

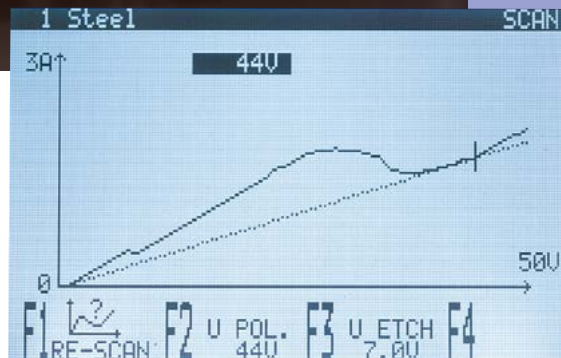
LectroPol-5

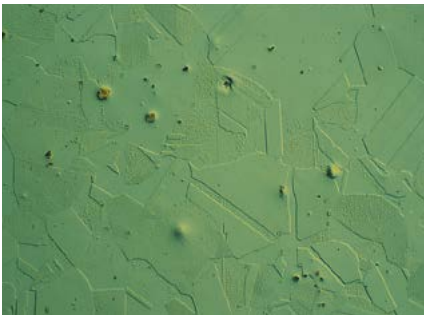
 **Struers**

Automatic, micro-processor controlled electrolytic polishing and etching of metallographic specimens



- Scanning function for easy determination of parameters
- Built-in safety features
- Database with methods for various materials
- Short polishing times and maximum reproducibility





Stainless Steel,
500x, DIC

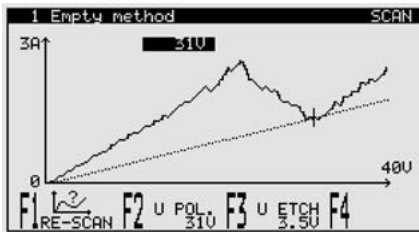


Copper,
500x, DIC

Scanning function for easy determination of parameters

LectroPol-5 is equipped with a unique scanning function. The sample is placed on the polishing table and a pre-defined voltage range is scanned to determine the current density curve.

This curve is used to define the correct voltage for both polishing and etching.



Instead of time consuming trial and error testing of parameters it is now easy to find the correct settings after a single scan of a new sample material.

Electrolytic polishing has now lost a lot of its "mystery" and is used in a more scientific way to prepare metallographic samples.

Built-in safety features

With LectroPol-5, all functions are controlled through the advanced software. An increase in electrolyte temperature above a pre-defined limit will automatically result in either a warning or shut-down of the procedure in progress.

Also voltage and current are monitored constantly and if the limits of Lectro-Pol-5 are reached, settings are reduced automatically.

Thus maximum safety for both operator and equipment is provided.

Database with methods for various materials

10 polishing/etching methods for various materials are included with LectroPol-5. A whole range of materials can thus be prepared immediately, without any lengthy and time consuming trials. These methods can also be used as starting point for the development of methods for other materials. 20 user-defined methods can also be saved in the database of LectroPol-5.

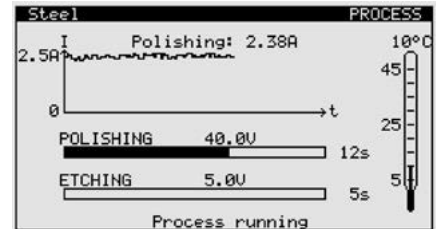
Short polishing times and maximum reproducibility

Electrolytic polishing and etching have the advantage of very short preparation times compared to normal mechanical specimen preparation. Microprocessor control and database functions result in always the exact same parameters being used. LectroPol-5 combines both short preparation times and high reproducibility and is thus the ideal choice for fast quality control requirements.

LectroPol-5 consists of two separate units, the control unit and the polishing unit.

The control unit

Both the power supply and the programming and monitoring functions are incorporated in the control unit. The unit is operated on the touch pad and on the backlit graphic display all parameters are presented. Upon pressing the Start button, the display

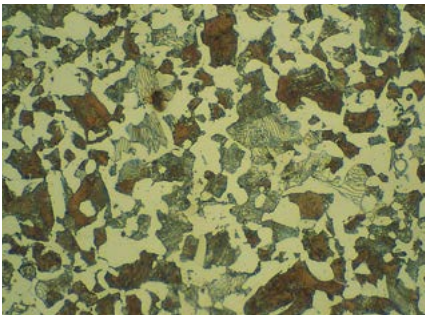


changes, and the ongoing process can be monitored. Parameters like current, electrolyte temperature and elapsed polishing/etching time are displayed. Both the display of parameters before and the display of actual values after process start provide an exceptional amount of immediately useable information. Deviations from one process to the next can be detected straightaway, and necessary measures can be taken. Required changing of electrolyte can be detected before changes of the polishing result will be noticed.

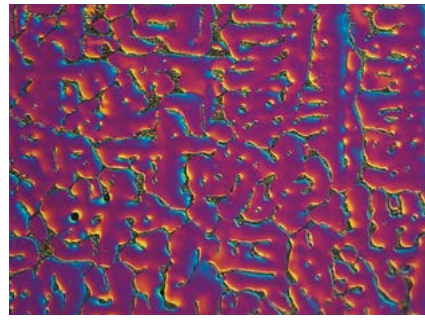
The polishing unit

The design as a separate unit makes it possible to place the polishing unit away from the control unit. If required the polishing unit can be set up in a fume cabinet while the control unit is set up outside. With an additional start and stop key the process can also be started directly from the polishing unit. The electrolyte is stored in easily exchangeable electrolyte containers which are inserted into the polishing unit.

The pump, driven like a magnetic stirrer, and the cooling coils are lowered into the container. On the polishing table the sample is positioned and electric contact is established through the anode arm. Two different polishing units are available.



Medium Carbon Steel, 500x



Aluminium alloy cast, 200x, DIC

With advanced cooling control

LectroPol-5 is equipped with a built-in measuring and control system, constantly monitoring the electrolyte temperature. As soon as a pre-set temperature is reached, a solenoid valve in the polishing table is activated, allowing water from the water mains or liquid from an external cooling unit to run through the cooling coil in the electrolyte container. This saves precious resources as the flow of cooling water is limited to the periods where the electrolyte temperature is above a pre-set limit.

If no water or cooling unit is connected, or the electrolyte temperature for some other reasons increases further, a warning can be displayed and eventually LectroPol-5 will shut off the process automatically.

For polishing at sub-zero temperatures

With this unit, the stainless steel cooling coils are led directly to the back of the polishing unit. There they can be connected to an external cooling unit. The external cooling unit takes over the temperature control and regulation of the electrolyte. With this set-up, materials can be polished at sub-zero temperatures.

External etching

LectroPol-5 is also prepared for external etching. This is often used when different electrolytes have to be used

for polishing and etching. Also with external etching a time can be set, and LectroPol-5 will automatically detect when the specimen is lowered into the external etching bowl. Then the countdown is running, and the voltage is terminated when the pre-set time has expired.

Accessories

Apart from the standard equipment, we can offer additional accessories for special applications.

Switchbox

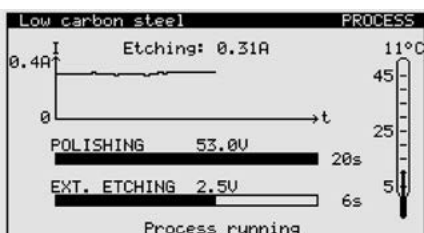
To avoid the constant cleaning when changing between different electrolytes, LectroPol-5 can be equipped with two polishing tables and a switchbox to change between these two tables.

Extension arm

For the preparation of high specimens an extension arm can be mounted.



The transparent masks facilitate monitoring the electrolyte level and the adjustment of the electrolyte flow.



Technical Data

Power Supply

50/60Hz (max. load 9.8A)	1 x 100V / 120V
50/60Hz (max. load 4.9A)	1 x 220V / 240V

Output voltage/current

Polishing	0 - 100V	(1V steps) / 6A
Etching	0 - 25V	(0.5 V steps) / 6A
External Etching	0 - 15V	(0.5 V steps) / 1.5A

Software and Electronics

Display	128 x 240 dots (16 x 40 characters)
Controls	Touch pad
Database	10 Struers methods + 20 user definable methods

Dimensions and Weight

	Control unit	Polishing unit
Width	385 mm / 15.2"	220 mm / 8.7"
Depth	350 mm / 13.8"	350 mm / 13.8"
Height	160 mm / 6.3"	160 mm / 6.3"
Weight	18 kg / 40 lbs	6.3 kg / 14 lbs

Specifications

LectroPol-5

Fully automatic, microprocessor controlled electrolytic polishing and etching apparatus. Complete with control unit, polishing unit (04936201) and external etching unit (02250121). One set of masks (04936915) and two electrolyte containers (04936902) included.

	Cat. no.
Control unit with external etching unit	04936233
Polishing unit with one set of masks (04936915) and two electrolyte containers (04936902)	04936201
Polishing unit for low temperature, with one set of masks (04936915), one cathode (04936908) and two electrolyte containers (04936902). External cooling unit and tubing for connection to the external cooling unit are not included and have to be sourced alternatively. Internal dia. of tubing to be used, 6 mm	04936202
Switchbox for the connection of two polishing units to a LectroPol-5 Control Unit.	04936911
Extension Arm, for the preparation of specimens up to 100 mm high. Can be mounted on pol. unit 04936202 and on pol. unit 04936201 from serial no. 4935250	04936909
1 set of masks (0,5, 1, 2, 5 cm ² and 1 without aperture.)	04936915
1 set of 5 masks 0,5 cm ²	04936916
1 set of 5 masks 1 cm ²	04936917
1 set of 5 masks 2 cm ²	04936918
1 set of 5 masks 5 cm ²	04936919
1 set of 5 masks without aperture	04936920
Electrolyte container with lid	04936902
External etching unit	02250121

List of Electrolytes

A2	A3	D2
Aluminium	Martensitic Steel	Brass
Iron	Molybdenum	Copper
Nickel	Stainless Steel	Gold
Silver	Titanium	
Stainless Steel	Vanadium	
Steels	Zirconium	
Tin		
Titanium		

Struers' equipment is in conformity with the provisions of the applicable International Directives and their appurtenant Standards. (Please contact your local supplier for details)

Struers' products are subject to constant product development. Therefore, we reserve ourselves the right to introduce changes in our products without notice.



Struers ApS

Pederstrupvej 84
DK-2750 Ballerup, Denmark
Phone +45 44 600 800
Fax +45 44 600 801
struers@struers.dk
www.struers.com

AUSTRALIA & NEW ZEALAND

Struers Australia
27 Maynew Street
Milton QLD 4064
Australia
Phone +61 7 3512 9600
Fax +61 7 3369 8200
info.au@struers.dk

BELGIQUE (Wallonie)

Struers S.A.S.
370, rue du Marché Rollay
F-94507 Champigny
sur Marne Cedex
Téléphone +33 1 5509 1430
Télécopie +33 1 5509 1449
struers@struers.fr

BELGIUM (Flanders)

Struers GmbH Nederland
Elektraweg 5
3144 CB Maassluis
Telefoon +31 (10) 599 7209
Fax +31 (10) 5997201
netherlands@struers.de

CANADA

Struers Ltd.
7275 West Credit Avenue
Mississauga, Ontario L5N 5M9
Phone +1 905-814-8855
Fax +1 905-814-1440
info@struers.com

CHINA

Struers Ltd.
No. 1696 Zhang Heng Road
Zhang Jiang Hi-Tech Park
Shanghai 201203, P.R. China
Phone +86 (21) 6035 3900
Fax +86 (21) 6035 3999
struers@struers.cn

CZECH REPUBLIC & SLOVAKIA

Struers GmbH Organizační složka
vědeckotechnický park
Přílepská 1920,
CZ-252 63 Roztoky u Prahy
Phone +420 233 312 625
Fax +420 233 312 640
czechrepublic@struers.de
slovakia@struers.de

DEUTSCHLAND

Struers GmbH
Carl-Friedrich-Benz-Straße 5
D-47877 Willich
Telefon +49 (0) 2154 486-0
Fax +49 (0) 2154 486-222
verkauf@struers.de

FRANCE

Struers S.A.S.
370, rue du Marché Rollay
F-94507 Champigny
sur Marne Cedex
Téléphone +33 1 5509 1430
Télécopie +33 1 5509 1449
struers@struers.fr

HUNGARY

Struers GmbH
Magyarországi Fióktelep
Tatai ut 53
2821 Gyermely
Phone +36 (34) 880546
Fax +36 (34) 880547
hungary@struers.de

IRELAND

Struers Ltd.
Unit 11 Evolution @ AMP
Whittle Way, Catcliffe
Rotherham S60 5BL
Tel. +44 0845 604 6664
Fax +44 0845 604 6651
info@struers.co.uk

ITALY

Struers Italia
Via Monte Grappa 80/4
20020 Arese (MI)
Tel. +39-02/38236281
Fax +39-02/38236274
struers.it@struers.it

JAPAN

Marumoto Struers K.K.
Takara 3rd Building
18-6, Higashi Ueno 1-chome
Taito-ku, Tokyo 110-0015
Phone +81 3 5688 2914
Fax +81 3 5688 2927
struers@struers.co.jp

NETHERLANDS

Struers GmbH Nederland
Zomerdijk 34 A
3143 CT Maassluis
Telefoon +31 (10) 599 7209
Fax +31 (10) 5997201
netherlands@struers.de

NORWAY

Struers ApS, Norge
Sjaskogenveien 44C
1407 Vinterbro
Telefon +47 970 94 285
info@struers.no

ÖSTERREICH

Struers GmbH
Zweigniederlassung Österreich
Betriebsgebiet Puch Nord 8
5412 Puch
Telefon +43 6245 70567
Fax +43 6245 70567-78
austria@struers.de

POLAND

Struers Sp. z o.o.
Oddział w Polsce
ul. Jasnogórska 44
31-358 Kraków
Phone +48 12 661 20 60
Fax +48 12 626 01 46
poland@struers.de

ROMANIA

Struers GmbH
Sucursala Sibiu
Str.Scoala de Inot, nr. 18
RO-550005 Sibiu
Phone +40 269 244 558
Fax +40 269 244 559
romania@struers.de

SCHWEIZ

Struers GmbH
Zweigniederlassung Schweiz
Weissenbrunnstraße 41
CH-8903 Birmensdorf
Telefon +41 44 777 63 07
Fax +41 44 777 63 09
switzerland@struers.de

SINGAPORE

Struers Singapore
627A Aljunied Road,
#07-08 BizTech Centre
Singapore 389842
Phone +65 6299 2268
Fax +65 6299 2661
struers.sg@struers.dk

SPAIN

Struers España
Camino Cerro de los Gamos 1
Building 1 - Pozuelo de Alarcón
CP 28224 Madrid
Teléfono +34 917 901 204
Fax +34 917 901 112
struers.es@struers.es

SUOMI

Struers ApS, Suomi
Hietalahdenranta 13
00180 Helsinki
Puhelin +358 (0)207 919 430
Faksi +358 (0)207 919 431
finland@struers.fi

SWEDEN

Struers Sverige
Ekbacksvägen 22
168 69 Bromma
Telefon +46 (0)8 447 53 90
Telefax +46 (0)8 447 53 99
info@struers.se

UNITED KINGDOM

Struers Ltd.
Unit 11 Evolution @ AMP
Whittle Way, Catcliffe
Rotherham S60 5BL
Tel. +44 0845 604 6664
Fax +44 0845 604 6651
info@struers.co.uk

USA

Struers Inc.
24766 Detroit Road
Westlake, OH 44145-1598
Phone +1 440 871 0071
Fax +1 440 871 8188
info@struers.com