

Bobbin braking devices prevent excessive unwinding of the lower thread due to the inertial rotation of the bobbin.

This unwanted unwinding of the thread may cause stitching defects when resuming the sewing operation, resulting in uneven tension, thread eyes, birdnesting and even thread breakage. The bobbin braking device is essential in all cases where the inertia of the bobbin is relevant, such as:

- substantial tears up of the lower thread while sewing
- during automatic thread trimming operations
- stopping sewing at high stitching speed
- stopping sewing with a high stitching length or wide zig-zag stitches
- using very heavy bobbins.



The braking of the bobbin is therefore much in use with sewing machines equipped with thread trimming devices, high stitching speeds, and in all cases where bobbins present high inertial forces.

Below the various bobbin braking systems implemented on bobbin cases and baskets respectively.







BOBBIN BRAKING SYSTEMS ON BOBBIN CASES

On <u>horizontal axis rotary hooks</u>, the braking device is normally placed in the bobbin case. For one same bobbin case also 4 different executions can exist:

- w/o NBL without bobbin braking spring;
- NBL with bobbin braking spring;
- MF with adjustable bobbin braking spring;
- Magnet with bobbin braking magnet (requires use of steel bobbins)

The choice of the correct bobbin case depends on its usage.

NBL

Bobbin case with bobbin braking spring.

The device consists of an embedded spring (1) on the inside bottom of the bobbin case. The spring pushes on the upper flange of the bobbin and the latter against the bottom of the basket, causing a braking effect. The shape of the embedded spring changes according to the different bobbin cases on which it is mounted.

NBL (with fastening screw)

Bobbin case with bobbin braking spring and fastening screw.



The device consists of a spring (1) embedded on the inside bottom of the bobbin case and fixed by a screw (2) against accidental lost. The spring pushes on the upper flange of the bobbin and the latter against the bottom of the basket, causing a braking effect. The shape of the embedded spring changes according to the different bobbin cases on which it is mounted.

MAGNET

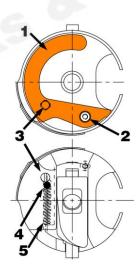
Bobbin case with bobbin braking magnet.



In this execution the braking of the bobbin is achieved by a magnet (1) imbedded into the inside bottom of the bobbin case. This magnet attracts the bobbin and creates friction between the bobbin and the inside bottom of the bobbin case. In order for such braking system to work properly, it is essential to use bobbins made of steel material!

MF

Bobbin case with adjustable bobbin braking spring.



This patented execution of the braking device has the advantage, compared to the prior system, to make possible to adjust the pressure of the spring against the bobbin. This allows to regulate the pressure of the braking spring against the bobbin according to the intensity of the pulling stress on the thread during trimming operations and the inertial force produced by the type of thread used. It is so possible to achieve a superior braking effect for heavy threads and a weaker braking effect for light threads, without influencing excessively the tension of the lower thread while sewing. This tension must be in fact determined only by the tension spring on the outside of the bobbin case. The adjustable device consists of a sickle-shaped spring (1) placed inside the bobbin case. The amount of pressure that this spring applies to the bobbin can be adjusted by screw (3). To avoid that the vibrations transmitted to the bobbin case during the sewing operation may cause a rotation of the adjusting screw, CM CERLIANI® has adopted a convenient solution that keeps it locked. The effect is obtained by inserting underneath the spiral spring of the bobbin case's latch slide (5) a small sphere (4) that goes to rest against the thread of the adjusting screw.



BOBBIN BRAKING SYSTEMS ON BASKETS

On <u>vertical axis rotary hooks</u>, the braking device is placed in the cap (similar to that of the bobbin cases for horizontal axis rotary hooks) or in the basket (compulsory choice for "KL" execution hooks which are without cap).

Several bobbin braking systems have been designed for baskets:

- w/o NBL without bobbin braking spring;
- NBL with bobbin braking spring;
- NBL (spiral spring) with bobbin spiral braking spring;
- Magnet with bobbin braking magnet (requires the use of steel bobbins)
- Sphere with a steel sphere to brake the bobbin

NBL

Basket with bobbin braking spring.

The device consists of a spring (1) embedded on the inside bottom of the basket. The spring pushes on the lower flange of the bobbin and the latter against the cap or the latch of the basket (in the case of "KL" execution hooks without cap), causing a braking effect. The shape of the embedded spring changes according to the different baskets on which it is mounted.

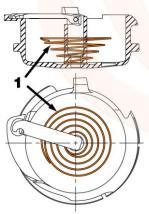
MAGNET

Basket with bobbin braking magnet.



The braking effect of the bobbin is achieved by a magnet (1) embedded into the inside bottom of the basket. This magnet attracts the bobbin and creates friction between the bobbin and the inside bottom of the basket. In order for such braking system to work properly, it is essential to use of bobbins made of steel material!

NBL (spiral spring)

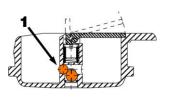


Basket with bobbin braking spiral spring.

The device consists of a conic spiral spring (1) placed on the inside bottom of the basket. The spring pushes on the lower flange of the bobbin and the latter against the cap or the latch of the basket (in the case of "KL" execution hooks without cap), causing a braking effect. There are several spiral springs available, differing in diameters and over all for the braking force applied on the bobbin. This spiral spring has also the function to ease the extraction of the bobbin from the basket when it has to be changed.

SPHERE

Basket with bobbin braking steel sphere.



A steel sphere (1) placed in the shaft of the basket achieves the braking effect of the bobbin. The sphere pushes against the inside diameter of the bobbin's center hole, creating friction. In some executions, the pressure of that sphere can be managed by the sewing machine that controls its function only at the necessary moment. The use of steel bobbins is suggested!



BOBBIN BRAKING SYSTEMS USED BY WELLAND

Braking item	Article on which it is used (hooks and bobbin cases)	Line
112.00.064 NBL	112.00.050	KK
115.00.219 MF	115.00.218 115.00.229 115.00.262	KP KP KP
130.06.150 MF	130.06.125 130.06.128 130.06.135 130.06.159 130.06.164 130.06.166 130.06.178 130.06.229 130.06.258 130.06.376	KP KP KP KP KP KP KP KP
130.06.174 MF	130.06.172	КР
130.06.239 NBL	130.06.240 130.06.298 130.06.300 130.06.304 130.06.378 130.06.380	KP KP KP KP KP
130.06.262 NBL	130.06.397	KP
130.06.350 Magnet	130.06.344 130.06.351	KP KP

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Braking item	Article on which it is used (hooks and bobbin cases)	Line
130.06.358	Dobbin edses)	
MF		
	130.06.264	KP
	130.06.356	KP
120.06.265		
130.06.365 NBL	130.06.320 130.06.322	KP KP
	130.06.373	KP
	130.06.414	KP
	130.08.934 130.08.946	KK KK
	130.08.950	KK
120.06.410	130.08.960	KK
130.06.418 NBL		
A		
	130.06.416	KP
-	130.08.273	KK
	130.08.280	KK
	130.08.283 130.08.288	KK KK
	130.08.294	KK
	130.08.456 130.08.462	KK KK
	130.08.530	KK
	130.08.534 130.08.537	KK KK
	130.08.540	KK
	130.08.546 130.08.548	KK KK
130.08.469	130.08.553	KK
NBL	130.08.556	KK
	130.08.558 130.08.580	KK KK
	130.08.585	KK
	130.08.594 130.08.660	KK KK
	130.08.670	KK
	130.08.676 130.08.678	KK KK
	130.08.680	KK
	130.08.682 130.08.686	KK KP
	130.08.688	KK
	130.08.697 130.08.703	KK KK
	130.08.707	KK
	130.08.723 130.08.907	KK KK
	130.08.973	KK

	Article on which it	
Braking item	is used (hooks and bobbin cases)	Line
130.08.612 NBL	130.08.578 130.08.642 130.08.646 130.08.648 130.08.654 130.08.657 130.08.748 130.13.134 130.13.157	KK KP KK KK KK KK KK KK
130.08.628 NBL	130.08.658 130.08.658R 130.08.659 130.08.661 130.08.816R 130.08.821R	KK KK KP KK KK KK
130.08.813 NBL	130.08.805	кк
130.10.009 MF	130.10.007 130.10.015	KP KP
130.10.012 MF	130.10.037	КР
130.10.019 MF	130.10.013 130.10.028	KP KP
130.10.022 MF	130.10.023	KP

Braking item	Article on which it is used (hooks and bobbin cases)	Line
130.10.034 MF	130.10.030	КР
130.10.047 NBL	130.10.039 130.10.045 130.10.048 130.10.050 130.10.052 130.10.054	KP KP KP KP KP
130.10.063 NBL	130.10.061	KP
130.10.065 NBL	130.10.059 130.10.067	KP KP
130.10.506 NBL	130.10.500	КР
130.11.185 Magnet	130.11.180 130.11.180L	KL KL
130.13.044 Sphere	130.13.020 130.13.024 130.13.038 130.13.055 130.13.058	KK KK KS KK KS
130.13.049 NBL	130.13.024 130.13.047	KK KP
130.13.062 NBL	130.13.020 130.13.055 130.13.060	KK KK KP

Braking item	Article on which it is used (hooks and bobbin cases)	Line
130.13.072 NBL	130.13.065 130.13.069	KK KP
130.13.081 NBL	130.13.173DC20 130.13.251 130.13.251 130.13.255 130.13.258 130.13.261 130.13.265 130.13.270 130.13.270 130.13.278 130.13.282 130.13.289 130.13.289 130.13.294 130.13.294 130.13.294 130.13.396 130.13.313 130.13.386 130.22.000 130.22.000DC10 130.22.010 130.22.010 130.22.010 130.22.010 130.22.010 130.22.010 130.22.010 130.22.010 130.22.028 130.22.034 130.22.034 130.22.034 130.22.035 130.22.035 130.22.039 130.22.039 130.22.040 130.22.040 130.22.052R 130.22.052R 130.22.052R 130.22.052R 130.22.052R	KK
130.13.114 NBL	130.13.122 130.13.142 130.13.146 130.13.161 130.13.165 130.13.185	KK KK KK KK KK KK
130.13.556 NBL	130.13.350 130.13.350DC10 130.13.370 130.13.375 130.13.383 130.13.500 130.13.550 130.13.550 130.13.550DC10 130.13.576 130.13.582	KL KL KL KL KL KL KL KL KL

Braking item	Article on which it is used (hooks and bobbin cases)	Line
130.14.009 NBL	130.14.007 130.14.015 130.14.021 130.14.040 130.14.052 130.14.064	KP KP KP KP KP KP
130.14.030 NBL	130.14.027 130.14.031	KP KP
130.14.037 NBL	130.14.035 130.14.042 130.14.056 130.14.058 130.14.060	KP KP KP KP KP
130.15.147 NBL	130.15.137 130.15.137R 130.15.137RDC10 130.15.137RDC20 130.15.183 130.15.183R 130.22.049R	KL KL KL KL KL
130.22.509 NBL	130.22.505 130.22.510 130.22.515 130.22.519 130.22.522 130.22.523 130.22.523	KL KL KL KL KL KL
130.24.004 NBL	130.24.000 130.24.005	KP KP
130.24.053 NBL	130.24.050	КР