Flexo press market survey for flexible packaging and folding cartons

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■ SWT Services

Servicing clamping shafts, adapters improves flexo safety

The print result and the service life of the entire system are influenced by the quality of the clamping shaft interface. The clamping shaft is often considered to be a possible error source if the printed design of the flexo press contains a considerable variation in quality. In addition, the set-up time of the job changes can be influenced by the carbon fibre adapter. It is often forgotten that the clamping shaft and carbon fibre adapter are highly complex systems. In order to avoid wasted investments, one has to control the complete interface.

Clamping shafts

Specified corrections can achieve outstanding effects. SWT Services believes that clamping shafts and carbon fibre adapters can create an entire system with high precision. In flexo print shops the interface of the clamping shaft was for many years an unknown quantity. Today, some employees still do not appreciate the influence it has on print quality. Because of this, the handling of several components is not carefully regarded as carbon fibre adapters can be damaged by the use of hammers. Corrugations and bell mouths on the clamping area on the clamping shaft and adapter are reasons for bad sliding of the adapter and damage.

Oliver Pfeiffer, managing director at SWT Services reports: "Consistently, it is the case that clamping shafts are completely replaced at a process disturbance without resolving the real problem in the length of time. Furthermore, they pay sometimes five- or even six-figure amounts for new components, although the actual clamping shafts and carbon fibre adapters can be used well in the following years after small corrections."

Not many of the flexo printing companies know there are a range of effective and economic possibilities to check the system of the clamping shafts and carbon fibre adapters and to improve the total condition of the system with few selective measures.

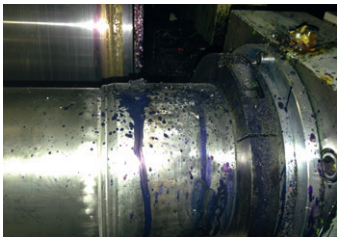
Firstly, a view of the complete interface is requested, for example, the clamping shaft: Normally it consists of a high precision hydraulic clamping system in which a piston is moved thanks to an actuation screw. This piston presses hydraulic oil in an expansion chamber. The increase in pressure in the expansion chamber causes an expansion of the expansion sleeve on the base body. This procedure precisely clamps the carbon fibre adapter within its inner clamping surface.

Hydro expansion clamping

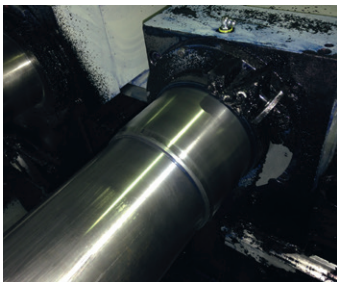
Hydraulic expansion solutions, such as those also used in machine tool industry, count among to the most exact clamping technology. They are always used if a high precision at frequently changing cycles and minimal set-up times must be observed permanently.

No other clamping system combines the factors of true running accuracy, minimization of the set-up time and flexibility like hydro expansion clamping systems. The expansion chambers are filled with oil and the extension sleeve affects the absorbability of the appeared vibrations as well as the load limit in the current process. Pfeiffer explains, "If they are correctly applied, the combination of hydraulic clamping shaft and carbon fibre adapter is a safe system that is reliable for a long time and guarantees a high degree of process safety."

Moreover, the adapters that are installed in modern, high-performance printing machines are manufactured normally by carbon fibre and are pushed and clamped up to eight times per shift on the clamping shaft. The bore dimensions of the adapter must be harmonized precisely to the bore of the clamping shaft to guarantee correct operation. Using a rubber hammer release the adapter of the shaft however it causes damage at the inner bore. Because of the fact the clamping shaft and the adapter are precision grounded in a new condition and thereby are almost perfectly coordinated, you can see that corrugations, punctual damages or deformations can influence the process stability. According to the company, three factors are needed for perfect function: Quality of clamping shaft, quality of adapter, and cooperation of the complete system. Errors can only be eliminated if all three factors are checked at the same time and, if necessary, readjusted. SWT Services developed a program in cooperation with other manufacturers that enables maintenance and overhauling directly at the machine. Around 90% of damage can be repaired directly onsite, often within 18 to 20 minutes during a job change per clamping shaft. Its service technicians visit suppliers worldwide.



Before: Dirt and surface damage on the carbon fibre adapter affect the safety of the flexo printing process



After: About 90% of all apparent damage can be repaired directly onsite

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