ROMANOFF SINCE 1949
INTERNATIONAL SUPPLY CORPORATION

KORAS®
PRECIOUS METAL RECYCLING

Aqua-Pol® Picco Vario Short Manual

Electro-Polishing System

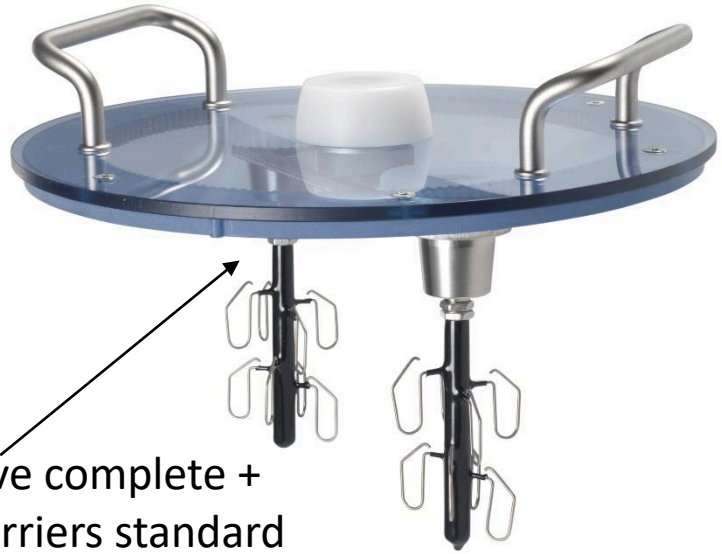
Version 2.3

Table of contents

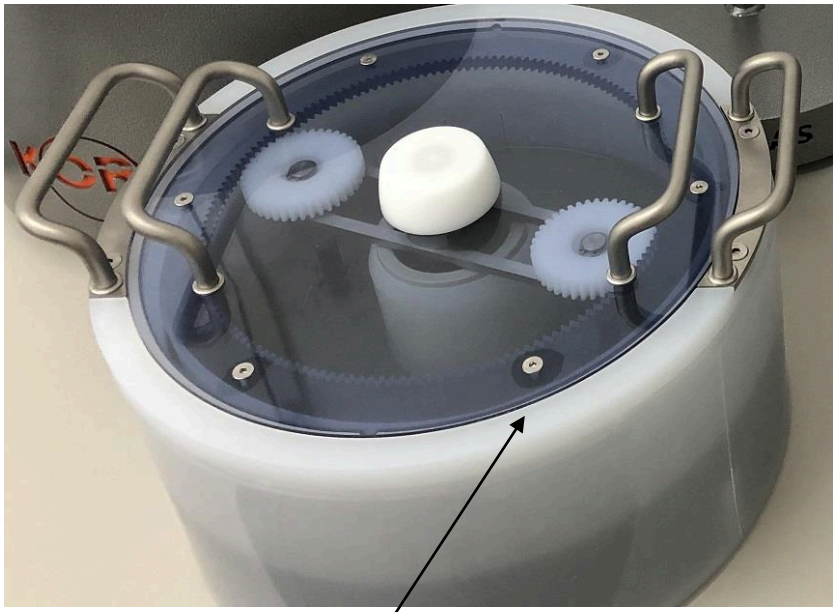
Table of contents

Machine components - 1

Machine components - 2



Gear drive complete +
goods carriers standard



Exchangeable tank +
insert basket + gear drive

Machine components - 3

How to fill the Aquapol® Picco Vario

- Aquapol® Picco Vario with insert basket -

Empty machine with insert basket

Polishing chips filling volume :

		Electrolyte filling volume :
approx. 3.5 litres plastic chips	⟷	approx. 4.0 litres EPL 1
approx. 3.5 litres glass beads	⟷	approx. 4.0 litres EPL 1
(approx. 5,7 kg (max.)	⟷	(approx. 4,2 kg)
approx. 3.5 litres plastic chips	⟷	approx. 4.0 litres EPL 2
approx. 3,5 litres glass beads	⟷	approx. 4.0 litres EPL 2

correct machine filling

How to start the Aquapol® Picco Vario

There is a red switch on the left side, "red" = OFF. Touch the switch very lightly for approx. 1 s and the program will start up - the loading time is less than 1 min. After the program is visible on the Touch screen, the red switch changes to "green" = ON and on the right side the lamp switch turns to "red".

There is a touch panel display (ProFace) on the top of the machine. When the machine starts the words **"Licensing", "Service"** and "Software version" are visible for a few seconds. Licensing is for a software extension, service is for the supplier, and software version shows you the current version.

First go to page 2 (**Settings 1**) and set your parameters:

- Step 1 + 2: for two steps in one process (voltage + time).
- Rotation speed between 20 - 100%.
- **Interval Sec** means total time of rotation, in this case 30 s left / 30 s right.
- Alternatively, touch the left or right cursor and the rotation is only in one direction.
- **Start 100%** means full motor performance for approx. 2s.

How to start the Aquapol® Picco Vario

Then go to page 3 **"Settings 2"** and set your parameters:
- The green display shows if the pulse mode is ON.
- You can set the ON/OFF time between 0.1 to 10 s.
- The pulse is useful to achieve a more homogeneous surface. It is possible to work with higher current densities, which is mainly useful for gold alloys.

Then go to page 1 (**Operation**):
- Touch the green field for **Start** and/or **Pause.** Pause stops the process in order to inspect the result and the time remains.
- Touch the red field to **Stop** the process and the time is cancelled.
- The A for ampere indicates the result of your treatment with this setting.
- The sign on the left indicates the pulse; in this case the pulse is ON.
- **"Ah"** displays ampere consumption.
  "Reset Ah" deletes the Ah, for example when a new electrolyte is used.
- **Operating hours** indicates how many hours the Aquapol® Picco has already worked.
- At the end of each process, the machine generates an acoustic signal (20x).

How to prepare and clean the pieces

Put the goods carriers on the hang-up rack. The rack enables easy loading and removal of the pieces to be cleaned.

There are 2 goods carriers. Each carrier can carry max. 8 small pieces (2-3 g/ piece). The total number of pieces per batch is therefore 16.

After the process, put the goods carriers with the treated pieces in a rinsing bath filled with tap water. Turn the gear drive on the handle to move the pieces.

Procedure in case of an emergency

If there is an emergency, **touch the green lamp switch (right side)** and the Aquapol® Picco rotating polishing system will immediately stop. The green lamp switch changes to “red” and reset the current process.
If you want to stop the process and the control unit simultaneously, you have to touch the left green ON / OFF switch.

In case of skin contact with acids or bases, immediately treat by rinsing with water or eye washing. Observe and use the company emergency and first aid equipment.

For more information, please see the Material Safety Data Sheet.

Technical data

Specifications

Name:	Aquapol® Picco Vario
Dimensions L x W x H:	400 x 580 x 410 mm
Weight:	approx. 33 kg

Tank filling volumes

Polishing chips:	approx. 3.5 – 5.0 litres, depends on kind of material
Electrolyte:	approx. 4.0 litres

Required ambient conditions

Ambient temperature for motor:	max. 60° C
Ambient temperature for machine:	max. 35° C

Interfaces

Power supply:	230 V, 50-60 Hz (AC)
Rectifier:	30 V, 12 A (DC), for 2 goods carriers 30 V, 18 A (DC), for 3 goods carriers 30 V, 24 A (DC), for 4 goods carriers
Drain connection:	hose barb 12 mm
Compressed air connection:	no

Goods carriers

Total capacity 1 goods carrier:	max. 8 small pieces (2-3 g/piece)
Total capacity 2 goods carriers:	max. 16 small pieces (2-3 g/piece)
Total capacity 3 goods carriers:	max. 24 small pieces (2-3 g/piece)
Total capacity 4 goods carriers:	max. 32 small pieces (2-3 g/piece)

Basic parameters for processing

Gold

Electrolyte:	**EPL 1**		
Alloys:	8 kt – 21 kt yellow gold (YG), rose gold (RG), white gold (WG)		
	Note: WG/ Pd limit <5 %, WG **Ni/Zn no limit**!		
Voltage:	2.5 – 4.0 V (calculate for 1 ring)		
Required ampere/piece:	Small ring without complex structure	weight 2 – 3 g	100 mA – 200 mA
	Complex ring	weight 6 – 8 g	200 mA – 300 mA
	Bracelet, chain and pendant	weight approx. 20 g	600 mA – 800 mA
Process time:	15 – 40 min		
	depending on several conditions, e.g. casting quality, pre-preparation, alloy, surface structure		

Silver

Electrolyte:	**EPL 2**		
Alloys:	925, 935		
Voltage:	5.0 – 10 V (calculate for 1 ring)		
Required ampere/piece:	Small ring without complex structure	weight 2 – 3 g	100 mA – 200 mA
	Complex ring	weight 6 – 8 g	200 mA – 300 mA
	Bracelet, chain and pendant	weight approx. 20 g	600 mA – 800 mA
Process time:	15 – 40 min		
	depending on several conditions, e.g. casting quality, pre-preparation, alloy, surface structure		

Thanks to the exchangeable tank, it is now very easy to use different electrolytes and media without having to clean the system separately!

Additional information for processing gold

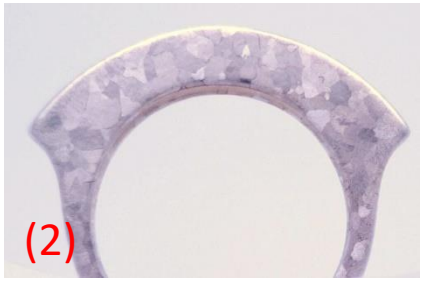
Gold


(1)

Result after processing: →

greenish colour / greyish surface (1)
reason: **too high ampere/current density**
remedy: reduce the voltage (thus the ampere) a little bit for only 1 – 2 min
(it is enough to do this at the end of the process if the surface is homogeneous)

→ matt surface; grain boundaries (2)
reason: **too low ampere/current density**
remedy: increase the voltage (thus the ampere) for more minutes to eliminate the structure
Note: if the grain boundaries are too strong defined in the structure, it is hard to eliminate these again


(2)

Pulse mode ON: This helps with certain alloys and/or surfaces. When you start the pulse, the ampere automatically switches on/off in the set times (between 0.1 – 10 s).

Process steps (phase 1 + 2): Sometimes 2 different process steps can improve the surface quality, when the voltage step 1 (phase 1) is higher than step 2 (phase 2). Of course, finally the voltage of step 2 must be the right voltage for the ideal
ampere.

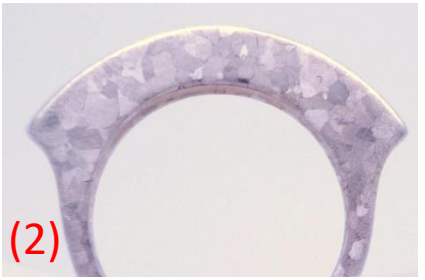
Additional information for processing silver

Silver


(1)

Result after processing: → matt and less smooth surface (1)
reason: **too high ampere/current density**
remedy: reduce the voltage (thus the ampere) a little bit for only 3 – 5 min
(it is enough to do this at the end of the process if the surface is homogeneous)

→ yellowish / brownish colour with reduced gloss and less smooth surface; grain boundaries (2)
reason: **too low ampere/current density**
remedy: increase the Voltage (thus the ampere) a little bit for only 3 – 5 min
(it is enough to do this at the end of the process if the surface is homogeneous)

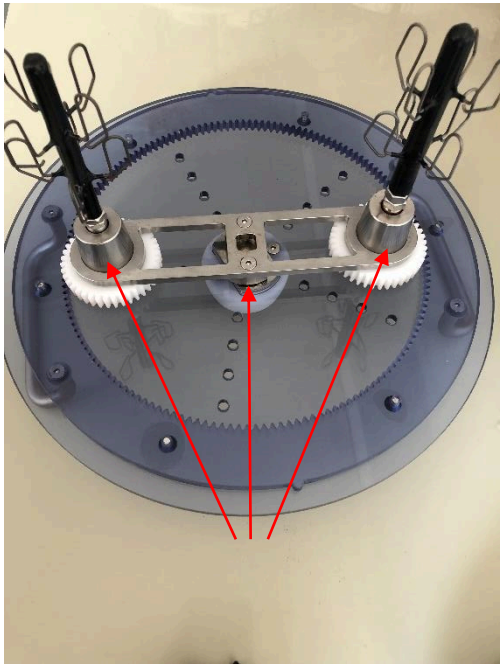

(2)

Pulsed mode ON: This helps with certain alloys and/or surfaces. When you start the pulse, the ampere automatically switches on/off in the set times (between 0.1 – 10 s).

Process steps (phase 1 + 2): Sometimes 2 different process steps can improve the surface quality, when the voltage step 1 (phase 1) is higher than step 2 (phase 2). Of course, finally the voltage of step 2 must be the right voltage for the ideal
ampere.

Possible error sources

Do not put the gear drive in this position, if the goods carriers are <u>not dry</u>, e.g. after processing or cleaning.



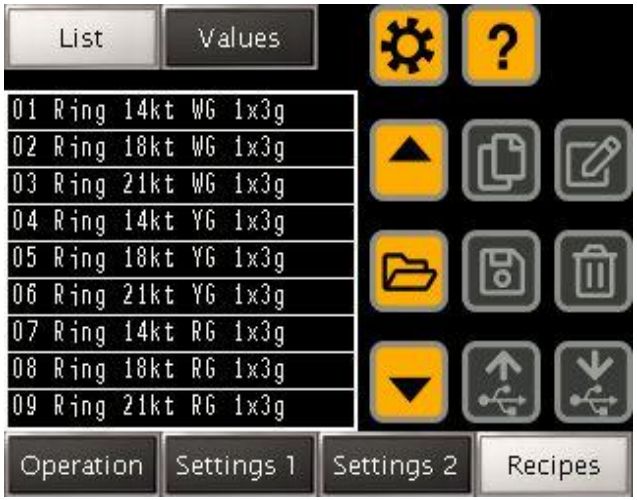
Otherwise this position can lead to corrosion in the bearings and this can lead to contact problems.

The best position is in the hang-up rack, also to prepare or remove the pieces before or after operation.

Recipe management (option)

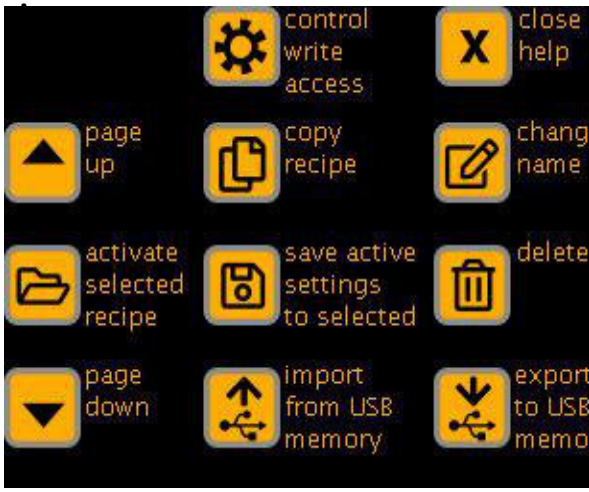
Activation:

If the recipes are not activated, on page 4 (ProFace) you will see
“not activated”, “no license”.
The page is locked.



After activation you have access to more than 6000 lines. Each of the lines can store 1 recipe. 10 lines are used with preset recipes. If you use a consecutive number, the recipes will be stored automatically in the position of the number. However, you can only activate existing recipes.

Explanations



For an explanation of several functions, pres
“?” in the upper right corner of the display.
Press “X” to close.

Recipe management (option)

Creation of recipes:

If you have found a good setting for a certain article or a certain quantity of parts, you can save it under “Recipes”.

Select any existing recipe, press on the “gear” and select “write access enabled“.

But be careful, because “Recipes could be overwritten without warning“.
Press the “X” button to exit the page.

Recipe management (option)

Creation of recipes:

Press the “copy recipe” button.

A new recipe will be created as a copy.

Push the button “change name” and change all necessary information, e.g. consecutive number, article, quantity

Recipe management (option)

Creation of recipes:

Then press the “save active settings to selected” button to save the new recipe.

Go to “Values” and change the state “Write Protect Recipe” to “ON”.

Note:

The individual recipe is only protected in the “ON” position and cannot be deleted.

0 = OFF; 1 = ON

After selection, confirm with "ENT" and then press the “save active settings to selected” button.

Recipe management (option)

Creation of recipes:

Then return to the "List“ and press the "gear" button.

Select “write access disabled” and all recipes are protected against deletion!.

Afterwards the desired recipe can be selected again from the recipe list by pressing the “activate selected recipe” button.