

ALL AROUND  
TALENT



**UNIVERSAL 320/320 R**  
Benchtop Centrifuges  
classic/cooled

**Hettich**  
ZENTRIFUGEN

There are good reasons why we have called these centrifuges UNIVERSAL. Their excellent performance and comprehensive range of accessories enable them to carry out virtually any centrifuging task. In the low speed range, the UNIVERSAL 320 and 320 R process standard tubes up to a volume of 100 ml, microtitre plates, conical tubes with screw cap, blood collection tubes and cyto accessories.

Microlitre tubes can be accelerated to an RCF of 21,382. Centrifuge tubes taking higher volumes (up to 85 ml) also profit from the extraordinary motor power of the UNIVERSAL 320 / 320 R. At an RCF of 9,418, bacteria and yeast sediment quickly and easily.



UNIVERSAL 320 classic

**Cat. No. 1401**

## PERFORMANCE

- High RCF
  - 85 ml tubes up to 9,418
  - 15 ml tubes up to 16,582
  - Microlitre tubes up to 21,382
- Extremely short run-up and run-down times

## DESIGN

- Metal housing
- Metal lid
- Stainless steel centrifuging chamber
- Viewing port in the lid

## USER-FRIENDLINESS

- Automatic lid-locking
- Quick-entry foil keypad
- Easily exchangeable rotors
- 10 programmable memories

## REFRIGERATION (UNIVERSAL 320 R)

- Infinitely variable setting from – 20 °C to + 40 °C
- Fast cool function

## SAFETY

- Lid locking and holding during rotor run
- Emergency lid-lock release
- Motor-overheating protection
- Chamber-overheating protection (with the UNIVERSAL 320 R)
- Imbalance switch-off
- Automatic rotor recognition
- Lid dropping protection

## OPTIONS

As an option, the UNIVERSAL 320 R is also available

- with connection to an external refrigerated/heating circulator (provided by the customer) – **Cat. No. 1406-50** (without internal cooling unit). Depending on circulator performance, the centrifuge can heat or cool within a range of 0 °C to 90 °C,
- with connection for flushing with nitrogen – **Cat. No. 1406-20** (without monitoring and controlling system).

## OPERATION AND CONTROL

The display panel and all controls on the UNIVERSAL 320 and 320 R centrifuges have been designed ergonomically. Information on the display is clearly positioned and perfectly legible. During centrifugation, the actual parameter values are indicated.


Nine acceleration and braking ramps, or unbraked run-down, can be pre-selected. Ramp 9 always corresponds to the shortest possible run-up or run-down time. The stored parameter combination remains in the memory even after the centrifuge has been switched off.

By entering the rotor radius  $r$ /mm, the centrifuge calculates and indicates the rotational speed RPM or the relative centrifugal force RCF.



The twist knob allows quick and easy entry or changing of the parameters.

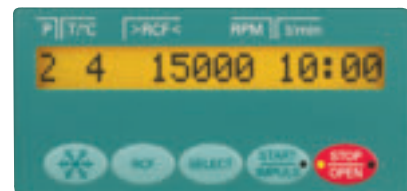
## DIGITAL DISPLAY AND CONTROL PANEL

### KEYPAD

	Precooling (UNIVERSAL 320 R)
RCF	Change-over from RPM to RCF indication
SELECT	Selection of parameters
START	Starts centrifugation /
IMPULS	Short cycle mode
STOP	Stops centrifugation manually /
OPEN	Opens the lid

### ENTRY OF THE PARAMETERS

P	Entry of the program number, 10 programmable memories
T/°C	Entry of the temperature in increments of 1 °C within a range of - 20 °C to + 40 °C (UNIVERSAL 320 R)
RCF	Entry in increments of 10
RPM	Entry in increments of 10
r/mm	Entry of the radius in mm
t/min	Entry of the centrifuging time in minutes and seconds (max. 99 min : 59 sec)
	Entry of the acceleration ramp 1 - 9
	Entry of the braking ramp 1 - 9



UNIVERSAL 320 R control panel



UNIVERSAL 320 R cooled

**Cat No. 1406**