

STUDY CASE REPORT

Small change – large effect

The print result and the service life of the entire system are influenced especially by quality of the clamping shaft interface

The clamping shaft is quickly represented as a supposed error source if the printed design of the flexo printing machine contains high variations in quality. Furthermore the set-up time of the job changes due to the tightly carbon fiber adapter stagnates consistently. It is often neglected that the clamping shaft and carbon fiber adapter is a highly complex system. Who wants to avoid false investments, firstly has to control the complete interface. Often can be achieved enormously effects with specified corrections.



SWT Services contributes essentially that clamping shafts and carbon fiber adapters permanently generate an entire system with high precision.

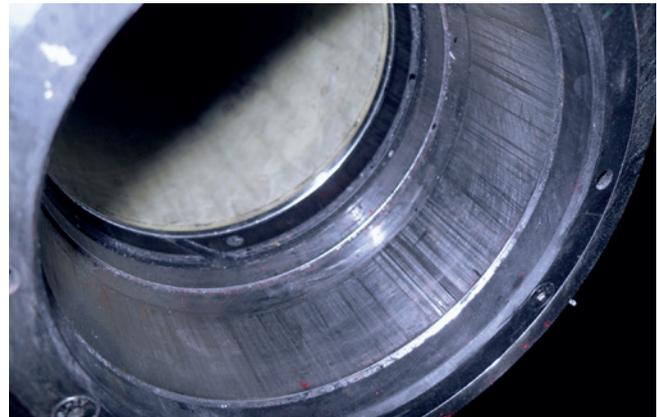
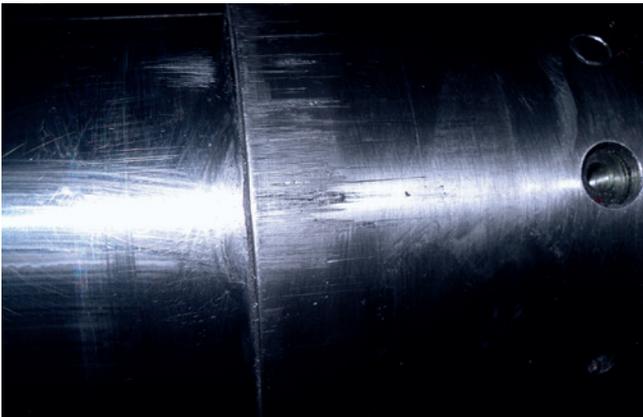
In flexo printing companies the interface of the clamping shaft was for a long time unknown. Today, some employees still do not know enough the influence on the print quality. Because of this the handling with several components is rude: Regardless of damages, seized carbon fiber adapters are impacted by hammer and beam of the clamping shafts. Oliver Pfeiffer, Managing Director at SWT Services – the clamping technology specialist from Ilsfeld – explains: “Consistently, we meet some employees who do not know that a seized carbon fiber adapter is not in a normal condition but rather a sign for a failure inside of the entire system”, furthermore he adds: “Adapters can also be jointed easily after years if all parameters of the entire system are suitable and an employee has the know-how.”

STUDY CASE REPORT

■ Prevent false investment

Approximately six years ago, SWT Services has developed – in cooperation with the leading manufacturers of printing machines, adapters and clamping shafts – a program which enables maintenance and overhauling directly at the machine. Around 90 per cent of all appeared damages can be repaired like this directly on site. In the meantime, the service technicians of SWT Services are in demand all over the world. Our customers are leading suppliers in the area of food, tobacco, non-food, as well as, chemistry in Europe, India, China, Malaysia, Singapore, Australia and in the USA. In all these companies SWT Services ensures with a regularly maintenance a failure-free operation.

Oliver Pfeiffer 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. He completes: “Furthermore, they pay sometimes 5-digit even 6-digit amounts for new components, although the actual clamping shafts and carbon fiber adapters can be used well in the following years after small corrections.” According to the clamping technology specialist, not many of the flexo printing companies know that there are a huge range of effective and in addition markedly economic possibilities to check the entire system of the clamping shafts and carbon fiber adapters and to improve extensively the total condition of the system with few selective measures.



Corrugations and bell mouths on the clamping area on the clamping shaft and adapter are reasons for bad sliding of the adapter and causing damages.

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■ Complexity of the entire system

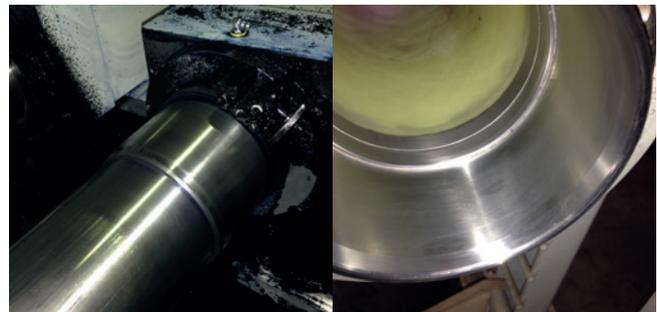
Firstly, a view on the complete interface is requested to be able to relate to the operation of SWT Services on site. For example, the clamping shaft. Normally, it consists of a high precision hydraulic clamping system in which is moved a piston thanks of an actuation screw. This piston presses hydraulic 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 fiber adapter within its inner clamping surface. Hydraulic expansion solutions, such as are also used in machine tool industry, count among to the most exactly clamping technology. They are initiated always 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 which are filled with oil and the extension sleeve, furthermore affect the absorbability of the appeared vibrations, as well as, the load limit in the current process. Oliver Pfeiffer explains: "If they are correctly applied, the combination of hydraulic clamping shaft and carbon fiber adapter is a really safe system which is reliable for a long time and guarantees a high degree of process safety."

Moreover, the adapters which are installed in modern high performance printing machines are manufactured normally by carbon fiber and are pushed and clamped till 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 a correctly operation.

Rudely interferences with rubber hammer release the adapter of the shaft, however at the same time they cause damages at the inner bore. Because of the fact that, as well as, the clamping shaft and the adapter are precision grounded in a new condition and thereby are perfectly coordinated, you can see immediately that corrugations, punctual damages or deformations can influence the process stability extensively.



Dirt and surface damages on the carbon fiber adapter affect immediately the process safety of the flexo printing.



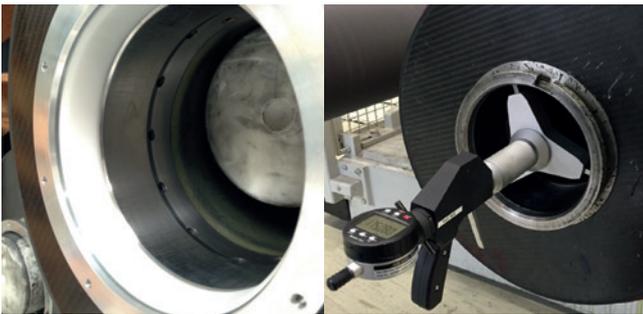
The interface will be measured after cleaning and overhauling.

STUDY CASE REPORT

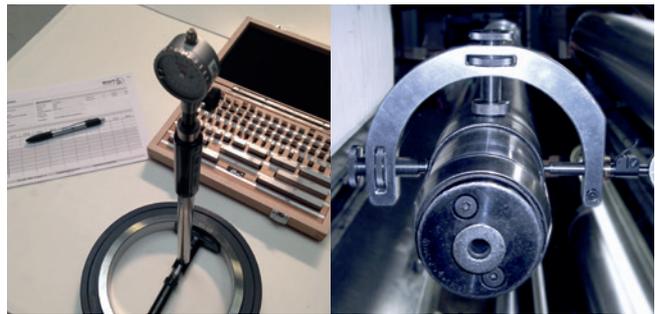
■ Varied influences

According to SWT Services, the following three factors are for a perfectly function: Quality of clamping shaft, quality of adapter, as well as, a perfect team play of the complete system which is very important. Errors can only be eliminated if all three factors are checked at the same time and, if necessary, readjusted. Oliver Pfeiffer indicates: "However, it can occurs from time to time that, in the case of quality variations, new clamping shafts are bought but adapters being possibly defective are installed. In such cases it is normal that the process stability within very short time present variations or even worse, the new clamping shafts are damaged by the previous adapters."

Because of this Oliver Pfeiffer advises another way: "It is fundamentally more economical to check the entire system of the clamping shaft and adapter regularly and furthermore, if it is necessary, to correct well-directed. Thereby, on the one hand false investments and on the other hand expensive down times of the machine are prevented." SWT Services has specialised in checking 90 per cent immediately at the machine, often within 18 to 20 minutes during a job change per clamping shaft.



The interface will be measured after cleaning and overhauling.



SWT Services assesses the entire system of clamping shaft and adapter, thanks of high precision measuring and calculation tools directly at the machine.

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■ Maintenance process clamping system

The maintenance process occurs normally in three steps: First, the complete clamping shaft will be cleaned and analysed in assistance with high precision measuring tools and calculation programs. In this process are checked absolutely measures of the clamping diameters, as well as, roundness or clamping force of the clamping shaft. By matching the values of the adapter and clamping shaft in assistance with specially calculation programs, the entire system can be criticised. For example, if the function of the clamping shaft is sufficient for a reliable and exact clamping of the adapter and if the process has enough safety. After this process, the service technician talks about the results on site and present operating alternatives. In the third step the interface is optimised specifically. Thereby, SWT Services refers to a huge arsenal of procedures to extend the operating life of the entire system, starting with the fine-tuning of the clamping forces of the treatment of the clamping surfaces to the optimisation of the fitting tolerance. Therefore, SWT Services has service experience in the area of clamping technology for more than 50 years. SWT Services realises the overhauling and maintenance services also at weekends or on holidays, as well as, in times of closure to avoid an expensive down time of the machine.



Around 90 per cent of all occurring errors can be repaired immediately on site.



If desired, SWT Services comes also on holidays, at weekends or in times of closures in your company.

■ Repair and general overhaul

Starting mid of last year, SWT Services offers full services for hydraulic expansion shafts and anilox rolls. It can be realised a complete repair or a general overhaul within 6 working weeks after receipt at SWT. Ask for a detailed offer with all necessary information. Just contact us!

► www.swt-services.com

A member of DFTA Flexo-Printing association



Comprehensive and Manufacturer Independent
FULL SERVICES FOR FLEXO-PRINTING, CLAMPING AND BALANCING TECHNOLOGY



■ **Independent consultation**

We offer advice independently as a full service partner and comparing any manufacturer due to a wide range of technological overview and detailed know-how.

■ **Distribution of all market leading brands**

To implement solutions practically and fast, we sell the necessary parts and products directly to ensure the best possible cost-benefit effect for our customers.

■ **Installation / Assembly / Start-up**

Installation, assembly and product start-up gets done worldwide only by our own trained and qualified employees.

■ **Training**

Our specialists improve your operating staff based on actual practice training on how to handle the product properly and to avoid damages.

■ **Maintenance**

To make the maintenance of your products projectable, we do regular maintenance services based on fixed pricing including inspection.

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Fast, competent and uncomplicated repair services to ensure fast recovery of your manufacturing capability.

■ **Inspection**

Our inspections lead to clear statements about the actual and real product condition in your production to avoid unnecessary machine breakdown.

■ **Fine balancing**

All kinds of tools, toolholders and workpieces reliable and precise by our experts on site or in our facility.

■ **Worldwide on site**

Germany, Europe or worldwide – we are there at any time and at any place of the world – ready for servicing!

