

# DYNEO DD-1001F-BF DYNEO DD Beer Forcing Test Refrigerated-Heating Circulating Bath

The JULABO Beer Forcing Test Bath in conjunction with a photometer determines the product life of beer before clouding. The simulated aging process is achieved through a programmable temperature profile, which is repeated, until the first clouding develops.

## Your advantages

## USB connection

- For internal and external applications
- Removable ventilation grid
- Space-saving cooling coil design yields more usable space in the bath tank
- Circulator for working temperatures from -95 °C from +200 °C
- All products feature user-friendly, intuitive operation
- Extra bright displays, easy to read from a distance
- State-of-the-art control technology for quick and highly precise results
- Many professional functions for adjusting control paramenters, temperature
- calibration, temperature profiles etc.
- · For internal and external applications
- · Powerful and infinitely adjustable pressure pump
- Flow rate 22 l/min, pressure 0.6 bar
- Large color TFT display, multilingual interface
- · Central rotary knob (controller) simplifies operation
- Integrated programmer
- Integrated external Pt100 connection
- RS232 interface or analog interfaces (optional)
- Powerful cooling machines
- Optimized cooling coil design saves space in the bath tank
- Bath cover included with delivery
- Integrated drain makes emptying liquid easy and safe.

## **Technical data**

Available voltage	versions		Bath				
Order No.	9 021 709		Bath tank	Stainless steel			
Available voltage vers	ions:		Bath cover	integrated			
9 021 709.04	230V/50-60Hz (UI	K Plug Type BS1363A)	Usable bath opening cm (W x L / D)	35 x 41 / 30			
9 021 709.05	230V/50-60Hz (Cl	H Plug Type SEV 1011)					
9 021 709.33	230V/50-60Hz (So Plug Type F)	chuko Plug - CEE 7/4					
9 021 709.33.chn	230V/50-60Hz (Cl	N Plug)					
Cooling			Other				
Cooling of compresso	or	1-stage Air	Classification	Classification III (FL)			
			Pump function	Pressure Pump			
			Pump type	Immersion Pump			
Electronics			Dimensions and volumes				
External pt100 sensor	connection	integrated	Weight kg	73.7			
Integrated programme	er	8x40 steps	Barbed fittings inner diameter	8/12 mm			
Temperature control		PID2	Dimensions cm ( $W \times L \times H$ )	45 x 64 x 95			
Absolute temperature	calibration	3 Point Calibration	Filling volume l	42 56			
Temperature display		3.5" TFT Display	Pump connections	M16x1 male			
Temperature setting		Shaft Encoder					





Electronic Timer hr:min	99 59
Temperature values	
Setting display resolution °C	0.01
Working temperature range °C	-38 +100
Temperature stability °C	±0.01
Ambient temperature °C	+5 +40

## Power and capacities

# 230V/50-60Hz (UK Plug Type BS1363A)

200V/50Hz								200V/60Hz							
Heatin	ig cap	acity k\	N				1.5	Heating capacity kW 1.5							1.5
Coolin	g capa	acity (E	thano	)				Coolin	g capa	acity (E	thanol	)			
°C	20	10	0	-10	-20	-30		°C	20	10	0	-10	-20	-30	
kW	1	0.95	0.85	0.6	0.32	0.12		kW	1	0.95	0.85	0.6	0.32	0.12	
Viscos	Viscosity max. cST 50					Viscos	ity ma	ax. cST					50		
Refrige	erant						R449A	Refrige	erant						R449A
Filling	volum	ne g					170	Filling	volum	ie g					170
Global	Warm	ning Po	tentia	for R4	149A		1397	Global	Warm	ning Po	tential	for R4	149A		1397
Carbor	n dioxi	ide equ	ivalen	tt			0.237	Carbor	n dioxi	ide equ	ivalen	tt			0.237
Pump	capac	ity flov	v rate l	/min			8 27	Pump	capac	ity flov	v rate l	/min			8 27
Pump	capac	ity flov	v press	sure ba	ar		0.1 0.7	Pump capacity flow pressure bar							0.1 0.7
230V	⁄/50⊦	lz						230V/60Hz							
Heatin	ig cap	acity k\	Ν				1.5	Heating capacity kW							1.5
Heating capacity kW 1.5 Cooling capacity (Ethanol)				Cooling capacity (Ethanol)											
Coolin	g capa	acity (E	thano	I)				COOIIII	9 000						
Coolin °C	g capa 20	acity (E 10	thano 0	l) -10	-20	-30		°C	20	10	0	-10	-20	-30	
					-	-30 0.12					0 0.85	-10 0.6	-20 0.32		-
°C	20 1	10 0.95	0 0.85	-10	-	0.12	50	°C	20 1	10 0.95	0.85	-		0.12	50
°C kW	20 1 sity ma	10 0.95	0 0.85	-10	-	0.12	50 R449A	°C kW	20 1 iity ma	10 0.95	0.85	-		0.12	
°C kW Viscos	20 1 sity ma erant	10 0.95 ax. cST	0 0.85	-10	-	0.12		°C kW Viscos	20 1 ity ma erant	10 0.95 ax. cST	0.85	-		0.12	50
°C kW Viscos Refrige	20 1 sity ma erant volum	10 0.95 ax. cST	0	-10 0.6	0.32	0.12	R449A	°C kW Viscos Refrige	20 1 ity ma erant volum	10 0.95 ax. cST	0.85	0.6	0.32	0.12	50 R449A
°C kW Viscos Refrige Filling	20 1 sity ma erant volum Warm	10 0.95 ax. cST ne g ning Po	0 0.85 tential	-10 0.6	0.32	0.12	R449A 170	°C kW Viscos Refrige Filling	20 1 ity ma erant volum Warm	10 0.95 ax. cST e g hing Po	0.85 tential	0.6 for R4	0.32	0.12	50 R449A 170
°C kW Viscos Refrige Filling Global Carbor	20 1 sity ma erant volum Warm n dioxi	10 0.95 ax. cST ne g ning Po	0 0.85 tential ivalen	-10 0.6	0.32	0.12	R449A 170 1397	°C kW Viscos Refrige Filling Global	20 1 ity ma erant volum Warm n dioxi	10 0.95 ax. cST he g hing Po ide equ	0.85 tential	0.6 for R <sup>2</sup> t t	0.32	0.12	50 R449A 170 1397

# 230V/50-60Hz (CH Plug Type SEV 1011)

200V	200V/50Hz										
Heatir	ig capa	acity k'	N	1.8							
Coolin	g capa	acity (E	thanol	)							
°C	20	10	0	-10	-20	-30					
kW	1	0.95	0.85	0.6	0.32	0.12					
Viscos	sity ma	ax. cST				:	50				
Refrig	erant					I	R449A				

200V	//60H	z					
Heatir	ng capa	acity k		1.8			
Coolin	ig capa	acity (E	thanol	)			
°C	20	10	0	-10	-20	-30	
kW	1	0.95	0.85	0.6	0.32	0.12	
Viscos	sity ma	x. cST				1	50
Refrig	erant					I	R449A

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Filling	volum	e g					170			F
Global	Warm	ning Po	tential	for R4	149A		1397	,		G
Carbo	n dioxi	de equ	ivalen	tt			0.23	7		С
Pump	capac	ity flov	v rate l	/min			8 2	27		Ρ
Pump	сарас	ity flov	v press		0.1 0.7					
230V	/50H	lz								2
Heatin	ig capa	acity k'	N				2			F
Coolin	g capa	acity (E	thano	)						C
°C	20	10	0	-10	-20	-30				°
kW	1	0.95	0.85	0.6	0.32	0.12				k
Viscos	sity ma	ax. cST					50			V
Refrig	erant						R449	A		R
Filling	volum	e g					170			F
Global	Warm	ning Po	tential	for R4	149A		1397	,		G
Carbo	n dioxi	de equ	ivalen	tt			0.23	7		C
Pump	сарас	ity flov	v rate l	/min			8 2	27		Ρ
Pump	capac	ity flov	v press	sure ba	ar		0.1	. 0.7		P

Filling	volum	e g		170						
Global	Warm	ing Po	tential	for R4	49A		1397			
Carbo	n dioxi	de equ	ivalen	tt			0.237			
Pump	capac	ity flow	rate l	/min			8 27			
Pump	capac	ity flow		0.1 0.7						
230V	230V/60Hz									
Heatin	g capa	acity kV	V				2			
Coolin	g capa	icity (E	thanol	)						
°C	20	10	0	-10	-20	-30				
kW	1	0.95	0.85	0.6	0.32	0.12				
Viscos	ity ma	x. cST					50			
Refrige	erant						R449A			
Filling	volum	e g					170			
Global	Warm	ing Po	tential	for R4	49A		1397			
Carbo	n dioxi	de equ	ivalen	tt			0.237			
Pump	capac	ity flow	rate l	/min			8 27			
Pump	capac	ity flow	/ press	ure ba	ır		0.1 0.7			

# 230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F)

200V/50Hz						200V/60Hz									
Heatin	ig cap	acity k\	N				1.8	Heating capacity kW 1.8							1.8
Coolin	g capa	acity (E	thanol	)				Cooling capacity (Ethanol)							
°C	20	10	0	-10	-20	-30		°C	20	10	0	-10	-20	-30	
kW	1	0.95	0.85	0.6	0.32	0.12		kW	1	0.95	0.85	0.6	0.32	0.12	
Viscos	sity ma	ax. cST				:	50	Viscos	sity ma	ax. cST					50
Refrig	erant					l	R449A	Refrig	erant						R449A
Filling	volum	ie g					170	Filling	volum	ne g					170
Global	Warm	ning Po	tential	for R4	149A		1397	Global	Warn	ning Po	tential	for R4	149A		1397
Carbo	n dioxi	ide equ	ivalen	tt		(	0.237	Carbo	n diox	ide equ	ivalen	tt			0.237
Pump	capac	ity flov	/ rate l	/min		;	8 27	Pump	сарас	ity flov	v rate l	/min			8 27
Pump	сарас	ity flov	/ press	sure ba	ar	(	0.1 0.7	Pump	capac	ity flov	v press	sure ba	ar		0.1 0.7
230V	⁄/50⊦	lz						230V	/60F	łz					
	eating capacity kW 2							Heating capacity kW 2							
Heatin	ig cap	acity k\	N			:	2	Heatin	g cap	acity k\	N				2
	5 1	acity k\ acity (E		)		:	2		5 1	acity k\ acity (E		l)			2
	5 1	,		) -10	-20	-30	2		5 1	,		l) -10	-20	-30	2
Coolin	g capa	acity (E	thanol 0		-		2	Coolin	g cap	acity (E 10	thanol		-		_
Coolin °C kW	g capa 20 1	acity (E	thanol 0	-10	-	-30 0.12	2 50	Coolin °C kW	g capa 20 1	acity (E 10	thanol 0 0.85	-10	-	-30 0.12	_
Coolin °C kW	g capa 20 1 sity ma	acity (E 10 0.95	thanol 0	-10	-	-30 0.12		Coolin °C kW	g capa 20 1 sity ma	acity (E 10 0.95	thanol 0 0.85	-10	-	-30 0.12	_
Coolin °C kW Viscos	g capa 20 1 sity ma	acity (E 10 0.95 ax. cST	thanol 0	-10	-	-30 0.12	50	Coolin °C kW Viscos	g cap 20 1 sity ma	acity (E 10 0.95 ax. cST	thanol 0 0.85	-10	-	-30 0.12	50
Coolin °C kW Viscos Refrige	g capa 20 1 sity ma erant volum	acity (E 10 0.95 ax. cST	thanol 0 0.85	-10	0.32	-30 0.12	50 R449A	Coolin °C kW Viscos Refrige Filling	g capa 20 1 sity ma erant volum	acity (E 10 0.95 ax. cST	ithanol 0 0.85	-10 0.6	0.32	-30 0.12	50 R449A
Coolin °C kW Viscos Refrigu Filling Global	g capa 20 1 sity ma erant volum	acity (E 10 0.95 ax. cST	thanol 0 0.85 tential	-10 0.6 for R4	0.32	-30 0.12	50 R449A 170	Coolin °C kW Viscos Refrig Filling Global	g capa 20 1 sity ma erant volum Warn	acity (E 10 0.95 ax. cST	ithanol 0 0.85	-10 0.6	0.32	-30 0.12	50 R449A 170
Coolin °C KW Viscos Refrigu Filling Global Carbon	g capa 20 1 sity ma erant volum Warm n dioxi	acity (E 10 0.95 ax. cST ne g ning Po	thanol 0 0.85 tential ivalen	-10 0.6 for R4	0.32	-30 0.12	50 R449A 170 1397	Coolin °C kW Viscos Refrigu Filling Global Carbo	g capa 20 1 sity ma erant volum Warn n diox	acity (E 10 0.95 ax. cST ne g ning Po	ithanol 0 0.85 tential	-10 0.6 for R4	0.32	-30 0.12	50 R449A 170 1397



# 230V/50-60Hz (CN Plug)

200V/50Hz		200V	/60⊦	lz					
Heating capacity kW	1.8	Heatin	g cap	acity k	W				1.8
Cooling capacity (Ethanol)		Cooling capacity (Ethanol)							
°C 20 10 0 -10 -20 -3	0	°C	20	10	0	-10	-20	-30	
kW 0.1 0.95 0.85 0.6 0.32 0.7	2	kW	1	0.95	0.85	0.6	0.32	0.12	
Viscosity max. cST	50	Viscos	ity ma	ax. cST					50
Refrigerant	R449A	Refrige	erant					ļ	R449A
Filling volume g	170	Filling	volum	ie g					170
Global Warming Potential for R449A	1397	Global	Warm	ning Po	tential	for R4	449A		1397
Carbon dioxide equivalent t	0.237	Carbor	n dioxi	ide equ	ivalen	tt		(	0.237
Pump capacity flow rate l/min	8 27	Pump	capac	ity flov	v rate l	/min		;	8 27
Pump capacity flow pressure bar	0.1 0.7	Pump	capac	ity flov	v press	sure ba	ar	(	0.1 0.7
230V/50Hz		230V	/60⊦	lz					
230V/50Hz Heating capacity kW	2	230V Heatin			W			:	2
	2		g cap	acity k		)		:	2
Heating capacity kW		Heatin	g cap	acity k		) -10	-20	-30	2
Heating capacity kW Cooling capacity (Ethanol)	0	Heatin Cooling	g capa g capa	acity k <sup>1</sup> acity (E 10	thanol		-		2
Heating capacity kW Cooling capacity (Ethanol) °C 20 10 0 -10 -20 -3	0	Heatin Cooling °C	g capa g capa 20 1	acity k <sup>1</sup> acity (E 10 0.95	thanol 0 0.85	-10	-	-30 0.12	2 50
Heating capacity kW   Cooling capacity (Ethanol)   °C 20 10 0 -10 -20 -3   kW 1 0.95 0.85 0.66 0.32 0.7	0	Heatin Coolin °C kW	g capa g capa 20 1 ity ma	acity k <sup>1</sup> acity (E 10 0.95	thanol 0 0.85	-10	-	-30 0.12	
Heating capacity kW   Cooling capacity (Ethanol)   °C 20 10 0 -10 -20 -3   kW 1 0.95 0.85 0.6 0.32 0.33   Viscosity max. cST	0 12 50	Heatin Cooling °C kW Viscos	g capa g capa 20 1 ity ma erant	acity k' acity (E 10 0.95 ax. cST	thanol 0 0.85	-10	-	-30 0.12	50
Heating capacity kU   Cooling capacity (Ethanol)   °C 20 10 0 -10 -20 -3   kW 1 0.95 0.85 0.6 0.32 0.7   Viscosity max. cST   Refrigerant	0 2 50 R449A	Heatin Cooling °C kW Viscos Refrige	g capa g capa 20 1 ity ma erant volum	acity k' acity (E 10 0.95 ax. cST	thanol 0 0.85	-10 0.6	0.32	-30 0.12	50 R449A
Heative capacity klassical de la capacity klassical d	0 2 50 R449A 170	Heatin Cooling °C kW Viscos Refrige Filling	g capa g capa 20 1 ity ma erant volum Warm	acity k acity (E 10 0.95 ax. cST e g ning Pc	thanol 0 0.85	-10 0.6 for R4	0.32	-30 0.12	50 R449A 170
Heating capacity kU   Cooling capacity (Ethanol)   °C 20 10 0 -10 -20 -3   °KW 1 0.95 0.85 0.6 0.32 0.7   Viscosity max: cST   Filling volume g   Global Warming Potential for R449A	0 2 50 R449A 170 1397	Heatin Cooline °C kW Viscos Refrige Filling Global	g capa g capa 20 1 iity ma erant volum Warm n dioxi	acity k <sup>1</sup> acity (E 10 0.95 ax. cST ax. cST ne g ning Po	thanol 0 0.85 otential	-10 0.6 for R4	0.32	-30 0.12	50 R449A 170 1397

# Benefits



#### More bath.

Designed for more comfort. Thanks to the recessed cooling coil, the internal bath provides more space.



Solid. Minimized energy loss through high-quality insulation.



#### Condensation protection.

Superb design solution. Integrated ventilation directs air over the bath lid and minimizes condensation.



## Space saving. Free up space.

Place your JULABO Circulator right next to an application, another unit, or wall. That saves space. This is made possible by eliminating vents and connections on the sides.



#### Tidy. The special of

The special drain tap for easy draining of bath fluids without tools.



## 100% Checked.

100% testing. 100% quality. Each JULABO Circulator undergoes thorough quality testing before leaving the factory. technologies.





Green technology. Development consistently applied environmentally friendly materials and



Quick start. Individual JULABO consultation and comprehensive manuals at your disposal.



Services 24/7. Around the clock availability. You can find



RS232. Connection using the optional RS232 interface.

suitable accessories, data sheets, manuals,

case studies, and more at www.julabo.com.



Handle with ease.

Makes day-to-day work easy. Comfortably move your JULABO Circulator around by using the ergonomic handles (front and rear).



# Wide range.

Refrigerated and heating circulator in various combinations, circulator in various sizes. Maximum flexibility through a large selection of accessories.



Analog I/O. Analog interfaces for integration into process



Brilliance. In color. Large color display with vivid luminance is

easy to read, even from a large distance.

control systems (optional).



Multi-lingual. Operation in multiple languages.



Powerful. Adjustable. Strong pressure pump, continuously adjustable.



JULABO. Quality. Highest standards of quality for a long product life



Satisfied customers. 11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.



ATC3. Calibration. 'Absolute Temperature Calibration' for compensating a physically caused temperature difference, 3-point calibration.



USB. Remote control made easy using the integrated USB interface.



Highly precise PID Temperature control with drift compensation and adjustable control parameters, temperature stability ±0.01...±0.02 °C



Process stability. Early warning - visual and acoustic - of critical states increases process stability.



Information. Everything clear. Information in plain text on a large color screen.



Programmer. Integrated. The integrated internal programmer makes it possible to automatically run temperature time profiles.



Temperature. Under control. External Pt100 sensor connection for precise measurement and control directly in the external application.



Turn. Push. Go. Easy operation of all parameters using the central controller.

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Fill level. Monitored. Fill level indicator on the display for heattransfer liquid.



# Stable. Mobile.

Rubber feet keep JULABO Circulators standing firm. Larger and more powerful units also have integrated rollers for easy handling.



## 100 % Cooling capacity

'Active Cooling Control' for cooling available throughout the entire working temperature range, fast cool-down even at higher temperatures



### **Process. Under control.** Full regulation of the dynamics control, access to all important control parameters for individual process optimization.



## Connection. Easy.

Inclined pump connections (M16×1) facilitate the connection of applications. Each unit includes 2 barbed fittings of 8/12 mm diameter each.

#### Highest measuring accuracy

'Absolute Temperature Calibration' for manual compensation of a temperature difference, 3point calibration