB! This noise reduction is much more noticeable at low operating speed of the sewing machine (as it is the case with quilting machines and embroidery machines), as at low speeds the noises generated by all the rest of the sewing machine are minor and also in some cases the sewing speed is close to one of the vibration frequencies characteristic of the bobbin case – basket system.

The noise reduction is particularly appreciated by end-users who work in quiet environments and with only one or a few sewing machines, as typically home users, professionals, craftsmen and small business owners.

Since the design of the hook must be modified to accommodate the magnet system, ask CERLIANI Hooks & Bobbin Cases Sales Department if your required hook is already available in the "Noiseless" version.

The code of each hook in the patented "Noiseless" version, is found by adding the final letter "L" to the standard hook code.

Example: *Standard hook* **130.09.539** *Noiseless patented hook* **130.09.539L**

Ask for this feature as "L" version hook

Noiseless Hook……for quieter sewing!

Italian Pat.: MI2008A002105 / European Pat.: 2189565 / US Pat. 8,342,110 / China Pat.: ZL200910226595.1 / etc.