

BENCHTOP CENTRIFUGES

ROTINA 420 | 420 R



MANY SOLUTIONS - ONE ROTOR

This compact benchtop centrifuge has been developed for large sample volumes. It has a maximum capacity of 4 x 600 ml bottles, 140 blood tubes, 16 microtiter plates or 52 x 15 ml conical tubes, all on a single cost-effective rotor.

This unit is available with refrigeration and a temperature range from -20 °C to +40 °C (ROTINA 420 R).

HIGHLIGHTS

- RPM: 50 - 15,000 min^{-1}
  Adjustable in increments of 10
- RCF: 50 - 24,400
  Adjustable in steps of 1
- max. capacity: 4 x 600 ml
- High-performance with first-class equipment
- choise of 5 rotors
- IvD-conform according to directive 98/79/EC
- max. noise level of 51 dB(A) with rotor 4790-A
- easy operation with keypad and control knob
- 98 program memories for more individuality
- 9 individual acceleration and deceleration stages
- model 420 R coolable from -20 to +40 °C with pre-cooling function

FEATURES

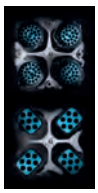
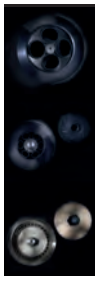
- metal housing and lid
- viewing port in the lid
- powered one-hand lid lock
- lid dropping protection
- emergency lid lock release
- stainless steel chamber
- automatic rotor recognition
- brushless drive
- error display
- display in °C and °F possible
- imbalance monitoring and switch-off
- backlit panel with actual values of all parameters
- Auditory message after completion of the centrifugation run

TECHNICAL DATA

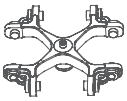
	ROTINA 420 classic	**ROTINA 420 R** cooled
voltage *)	200–240 V 1 ~	200–240 V 1 ~
frequency	50–60 Hz	50 Hz
consumption	870 VA	1.600 VA
emission, immunity	EN/IEC 61326-1, class B	EN/IEC 61326-1, class B
max. capacity	4 x 600 ml	4 x 600 ml
max. RPM	15,000 min^{-1}	15,000 min^{-1}
max. RCF	24,400	24,400
running time	1 sec – 99 h: 59 min: 59 s, ∞ continuous run, short cycle mode	1 sec – 99 h: 59 min: 59 s, ∞ continuous run, short cycle mode
dimensions (W x D x H)	506 x 650 x 423 mm	713 x 654 x 423 mm
weight	approx. 75 kg	approx. 108 kg
noise level	51 dB (A) with rotor 4790-A	50 dB (A) with rotor 4790-A
temperature control, infinitely variable	-	from -20 to +40 °C
Cat. No.	**4701**	**4706**
100–127 V 1 ~ / 50–60 Hz *)	4701-01	4706-01
consumption	900 VA	1.850 VA
emission, immunity	FCC class B	FCC class B
weight	approx. 84 kg	approx. 117 kg

*) Other voltages on request.

AVAILABLE ROTORS

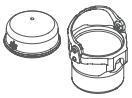
SWING-OUT ROTORS	angle	max. RPM	max. capacity	Cat. No.	page
 swing-out rotor, 4-place	90°	4,800 min^{-1}	4 x 600 ml	**4784-A**	3
swing-out rotor, 4-place	90°	4,000 min^{-1}	4 x 290 ml	**4753**	5
ANGLE ROTORS					
 angle rotor, 4-place	25°	9,500 min^{-1}	4 x 250 ml	**4795**	7
angle rotor, 6-place	45°	11,000 min^{-1}	6 x 94 ml	**4794**	8
angle rotor, 30-place	45°	15,000 min^{-1}	30 x 2 ml	**4790-A**	8

SWING-OUT ROTOR, 4-PLACE | 4784-A

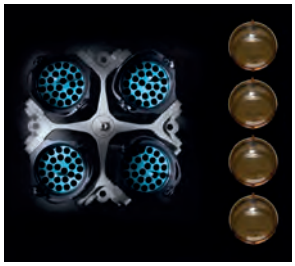


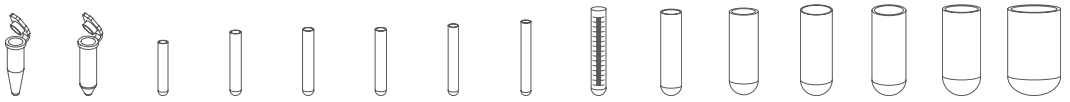
Rotor	
max. RPM I max. RCF	4,800 min^{-1} I 4,740
max. capacity	4 x 600 ml
run-up I run-down, braked in sec	54 I 38
angle I max. noise level	90° I 56 dB (A)
temperature in °C [1]	+4
Cat. No.	**4784-A**

+



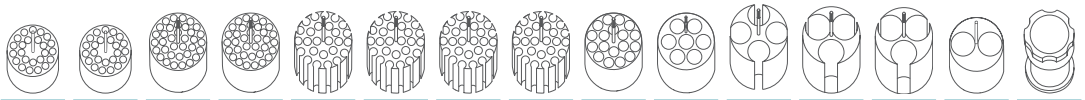
Bucket	
lid bioseal [5]	4783
Cat. No.	**4780**





Vessels															
capacity in ml	1.5	2.0	3	4	4	5	6	7	15	25	50	94	100	100	250
Ø x L in mm	11 x 38	11 x 38	10 x 60	10 x 88	12 x 60	12 x 75	12 x 82	12 x 100	17 x 100	24 x 100	34 x 100	38 x 102	40 x 115	44 x 100	65 x 115
max. RCF [2]	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,559	4,559	4,559	4,534	4,534
radius in mm	178	178	178	178	178	178	178	178	178	178	177	177	177	176	176
Cat. No.	**microliter tubes**		**tubes [2]**												

+

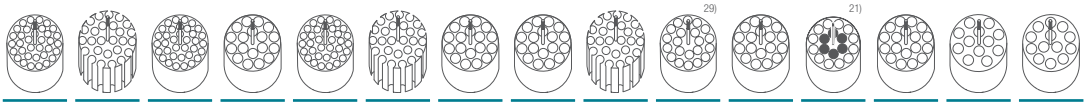


Adapter															
boring Ø x L in mm	11.2 x 38	11.2 x 38	11.2 x 54	11.2 x 54	13.4 x 55	13.4 x 55	13.4 x 55	13.4 x 55	17.5 x 62	26.5 x 69	36 x 77	42 x 76.5	42 x 76.5	46 x 76.5	66 x 103
vessels per rotor	96	96	140	140	104	104	104	104	72	28	16	12	12	8	4
Cat. No.	**4773**	**4773**	**4761**	**4761**	**4762**	**4762**	**4762**	**4762**	**4763**	**4764**	**4765**	**4766**	**4766**	**4767**	**4768**



Vessels															
capacity in ml	1.1–1.4	2.6–3.4	2.7–3	4–5.5	4.5–5	4.9	7.5–8.5	9–10	1.6–7	1.6–7	4–7	8	8.5 – 10	5	15
Ø x L in mm	8 x 66	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	15 x 92	16 x 92	13 x 75	13 x 100	16 x 75	16 x 125	16 x 100	17 x 59	17 x 120
max. RCF [2]	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,585	4,740	4,740
radius in mm	178	178	178	178	178	178	178	178	178	178	178	178	178	184	184
Cat. No.	**blood collection / urine vessels**													**-**	**-**

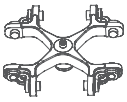
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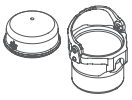
Adapter															
boring Ø x L in mm	11.2 x 54	13.4 x 55	11.2 x 54	17.5 x 62	11.2 x 54	13.4 x 55	17.5 x 62	17.5 x 62	13.4 x 55	13.7 x 55	17.5 x 62	17.5 x 62	17.5 x 62	17 x 52	17 x 84
vessels per rotor	140	104	140	72	140	104	72	72	104	84	72	24	72	48	52
Cat. No.	**4761**	**4762**	**4761**	**4763**	**4761**	**4762**	**4763**	**4763**	**4762**	**4775**	**4763**	**4763**	**4763**	**4778**	**4769**

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
3.6) When using these tubes, bucket 4780 cannot be closed with lid 4783.
5) Tested by the TÜV in conformity with DIN EN 61010, section 2 - 020.
21) Adapter must be loaded as illustrated.
29) Suitable for blood collection systems with a lid larger than 17 mm in diameter.

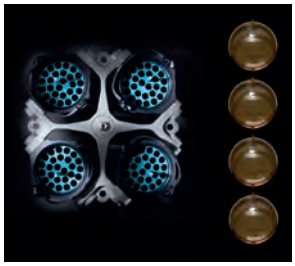
SWING-OUT ROTOR, 4-PLACE | 4784-A



Rotor	
max. RPM I max. RCF	4,800 min^{-1} I 4,740
max. capacity	4 x 600 ml
run-up I run-down, braked in sec	54 I 38
angle I max. noise level	90° I 56 dB (A)
temperature in °C [1]	+4
Cat. No.	**4784-A**



Bucket	
lid bioseal [5]	4783
Cat. No.	**4780**



Vessels															
capacity in ml	50	12	25	30	50	10	30	50	85	94	175	175	200	225	250
Ø x L in mm	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	38 x 102	61 x 118	62 x 144	60 x 130	61 x 137	61 x 122
max. RCF [2]	4,688	4,688	4,585	4,585	4,688	4,585	4,585	4,688	4,534	4,534	4,740	4,740	4,740	4,740	4,740
radius in mm	182	182	178	178	182	178	178	182	176	176	184	184	184	184	184
Cat. No.	**tubes with screw cap**										**Falcon**	**Nalgene**	**Nunc®**	**Falcon**	**5127** [24]

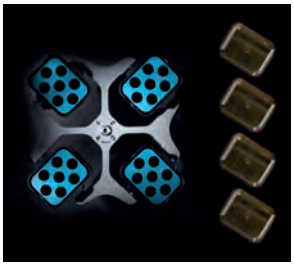
Adapter															
boring Ø x L in mm	30 x 82.5	17.2 x 82.5	26.5 x 69	26.5 x 69	30 x 82.5	17.5 x 62	26.5 x 69	30 x 82.5	42 x 76.5	42 x 76.5	61 x 105	61,5 x 110	61,5 x 110	61 x 105	62 x 100
vessels per rotor	20	56	28	28	20	72	28	20	12	12	4	4	4	4	4
Cat. No.	**4770**	**4774**	**4764**	**4764**	**4770** [4]	**4763**	**4764**	**4770** [4]	**4766**	**4766**	**4776**	**4777**	**4777**	**4776**	**4771**

Vessels				
capacity in ml	290	400	400	600
Ø x L in mm	62 x 137	81 x 136	84 x 134	93 x 134
max. RCF [2]	4,740	4,740	4,740	4,740
radius in mm	184	184	184	184
Cat. No.	**-** [24]	**-** [24]	**-** [24]	**0551** [24]

Adapter				
boring Ø x L in mm	62 x 100	85 x 100	85 x 100	94 x 99
vessels per rotor	4	4	4	4
Cat. No.	**4771**	**4772**	**4772**	**-**

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
3.6) When using these tubes, carrier 4780 cannot be closed with lid 4783.
4) Please remove the spacer.
5) Tested by the TÜV in conformity with DIN EN 61010, section 2 - 020.
13) The screw cap for tube No. 0538 is available with Cat. No. 0539. Dimensions with cap 38 x 110 mm.
21) Adapter must be loaded as illustrated.
24) At temperatures of over +40 °C and / or when not filled to capacity, bottles may warp during centrifugation.

SWING-OUT ROTOR, 4-PLACE | 4753



Rotor		Bucket	
max. RPM I max. RCF	4,000 min^{-1} I 2,898	lid	5053
max. capacity	4 x 100 ml	**Cat. No.**	**5051**
run-up I run-down, braked in sec	18 I 16		
angle I max. noise level	90° I 58 dB (A)		
temperature in °C [1]	-1		
Cat. No.	**4753**		

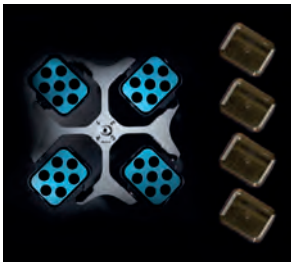
Vessels														
capacity in ml	1.5	2	1.5	2	3	5	6	7	9	15	25	50	100	100
Ø x L in mm	11 x 38	11 x 38	11 x 38	11 x 38	10 x 60	12 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	44 x 100	40 x 115
max. RCF [2] top / bottom	1,950 / 2,826	1,950 / 2,826	2,826	2,826	2,737	2,773	2,773	2,755	2,773	2,755	2,755	2,755	2,755	2,755
radius in mm top / bottom	109 / 158	109 / 158	158	158	153	155	155	154	155	154	154	154	154	154
Cat. No.	**microliter tubes**				**tubes [2]**									
Adapter														
boring Ø x L in mm	12.5 x 42	12.5 x 42	11.5 x 50	11.5 x 50	11 x 44	12.5 x 42	12.5 x 42	12.5 x 86	16 x 50	17.5 x 86	26 x 86	36 x 86	45.5 x 86	42 x 86
vessels per rotor	160	160	64	64	80	80	80	80	48	48	20	8	4	4
Cat. No.	**5257**	**5257**	**5281**	**5281**	**5267**	**5227**	**5227**	**5247** [15]	**5264**	**5248** [15]	**5242**	**5243**	**5262**	**5249**

Vessels													
capacity in ml	1.1 – 1.4	2.6 – 3.4	2.7 – 3	4 – 5.5	4.5 – 5	4.9	7.5 – 8.5	9 – 10	10	1.6 – 5	4 – 7	4 – 7	8.5 – 10
Ø x L in mm	8 x 66	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	15 x 92	16 x 92	15 x 102	13 x 75	13 x 100	16 x 75	16 x 100
max. RCF [2]	2,737	2,808	2,773	2,773	2,773	2,808	2,773	2,755	2,755	2,808	2,755	2,773	2,755
radius in mm	153	157	155	155	155	157	155	154	154	157	154	155	154
Cat. No.	**blood collection / urine vessels**												
Adapter													
boring Ø x L in mm	11 x 44	13.5 x 52	12.5 x 42	16 x 50	12.5 x 42	13.5 x 52	16 x 50	17.6 x 86	17.6 x 86	13.5 x 52	13.5 x 86	16 x 50	17.5 x 86
vessels per rotor	80	48	80	48	80	48	48	44	44	48	48	48	48
Cat. No.	**5267**	**5268**	**5227**	**5264**	**5227**	**5268**	**5264**	**5258**	**5258**	**5268**	**6301**	**5264**	**5248**

Vessels						
capacity in ml	15	30	50	12	50	1 – 8
Ø x L in mm	17 x 120	25 x 110	29 x 115	17 x 100	29 x 115	simple / multiple
max. RCF [2]	2,898	2,755	2,826	2,898	2,755	1,735 / 2,737
radius in mm	162	154	158	162	154	97 / 153
Cat. No.	**tubes with screw cap**					**cyto chambers**
Adapter					+ 2 x 6316	
boring Ø x L in mm	17 x 90	26 x 66	30 x 86	17 x 90	36 x 86	-
vessels per rotor	28	20	8	28	8	8
Cat. No.	**6306**	**5266**	**5259**	**6306**	**5243**	**5280**

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
3.7) When using these tubes, bucket 4780 or 5051 cannot be closed with lid 4783 or 5053.
15) Also available with decanting aid. (Cat. No. 5247-91 or 5248-91).

SWING-OUT ROTOR, 4-PLACE | 4753



Rotor	
max. RPM I max. RCF	4,000 min^{-1} I 3,095
max. capacity	4 x 290 ml
run-up I run-down, braked in sec	18 I 16
angle I max. noise level	90° I 58 dB (A)
temperature in °C [1]	-1
Cat. No.	**4753**

Bucket	
lid bioseal [5]	5093
Cat. No.	**5092**

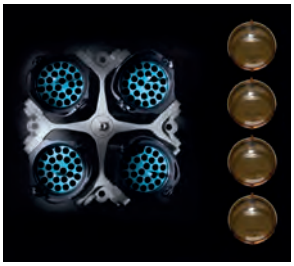
Vessels															
capacity in ml	5	6	7	15	25	50	100	100	250	1.1–1.4	2.6–3.4	2.7–3	4–5.5	4.5–5	4.9
Ø x L in mm	12 x 75	12 x 82	12 x 100	17 x 100	24 x 100	34 x 100	44 x 100	40 x 115	65 x 115	8 x 66	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90
max. RCF [2]	3,005	3,005	3,005	2,952	2,898	2,952	2,952	2,952	3,095	2,540	2,540	2,540	2,952	3,005	2,952
radius in mm	168	168	168	165	162	165	165	165	173	142	142	142	165	168	165
Cat. No.	**tubes [2]**									**blood collection / urine vessels**					
Adapter															
boring Ø x L in mm	12.8 x 45	12.8 x 45	12.8 x 82	17.5 x 60.7	25.5 x 82	35.5 x 82,5	45.5 x 85	42 x 85	66 x 103	12.8 x 54.5	12.8 x 54.5	12.8 x 54.5	17.5 x 60.7	12.8 x 82	13.5 x 60.7
vessels per rotor	48	48	48	32	16	4	4	4	4	48	48	48	32	48	32
Cat. No.	**5128**	**5128**	**5120**	**5136**	**5122**	**5124**	**5125**	**5126**	**1791**	**5138**	**5138**	**5138**	**5136**	**5120**	**5137**

Vessels															
capacity in ml	7.5–8.5	9 – 10	10	1.6 – 5	4 – 7	4 – 7	8.5 – 10	8	15	50	12	25	30	50	10
Ø x L in mm	15 x 92	16 x 92	15 x 102	13 x 75	13 x 100	16 x 75	16 x 100	16 x 125	17 x 120	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80
max. RCF [2]	2,952	2,952	2,952	2,540	3,005	2,952	2,952	3,059	3,095	3,095	3,005	2,826	2,898	3,023	2,952
radius in mm	165	165	165	142	168	165	165	171	173	173	168	158	162	169	165
Cat. No.	**blood collection / urine vessels**								**tubes with screw cap**						
Adapter															
boring Ø x L in mm	17.5 x 60.7	17.5 x 60.7	17.5 x 60.7	12.8 x 54.5	12.8 x 82	17.5 x 60.7	17.5 x 60.7	17.5 x 82	17 x 85	30 x 85	17.5 x 82	26 x 73	25.5 x 82	30 x 99	17.5 x 60.7
vessels per rotor	32	32	32	48	48	32	32	28	28	8	28	12	16	8	32
Cat. No.	**5136**	**5136**	**5136**	**5138**	**5120**	**5136**	**5136**	**5121 [4]**	**5129**	**5123**	**5121**	**5134**	**5122**	**5135**	**5136**

Vessels		
capacity in ml	250	290
Ø x L in mm	61 x 122	62 x 137
max. RCF [2]	3,095	3,095
radius in mm	173	173
Cat. No.	**5127 [24]**	**– [24]**
Adapter		
boring Ø x L in mm	66 x 103	66 x 103
vessels per rotor	4	4
Cat. No.	**6319**	**6319**

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
3.5) When using these tubes, bucket 5092 cannot be closed with lid 5053.
24) At temperatures of over +40 °C and / or when not filled to capacity, bottles may warp during centrifugation.

SWING-OUT ROTOR, 4-PLACE | 4784-A



Rotor	
max. RPM I max. RCF	4,800 min^{-1} I 4,096
max. capacity	16 plates
run-up I run-down, braked in sec	54 I 38
angle I max. noise level	90° I 56 dB (A)
temperature in °C [1]	+4
Cat. No.	**4784-A**

Bucket	
Cat. No.	**4782**

Plates								
W x D x H in mm	128x86x15	128x86x17.5	128x86x22	128x86x44.5	128x86x46	84x59x11	124x82x20	-
capacity in ml	-	-	-	-	-	-	-	0,2
max. RCF [2]	4,096	4,096	4,096	4,096	4,096	4,096	4,096	4,096
radius in mm	159	159	159	159	159	159	159	159
Cat. No.	**MTP**	**MTP**	**CP**	**DWP**	**MS**	**Microtest plate**	**PCR plate 96 wells**	**PCR strips**

Adapter								
boring Ø x L in mm	-	-	-	-	-	-	-	-
plates / strips per rotor	16	16	12	4	4	8	4	48 x 8
Cat. No.	**-**	**-**	**-**	**-**	**-**	**-**	**1485**	**1485**

ANGLE ROTOR, 4-PLACE | 4795



Rotor	
max. RPM I max. RCF	9,500 min^{-1} I 12,007
max. capacity	4x250 ml
run-up I run-down, braked in sec	45 I 55
angle	25°
temperature in °C [1]	+2
Cat. No.	**4795**

Vessels											
capacity in ml	15	25	94	15	50	10	30	50	85	94	250
Ø x L in mm	17x100	24x100	38x102	17x120	29x115	16x80	26x95	29x107	38 x 106	38 x 102	61 x 122
max. RCF [2]	11,301	10,897	10,292	10,998	10,090	11,402	10,897	10,090	10,292	10,292	12,007
radius in mm	112	108	102	109	100	113	108	100	102	102	119
Cat. No.	**tubes [2]**			**tubes with screw cap**							**5127 [24]**

Adapter											
boring Ø x L in mm	17.6x83	26x80	38.6x88	17x106	30x100	16.6x70	26x80	29x90	38.6 x 88	38.6 x 88	61.5x109
vessels per rotor	28	12	4	20	4	32	12	4	4	4	4
Cat. No.	**5646**	**5642**	**5644**	**5637**	**5638**	**5641**	**5642**	**5643**	**5644**	**5644**	**-**

1) For cooled versions: Lowest temperature achievable with precooling and max. speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
24) At temperatures of over +40 °C and / or when not filled to capacity, bottles may warp during centrifugation.

ANGLE ROTOR, 6-PLACE | 4794

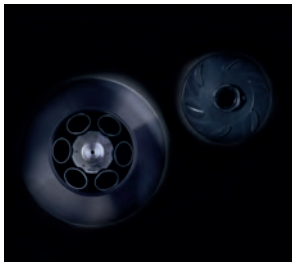


Rotor	
max. RPM I max. RCF	11,000 min^{-1} I 16,504
max. capacity	6 x 94 ml
run-up I run-down, braked in sec	40 I 63
angle I max. noise level	45° I 58 dB (A)
temperature in °C [1]	+4
Cat. No.	**4794**

+



Lid bioseal [5]	
Cat. No.	**INCLUSIVE**





Vessels																
capacity in ml	1.5 – 2	3	15	25	50	94	7.5 – 10	5	15	50	10	30	50	85	94
Ø x L in mm	11 x 38	10 x 60	17 x 100	24 x 100	34 x 100	38 x 102	15x102 / 16x92 [36]	17 x 59	17 x 120	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	38 x 102
max. RCF [2]	15,828	15,828	15,557	15,151	16,233	16,504	15,557	15,422	15,828	16,098	15,557	15,151	15,828	16,504	16,504
radius in mm	117	117	115	112	120	122	115	114	117	119	115	112	117	122	122
Cat. No.	**-**	**tubes [2]**					**-**	**-**	**tubes with screw cap**						

+



Adapter															
boring Ø x L in mm	11.4 x 39	11.4 x 39	17.5x92	26 x 85	35 x 89	38.2x89.6	17.5 x 92	17 x 51	17 x 106	29.8 x 97	16.5 x 74	26 x 85	29 x 92	38.2x 89.6	38.2x 89.6
vessels per rotor	24	24	6	6	6	6	6	6	6	6	12	6	6	6	6
Cat. No.	**1449**	**1449**	**1451**	**1447**	**1463**	**-**	**1451**	**1476**	**1466**	**1454**	**1448**	**1447**	**1446**	**-**	**-**

ANGLE ROTOR, 30-PLACE | 4790-A



Rotor	
max. RPM I max. RCF	15.000 min^{-1} I 24.400
max. capacity	30 x 2 ml
run-up I run-down, braked in sec	19 I 24
angle I max. noise level	45° I 50 dB (A)
temperature in °C [1]	+4
Cat. No.	**4790-A**

+



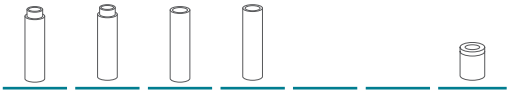
Lid bioseal [5], phenol-resistant	
Cat. No.	**INCLUSIVE**





Vessels							
capacity in ml	0.2	0.4	0.5	0.8	1.5	2	0.5
Ø x L in mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	11 x 38	10.7 x 36
max. RCF [2]	24,400	24,400	24,400	24,400	24,400	24,400	23,394
radius in mm	97	97	97	97	97	97	93
Cat. No.	**microliter tubes**						**Pediatric**

+



Adapter							
boring Ø x L in mm	6 x 40	6 x 40	8 x 40	8 x 40	-	11.2x40.9	11.2x40.9
vessels per rotor	30	30	30	30	30	30	15
Cat. No.	**2024**	**2024**	**2023**	**2023**	**2031 [7]**	**-**	**0788 [17]**

1) For cooled versions: Lowest temperature achievable with precooling and max. speed.
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.
5) Tested by the TÜV in conformity with DIN EN 61010, section 2 - 020.
7) For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters. Cat. No. 2031.
17) Packaging unit 15 pieces.

CERTIFICATES / REGISTRATIONS

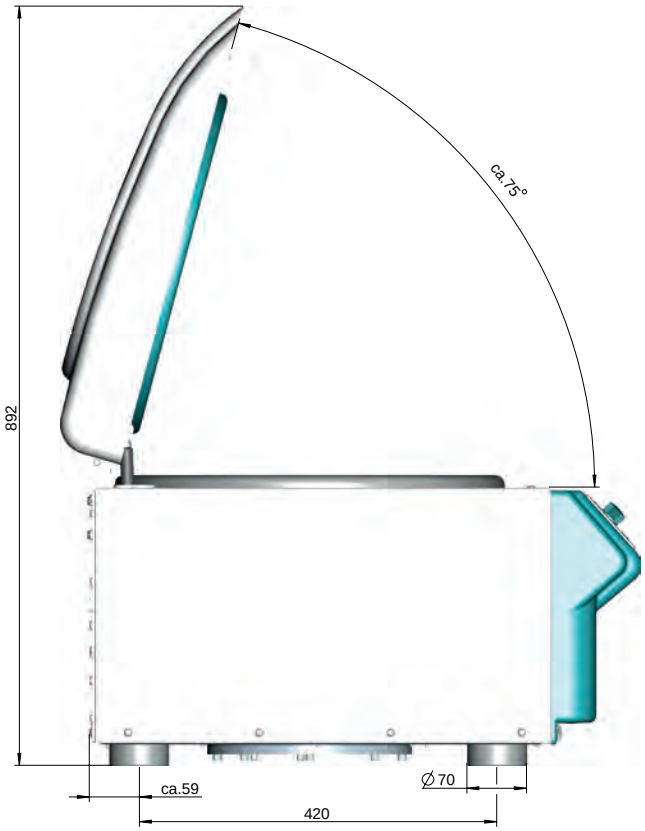
DOWNLOADS

- Operating manual – ROTINA 420 | 420 R
- General Catalog

DIMENSIONS







WolfLabs

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct.
If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

www.wolflabs.co.uk

Tel : 01759 301142

Fax : 01759 301143

sales@wolflabs.co.uk

Please contact us if this literature doesn't answer all your questions.