

HYDROTHERM – for classic fat determination according to Weibull-Stoldt

# COMPLETELY AUTOMATED HYDROLYSIS



## EFFICIENT

Up to 80 %  
cost savings  
per sample

## SAFE

Process runs in  
closed system

## VALID

Exactly reproducible  
analysis results

## FLEXIBLE

For almost  
all sample types  
and sizes

## CONVENIENT

Very easy operation,  
ready for use  
immediately

“HYDROTHERM observes international and national norms and extraction standards and thus meets all the required analysis qualities.”



Scan the QR code and watch our HYDROTHERM video.

## HYDROTHERM

HYDROTHERM is the world's first and only automatic acid hydrolysis system for fat determination according to Weibull-Stoldt. The complete digestion and filtration process runs in a closed system. The unit can therefore be operated outside a fume cupboard. Laboratory personnel do not come into contact with hot liquids and acid fumes. Six samples can be digested simultaneously. There are three independently controllable modules, each with two hydrolysis units, available for this. The apparatus operates independently and completely automatically. It has been efficiently tested in continuous operation (36 samples per day). HYDROTHERM meters the hydrochloric acid into the sample beaker, hydrolyses the sample in boiling hydrochloric acid and performs the complex filtration with all rinse operations completely automatically – for as long until all fat contents are transferred and the filter has been washed to pH-neutral. Sensors permanently monitor the process and abort it in the event of faults.



## COMPLETELY AUTOMATIC HYDROLYSIS



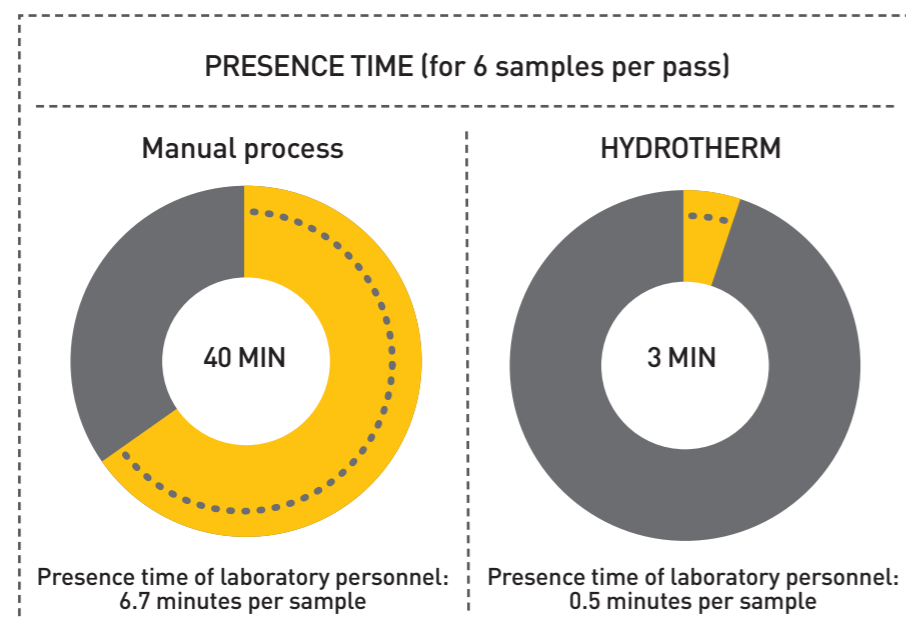
- ✦ **HIGH COST AND WORKING TIME SAVINGS**  
Process runs automatically. The presence of laboratory personnel during this is not required. Up to 80 % cost savings per sample.
- ✦ **HIGH WORK SAFETY**  
Process runs in a closed system. There is no contact with hot liquids and acid fumes. The apparatus reacts automatically in the event of faults.
- ✦ **HIGH ANALYSIS QUALITY**  
Process is software-controlled, checked and exactly documented. Unintended deviations from the method and inaccuracies in the hydrolysis process are ruled out.
- ✦ **HIGH FLEXIBILITY**  
The apparatus also processes very inhomogeneous sample matrices and large sample weights as well as samples with very low fat content.
- ✦ **EASY TO OPERATE**  
HYDROTHERM is preconfigured and ready to use immediately. Numerous parameters can be individually defined.

“Using the preset standard method, 95 % of all samples can be validly analysed.”

“The analysis process runs automatically. The presence of laboratory personnel during this is not required. Cost savings of up to 80 % per sample in comparison with the conventional, manual process.”

## HIGH COST AND WORKING TIME SAVINGS

- ✦ High sample throughput: Six samples can be hydrolysed simultaneously in one pass.
- ✦ Time saving: No laboratory personnel have to be present during the running process. The control, filtration and monitoring of the hydrolysis process are taken over completely automatically by the apparatus.
- ✦ High validity and low error rate: The apparatus continuously provides precise and reproducible digestion results.
- ✦ Space saving: The apparatus is compact and independent of a space in the fume cupboard.
- ✦ Economical: Cooling water and energy control ensure low cooling water consumption.
- ✦ Fast amortisation: You recuperate the purchase costs within a very short time.



## HIGH WORK SAFETY



- ✦ All liquids are added to and disposed of from a closed system.
- ✦ No acid fumes escape.
- ✦ The apparatus can therefore be operated outside a fume cupboard.
- ✦ Laboratory personnel have no contact with hot acids and acid fumes.
- ✦ The risk of acid burns and scalding, which is always present for manual hydrolysis, is reduced to almost zero.
- ✦ Sensitive sensors monitor the process and central functions such as temperature, cooling water, dosing and concentration of the liquids, and the fill levels in the liquid tanks and folded filters.
- ✦ In the event of malfunctions, the apparatus aborts the process automatically.



“The complete process runs in a closed system. Laboratory personnel have no contact with hot liquids and acid fumes. The apparatus reacts automatically in the event of faults.”

“The apparatus provides precise, completely documented digestions. Exactly reproducible at any time. Uncontrolled deviations from the method and inaccuracies in the hydrolysis process are ruled out.”

## HIGH ANALYSIS QUALITY



- ✦ The hydrolysis process is controlled by software and runs automatically.
- ✦ Error sources due to inaccuracies and process deviations by laboratory personnel for manual hydrolysis are ruled out.
- ✦ Sensitive sensors control temperature, cooling water, fill level of the tanks, dosing and addition automatically.
- ✦ Data logging: The control program logs and documents the individual work operations and apparatus values for each hydrolysis process.

### VALIDATED QUALITY

HYDROTHERM has proven its analysis certainty and reliability for fat determination for many years in the laboratories of numerous customers from industry, services and research and in various ring tests.

## HIGH FLEXIBILITY

- ✦ Possible sample weights range from 1 to 20 g for solid samples and up to 50 ml for liquid samples.
- ✦ With this particularly large range, almost all types of food and feed samples can be analysed (also, for example, convenience products, dietary foods, powdered milk and many others).

HYDROTHERM is used everywhere where analysis quality, speed and cost efficiency are required.

HYDROTHERM is successfully used for fat determination for

- ✦ Milk and dairy products
- ✦ Cereals and cereal products
- ✦ Meat and meat products
- ✦ Chocolate and cocoa products
- ✦ Oil and oil seeds
- ✦ Bread and bakery products
- ✦ Fruits
- ✦ Feedstuffs
- ✦ Eggs and egg products
- ✦ Dietary products

and many other raw material and product analyses.

HYDROTHERM observes national and international norms and extraction standards and meets all the required analysis qualities. Application data sheets for all common determinations are available on request.



“HYDROTHERM can process all sample types and sizes. Also very inhomogeneous matrices and large sample weights as well as samples with very low fat content.”

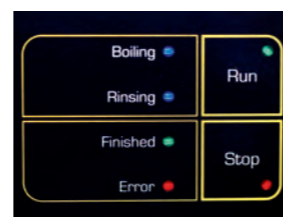


“HYDROTHERM is preconfigured and ready to use immediately. Numerous parameters can be individually defined. Using the preset standard method, 95 % of all samples can be validly analysed.”

## EASY TO OPERATE



- Each module can be individually controlled using the supplied HYDROTHERM Manager software.
- Each module can also be started independently from any computer using the control panel on the apparatus itself.
- Central parameters such as fill quantities, heat energy, duration of the heating and cooling phases and the number of rinse operations can be defined separately for each module.
- Any number of own methods can be programmed and saved.
- The graphical user interface is self-explanatory and intuitive to use.
- The processes of all three modules can be followed clearly next to each other on one screen.
- Process control also via network (remote monitoring).



## SOPHISTICATED DETAILS



- The energy supply for the hotplate can be regulated using the software for each process so that there are optimal digestion conditions.
- The rinsing nozzles function like a shower head: they also rinse all residues from the walls of the digestion tubes. The complete digestion is transferred to the filter without residues.
- The rinsing operations are performed using hot water in compliance with the method. The water is heated in the apparatus itself. Connection to a hot water line is not required.
- Due to special rinsing functions in the condenser and filter area, volatile solids are also acquired and rinsed out.
- The folded filter is wetted with water before every rinsing process. This ensures that the complete digestion is absorbed without residue by the filter and no elements penetrate through the filter.



“Ask for a demonstration of HYDROTHERM”

C. Gerhardt GmbH & Co. KG  
 Cäsariusstraße 97 · 53639 Königswinter  
 Tel.: 0049/(0)2223 2999-0 · www.gerhardt.de



## TECHNICAL DATA

Heaters	6 (3 modules, each with two heaters)
Sample weight	variable, only limited by size of the digestion tube and capacity of the folded filter
Cooling water connection	3/4 inch thread
Cooling water pressure	0.5 – 10 bar
Cooling water consumption	5 l/min
Nominal voltage	230 VAC, 50 – 60 Hz
Nominal power	2200 W
Current consumption	max 9.6 A
Interfaces	2 x RS 485, 1 x CAN bus
Dimensions (W x D x H)	closed 870 x 480 x 880 mm, open 870 x 600 x 960 mm
Weight	approx. 85 kg

### ORDER DATA

Order number: 13-0031

Type: HT6

Description: HYDROTHERM complete with tubing set and software

### CONSUMABLES AND ACCESSORIES

Optimum results are only achieved using original accessory parts from C. Gerhardt. These have been specially developed and tested for use with HYDROTHERM in the Gerhardt application laboratory.

Order number: 1004092

Type: FF240

Description: folded filter Ø 240 mm, pack of 100 pieces  
(other accessories and consumables on request)

### SCOPE OF DELIVERY

- + HYDROTHERM hydrolysis unit
- + Tubing set complete with inlet and outlet tubes
- + Filter set
- + CD-ROM with HYDROTHERM Manager software
- + Level control sensors for reagent and sample waste tanks

### REQUIREMENTS FOR HYDROTHERM MANAGER

PC with Microsoft Windows XP, Vista or Windows 7 operating system  
Serial or USB port for connecting the HYDROTHERM to the PC

## SERVICE AND MAINTENANCE

C. Gerhardt products are quality products for daily routine operation in the laboratory. We only use high quality materials with long service lives to provide you with maximum functionality and reliability.

Laboratory equipment is exposed to high load. Acid fumes, heat, solvents and high sample throughput leave traces on every device.

Tubes and seals must be checked regularly and replaced if necessary. Dosing pumps must be checked and calibrated; soiled glass parts must be cleaned and replaced if necessary.

A maintenance and service agreement from your authorized local C. Gerhardt partner maintains the serviceability and reliability of your HYDROTHERM equipment.

### HYDROTHERM SCOPE OF MAINTENANCE

- + General visual inspection and cleaning
- + Replacement of parts relevant for maintenance
- + Software update (if available)
- + Hardware update (if available)
- + Complete functional test
- + Electrical check
- + Documentation of the work performed
- + Issue of a test sticker

### OTHER SERVICES

- + Repairs on-site or on the premises of C. Gerhardt
- + Cost estimates
- + Help by telephone or E-mail
- + Individual solutions for your equipment pool

### QUALIFICATION IQ/OQ/PQ

It goes without saying that our authorized C. Gerhardt partners also perform the IQ/OQ/PQ in accordance with our manufacturer specifications.

Please ask for an individual maintenance and service contract for equipment from our company.



C. Gerhardt – Quality made in Germany

# AUTOMATING STANDARD ANALYSES

Completely automated laboratory analysis systems from C. Gerhardt are highly developed special equipment. They automate recurring analysis processes in accordance with national and international standards and norms. They continuously provide precise and reproducible analysis results quickly, at low cost, economically and highly efficiently.



## + COMPLETELY AUTOMATIC FAT EXTRACTION

SOXTHERM® – automatic fast extraction system for fat determination.

## + AUTOMATED CRUDE FIBRE DETERMINATION

FIBRE THERM® – completely automated processing of the boiling and filtration processes for determining crude fibre, ADF and NDF.

## + COMPLETELY AUTOMATIC WATER STEAM DISTILLATION

VAPODEST® – fast distillation system for sample determination and water steam distillation.

## + COMPLETELY AUTOMATIC NITROGEN ANALYSIS

DUMATHERM® – nitrogen/protein determination of solid and liquid samples according to the Dumas combustion method. A fast and convenient alternative to the classic Kjeldahl method for almost all sample matrices.

07/2016 | Subject to technical changes

