

# Description an Operating Instructions

## Low-Dimension Galvanizing Unit

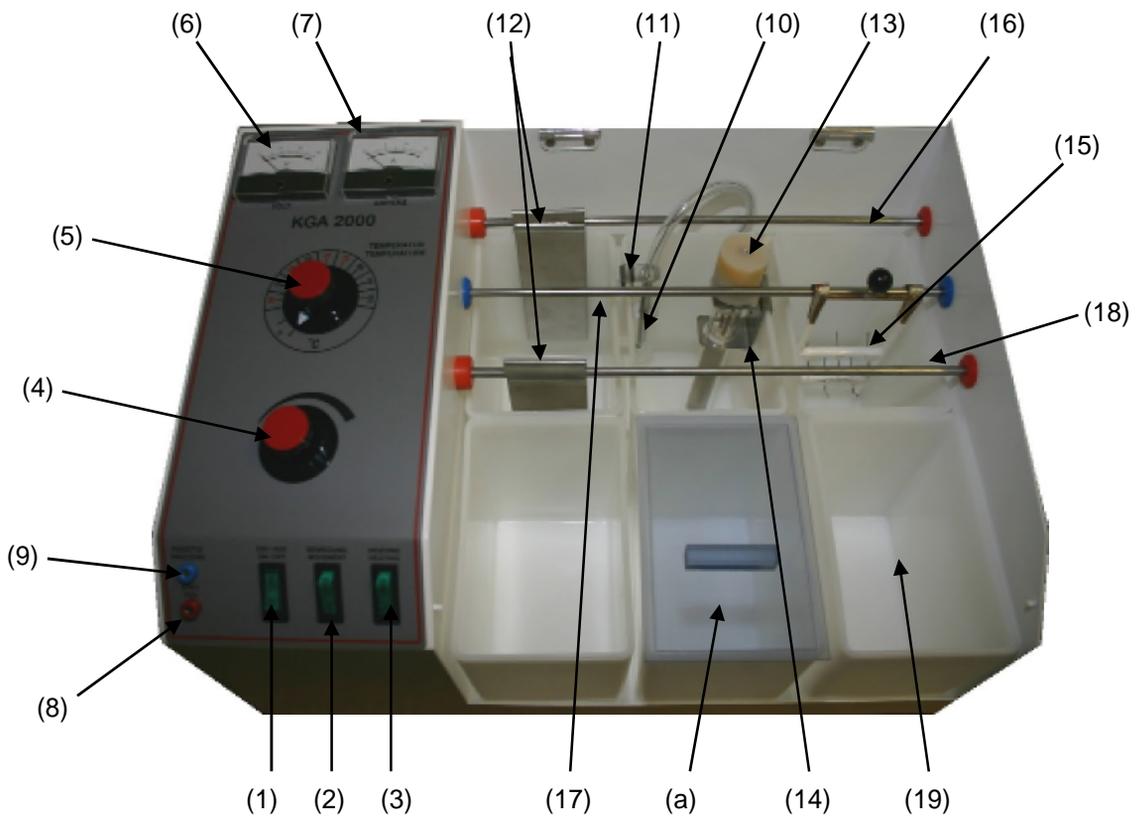
### KGA 2000



Greiner Vibrograf AG  
Mittelstr. 2  
CH - 4900 Langenthal  
Schweiz / Switzerland  
Tel : +41 /(0)62/916 60 80  
Fax : +41 /(0)62/916 60 81  
E-Mail: [info@greinervibrograf.ch](mailto:info@greinervibrograf.ch)  
[www.greinervibrograf.ch](http://www.greinervibrograf.ch)

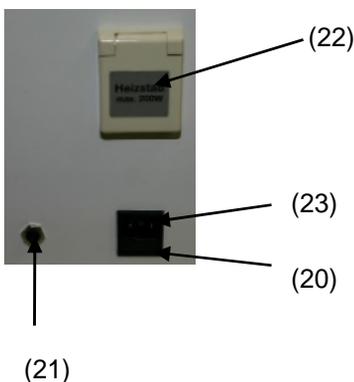


Helmut Klein GmbH  
Fritz-Neuert-Str. 31  
D-75181 Pforzheim  
Deutschland / Germany  
Tel : +49 / (0)72 31/95 35-0  
Fax : +49 / (0)72 31/95 35-95  
E-Mail : [info@klein-messtechnik.de](mailto:info@klein-messtechnik.de)  
[www.greinervibrograf.ch](http://www.greinervibrograf.ch)



The following operating elements are installed in the housing:

- (1) Rocker switch "ON-OFF"
- (2) Rocker switch for the cathode rod drive
- (3) Rocker switch for the heating system of the quartz immersion heater
- (4) Rotary knob for voltage or amperage control
- (5) Rotary knob for temperature control
- (6) Volt meter
- (7) Ampere meter
- (8) Connection socket red for the felt pin of the pin galvanizing unit
- (9) Connection socket blue for the forceps of the pin galvanizing unit
- (10) Temperature sensor
- (11) Support for temperature sensor
- (12) Anode sheet
- (13) Quartz immersion heater
- (14) Support for immersion heater
- (15) Rack
- (16) Anode rod
- (17) Cathode rod
- (18) Anode rod
- (19) Trough (6 pieces)
- (20) Fuse holder for fuse 2.5 A time-lag, 250 V~, 5 x 20mm
- (21) Circuit breaker
- (22) Grounding socket for quartz immersion heater
- (23) Mains connection sockets with fuse holder for socket 230 V~, 50 Hz



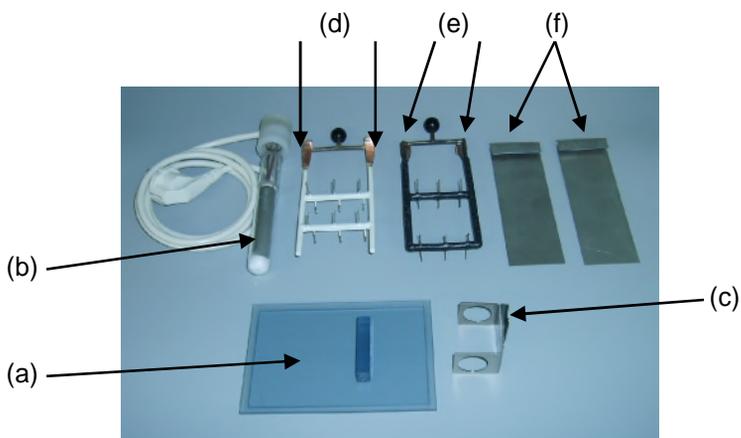
The low-dimension galvanizing unit KGA 2000 is appropriate for degreasing, nickel plating, rhodium plating, gold plating, silver plating, etc.

**Dimensions:** L 475 mm, W 320 mm, H 250 mm

**Scope of delivery:** 6x troughs of PPH plastic material,  
Dimensions: L 150mm, W 100mm, H 150mm, Volume 1.5 liters.  
1x Grounding contact mains cable 2.0 meters

**Standard accessory consist of:**

6 x tank for KGA 2000 1,5 l	<b>Art.-no. 40001020</b>
1 x temperature sensor	<b>Art.-no. 40005125</b>
1 x sensor holder	<b>Art.-no. 40005050</b>
1 x holder for heater	<b>Art.-no. 40008020</b>



**Optional accessory:**

1x cover for tub of PPH plastic material	<b>Art. no. 40008200 (a)</b>
1x Quarz immersion heater	<b>Art. no. 40008010 (b)</b>
1x Rack for rings with 12 upward bent hooks	<b>Art. no. 40008070 (d)</b>
1x Rack for chains with 12 downward bent hooks	<b>Art. no. 40008080 (e)</b>
1x Stainless steel anode 150 x 50 x 0,5mm	<b>Art.no. 40008100 (f)</b>

The two outer anode bars (16) + (18) can be removed simply by pulling them out. The inner cathode rod (17) can be removed by turning it clockwise.

The motion of the cathode rod (17) can be switched on by using the rocker switch (2) .



**Warning:**

Do not switch on the motion when the inner cathode rod (17) has been removed.

**The heating system:**

The quartz immersion heater is switched on by using the rocker switch (3).



**Warning:**

Do not switch on the quartz immersion heater when it is hanging in an empty trough to avoid danger of fire and the destruction of immersion heater and trough.

The immersion heater and the temperature sensor must always be in the same trough.

**The anode sheets:**

The anode sheets (12) must always be mounted on the outer anode rods (16)+(18).

See the information sheets of the manufacturers of chemical substances for the type of anode sheets you will need for your process (nickel, titanium, V2A anodes).

**The time:**

Also see the information sheets for the time which a part must stay in the galvanizing bath.

**The goods:**

which you want to plate with gold, silver or rhodium, must always be fixed at the inner cathode rod (17), using the appropriate rack.



Fix the supports of the temperature sensor and the quartz immersion heater only laterally at the trough and not at the anode rods (16)+(18) to avoid destruction.

**The cover:**

The galvanizing unit KGA2000 is appropriate for pin galvanizing. the required chemical substances are available from the manufacturers of chemical substances. The connections for the forceps (9) or for the felt pin (8) are in the left part of the front of the unit.

has been installed to protect the sensitive and precious galvanic baths against dust and pollution.

**Warning:**



Open the cover when working without using the ventilation fan. When the cover is closed, heat accumulation may cause deformation of the cover.

**Start-Up:** The unit comes with an grounding contact mains cable, which must be plugged into the mains connection socket (23) at the rear of the device and must be connected with a grounding socket.

The galvanic process is started by using the rocker switch (1) which is marked "ON-OFF".  
The capacity of the rectifier is 13 V/13 A.

The desired voltage or amperage is set by a continuously variable and loss-free toroidal core control unit by using the rotary knob (4) on the housing.

See the information sheets of the manufacturers of chemical substances for galvanic baths for the voltage (V) or amperage (A) that must be set.

The value you have set can be read from the volt meter (6) or ampere meter (7).

### **The temperatures**

See the information sheets for the temperature you must select for the individual galvanic process.  
The temperature can be set at whatever temperature needed by using the rotary knob.  
The most important temperature values 20°, 40° , 60° , 70° C are marked red.

### **The temperature sensor:**

This sensor is inside the transparent hose (10).

The temperature sensor must always be in the trough that is to be heated in the current process.

### **The quartz immersion heater**

The quartz immersion heater heats the bath to the set temperature. As soon as the temperature has been reached, the temperature sensor emits a signal to the electronic system and the quartz immersion heater is switched off.

If the temperature decreases by 2°C, the temperature sensor emits a signal to the electronic system, and the quartz immersion heater is switched on again.

This will automatically hold the temperature in the trough at the set value.

Nevertheless, we recommend you to use a thermometer additionally.

This thermometer will enable you to see whether the temperature in the upper zone of the galvanic bath is higher than the temperature in the low zone.

Light stirring will produce a uniform temperature in the whole bath.

If you use the motion rod (cathode 17), stirring will not be required.

### **The galvanizing unit**

The unit is equipped with 6 troughs of PPH plastic material, with a volume of 1.5 liters each. Above the troughs, there are the low voltage cathode rod (17) and the anode rods (16)+(18). All these rods are made of stainless steel. The inner cathode rod or material rod (17) can be move horizontally by a motor.

The motor is switched on by using the rocker switch (2).

The advantage of this motion is a uniform layer thickness and a reduction of consumption.

### **The socket**

(22) for the quartz immersion heater is at the rear side of the unit.

### **The circuit breaker**

(21) is mounted at the rear. In case of failure, e.g. due to a short circuit by simultaneous contact between the anode sheet with the anode rod and the cathode rod, the circuit breaker (21) will disconnect the power supply. Eliminate the failure by pressing the locking pin at the circuit breaker.

### **The fuse**

is at the rear of the unit in the mains connection socket (23) in the fuse holder (20). Only use fuses with the following specifications: Microfuse 2.5 A time-lag, 250 V~, 5 x 20mm.

### **Mains connection**



The provided mains cable is plugged into the mains connection socket (23) at the rear of the unit and is connected with a grounding socket 230V- 50Hz .

### **Warning**

**Good ventilation of the working room must be guaranteed.**

### **Chemical substances:**

Purchase the chemical substances to be used from a specialist retailer. Read and observe the process descriptions with utmost care.

After finishing your work, cover the baths with the transparent plastic cover.

## CE - Declaration

after machine guideline ( 89/392/ EWG , 98/37/EG)  
after low-voltage guideline ( 73/23/EWG )  
after EMV guideline ( 89/336/ EWG )

the manufacturer : **Helmut Klein GmbH**  
**Steinenlandstrasse 1**  
**75181 Pforzheim**

declares, the following product

product designation: small galvanizing equipment  
Typ-Bezeichnung: KGA 2000  
Serien Nr: \_\_\_\_\_  
Baujahr: \_\_\_\_\_

corresponds to the above designated regulations of the guidelines.

The following harmonized standards were used:

DIN EN 292-1	security of machines, general organization sets
DIN EN 292-2	
DIN EN 60204-1	security of machines, electrical equipment of machines part 1: general requirements
DIN EN 50081-2	EMV machines within the industrial range
DIN EN 50082-2	EMV machines within the industrial range

The technical documentations belongs to the product are present in original version. This conformity lose the validity if changes to be made at the product, which were coordinated not with us and wer not approved in writing by us.

**Pforzheim ,**

06.11.2007  
date

Helmut Klein GmbH  
Elektronische Messtechnik  
Steinenlandstr. 1  
75181 Pforzheim

  
signature: management