



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 centrifugation chamber
- ▶ Viewing port in the lid

Refrigeration (U-320R)

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

User-Friendliness

- ▶ Automatic lid locking
- ▶ Easily exchangeable rotors
- ▶ 10 programmable memories
- ▶ 9 acceleration and braking ramps, or unbroken 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 9001:2008

Technical details

	U-320	U-320 R
Max. Capacity:	4 x 200 ml,	
Max. RPM (speed) / RCF:	16,000 RPM / 24,900 RCF	
Noise level:	$\leq 68 \text{ dB (A)}$	$\leq 64 \text{ dB(A)}$
(dependent on rotor)		
Dimensions in mm (HxWxD):	346 x 395 x 520	346 x 401 x 695
Net weight:	approx 31 kg	53 kg
Emission / Immunity:	EN IEC 61326-1, class B / FCC Class B	

Code

Description

BOE 01401-13	BOECO centrifuge U-320, 200-240 V, 50-60 Hz, without rotor
BOE 01401-12	BOECO centrifuge U-320, 100-127 V, 50-60 Hz, without rotor
BOE 01406-13	BOECO refrigerated centrifuge U-320R, 200-240 V, 50 Hz / 240 V, 60 Hz, without rotor
BOE 01406-12	BOECO refrigerated centrifuge U-320R, 115-127 V, 60 Hz, without rotor

Swing-out rotor 01624,
4-place, illustrated with
carriers 01369
 $n = 4,000 \text{ min}^{-1}$,
max. RCF 2,665
max. cap. 4 x 100 ml.



Swing-out rotor,
No. 01624, 4-place,
 $n = 4,000 \text{ min}^{-1}$,
max. RCF 2,665
for max. 4 x 100 ml

capacity in ml	5	4-7	9	9	15	1,6 - 7	15	20	25	45	50
dimensions Ø x L mm	12/13x75	13 x 100	14 x 100	14 x 100	17 x 100	12/13x75 16 x 75	17 x 100	21 x 100	24 x 100	31 x 100	34 x 100
											
$n = 4,000 \text{ min}^{-1}$ Cat.-No. 01624											
Cat.-No.	01372	01739	01370	01741	01369	01742	01742	01346	01745	01345	01746
tubes per rotor	68	28	20	40	16	28	28	8	8	4	4
RCF	2,164	2,451	2,308	2,415	2,308	2,325	2,415	2,361	2,451	2,361	2,451
radius in mm	121	137	129	135	129	130	137	132	137	132	137
run-up in sec. ²⁾	20	22		20		22		20			
run-down in sec. ²⁾						25					
temperature °C ¹⁾		- 17		- 15	- 17	- 15	- 15	- 15	- 15	- 17	- 15

1) Lowest attain-
able temperature
in the U-320 R at
max. speed.

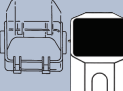
2) braked
run-down

Please take care
not to exceed the
tubes' max.
permissible RCF!

capacity in ml	1	3	1,6-7	4-10	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	13 x 75/100	16 x 75/100	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	13 x 75/100	16 x 75/100
															
Cat.-No. 01481															
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	2,415	2,612	2,558	2,665	2,665	2,558	2,522
radius in mm	145	147	143	141	142	136	137	147	135	146	143	149	149	143	141
run-up in sec									20						
run-down in sec. ²⁾									25						
temperature °C ¹⁾									- 15						



Swing-out rotor, No. 01494
4-place,
 $n = 5,000 \text{ min}^{-1}$,
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
														
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			4,165	3,969	4,025	4,053
radius in mm	147	146	145	144	145			141			149	142	144	145
run-up in sec								30						
run-down in sec. ²⁾								32						
temperature °C ¹⁾								- 7						

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



Swing-out rotor, No. 01494
4-place,
 $n = 5,000 \text{ min}^{-1}$,
max. RCF 4,193
illustrated with buckets 01425

capacity ml	1.5/2.0	1	3	2,6-7	5/6/7	9/15	25	50	100	15	50	50	4 - 10
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10 x 60	11 x 100	12 x 75-100	14/17 x 100	24 x 100	34 x 100	44 x 100	17 x 120	29 x 115	29 x 115	16 x 75/100
													
Cat.-No. 01425													
Cat.-No.	01444	01432	01433	01438	01434	01431	01435	01436	01437	01442	01443	01737	01441
tubes per rotor	36	144	56	28	48	28	8	4	4		4		28
RCF		3,969			3,913			3,801		4,081			3,913
radius in mm	139	142			140			136		146			140
run-up in sec								30					
run-down in sec. ²⁾								32					
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 Rhesus	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. 01492 biocontainment ⁵⁾																			
Carrier Cat.-No. 01495																			
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		4,193		3,689		4,193
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. ²⁾										32									
temperature °C ¹⁾										-10									



Swing-out rotor 01324,
4-place, illustrated with
suspension 01398 and
adapter 01483
n= 4,500 min⁻¹,
max. RCF 3,260



Swing-out rotor 01324,
4-place, illustrated with
carrier 01490 and lids
01492
n= 4,500 min⁻¹,
max. RCF 3,328
for max. 4 x 100 ml

capacity ml	9	15	2,6-3,4	4-5,5	9-10	10	4-7	15	50	12	50
dimensions Ø x L mm	14x100	17x100	13x65	15x75	16x92	15x102	16 x 75	17x120	29x115	17x100	29x115
 Carrier Cat.-No. 01398											
Cat.-No.	01482-A	01486	01482-A	01482-A	01482-A	01483-A	01484	01482-A	01484		
tubes per rotor	16	20	16	16	16	16	16	4	16	4	
RCF	3,192	3,147	2,875	3,192	3,034	3,305	3,260	3,192	3,260		
radius in mm	141	139	127	141	134	146	144	141	144		
run-up in sec						27					
run-down in sec. ²⁾						30					
temperature °C ¹⁾						-6					

capacity ml	1.5/2.0	1	3/4	5	6/7	9/15	25	50	100	4-10	30	50	85	15	50	12	25	30	50	
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10x60/88	12/13x75	13x82/100	14/17x100	24 x 100	34 x 100	44 x 100	16x75/100	26x95	29x107	38x106	17x120	29x115	17x100	25 x90	25x110	29x115	
lid No. 01492 biocontainment ⁵⁾																				
Carrier Cat.-No. 01490										rubber insert										
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					
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	3,260	3,328			2,920		3,328	
radius in mm	135	143	145	141	141	140	134	133	141	139	135	145	144	147			129		147	
run-up in sec											27									
run-down in sec. ²⁾											30									
temperature °C ¹⁾											-6									



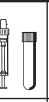
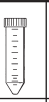
Swing-out rotor, 8-place,
n= 4,000 min⁻¹,
max. RCF 2,415,
for 8 x 15 ml,
stainless steel,
with suspensions No.
01644, PA, fibreglass
reinforced.

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-A	01132-A	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. ²⁾			20	
temperature °C ¹⁾			-16	



Swing-out rotor, 12-place,
n= 5,000 min⁻¹,
max. RCF 4,193,
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-A	01122	01621
tubes per rotor	12	12	12
RCF	3,494	3,522	4,193
radius in mm	125	126	150
run-up in sec		16	
run-down in sec. ²⁾		16	
temperature °C ¹⁾		-15	-10

capacity ml	1.5/2.0	5	5-7	1,6-7	9/15	25	50	85	100	125/150	200	30	50	15	50	12	25/30	50
dimensions Ø x L mm	11 x 38	17x59	12x75/100	13x75/100	14/17x100	24 x 100	34 x 100	38x101/6	44 x 100	51x100/116	56 x 112	26 x 95	29 x 107	17 x 120	29 x 115	17 x 100	25x90/110	29x115
																		
																		
Cat.-No.	01571	01593	01589	01589	01588	01573	01574	01575	01576	01594	-	01585	01586	01577	01595	01579	01582	01583
tubes per rotor	56	16	28	28	20	4	4	4	4	4	4	4	4	8	12	4	16	4
max. RCF	3,328 / 2,332	3,328	3,215	3,215	3,215	3,056	3,147	3,260	3,147	3,328	3,328	3,260	3,260		3,328		3,260	3,328
radius in mm	147/103	147	142	142	142	135	139	144	139	147	147	144	144	147		144		147
run-up in sec	28																	
run-down in sec. ²⁾	31																	
temperature °C ¹⁾	-8																	

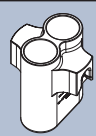
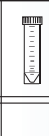
90°



Swing-out rotor, 01554, 4-place, illustrated with carrier 01560 and lids 01561

n= 4,500 min⁻¹,
max. RCF 3,328
for max. 4 x 200 ml

Swing-out rotor
01554, 4-place,
illustrated with
carrier 01563

capacity in ml	12	15	50	50
dimensions Ø x L mm	17 x 100	17 x 120	29 x 115	29 x 115
				
Cat.-No.	01592	01592	-	-
tubes per rotor	8			
RCF	3,260			
radius in mm	144			
run-up in sec	28			
run-down in sec. ²⁾	31			
temperature °C ¹⁾	-8			

90°



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
		
Cat.-No.	01462-A	-
tubes per rotor	6	
RCF	2,701	
radius in mm	151	
run-up in sec	20	
run-down in sec. ²⁾	22	
temperature °C ¹⁾	-15	

45°



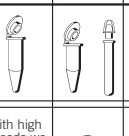
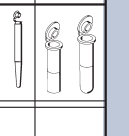
Swing-out rotor, 8-place,
n= 5,000 min⁻¹,
RCF 3,857,
for 8 x 50/15 ml,
stainless steel, with
suspensions, aluminium.

capacity in ml	15	50
dimensions Ø x L mm	17 x 120	29 x 115
		
Cat.-No.	01462-A	-
tubes per rotor	8	
RCF	3,857	
radius in mm	138	
run-up in sec	20	
run-down in sec. ²⁾	19	
temperature °C ¹⁾	-10	

45°



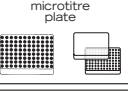
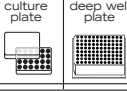
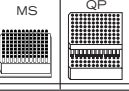
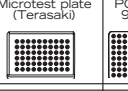
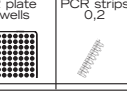
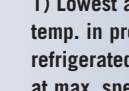
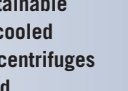
Swing-out rotor,
24-place, with bioseal,
phenol-resistant lid
n= 13,000 min⁻¹,
RCF 18,127,

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
				
Cat.-No.	-	02023	02024	-
tubes per rotor	24			
RCF	18,327			
radius in mm	97			
run-up in sec	36			
run-down in sec. ²⁾	31			
temperature °C ¹⁾	3			

90°



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

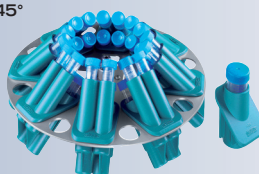
	microtitre plate	culture plate	deep well plate	MS	QP	Microtest plate (Terasaki)	PCR plate 96 wells	PCR strips 0,2
								
Cat.-No.	01453-A							01453-A + 01485
plates per rotor	10	8	6	2	2	4	2	24 x 8
RCF	2,218							
radius in mm	124							
run-up in sec	40							
run-down in sec. ²⁾	45							
temperature °C ¹⁾	-6							

1) Lowest attainable temp. in precooled refrigerated centrifuges at max. speed.

2) Rund down in sec. braked

Please make sure not to exceed the tubes max. permissible RCF. For glass tubes the max. RCF is 4,000

45°



Angle rotor,
Cat. No. 01418
8-place
N = 4,500 min⁻¹
max. RCF 3,305
illustrated with adapters
01467

capacity in ml	4-7	15	15	50	12	50	50
dimensions Ø x L mm	13 x 100	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	+ 00716	+ E2109	+ E2110	+ 00716		
Cat.-No.	01467	01467	01467	01468	01467	01468	
tubes per rotor	32	32	32	8	32	8	
RCF	3,305	3,215	3,283	3,147	3,215	3,147	
radius in mm	146	142	145	139	142	139	
run-up in sec	30						
run-down in sec. ²⁾	31						
temperature °C ¹⁾	-11						

45°



Angle rotor,
Cat. No. 01627
18-place, with bioseal,
phenol-resistant lid
n = 14,150 min⁻¹,
RCF 22,161,
for 5 ml microtest tubes

capacity in ml	5,0 ml
dimensions Ø x L mm	17 x 59
n=14,500 min ⁻¹ Cat.-No. 01627	
Cat.-No.	
tubes per rotor	18
RCF	22,161
radius in mm	
run-up in sec	35
run-down in sec. ²⁾	32
temperature °C ¹⁾	2

35°



Angle rotor,
Cat. No. 01556
6-place,
n = 9,000 min⁻¹,
max. RCF 10,595

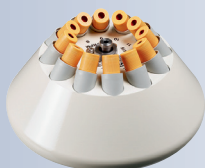
capacity in ml	10	10-15	30	50	50/75	85	15	50
dimensions Ø x L mm	16 x 80	17 x 100	26 x 95	29 x 107	34 x 100 35 x 105	38 x 106	17 x 120	29 x 115
n=9,000 min ⁻¹ Cat.-No. 01556								
Cat.-No.	01477	01478	01447	01446	01463	-	01466	01454
tubes per rotor	12	6	6	6	6	6	6	6
RCF	10,414	10,052	9,690	10,142	10,414	10,595	10,052	
radius in mm	115	111	107	112	115	117	111	
run-up in sec	30							
run-down in sec. ²⁾	30							
temperature °C ¹⁾	- 11							

1) Lowest attainable temp. in
precooled refrigerated
centrifuges at max. speed

2) Rund down in sec. braked

Please make sure not to
exceed the tubes max.
permissible RCF. for glass
tubes the max. RCF is 4,000

35°



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. ²⁾	15		
temperature °C ¹⁾	- 16		

35°



Angle rotor,
Cat. No. 01615
12-place,
n = 12,000 min⁻¹,
max. RCF 16,582

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			5)
Cat.-No.	01054A	-	01647
tubes per rotor	12	12	6
RCF	13,201	16,582	15,455
radius in mm	82	103	93
run-up in sec	40		
run-down in sec. ²⁾	40		
temperature °C ¹⁾	-2		

50°



Angle rotor,
Cat. No. 01552
24-place,
incl. bioseal lid,
phenol resistant
n = 16,000 min⁻¹,
max. RCF 24,900

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
incl. bioseal lid n=16,000 min ⁻¹ Cat.-No. 01552				
Cat.-No.	-	02023	02024	-
tubes per rotor	24			
RCF	24,900			
radius in mm	87			
run-up in sec	30			
run-down in sec. ²⁾	29			
temperature °C ¹⁾	2			

45°



Angle rotor,
Cat. No. 01553
30-place,
incl. bioseal lid,
phenol resistant
n = 14,150 min⁻¹
max RCF 21,713

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
incl. bioseal lid n=14,150 min ⁻¹ Cat.-No. 01553				
Cat.-No.	-	02023	02024	-
tubes per rotor	30			
RCF	21,713			
radius in mm	97			
run-up in sec	35			
run-down in sec. ²⁾	32			
temperature °C ¹⁾	-1			

Cyto rotors, suitable for U-320 and U-320R are available.
More informations are available in a detailed cyto brochure.

