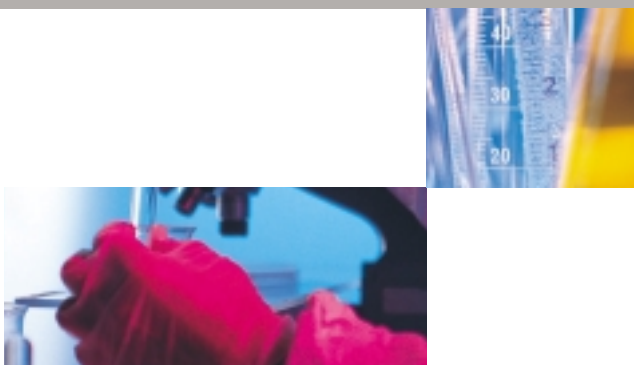


The RTE and EX Series feature superior cooling and heating power, expansive temperature ranges, powerful force and suction pumps, and sophisticated digital control technology to ensure reliable and stable control of your liquid temperature procedures.

## NESLAB RTE Series and EX Series of Bath Circulators

Ideal for cooling and heating below, at, or above ambient temperatures



RTE Series -40°C to +200°C and  
EX Series +15°C to +200°C

typical applications:

- Lasers
- Condensers
- Rotary evaporators
- Reaction vessels
- Calibration
- Analytical instrumentation
- Gel electrophoresis

### Captures Results

Meet the NESLAB power performers: the RTE Series of refrigerated bath circulators and the EX Series of heating bath circulators. Featuring powerful cooling and heating, expansive temperature ranges, and sophisticated controller technology, these robust compact units offer the ultimate in temperature stability and reliability for either external circulation or in-bath applications.

An industrial-grade force and suction pump provides the pressure necessary to circulate fluid long distances to both open containers and closed loop systems. This gives you the flexibility to meet a wide range of application needs.

Both the RTE and EX Series provide excellent agitation in the bath for improved uniformity and stability. The SmartSense controller ensures that your RTE and EX system is performing at its peak.

### Economical Investment

An RTE and EX system is a smart investment. With capabilities that meet a wide range of application needs, these robust systems are designed to reliably achieve results.



Thermo Electron Corporation has a well-established reputation in temperature control through its NESLAB and HAAKE product lines. Formerly independent companies, NESLAB and HAAKE have joined forces within Thermo to provide proven temperature control technology along with global service and support. With over 75 years of extensive industry experience, Thermo professionals worldwide continue to develop and support the solutions that help you analyze, detect, measure, and control your application with increasingly advanced precision.

### NESLAB RTE Series Specifications

	RTE 7	RTE 10	RTE 17	RTE 740
<b>Temperature range</b>	-25°C to + 150°C	-25°C to + 150°C	-25°C to + 150°C	- 40°C to + 200°C
<b>Temperature stability</b>	±0.01°C	±0.01°C	±0.01°C	±0.01°C
<b>Cooling capacity</b>				
60 Hz	500 watts at 20°C	500 watts at 20°C	500 watts at 20°C	800 watts at 20°C
230V/50 Hz	500 watts at 20°C	500 watts at 20°C	500 watts at 20°C	700 watts at 20°C
<b>Heater</b>				
60 Hz	800 watts	800 watts	1600 watts	800 watts
230V/50 Hz	2000 watts	2000 watts	2000 watts	2000 watts
<b>Bath volume*</b>				
gallon	1.9	2.6	4.5	1.9
liter	7	10	17	7
<b>Pumping performance</b>				
50 Hz/60 Hz (LPM)	15 LPM @ 0' head	15 LPM @ 0' head	15 LPM @ 0' head	15 LPM @ 0' head
50 Hz/60 Hz (GPM)	4 GPM @ 0' head	4 GPM @ 0' head	4 GPM @ 0' head	4 GPM @ 0' head
<b>Pump</b>	force/suction	force/suction	force/suction	force/suction
<b>Pump head</b>				
50 Hz/60 Hz	Max head 16' (4.9M)	Max head 16' (4.9M)	Max head 16' (4.9M)	Max head 16' (4.9M)
<b>Unit dimensions</b>				
H x W x D in	23.62 x 9.25 x 17.5	23.62 x 11.38 x 18.88	26.62 x 11.38 x 18.88	26.62 x 11.38 x 18.88
H x W x D cm	60.0 x 23.5 x 44.5	60.0 x 28.9 x 47.9	67.6 x 28.9 x 47.9	67.6 x 28.9 x 47.9
<b>Bath opening/Bath depth</b>				
W x L x D in	6.62 x 7.25 x 6	8.75 x 9.38 x 6	8.75 x 9.38 x 9	6.62 x 7.25 x 6
W x L x D cm	16.8 x 18.3 x 15.2	22.4 x 23.9 x 15.2	22.4 x 23.9 x 22.9	16.8 x 18.3 x 15.2
<b>Power requirements</b>				
115V, 60 Hz	12 amps	12 amps	16 amps	16 amps
100V, 50-60 Hz	12 amps	12 amps	16 amps	16 amps
230V, 50 Hz	12 amps	12 amps	12 amps	12 amps
<b>Unit weight</b>				
lb	59.5	67.25	70.25	87
kg	27	30.5	31.9	39.5

\*Bath reservoir volume is measured to midpoint of designated fill lines.

Note: A remote sensor option allows you to control the temperature in an external vessel. The sensor comprises a resistance temperature detector (RTD) with a tether. The standard tether is 6 ft. long, and a variety of lengths and diameters are available to suit most any application need.

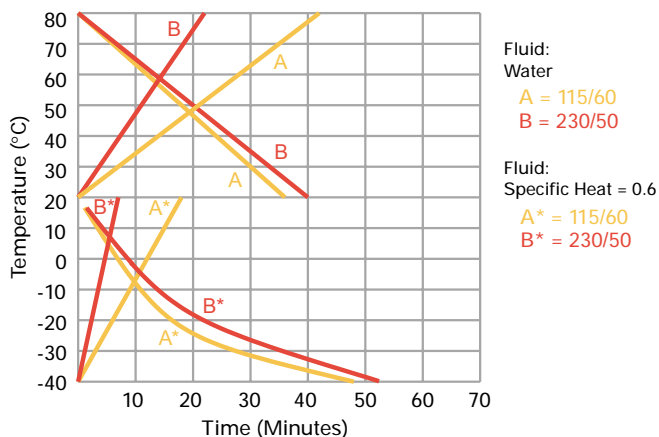
Stability, pump performance and cooling capacity specifications to +5°C were determined using water. Other specifications were determined using fluid with specific heat of 0.6, ambient 20°C. We do not recommend the use of flammable liquids. Specifications subject to change without notice.



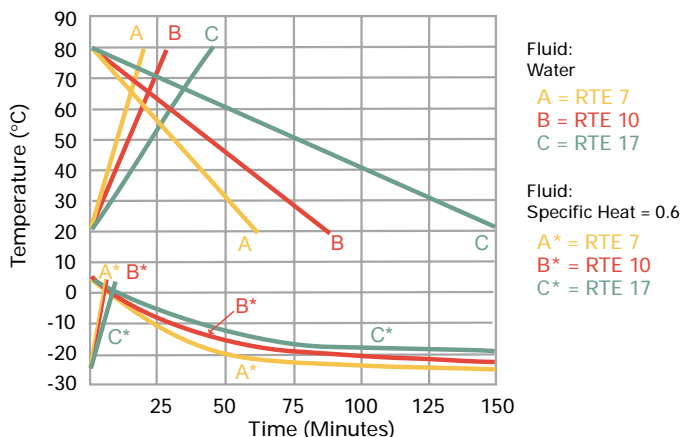
NESLAB RTE Series family

# NESLAB RTE Series Performance Curves

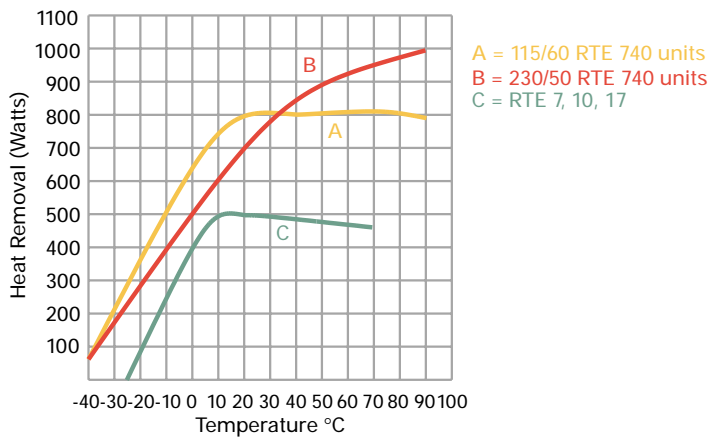
## RTE 740



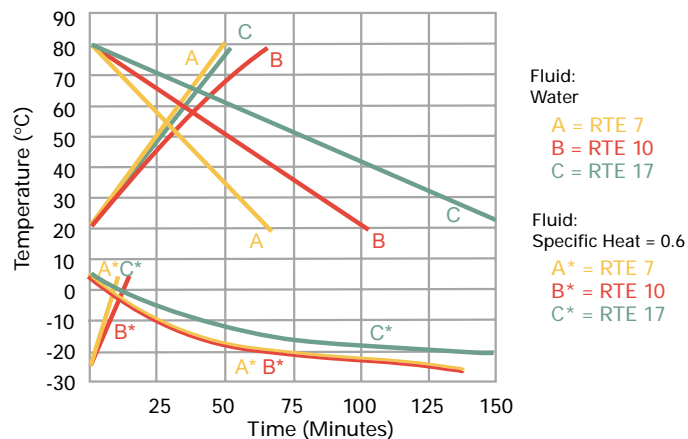
## RTE 7, 10, 17 230V/50 Hz Units



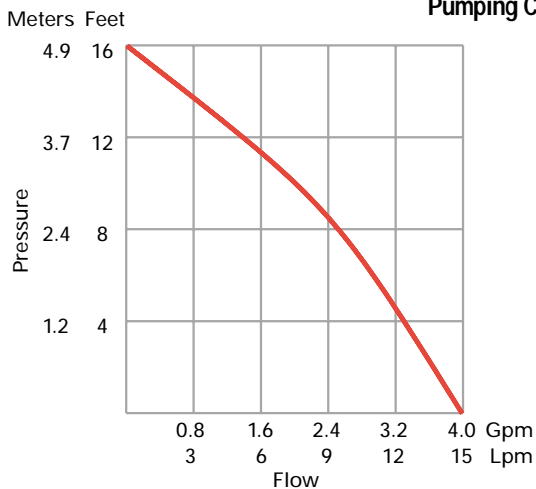
## Cooling Capacity



## RTE 7, 10, 17 115V/60 Hz Units



## Pumping Capacity



## NESLAB EX Series Specifications

	EX 7	EX 10	EX 17	EX 35
<b>Temperature range</b>	Ambient +12°C to 200°C	Ambient +12°C to 200°C	Ambient +12°C to 200°C	Ambient +12°C to 200°C
<b>Temperature stability</b>	±0.01°C	±0.01°C	±0.01°C	±0.01°C
<b>Heater</b>				
60 Hz	800 watts	800 watts	1600 watts	1600 watts
50 Hz	2000 watts	2000 watts	2000 watts	2000 watts
<b>Bath volume*</b>				
gallon	1.9	2.6	4.5	9.3
liter	7	10	17	35
<b>Pumping performance</b>				
50Hz/60 Hz (LPM)	15 LPM @ 0' head	15 LPM @ 0' head	15 LPM @ 0' head	15 LPM @ 0' head
50Hz/60 Hz (GPM)	15 GPM @ 0' head	15 GPM @ 0' head	15 GPM @ 0' head	15 GPM @ 0' head
<b>Pump</b>	force/suction	force/suction	force/suction	force/suction
<b>Pump head</b>				
50 Hz/60 Hz	Max head 16' (4.9M)	Max head 16' (4.9M)	Max head 16' (4.9M)	Max head 16' (4.9M)
<b>Unit dimensions</b>				
W x L x D in	14.62 x 9.25 x 17.5	14.62 x 11.38 x 18.25	17.62 x 11.38 x 18.25	20.62 x 11.38 x 25.38
W x L x D cm	37.2 x 23.5 x 44.5	37.1 x 28.9 x 46.4	44.8 x 28.9 x 46.4	52.4 x 28.9 x 64.5
<b>Bath opening/Bath depth</b>				
W x D x L in	6.62 x 7.25 x 6	8.62 x 9.38 x 6	8.75 x 9.38 x 9	8.75 x 15.5 x 12
W x D x L cm	16.8 x 15.2/23.9	22.4 x 15.2/23.9	22.4 x 15.2/23.9	22.4 x 30.5/39.4
<b>Power requirements</b>				
115V, 60 Hz	9 amps	9 amps	16 amps	16 amps
100V, 50-60 Hz	9 amps	9 amps	16 amps	16 amps
230V, 50 Hz	10 amps	10 amps	10 amps	10 amps
<b>Unit weight</b>				
lb	26.4	32.0	35.6	52.7
kg	12.0	14.5	16.1	23.9

\*Bath reservoir volume is measured to midpoint of designated fill lines.

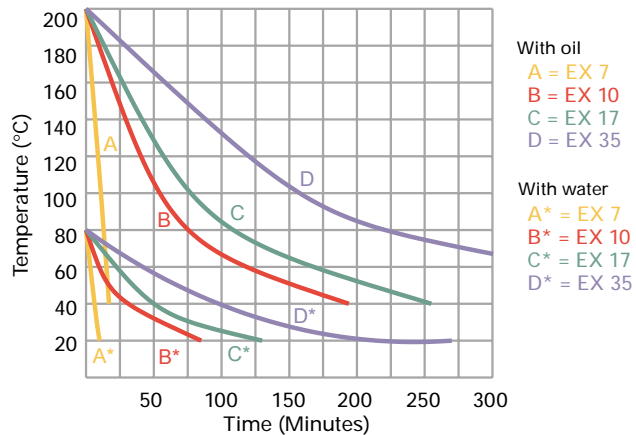
Stability, pump specifications to 90°C were determined using water. Other specifications were determined with silicon oil. Reservoir volume measured to midpoint of designated fill line. Bath opening measured to tank top. Flammable fluids should never be used with these units. Specifications subject to change without notice.



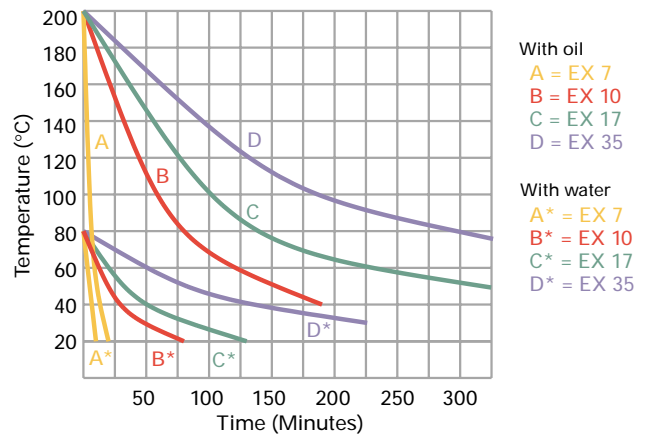
NESLAB EX Series family

## NESLAB EX Series Performance Curves

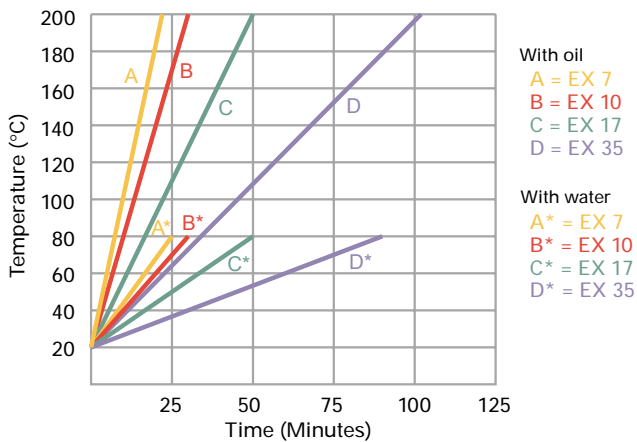
### Ramp Down 230V/50 Hz Units



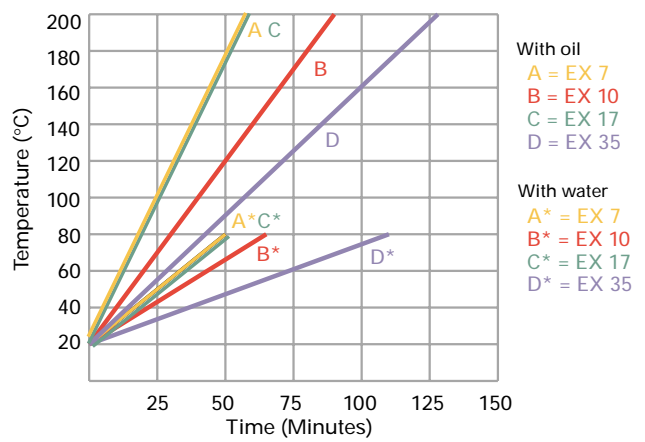
### Ramp Down 115V/60 Hz Units



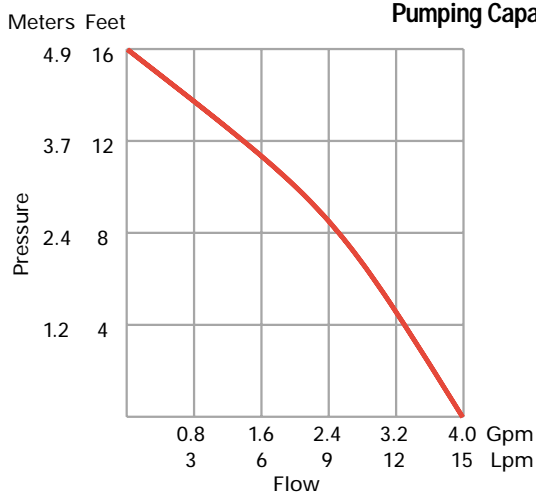
### Ramp Up 230V/50 Hz Units



### Ramp Up 115V/60 Hz Units



### Pumping Capacity



## NESLAB RTE Series and EX Series Features

Feature	Benefit
<b>Full range cooling</b> (RTE Series only)	Allows compressor to operate over entire temperature range
<b>Front grille</b> (RTE Series only)	Allows quick access to the condenser for routine cleaning
<b>Refrigeration system</b> (RTE Series only)	Provides CFC-free refrigeration system for precise temperature control and optimum stability
<b>Tap water cooling coil</b> (EX Series only)	Maintains temperatures near ambient or for rapid cool down from elevated temperatures
<b>Circulating pump</b>	Combines a strong flow rate with unmatched pressure to circulate farther, even through small I.D. tubing delivering consistent flow when working with dense or viscous fluids
<b>Force and suction pump</b>	Provides versatility of circulating through a closed system, open system, or two applications
<b>Heater</b>	Offers rapid heating with no waiting
<b>Stainless steel bath</b>	Convenient easy cleaning. Compatible with a wide range of fluids
<b>Hydro-seal lid with nitrogen purge port</b>	Minimizes moisture build up during low temperature operation
<b>Bath drain</b>	Allows for fast fluid changes
<b>Digital temperature controller</b>	Provides precise setpoint and readout to a resolution of 0.01°C
<b>Handles</b>	Provides easy moving
<b>Low level shut-off device</b>	Prevents unit damage and protects your application
<b>RS-232 and RS-485</b>	Connects to computer directly
<b>Compact design</b>	Maximizes valuable benchtop area
<b>Automatic load reset</b>	Compensates for changes in the bath load, eliminating shifts in setpoint accuracy
<b>Digital display</b>	Offers the user a simple operation and ensures accuracy and reproducibility of procedures
<b>Two-year warranty</b>	Offers peace of mind

## Digital Controllers



### Digital One

- bright LED digital display
- user selectable resolution
- 0.1°C or 0.01°C
- user adjustable low temperature and high temperature alarm limits
- user selectable fault conditions
  - continuous run with visual alert
  - shut down with visual alert
- Compatible with optional auto-refill device
- low reservoir fluid level shut-off



### Digital Plus

Same great features as the Digital One controller plus we've added:

- remote sensor port
- RS-232 and RS-485 communications ports
- on/off timer with clock
- audible safety alarm with mute
- temperature offset display



### Digital Plus with Analog I/O port

Same great features as the Digital Plus with the added ability to communicate via analog (voltage) signal to:

- monitor set point
- change set point
- monitor fault status

## NESLAB RTE Series and EX Series Software Accessories

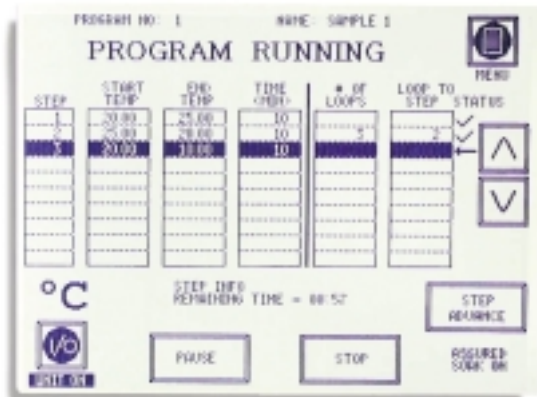
Feature	Benefit
NESLAB NEScom software	Allows you to easily program and automate your entire temperature control process from a PC
RPC remote programming controller	Transforms your Digital Plus controller into one of the most feature-packed controllers available. The easy-to-read, 120mm x 90mm touchscreen uses icons for quick function selection. Includes an RS-232 port for future software upgrade. Comes complete with wall-mounting bracket, power cord and 6' connector cable.



RPC main screen

### Monitor, control and change

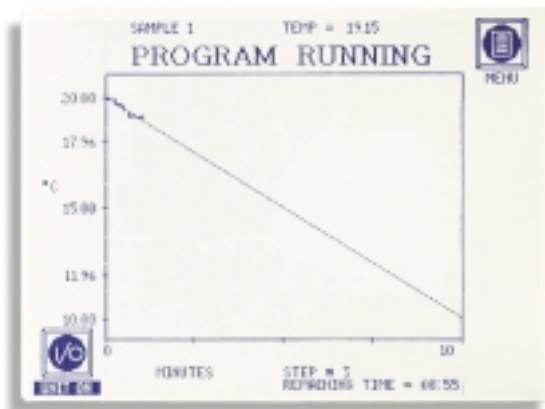
- internal sensor temperature
- temperature setpoint
- remote sensor temperature
- on/off timer
- temperature offset
- temperature alarm limits
- readout resolution



RPC program running screen

### Multistep programming

- 16 savable programs with alphanumeric naming
- 16 steps per program
- time range of 0 to 6500 minutes per step
- step looping
- step to function
- simple spreadsheet format



RPC chart screen

### Chart screen

- visual graph of current ramp step

## NESLAB RTE Series and EX Series Accessories

Feature	Benefit
<b>Reservoir refill system</b>	Attaches easily to the rear of the RTE to conserve space. Runs your equipment worry free and unattended. Automatically refills your bath from a pressured fluid source when the fluid in the bath drops below an acceptable limit due to evaporation. Specify voltage requirements
<b>Anti reservoir overflow device</b>	Connects to your bath circulator's drain line to prevent an accidental overflow of fluid in the reservoir
<b>Remote sensors</b>	Allow remote temperature control of the application. It will maintain the setpoint at any place in the recirculating fluid path. The sensors are platinum RTDs and are compatible with RTE Series and EX Series bath circulators when used with a Digital Plus Controller. Different diameters and lengths are available
<b>Plumbing kits</b>	
Tygon	Allows circulation between -25°C and +100°C and includes 25' of tygon tubing, 25' of tubing insulation, and 4 hose clamps
Silicone	Allows circulation between -100°C and +100°C and includes 25' of silicone tubing, 25' of tubing insulation, and 4 hose clamps
<b>Test tube racks</b>	Offers convenient handles for easy and safe placement or removal. Made of stainless steel for durability
<b>Stainless steel leveling device*</b>	Ensures that the fluid level in the external container remains constant
<b>Flow controller**</b>	Quick and easy set up for external circulation to open container
<b>Ground fault circuit controller</b>	Plugs your RTE unit or EX unit in to the GFCI accessory to provide extra electrical protection when a GFCI wall outlet is not available. May only be used with 115 Volt, 60 Hz units
<b>Ethylene glycol</b>	Allows circulation to temperatures down to -30°C in a 50/50 blend when mixed with water
<b>Chloramine-T algicide</b>	Restricts growth of algae to protect equipment and instrumentation
<b>Silicone oil</b>	Designed for use in high temperature applications from 35°C to 150°C

\*Used with standard ring stand

\*\*Necessary to operate stainless steel leveling device



**FTC 350** — FlowThru cooler for the NESLAB EX Series can achieve temperatures as low as -10°C

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