

Since years CERLIANI is engaged in constant research for new material and coatings that permit to improve further the performances of the hook.

For this reason special testing machines and measurement devices have been developed to test the various materials. In particular, CERLIANI's Research and Design Department has designed and realized testing equipments, which through simulation of the hook's working conditions, test the following parameters:

- ❖ **service life of the hook.**
- ❖ **transitory temperatures of the hook under all different working conditions.**
- ❖ **friction moment between basket and hook.**
- ❖ **dimensional control of the coatings' thickness.**
- ❖ **control of geometric errors and surface roughness.**
- ❖ **uniformity control of the coatings.**
- ❖ **structural control of the material.**

These means, enforced by a strict testing procedure regulated according proper and special norms, have allowed to test and to compare hundreds of solutions, whose results are rigorously recorded in the company's database and are part of CERLIANI's know-how.

This research has involved countless suppliers, specialists and also several Italian and foreign Universities.

Among the best-achieved results only a few have been selected for the commercialization, that is those, which presented the best price/performance ratio.

Further CERLIANI has chosen to back diversified solutions on the basis of the different market segment requirements.

For this reason among the gamut of coatings proposed by CERLIANI for her own hooks, the ones presented in the following technical data sheet stand out in particular.

As a general consideration bear in mind the following advice that is valid for every type of hook, for every type of material and coating and for every manufacturer:

The regular cleaning of the sewing machines prolongs the service life of the components, improves the sewing performances, reduces the machine downtime and reduces the maintenance costs.

It is therefore a good rule, at least at the end of every working shift, to remove the bobbin case and to clean (e.g. with compressed air) the hook and the surrounding area and to clean delicately the bobbin case underneath the tension spring (e.g. by blowing air).

If possible, it is also a good rule to put a drop of oil into the race of the hook and let the sewing machine turn idle for a few seconds at maximum speed.

These operations permit to remove the thread residual that is always very abrasive and detrimental to the life of the components and to the sewing performances.

The more the thread is thick and abrasive, the more often it would be appropriate to remove the debris for the moving parts of the sewing machine.

| ASPECT                            | - NAME OF COATING<br>- APPLICATION  | PROPERTIES   | PERFORMANCES  | LUBRICATION   | APPLICATION FIELDS  |
|-----------------------------------|---|--|---|---|---|
| <b>STANDARD COATING</b>           |   |  |   |   |   |
| -shining                          | <b>Hard chromium</b><br><br>-on the basket             | -high hardness (1050 HV)<br>-high coating thickness (0.02mm)<br>-Galvanic chromium coating           | -low friction coefficient<br>-dry sewing with little oil up to 800 ÷ 1000 stitches per minute<br>-sewing up to 6000 stitches per minute with regular lubrication<br>-smooth rotation between basket and hook<br>-proven reliability   | -not necessary within the indicated conditions.   | Every Field:<br>From household sewing machines to high speed machines.  |
| <b>SPECIAL COATING ON REQUEST</b> |   |  |   |   |   |
| -dull black                       | <b>TS</b><br><br>-on the basket                       | -low hardness<br>-high coating thickness (0.2 mm)<br>-PTFE structure on chromium substratum          | -low friction coefficient<br>-dry sewing with little oil up to 800 ÷ 1000 stitches per minute<br>-smooth rotation between basket and hook<br>-proven reliability  | -not necessary  | -in embroidery to improve the sewing qualities<br>-in light dry sewing at limited speed with low thread tensions  |
| -glossy yellow-gold               | <b>TTN</b><br><br>-on the basket                     | -high hardness (2500 HV)<br>-very thin coating thickness (4 µm)<br>-TiN structure (Titanium Nitride) | -dry sewing up to 3500 stitches per minute<br>-sewing with reduced lubrication up to 4500 stitches per minute<br>-sewing with low tensions up to 6000 stitches per minute with regular lubrication<br>-low friction coefficient in any working condition<br>-wear-resistance of the basket<br>-proven reliability | -not necessary within the indicated limits. One drop of oil every 8 hours enhances however the performance              | -in light sewing for a high stitching quality with low thread tensions<br>-in sewing with synthetic threads<br>-in the corsetry field<br>-in applications with overheating problems of the hook                                     |
| -glossy black                     | <b>DC20</b><br><br>-on the basket                    | -extreme high hardness (3000 HV)<br>-very thin coating thickness (3 µm)<br>-layer structure          | -dry sewing up to 3500 stitches per minute. Peaks up to 4000 stitches per minute are possible.<br>-low friction coefficient<br>-high wear-resistance of the basket<br>-long service life even with dry sewing<br>-reliability   | -not necessary within the indicated conditions. If present, it can enhance the performances of endurance and smoothness | -medium-heavy sewing with wear problems of the race and excessive increase of the play<br>-where it is necessary to replace often the basket due to the wear<br>-embroidery with dry stitching for a long service life of the hook. |
| -glossy black                     | <b>DC10</b><br><br>-on the hook body, gib and basket | -extreme high hardness (3000 HV)<br>-very thin coating thickness (3 µm)<br>-uniform structure        | -dry sewing up to 4000 stitches per minute<br>-low friction coefficient<br>-extremely high wear-resistance of the whole hook through coating both race and hook point<br>-very long service life (effect is even more evident when abrasive threads are used)<br>-proven reliability                              | -not necessary within the indicated conditions. If present, it can enhance the performances of endurance and smoothness | -in the presence of very abrasive threads (very heavy sewing)<br>-where dry sewing at high speed is required<br>-where there are problems of great wear also on the point of the hook   |