SAHARA-III

Dry tempering of blood components

Safe tempering method

- Contamination risks by water-borne pathogens associated with water baths are prevented
- Active drying of the bag surface provides hygienic conditions surrounding the blood bag
- Temperatures of the warming plate and the ambient air are controlled to ensure that the blood products will not be damaged
- Standardized thawing and warming procedure
- Delayed key reaction prevents unintentional abort of the tempering process

TRANSMED Product Range

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Easy operation

- No adjustments of tempering times and ambient temperatures required

Temperature monitoring

- Contactless measurement of the blood component temperature by an infrared sensor
- Fast availability of frozen blood components due to free of ice indication
- Display of the blood component temperature from 29°C to 37°C in steps of 1°C
- Documentation by means of a protocol printer

Blood bag agitation

Gentle agitation to achieve an almost homogeneous temperature profile within the blood bag and to prevent damage to the blood.

Fast tempering function

- Rapid thawing and warming of blood components

37°C function

- Tempering at a constant ambient temperature of 37°C
- Simultaneous tempering of different blood components
- Tempering of bags with different filling volumes

Module protocol print

- Documentation of the blood component temperature profile
- Documentation of the system test
- Documentation of the error messages in case of a failure

Integrated system test

- Checking the device functions
- Calibration of temperature sensors
- Additional measuring apparatus not necessary
- Documentation by means of a protocol printer

Modular design

- Rapid change between basic model and MAXITHERM possible
- Additional functions such as infusion warming available

Module warming plate

- Acceleration of the thawing and warming process by extra contact heat

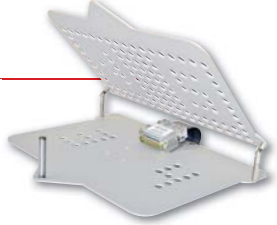
Module infusion warmer

Warming to 37°C of items such as

- infusion solutions
- tubes
- instruments
- contrast media etc.

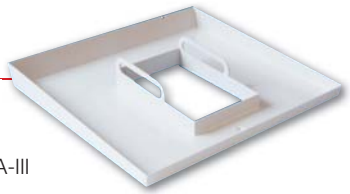
Module MAXITHERM

- Doubles the loading capacity of SAHARA-III up to 6 blood bags

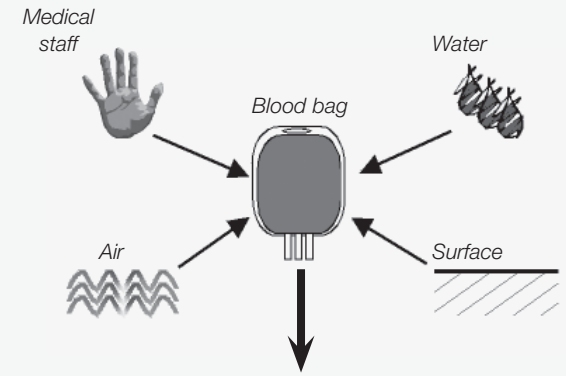


Stainless steel tray

- Collects plasma and cells leaking from damaged bags
- Facilitates cleaning of SAHARA-III



The hygienic alternative



Contamination of the blood bag with exogeneous pathogens

Blood bag processing and storage

Invisible small cracks within the blood bag

Blood thawing or warming

Condensation water on the blood bag

Penetration of pathogens into the blood component and pathogen growt

Critical pathogen count

Exogeneous infection after blood transfusion

Inoculation of exogenous pathogens during warming of blood components

What are the causes for a microbial contamination of blood components by exogenous germs?

Exogenous bacteria originate from the blood donator's skin, from water, air, the blood bag material or the environment, but also from the medical personnel's hands. They can be inoculated during blood collection or during preparation and storage of blood components. While the blood components are processed, mechanical forces may cause small cracks within the bags (mainly within frozen bags). These cracks subsequently allow the invasion of pathogens into the blood component. Contamination may even occur when blood components are warmed (see figure), namely when

- the direct environment of the blood bag to be warmed is highly contaminated, or
- the outer surface of the blood bag to be warmed is populated with pathogens.

Thus, various cases of a transfer of pseudomonades were observed when previously uncontaminated fresh frozen plasma and cryoprecipitates were thawed using water baths.

1. Montag T. et al. **Bakterielle Kontamination von Blutkomponenten**, Bundesgesundheitsbl. - Gesundheitsforsch. - Gesundheitsschutz 42, 132-142, 1999
2. Sazama K. **Bacteria in Blood for Transfusion**, Arch. Pathol. Lab. Med., 118, 350-365, 1994
3. Puckett A. **Bacterial contamination of blood for transfusion: a study of the growth characteristics of four implicated organisms** Med. Lab. Sci. 43, 252-257, 1986

Associated costs

The operation of the dry tempering system SAHARA-III entails no disposable or consumable materials.

Maintenance

Except for safety and functionality checks, the dry tempering system SAHARA-III does not require routine service maintenance.The testing of the device functions, including calibration of the temperature sensors, is carried out by starting the integrated system test without any additional measuring apparatus.

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Ordering Information

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Order No.	Description
97.8710.500	SAHARA-III basic model
97.8710.502	SAHARA-III basic model 115V
97.8710.800	SAHARA-III MAXITHERM
97.8710.802	SAHARA-III MAXITHERM 115V

Accessories

Order No.	Description
97.8710.501	Stainless steel tray
97.8710.550	Module infusion warmer for SAHARA-III
97.8710.570	Module protocol printer for SAHARA
79.8710.575	Paper for protocol printer
79.8710.576	Ink ribbon for protocol printer
97.8710.580	Module MAXITHERM for SAHARA-III basic model
97.8710.590	Module warming plate for SAHARA-III MAXITHERM

Technical Data

Dimensions:	W x H x D: 320 mm x 325 mm x 493 mm	
Weight:	SAHARA-III basic model:	13.7 kg
	SAHARA-III basic model 115V:	13.7 kg
	SAHARA-III MAXITHERM:	13.4 kg
	SAHARA-III MAXITHERM 115V:	13.4 kg
Rated voltage (±10%):	SAHARA-III basic model:	230 V AC
	SAHARA-III basic model 115V:	115 V AC
	SAHARA-III MAXITHERM:	230 V AC
	SAHARA-III MAXITHERM 115V:	115 V AC
Frequency:	50 - 60 Hz	
Rated power; current consumption:	SAHARA-III basic model:	530 W; 2.3 A
	SAHARA-III basic model 115V:	530 W; 4.6 A
	SAHARA-III MAXITHERM:	400 W; 1.7 A
	SAHARA-III MAXITHERM 115V:	400 W; 3.4 A
Accuracy of temperature measurement:	Max. ±4 % bei 37°C	
Ambient conditions:	5 - 30°C	
	Max. 85% rel. air humidity	
Protection class:	Protection class I	

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