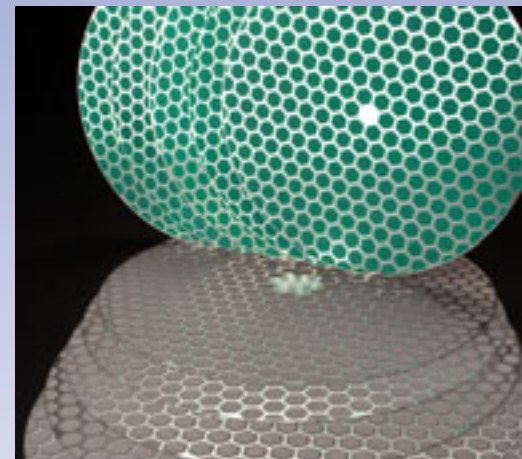


# AbraPol-20



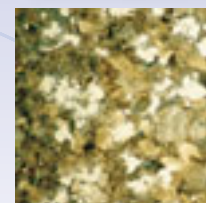
**An automatic, high-capacity machine with 350 mm disc size for fast and efficient grinding and polishing**



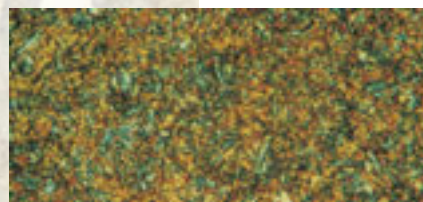
**AbraPol-20 is a powerful and fast grinding and polishing machine, ideal for laboratories or workplaces carrying out quality control testing of very large samples or a high volume of specimens**

## **Unique advantages**

- Sturdy and powerful design ensuring trouble-free operation year after year
- Fast and efficient grinding and polishing providing high planeness and reproducibility, thus saving valuable preparation time and costs
- Easy to operate without requiring extensive training
- Variable speed on both preparation disc and specimen holder
- Maximum level of operator safety
- Removal rate sensor to monitor the amount of material removed
- Built-in preparation methods and communication with MethodPro



*Martensitic steel, etched, 350x.*



### Sturdy and powerful

AbraPol-20 is a powerful, high capacity machine setting new standards for grinding and polishing. The power of a grinding and polishing machine has never been so strong. The main motor is built into a sturdy, welded frame and the whole machine is designed for vibration-free preparation.

The machine handles quickly and easily just about any sample and fits in any production environment. Year after year it lives up to the demand of the daily high volume metallographic sample preparation.

### Reduced preparation time

AbraPol-20 is the fastest preparation machine on the market, setting new standards in metallographic sample preparation.

AbraPol-20 reduces the total preparation time compared to other machines and at the same time increases the number and size of samples that can be prepared.

The keys to these remarkable results are to be found through a combination of high, variable rotation speed and the large area of the preparation disc.

AbraPol-20 is designed for a 350 mm disc. The large area of the disc allows an efficient utilisation of 200 mm speci-

men holders. Combining this with a rotational speed of up to 500 rpm, the total preparation time is reduced. Thus the total preparation time e.g. for steel will be only 5 minutes and 30 seconds, see table below.

### Reduced preparation cost

AbraPol-20 is not only saving valuable time for the user, but also substantially reduces preparation cost. As a result of the reduced preparation time, the consumption of diamond suspension will be significantly decreased. The large surface of the 350 mm disc considerably increases the lifetime of the grinding and polishing surfaces.

In short, the preparation time and the consumption of diamond suspension are reduced while the life-time of the preparation surfaces is increased. That makes AbraPol-20 the most economic high volume preparation machine available in the market.

### User-friendly design

The AbraPol-20 is controlled by a user-friendly interface. A large display makes it easy to select or create a preparation method. Only one operation key is necessary to select and start a preparation method. 10 Metalog Guide methods are also included, covering the preparation of most materials. Thus, even operators with limited preparation experience can prepare all kinds of materials immediately.

Next to the Metalog Guide methods, 10 groups with up to 20 methods can be created in the User Methods. The software also contains information about all Struers consumables like grinding and polishing surfaces, suspensions and lubricants. That makes it easy to develop new preparation methods and avoid possible mistakes like combining wrong consumables.

In addition, new preparation methods can easily be transferred to AbraPol-20 via a LAN module and MethodPro. Methods from e-Metalog can also be downloaded and sent on to the machine.

### Preparation method for martensitic steel

#### Plane grinding on AbraPlan-20

Consumable	Grinding stone grit 60
Speed, rpm	1450
<b>Time</b>	<b>30 sec</b>

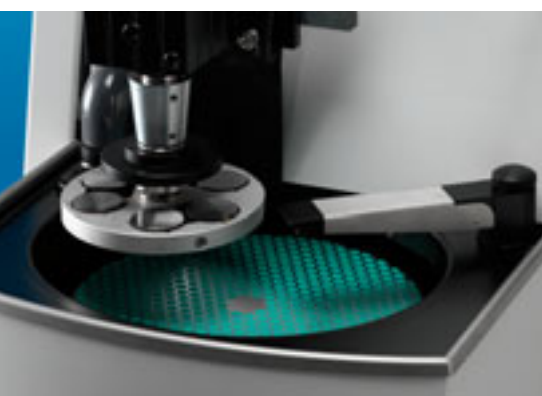
#### Fine grinding on AbraPol-20

Consumables	MD-Allegro + DiaPro Allegro/Largo
Speed, rpm	300/300
<b>Time</b>	<b>3 min</b>

#### Polishing on AbraPol-20

Consumables	MD-Plus + DiaPro Plus
Speed, rpm	300/300
<b>Time</b>	<b>2 min</b>

*Total preparation time 5 minutes and 30 seconds*



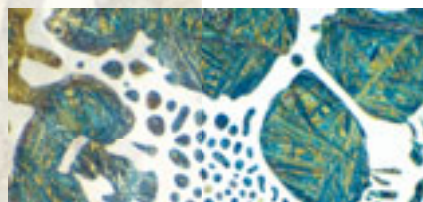
*Moveable dosing arm.*



*Tough floor-based grinding and polishing machine.*



*Martensitic white  
cast iron.  
Bright field, 500x.*



Also Scentis can access the AbraPol-20 for easy download of preparation information.

### **Variable speed for optimal preparation**

On AbraPol-20 both the preparation disc and the specimen mover have the advantage of variable speed. The preparation disc can run between 50 and 500 rpm adjustable in steps of 10 rpm, and the specimen mover can run between 50 and 300 rpm also adjustable in steps of 10 rpm.

For the grinding process a high speed of the grinding disc is essential for a high material removal, so here the up to 500 rpm ensures a very short preparation time.

For the fine grinding and the polishing process variable speed on both disc and holder means that sensitive materials can be prepared at slow speeds whereas tough materials can be prepared at high speeds for the shortest possible preparation time.

### **Maximum operator safety**

Because of the relatively high speeds that can be employed on the AbraPol-20 we have decided to equip the machine with a safety guard.

The safety guard has also an additional advantage: If alcohol-based consumables are used, e.g. for the preparation of water sensitive materials, the safety guard keeps the fumes within the machine. Via the built-in exhaust tube the machine can be connected to an external exhaust system for the safe extraction of the alcohol fumes.

The entire working area is encapsulated using a transparent cover. Thus there is no access at all to any rotating parts. The machine cannot be started before the cover is closed, and the cover can first be opened again when the machine has stopped.

Additionally, the machine is equipped with an emergency stop, which stops all machine functions immediately when engaged.

### **Controlled material removal**

In many situations grinding for a specified grinding time is not a good idea. With small samples too much material might be removed, while large samples or hard materials may barely have been touched.

Therefore, the AbraPol-20 is equipped with a sensor to accurately measure the material removal.

On the AbraPol-20 the measuring length of the removal rate sensor is 35 mm. That means that also high samples, glued onto a specimen holder can be ground using the removal rate sensor.

### **AbraSystem**

AbraPol-20 is a highly adaptable machine that will meet all your needs. In its basic form, it comes with a standard tap water cooling system and a dosing unit with three pumps. But it can also be supplied with a recirculation cooling unit, for example if the user wants to reduce the risk of corrosion in connection with the preparation of ferrous materials. The AbraSystem also includes the plane grinding machine, AbraPlan-20. A company with high capacity requirements will find the ideal solution is an AbraPlan for plane grinding, an AbraPol for fine grinding and a second AbraPol for polishing.



*A transparent safety shield secures operator safety.*

*AbraPol-20 is equipped with a large display, making it easy to select or create a preparation method.*



*AbraPol-20 has room for a 50 l. recirculation cooling unit.*

## Technical data

<b>Disc</b>	Rotational speed Size	50-500 rpm in steps of 10 300/350 mm (12"/14")
<b>Specimen holder</b>	Speed Direction Force Max. size sample holder	50-300 rpm in steps of 10 CW/CCW 50-700 N 200 mm / 8"
<b>Dosing Unit</b>	Level No. of pumps	0-20 3 standard + 3 optional
<b>Software and Electronics</b>	LC Display Controls	240x128 characters Touch pad and Push/turn knob
<b>Environment</b>	Noise level Surrounding temperature Humidity	(idle 300/300) 70 dB(A) 5-40 °C Max. 95% RH
<b>Supply voltage</b>	Power consumption No. of phases Output, main motor	3 kW 3 (3L+PE) 2.2 kW
<b>Water mains</b>	Water supply	Max. 10 bar
<b>Compressed air</b>	Compressed air supply	6-10 bar
<b>Dimensions and weight</b>	Width Depth Height Weight	840 mm (33.1") 980 mm (38.6") 1560 mm (61.4") 400 kg (1070 lb)

## Specifications

### AbraPol-20

Automatic microprocessor-controlled machine for grinding and polishing of specimens in specimen holders 160 and 200 mm dia. With transparent safety shield. Recirculation cooling unit (COLTE) grinding/polishing discs and specimen holders are ordered separately.

Cat. no.:	Voltage:
05886129	3 x 200-210 V / 50/60 Hz
05886135	3 x 220-240 V / 50/60 Hz
05886146	3 x 380-415 V / 50/60 Hz
05886154	3 x 460-480 V / 50/60 Hz

### Accessories

#### Cooling System 3

With 50 l tank, small pump, Cooli-1, 50 l static filter with filter paper, consists of: COLST, COLSS, COOL1, COLSF, COLSP.

Cat. no.:	Voltage:
05766516	1x100 50 Hz
05766523	1x120 60 Hz
05766522	1x220 50 Hz
05766524	1x240 60 Hz
05766616	1x100-120 50/60 Hz CSA

#### Additional Dosing Unit

Three additional pumps for dosing of OP-Suspension, Lubricants and DP-Suspensions. In connection with the recirculation unit (COLTE) the outlet kit ABWVA is required.

Cat. no: 05886901

#### Removal Rate Sensor

For accurate removal of material. Stops process after the required amount of material has been removed.

Cat. no: 05886902

#### Outlet Kit

Shift valve for recirculation cooling unit (COLTE) or drain.

Cat. no: 05886903

#### Disc for Magnetic Fixation

MD-Disc, 350 mm dia. Gross weight 4.6 kg  
MD-Disc, 300 mm dia. Gross weight 3.9 kg

**Code**

**ABTWE**

**COLTE**

**ABWDO**

**ABWRE**

**ABWVA**

**DEMFI  
DEMAL**



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