

## **ADSORBER** HM1



### Heavy Metal Adsorber for Cleaning Baths



The Adsorber HM1 was developed for the adsorption of heavy metals from cleaning media used in automated cleaning processes within the electronics manufacturing industry. The cartridge can be fully regenerated and due to its constant adsorption rate, it enables a continuously high cleaning performance.

Concerns regarding the redeposition of heavy metals (e.g. copper or tin) on less noble metal and components or the development of local galvanic elements can now be avoided through a continuous adsorption process. Contaminated wastewater from the rinsing process can also be treated in accordance with the local requirements and regulations.

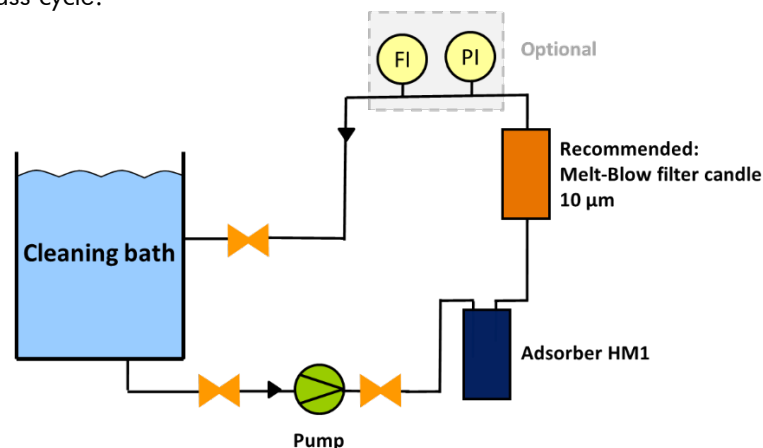
### Technical Data

Density without media	(g/ml)	0,75
Pressure loss factor	(kPa x h/m)	0,81
Allowable pressure loss (kPa) / (psi)	(kPa) / (psi)	320 / 46.4
Application temperature	(°C / °F)	20-80 / 68-176
Recommended pump characteristics	(l/min / bar) / (gallon/min / psi)	80/0,7 / 21/10
Recommended flow rate (FI)	(l/h) / (gallon/h)	300-400 / 80-105
Adapter thread Adsorber HM1 cartridge	(")	¾
Height of Adsorber HM1 cartridge	mm	700
Diameter of Adsorber HM1 cartridge	mm	240
Volume	Liter	26
The following metal ions can be removed by the Adsorber HM1	Copper, tin, lead, iron, cobalt, cadmium, zinc, nickel, mercury, antimony, bismuth	

### Area of application – Process set-up

The Adsorber HM1 can either be installed directly within the cleaning cycle or in a bypass.

Process scheme in a bypass cycle:



Key:  
FI= Flow indicator  
PI= Pressure indicator

## Advantages of the Adsorber process

Due to the adsorption of heavy metals in cleaning baths the following process advantages can be achieved:

- Prevents recontamination of heavy metals on less noble metals or components.
- Fulfills legal wastewater regulations regarding heavy metals in the disposal of the rinse bath.
- Extended bath life due to lower heavy metal loading.
- Higher process reliability and improved stability of cleaning processes.

## Process recommendation – Cleaning step

Cleaning process	1. Cleaning	2. Rinsing	3. Drying	Suitable Adsorber
Spray-in-air	VIGON® A 200	DI-water	Hot- or circulating air	Adsorber HM1/ VIGON® A 200
	VIGON® A 201			Adsorber HM1/ VIGON® A 201
Spray-in-air, Ultrasonic, Spray-under-immersion	VIGON® PE 200			Adsorber HM1/ VIGON® PE 200
	VIGON® PE 190A			Adsorber HM1/ VIGON® PE 190A
Ultrasonic or Spray-under-immersion	VIGON® US			Adsorber HM1/ VIGON® US
	VIGON® PE 196A			Adsorber HM1/ VIGON® PE 196A
Spray-in-air	ATRON® AC 205			Adsorber HM1/ ATRON® AC 205
Ultrasonic or Spray-under-immersion	ZESTRON® LP+			Adsorber HM1/ ZESTRON® LP+
Ultrasonic or Spray-under-immersion	ZESTRON® FA+			Adsorber HM1/ ZESTRON® FA+

We recommend using a Melt-Blow candle filter (10 µm) made of polypropylene or nylon (depending on the cleaning agent used) following the Adsorber HM1.

For detailed questions about the Adsorber HM1 process or material compatibility with materials used, please contact our application technology department:

+49 8453 41995 318; techsupport@zestron.com

## Product Features & Cleaning Standards



100% compliance with EU guidelines  
(RoHS 1, 2 & 3, WEEE)



Product is free of any critical substances according to  
SIN & SVHC lists

## Environmental, health and safety regulations

Given appropriate handling no additional precautionary steps are required. Direct contact with the contents of the Adsorber HM1 is not recommended.

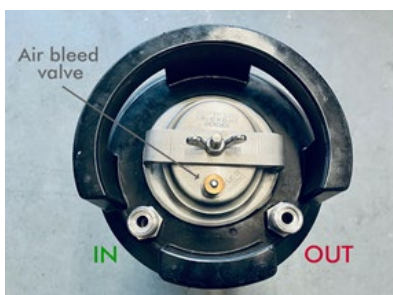
## Availability, return process & exchange cartridges

- The Adsorber HM1 is available as a 26 liter / 6.8 gallons cartridge
- Initial implementation: It is recommended that with your first order you purchase two Adsorbers HM1. When the first Adsorber HM1 cartridge reaches full contamination loading, the second cartridge can be installed and the first returned to ZESTRON.
- Please announce the return delivery to ZESTRON at the same time and initiate the order for a replacement cartridge (see part number for replacement cartridges)
- We recommend that you send the cartridges in their original packaging and on a pallet to avoid damage during shipping.

Part number	Product name	Comments: For the cleaning step
5030	Adsorber HM1/ VIGON® A 200	For cleaning process with VIGON® A 200
5031	Adsorber HM1/ VIGON® A 200 Replacement cartridge	
5048	Adsorber HM1/ VIGON® A 201	For cleaning process with VIGON® A 201
5049	Adsorber HM1/ VIGON® A 201 Replacement cartridge	
5044	Adsorber HM1/ VIGON® PE 200	For cleaning process with VIGON® PE 200
5045	Adsorber HM1/ VIGON® PE 200 Replacement cartridge	
5046	Adsorber HM1/ VIGON® PE 190A	For cleaning process with VIGON® PE 190A
5047	Adsorber HM1/ VIGON® PE 190A Replacement cartridge	
5032	Adsorber HM1/ VIGON® US	For cleaning process with VIGON® US
5033	Adsorber HM1/ VIGON® US Replacement cartridge	
5051	Adsorber HM1/ VIGON® PE 196A	For cleaning process with VIGON® PE 196A
5052	Adsorber HM1/ VIGON® PE 196A Replacement cartridge	
5042	Adsorber HM1/ ATRON® AC 205	For cleaning process with ATRON® AC 205
5043	Adsorber HM1/ ATRON® AC 205 Replacement cartridge	
5034	Adsorber HM1/ ZESTRON® FA+	For cleaning process with ZESTRON® Fa+
5035	Adsorber HM1/ ZESTRON® FA+ Replacement cartridge	
5036	Adsorber HM1/ ZESTRON® LP+	For cleaning process with ZESTRON® LP+
5037	Adsorber HM1/ ZESTRON® LP+ Replacement cartridge	

## Commissioning

1. Connect the supply line for the cleaning agent to be treated to the INLET (IN).
2. Connect the bypass for the treated cleaning agent to the outlet (OUT).  
→ The inlet and outlet are marked with a sticker on the cartridge (see example in the second photo).
3. Purge the air in the cartridge: carefully loosen the air bleed valve. Once a steady stream of cleaning agent comes out, close the purge valve.



## Further product information

- **Storage**

Store Adsorber HM1 in the original cartridge at a temperature between 5-40 °C (41-104 °F). The product has a minimum shelf life of 5 years in factory sealed cartridges with water-based cleaning agents and 2 years with solvent-based cleaning agents.

- **Adsorber lifetime and monitoring**

Depending on the loading of heavy metals in the bath the Adsorber HM1 lifetime ranges between several weeks and a couple of months.

The cartridge must be sent to ZESTRON for maintenance at least once a year when in use.

The Adsorber HM1 lifetime can be easily monitored through commercially available and standardized test kits (i.e. Copper test Merckoquant® 1.10003). Should you have any questions, please consult ZESTRON's Application Technology Labs at: +49 8453 41995 318; techsupport@zestron.com

- **Exchange cartridges**

Loaded cartridges can be returned to the manufacturer and can be replaced with fully regenerated ones (see availability, return process & exchange cartridges).