

Watchmaker's tools

Purchase – Quality - Use

Watchmaker's tools and quality

Watchmaker's tools such as case openers and spring bar removers etc. differ in quality. Depending on the project the professional as well as the ambitious amateur can choose their watchmaker's tools from various price and quality ranges. Price differences for apparently identical watchmaker's tools of various makes are understandable: professional quality and small volume production cost money, regardless of other pricing factors. The expenditure and the results of development will foremost benefit the watchmaker's premium products. Cheap watchmaker's tools generally do not reach this level, however individual characteristics of some products may prove to be the exception. The consequence of this is that particularly cheap watchmaker's tools, in terms of their overall attributes, are mostly only designed for hobbyists and/or inexpensive wrist watches.

Ask us for advice: call us on +49 551 782026 Mon - Fri 9.00-20.00 and Sat 9.00 - 12.00.

Fixing the watch properly with the right watchmaker's tool is only half the job

You don't just clamp a watch in a vice! If too much force is used, the surface can be easily destroyed and the watch housing can be damaged. Sideways control buttons often prevent secure clamping, side bars can break etc. On the other hand you always need a third hand to safely secure the watch allowing you to work with both hands. With special clamping watchmaker's tools, safe and easy clamping of watch housings is child's play. They grip the irregular form of watches safely and hold them nice and securely. Here watch case holders, of which there are many types, come into play. A watch case holder is the essential watchmaker's tool, the most important types are: universal watch case holders, which mostly have an adjustable perforated grid in which four steel pins can be inserted, so that even very irregularly shaped, even unsymmetrical watch cases (round, triangle, oval etc) can be safely clamped. They have a capacity of up to 60 mm! Simply place the watch in the watch case holder, insert the steel pins in the next opening and carefully tighten the jaws. The holder can then either be operated with the wooden handle or clamped in a vice. A further possibility is offered by the block watch case holder which has a similar functional principle. It has 4 plastic pins instead of steel pins resulting in much more careful handling of the watch casing; this holder can also be clamped in a vice. No doubt the more traditional and best type, however are watch case holders made out of wood. These consist of two wooden halves which are connected by an adjusting mechanism and have a recess where the watch is gently inserted. This type isn't as flexible but is definitely the most gentle. The block watch case holder and the wooden case holder are also suitable as movement holders. To secure the movement there are also movement holder sets with a wide range of plastic rings (fits nearly

all sizes of movement) There is a special holder for many luxury movements such as RLX. A ball and socket vice is recommended to supplement professional work with block watch case holders, its adjusting mechanism allows tilting, (and the associated change of view) enabling you to have the perfect view for all types of work.

Opening and closing – case openers and watch pressers

Even simply removing and pressing in the bottom of the watch after changing the battery, cleaning the movement or replacing the o-rings often causes enough difficulties, which is why specialist dealers or the (expensive) service department is often used. With professional watch case openers and watch pressers this type of work becomes a piece of cake. When using case openers I recommend using a case holder to ensure the watch is really secure when its opened.

Opening screw back cases with the right watchmaker's tool / case opener

A screw back case can be recognised from the noticeable recesses, notches, ribbing or straight outer surface on an otherwise round case back, which allow the teeth (pins) to be inserted for opening. Regardless of whether a simple case opener, a premium case opener (for RLX watches and a small number of other makes which require a special opener), or a universal case opener is used, the procedure is always roughly the same. First the case opener is placed on the case back so that the teeth or pins can be placed exactly in the recesses, notches or ribbing of the case back. Then tighten the case opener's teeth with the knurled wheel/handle until the opener is securely attached to the watch case back. Now carefully twist the opener anticlockwise until the back comes off, but do not completely unscrew it. Now detach the case opener by loosening the interlock and unscrew the back by hand or better with a vacuum opener. If the back's seal is damaged for any reason, this must be replaced by a NEW O-RING to continue to ensure the water resistance of the watch. Closing the back follows in the opposite order: first treat the o-ring with silicone lubricant, then insert when clean, place the top carefully on the thread and screw back on by hand / with a vacuum opener (hand tight and clockwise), this will ensure that when replacing the lid it is not lopsided or canted. This would immediately damage the delicate thread causing the watch to be no longer water resistant at best, but may cause the watch to be unusable. For the last turn to completely close the back, remove the opener and very carefully screw the case back completely shut. Additional information: for many watches a pocket case opener is sufficient however there must be two recesses exactly at the right distance apart as this opener only has two pins (housings with straight outer surfaces or ribbing will not work with this opener). This type of case opener also good for using on the move due to its compact design.

Opening snap back cases with the right watchmaker's tool

A snap back case (spring lid) lacks the features of a screw back case. Snap back cases normally have a small notch in the watch housing or lid where a case knife can be inserted to lever the back and open the case. The case knife (don't use a screwdriver or similar tool) is inserted in the small groove which is found opposite the pins on most watches. The case knife is inserted with the tip or the flat side of the blade. In doing so, position the knife so that when

you subsequently lever the watch back off it braces against one of the pins. Now begin to open the back by carefully levering the knife whilst gently turning it at the same time on its own axis until the back springs off. At the same time hold the watch in place with your other hand if the case holder you are using is not fixed to your workbench. Before closing the housing the seal must again be checked. Damaged seals must be replaced. After inserting the o-ring press the case back in using both thumbs together. Normally a clicking sign indicates that it has closed correctly. However, many watches require more than thumb power, therefore we recommend using a back press clamp which come in various designs, e.g. professional clamps with reinforced lever pressure mechanism. Various dies, included with the watch press, made of nylon or metal enable the press to adjust to the size of the watch and avoid scratching it. These clamps, when set up properly, secure the watch safely in place and uniformly and gently press the watch back on. Some presses are also designed for use with crystals. Case knife quality: cases knives are small tools which deliver a considerable amount of force - so don't cut corners. Case knives made by the company Victorinox have a good price performance ratio and are very useful. The cheaper models aren't necessarily bad quality but have considerably thicker blades which restricts their use. Additional information: there are also some extremely high-quality case openers for press on backs (often standard models) but price-wise these are in different league.

Shortening metal watch straps with the right watchmaker's tool

First check how the links are secured. The most common methods are screws or pins. The pins are easy to remove with one of a wide range of pin removers; when doing so ensure that you only try to remove looser pins (otherwise you will destroy the tool) - tighter pins require an additional tool (pin pusher) and a watchmaker's hammer (both are usually so easy to use that no further description is required). A semi professional way to shorten a watch strap is to use watch strap shortening pliers and a watch strap shortening machine. The watch strap shortening machine uses pin pushers with a neat guide mechanism providing improved possibilities of use. 5 pin pusher tools and a screwdriver are included in the set. Instructions: for many watch straps there is a direction in which the pins must be pressed as indicated by the small arrows. For screwed watch straps a watchmaker's screwdriver is required; the rest should be self-explanatory - please don't use a precision mechanical screwdriver, as these are generally too big and will damage the screw and sometimes the watch strap as well. Further information about pin pushers: pin pushers come in various sizes, generally 0.6 – 0.8 and 1.0 mm. It is important here to always select the correct diameter. Further information about watchmaker's hammers: hammers with one plastic head and one metal head are most suitable for this type of work. Replacement parts: due to the high amount of force used when removing/pushing pins these tools must be occasionally reconditioned. With the pin pusher set all parts can be reordered and the same applies for the 5 pin pushers (punches) from the watch strap shortening machine. There are also replacements for some pin removers.

Changing watch straps with the right watchmaker's tool

Anyone who's been tormented by changing a watch strap will quickly learn to value a spring bar remover. No more maddened fumbling, no more spring bars flying off, no more scratches

on the watch housing - our spring bar removers enable spring bars to be inserted and removed trouble-free in leather, fabric or plastic watch straps and even many metal watch straps. Some metal watch straps have special spring bars which are integrated into the lip of the metal strap, which can only be removed with difficulty. In this case visit a watchmaker to avoid scratches and other damage to the watch. In addition metal watch straps rarely wear out and are in any case often designed to be a fixed component of the watch which means that one strap can often be used for the total life of the watch. This is not the case with leather, cloth and plastic watch straps. These wear out a lot faster and are liable to fashion trends and are damaged easier than metal watch straps. On the other hand they are also a lot easier to change using a spring bar remover. To do so just insert the fork-shaped end of the tool in the crack between the strap and the strap holder, until the fork reaches the thinner, moveable part of the spring bar (bar). Then press the spring bar and the spring bar remover together until the bar pops out of the strap holder. Now remove the spring bar on the other side. After the second spring bar has been removed in the same manner the strap can be changed. When inserted the new strap please note that the section with the buckle belongs at the top end (12 o'clock). The assembly is relatively easy. Pass the spring bar through the strap and insert its bar in the end of the strap holder. Then using the fork of the spring bar remover press the opposite bar into the spring bar and so that it finally sits cleanly in the strap holder. After removing the spring bar remover press the bar completely into the strap holder through the spring in the spring bar - the spring bar now sits securely on the watch. Further information about spring bar removers: with some watches, e.g. Rol.x the spring bars have to be removed through an opening laterally attached to the housing. For this a particular premium spring bar remover is used which has a pointy removal instrument instead of the fork. Further information about spring bars: there are various types of spring bars, with or without a lip, fatter or thinner, straight or curved (curved spring bars require bending pliers), to name just a few characteristics. Use the same type of spring bar as you took out, as far as possible. I stock various types of spring bars.

Everything at a glance with the right watchmaker's loupe - an addition to any watchmaker's tool

A must-have for collectors as many things require a watchmaker's loupe. For cleaning work and battery changes an eye piece with 2.5 x magnification is the best choice (avoid extremely large magnifications as these do not produce the desired result). A set of eye pieces is needed when working with the mechanical or electronic parts of a watch; 3 or 4 strengths from 2.5 - 7.5 or 10 x magnification are a good solution for this. 12-15 x magnification is best for an inspection eye piece. An additional very comfortable way to work on a watch is with a loupe mounted on a head band (binocular loupe) but these are not so flexible as a set of eye pieces. There are special eye pieces for glasses wearers which clip on to the glasses so that eye problems are still corrected. Head band mounted loupes can also be used by glasses wearers. Additional information: true hobbyists and professionals use eye pieces made by the company Sternkreuz.

Easy guide to changing watch batteries

When a modern movement stops it's seldom due to a defect, but rather due to an empty battery almost every time. Today, many watches, especially digital ones, have a battery warning display which signals that the battery needs changing. A range of watches also have modern energy storage which is integrated into the watch and really only have the task of bridging the downtime of energy supply. This means, for example, solar cells or the use of gravity and is, like the rest of the watch, completely maintenance free, therefore never requiring a new battery. Changing the battery in timepieces which use large batteries such as D batteries, C batteries, AA batteries or AAA batteries is generally very easy as the batteries are usually very easily accessible from the outside. Here you just have to open the battery cover and insert the new batteries with the correct polarity. A tip regarding battery types: always use premium alkaline batteries, even if they aren't on offer in the supermarket! A single leaky battery can irreparably damage the movement. Alkaline batteries from market leaders such as Varta, Philips, Panasonic, Sanyo, Duracell, Energizer, Sony, Maxell (virtually) never run out, are very efficient and are more environmentally friendly than standard batteries. Rechargeable batteries do not add anything here as they are not always suitable for timepieces, above all due to their cell voltage of only 1.2 V. In normal cases alkaline batteries last 1-2 years, which is quite economical. Wrist watches, watches in organisers and calculators etc. however, almost exclusively use replaceable coin cells which typically last between 1 and 5 years. A few types of watches use particularly long lasting lithium cells which have a life span of up to 10 years and so virtually never need to be changed. These cells are often integrated into the movement or the calculator's electronics and cannot be changed. The device/watch must then be disposed of in the same manner as all other batteries.

Battery ordinance

In accordance with the Federal Battery Ordinance batteries, power supplies and devices with built in energy storage may not be disposed of in general household waste but instead must be disposed of at a retailer with appropriate collection facilities or at a local collection point.

Changing watch batteries / coin cells

You don't have to get a watchmaker to change a coin cell for you, unless they offer this service free of charge when purchasing a coin cell. Otherwise it's normally more cost effective to purchase your own coin cell and change the battery yourself, especially if you not only just look after one watch, but those of your family or relatives. It is especially worth acquiring special tools for opening and closing watches. In any case you should have a watchmaker's screwdriver to be able to properly undo the tiny screws which hold the coin cell's spring clip in place. For instructions on how to open and close watches see the corresponding chapter above. Depending on the construction of the battery holder the coin cell may simply be levered out with a watchmaker's screwdriver or tweezers (use plastic tweezers only) or can be removed after loosening the battery holder. Before taking the watch apart you should study the inside of the watch carefully and if necessary make notes about the position of spring clip, covering sheet etc. The easiest way to find out what battery type is required is to check the instruction manual. If this is no longer available you will have to open

the watch and look for the battery type embossed on the cell. It is not imperative to use the same battery type if it is no longer available. Using a comparison table a corresponding equivalent type can be ascertained. It is important that the replacement battery is the same size. Equivalent types can sometimes have a smaller or larger capacity than the original battery, a difference we can live with. In other respects, using an equivalent is unproblematic. However pay attention to branded manufacturer's claims or manufacturer's guarantees about leakage from the cell.

Cleaning and maintenance of wrist watches / pocket watches

A popular topic amongst many watch collectors. The following definitely belong in a basic set of equipment: a watchmaker's brush (antistatic), a dust blower, a set of watch seals, silicone lubricant, cotton gloves, a jeweller's cloth, leather and other polish and Rodico cleaning agent. This basic set can of course be expanded with various consumables. In addition professionals use oil pins plus accessories, an ultrasonic cleaner and a handheld polishing and sanding machine.

Testing and inspecting wrist watches

There are a multitude of tools/devices in this area, some of which are highly technical. The one most used in practice is the water resistance tester. This device is essential for water resistant watches, in particular for diving watches. There are various different technical devices. 2 versions are also suitable for collectors and hobbyists due to their semi-affordable price, although testing equipment made by the company Bergeon is definitely above the pain threshold at 500 Euro. The effectiveness of these models and the more affordable reproductions are relatively the same. A container is partly filled with water, the rest filled with air and the watch is hung underneath the lid. After the container is closed it is pressurised and then the watch is plunged into the water using an adjustment mechanism. If bubbles of air come out of the watch, the watch is not water resistance.

What watchmaker's tools you really need

Of course this list can never be complete, but it will give you an initial impression

Watchmaker's tools for changing batteries

Case opener for screw back cases / watch knife for snap back cases

Watch presser to close watches with snap back cases

Spring bar remover for strap adjustment/replacement

Antimagnetic screwdriver for removing battery covers

Plastic tweezers for removing and inserting batteries

A watchmaker's loupe with 2.5 x magnification

(Optional) Dust blower and a scratch removal pen to clean contacts

(Optional) Case holder to firmly hold wrist watches in place

We also recommend you have a copy of our guide to changing watch batteries

Watchmaker's tools for hobbyists / for mechanical watches

Bench mat e.g. by Horotec (Swiss made watchmaker's tools)

Case opener for screw back cases / watch knife for snap back cases (e.g. Bergeon, Victorinox)

Watch presser to close watches with snap back cases

Spring bar tool / spring bar remover (e.g. Bergeon or S1)

Antimagnetic watchmaker's screwdriver for working with movements (e.g. Bergeon, Beco)

Watchmaker's screwdriver for working with cases and straps (steel blade: S1, Beco Technic)

Screwdriver blade sharpener (for watchmaker's screwdrivers) and grinding stone

At least 2 watchmaker's loupes of 2.5x and 10x magnification (e.g. Bergeon, Sternkreuz)

Case holder and movement holder

Crystal lifter

Hand lifters and hand setting tool

Set of watchmaker's tweezers, antimagnetic

Set of watchmaker's pliers (recommended: S1 Micro)

Oil pin and oil cups

Dust cover and tray to protect watch parts

Dust blower, watchmaker's brush and a scratch removal pen

Cleaning agent (e.g. Bergeon Rodico) and peg wood

Watchmaker's hammer

Strap shortening tool: pin remover or pin pusher

Punch for leather straps

Case cushion

We also recommend our book: 'Repairing wrist watches'

Recommended watchmaker's tools / equipment for ambitious hobbyists:

Ultrasonic cleaner with cleaning solution

Bergeon Rust Remover + One Dip, polishing machine with a set of polishing brushes + pastes

Demagnetiser (our recommendation: Etic, Greiner, Elma)

Watchmaker's broaches and files

Required consumables / replacement parts

Spring bars - have a selection of various sizes available

Watch O-rings - have a selection of various sizes, shapes and strengths available

Silicone lubricant for watch seals / o-rings

A small set of watch screws can often be quite helpful

1-3 types of watch oil for wrist watches