

Centurion Scientific Ltd



Benchtop Centrifuges

Sold all over the world

Established in 1989 we are now celebrating over 20 years of success

Choosing the right Centrifuge

A centrifuge is a critical piece of equipment. Therefore, when the time comes to add new centrifuges or replace old models, it is important to make an informed decision.

With so many recent advances in both science and technology, it is wise to educate yourself about our wide range of centrifuge options now available.

Reasons to buy

Engineered excellence offering a choice which will fit all budgets.

Two year warranty offering complete peace of mind.

(All warranties are subject to certain terms and conditions)

Strong and built to last, yet offering an attractive exterior pleasing to the eye. Incorporating high level safety features – adhering to ISO and other governing bodies.

We are CE marked accordingly.

Preferred supplier to Ministries of health, agriculture, government bodies, hospitals, veterinary establishments and charities worldwide to name but a few.

We are tried, tested and trusted worldwide.

No compromises

We use only the best motors, inverters, filters and materials.

Our rotors are either aircraft grade aluminium or high tech composites.

Rigorous quality assurance. Through a 3 phase QA test process.

Bespoke special adaptor service, means a perfect fit to all tubes.
(within the rotors capacity)



Index



C2012



C2015



CR2000



K241



K241R



Pro-Sep E



CYT04



CYT12



CW12

Micro Centrifuges

C2012

Haematocrit and micro centrifuge
12000 Rpm max 13500G
Capillary and fixed angle microtube rotors

C2015

Micro centrifuge
15000 Rpm max 22000 G
Micro tube fixed angle rotors

Multi-purpose

CR2000

Centrifuge 400ml capacity
12000 Rpm max 13500G
Varied range of swing out & Fixed angle rotors

Large Centrifuges

K241

Centifuge 1 Litre capacity
15000 Rpm max 22000G
Swing out rotor & Fixed angle rotors

K241R

Centifuge 1 Litre capacity
15000 Rpm max 22000G
Swing out rotor & Fixed angle rotors

Clinical Centrifuges

Pro-Sep E

Small clinical Centrifuge

CYT04

Cytology Centrifuge

CYT12

Cytology Centrifuge

CW12

Cellwasher Centrifuge

Details for all C2 series



Electric blue LED display

Features

- 10 Acceleration rates
- 10 Deceleration rates
- 10 Program memory including last run memorised.
- Timer 0-99 minutes and constant
- Pulse (short run) to 90 seconds
- Run in speed or Rcf(G Force) in 10 Rpm steps
- Accuracy to ± 10 Rpm
- Repeatability ± 1 Rpm
- Sound <60 Db (rotor dependent)
- All rotors autoclaveable to 120C

Standard features to all C2 range

Stainless steel bowl

Alloy and steel main frame with composite panels

World brand leading industrial grade inverter

High quality European brushless motor

New style lid

Advantages

Cleanliness & Rust Free

Strong Light & Quiet

Reliability & Accuracy

Quiet, Cool & Reliable

Cooler running

Safety features to all range

Multi-point lid locking system containment

Imbalance vibration detector with auto reset

Lid lock detector

Overspeed sensor

Set inverter values

Barrier ring

Motor overheat sensor

Best Safety for Lid

Easy "eye" volume loading

Unable to run with an open lid

Safe detection of speed

Electronic safety of speed

Metal protection of chamber

Motor protection

Details for all K3 series



LCD display
Touch screen control

Features

- 10 Acceleration rates
- 10 Deceleration rates
- 108 Program memory
- Rotor recognition
- Timer 0-9999 minutes and hold in 1 second increments
- Pulse (short run) to 90 seconds
- Run in speed or Rcf(G Force) up to 1 Rpm increments
- W²t plus for true repeatability
- Sound < 60 Db (rotor dependent)
- All rotors autoclaveable to 120°C

Standard features to all K3 range

Stainless steel bowl
Alloy and steel main frame with composite panels
World brand leading industrial grade inverter
High quality European brushless motor
New style lid (Ambient Models only)
CFC free Refrigerant on R models

Advantages

Cleanliness & Rust Free
Strong Light & Quiet
Reliability & Accuracy
Quiet, Cool & Reliable
Cooler running
Ozone layer friendly

Safety features to all range

Multi-point lid locking system containment	Best Safety for Lid
Imbalance vibration detector with auto reset	Easy "eye" volume loading
Lid lock detector	Unable to run with an open lid
Overspeed sensor	Safe detection of speed
Set inverter values	Electronic safety of speed
Barrier ring	Metal protection of chamber
Motor overheat sensor	Motor protection

Full service access via coded system, giving LCD display diagnostics

C2012 Haematocrit & Microtube centrifuge

Speed	500-12000Rpm in 10 Rpm steps
Max Rcf	13500G
Timer	0-99Minutes and constant
Dims HWD	23x23x35Cms
Weight	12Kilos without rotor

Accessories for BRK5401

8003	Haematocrit reader
8014	Sealing compound capillary



Rotors Available



BRK5401

max speed 12000 Rpm 13,500G
24 x Capillary tubes
Tube size maximum H75 x W1.6mm
And 12 x 1.5-2.0ml tube
Tube size maximum H40 x W11mm
Cap size dependant



BRK5424

Reducers Available

max speed 12000 Rpm 13,500G
24 x 1.5-2.2ml tube, fixed angle rotor
Tube size maximum H40 x W11mm
0.2ml - 0.4ml and 0.5ml



BRK5436

max speed 12000 Rpm 13,500G
36 x 0.5ml tube, fixed angle rotor
Tube size maximum H40 x W8mm
Cap size dependant



BRK5448

max speed 12000 Rpm 13,500G
48 x 0.2ml tube, fixed angle rotor
Tube size maximum H40 x W6mm
Cap size dependant

C2015 Micro high speed centrifuge

Speed	500-15000Rpm in 10 Rpm steps
Max Rcf	22000G
Timer	0-99Minutes and constant
Dims HWD	23x23x35Cms
Weight	12Kilos without rotor



Rotors Available

BRK5424

Reducers available

max speed 15000 Rpm 22,000G
24 x 1.5-2.2ml tube, fixed angle rotor
Tube size maximum H40 x W11mm
Cap size dependant
0.2ml - 0.4ml and 0.5ml

BRK5436

max speed 15000 Rpm 22,000G
36 x 0.5ml tube, fixed angle rotor
Tube size maximum H40 x W8mm
Cap size dependant

BRK5448

max speed 15000 Rpm 22,000G
48 x 0.2ml tube, fixed angle rotor
Tube size maximum H40 x W6mm
Cap size dependant

BRK5494

max speed 15000 Rpm 22,000G
4 x 8 place PCR strip (0.2ml)

CR2000 Multi purpose & versatile rotor recognised centrifuge

Speed	500-12000Rpm in 10 Rpm steps
Max Rcf	13500G
Timer	0-99Minutes and constant
Dims HWD	27x33x46Cms
Weight	16.5Kilos without rotor

Accessories for BRK5401

8003	Haematocrit reader
8014	Sealing compound capillary



Rotors Available



BRK5505

max speed 4000 Rpm 2,200G
4 x 100ml max swing out rotor with rings
Requires tube adaptors as below
Sealed lids available B5419



TUBE ADAPTORS for BRK5505

Range from 0.5ml to 100ml max
See Page 14/15 for full details



BRK5434

Reducers available

max speed 4000 Rpm 2,200G
8 x 50ml tube, fixed angle rotor
Tube size maximum H115 x W30mm
15ml and 25ml



BRK5431

Reducers available

max speed 4000 Rpm 2,200G
24 x 15ml tube, fixed angle rotor
Tube size maximum H120 x W17 mm
5ml and 10ml

Rotors - fixed angle



BRK5401

max speed 12000 Rpm 13,500G
24 x Capillary tubes
Tube size maximum H75 x W1.6mm
Also 12 x 1.5-2.0ml tube
Tube size maximum H40 x W11mm
Cap size dependant.



BRK5424

Reducers available

max speed 12000 Rpm 13,500G
24 x 1.5-2.2ml tube, fixed angle rotor
Tube size maximum H40 x W11mm
Cap size dependant.
0.2ml - 0.4ml and 0.5ml



BRK5436

max speed 12000 Rpm 13,500G
36 x 0.5ml tube, fixed angle rotor
Tube size maximum H40 x W8mm
Cap size dependant

BRK5448

48 x 0.2ml tube, fixed angle rotor
Tube size maximum H40 x W6mm.



BRK5494

max speed 12000 Rpm 13,500G
4 x 8 place strip PCR rotor (0.2ml)



BRK5412

Reducers available

max speed 6000 Rpm 3,800G
12 x 15ml tube, fixed angle rotor
Tube size maximum H120 x W17 mm
5ml and 10ml



BRK5406

Reducers available

max speed 6000 Rpm 3,800G
6 x 50ml Tube, fixed angle rotor
Tube size maximum H115 x W30mm
15ml and 25ml



K241 Ambient Model

Speed	500-15000Rpm in 1 Rpm steps
Max Rcf	22000G
Timer	0-9999 Minutes + hold in 1 second steps
Dims HWD	28x40x50Cms
Weight	22.5Kilos without rotor



K241R Refrigerated Model

Speed	500-15000Rpm in 1 Rpm steps
Max Rcf	22000G
Timer	0-9999 Minutes + hold in 1 second steps
Dims HWD	35x45x62Cms
Weight	45Kilos without rotor
Temp	-9 to +40° C PID Controlled Accuracy and control to 0.5° C



Rotors - swing out available to both

BRK5510

max speed 4000 Rpm 2,600G
Swing out rotor 4 x 250ml max
Requires buckets and tube adaptors

B5250

Buckets required (4)
(shown with Rotor)
Sealed lids available B5419



BRK5530

max speed 2000 Rpm 2,800G
Microtiter plate buckets
and rotor complete
Capacity 4 total stacked

Rotors - fixed angle available to both



BRK5424

max speed 15000 Rpm 22,000G
24 x 1.5-2.2ml tube, fixed angle rotor
Tube size maximum H40 x W11mm
0.2ml - 0.4ml and 0.5ml

Reducers available



BRK5436

max speed 15000 Rpm 22,000G
36 x 0.5ml tube, fixed angle rotor
Tube size maximum H40 x W8mm
Cap size dependant

BRK5448

max speed 15000 Rpm 22,000G
48 x 0.2ml tube, fixed angle rotor
Tube size maximum H40 x W6mm
Cap size dependant



BRK5494

max speed 15000 Rpm 22,000G
4 x 8 place strip PCR tubes (0.2ml)



BRK5100

max speed 6000 Rpm 4,800G
6 x 100ml tube, fixed angle rotor
Tube size maximum H125 x W45mm
10ml, 15ml, 25ml, 50ml and 85ml

Reducers available



BRK5401

max speed 12000 Rpm 13,500G
24 x capillary tubes
Tube size maximum H75 x W1.6mm
and 12 x 1.5 -2.0ml tube
Cap size dependant
Tube size maximum H40 x W11mm



BRK5324

max speed 6000 Rpm 4,800G
24 x 15ml tube, fixed angle rotor
Tube size maximum H120 x W17 mm
5ml and 10ml

Reducers available



BRK5308

max speed 6000 Rpm 4,800G
8 x 50ml tube, fixed angle rotor
Tube size maximum H115 x W30mm
15ml and 25ml

Reducers available

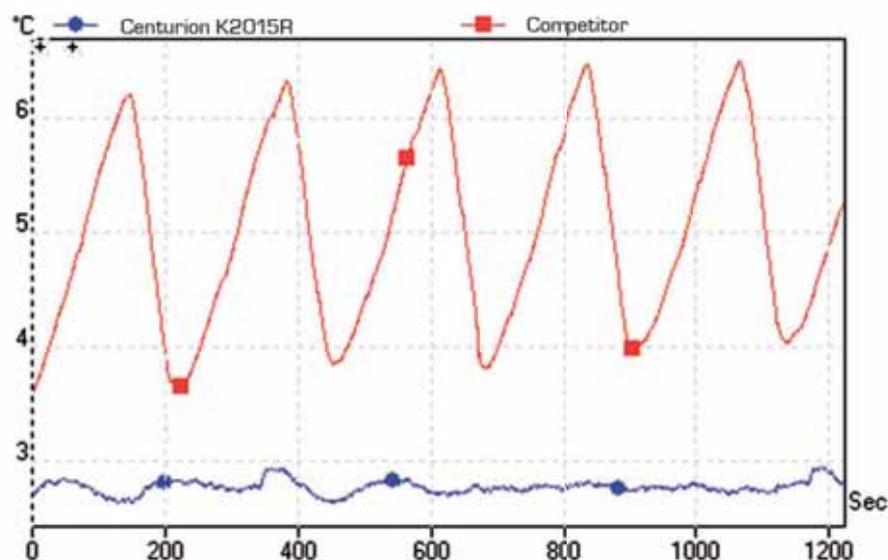
Refrigerated Centrifuges temperature control

At Centurion, we have taken temperature control seriously. We keep the refrigeration unit in the refrigerated centrifuges running constantly, as this not only gives the compressor a longer and reliable life, but stops the constant surges of 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 0°C temperatures.

To maintain the temperature, we have a highly efficient heater coil system around the chamber, next to the refrigeration tubes, where we pulse heat via a highly accurate controller system (PID controller, which calculates and manages the temperature). By running both in conjunction with each other gives better overall temperature control, achieving the desired set temperature.

Imagine using a shower: you turn on the both the 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.

Please see the graph that compares our system to another brand leader.



Centurion has a set temperature of 3°C, and our 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 the tube area.

But as you can see, we control to 0.3°C, whereas our competitor controls it to 3°C. The Centurion's control is unsurpassed, and our competitor's, 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 15 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.

Pro-Sep E

The best value centrifuge that separates blood, urine and many other samples.

The standard, inclusive 8x15ml rotor is simple simplicity not only 12-15ml analysis but offering extra capacity via adaptors of 2-4ml tubes and also 4-7ml for mainstream blood tube. Thus saving you time and money by not requiring further rotors and saving time in changing them.



Complete with the following



BR5408 Rotor –
8x15



8008 Reducers
to 5ml and
8009 Reducers
to 10ml

Standard features

- Stainless steel bowl
- Alloy & steel main frame with composite panels
- World brand leading industrial grade inverter
- High quality European brushless motor
- Full service access via coded system

Safety features to both

- Multi Point Lid locking system
- Imbalance vibration detector with auto reset
- Lid lock detector
- Overspeed sensor
- Set Inverter values
- Barrier Ring
- Motor overheat sensor

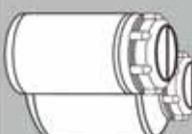
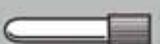
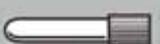
Pro-Sep E

With Bright blue LED display

Speed	500-6000rpm in 10rpm steps
Max Rcf	3500G
Timer	0-99mins and constant. Pulse 0-90 secs.
Dims HWD	23x23x35cms
Weight	12 Kilos without rotor

Features to both models

- LED Display
- 10 acceleration rates
- 10 deceleration rates
- 10 programme memory
- Run in speed or Rcf (G force)

	Falcon with cap	Square	12ml	17x100	AFSS12	16	AFSS612	16	AFSS812	48	
	Falcon with cap	Square	25ml	25x90	AFSS25	4	AFSS625	8	AFSS825	28	
	Falcon with cap	Square	30ml	25x110	AFSS30	4	AFSS630	8	AFSS830	28	
	Falcon with cap	Square	50ml	29x115	AFSS50	4	AFSS650	4	AFSS850	20	
	Nalgene/Oakridge	Round	10ml	16x80	AN0510	8	AN0610	16	AN0810	48	
	Nalgene/Oakridge	Round	30ml	26x95	AN0530	4	AN0630	4	AN0830	28	
	Nalgene/Oakridge	Round	50ml	29x107	AN0550	4	AN0650	4	AN0850	24	
	Nalgene/Oakridge	Round	85ml	38x106	AN0585	4	AN0685	4	AN0885	12	
	Nalgene/Oakridge *	Flat	250ml	62x130	N/A	N/A	Buckets 5250	4	AN08250	4	
	Nalgene/Oakridge *	Flat	750ml	98x153	N/A	N/A	N/A	N/A	Bucket	4	
	Monovette	Square	1.1-1.4ml	8x82	AM5014	40	AM6014	40	AM8014	96	
	Monovette	Square	2.7-3ml	11x82	AM503	48	AM603	40	AM803	76	
	Monovette	Square	2.6-2.9ml	13x81	AM529	40	AM629	40	AM829	76	
	Monovette	Square	4.5-5ml	11x108	AM503	48	AM603	40	AM803	76	
	Monovette	Square	7.5-8.2ml	13x106	AM579	40	AM679	40	AM879	76	
	Monovette	Square	4.5-5ml	15x92	AM550	28	AM650	28	AM850	64	
	Monovette	Square	7.5-8.2ml	15x108	AM550	28	AM650	28	AM850	64	
	Monovette	Square	9-10.0ml	16x108	AM590	28	AM690	28	AM890	64	
		Vacutainer	Round	1.6-5.0ml	13x75	AV516	40	AV616	40	AV816	76
		Vacutainer	Round	4-7.0ml	13x100	AV550	40	AV650	40	AV850	76
		Vacutainer	Round	4-7.0ml	16x75	AV570	28	AV670	28	AV870	64
		Vacutainer	Round	8.0ml	16x125	AV580	28	AV680	28	AV880	64
	Vacutainer	Round	8.5-10.0ml	16x100	AV580	28	AV680	28	AV880	64	

Note:- We cannot be held responsible if the tube manufacturers change design of tube.

*Cannot be used with bucket lids. Part No B5419 and B5319.

Adaptors for Swing out rotors

Tube type	Shape	Capacity	Size
Micro with cap	point	0.5ml	WxH (mm) 8x20
Micro with cap	point	1.5ml	11x38
Micro with cap	point	2.0ml	11x38
Micro with cap	point	0.2ml	6x20
Micro with cap	point	0.4ml	6x30



Adaptors

To fit rotor BRK5505	
Part nos	Nos of tubes Per rotor
AM505	40
AM520	28
AM520	28
AM502	48
AM504	48

Adaptors

To fit rotor BRK5510	
Part nos	Nos of tubes Per rotor
AM605	40
AM620	28
AM620	28
AM602	48
AM604	48

Adaptors

To fit rotor BRK5553	
Part nos	Nos of tubes Per rotor
AM805	120
AM820	84
AM820	84
AM802	168
AM804	168

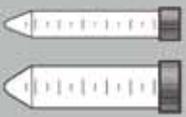


Plain	No cap	round	1ml	6x45
Plain	No cap	round	3ml	10x60
Plain	No cap	round	5ml	12x75
Plain	No cap	round	6ml	12x82
Plain	No cap	round	7ml	12x100
Plain	No cap	round	9/10ml	14x100
Plain	No cap	round	15ml	17x100
Plain	No cap	round	25ml	24x100
Plain	No cap	round	50ml	34x100
Plain	No cap	round	100ml	45x100
Plain	No cap	round	150ml	52x100
Plain	No cap	round	250ml	62x100

AR501	48
AR503	32
AR505	32
AR505	32
AR505	32
AR507	32
AR509	28
AR515	28
AR525	12
AR550	4
AR5100	4
N/A	N/A
N/A	N/A

AR601	48
AR603	32
AR605	32
AR605	32
AR605	32
AR607	32
AR609	28
AR615	28
AR625	12
AR650	4
AR6100	4
AR6150	4
BUCKET	4

AR801	168
AR803	96
AR805	96
AR805	96
AR805	96
AR807	96
AR809	84
AR815	52
AR825	28
AR850	16
AR8100	8
AR8150	4
AR8250	4

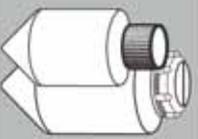


Falcon with cap	Point	15ml	17x120
Falcon with cap	Point	50ml	29x115
Falcon with cap	Point	175ml	61x118

AF515	8
AF550	4
N/A	N/A

AF615	16
AF650	4
AF6175	4

AF815	48
AF850	16
AF8175	4



Corning with cap *	Point	250ml	60x172
Corning with cap *	Point	500ml	98x148

N/A	N/A
N/A	N/A

N/A	N/A
N/A	N/A

AF8250	4
AF8500	4

Centurion Cytology Centrifuge

Using centrifugal force to separate and deposit a monolayer of cells on slides while maintaining cellular integrity within a clearly defined area FROM ANY FLUID MATRIX. Cyto-centrifugation also constructively flattens cells for excellent nuclear presentation. Our tilting action during spinning successfully centrifuges cells onto the deposition area of the slide giving all cell types equal opportunity for presentation.

Applications include cytology/histology, haematology/oncology, immunochemistry, virology/serology and microbiology.

Offering 2 units processing either 4 or 12 samples from 0.1ml - 6ml and an extensive range of accessories we have your cytology needs covered.

CYT12

with touch screen LCD display

Complete with 12 place rotor and starter pack

Speed	500-2000Rpm
Max Rcf	525G
Timer	0-99Minutes + hold
Dims HWD	27x33x46Cms
Weight	16.5Kilos without rotor

Features

LCD touch screen display 10 acceleration rates, 10 Deceleration rates, 108 program memory Run is speed or Rcf (G force) & W2t plus for true repeatability

CYT04

with bright blue LED display

Complete with 4 place rotor and starter pack

Speed	500-2000Rpm
Max Rcf	525G
Timer	0-99Minutes + constant
Dims HWD	27x33x46Cms
Weight	16.5Kilos without rotor

Features

LED Display 10 acceleration rates, 10 Deceleration rates, 10 program memory Run is speed or Rcf (G force)

Standard features to both

Stainless steel bowl
Alloy and steel main frame with composite panels
World brand leading industrial grade inverter
High quality European motor
Full service access via coded system

Safety features to both

Multi-point lid locking system containment
Imbalance vibration detector with auto reset
Lid lock detector
Overspeed sensor
Set inverter values
Barrier ring
Motor overheat sensor

Advantages

Cleanliness & Rust Free
Strong Light & Quiet
Reliability & Accuracy
Quiet, Cool & Reliable
Easy servicing

Advantages

Best Safety for Lid
Easy "eye" volume loading
Unable to run with an open lid
Safe detection of speed
Electronic safety of speed
Metal protection of chamber
Motor & samples protection

We reserve the right to make changes without prior notice in line with ongoing R&D



CYT12



CYT04

Cytology Accessories

PLEASE NOTE all our cytology machines are supplied complete with a starter pack included in the price. Consisting of a rotor, clips, holders, filters and slides.



4446 - DOUBLE sample disposable holder complete with white filter card (up to 1ml samples). Cell deposition area 6mm in diameter.



4420 - 4 place rotor for CYT04. High quality polypropylene & stainless steel – autoclavable



4460 - 12 place rotor for CYT12. High quality polypropylene & stainless steel – autoclavable

OUR DOUBLE sample holders double the number of sample presentations per run. Disposable holders come with filter cards pre attached although if you did decide to re use we can supply replacement filter cards.



4462 - Our stainless steel clips hold the sample chambers (both single & double), filter card and microscope slide (4043 Pk 100) for preparation in the cytology machines. Clips are autoclavable and reusable.

Further products that can be used

Allowing complete flexibility in the market place our cytology centrifuges will accept consumables from Shandon and Kaltek including stainless steel clips



Showing Shandon Clip & holder



Showing 6ml holder

6ml disposable chamber intended for single use, eliminating the need for metal clips. Large rectangular cell deposition area 22 x14.75 mm. Provides 12 times the sample volume (6ml). Dedicated for convenient preparation of larger volume samples. REQUIRES SEPARATE filter cards

Centurion Cell Washing Centrifuge

Complete with 12 place rotor and accessories

The Centurion cell washing system can simplify work and save time in the washing of blood cells for antiglobulin reagent tests.

The instrument's 12 place rotor accepts both 10 x 75mm and 12 x 75mm tubes. Being a manual cell washing system means our users can be precise and sure of exact saline amounts administered by themselves.

These machines are perfect for performing blood grouping, blood typing, cross matching, ABO compatibility, RH testing and the Coombs test procedure.

A manual washing cycle includes the following steps:

- Filling with saline solution
- Centrifuging at (usually) 3,500 rpm for 1 min
- Decanting the supernatant
- Resuspending the sediment between cycles

CW12 with bright blue LED display

Speed 500-3500Rpm

Max Rcf 1250G

Timer 0-99Minutes

Pulse 0-90 Secs

Dims HWD 27x33x46Cms

Weight 16.5Kilos without rotor



Features

LED Display 10 acceleration rates, 10 deceleration rates, 10 program memory Run is speed or Rcf (G force)

Standard features

Stainless steel bowl
Alloy and steel main frame with composite panels
World brand leading industrial grade inverter
High quality European brushless motor
Full service access via coded system

Safety features

Multi-point lid locking system containment
Imbalance vibration detector with auto reset
Lid lock detector
Overspeed sensor
Set inverter values
Barrier ring
Motor overheat sensor

Advantages

Cleanliness & Rust Free
Strong Light & Quiet
Reliability & Accuracy
Quiet, Cool & Reliable
Easy servicing

Advantages

Best Safety for Lid
Easy "eye" volume loading
Unable to run with an open lid
Safe detection of speed
Electronic safety of speed
Metal protection of chamber
Motor & samples protection

We reserve the right to make changes without prior notice in line with ongoing R&D

Cell Washer Accessories

PLEASE NOTE our Cell washing machine is supplied complete with rotor and 2 x 12 holders



Rotor for CW12

High quality Polypropylene.
Autoclaveable.

The rotor in this device can be detached and efficiently functions as a holder in which test tubes can be filled, centrifuged, transported, incubated and emptied without the necessity for individual handling.

Adaptors for CW12

2 sets supplied, 12 of each size

Our adaptors enable the rotor to handle both 10 x 75mm and 12 x 75mm tubes.

The included rotor carries 12 tubes but can operate with any balanced load of fewer tubes and any combination of sizes as long as these are properly balanced.

This offers complete flexibility for the user.



