SHRINKFIT DEVICES

PACKS EASYSHRINK® 20

OPERATING INSTRUCTIONS

60ZFM07INUGB (05)

Dear Customer,

We thank you for having purchased a Pack EasyShrink® 20.

This induction shrinking device will offer you a lot of advantages:
- automatic or programming heating cycles*
- optimised cycles to shrink-grip and shrink-release tools
- localized and homogeneous heating of the clamping area
- minimal energy consumption
- fast cooling of the tool and the toolholder
- clamping of carbide, HSS and steel tool shanks

This operating book will give you all necessary information to use this device in the best way.

Of course, our sales-team stays at your full disposal should you need some further clarifications

Your Partner,
Seco-EPB

**Working for Seco-EPB's toolholders, to be validated for others brands.*

Provisions of warranty

If your product proves to be defective, although it has been used properly (in accordance with the written Operating instructions manual supplied with it), during a period of 12 months from the date of invoicing, this product will be repaired, or at Seco-EPB's option replaced, free of charge.
This warranty covers the material defects. Any defect that occurs due to mishandling that is not mentioned in the Operating instructions manual, or due to an improper maintenance, etc. is not covered. Seco-EPB's sole liability is limited to repairing or replacing the product. Any liability for indirect or consequential loss or damage of any kind incurred or suffered by the customer due to a defect of the product, is excluded.

TABLE OF CONTENT

page

1. GENERAL OVERVIEW

HEATING MODULE WITH HEIGHT SETTING	THREE-STATION ROTARY SUPPORT BOX WITH HEIGHT SETTINGS	REFRIGERATED WATER COOLING BELLS UNIT

Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

Electrical hazard when dismounting parts of modules.

Individuals who carry medical implants are banned from using or working with this device. The carriers of a pacemaker must refer to the specific note of the pacemaker established on the basis of : NF EN 60601-1-2 (september 2007).

Separated power supply of the support module, is not cut off by the main switch.

1.1 PACKS EASYSRINK® 20 DESCRIPTION

1.1.1 Pack Easyshrink® 20 N°1, ZFM07IN10

A complete set with induction heating, 1 operating station with shrink depth setting and 2 cooling stations.

Operating station hold the finned supports with toolholder during the heating cycles.

Cooling process by ventilator streamed air.

Shrink grip and shrink release capacity Ø 3 to 32 mm for carbide, heavy metal, steel and HSS tool shanks.
Automatic or programming heating modes for shrink grip and shrink release heating cycles.

Control drives the other modules.

1.1.2 Pack Easyshrink® 20 N°2, ZFM07IN20

A complete set with induction heating, rotary plate of 3 operating + shrink depth setting + cooling stations.

Operating stations hold the finned supports with toolholder during the heating and cooling cycles.

All three stations are operating, shrink depth setting and cooling stations : while one station is used to shrink-grip or shrink-release the two others can be in cooling position. Each station is equipped with a LED indicator which switches on automatically when table is rotated into a cooling position.
The rotary plate prevents the user having any contact with hot holders.

Cooling process by ventilator streamed air.

Shrink grip and shrink release capacity Ø 3 to 32 mm for carbide, heavy metal, steel and HSS tool shanks.
Automatic or programming heating modes for shrink grip and shrink release heating cycles.

Control drives the other modules.

1.1.3 Pack Easyshrink® 20 N°3, ZFM07IN30

A complete set with induction heating, rotary plate of 3 operating + shrink depth setting + cooling stations, height measuring and a refrigerated cooling bells water cooler.

Operating stations hold the finned supports with toolholder during the heating and cooling cycles.

All three stations are operating, shrink depth setting and cooling stations : while one station is used to shrink-grip or shrink-release the two others can be in cooling position. Each station is equipped with a LED indicator which switches on automatically when table is rotated into a cooling position.
The rotary plate prevents the user having any contact with hot holders.

Shrink grip and shrink release capacity Ø 3 to 32 mm for carbide, heavy metal, steel and HSS tool shanks.
Automatic or programming heating modes for shrink grip and shrink release heating cycles.

The height measuring fittings include:
- A fine adjustment of the sliding support using a height adjustment setting wheel.
- A digital rule to control the sliding support /comparator position (0,01 mm display).
- A comparator (0,01 mm) fi xed onto the inductor sliding support.

Achieves shorter cooling times with the refrigerated cooling bells water cooler.

The cooler includes a refrigeration unit and a support unit for cooling bells and contact bushes. Two aluminium bells are cooled by refrigerated water and placed over contact bushes onto the front end of the holder, cooling time approx. 1 minute. There are 2 storing rests for the bells and 6 storage
locations for contact bushes.

Control drives the other modules.

Note: a refrigerated cooling bells water cooler is part of Pack Easyshrink® 20 N°3. It can be added to the the Packs Easyshrink® 20 N° 1 and 2.

1.2 PACKS DELIVERY CONTENT

All Packs are delivered with:

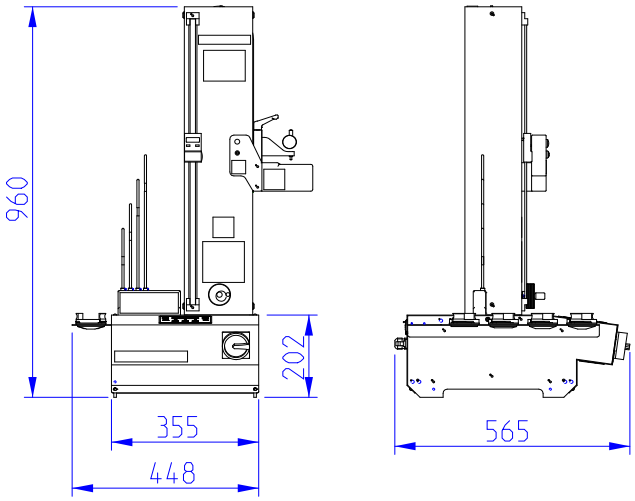
A pair of gloves.
Five standard (full set) heat focusing stoppers for 3 to 32 mm, their storage rack and adapter.
A set of 4 standard stop rods in a rack.
Operating instructions.

Additonal in Packs N°1 and 2:

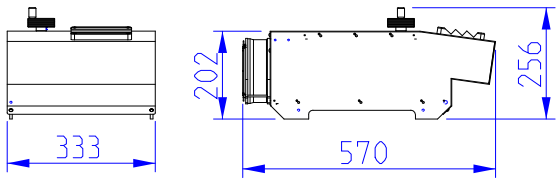
Two cooling cones

1.3 Dimensions

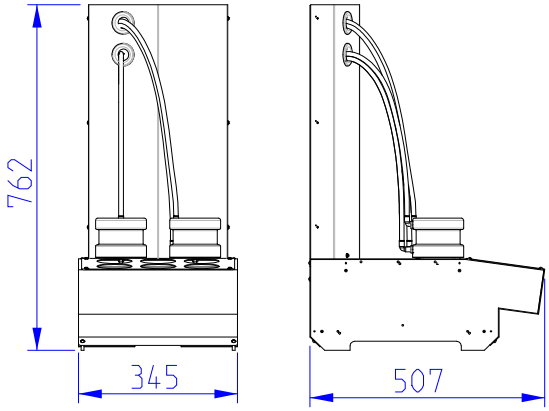
Heating module



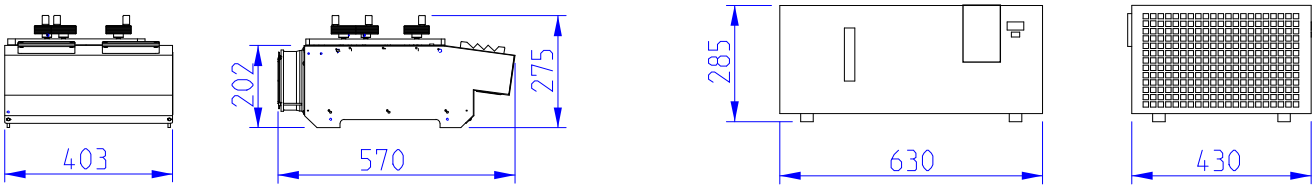
Three-station support box (1 operating and 2 cooling stations)



Refrigerated water cooling bells unit



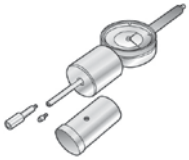
Three-station rotary support box



STOP ROD ACCESSORIES

ZFS07IN043
Stop rods set, standard, thread fitting

ZFS07IN018
Stop rods set, thin, thread fitting



Z847031
Depth comparator for stop rod setting

ZFS07IN282
Depth rulers for Shrinkfit depth setting, for Shrinkfit holders Ø 3 to 5 mm

ZFS07IN254
Depth rulers for Shrinkfit depth setting, for Shrinkfit holders Ø 6 to 32 mm

FLANGE ACCESSORIES

ZFAD05_ _ _
Finned support

ZFAR07H_ _ _
Support ring

COOLING ACCESSORIES

ZFAR02C_ _ _
Finned cooling tube

ZFAR10D_ _ _
Contact bush for cooling bells

ZFAR03C
Air cooling cone

OTHER ACCESSORIES

05RS5800_ _
Tool supporting sleeve for stop rod

05R5600_ _
Stop screw setting adapter with hexagonal back-end

ZFCE25_ _
Split heat focusing stopper (pairs of half plates ZFCE25_ _ and ring ZFCM08IN000)

ZFAT08C_ _
Standard heat focusing stopper

1.4 Stop rod accessories

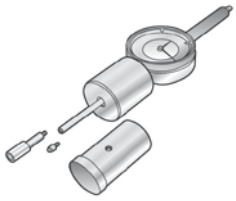
1.4.1 Stop rods set, standard, thread fitting (Part No. ZFS07IN043)

4 stop rods with 5 mm front end, covering a shrink depth capacity 0 to 240 mm: 0-60 / 60-120 / 120-180 / 180-240 mm.
Allows the tool shrinking depth setting.
When stop rod is used in combination with a digital rule with display, it allows also the tool lenght setting.

1.4.2 Stop rods set, thin, thread fitting (Part No. ZFS07IN018)

4 stop rods with 2,5 mm front end, covering a shrink depth capacity 0 to 240 mm: 0-60 / 60-120 / 120-180 / 180-240 mm.
Thin stop rods are for Shrinkfit holders Ø 3 à 5 mm.
When stop rod is used in combination with a digital rule with display, it allows also the tool lenght setting.

1.4.3 Depth comparator for stop rod setting (Part No. Z847031)



User friendly measuring accessory to set stop rod's position for reliable Shrinkfit depth with EasyShrink 20. The distance between stop rod's front and holder's front face is directly readable on the comparator.
See Operating instructions 60Z847031U01-FR/GB/DE delivered with the depth comparator.

1.4.4 Depth rulers for Shrinkfit depth setting

Depth ruler size 1

A depth ruler is an economic alternative to the depth comparator, enabling easy setting of the stop rods on Packs Easyshrink® 20 according to a required Shrinkfit depth. The distance between stop rod's front and holder's face is directly readable on the ruler.

Depth ruler size 1 (Ø 2,5 mm) for Shrinkfit holders dia. 3 to 5 mm, depth capacity 10 to 35 mm: Part No. ZFCM07IN282.

Depth ruler size 2

Depth ruler size 2 (Ø 5 mm) for Shrinkfi t holders dia. 6 to 32 mm, depth capacity 20 to 75 mm: Part No.ZFCM07IN254.

1.5 Flange accessories

1.5.1 Finned supports

Available for all types of toolholders (SA30 to SA50, HSK25 to HSK100, Capto size C3 to C8).
Required to provide positioning of the toolholder onto the support module.

1.5.2 Support ring

Available for all types of toolholders (SA30 to SA50, HSK25 to HSK100, Capto size C3 to C8).
Only suitable for the cooling stations, allows a direct holder positioning.

1.6 COOLING ACCESORIES

1.6.1 Finned cooling tube

Available for all types of shrinkfit holders and diameters (5800-5801-5603-5600).
Required to receive the air stream coming through the fins.
Fins are in contact with the holder front end and offer a great contact surface for fast heat dispersal.

1.6.2 Contact bush for cooling bells

Available for all types of shrinkfit holders and diameters (5800-5801-5603-5600).
Required to extract heat from the holder front end towards the liquid cooling bell.

1.6.3 Air cooling cone

Direct the air stream against the holder front end for cooling.

1.7 Other accessories

1.7.1 Tool supporting sleeve for stop rod

Available for all tool shank diameters (Ø 3 to 32 mm).
Useful for locating the cutter back end (in contact) onto the stop rod front end.
For use instructions, see § 8.9.

1.7.2 Stop screw setting adapter with hexagonal back-end

Available for all tool shank diameters (Ø 6 to 32 mm).
Allows to preset the tool length with the use of a stop screw which can be fitted into type 5603 Shrinkfit holders.
For use instructions, see § 8.10.

1.7.3 Heat focusing stopper

Pairs of split heat focusing stopper and ring

Standard heat focusing stopper

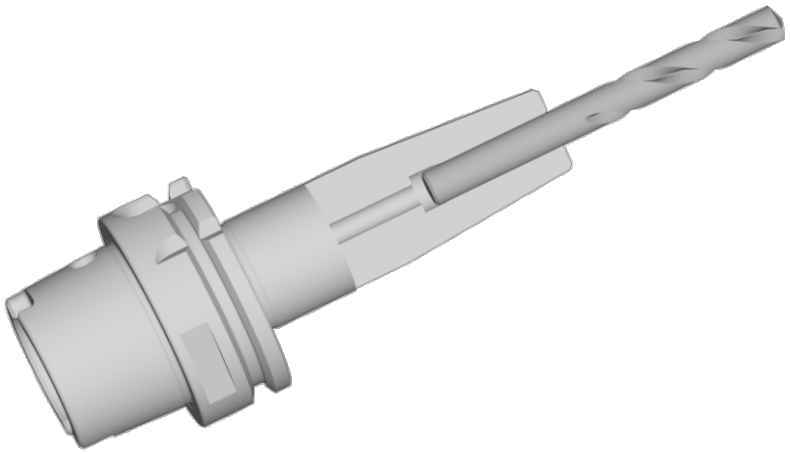
For positioning of the inductor housing

Capacity Ø mm	Standard heat focusing stopper	Pairs of split heat focusing stopper
3 – 6	ZFAT08C01	ZFCE2521
8 – 14	ZFAT08C02	ZFCE2522
16 – 18	ZFAT08C03	ZFCE2523
20 - 25	ZFAT08C04	ZFCE2524
32	ZFAT08C05	ZFCE2525

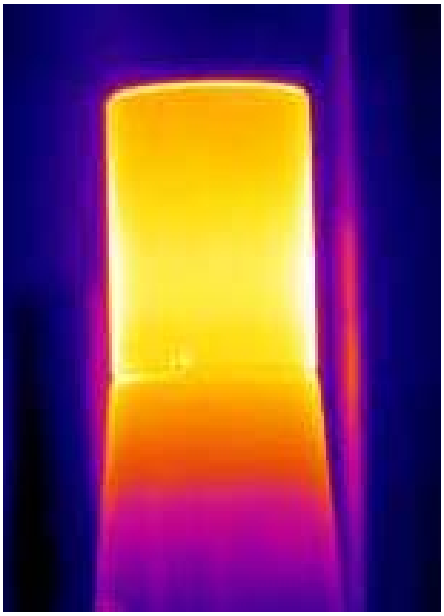
Locking ring	/	ZFCM08IN000

2. PACKS INSTALLATION AND USE

2.1 Shrinking principle



The Shrinkfit holder's inside diameter is designed to be slightly smaller than the shank diameter of the cutting tool. When placed into the induction heating system, the inside bore is heated and expands. The tool shank can then be slipped easily into the holder. As the holder cools down, the resulting thermal contraction exerts a tremendous, uniform pressure around the entire surface of the tool shank.



Induction

Induction heating allows clamping tools in a few seconds. The 10 KW coil offers high performance. The energy is sprayed very rapidely and remains concentrated on the clamping area. Therefore there is less energy remaining in the holder, cooling time is decreased. That allows to unshrinking HSS tools with same thermal expansion coefficients as the steel used for the holders.

2.2 Taking delivery

The device you received has been controlled and tested in our plant acc. to ISO9001 specifications
If the equipment is being stored or transported under unacceptable conditions the equipment may be permanently damaged. In these case the manufacturer will exclude all warranty claims and obligations.
Unpacking has to be made carefully to avoid all damages.

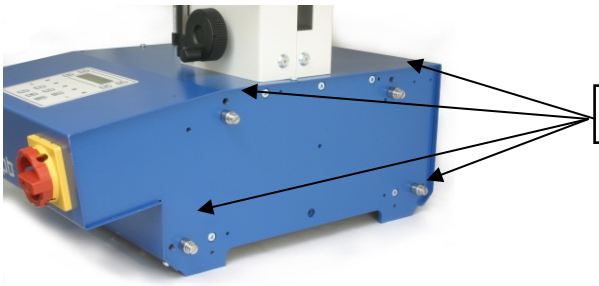
2.3. Localization of the module

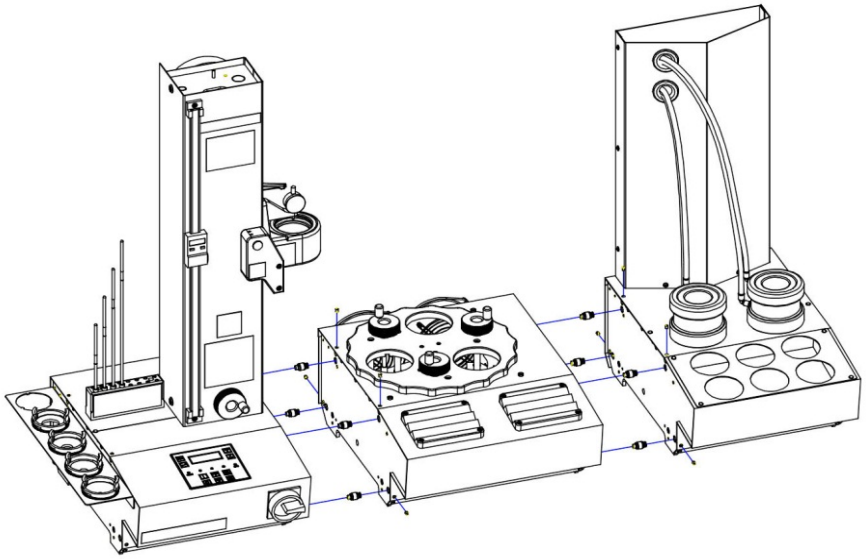
The EASYSHRINK Pack is a table device, to be localized in a dry and clean working place, on a stable and rigid surface.

2.4. Packs mounting

- **Example : mounting of Pack Easyshrink® 20 N°3, ZFM07IN30**

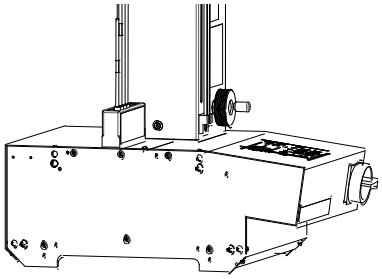
Mounting of 3 individual modules like shown hereunder.

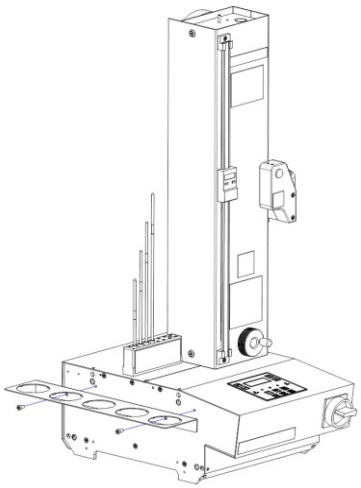




Each support module is fixed with 4 pins side by side and are held by 4 pin point screws reachable at the location of the pins.

- **Mounting of support corner plate for heat focusing stopper**





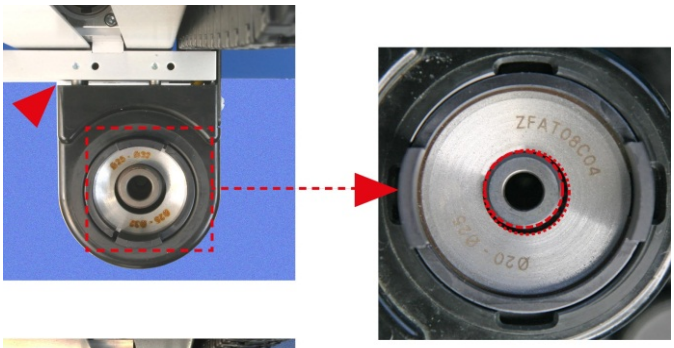
Support corner plate for heat focusing stopper is fixed on the heating module left side plate with 2 screws supplied with the support.

- **Inductor housing setting in relation with the support modules**

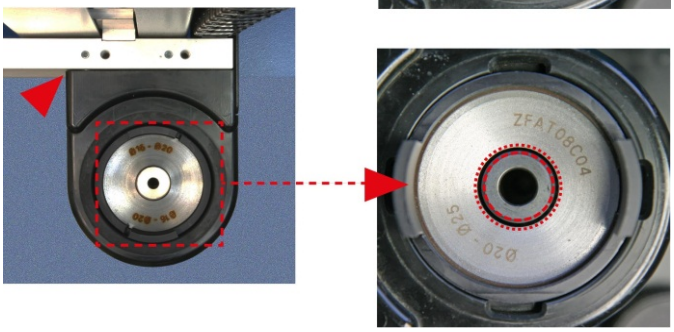
A. Procedure to check the alignment of the inductor

Install a heat focusing stopper onto the inductor housing.

Using a toolholder, set on the finned support, under the inductor, check the alignment of the inductor in comparison to the finned support.

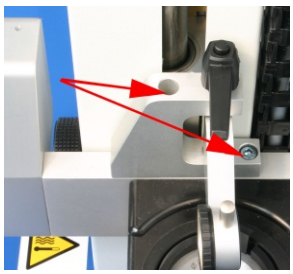


Unfavourable case: the focusing stopper is out of alignment, proceed to the following set of instruction (§ B).



Favourable case: the focusing stopper is properly aligned.
The inductor is ready to be used.

B. Centring of the inductor



If the heat focusing stopper is out of alignment (cf. A above):
You have now access to the upper screws of the inductor.
- unscrew the two screws of the comparator,
- remove the comparator.

- Unscrew the two lower screws of the inductor.
- Unscrew the two upper screws of the inductor.

- Once the inductor is unlocked, center it (for example, using a conical toolholder set on the finned support); then rescrew the four screws.

- Set up the comparator back.

2.5 Connections

All Packs:
AC 3x400V (+/-10%) + PE/ 16 A/ 50-60Hz/ Differential breaker 30 mA. 3 meter cable is supplied.
AC 1x230V + PE/5A/50-60Hz, cable with a DE/FR electrical plug is supplied with support box. For connections see paragraph 3.2 and 4.2

Additional for Pack N°3 :
+ AC 1x230V + PE/5A/50-60Hz, cable with a DE/FR electrical plug is supplied with refrigerated water cooling. For connections see paragraph 5.3

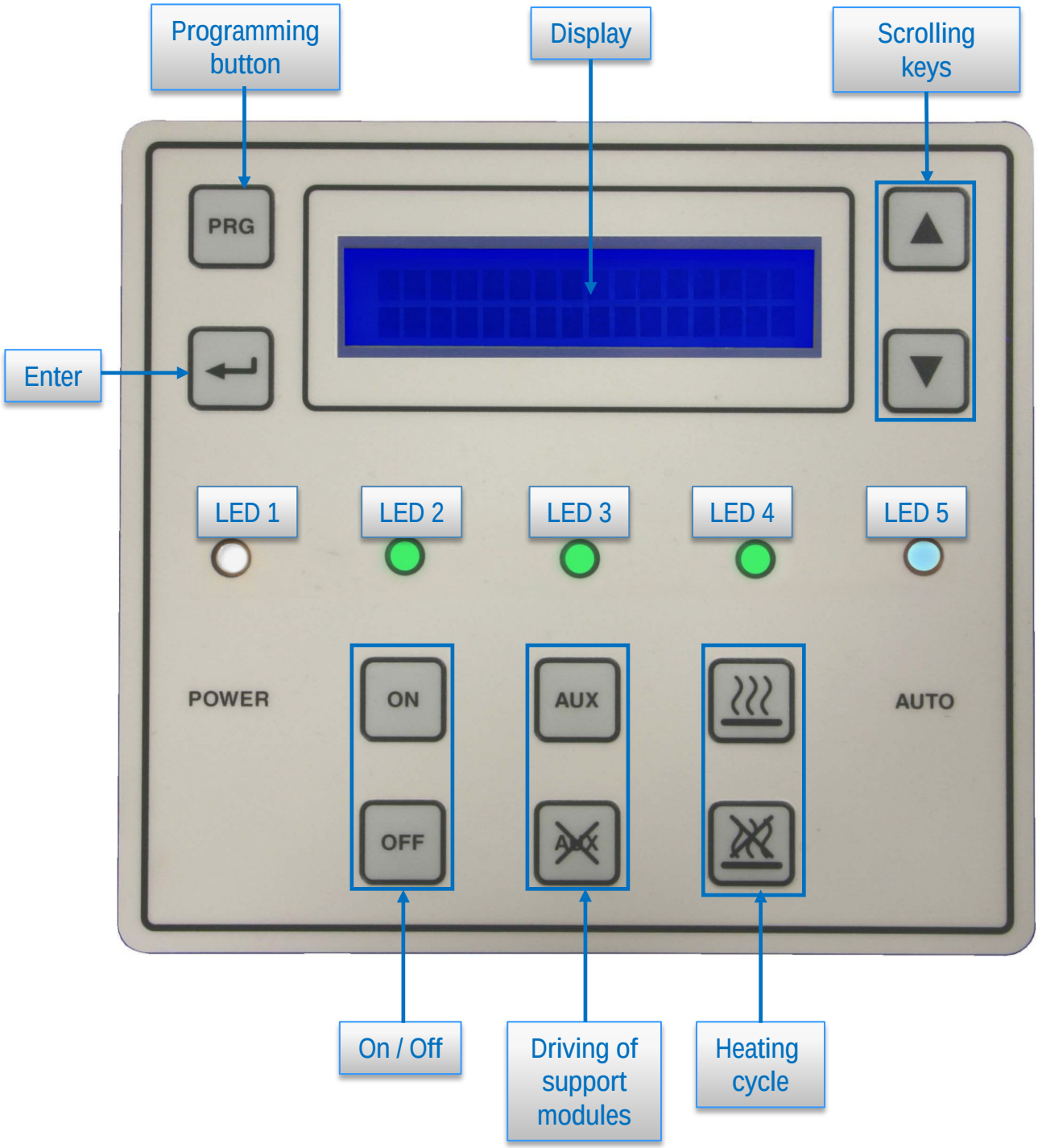
Air 3 to 6 bar/ pipe internal Ø 7 mm required (for heating system).

Type C circuit breaker.
Remark : Transformer for USA or Canadian voltages is available as an optional accessory.

2.6 Starting

Switch on main interruptor of the heating module.
On the display the yellow LED will go on.
Display shows : POWER OFF.

2.7 Control panel and display presentation



2.7.1 Starting of the heating module

Switch on the module by pressing key ON
Select the required mode on the control panel according to the Shrinkfit holder front end type (see § 2.8.1) and press key ↵

Device is ready for a shrink grip or release heating cycle.

Switch off the control panel by pressing key OFF

2.7.2 Driving of the additional outlets

The heating module is equipped with 2 additional outlets to drive the other modules (support modules, cooling modules).
- X1 outlet is switched on by pressing key AUX and switched off by pressing key
- X2 outlet is switched on by pressing key OFF and switched off by pressing key ON

Note : Outlet X1 can only be activated if the control panel has been started.

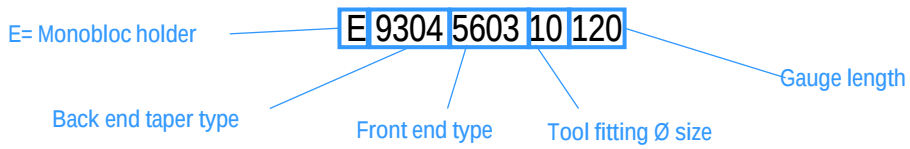
2.8 Keypad and display working

2.8.1 Selection of the mode :

Automatic modes: User selects the required automatic mode on the control panel, no need to select the diameter
CARBIDE 5800: optimised shrink grip & release of carbide and heavy metal tools in type 5800 holders
CARBIDE 5801: optimised shrink grip & release of carbide and heavy metal tools in type 5801 holders
CARBIDE 5603: optimised shrink grip & release of carbide and heavy metal tools in type 5603/5803 holders
CARBIDE 5600: optimised shrink grip & release of carbide and heavy metal tools in type 5600 holders
STEEL 5600: shrink grip & release of HSS and steel tools in type 5600 holders
STEEL 5800-5801-5603: shrink grip & release of HSS and steel tools in type 5800, 5801, 5603/5803 holders.

Programmable modes: User programms the suitable cycle, in one of the 50 files of modes PRG1 and PRG2, using the control panel.
Mode PRG1: possibility to programm up to 25 customised heating cycles
Mode PRG2: possibility to programm up to 25 customised heating cycles

Seco Shrinkfit holders Code key



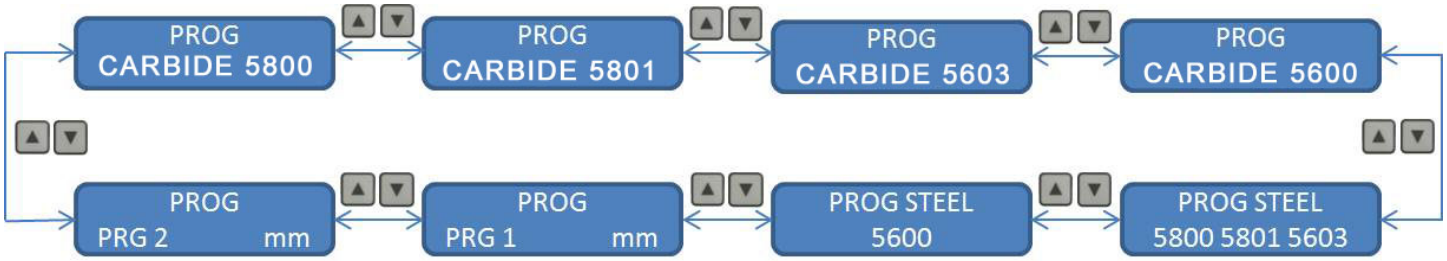
- **Selection of the required mode:**

On the control panel, press key PRG

Select the required mode using key ▲ or ▼ (see picture below)

Then press key ↵ to confirm your selection

Device is ready for a shrink grip or release heating cycle.



2.8.2 Using programmable modes PRG1 and PRG2

- **Heating time modification**

In order to prevent misuse of these modes, the modification of the heating times is secured and an access code is required.

By security measure, heating times of PRG 1 and PRG 2 are preset to 0 second.
The access code and the procedure to modify the heating times are given on request and after complete information about the risks.

Any change of the preset time must be made carefully, toolholder overheating makes it unusable.
In case of modification without our agreement, Seco Tools AB. cannot be held as responsible for any damage.

- **Selection of the unit mm, inch, or mm and inch with mode PRG 1 or PRG 2:**

On the control panel, select mode PRG 1 or PRG 2 (see § above)

Press two times key PRG.

Choose between mm, inch, or mm and inch using key ▲ or ▼.

Press two times key ↵ to confirm and come back to working mode.

- **Diameter scrolling according to the selected unit.**

Scrolling in mm

Ø(mm)	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	Ø 32	Ø X 1	Ø X 2

Scrolling in inch

Ø (inch)				Ø 1/4"	Ø 3/8"		Ø 1/2"		Ø 5/8"	Ø 3/4"	Ø 7/8"	Ø 1"	Ø 1"1/4	Ø X 1"	Ø X 2"

Scrolling in mm and inch

Ø (mm + inch)	Ø 3	Ø 4	Ø 5	Ø 6	Ø 1/4"	Ø 8	Ø 3/8"	Ø 10	Ø 12	Ø 1/2"	Ø 14	Ø 16	Ø 5/8"	Ø 18	Ø 3/4"
	Ø 20	Ø 7/8"	Ø 25	Ø 1"	Ø 32	Ø 1"1/4	Ø X 1	Ø X 2	Ø X 1"	Ø X 2"					

Note: Diameters X1, X2, X1'' and X2'' are not used in standard but they can be programmed for specific applications.

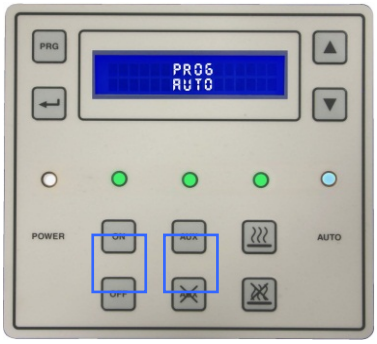
3. THREE-STATIONS SUPPORT BOX

3.1 Description

3.2 Connections and starting of the three-station support box (1 operating and 2 cooling stations)

Power supply : AC 1x230V + PE/5A/50-60Hz, cable with a DE/FR electrical plug is supplied.
Fuse type : 0,5 A
By first use only, plug in electrical cable on X1 outlet of heating module, switch on main interruptor to start the support box (afterwards, driving of the support box is acieved by using the control panel of heating module).

3.3 Driving of the ventilator



Ventilator driving is achieved by using the control panel of heating module.
- Press key AUX to switch on the ventilator.

- Press key to switch off the ventilator.

Note : X1 outlet is only working if the control panel is switched on (press key ON).

3.4 Driving of the cooling cycle

Three-station support box has 1 heating and cooling station and 2 cooling stations.

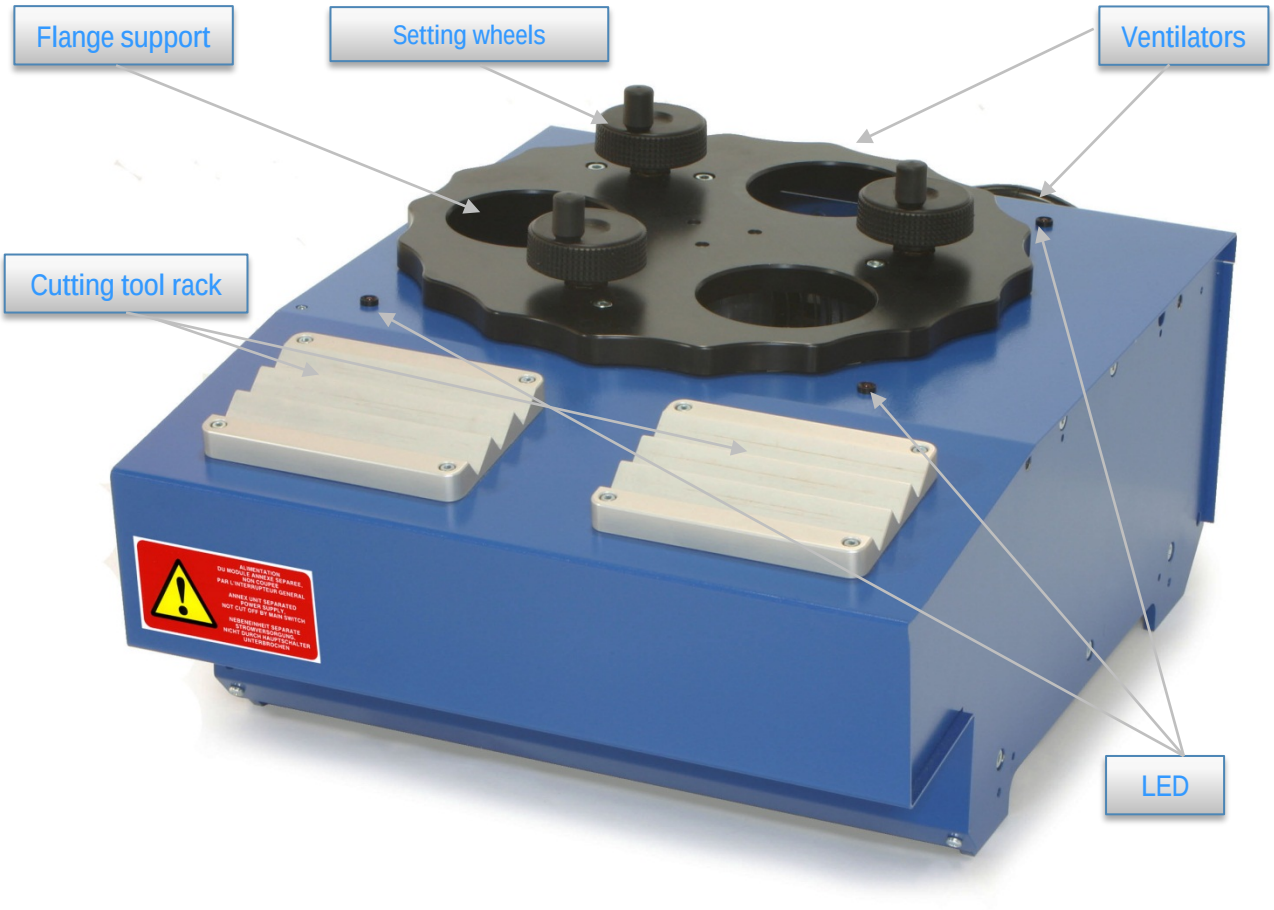
On completion of the heating cycle, Install the toolholder on one of the cooling station and the cooling accessories on it.

Caution, while catching the toolholders from cooling stations, they may be hot.

Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

4. THREE-STATIONS ROTARY SUPPORT BOX

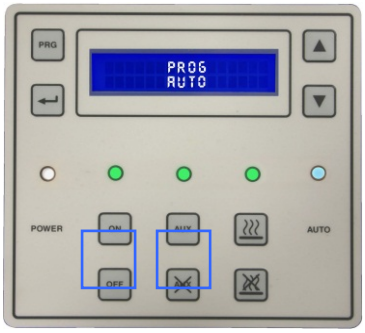
4.1 Description



4.2 Connections and starting of the support box

Power supply : AC 1x230V + PE/5A/50-60Hz, cable with a DE/FR electrical plug is supplied.
By first use only, plug in electrical cable on X1 outlet of heating module, switch on main interruptor to start the support box (afterwards, driving of the support box is acieved by using the control panel of heating module).

4.3 Driving of ventilators



Ventilator driving is achieved by using the control panel of heating module.
- Press key AUX to switch on the ventilator.

- Press key to switch off the ventilator.

Note : X1 outlet is only working if the control panel is switched on (press key ON).

4.4 Driving of cooling cycle

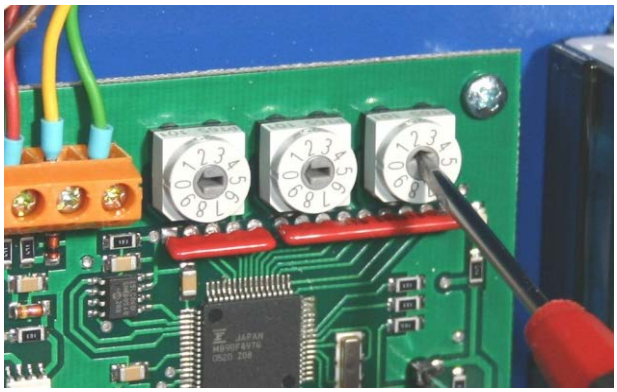
Three-station rotary support box with 3 LEDs timers. Each LED is related to a cooling station.
On completion of the heating cycle and once cooling accessories are on the toolholder :
- Switch plate with hot holder from the heating position to a cooling position by a 120° plate rotation. Red LED will light on.
- LED switches off automatically, indicating the cooling process is finished unless a new rotation occured in the meantime.
If a new rotation occurs, time passed on previous station is deducted from actual LED time. While plate is rotating, cooling time follows the toolholder in its rotation.

Note: during rotation, LEDs are flashing as long as position is not set.

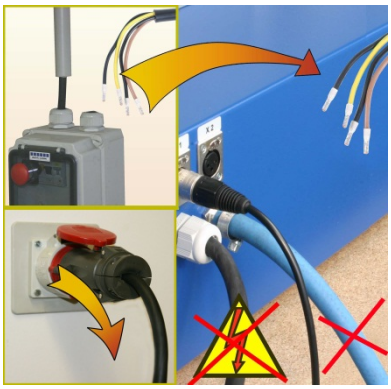
Caution, while catching the toolholders from cooling stations, they may be hot.

Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

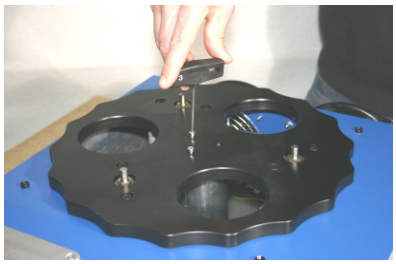
4.5 Setting the cooling times



By default, cooling times are preset to 200 sec. However, these cooling times can be adapted in step with the cooling system that is used (see table on next page). To do so, coding wheels must be programmed to the required values.

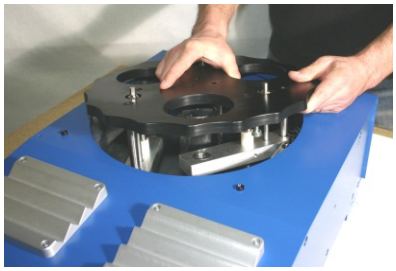


Cut off every electrical energies.



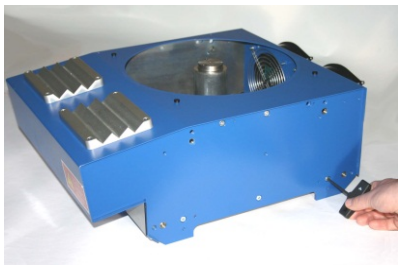
If you are using a ZFM07MU1 or ZFM07MU2 module (with three-station rotary support box), you must in a first time remove the rotary plate. If using another module, directly go to the next page.

Using a 6 mm allen key, unscrew the 3 screws that maintain the rotary plate.

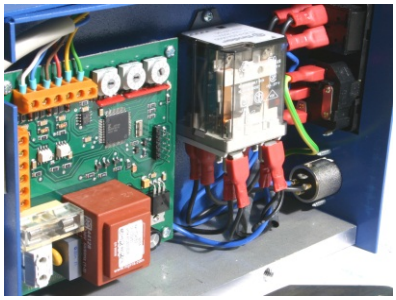


Remove the rotary plate.

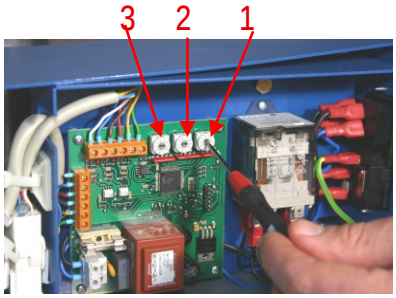
In order to access to the coding wheels, the right housing must be unmounted. This housing is maintained by 4mm allen screws, both on the side and at the back of the module.



Remove the 3 screws at the back of the module + the 3 bottom screws on the side of the module. BEWARE: the upper screws are used to index the rotating plates. They must not be unscrewed.



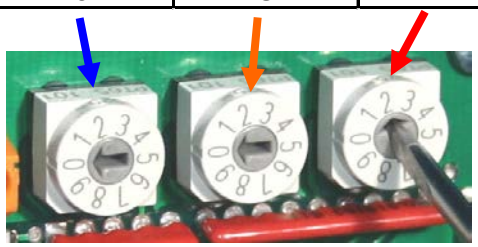
Move the right housing away to access the command card.



Program the coding wheels using a flat screwdriver:

- the right one (1) sets the hundreds figure,
- the central one (2) sets the tens figure,
- the left one (3) sets the units figure..

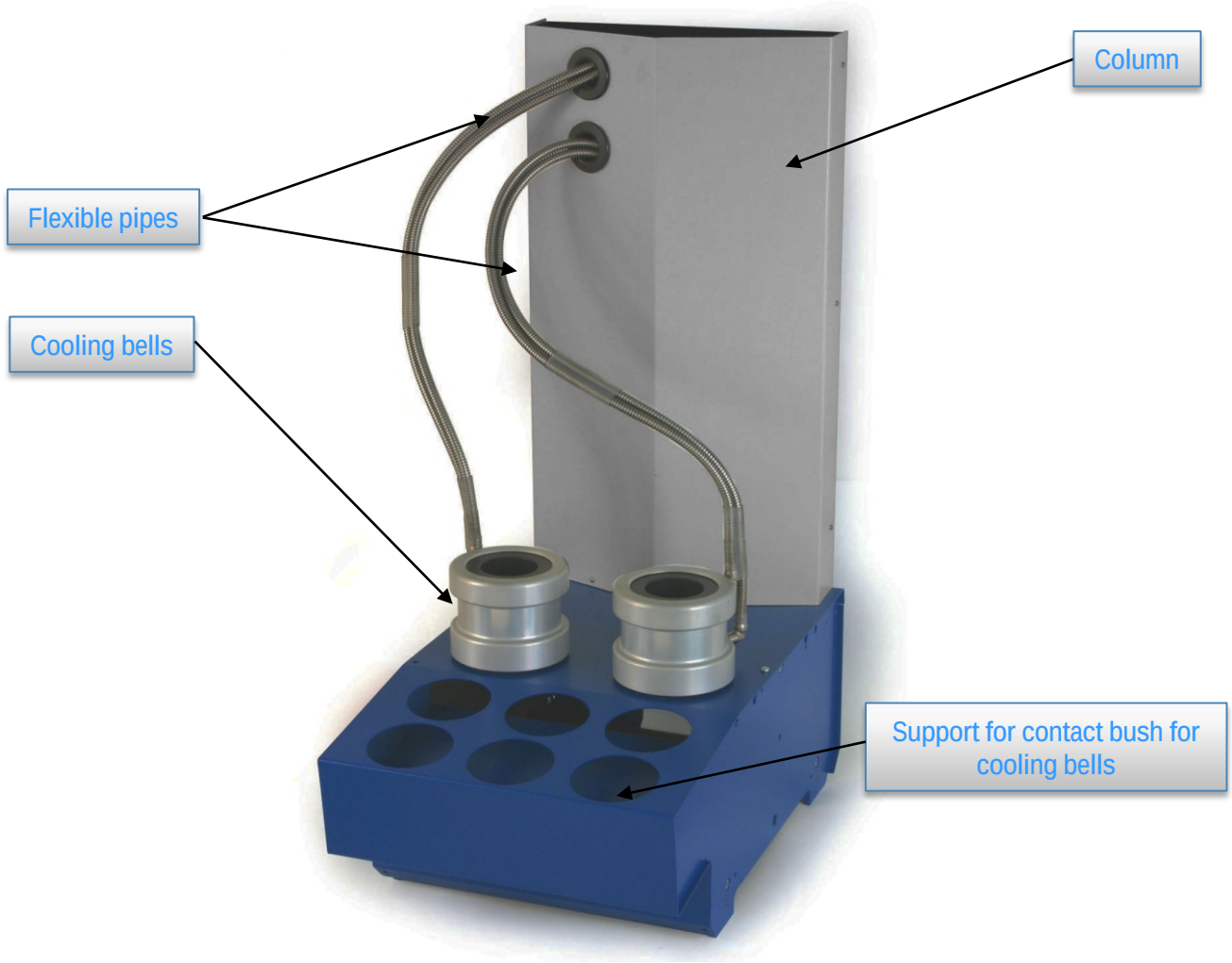
Cooling mode	advised timing		units figure	tens figure	hundreds figure
	minutes	seconds			
water cooling bells	2 min	120 s	0	2	1
finned cooling tubes	4 min	240 s	0	4	2
cooling cone	8 min	480 s	0	8	4

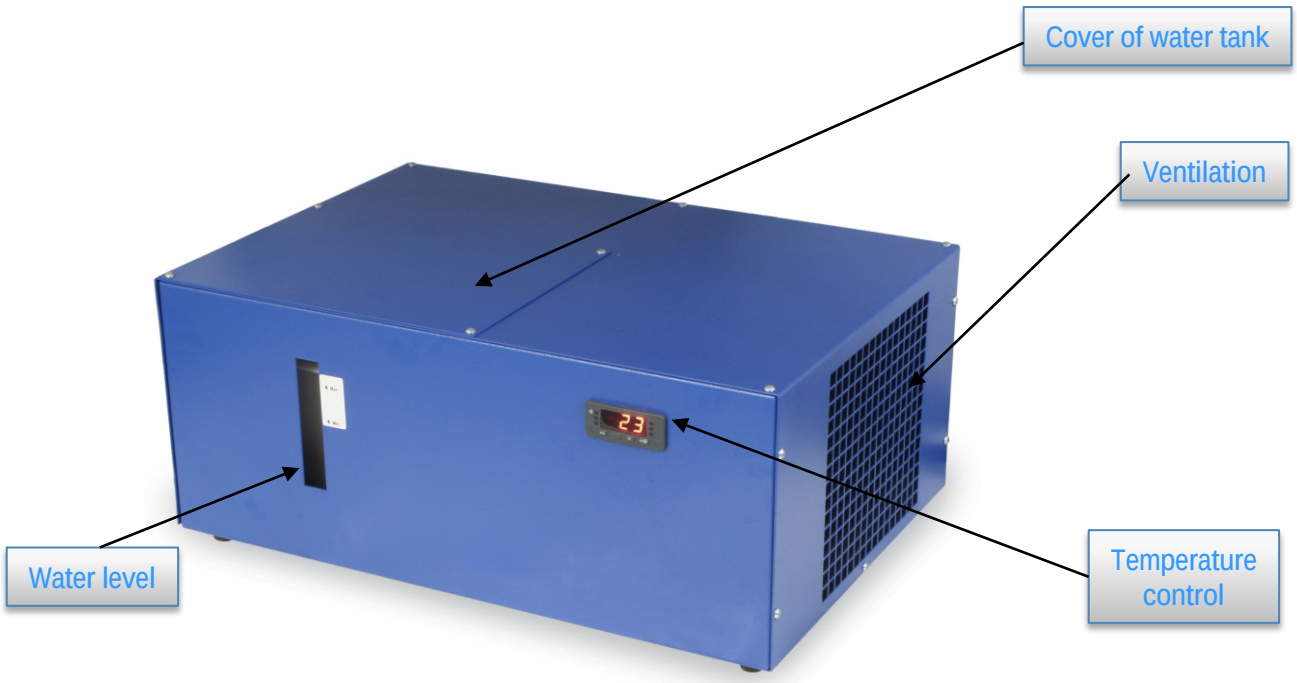


Set the right side housing back. Plug the power and pneumatic supply wires back in.

5. REFRIGERATED WATER COOLING BELLS UNIT

5.1 Description

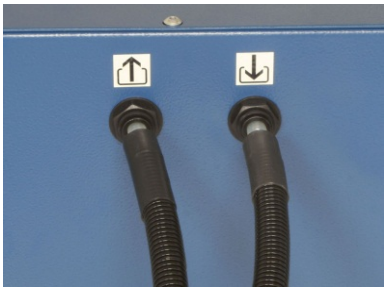




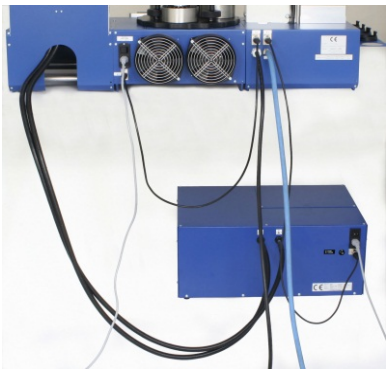
5.2 Installation

Water cooler must be localized on a stable working place, respecting a clearance of 50 cm on both sides in order to allow air flow.

5.3 Connections



Plug in the water pipes on the rear of the cooler (just click in).

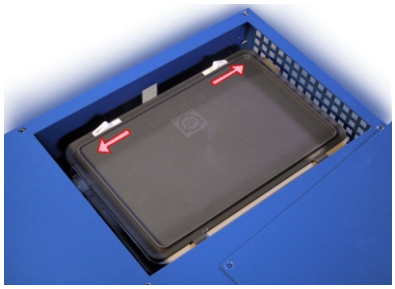


Power supply : AC 1x230V + PE/5A/50-60Hz, cable with a DE/FR electrical plug is supplied.
Fuse type : 6,3 A time delay
Plug in the electrical power supply cable on the rear of the cooler (don‘t turn on the power yet).
Plug in electrical cable on X2 outlet of heating module: when switching on heating module, water cooler will also start.

After installation and connection, wait minimum 3 hours before turning on the power.
Never turn on the power without having filled the cooler before.

5.4 Filling of the cooler

Open the blue cover on the top of the cooler (4 screws to release).



Pull simultaneously in opposite ways both white buttons to open the water tank.

Fill in the tank with pure water (tap water - 7,5 < pH < 9 - 7°F < TH < 15°F) until the indicator shows you that the tank is full.

Note: change the water approx. every 6 months.

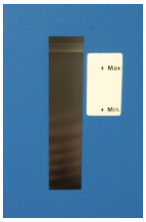
5.5 Starting

(1) By first use only, switch on main interruptor at the rear of the water cooler.
Water cooler driving is achieved by using control panel of heating module.
- Press key ON to switch on the water cooler.

- Press key OFF to switch off the water cooler.

(2) Select operating mode of water cooler:
- B = Remote : water cooler driving is achieved by using control panel of heating module.
- A = Local : water cooler driving is directly achieved by interruptor ON/OFF at the rear.

After first use, it might be necessary to add more water in the tank (check level).
Afterwards, a regular check of water and quality level is recommended.

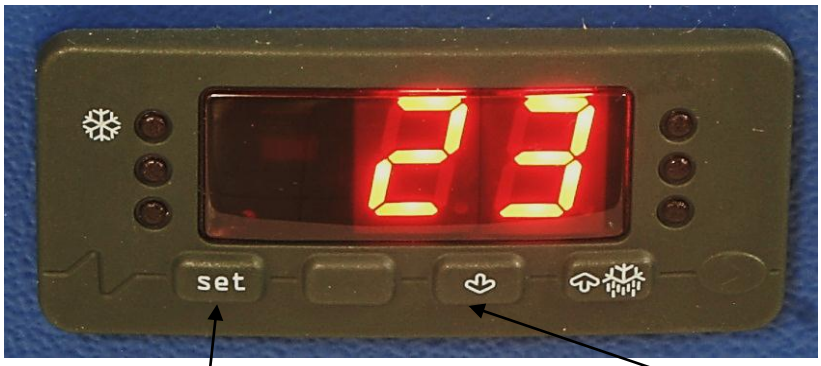


5.6 Water temperature setting

When the power is turned on, the water cooler displays « -88 » during 3 seconds, then displays the temperature of the water.

The water temperature is preset in our plant at +20°C. It is adjustable from 10°C to 25°C.

In case of noticeable condensation, it is recommended to set the water temperature a step higher.

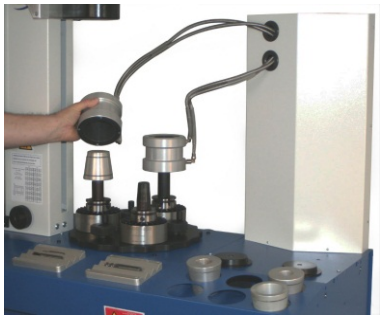


To visualise the preset temperature, press the *SET* button.

To modify the preset temperature, press simultaneously *SET* et « up arrow » or « down arrow ». As soon as the *SET* button is released, the water temperature is displayed.

The temperature varies between « preset temperature » and « preset temperature + 2° C ».

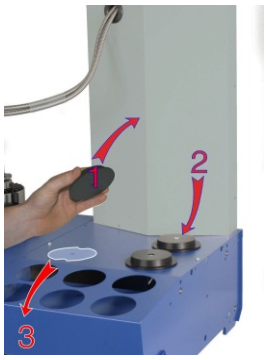
5.7 Use



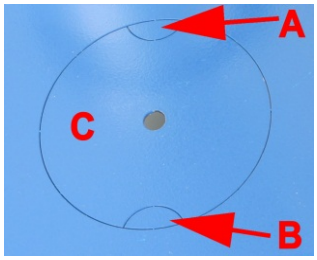
Install the corresponding contact bush for cooling bells (Ø and holder type depending) onto the top of the holder, and slip over the cooling bell.

5.8 Options

Water cooling module can be equipped with a cooling station.



1. Unscrew and remove left cooling bell support.
2. Fix it at dedicated place in the rear of right cooling bell support.
3. Remove the locking keys A and B by pushing them downwards until rupture.
4. Rotate disk C to release the station.
5. Install the finned support or the support ring.



BEFORE

AFTER

5.9 Water cooler maintenance

	Periodicity	Observation
Water level check	1 month	
Water tank change	6 months	Water (7,5 < pH < 9 and 7°F < TH < 15°F)
Radiator cleaning	2 months	Don't use an air blower

5.10 Remarks

- The tank must only be filled up with pure water (tap water), any other product is fobidden (distilled water, demineralized water, glycol etc.).
- Should water cooler be idle for a long period, device must be stored in an area at ambient temperature to avoid any risk of frost.
- Repairs on the refrigerating circuit must only be made by a refrigerating engineer.
- Water cooler must not run with an empty tank.

6. SHRINKING

6.1 Preparation before shrinking cycle

Choose the adapted finned support that correspond to the Shrinkfit holder taper and install it in the device.

Choose the adapted heat focusing stopper that correspond to the tool shank diameter and install it into the location diameter in the inductor housing (5 heat focusing stopper are supplied with each heating module, capacities : Ø 3-6,
Ø 8-14, Ø 16-18, Ø 20-25, Ø 32 mm).

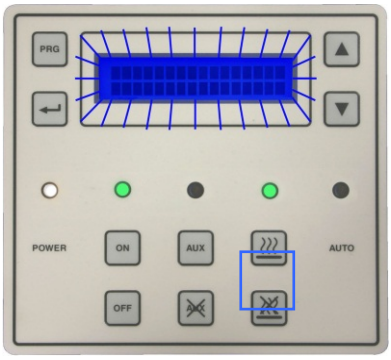
6.2 Shrink-grip

Through pneumatic actuation, move the inductor housing downwards on the holder.
The heat focusing stopper must come in contact with the top of the toolholder.

Note: recommended cylindrical tool shank tolerance is h5 or h6 (maximum h5 for Ø 3 to 5 mm, maximum h6 for Ø 6 to 32 mm).

Select heating cycle corresponding to the Shrinkfit holder (see § 2.8.1),
The heating cycle runs automatically according to the tool diameter and Shrinkfit holder taper type.

Mode PRG
Select the tool diameter by using the arrows on the control panel. Selection can be followed up on display.



Start the heating cycle by pressing key on the sliding support.

Display is flashing during the heating cycle.

Heating stops after presetted time or by pressing key .

Fit manually the tool in the bore. The tool will be shrink-grip within 3 to 5 seconds.

Note : on completion of the heating cycle, it is imperative to immediately remove the inductor housing from the tool in order to avoid heat spreading into the inductor housing (risk of deterioration).

Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

On completion of the heating cycle, module stays in standby mode avoiding any handling during 30 seconds. Display will scroll until end of the standby time.

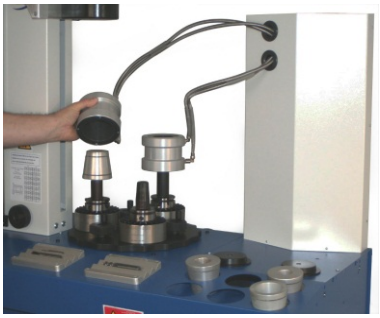
Note : standby mode can not be interrupted. The driving of the X1 outlet is independant.

6.3 Shrink-release

Preparation for shrink-release is the same as for shrink-grip. Introduction of the tool is replaced by its ejection.

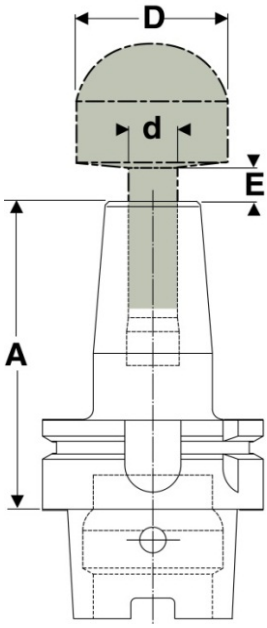
Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

6.4 Cooling



Install the holder on the cooling station of support box.

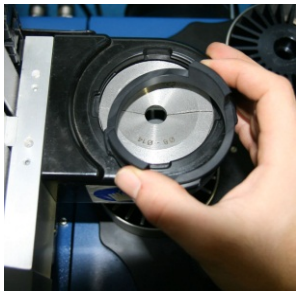
6.5 Special toolholders shrinking



For special toolholders e.g. tools with larger front end than shank, split heat focusing stoppers are available. The use of those requires having clearance between tool head and toolholder front face.
To successfully shrink/release special tools, it is necessary to observe the following conditions :
- Maximal diameter of the cutter D is 3 x d
- Ø D maximum = Ø 63 mm (maximum bore Ø of induction unit).
- A dimension = 70 mm minimum (due to the inductor housing dimension).
- E dimension changes depending on tool shank diameter d : see chart below.
(see § 1.8.3 for the Split heat focusing stoppers Part No.).

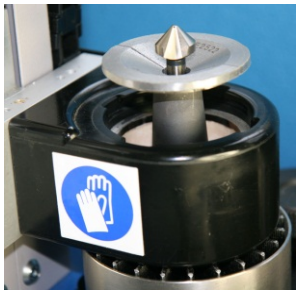
Tool shank d Ø (mm)	3	4	5	6	8	10	12
Dimension E (mm)	6	6,5	7	7,5	7	8,5	9,5
Tool shank d Ø (mm)	14	16	18	20	25	32	
Dimension E (mm)	11	8,5	9	7	7	6,5	

6.6 User guide for shrink-grip of special toolholders



Install the two assembled split heat focusing stopper that correspond to the tool shank Ø (see table § 6.5 on previous page) into the location diameter in the inductor housing.
5 split heat focusing stoppers covering tool shank diameter Ø 3-32 are available as accessories, capacities : Ø 3-6, Ø 8-14, Ø 16-18, Ø 20-25, Ø 32 mm (see § 1.8.3).

Using the two « ears » flex the lock ring and fit into place to retain the split heat focusing stopper in the inductor housing. Start the heating cycle as for a standard tool (see § 6.2).



After shrinking remove the lock ring and move the inductor housing downwards, exposing the split heat focusing stopper. Remove the split heat focusing stopper (caution – they may be hot).
Move the inductor housing upwards to allow the toolholder to be removed.

Note : Overall height of the inductor housing limits « A » dimension to 70 minimum. Any less than this and it will not be possible to lower the inductor housing sufficiently to gain access to the split heat focusing stopper assembly.

Always wear protective gloves while handling Shrinkfit holders, tools, accessories and spare parts.

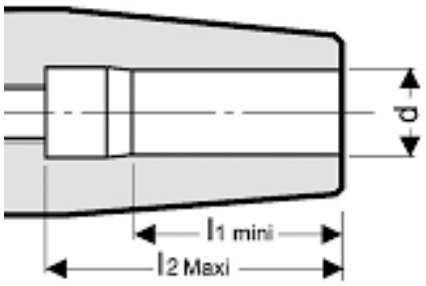
6.7 User guide for shrink-release of special toolholders

Move the inductor housing below the front face of the toolholder and fit the appropriate split heat focusing stopper assembly around the shank of the cutting tool. Move the inductor housing upwards so that the split heat focusing stopper seat in the inductor housing location diameter.

Fit the lock ring.
Start the heating cycle as for a standard tool (see § 6.2).
On completion of the heating cycle move the inductor housing upwards in order to extract the tool from the toolholder..

7. TOOL SHRINKING DEPTH SETTING

7.1 Shrinking depth to be respected

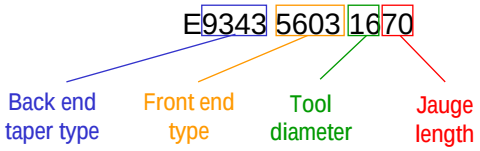


In order to guarantee torque transmission and to increase service life of the tool, recommended values for shrinking depth must be respected.

Find the minimum shrinking depth from the chart below (also on the device).

Example for an Seco Shrinkfit holder type 5603

The diameter d and the jauge length are indicated on the toolholder:



The shrinking depth (depending on the position of the stop end screw) must be set minimum to l_3.

In this case, the chart indicates l_3=39 mm.

Immédiatement remonter l'inducteur après chaque cycle de chauffe.

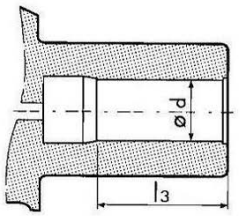
Immediately move up the inductor after each heating cycle.

Sofort die Spule nach dem Heizzyklus nach oben fahren.

Profondeur de frettage minimale

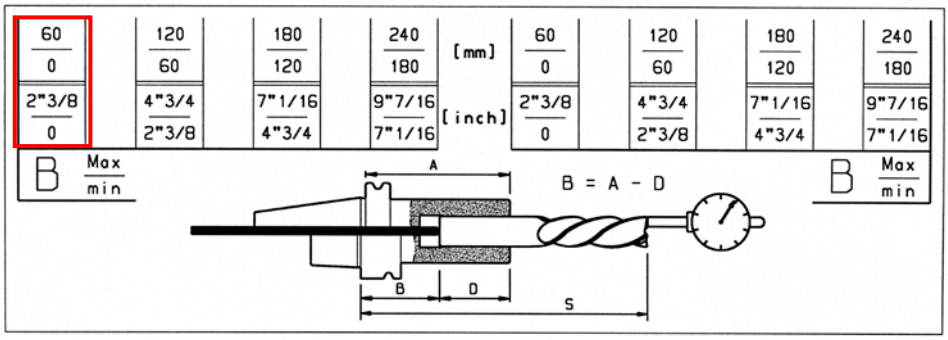
Minimum Shrinking depth

Minimale Schrumpftiefe



mm		inch	
d	l_3	d	l_3
3	13	1/8"	1/2"
4	15	—	—
5	18	3/16"	3/4"
6	26	1/4"	7/8"
8	30	5/16"	1"3/16
10	32	3/8"	1"1/4
12	34	1/2"	1"3/8
14	34	—	—
16	39	5/8"	1"1/2
18	39	3/4"	1"5/8
20	42	7/8"	1"5/8
25	47	1"	1"7/8
32	52	1"1/4	2"

7.2 Stop rod selection



The proper stop rods in chosen depending on its size B:

B = A - D

Jauge length (written on the toolholder)

Shrinking depth
l1 mini < D < l2 maxi

Note : When using finned support for Shrinkfit holder taper SA50 (ZFAD05S50), add 60 mm to the value B obtained.

Select the suitable stop rod.

Example for a Seco Shrinkfit holder type 5603

We have determined in § 7.1 that the jauge length of the toolholder is A = 85 mm and the shrinking depth is D = 40 mm.

B = A – D = 85 – 40 = 45 mm

In this case, the suitable stop rod is the one in front of the value 0-60.

7.3 Stop rod adjustment

Fit the stop rod into the spindle of the support module shrinking station.
The stop rod is clipped in position.

Adjust the requested length with the setting wheel and with help of a depth comparator or depth ruler for depth measuring.

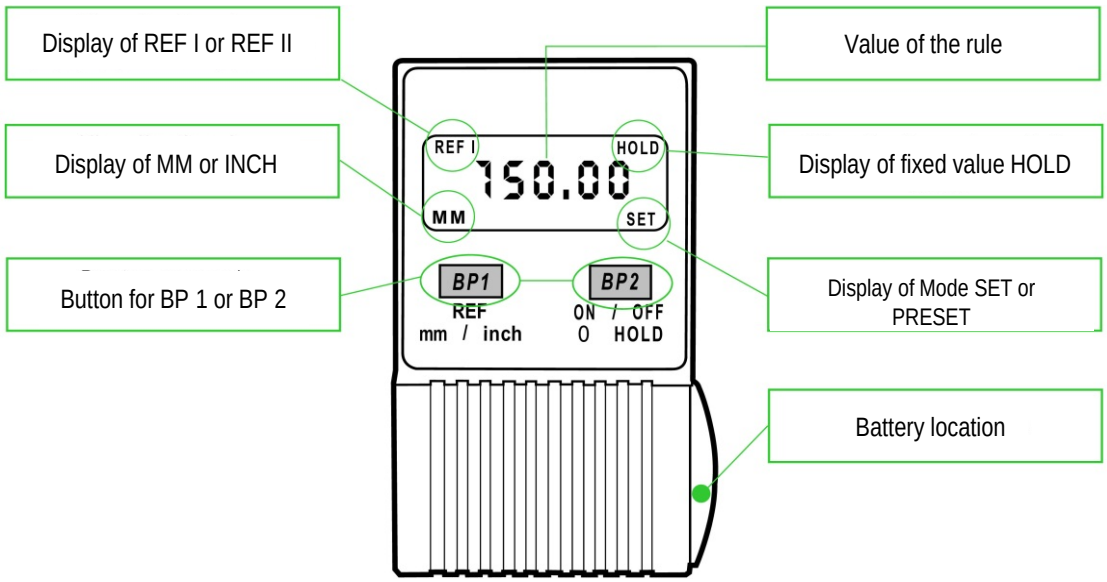
Note: see also § 8.9 & 8.10 (tool length setting by using tool supporting sleeve for stop rod).

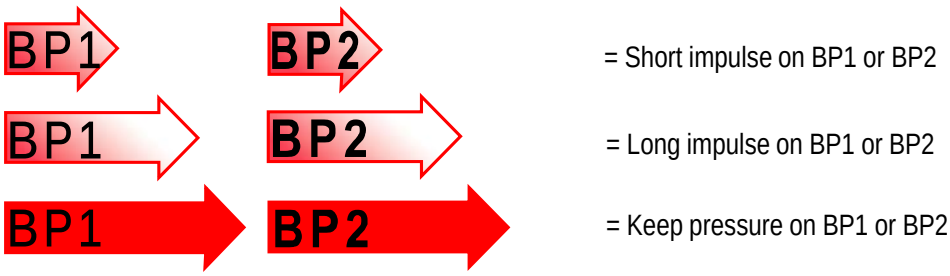
8. DIRECT TOOL HEIGHT SETTING WITH DIGITAL RULE WITH DISPLAY

8.1 Overview

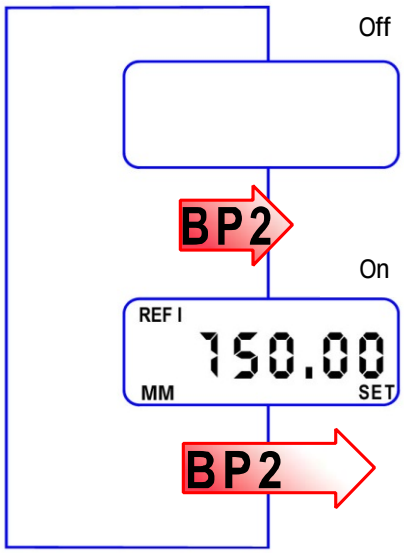
EASY AND PRECISE TOOL LENGHT SETTING

8.2 Description of digital rule with display



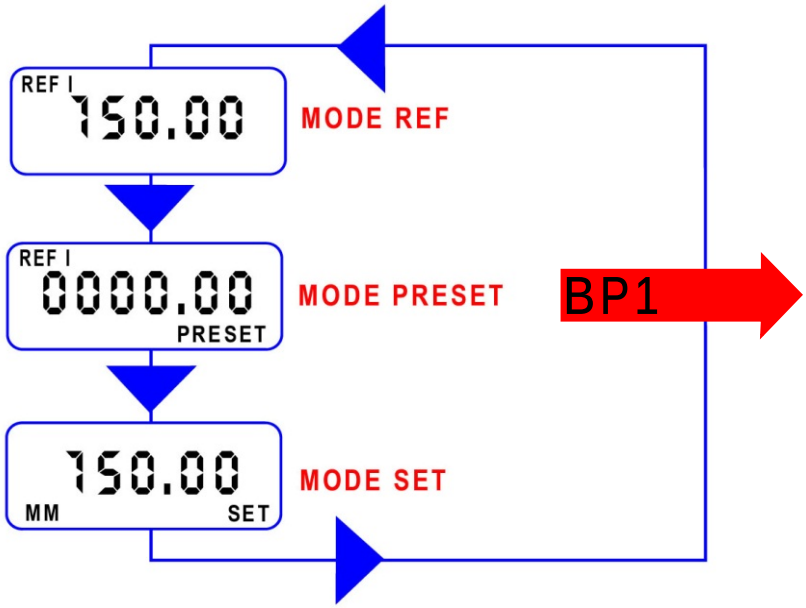


8.3 Starting of the digital rule

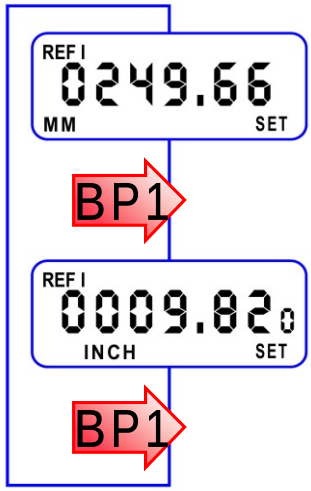


Note: the digital display rule can not be deactivated in PRESET mode.

8.4 The different modes



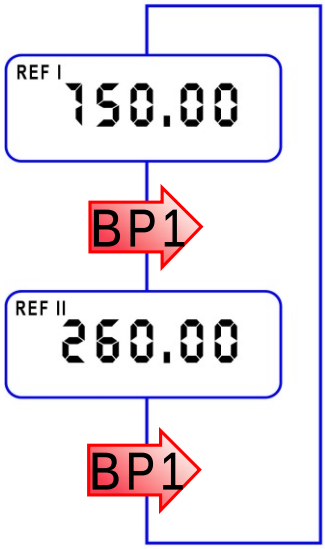
8.5 Choice of the unit MM / INCH



Note : modification only allowed in mode SET.

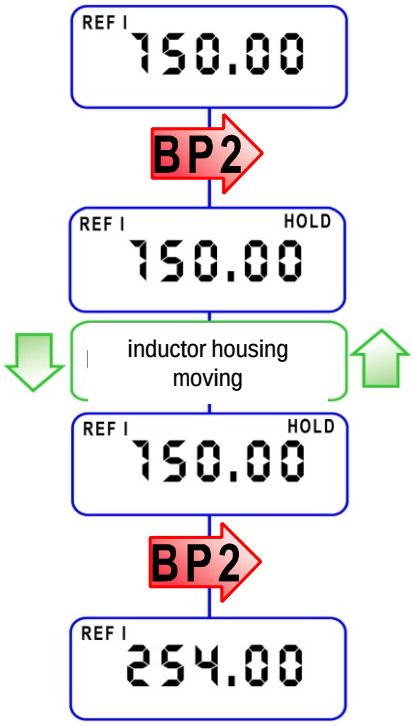
8.6 Change the reference value with mode REF

How to switch from REF I to REF II



Allows to choose the reference value with which you want to work.
(REF I ou REF II).

How to fix a value while moving the inductor housing.

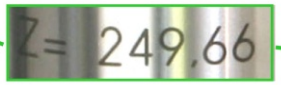


REF mode allows to fix a value by using key HOLD while moving the rule.

8.7 Saving the reference value with mode PRESET

2 different references can be saved :
REF I and REF II

To move the cursor



VALUE TO SAVE = 249.66 MM

Possibility to save negative values (-)

Saved value must correspond to the standard value or to toolholder A dimension.

To increment the value

Note : value in INCH with 3 decimals, rounded-off by 0 or 5

To validate the saved value and return to mode's scrolling.

8.8 Gauging of the digital rule with display, with SET mode

Short indication recalls the reference choosen REF I or REF II

Reach stop end of gauge to set the comparator to 0

SET operation consists in calling up the preset value in PRESET mode (REF I or REF II) into SET mode.
An impulse on BP2 calls up this value.

8.9 Tool length setting with tool supporting sleeve for stop rod

These sleeves can be used for locating the cutter onto the stop rod, to free both hands, when using the direct tool height setting.

Select the suitable stop rod (see § 7.2).
Fit the stop rod into the spindle of the support module shrinking station.
Install the tool supporting sleeve onto the stop rod
Install the cutting tool into the supporting sleeve

Note:
- the top of the stop rod must be in contact with the back end of the cutting tool
- if the cutting tool has a large bore for coolant through it might be necessary to select a longer stop rod to get into the tool shank.

Set the tool length by inductor housing pneumatic actuation, then adjust the requested length with the fine adjustment setting wheel.
Install the control probe of the comparator onto the tool top end.
Set the comparator at zero with the setting wheel for stop rod adjustment.
Remove tool and supporting sleeve.
Install the toolholder into the finned support.
Shrinkfit holder and tool are ready for shrinking.

8.10 Tool length setting with stop screw setting adapter with hexagonal back end

Required for adjustment of the stop rod end screw which can be fitted into type 5603 Shrinkfit holders (stop end screws are available as Accessories for type 5603 Shrinkfit holders).

Install the toolholder (with stop screw fitted in) into the finned support. Install the setting adapter into the toolholder.
Install the cutting tool into the setting adapter.
Set the tool length (taking into account the setting adapter's length from the bottom of the bore to the back end of the shank : L = 80 mm) by inductor housing pneumatic actuation, then adjust the requested length with the fine adjustment setting wheel.
Install the control probe of the comparator on the tool top end.
By turning the setting adapter, set the comparator at zero.
Remove tool and setting adapter.
Shrinkfit holder and tool are ready for shrinking.

8.11 Shrinking capability

	Pack N°1	Pack N°2 & Pack N°3
Minimum height between inductor and flange location	60 mm	40 mm
Maximum height between inductor and flange location	565 mm	545 mm
Flange mounts with fins - height dimension	50 mm (1)	
Stop rod shrink depth capacity	0 - 240 mm (1)	
Digital rule stroke	600 mm	
Digital rule display	0,03 mm	
Tool length setting	590 mm	570 mm

	Shrinkfit holder type 5800	Shrinkfit holder type 5801	Shrinkfit holder type 5603	Shrinkfit holder type 5600
Shrinking average type	6 sec.	2,5 sec.	4 sec.	6 sec.
Minimum shrinking Ø (tool shank)	6 mm	3 mm	6 mm	6 mm
Maximum shrinking Ø (tool shank)	32 mm	16 mm	32 mm	32 mm
Open air cooling average time	25-35 min.	15-25 min.	20-30 min.	25-35 min.
Ventilator streamed air cooling average time	10 min.	5 min.	8 min.	10-15 min.
Ventilator streamed air colling average time by using air coling pipe with fins	3 (2) min.	1,5 min.	2 min.	3-4 min.
Water cooling average time	2 min.	1 min.	1,5 min.	2 min.

Maximum Ø of the tool with larger front end than shank	63 mm

Note:
(1): except SA50 which has a height of 110 mm, hence its stop rod shrink depth capacity 0 to 180 mm.
(2): except Ø 32

9. MAINTENANCE FREQUENCY

9.1 Daily maintenance

- Clean of the device.

- Control the good running and good condition of the device.

Not OK

OK

- Check the inductors' condition.

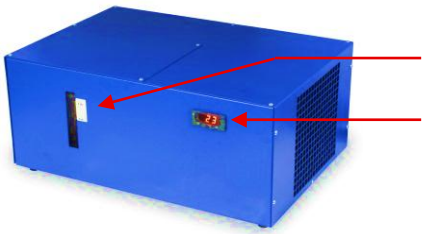
- Check the heat focusing plates' condition.

Not OK

OK

- Check the stop rods' condition.

9.2 Monthly maintenance



- Check the water level of the water cooling unit.
- Check the water temperature.

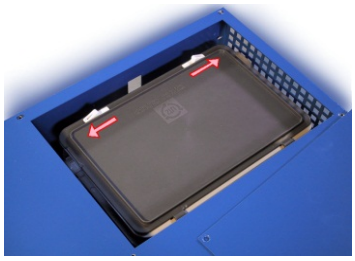
In case of important condensation, it is advised to slightly increase the water temperature to prevent condensation on the bells and the tool holder.

9.3 Twice a year

The water cooling unit must be drained off.

- Turn off the general power supply, pressing the switch at the back of the device.

Open the lid on the top of the water cooling unit (4 screws to be removed).



Simultenaously pull in opposite directions the 2 white pull studs in order to open the tank.

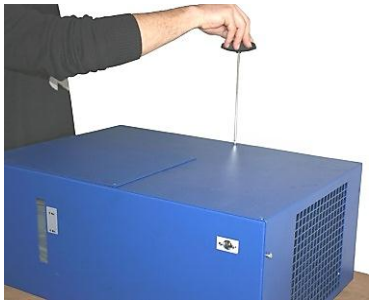
Empty the tank.
Waste water is considered as polluted and must be treated according to environmental constraints.

Fill the tank up, with pure, tap water (- 7,5 < pH < 9 - 7°F < TH < 15°F) until the indicatedd level is reached.

Close the tank back, set the lid and screw it back. Switch on the general switch at the back of the device.

Afterwards, perform the running of the cooling unit from the heating module.

9.4 Yearly



The water cooling unit's condenser must be cleaned.

Using a 3 mm allen key, remove the 16 screws of the water cooling unit's housing.

Move the housing away in order to access to the condenser (beware: the earth wire is connected to the housing).

Clean the condenser.

Set the housing and screw it back.

Before performing a heating cycle, make sure the tool holder and the tool are clean, dry and exempts from grease and lubricant.

10. SAFETY PRECAUTIONS

- This shrinking device is only intended for professional use.
-Take care to use the correct power supply : only the heating module must be connected on AC 3x400V (+/-10%) + PE/ 16A/ 50-60 Hz. Power supply for the support modules is : 1x230V + PE/16A/50-60Hz. Use optional transformers to accommodate shop electric service from 190 to 510V 3X in USA or CSA for Canadian voltage. Both transformers output 1x230V+PE/16A/50-60Hz for support modules.
- By nature on, the Shrinkfit holder becomes very hot. Touching this spot may cause serious burns. Always wear gloves when handling Shrinkfit holders.
- Individuals who carry medical implants are banned from using or working with this device. The carriers of a pacemaker must refer to the specific note of the pacemaker established on the basis of : NF EN 60601-1-2 (september 2007),
- Repairs on the shrinking devices should only be made by skilled operators. Please contact Seco-EPB.
- Only trained and authorized persons are allowed to work on the shrinking devices.
- The support modules are not switched off by main interruptor (red power switch) of the heating module. Before any handling it's necessary to switch off the power supply by each module's interruptor.

11. RECOMMENDATIONS FOR USE AND MAINTENANCE

- Always make sure the holder is cooled down before shrink grip, or shrink release.
- The holder and the tool must be clean, free from grease and dry before being fitted into the device.
- Before starting the shrinking process, please always check if :
    - the power supply is sufficient
    - the length has been correctly setted, with the correct stop rod
    - the correct diameter is selected (mode PRG 1 or PRG 2)
    - the correct heat focusing stopper has been setted
    - recommended cylindrical tool shank tolerance is h5 or h6 (maximum h5 for Ø 3 to 5 mm, maximum h6 for Ø 6 to 32 mm).
    - the tool shank is not damaged
- Keep the device and its environment clean, to insure a long service life.
- The device can only be used for the purposes defined in this operating book. Seco-EPB cannot be held as responsible for casualties caused for any other use.
- Maintenance is limited on a regular cleaning of the device and accessories with adapted products.

12. SAFETY FUNCTIONS OF HEATING MODULE

- The inductor is equipped with a probe to avoid overheating of the holders.
- To increase service life of the holders, the electronic of the device has been programmed to allow only one main heating process, afterwards it automatically cuts off.

13. ANNEXES

-Technical features,
- Compliance declaration for heating modules, support and cooling boxes (to fill in)
- Certificate.

13.1 Technical features

Heating module

Voltage	3 x 400 V (+/-10%) + PE
Power	10000 VA
Frequency	50-60Hz
Weight	40 Kg

	Temperature	Air humidity	Air pressure[3]
Usage	10 to 40°C	10 to 90%[1]	800 to 1013 hPa
Storage	-20 to 55°C	30 to 95%	800 to 1013 hPa
Transportation	-20 to 70°C	30 to 95%[2]	800 to 1013 hPa

[1] Prevent condensation and frost
[2] Air humidity when the temperature of the device slowly increases to 40° or quickly passes from -20 to +30°C
[3] At max. 2000m above the sea level

Three-station support box (1 operating and 2 cooling stations)

Voltage	1 x 230 V + PE
Ext. on/off signal	24 VDC
Frequency	50-60 Hz
Power	100VA
Weight	20 Kg

Three-station rotary support box

Voltage	1 x 230 V + PE
Ext. on/off signal	24 VDC
Frequency	50-60 Hz
Power	150VA
Weight	25 Kg

Refrigerated water cooling bells unit

Media to be cooled	Water		
Flow rate of media	30.0 l/min	1.7 bar	
Operating pressure max.	3.5 bar		
Ambient temperature	10.0°C	to	35.0°C
Refrigerant	R134a		0.310 kg
Voltage	1x230V + PE		
Ext. on/off signal	24 VDC		
Frequency	50-60 Hz		
Power	850 VA		
Weight	35 Kg		

13.2 CE compliance declaration for heating module

SECO

Seco-EPB
F-67330 Bouxwiller
Tel.: +33 (0)3.88.71.38.89

DECLARATION CE DE CONFORMITE

aux dispositions des directives :

- 2004/108/CE "Compatibilité Electromagnétique"
- 2006/95/CE "Directive Basse Tension"
- 2013/35/UE "Directive Champs Electromagnétiques"

Nous déclarons que le produit :

EASYSHRINK 20

Banc vertical automatique de frettage/défrettage par chauffage à induction pour porte-outils à fretter

Référence*: _____

est conforme aux exigences essentielles des directives :

- 2004/108/CE,
- 2006/95/CE,
- 2013/35/UE.

sur la base des référentiels suivants :

- NF EN 61000-6-2 (janvier 2006)
- NF EN 61000-6-4 (mars 2007) A1 (mai 2011)
- NF EN 60204-1 (septembre 2006) A1 (mai 2009)
- NF EN 50392 (mai 2012)

Bouxwiller, lundi 02 décembre 2013

Monsieur Jean-Emile PFALZGRAF
Président Directeur Général de la société EPB
F-67330 BOUXWILLER

*** Fill in Part No. and serial number.**

13.3 CE compliance declaration for support boxes and cooling boxes (one declaration per module) – Copy 1

SECO

Seco-EPB
F-67330 Bouxwiller
Tel.: +33 (0)3.88.71.38.89

DECLARATION CE DE CONFORMITE

aux dispositions des directives :

- 2004/108/CE "Compatibilité Electromagnétique"
- 2006/95/CE "Directive Basse Tension"

Nous déclarons que le produit :

EASYSHRINK 20

Module support
ou Module de refroidissement

Référence*: _____

est conforme aux exigences essentielles des directives :

- 2004/108/CE,
- 2006/95/CE,

sur la base des référentiels suivants :

- NF EN 61000-6-2 (janvier 2006)
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Bouxwiller, lundi 02 décembre 2013

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*** Fill in Part No. and serial number.**

12.3 CE compliance declaration for support boxes and cooling boxes (one declaration per module) – Copy 2

SECO

Seco-EPB
F-67330 Bouxwiller
Tel.: +33 (0)3.88.71.38.89

DECLARATION CE DE CONFORMITE

aux dispositions des directives :

- 2004/108/CE "Compatibilité Electromagnétique"
- 2006/95/CE "Directive Basse Tension"

Nous déclarons que le produit :

EASYSHRINK 20

Module support
ou Module de refroidissement

Référence*: _____

est conforme aux exigences essentielles des directives :

- 2004/108/CE,
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Bouxwiller, lundi 02 décembre 2013

Monsieur Jean-Emile PFALZGRAF
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*** Fill in Part No. and serial number.**

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