



BOECO CENTRIFUGE U-320



BOECO CENTRIFUGE U-320R

BOECO CENTRIFUGES U-320 / U-320R

Because of their comprehensive range of accessories, the U-320 and U-320R centrifuges are the perfect universal centrifuges for routines in basic research and R&D laboratories of the pharmaceutical and biotechnical industry. The microprocessor controlled centrifuges have a brushless frequency drive (no carbon brushes) and a motorized lid locking.

Performance

- ▶ High RCF
- ▶ Extremely short run-up and run-down times

Design

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

Refrigeration (U-320R)

- ▶ Infinitely variable setting from $-20\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$
- ▶ Fast Cool function

User-Friendliness

- ▶ Automatic lid locking
- ▶ Emergency lid-lock release
- ▶ Easily exchangeable rotors
- ▶ 10 programmable memories
- ▶ 9 acceleration and braking ramps, or unbroken run-up or run down time

Safety

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

Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ Change-over RPM/RCF: by entering the rotor radius r/mm the Centrifuge will calculate/indicate speed or RCF.
- ▶ Time preselection in steps of minutes and seconds / Continuous operation
- ▶ Temperature $T/^{\circ}\text{C}$: Input in increments of 1°C
- ▶ Impulse key: For short centrifugation operations

The U-320 / U-320R conform to safety regulations such as IEC 61010 or the CE mark and all relevant EC standards and DIN norms and have been manufactured under ISO 9001:2000

Technical details






















	U-320	U-320 R
Max RPM (speed) / RCF:	15000 RPM / 21.382 RCF	
Noise Level: (dependent on rotor)	$\leq 68\text{ dB (A)}$	$\leq 58\text{ dB(A)}$
Dimensions in mm (HxWxD):	346 x 395 x 520	346 x 401 x 695
Net weight:	approx 29 kg	52 kg
Radio interference:		EN 55011 ISM class B
Immunity:		EN 61000-6-2

Code	Description
BOE 01401-13	BOECO centrifuge U-320, 230-240V, 50-60 Hz, without rotor
BOE 01401-12	BOECO centrifuge U-320, 110-127V, 60 Hz, without rotor
BOE 01406-13	BOECO refrigerated centrifuge U-320R, 230-240V, 50-60 Hz, without rotor
BOE 01406-12	BOECO refrigerated centrifuge U-320R, 110-127V, 60 Hz, without rotor

































Swing-out rotor, 4-place,
n= 4,000 min⁻¹,
RCF 2,665,
for max. 4 x 100 ml.



capacity in ml	5	9	9	15	15	20	25	45	50	50
dimensions Ø x L mm	12/13x75	14 x 100	14 x 100	17 x 100	17 x 100	21 x 100	24 x 100	31 x 100	34 x 100	34 x 100
										
n=4,000 min ⁻¹ Cat.-No. 01624										
Cat.-No.	01372	01370	01741	01369	01742	01346	01745	01345	01308	01746
tubes per rotor	68	20	40	16	28	8	8	4	4	4
RCF	2,164	2,308	2,415	2,308	2,415	2,361	2,415	2,361	2,290	2,415
radius in mm	121	129	135	132	137	132	137	132	128	137
run-up in sec	20									
run-down in sec	☐ 25 ☐ 390									
temperature °C ¹⁾	- 17									















☐ braked
run-down
at level 9
☐ unbraked
run-down

Please take care
not to exceed
the tubes' max.
permissible RCF!
1) Lowest attain-
able temperature
in the U-320 R
at max. speed.

capacity in ml	1	3	5/6/7	10	9/15	25	30	50	50	85	100	15	50	1.6 - 7	4 - 10
dimensions Ø x L mm	6 x 45 rhesus	10 x 60	12 x 82/100	16 x 80	14/17 x 100	24 x 100	26 x 95	29 x 107	34 x 100	38 x 106	44 x 100	17 x 120	29 x 115	13x75/100	16x75/100
lid 01382															
Cat.-No.01381															
Cat.-No.	01339	01343	01383	01348	01329	01330	04417	04416	01331	01396	00761	01347	01384	01383	01348
tubes per rotor	108	36	20	16	16	4	4	4	4	4	4	4	4	20	16
RCF	2,594	2,630	2,558	2,522	2,540	2,433	2,451	2,630	2,397	2,612	2,558	2,665		2,558	2,522
radius in mm	145	147	143	141	142	136	137	147	134	146	143	149		143	141
run-up in sec	30														
run-down in sec	☐ 25 ☐ 390														
temperature °C ¹⁾	- 15														
















Swing-out rotor, 4-
place, No 01494,
n= 5,000 min⁻¹,
max. RCF 4,193,
illustrated with buckets
01427

capacity ml	1.5/2.0	1	3	5	6	7	9	15	25	50	15	25	30	50
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10 x 60	13 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	17 x 120	25 x 90	25 x 110	29 x 115
lid Cat.-No. 01421 Cat.-No. 01427														
Cat.-No.	05277	01357	01327	01732	05229	05230	05237	05231	05232	05233	05275	01731	05272	05276
tubes per rotor	36	120	48	32	48	48	24	24	8	4	4	8	4	4
RCF	4,109	4,081	4,053	4,025	4,053	3,941		141		4,165		3,969	4,025	4,053
radius in mm	147	146	145	144	145	141		141		149		142	144	145
run-up in sec	30													
run-down in sec	☐ 32 ☐ 1600													
temperature °C ¹⁾	- 7													

2) When using these tubes, bucket 01427 cannot be closed with lid 01421



Swing-out rotor, 4-place,
No 01494,
n= 5,000 min⁻¹,
max. RCF 4,193,
illustrated with buckets
01425

capacity ml	1.5/2.0	1	3	5	6/7	9/15	25	50	100	50	50	1.6 - 7	4 - 10
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10 x 60	13 x 75/82	12x82/100	14/17x100	24 x 100	34 x 100	44 x 100	29 x 115	29 x 115	13 x 75/100	16 x 75/100
Cat.-No 01425													
Cat.-No.	01444	01432	01433	01438	01434	01431	01435	01436	01437	01443	01737	01438	01441
tubes per rotor	36	144	56	28	48	28	8	4	4	4	4	28	
RCF	3,885	3,969	3,913		3,913		3,801		4,081		3,913		
radius in mm	139	142	140		140		136		146		140		
run-up in sec	30												
run-down in sec	☐ 32 ☐ 600												
temperature °C ¹⁾	- 10												

capacity ml	1.5/2.0	1	3	5	6/7	9/15	25	50	100	10	30	50	85	15	50	12	25	30	50	
dimensions Ø x L mm	11 x 38	6 x 45 mesus	10x60	13x75	13x82/100	14/17x100	24 x 100	34 x 100	44 x 100	16x80/100	26x95	29x107	38x106	17x120	29x115	17x100	25 x90	25x110	29x115	
lid No. 01382 biocontainment ⁵¹																				
Cat.-No. 01430																				
Cat.-No.	01351	01339	01343	01383	01383	01329	01330	01331	00761	01348	04417	04416	01396	01347	01384	06311	01363	01365	06318	
tubes per rotor	20	108	36	20	20	16	4	4	4	16	4	4	4	4				4	4	4
RCF	3,857	4,081	4,137	4,025	4,025	3,997	3,829	3,801	4,025	4,025	3,857	4,137	4,109	4,193		3,689		4,193		
radius in mm	138	146	148	144	144	143	137	136	144	144	138	148	147	150		132		150		
run-up in sec	30																			
run-down in sec																				
temperature °C ⁵¹	- 10																			



Swing-out rotor, 4-place, 01324 illustrated with suspension 01398 and adapter 01483 n = 4,000 min⁻¹, RCF 3,305, for max. 4 x 100 ml.

capacity ml	9	15	2,6-2,9	4-5,5	9-10	10	4-7	15	50	12	50
dimensions Ø x L mm	14x100	17x100	13x65	15x75	16-92	15-102	16 x 75	17x120	29x115	17x100	29x115
lid No. 01398											
Cat.-No.	01482	01482	01482	01482	01483	01484	01482	01484			
tubes per rotor	16				16	4	16	4			
RCF	3,192				3,305	3,260	3,192	3,260			
radius in mm	141				46	144	141	144			
run-up in sec	30										
run-down in sec											
temperature °C ⁵¹	- 6										

capacity ml	1.5/2.0	1	3/4	5	6/7	9/15	25	50	100	10	30	50	85	15	50	12	25	30	50	
dimensions Ø x L mm	11 x 38	6 x 45 mesus	10x60/88	13x75	13x82/100	14/17x100	24 x 100	34 x 100	44 x 100	16x80/100	26x95	29x107	38x106	17x120	29x115	17x100	25 x90	25x110	29x115	
lid No. 01382 biocontainment ⁵¹																				
Cat.-No. 01390																				
Cat.-No.	01351	01339	01343	01383	01383	01329	01330	01331	00761	01348	04417	04416	01396	01356	01347	01384	06311	01363	01365	06318
tubes per rotor	20	108	36	20	20	16	4	4	4	16	4	4	4	12	4				4	4
RCF	3,056	3,237	3,283	3,192	3,192	3,170	3,034	3,011	3,192	3,147	3,056	3,283	4,260	3,328		3,689		4,193		
radius in mm	135	143	145	141	141	140	134	133	141	139	135	145	144	147		132		150		
run-up in sec	30																			
run-down in sec																				
temperature °C ⁵¹	- 6																			



Swing-out rotor, 8-place, n = 4,000 min⁻¹, RCF 2,415, for 8 x 15 ml, stainless steel, with suspensions No. 01644, PA, fibreglass reinforced.

capacity in ml	5	10	10	15
dimensions Ø x L mm	12/13x75	17 x 70	13 x 100	17 x 100
n = 4,000 min ⁻¹				
Cat.-No. 01611				
Cat.-No.	01131	01132	01643	01644
tubes per rotor	8	8	8	8
RCF	1,914		2,415	
radius in mm	107		135	
run-up in sec	20			
run-down in sec				
temperature °C ⁵¹	-16			



Swing-out rotor, 12-place, n = 5,000 min⁻¹, RCF 4,187, for 12 x 15 ml, stainless steel, with suspensions No. 01621, PA, fibreglass reinforced.

capacity in ml	5	10	15
dimensions Ø x L mm	12/13 x 75	17 x 70	17 x 100
n = 5,000 min ⁻¹			
Cat.-No. 01628			
Cat.-No.	01127	01122	01621
tubes per rotor	12	12	12
RCF	3,488	3,530	4,187
radius in mm	125	126	150
run-up in sec	16		
run-down in sec			
temperature °C ⁵¹	-15	-10	



Swing-out rotor, 8-place,
n= 5,000 min⁻¹,
RCF 3,875,
for 8 x 50/15 ml,
stainless steel, with
suspensions, aluminium.

capacity in ml	15	50
dimensions Ø x L mm	17 x 120	29 x 115
n=5,000 min ⁻¹ Cat.-No. 01617		
Cat.-No.	01462A	-
tubes per rotor	8	
RCF	3,875	
radius in mm	138	
run-up in sec	20	
run-down in sec	☐ 19 ☐ 380	
temperature °C ¹⁾	- 10	



Swing-out rotor, 6-place,
n= 4,000 min⁻¹,
RCF 2,701,
for 6 x 50/15ml Falcon
tubes, stainless steel, with
suspensions, PA, fiberglass
reinforced.

capacity in ml	15	50
dimensions Ø x L mm	17 x 120	29 x 115
n=4,000 min ⁻¹ Cat.-No. 01619		
Cat.-No.	01462A	-
tubes per rotor	6	
RCF	2,701	
radius in mm	151	
run-up in sec	20	
run-down in sec	☐ 22 ☐ 265	
temperature °C ¹⁾	- 15	



Swing-out rotor,
2-place, n=4,000 min⁻¹,
RCF 2,218,
for microtitre plates,
aluminium, coated,
with suspensions No.
01453, stainless steel.

	microtitre plate	culture plate	deep well plate	MS	QP
n=4,000 min ⁻¹ Cat.-No. 01460					
Cat.-No.	01453				
plates per rotor	10	8	8	2	2
RCF	2,218				
radius in mm	124				
run-up in sec	40				
run-down in sec	☐ 45 ☐ 1.130				
temperature °C ¹⁾	-6				



Swing-out rotor,
4-place,
n= 4,000 min⁻¹,
RCF 1,896,
for microtitre
plates, rotor and
carriers No.04345
of stainless steel.

	microtitre plate	culture plate
n=4,000 min ⁻¹ Cat.-No. 01645		
Cat.-No.	04345	
plates per rotor	4	
RCF	1,896	
radius in mm	106	
run-up in sec	20	
run-down in sec	☐ 19 ☐ 800	
temperature °C ¹⁾	- 16	



Angle rotor,
Cat. No. 01620 A
6-place,
n= 9,000 min⁻¹,
max RCF 9,418.
illustrated with adapter set
01646

capacity in ml	10	15	30	50	50/75	85	15	50
dimensions Ø x L mm	16 x 80	17 x 100	26 x 95	29 x 107	34 x 100 35 x 105	38 x 106	17 x 120	29 x 115
n=9,000 min ⁻¹ Cat.-No. 01620A								⁴⁾
Cat.-No.	01448	01451	01447	01446	01463	-	01466	01646
tubes per rotor	12	6	6	6	6	6	6	6
RCF	8,784	8,784	8,603	9,056	9,327	9,418	8,965	
radius in mm	97	97	95	100	103	104	99	
run-up in sec	30							
run-down in sec	☐ 30 ☐ 970							
temperature °C ¹⁾	- 11							

4) Adapter set, 6-place, for conical 50 ml tubes with screw cap

1) Lowest attainable temp. in pre-cooled refrigerated centrifuges at max. speed

☐ braked run-down at level 9
☐ unbraked run-down

Please make sure not to exceed the tubes max. permissible RCF. For glass tubes the max RCF us 4.000



Angle rotor,
Cat. No. 01613
12-place,
n= 6,000 min⁻¹, max
RCF 4,146













capacity in ml	5	15	15
dimensions Ø x L mm	12/13 x 75	17 x 100	17 x 120
n=6,000 min ⁻¹ Cat.-No. 01613			
Cat.-No.	01054A	-	-
tubes per rotor	12	12	6
RCF	3,300	4,146	
radius in mm	82	103	
run-up in sec	15		
run-down in sec	☐ 15 ☐ 570		
temperature °C ¹⁾	- 16		



Angle rotor,
Cat. No. 01615
12-place,
n= 12,000 min⁻¹,
max RCF 16,5821,








capacity in ml	5	15	15
dimensions Ø x L mm	12/13x75	17 x 100	17 x 120
n=12,000 min ⁻¹ Cat.-No. 01615			
Cat.-No.	01054A	-	-
tubes per rotor	12	12	6
RCF	13,201	16,582	
radius in mm	82	103	
run-up in sec	40		
run-down in sec	☐ 40 ☐ 840		
temperature °C ¹⁾	-2		



capacity in ml	15	15	50	12	50	50
dimensions Ø x L mm	17 x 100	17 x 120	29 x 115	17 x 100	29 x 115	29 x 107
 n=4,500 min ⁻¹ Cat.-No. 01418						
	+ 00716 	+ E2109 	+ E2110 	+ 00716 		
Cat.-No.	01467	01467	01468	01467	01468	
tubes per rotor	32					
RCF	3,215	3,283	3,147	3,215	3,147	
radius in mm	142	145	139	142	139	
run-up in sec	30					
run-down in sec	<input type="checkbox"/> 30 <input type="checkbox"/> 640					
temperature °C ¹⁾	-11					










Angle rotor,
Cat. No. 01420
 24-place,
 n= 15,000 min⁻¹,
 max RCF 21,382

capacity in ml	1.5	0.5/0.8	0,2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
 Lid OE2040 incl. n= 15,000 min ⁻¹ Cat.-No. 01420				
	with high speeds we recommend to use adapter No. 02031 			
Cat.-No.	-	02023	02024	-
tubes per rotor	24			
RCF	21,382			
radius in mm	85			
run-up in sec	25			
run-down in sec	<input type="checkbox"/> 24 <input type="checkbox"/> 550			
temperature °C ¹⁾	-4			



Angle rotor,
Cat. No. 01689
 30-place,
 n= 14,000 min⁻¹
 max RCF 21,255

capacity in ml	1.5	0.5/0.8	0,2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
 n=14,000 min ⁻¹ Cat.-No. 01689				
	with high speeds we recommend to use adapter No. 02031 			
Cat.-No.	-	02023	02024	-
tubes per rotor	30			
RCF	21,255			
radius in mm	97			
run-up in sec	35			
run-down in sec	<input type="checkbox"/> 31 <input type="checkbox"/> 770			
temperature °C ¹⁾	-0			

Optional for rotor 01420



Lid (Cat. No. 02425
 with bio-containment
 autoclavable



Lid (Cat. No. 02423
 with bio-containment
 autoclavable,
 phenol-resistant

1) Lowest attainable temp. in pre-cooled refrigerated centrifuges at max. speed

- braked run-down at level 9
- unbraked run-down

Please make sure not to exceed the tubes max. permissible RCF. For glass tubes the max RCF us 4.000



Cyto rotor, 6-place, aluminium, coated with cyto suspensions, suitable for U-320 and U-320R more information is available in a detailed cyto brochure.