

Center-P+ **Centre pointer apparatus for spindles**

General

The *Center-P+* spindle centre pointer is used for centering spindles or rings on ring-spinning machines. Correct spindle centering has a decisive influence on thread quality and on the number of thread breaks.

Centering with the naked eye depends mainly on the person doing the job and on the spindles' condition. It is difficult to centre all the spindles this way on a machine which may have more than 1000 spindles. Furthermore, centering with the naked eye is not always possible on ring-spinning machines of modern design.

The *Center-P+* spindle centre pointer does the job with the help of a light-emitting diode (LED) display which shows reproducible results and can be read objectively. With the centre pointer, the job can be done easily and without tiring even on large machines.

This handy device is battery-powered, so that it can be used during a whole shift without mains connection.

The centre pointer can be used on spindles with a diameter between 16 mm and 18 mm (max and minimum values); adapters are available for using it for ring diameters of 36 mm to 48 mm.

Its open construction allows the *Center-P+* centre pointer to be placed over the running spindle from the side at any point and adapted on the ring; there is no obstruction from the balloon control ring or the thread guide. Any ring traveller in place does not have to be removed; it has only to be pushed to the back of the ring in the open position on the centre pointer.

The *Center-P+* centre pointer can also measure on top of the conical part of a spindle, so that there is no need to stop the spindle and put on a cylindrical casing, which would then need to be removed after centering.

A spring-loaded gripping device holds the centre pointer on the spindle, thus eliminating the manufacturing tolerances of the ring.

The display consists of two lines of light-emitting diodes (LEDs) at right angles to each other. Red diodes show in which direction the ring should be moved, and a green diode lights up when the spindle is within a radius of $\pm 0,15$ mm from the theoretical centre point of the ring.

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Directions for Use

The battery supplied with the centre pointer should be charged before the device is used the first time (See *Charging the battery*).

Switching on

Before switching the device on, care should be taken to ensure that it is equipped with the right ring adapter; if necessary, the adapter should be exchanged (See *Exchanging the centering adapter*).

Switch the *Center-P+* centre pointer on by connecting the hand-held part of the apparatus with the battery via the spiral cable supplied with the kit.

When the device is switched on and if the battery charge is sufficient, the outermost red LEDs light up alternately to show that the device is ready for use.

A blinking green LED means the battery is low and the centre pointer cannot be used. If the battery then remains connected, the electronics automatically switch it off after a while.

It is strongly recommended that the apparatus should always be disconnected from the power source after use. This should also be done if the battery is discharged. A discharged battery should be recharged as soon as possible, to ensure that the device is always ready for use.

Placing the centre pointer

To place the centre pointer on the spindle, move the lever to retract the clamping pins into the housing; place the housing sideways over the spindle and then into the ring from above.

Care must be taken to ensure that any ring traveller should be placed outside the supporting surface of the centre pointer and is not trapped under the adapter.

When the lever is released, a spring presses the clamping pins evenly outwards and holds the centre pointer centrally on the ring to be adjusted.

Slight twisting motions of the centre pointer on the ring will ensure that it is optimally seated.

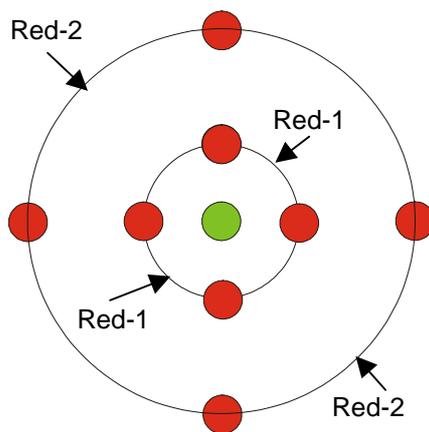
Eight red and one green light-emitting diode (LED) indicate the position of the ring relative to the spindle when the device is mounted on the ring.

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The red LEDs which are lit show the direction in which the ring is to be displaced with the device. If the red LEDs are lit only in one direction, then the ring must be adjusted in the direction shown by the red LED, until only the green LED is lit.

It is important to note that the display of the red LEDs is not linear—see following diagram.



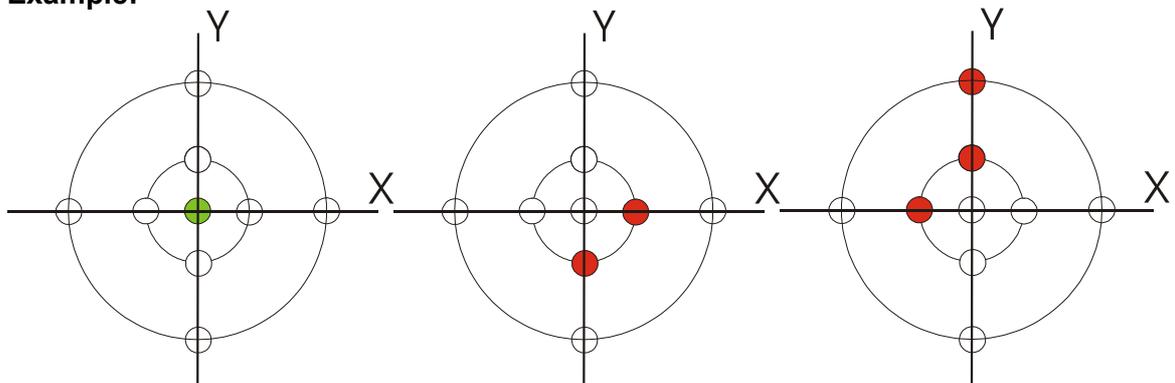
Green LED: Spindle is centered, spindle position is within $\pm 0,15$ mm of the theoretical centre point.
 → Centering precision is good.

"Red-1" LED: Spindle is not centered, it is inside a circle with a radius of max. 0,25 mm from the theoretical centre point.
 → Centering precision is fair.

"Red-1" and "Red-2" LEDs: Spindle is within a circle with a radius of max. 0,4 mm from the theoretical centre point.

"Red-2" LED: Spindle is outside the circle with a radius of $> 0,4$ mm from the theoretical centre point.

Example:



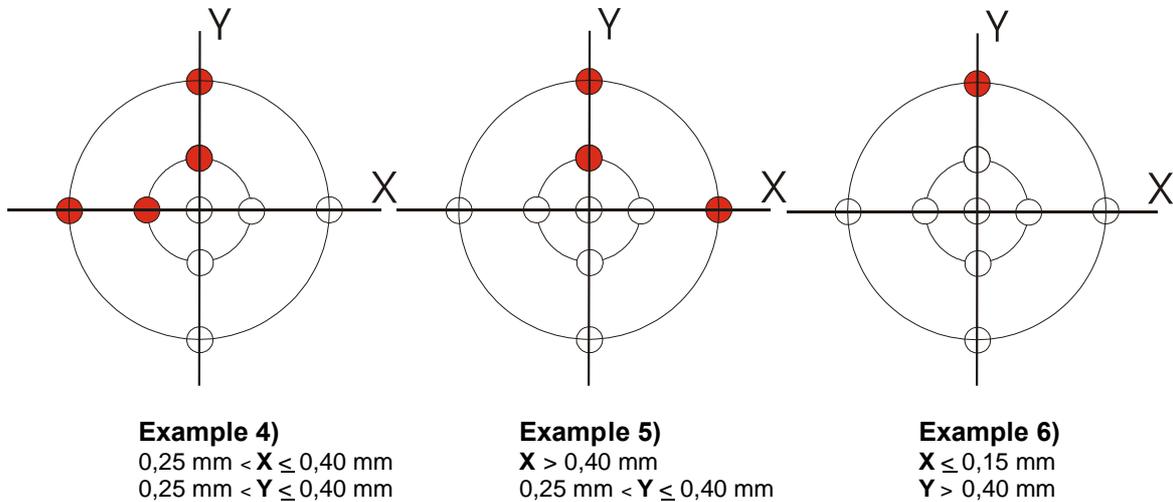
Example 1)
 $X \leq 0,15$ mm
 $Y \leq 0,15$ mm

Example 2)
 $0,15$ mm $< X \leq 0,25$ mm
 $0,15$ mm $< Y \leq 0,25$ mm

Example 3)
 $0,15$ mm $< X \leq 0,25$ mm
 $0,25$ mm $< Y \leq 0,40$ mm

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With the centre pointer in place, the ring should be carefully adjusted until the device is positioned so that only the green LED is lit.

When this position has been reached, the locating screws on the ring can be tightened again. Care should be taken that the ring is not moved out of its correct position again while this is done.

Exchanging the centering adapter

The *Center-P+* centre pointer can be equipped with adapters for rings with diameters of between 36 mm and 48 mm.

To exchange the adapter, the two hexagonal socket screws must be loosened with a 2,5 mm socket spanner and the metal part removed from the plastic part by gently levering it off.

When mounting an adapter, care must be taken to ensure that the two plastic projections on the centre pointer housing engage in the appropriate holes on the adapter, and that the adapter is firmly seated around its entire circumference. The two locking screws can then be tightened again with moderate force.

The adapter is a piece of precision equipment, to be handled with care. When not in use, adapters must be kept in the appropriate pocket of the carrying case.

Maintenance

The apparatus requires no regular maintenance. Dirt can be wiped off, if necessary, with water and a little soap. Use no solvents, as they might destroy the plastic materials in the apparatus.

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If necessary, the moving parts of the ring adapter can be lightly oiled with fine sewing machine oil.

Charging the battery

The battery supplied can be charged with the charger forming part of the kit. (See *separate instructions for use*).

The charger is microcomputer-controlled. The state of charge of the battery prior to charging is of no consequence. As soon as the green LED on the apparatus lights up, the charging operation is complete and the apparatus is ready for use.

With a fully charged battery the apparatus can be used for more than 10 hours without interruption, although the duration of one charge depends on how the centre pointer is used and on ambient conditions.

The green light-emitting diode will blink when the accumulator is run down.

Safety

The *Center-P+* centre pointer is intended exclusively for centering spindles on ring-spinning machines, as described above. As sufficiently accurate spindle-centering can be done only on machines while they are in operation, this work must be carried out only by appropriately skilled staff, due to the danger of accidents.

Care must be taken that the spindle to be centered lies within the working range of the apparatus. On no account should a rotating spindle come in contact with the apparatus.

The *Center-P+* centre pointer must be used only with the battery supplied with it. If other sources of power are used, there is a danger that the device will overheat and be damaged.

The charger supplied should be used only for charging the battery which goes with the *Center-P+* centre pointer. To use it for charging other batteries, refer to the separate instructions accompanying the charger.

The battery supplied with the *Center-P+* must be charged only with the charger delivered as part of the kit. Incorrect charging can cause the battery to overheat and self-destruct. There is also a danger that it can burst.

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After the end of its useful life, the battery should be disposed of in an environmentally acceptable manner. On no account should it be thrown into a fire, because it may explode.

If these directions for safe use are not observed, the performance guarantee becomes invalid, and no responsibility is accepted for any consequences of such non-observance.

Environmental guidance

Please do not dispose of old batteries in the domestic waste stream. They should be left at an official battery-collection point.

Environmental Operating Range

Operating temperature	+5° to +40° C
Stocking temperature	-10° to +60° C
Relative humidity	5% to 80% not condensing