

MACHEREY-NAGEL

Electronic Crimping Tools

(battery-powered, Version 1802 / 6A)

Chromatography



Operation Guide

- Crimpers
REF 735511, 735513, 735520, 735532, 735533
- Decappers
REF 735611, 735613, 735620

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Electronic Crimping Tools Operations Guide

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Ordering Information

Description	REF
Electronic crimpers, battery-powered	
11 mm Electronic Crimper	735511
13 mm Electronic Crimper	735513
13 mm Electronic Flip Top / Flip Off Crimper	735533
20 mm Electronic Crimper	735520
20 mm Electronic Flip Top / Flip Off Crimper	735532
Electronic decappers, battery-powered	
11 mm Electronic Decapper	735611
13 mm Electronic Decapper	735613
20 mm Electronic Decapper	735620
Accessories for electronic crimping tools	
6.6 Volt Lithium Ion Battery	735500
Stand for electronic crimping tools	735501
Rack of 2 electronic crimping tools	735509

Markings



Electronic Crimping Tools Operations Guide

Warnings

- Follow all instructions or injury may result.
- Wear safety glasses when crimping or decapping!
- The crimper or decapper jaws can pinch severely.
- Never insert fingers into the crimper or decapper.
- Use only the 7.5 volt DC Power Supply supplied with the crimper for battery charging.
- Use only the specified replacement battery pack, part number 735500.
- Use of other batteries may cause fire during charging or use.



Special Battery Warnings

- Risk of burns; battery may explode or catch fire if mishandled.
- Do not disassemble or dispose of in fire.
- Use only the manufacturer-supplied 7.5 volt DC power supply and charge the battery only in the crimping tool.
Input: 100–240 VAC, 50–60 Hz, 0.6 A
Output: 7.5 VDC, 2 A, 15 W
- Do not heat above 60°C or short circuit.
- Do not crush or modify.

Disposal of Battery

Do not throw battery away. Recycle in accordance with local regulations.

Intended Use

Electronic Crimpers and Decappers are intended for use in an indoor laboratory environment.

Prohibited Use

All other uses are prohibited.

Limits

Temperature 15 °C to 35 °C

Humidity not more than 75 %

Pressure 0.75 to 1 bar (approximately equivalent to 0–2400 m altitude)

Pollution Degree 2

Sound Pressure

Sound pressure $L_{pA} = 70.1$ dB(A)

Recycling

For any questions on disposal/recycling please contact MACHEREY-NAGEL or your local MN distributor.



Electronic Crimping Tools Operations Guide

Description

The battery-powered electronic crimping tools (version 1802/6A) can be used to crimp or decap standard aluminium crimp caps on laboratory sample vials.

Crimping Tool Setup

Remove the instrument, power supply and cable from the shipping container.

Inspect the crimper or decapper.

Operation

Charging the Battery

The battery must be charged before the crimper or decapper can be used.



An indicator appears when recharging is necessary.

Remark: If the tool is not active for some time the display will go into sleep mode, in order to save battery power. Within a short period of time (approx. 5 min.), display can be activated again just by moving (shaking) it by at least 90°. After that time (or alternatively) you need to press the cycle button to activate the display.

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Compatible Vials, Caps and Seals

MACHEREY-NAGEL battery-powered electronic crimping tools may not be used with magnetic caps. Aluminum caps and seals of standard size and thickness are appropriate.

Using the Crimper

The cycle button must be held down until the crimp is complete. If the switch is released early the crimper will retract and show an error.



Adjust the crimper setting for satisfactory form and tightness.



Chromatography

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Optimal crimping

For an optimal crimp result the crimping tool needs to be adjusted to:

- Type and height of the vial's crimp neck
- Thickness and hardness of the septa
- Properties of the cap (type, material)

For doing so, please refer to the instruction manual of the individual tool.

Permanent control of the crimp result and thus of the crimping tool settings is necessary.

Incorrect crimping can be recognized by the following features:

- Cap deformation
- Pulled up edge of the center hole
- Strong formation of wrinkles
- Conical locking liner
- Cap can be turned with only low expenditure of power
- Examples for an optimal crimp

Possible causes for incorrect crimping:

- Incorrect handling (please mind a straight angle when placing the tool on the vial)
- Usage of a suboptimal crimping tool for your individual needs
→ please visit our website and find an adequate crimping tool
- Incorrect adjustment of the crimping tool
→ in case of overcrimping crimping pressure needs to be reduced;
→ in case of undercrimped vials the crimping pressure must be increased

ⓘ Crimpers of type "Standard" have to be adjusted independently in crimping pressure and in crimping height.

Standard ergonomic battery-powered high performance

Table:

- If crimping was not completely successful, the vial should not be "re-crimped". In this case a new crimping process needs to be started with a new vial and a new cap.
- In case of a bevelled top crimp neck or in case of magnetic crimp caps you generally have to work with a higher pressure than in case of a flat crimp neck or of aluminum crimp caps.
- Please mind a proper storage of the crimping tool.
- Do not over-charge the battery.
- Recharge battery-powered crimping tools only when needed and follow advice in the display accordingly. This will help to extend the time of the battery.
- Observe safety instructions.

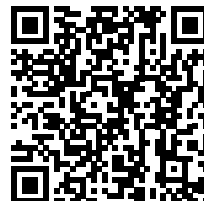
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In case you need more information on the evaluation of crimp results, please either order our poster KATDE/EN200153 or just open the PDF download on our website in the "Downloads" tile of the appropriate product detail page under the title: "Download Poster Optimal crimping (EN)" or just follow the link:

www.mn-net.com/media/pdf/Poster-Optimal-Crimping-EN.pdf



Electronic Crimping Tools Operations Guide

Notes

Crimping the same vial two times will not generally give the same results and sometimes will result in vial breakage.

Special considerations for 20 mm Headspace vials. It is common practice to use the "twist test" to check headspace vials for satisfactory crimps. This test is only conditionally meaningful.

On one hand the slippery PTFE lamination of the septa results already by a relatively low expenditure of energy in a torque that enables the turn of the cap, even if the cap was crimped correctly. As the test often is done with the complete hand (instead of using single fingers) and with a high expenditure of energy, the false statement is even strengthened.

On the other hand overcrimped closures that cannot be turned, which have, however, either deformed cap sides or sucked in septa, may not be as tight as you would expect from such an "unturnable" crimp. This is due to the fact that septa material is sucked into the vial opening by the far too high crimping pressure and is then, however, missing at the cap sides for sealing. The same is also valid for septa that - due to a wrong adjustment of the crimping height and a too strong crimping pressure - emerge through the cap's center hole.

Therefore please consider that many sealing systems hold pressure perfectly well as long as the seal is well compressed and the cap/septa surface is flat.

Adjusting Electronic Decappers for Use

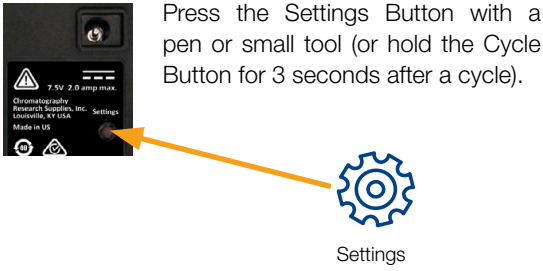
The adjustment is not very important when decapping. As shipped from the factory the decapper should remove a cap satisfactorily.

To adjust decappers make sure that the stroke is long enough to remove the cap.

Electronic Crimping Tools Operations Guide

Settings

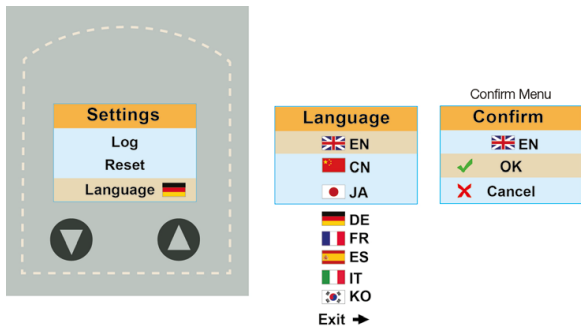
To Enter Setup Mode



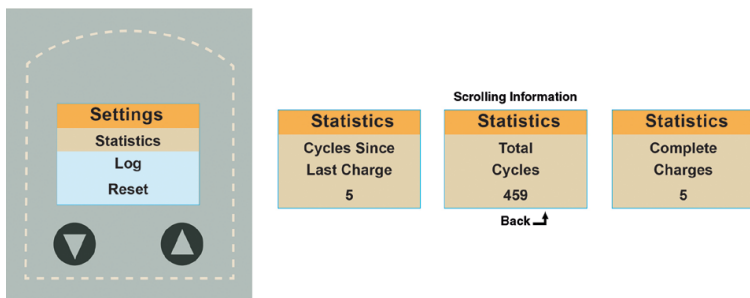
Press ▼ and ▲ to scroll through the menu.
Use the Cycle Button to make a selection.



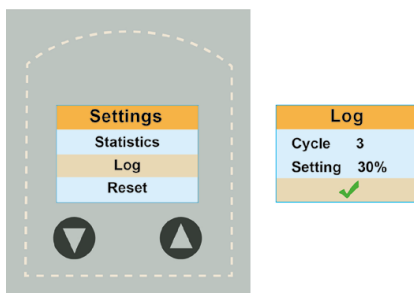
Language selection



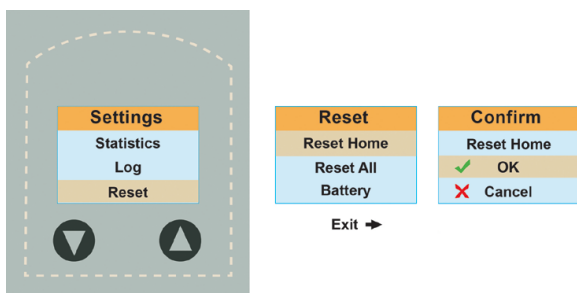
Statistics



Log of recent crimping results



Reset



Electronic Crimping Tools Operations Guide

Storage and Shipping

Place protective cap over the jaws to prevent accidental cycling when storing or shipping the tool.

Error Conditions

Errors are identified by Error Messages, normally after a crimp cycle.

Error	Possible Cause	Recommendation
✗ Stall	Stall Condition – Crimp Setting is too high.	Adjust crimper to a lower crimp setting by pressing the ▼ button.
	Stall Condition – Battery does not have sufficient charge.	Recharge battery.
✗ Early Button Release	Early trigger release – the tool retracted before completing cycle.	Try again, making sure to hold the button down until the tool is returning to the home position.
✗ Stall (but tool does not cycle)	Motor drive failure	See Troubleshooting / Maintenance / Repair section for contact information for warranty and repair service information
✗ Battery low indicator	Battery needs to be charged.	Charge battery (See Page 4).
✗ Battery low indicator (after charging 24 hours)	Charge Circuit Failure	See Troubleshooting / Maintenance / Repair section for contact information for warranty and repair service information

Troubleshooting, Maintenance and Repair

General Maintenance

The electronic crimping tools do not contain user serviceable parts except for the battery pack. When cleaning or replacing the battery make sure to keep fingers away from the jaws!

Cleaning

The crimping tool may not be immersed in water or solvent. The outside of the case may be cleaned with an ordinary detergent and wiped off with a damp rag. Care should be taken not to get the electronics, the battery, or the battery connections wet.

Avoid permitting metal parts of the crimping tool to come into contact with corrosive material during use. If they do, try to wipe them clean with a suitable mild neutralizing solution.



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Battery Replacement

Use only the specified replacement battery pack, part number 735500.



1. Remove screw holding the battery cover in place.



2. Remove battery cover.



3. Pull battery out of case, leaving wire connected.

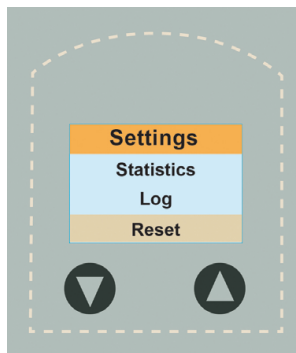


4. Push down on connector latch and pull battery loose from the board.



5. Connect new battery to board, making sure the latch is secure. Push battery into case, bending the wires if necessary.

6. Slide the cover back into the case and replace the retaining screw.



Reset	Confirm
Reset Home	Reset Home
Reset All	OK
Battery	Cancel

Exit →

7. Reset the „Battery“.

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Troubleshooting

Condition	Possible Cause	Recommendation
Side of cap is indented. Seal is deformed in hole.	Crimp setting is too high. The crimp is too tight.	Adjust crimper to a lower crimp setting by pressing the ▼ button.
Cap spins easily.	Crimp setting is too low. The crimp is too loose.	Adjust crimper to a higher setting by pressing the ▲ button.
Cannot find a good crimp setting.	The crimper is far out of adjustment.	Return crimper to factory setting. See "Reset" in Settings.
Crimping is inconsistent. Some vials are good and some are not.	Vials, caps or seals are inconsistent.	Check crimper by using some standard, approved vials, caps and seals.
	Electronic failure in crimper.	Please see instructions for "Support and Repair", below.
11 mm or 13 mm decapper leaves caps hanging on vials	Decapper adjustment is too low.	Adjust the decapper to a higher setting by pressing the ▲ button.
	Jaws are worn or broken.	Please see instructions for "Support and Repair", below.
Motor does not come on or moves in one direction only.	Drive circuit failure.	Please see instructions for "Support and Repair", below.
Battery Charging is too short; battery does not get a full charge	Early termination by charging circuit.	Leave crimping tool on charger overnight. Allow trickle current to bring battery to full charge.
	Battery is worn out	Replace battery. Battery is rated to deliver 60 % of capacity after 1500 charges.

Tips:

- If crimping was not completely successful, the vial should not be "re-crimped". In this case a new crimping process needs to be started with a new vial and a new cap.
- In case of beveled top crimp neck vials you generally have to work with a higher pressure than in case of flat crimp necks.
- Please mind a proper storage of the crimping tool.
- Do not carry out repairs by yourself.
- Recharge battery-powered crimping tools only when the battery low indicator reminds to do so. This will help to extend life time of the battery.
- Observe safety instructions!

Support and Repair

If the crimping tool is still in the warranty period, contact your dealer for support. It is essential that you provide us / your dealer with a filled out and signed repair form which you find under:

www.mn-net.com/media/pdf/Form-Repair-Service-and-Return-DE-EN.pdf

No return of a defect crimping tool will be accepted prior to receipt of a completely filled out form.

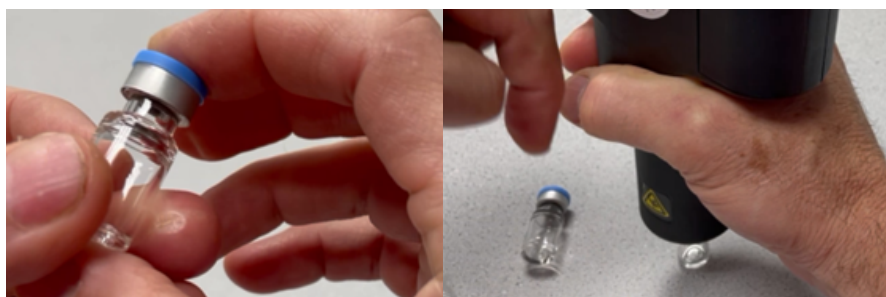


Crimping of Flip Top / Flip Off caps



It all starts with the operator...

The operator of the crimping tool is critical to a successful seal. It is important for the operator to keep the crimper aligned as well as possible with the vial. The operator must also apply down pressure onto the top of the seal during crimping to compress the stopper and allow the aluminium skirt to pass below the bottom of the crimp neck as the jaws close and the plunger actuates.



Apply downward pressure by pushing crimping tool firmly against the cap giving stopper and cap head pressure!

Cap design

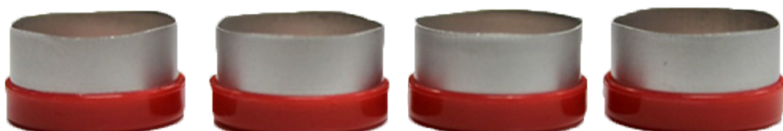
The length of the aluminium skirt on the cap and irregular trim both contribute to inconsistencies in seal wrap on the underside of the crimp neck. A higher crimp setting does improve the wrap, however care must be taken to avoid damaging the side wall if over crimped.

The normal variation in the thickness of the vial's crimp neck also can contribute to seal damage, especially if the cap skirt is short or the stopper is not adequately compressed during crimping.



The key for a good crimp...

In conclusion, the key to good seals is to always apply downward pressure while crimping the cap on the vial, and caps with slightly longer skirt lengths will provide more consistent crimps without overcrimping.



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Other related Products

Description	REF
High Power Crimping Tool (stationary) Also suitable for magnetic and bi-metal crimp caps	
Electronic high power crimping tool with fixed power supply	735700
Crimping heads	
8 mm Crimping head for 735700	735708
11 mm Crimping head for 735700	735711
13 mm Crimping head for 735700	735713
13 mm Flip Top/Flip Off Crimping head for 735700	735733
20 mm Crimping head for 735700	735720
20 mm Flip Top/Flip Off Crimping head for 735700	735732
Decapping heads	
11 mm Decapping head for 735700	735811
13 mm Decapping head for 735700	735813
20 mm Decapping head for 735700	735820
Accessories for High Power Crimping Tool	
Stand for electronic crimping tools	735501
Rack of 2 electronic crimping tools	735509

Further information

For further information on autosampler vials and caps, please visit our website on www.mn-net.com/vials or check our specialized brochure "Vials and caps (EN)" in the Download section under Chromatography Services.

www.mn-net.com/media/pdf/Brochure-Vials-and-caps-EN.pdf



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