

hawovac



hv 450/630 AP2 | hv 460/660 AP2-V
hv 800 AP2-V | hv 800 AP4-V

VACUUM IMPULSE WELDING MACHINES FOR INDUSTRIAL
AND MEDICAL PACKAGING

hawo

SAFETY: The validation of packaging processes is crucial to ensure that sterile barrier system integrity is attained and will remain so until opened by the users. The international packaging standard ISO 11607-2 stipulates a packaging process that can be validated and is reproducible. The critical process parameters must be documented routinely (Monitoring). All hawo-products marked with 'V' meet the requirements of this standard. Other device features facilitate the packaging process and contribute to greater safety:

- > Clearly laid out control panel with backlit display for easy setting of welding and cooling time in addition with two step foot switch for determination of vacuum period
- > Autosave: Parameter settings remain even after a power failure
- > Selection of various process cycles
- > Automatic welding time control
- > Setting the process time for vacuum, fumigation and aeration
- > Constant contact pressure
- > Password lock for data entry

FLEXIBILITY AND PERFORMANCE: The hawo vacuum impulse welding devices possess many features, which make the vacuum sealing, aeration and welding of thermoplastic pouches user friendly, safe and simple. Various packaging materials can be used (see technical data for detailed information).

The casing is made of stainless steel and is suitable for use in a clean room. Especially the impulse vacuum welding machine hv 460 AP2-V is accredited with Fraunhofer IPA Qualification Seal and therefore suitable for use in cleanrooms fulfilling the specifications of air cleanliness class 6 according to ISO14644-1.

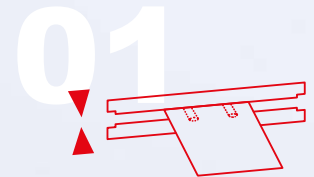


By default, all vacuum impulse welding machines are equipped with two nozzles for even and rapid suction and gassing. For very large (up to 800 mm) and bulky packaging the validatable hv 800 AP4-V has four nozzles, making it one of the most powerful vacuum impulse welding machines on the market.

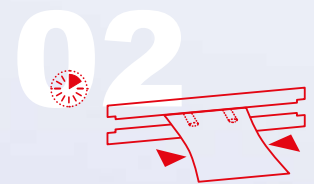
COMMUNICATION: The vacuum impulse welding machines possess a RS 232 interface for bi-directional communication and thus to integrate into the existing infrastructure for process and batch documentation (except hv 450/630 AP2). The interface also can be used for real-time process monitoring with the ht 455 C 3-channel curve tracer. Using the optional USB interface the ht 180 PT-USB mobile documentation system can be connected with the machines for process documentation. The received data can then be digitally signed and archived on a PC.

OPERATION: After the machine is connected to an external compressed air supply, the packaging process with a vacuum impulse welding machine runs through four stages (see figures).

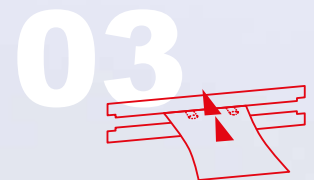
The bag is placed over the nozzles and positioned between both weld stamps. The rubber on the weld stamps guarantees that the bag is airtight.



Pressing the foot switch of the vacuum impulse welding machine closes weld stamps and starts the vacuum welding process: The vacuum pump switches on and sucks the air from around the product.



As soon as the vacuum time is over, the nozzles are withdrawn automatically.



The weld stamps are completely closed and the seal is created. After welding, the weld stamps open automatically and the machine is ready to start the next cycle.



TECHNICAL DATA	hv 800 AP2-V hv 800 AP4-V	hv 460 AP2-V hv 660 AP2-V	hv 450 AP2 hv 630 AP2
CERTIFICATIONS			
Conformity ISO 11607-2	x	x	
Fraunhofer IPA Qualification Seal (Air cleanliness class 6 in accordance with ISO 14664-1)		hv 460 AP2-V	
CE sign and GS-certified	x	x	x
POWER SUPPLY DATA			
Mains connection frequency	230/115 V 50/60 Hz	230/115 V 50/60 Hz	230/115 V 50/60 Hz
Power (only during packaging process)	2800 Watt	2800 Watt	2800 Watt
Fuse protection	16 A, characteristic curve G (K)	16 A, characteristic curve G (K)	16 A, characteristic curve G (K)
MECHANICAL DATA			
Dimensions w x d x h	880 x 490 x 280 mm	515 x 490 x 280 mm 700 x 490 x 280 mm	515 x 490 x 280 mm 700 x 490 x 280 mm
Casing	Stainless steel AISI 304	Stainless steel AISI 304	Stainless steel AISI 304
Weight	43 kg	35 kg 36 kg	35 kg 36 kg
Welding seam width	8 mm	8 mm	8 mm
Welding seam length	770 mm	450 mm 630 mm	450 mm 630 mm
COMPRESSED AIR, VACUUM AND AERATION			
Pumping capacity	220 N/min (13,2 m ³ /h)	220 N/min (13,2 m ³ /h)	220 N/min (13,2 m ³ /h)
Maximum air consumption	90 – 126 N/min	90 – 126 N/min	90 – 126 N/min
Maximum air pressure	6 bar	6 bar	6 bar
Air quality	IAW ISO 8573-1, solids: class 3 (max. 5 µm), water dew point 15°C below ambient temperature, oil content: class 3 (max. 1 mg/m ²)	IAW ISO 8573-1, solids: class 3 (max. 5 µm), water dew point 15°C below ambient temperature, oil content: class 3 (max. 1 mg/m ²)	IAW ISO 8573-1, solids: class 3 (max. 5 µm), water dew point 15°C below ambient temperature, oil content: class 3 (max. 1 mg/m ²)
Vacuum time	0 – 60 s optional: unlimited	0 – 60 s optional: unlimited	unlimited
Maximum vacuum	-85 kpa (-637.5 mm Hg)	-85 kpa (-637.5 mm Hg)	-85 kpa (-637.5 mm Hg)
Pressure (during aeration, connection only with suitable pressure regulator)	5 bar	5 bar	no aeration possible
Aeration time	0 – 15 s	0 – 15 s	no aeration possible
Approved shielding gas	CO ₂ , N ₂ , Ar	CO ₂ , N ₂ , Ar	no aeration possible
Ventilation time for cleaning	0 – 15 s	0 – 15 s	manual
PACKAGING MATERIALS¹			
Polyethylen, Polypropylen, PVC, all types of laminates, including aluminum laminate	x	x	x
Film thickness	max. 2 x 0,4 mm	max. 2 x 0,4 mm	max. 2 x 0,4 mm

¹ unsuitable for gusseted pouches

**hv 800 AP2-V
hv 800 AP4-V**

**hv 460 AP2-V
hv 660 AP2-V**

**hv 450 AP2
hv 630 AP2**

ELECTRONIC FEATURES, OPERATION AND COMMUNICATION

Welding system	Impulse	Impulse	Impulse
Control	Microprocessor	Microprocessor	Microprocessor (SPS)
IEC Protection Classes	1	1	1
Parameter settings remain even after a power failure (autosave)	x	x	x
Display	7-Segment	7-Segment	7-Segment
Interface connections	RS 232 (USB optional)	RS 232 (USB optional)	
Key lock	x	x	
Piece counter	x	x	

PROCESS PARAMETER AND CONTROL FUNCTIONS IN ACORDANCE WITH ISO 11607-2

Welding temperature	max. 300°C (monitored)	max. 300°C (monitored)	
Welding time	0,5 – 10 s	0,5 – 10 s	max. 6 s
Contact pressure	100 – 300 N (monitored)	100 – 300 N (monitored)	
Cooling temperature	50 – 300°C	50 – 300°C	
Cooling time	0,5 – 10 s	0,5 – 10 s	max. 6 s
Process course	automatic / reproducible	automatic / reproducible	
Machine stop in case the parameters exceed predetermined limits	x	x	
Warning systems in case the parameters exceed predetermined limits	x	x	
Compatible with ht 180 PT-USB (process documentation system)	x	x	
Compatible with hawo process documentation software	x	x	

CALIBRATION

Welding temperature	x	x	
Welding time	x	x	
Contact pressure	x	x	

ACCESSORIES

Roll conveyor	x	x	x
Tray	x	x	x
ht 180 PT-USB mobile process documentation system	x	x	
Curve tracer ht 455 C	x	x	



ht 180 PT-USB

PROCESS DOCUMENTATION VIA USB-STICK.

Following on from the requirements set out in ISO 11607-2, the routine monitoring and documentation of the process parameters can be carried out with the help of a USB stick and the hawo ht 180 PT-USB storage unit. The process protocols can then be called up, digitally signed and archived on a PC.