



# HGH®



## Ultrasonic Cleaning by HGH

*Surface treatment: Highly precise and reproducible at any time, for applications in many areas*

- Automobile industry
- Electronics industry
- Mold making
- Print industry
- Wood industry
- Plastics industry
- Optics industry
- Textile industry
- Surface technology
- Engine repair
- Toolmaking





US015-1K

## Single chamber systems made by HGH

- Frequency 25 or 40 kHz
- With one basket
- Welded pan with cover

Model	US015-1K	US025-1K	US040-1K
Basket dimensions [mm]	295 x 240 x 170	450 x 250 x 110	375 x 375 x 190
Chamber dimensions [mm]	325 x 300 x 200	500 x 300 x 200	400 x 400 x 300
US power [W]	300 on the floor	300 on the floor	450 on the floor
Heating output [kW]	0.75 / chamber	1 / chamber	2 / chamber
Model	US060-1K	US090-1K	US120-1K
Basket dimensions [mm]	475 x 375 x 190	570 x 375 x 290	570 x 470 x 290
Chamber dimensions [mm]	500 x 400 x 300	600 x 400 x 400	600 x 500 x 400
US power [W]	600 on the floor	900 on the floor	1200 on the floor
Heating output [kW]	2 / chamber	4 / chamber	4 / chamber



US060-2K Oil, with base frame

## Two chamber systems made by HGH

- Frequency 25 or 40 kHz
- With one basket
- Welded pan with cover

Model	US015-2K	US025-2K	US040-2K
Basket dimensions [mm]	295 x 240 x 170	450 x 250 x 110	375 x 375 x 190
Chamber dimensions [mm]	325 x 300 x 200	500 x 300 x 200	400 x 400 x 300
US power [W]	300 on the floor	300 on the floor	450 on the floor
Heating output [kW]	0.75 / chamber	1 / chamber	2 / chamber
Model	US060-2K	US090-2K	
Basket dimensions [mm]	475 x 375 x 190	570 x 375 x 290	
Chamber dimensions [mm]	500 x 400 x 300	600 x 400 x 400	
US power [W]	600 on the floor	900 on the floor	
Heating output [kW]	2 / chamber	4 / chamber	



US003-1K-ED

## Single chamber systems

- Frequency 40 kHz
- With one basket
- Drawn pan with cover

Model	US003-1K-ED	US006-1K-ED	US010-1K-ED
Basket dimensions [mm]	190 x 115 x 85	270 x 146 x 110	280 x 230 x 120
Chamber dimensions [mm]	240 x 140 x 100	300 x 155 x 150	300 x 240 x 150
US power [W]	120	180	240
Heating output [kW]	0.1 / chamber	0.3 / chamber	0.3 / chamber
Model	US015-1K-ED	US030-1K-ED	
Basket dimensions [mm]	313 x 280 x 115	470 x 270 x 120	
Chamber dimensions [mm]	330 x 300 x 155	495 x 295 x 200	
US power [W]	360	600	
Heating output [kW]	0.4 / chamber	0.8 / chamber	



## Accessories and special items for models “Made by HGH”

- Similar to the images below



US060-2K Oil with base frame and manual goods lift



Small parts basket



Drip station



Base frame

Accessories • Available as an option	Model – Single Chamber System						Model – Two Chamber System				
	US015-1K	US025-1K	US040-1K	US060-1K	US090-1K	US120-1K	US015-2K	US025-2K	US040-2K	US060-2K	US090-2K
Oil separator		•	•	•	•	•		•	•	•	•
Rinse							•	•	•	•	•
Drip station			•	•	•	•		•	•	•	•
Bypass filtration			•	•	•	•			•	•	•
2- and 3-side ultrasonic			•	•	•	•			•	•	•
Dryer			•	•	•	•			•	•	•
Floor pan			•	•	•	•			•	•	•
VE level / chamber	•	•	•	•	•	•	•	•	•	•	•
Manual goods lift			•	•	•	•			•	•	•
Base frame		•	•	•	•	•	•	•	•	•	•

## Cleaning media from HGH

We have a large selection of cleaners that are tailored exactly to your application. You will find a selection here.



Cleaner	pH value	Mixing ratio	Can be used to clean	Contamination
HGH Clean 12.4	12.4	5–20 %	Iron, steel, stainless steel, only partially suitable for non-ferrous metals	Plastic vapors, oils, greases, cooling lubricants, grinding, polishing and microblasting residues
HGH Softclean 22	8.9	US: 3–5 %, Corr.: 0,5–2 %	All materials	Oils, cooling lubricants, grinding and polishing pastes
Hoeschalin 821	13.0	100 %	Steel, iron	Plastic vapors, hard-burned rubber, oils, greases, paints, aluminum, zinc
HGH Clean 21400	13.0	3–5 %	Iron, steel, stainless steel	POM, plastic vapors, oils, greases, cooling lubricants, grinding, polishing and microblasting residues, drawing compounds, encrusted oil residues
HGH Clean 21300	13.0	4–15 %	Steel, stainless steel, copper	Plastic vapors, oils, greases, aluminum, zinc
HGH Clean 20200	2.5	2–3 %	Iron, non-ferrous metals	Oils, polishing pastes, oxide layers

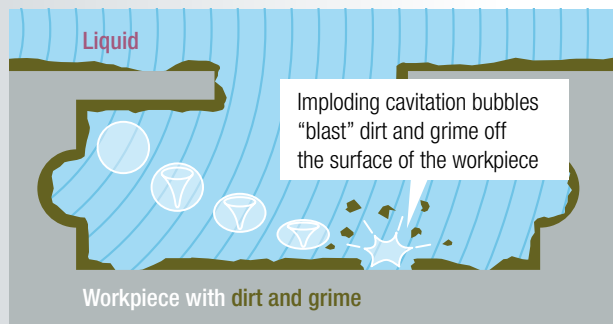
## A brief introduction to the basics

### Ultrasonic cleaning

The term "ultrasonic" refers to mechanical oscillations at a frequency above the audible range of adult humans, which means above approx. 18 kHz.

Liquids are held together by intermolecular forces (cohesion). The magnitude of these forces determines the tensile strength of the liquid. Ultrasonic waves propagate in liquid media in the form of longitudinal waves. Due to the pressure oscillations, the medium is subject to compression and rarefaction. The tensile forces in the decompression phase of the oscillation (rarefaction), the liquid "tears", a process which is referred to as cavitation.

In the vicinity of the cavitation bubbles, high local pressures, strong turbulence, and strong currents are created in the liquid due to the shock-like implosion. This phenomenon actually forms the basis for a process for removing particles of dirt and grime from a surface.



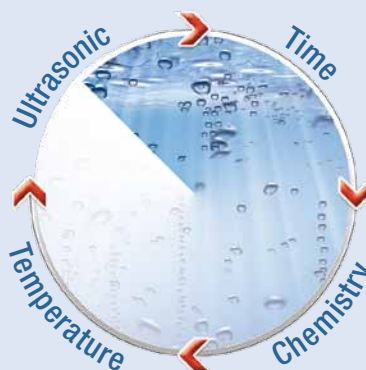
In addition to particles of dirt and dust, other "defects" such as rough and dirty surfaces (boundary surfaces) of the parts dipped in the liquid act as cavitation nuclei. This means cavitation occurs exactly where this is desired. The dirt particles are blasted off these contact surfaces and become suspended in the liquid.

The cavitation effectiveness is influenced by numerous parameters. Among other factors, it depends on the external pressure, the temperature, the sonic frequency, the viscosity of the liquid, and the surface to be cleaned.

The cleaning effect is comparable to that of a countless number of microbrushes. The main advantage is its ability to reach extremely small and hard to access locations like drilled holes, corners or undercuts.

## Perfect cleaning results

### The interaction of 4 factors



#### Four factors

are the most important factors for obtaining perfect ultrasonic cleaning results.

##### 1. The ultrasonic

produces cavitation and generates intense forces that gently remove the particles of dirt and grime from the item to be cleaned.

##### 2. The cleaning time

ranges from a few seconds to several minutes depending on how dirty the item to be cleaned is. It is recommended to conduct a cleaning test.

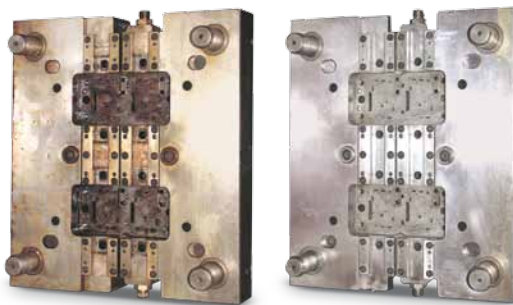
##### 3. The chemical cleaning agent

dissolves the contaminants slightly, so they can then be removed by the ultrasonic waves.

##### 4. Higher bath temperatures

ensure the full cleaning effect can be obtained from many cleaning agents.

#### The before/after comparison will convince you.



Ultrasonic cleaning of molds and dies



Ultrasonic cleaning of polished molding inserts



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