PrO-Research

By Centurion Scientific Ltd

25 years of Excellence

Benchtop Centrifuges

Welcome to our new PrO-Research range

Designed by Research Scientists, we offer state of the art centrifuges for R&D.
Derived from our LCD display centrifuges spanning over 25 years of Centrifuge Manufacturing.
True research centrifuge allowing you to program 108 memory of Speed to 1 Rpm difference or Rcf (G) and time to within 1 second, or use the W2t, normally found on Ultracentrifuges.
Allowing excellent seperation time and time again, or use it to research the best methodology.
See Page 23 for further details.

Ambient

Designed to keep sample heating to a minimum, our "Through flow air system" is unsurpassed. Thus keeping not only the samples cool, but the motor too, allowing, if necessary, long run times.
Feature count is the best for your various needs.

Refrigeration

Our latest " Dynamic efficency control system" in LED display format derived from our long running LCD series is now available to meet the needs of the market. Our aim with all our Refrigeration Systems was to reduce power by 25% and was easily achieved. New thicker stainless bowls and improved heat exchanger; with larger, yet more efficent compressors and condensors.

Our control is unsurpassed, by using the compressor's hot bypass gas, against its own cooling we can control to levels beyond our competitors, who simply switch the fridge on and off.

A new, next generation PID control software system adds to the control too. A body redisgn has resulted in a simple access panel. should any Mains voltage control parts need servicing.

Rotors

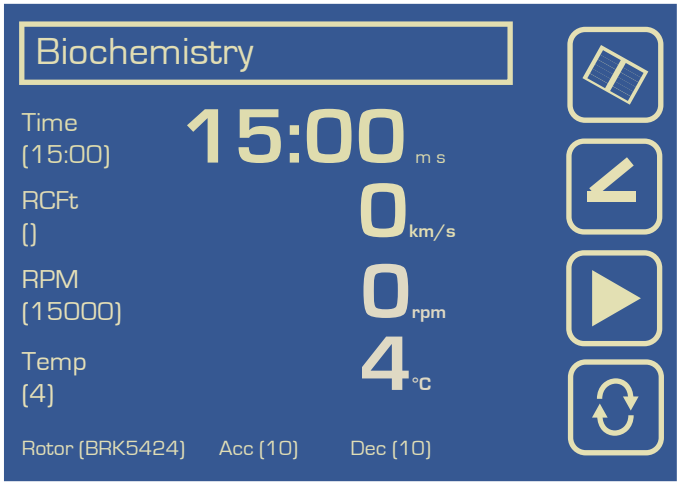
We are aware of the needs of longevity and the need for corrosive of chemical resistance is paramount. NOTE all bowls in the Centrifuges are Stainless steel (Salt saturation tested). To this end our fixed angle rotors are CNC machined from polypropylene, as are the adaptors giving the best strength and chemical resistance for your needs.
Our swing out rotors and high speed rotors are made from aircraft grade high strength aluminium and then double anodised for protection.
As a manufacturer we are aware of your different needs, if you have such requests, Please call us, if possible we can specialise or add a rotor from another range to assist.

From the start of 2014 all Centrifuges and rotors carry a 3 year warranty, that is how confident we are of our quality and resilience.

Please see our specifications on our features page for more information on this range.

Centurion Scientific Ltd

PrO-Research Centrifuges



Welcome to our latest range, we trust you will find the following pages informative. With time comes experience and in our 25 years we have learnt that development is an ongoing sequence, that is led by materials and analytical changes in the world. To this end, our development has improved user use, sample integrity and access. By working with all our suppliers, our reliability has been retained and improved to give all our range a 3 year warranty as standard.

CE marked and ISO 9001 regulator and now IVD certified too

User features to PrO-Research	Advantages
Large LCD display with touch screen control	Clarity & ease of use
Rotor Recognition	Safe selection of rotors
10 Accelerations rates, 10 deceleration rates	Sample assistance
108 program memory (12 pages of 9)	Multi department & Users
Timer 0-9999 minutes & Hold in 1 secon increments	Total flexibility
Pulse Short run	Fast Pelleting
Run in Speed (rpm) or rcf (G) in 1 rpm increments	Accuracy
W2t Plots tim, accel rpm and decel	True sample repeatability
Sound <60db (rotor dependent)	Quiet
Orientation acceleration rate	Prevents initial sample side deposits

Standard to PrO-Research	Advantages
Extra thick Stainless steel bowl	Easy clean & rust free
Port to Lid	Tachometer speed certification
Alloy & Steel frame with composite's	Strong light & quiet
World leading industrial grade inverter	Reliability & strength
Best quality European brushless motor	Quiet, cool & reliable
High technology airflow (ambient mode)	Cooler running

All Centrifuges have user accesible service sections to access all saftey parameters

Saftey features to PrO-Research	Advantages
Multi point lid locking	Lid Safety
Emergency lid release	Power failure release
Lid gas struts	Lid dropping safety
Lid lock detection	To run, Lid must be shut
Imbalance detection	Easy "eye" volume loading
Overspeed Sensor	Safe detection of speed
Set inverter values	Electronic safety of speed
Barrier ring	Extra metal protection of chamber
Motor overheat sensor	Safe motor protection

Refrigerated PrO-Research	Advantages
Variable -9°C to +40°C with stand by cooling	Flexibility (see rotors)
CFC free R404A gas	Ozone friendly
Valve control of Gas	Efficient temperature control
PID control of valve	Supreme temperature accuracy

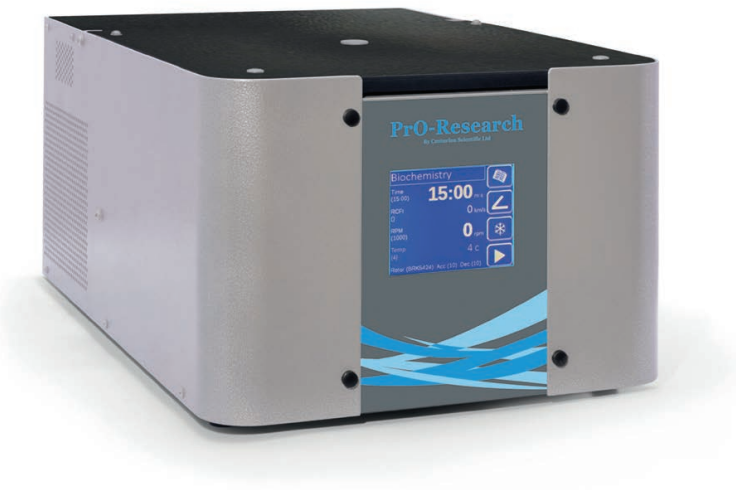
Centurion Scientific Ltd Centrifuges comply to all relevant EU standards of Quality and medical Devices IEC 61010 and CE conformity test marks Emission, immunity to EN/IEC 61326-1, Class B

K2015 Ambient Centrifuge

Display indicative only

Speed	500-15,000 Rpm (1 Rpm steps)
Rcf Max	22,000 G
Timer	0-9999 Mins & Hold (1 sec steps)
Dimensions	HWD 275 x 325 x 470mm
Weight	21.8 Kg (without rotor)
Power	120 Watts
Memory	108 programs
Accel rates	10 programs
Decel rates	10 programs

K2015R Refrigerated Centrifuge



Display indicative only

Speed	500-15,000 Rpm (1 Rpm steps)
Rcf Max	22,000 G
Timer	0-9999 Mins & Hold (1 sec steps)
Dimensions	HWD 315 x 450 x 635mm
Weight	62.2 Kg (without rotor)
Power	448 Watts
Memory	108 programs
Accel rates	10 programs
Decel rates	10 programs
Temp	-9°C to + 40°C PID Controlled to + / - 1°C

Microtube Rotors 15,000 Rpm

With NEW high Domed polycarbonate lid	BRK5424	BRK5436	BRK5448	BRK5494
Rotor type	24 x 2ml	36 x 0.5ml	48 x 0.2ml	4 x PCR Strips
Tube size max	11 x 50mm	8 x 30mm	6 x 40mm	6 x 40mm
Minimum Speed Rpm	500	500	500	500
Maximum Speed Rpm	15,000	15,000	15,000	15,000
Maximum Rcf (G)	13,500	13,500	13,500	13,500
Radius max cms	8.75	8.75	8.75	8.75
Sample tube angle (°)	45	45	45	45
Acceleration time (secs)	20	20	20	20
Deceleration time (secs)	20	20	20	20
Autoclaveable (frequency)	121°C (20)	121°C (20)	121°C (20)	121°C (20)

Reducers

Rotor	BRK5424
Part number pack 24	RS04 (0.2-0.4ml)
Tube size max	6 x 30mm
Part number pack 24	RS05 (0.5ml)
Tube size max	8 x 30mm

Rotors 6,000 Rpm

Rotor	BRK5324	BRK5308	BRK5100
Rotor type	24 x 15ml	8 x 50ml	6 x 100ml
Size max	17 x 120mm	30 x 120mm	45 x 125mm
Minimum speed Rpm	500	500	500
Maximum speed Rpm	6,000	6,000	6,000
Maximum Rcf (G)	4,800	4,800	4,800
Radius max cms	12	12	12
Sample tybe angle °	30	30	30
Acceleration time (secs)	35	35	35
Deceleration time (secs)	35	35	35
Autoclavable (frequecncy)	121°C (20)	121°C (20)	121°C (20)

Refrigerated Centrifuges Only

Minimum Temperature	4°C (20°C Max)	4°C (20°C Max)	4°C (20°C Max)

At maximum speed (relative to room temperature at 23°C)

Reducers

Rotor	BRK5324	BRK5408	BRK5100
Part number	RM05 (5ml)	RM15 (15ml)	RL10 (10ml)
Tube size max	13 x 80mm	17 x 120mm	16 x 100mm
Part number	RM10 (10ml)	RM25 (25ml)	RL25 (25ml)
Tube size max	16 x 100mm	25 x 100mm	25 x 100mm
Part number			RL50 (50ml)
Tube size max			35 x 110mm
Part number			RL85 (85ml)
Tube size max			39 x 110mm

Swing out rotors

Not available to K2015

Rotor	BRK5505	BRK5530
Rotor type	4 x 100ml	2 x microtitor plate
Size max	45 x 100mm	85 x 130mm
Minimum speed Rpm	500	500
Maximum speed Rpm	4,000	2,000
Maximum Rcf (G)	2200	600
Radius max cms	12.5	12.5
Sample tybe angle °	0	0
Acceleration time (secs)	25	25
Deceleration time (secs)	25	25
Autoclavable (frequecncy)	121°C (20)	121°C (20)

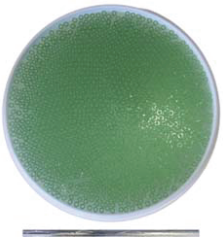
Refrigerated Centrifuges Only

Minimum Temperature	4°C	4°C	(20°C Max)

At maximum speed (relative to room temperature at 23°C)

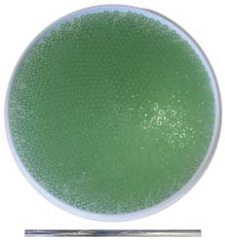
Adaptors available - see page 22

Haematocrit Rotor Accessories



8012

Plain Capilliary Tubes (Pack of 1000)

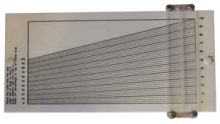


8013

Hepranised Capilliary Tubes (Pack of 1000)

8014

Sealing Clay (Pack of 10)



8003

PCV Reader (Pack of 1)

ADAPTOR TABLE

Adaptors for Swing out rotors				Adaptors		Adaptors		Adaptors	
Tube type	Shape	Capacity	Size	To fit rotor BRK5505		To fit rotor BRK5510		To fit rotor BRK5553	
				Part nos	Nos of tubes Per rotor	Part nos	Nos of tubes Per rotor	Part nos	Nos of tubes Per rotor
Micro with cap	point	0.5ml	8x20	AM505	36	AM605	40	AM805	120
Micro with cap	point	1.5ml	11x38	AM520	24	AM620	28	AM820	84
Micro with cap	point	2.0ml	11x38	AM520	24	AM620	28	AM820	84
Micro with cap	point	0.2ml	6x20	AM502	36	AM602	48	AM802	168
Micro with cap	point	0.4ml	6x30	AM504	36	AM604	48	AM804	168
Plain No cap	round	1ml	6x45	AR501	36	AR601	48	AR801	168
Plain No cap	round	3ml	10x60	AR503	28	AR603	32	AR803	96
Plain No cap	round	5ml	12x75	AR505*	28	AR605	32	AR805	96
Plain No cap	round	6ml	12x82	AR505*	28	AR605	32	AR805	96
Plain No cap	round	7ml	12x100	AR507*	28	AR607	32	AR807	96
Plain No cap	round	9/10ml	14x100	AR509*	24	AR609*	28	AR809	84
Plain No cap	round	15ml	17x100	AR515*	8	AR615*	28	AR815	48
Plain No cap	round	25ml	24x100	AR525*	8	AR625	12	AR825	28
Plain No cap	round	50ml	34x100	AR550*	4	AR650	4	AR850	16
Plain No cap	round	100ml	45x100	AR5100*	4	AR6100	4	AR8100	8
Plain No cap	round	150ml	52x100	N/A		AR601	4	AR8150	4
Plain No cap	round	250ml	62x100	N/A		BUCKET 4	4	AR8250	4
Falcon with cap	point	15ml	17x120	AF515*	8	AF615*	16	AF815	48
Falcon with cap	point	50ml	29x115	AF550*	4	AF650*	4	AF850	16
Falcon with cap	point	175ml	61x118	N/A		AF6175*	4	AF8175	4
Falcon with cap	point	15ml	17x120	N/A		N/A	4		
Corning with cap*	point	250ml	60x172	See K242/R		See K242/R		AF8250	4
Corning with cap*	point	500ml	98x148	See K242/R		See K242/R		AF8500	4
Falcon with cap	square	12ml	17x100	AFS512	8	AFS612*	16	AFS812	48
Falcon with cap	square	25ml	25x90	AFS525	4	AFS625*	8	AFS825	28
Falcon with cap	square	30ml	25x110	AFS530	4	AFS630	8	AFS830	28
Falcon with cap	square	50ml	29x115	AFS550*	4	AFS650	4	AFS850	20
Falcon with cap	square	15ml	17x120	N/A	N/A	AFS614	4	AFS850	48
Nalgene/Oakridge	round	10ml	16x80	ANO510*	8	ANO610	16	ANO810	48
Nalgene/Oakridge	round	30ml	26x95	ANO530*	4	ANO630	4	ANO830	28
Nalgene/Oakridge	round	50ml	29x107	ANO550	4	ANO650	4	ANO850	24
Nalgene/Oakridge	round	100ml	38x106	ANO585	4	ANO685	4	ANO885	12
Nalgene/Oakridge*	flat	250ml	62x130	See K241/R		Buckets 5250	4	ANO8250	4
Nalgene/Oakridge*	flat	750ml	98x153	See K243/R		See K243/R		See K243/R	
Monovette	square	1.1-1.4ml	8x82	AM5014	24	AM6014	40	AM8014	96
Monovette	square	2.7-3ml	11x82	AM503	24	AM603	40	AM803	76
Monovette	square	2.6-2.9ml	13x81	AM529	24	AM629	40	AM829	76
Monovette	square	4.5-5ml	11x108	AM503*	24	AM603*	40	AM803	76
Monovette	square	7.5-8.2ml	13x106	AM579*	24	AM679*	40	AM879	76
Monovette	square	4.5-5ml	15x92	AM550*	20	AM650	28	AM850	64
Monovette	square	7.5-8.2ml	15x108	AM550*	20	AM650*	28	AM850	64
Monovette	square	9-10ml	16x108	AM590*	20	AM690*	28	AM890	64
Vacutainer	round	1.6-5ml	13x75	AV516*	24	AV616	40	AV816	76
Vacutainer	round	4-7ml	13x10	AV550*	16	AV650	40	AV850	76
Vacutainer	round	8.5-10ml	16x100	AV580*	12	AV680	28	AV880	64

Note: - We can not be held responsible if the tube manufacturers change the design and/or size of the tube.* Limited capacity with sealed bucket lids (B5419 and B5319)

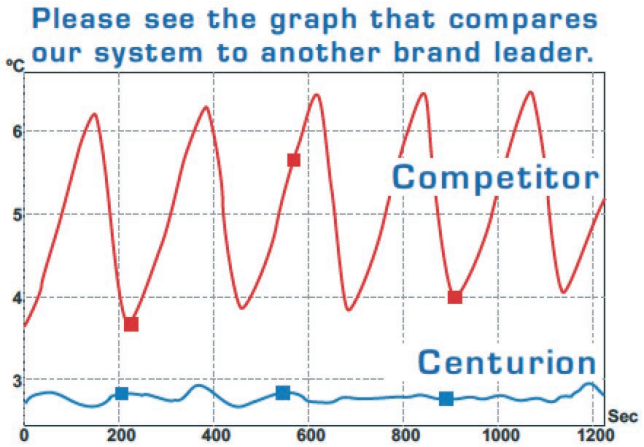
2014 Refrigerated Centrifuge temperature control

At Centurion, we have taken temperature control seriously. We keep the refrigeration unit in the refrigerated centrifuge running constantly, as this not only gives the compressor a longer and more reliable life, but stops the constant surges of start up power.

Due to the fact that the refrigeration unit is running constantly, it is quite usual to see ice in the chamber even at above freezing temperatures.

For 2014, a new larger, yet more efficient CFC free compressor has been used which gives lower power needs.

To maintain the temperature, we have a highly efficient compressor gas bypass solenoid valve, where we pulse heat via a highly accurate controller system (PID controller, which calculates and manages the temperature). By running both in conjunction, you get better overall temperature control, achieving the desired set temperature.



Imagine using a shower; you turn on the both cold and hot water, adjusting to suit your desired temperature. You would not want to use one where you had to stand under the cold water, then the hot, then the cold in order to regulate the temperature.

Centurion has a set temperature of 3°C, and the competitor of 4°C.

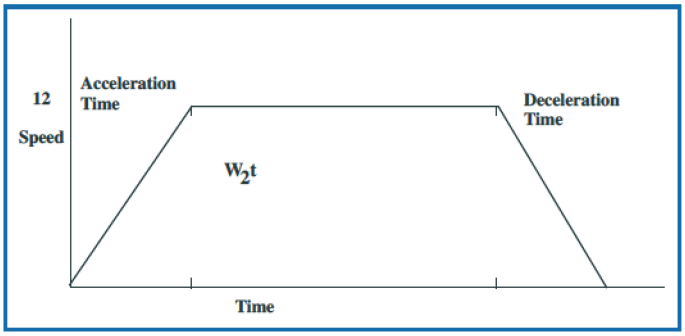
This allows us to separate the target areas, to show how each machine regulates the temperature. Both refrigeration units use the same air probes, temperature units, and have the probes set at the same distance from the rotor, and finally, the correct vertical distance to the optimum tube area. But as you can see, we control to 0.5°C, whereas our competitor controls it to 3.5°C, the control of our centrifuge is unsurpassed, and our competitors, which all use the same method of turning the compressor on and off, is shown to have very poor control. Having the temperature being so controlled means that the Centurion's power usage is less, and the compressor lasts longer.

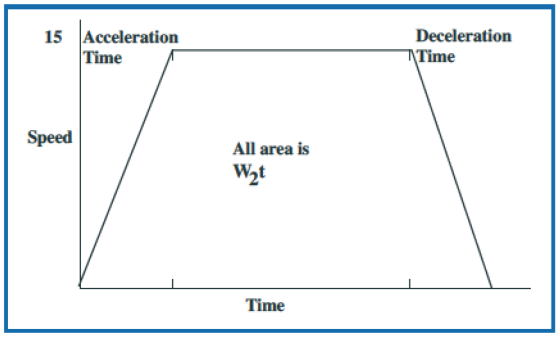
This system has been in use for over 20 years, so we do know the longevity of our products. Require complete accuracy with your samples? Purchase a Centurion Centrifuge for total peace of mind. Tried, tested and proven as one of the most accurate systems in the market place.

ω2t

This is a method of replacing runs, but changing the parameters to suit your sample. Example, you find the speed rate of Rcf is too high and cells rupture or acceleration rate too high and proteins are sticking to the tube sides. Or maybe you find the run time simply too long and wish to increase the speed.

Please look at the ω2t graphs below. As you can see it maps the area of accelerations to speed, the time actually at speed and a proportion of decelerations time.





By finding a suitable set of run parameters, taking a note of the ω2t on the screen. You can then make a program with that figure.

This time you can change any parameter, acceleration rate, speed/RCF, time and deceleration rate. Simply press start the system will adjust the time needed and as it progresses the ω2t figure on screen will reduce to zero then brake to a stop. Or you can use this methodology to copy your runs time after time for true repeatability.

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Use the above details to contact us if this literature doesn't answer all your questions.

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.