

Operating instructions

VMS-C4 ADVANCED VMS-C7 ADVANCED VMS-C10 ADVANCED



VMS-C4 ADVANCED



VMS-C7 ADVANCED



VMS-C10 ADVANCED



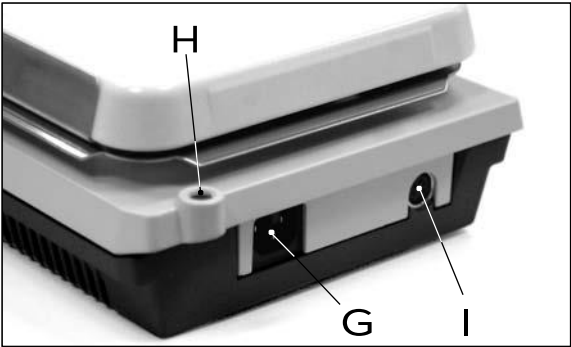
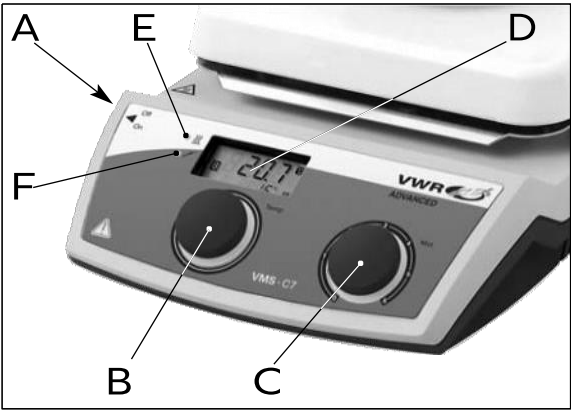


Fig. 1

Pos.	Designation
A	Switch
B	Rotating knob
C	Rotating knob
D	LCD-Display
E	LED energy-input, heating plate
F	LED external temperature sensor
G	Mains socket
H	Threaded support bore
I	Connection PT 1000
J	Mode of operation
K	Actual temperature
L	Target temperature
M	Energy-input heating plate
N	HI TEMP symbol

CE-DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product corresponds to the regulations 2006/95/EC and 89/336/EC and conforms with the standards or standardized documents DIN EN IEC 61010-1, -2-010 and DIN EN IEC 61326-1.

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SAFETY INSTRUCTIONS

To your protection

- Read the operating instructions in full before starting up and follow the safety instructions.
- Keep the operating instructions in a place where they can be accessed by everyone.
- Ensure that only trained staff work with the appliance.
- Follow the safety instructions, guidelines, occupational health and safety and accident prevention regulations.
- Socket must be earthed (protective ground contact).
- Attention-Magnetism! Effects of the magnetic field have to be taken into account (e.g. data cardiac, carriers pacemakers).
- Risk of burns! Exercise caution when touching the housing parts and the heating plate. The heating plate can reach temperatures in excess of 500 °C. Pay attention to the residual heat after switching off.
- Please make sure that the mains cable does not contact the heating plate.
- Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Otherwise, there is a risk of:
 - splashing liquids
 - projectile parts
 - release any toxic or combustible gases.
- Set up the appliance in a spacious area on an even, stable, clean, non-slip, dry and fireproof surface.
- The feet of the appliance must be clean and undamaged.
- Position the knob at the left stop before starting up. Gradually increase the speed.
- Reduce the speed if
 - the medium splashes out of the vessel because the speed is too high
 - the appliance is not running smoothly
 - the container moves on the set-up surface.
- Caution! Never process and heat up any media that has a flash point higher than the adjusted target temperature (0 to 550 °C) that has been set.
- The target temperature must always be set to at least 25 °C lower than the fire point of the media used.
- Check the appliance and accessories beforehand for damage each time you use them. Do not use damaged components.
- Only replace damaged parts with spare parts identical to the original in function and quality.

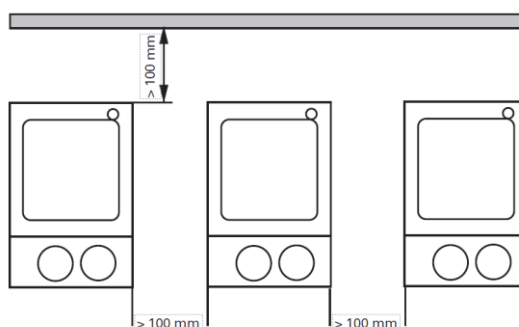
- Do not use the device if the ceramic set-up surface is damaged e.g. scratches, splinters or corrosion. A damaged set-up surface could break if used.
- Beware of the risk of
 - flammable materials
 - glass breakage
 - incorrect container size
 - too much medium
 - unsafe condition of container
- Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through light irradiation.
- Process pathogenic materials only in closed vessels under a suitable extractor hood. Please contact VWR if you have any questions.
- Do not operate the appliance in explosive atmospheres, with hazardous substances or under water.
- Please observe the operating instructions for any accessories used.
- The socket for the mains cord must be easily accessible.
- Ensure that the external temperature sensor PT 1000 is inserted in the media to a depth of at least 20 mm.
- The external temperature sensor PT 1000 must always be inserted in the media when connected.
- The appliance can only be disconnected from the mains supply by pulling out the mains plug or the connector plug.
- Safe operation is only guaranteed with the accessories described in the "Accessories" chapter.
- Always disconnect the plug before fitting accessories.
- Accessories must be securely attached to the device and cannot come off by themselves. The centre of gravity of the assembly must lie within the set-up surface.
- The appliance starts up again automatically following a cut in the power supply (in operating mode B / C).
- The appliance may heat up when in use.
- Abrasion of the dispersion equipment or the rotating accessories can get into the medium you are working on.
- When using PTFE-coated magnetic bars, the following has to be noted: Chemical reactions of PTFE occur in contact with molten or dissolved alkaline and alkaline - earth metals, as well as with fine-particle powders of metals of the 2. and 3. group of the periodical system at temperatures above 300-400 °C. Only elementary fluorine, chlorine trifluoride und alkaline metals do attack PTFE, halogen hydrocarbons have a reversibly swelling effect.



Source: Römpps Chemie-Lexikon and „Ullmann“ Bd.19

To the protection of the equipment

- The appliance may only be opened by experts.
- The voltage stated on the nameplate must correspond to the mains voltage.
- Do not cover the device, even partially e.g. with metallic plates or film. This results in overheating.
- Protect the appliance and accessories from bumps and impacts.
- Ensure that the base plate is kept clean.
- Observe the minimum distances between devices, between the device and the wall and above the assembly (min. 800 mm).



UNPACK

Unpack

- Please unpack the device carefully
- In the case of any damage a fact report must be set immediately (post, rail or forwarder)

Delivery scope

VMS ... ADVANCED

- Heating Magnetic stirrer
- Main's cable
- Operating instructions
- Temperature sensor PT 1000

CORRECT USE

Use

- For mixing and/or heating liquids

Range of use

- Laboratories
- Schools
- Pharmacies
- Universities

This device is suitable for use in all areas except:

- Residential areas
- Areas that are connected directly to a low-voltage supply network that also supplies residential areas.

The safety of the user cannot be guaranteed if the appliance is operated with accessories that are not supplied or recommended by the manufacturer or if the appliance is operated improperly contrary to the manufacturer's specifications.

SETTING OPERATING MODE

VMS ...

Operating the device in mode A, B or C

The mode selected will be shown on the display (J).

Operating mode A

The target temperature selected will be reset to 0 °C if the device is switched off or disconnected from the power supply. The heating function will be set to OFF when the device is powered on.

- Heating is only possible in connection with the temperature sensor PT 1000.
- Setting the HI TEMP-function is possible.

Factory setting: mode A

Operating mode B

All settings will be stored if the device is switched off or disconnected from the power supply.

- Setting the HI TEMP - function is not possible.

Operating mode C

All settings will be stored if the device is switched off or disconnected from the power supply. Functions see mode B.

The settings are preset and not changeable.

For changing the settings select the operating mode A or B. Changing the operating mode

The operating modes can only be selected successively!

- Put device switch (A) in the OFF position
- Press and hold the rotating knob (B)
- Put device switch (A) in the ON position
- Release the rotating knob (B) when fig. 1 is indicated on the display
- Sequence A-B-C-A-B-C-A etc.

SAFE TEMPERATURE LIMIT

VMS ...

Heating is possible without the temperature sensor PT 1000. The target temperature selected corresponds to the heating plate temperature.

The temperature set for the heating plate (maximum 550 °C) will be limited by a preset safe temperature limiter. The heating function will be set to OFF if this temperature limit is reached.

Warning! The safe temperature limit must always be set at least 25 °C lower than the flash point of the media to be processed!



SETTING HI-TEMP

HI TEMP limits the adjustable target temperature.

After switching on the device the display indicates the value 500 °C instead of the actual temperature (K) and the blinking signal SET next to the symbol HI TEMP (N).

The target temperature max. (L) can be set in the range of 0-550 °C by turning the rotating knob TEMP as long as the signal SET blinks.

COMMISSIONING

VMS-C4 VMS-C7 VMS-C10

Commissioning	Put device switch (A) in the OFF position
	Plug in (G) mains cable
	Once connected to the power supply the device is in "stand-by" mode
Stirring	Put device switch (A) in the ON position
	Set the engine speed with the operating button (MOT)
	Any set values are retained when device is switched off and even after the device is disconnected from the power!
Heating	
with external temperature sensor (direct temperature control in the medium)	Put device switch (A) in the OFF position
	Plug in the PT1000 sensor into the socket (I)
	Put device switch (A) in the ON position
	Adjust the set-point temperature with the operating button (TEMP)
	<ul style="list-style-type: none"> • LED (F) lights up • the instantaneous temperature (K) is indicated on the display (corresponds sensor- and/or medium temperature) • indicated set point temperature (L) corresponds the desired medium temperature • LED (E) lights up and the symbol for energy input (M) is indicated on the display (with the heating is switched on) • indicate HOT (D) on the display with over 50°C on the heating plate (in the agitating and stand-by-mode)
without external temperature sensor not in operating mode A	Put device switch (A) in the ON position
	Set the operating mode (see capture "Operating modes")
	Adjust the set-point temperature with the operating button (TEMP) (only be set in operating mode B)
	<ul style="list-style-type: none"> • indicate the adjusted set point temperature on the LCD display (D) position (L) • indicated the set point temperature corresponds the heating plate temperature • LED (E) lights up and the symbol for energy input (M) is indicated on the display (with the heating is switched on) • indicate HOT (D) on the display with over 50°C on the heating plate (in the agitating and stand-by-mode)

ERROR CODES

Any malfunctions during operation will be identified by an error message on the display (D).

Proceed as follows in such cases:

- Switch off device using the main switch (A)
- Carry out corrective measures
- Restart device

Error code	Cause	Solution
E1	Sensor not connected (operating mode A)	Connect sensor Change operating mode
E3	Temperature inside device too high	Switch off device and allow to cool down
E5	No sensor in media	Immerse sensor into media
E6	Sensor defectively Too slow setting of target temperature max. (L) Motor blocks	Exchange the sensor Switch off/on the device
E7	HI TEMP Temperature limit exceeded	Allow media to cool down
E9	Initialization error	Switch off/on the device
E11	Motor blocks	Use another stirring bar Reduce viscosity

If the actions described fail to resolve the fault or another error code is displayed, then take one of the following steps:

- Contact the service department
- Send the device for repair, including a short description of the fault.

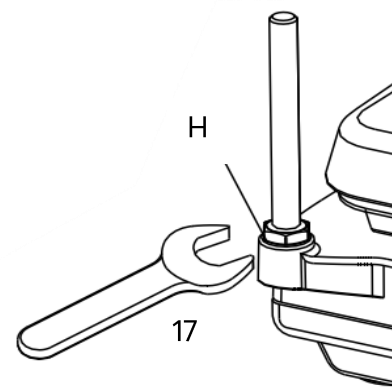
ACCESSORIES

Stirring bars

- Ø 6 mm, length up to 15mm
- Ø 8 mm, length up to 50mm
- Ø10mm, length up to 80mm

Any other accessories

- RSE Stirring bar remover
- RS1 Stirring bar set
- H15 Bath top
- H28 Bath top
- H16V Support rod
- H38 Holding rod
- H44 Cross sleeve



Assembling the support rod

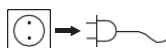
The support rod is attached using the threaded support bore (H).

- Screw the nut M10 onto the support rod until the end of the stop is reached.
- Screw the support rod into the threaded support bore (H) by hand until the end of the stop is reached.
- Use an A/f 17 spanner to tighten the support rod and the nut M10.
- Use cross sleeves to assemble accessories.

MAINTENANCE

The appliance is maintenance-free.

Cleaning



For cleaning disconnect the main plug.

Only use cleansing agents which have been recommended by VWR. Use to remove:

- Dyes isopropyl alcohol
- Construction materials water containing tenside/ isopropyl alcohol
- Cosmetics water containing tenside/ isopropyl alcohol
- Foodstuff water containing tenside
- Fuel water containing tenside

- Do not allow moisture to get into the appliance when cleaning
- Wear protective gloves during cleaning the devices.

Before using another than the recommended method for cleaning or decontamination, the user must ascertain with VWR that this method does not destroy the instrument.

Ordering spare parts

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item number and designation of the spare part, see spare parts diagram and spare parts list.

Repair

The device must be clean and free from any materials which may constitute a health hazard when sent for repair.

Please return the appliance in its original packaging. Storage packaging is not sufficient for returns.

Please also use suitable packaging for transportation.

TECHNICAL DATA

Temperature control in the medium with PT1000 temperature sensor

Minimum depth of immersion sensor	mm	20
Measuring accuracy	K	±0,2 + sensor tolerance DIN IEC751 class A
Setting accuracy	K	1
Resolution - display	K	0,1
Standard tolerance	K	±0,5 (HP+5)
Control system		PID

		VMS-C4	VMS-C7	VMS-C10
Operating voltage	VAC	220 - 230 ±10%		
	VAC	120 ±10%		
	VAC	100 ±10%		
Nominal voltage	VAC	230 / 50Hz		
	VAC	115/ 60 Hz		
	VAC	100/ 60 Hz		
Design frequency	Hz	50/60		
Input power max. at 230 and 120 VAC	W	270	1020	1520
100 VAC	W	270	1020	1055
Power consumption in stand-by mode	W	2.5		
Perm. duration of operation	%	100		
Perm. ambient temperature	°C	+5 to +40		
Perm. relative humidity	%	80		
Protection type acc. to DIN EN 60529		IP 21		
Protection class		I		
Overvoltage category		II		
Contamination level		2		
Operation at a terrestrial altitude	m	max. 2000		
Dimensions (W x D x H)	mm	160 x 275 x 105	270 x 330 x 105	300 x 415 x 105
Weight	kg	3	5	6
Motor				
Speed range (infinitely)	Rpm	0 / 100 - 1500		
Speed display		Scale		
Power consumption	W	15		
Power output	W	1,5		
Max. stirring quantity (water)	ltr	5	1	15
Heating plate				
Heating plate-/ Setting up plate dimensions	mm	120x120	200x200	280x280
Heating power (±10%) at 230 and 115 VAC	W	250	1000	1500
at 100 VAC		250	1000	1050
Surface temperature Room temperature at	°C	500		
Temperature fluctuation	K	±5		
Limit of safety temperature (firmly adjusted)	°C	550		
Range of adjustment Hi-Temp	°C	0 - 500		

