

Product Overview – Clinical Centrifuges



Recommended
configurations for
the centrifugation
of blood/urine tubes



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Premium quality

For the clinical laboratory



Sigma Laborzentrifugen GmbH is a leading global manufacturer of laboratory and blood-bank centrifuges. The company is synonymous with product innovation and the development of long-lived, energy-efficient, and particularly user-friendly devices. Laboratories, institutes, and industrial customers all over the world have trusted the premium quality of Sigma for over 40 years.

Most Sigma centrifuges are designed for use in clinical labs. Thanks to a great variety of rotor options and capacities, they can be used for wide range of throughput requirements. Functions are well thought out and accessories are carefully matched to make daily laboratory tasks easier and meet the high quality requirements of clinical diagnostics.

To prevent hemolytic effects, efficient cooling of temperature-sensitive samples is very important. Because the centrifuge rotor constantly generates heat due to air resistance, unrefrigerated centrifuges require a continuous airflow around samples and rotor. To achieve excellent airflow without generating excessive noise, Sigma uses cutting-edge flow analysis for its unrefrigerated centrifuges. For high throughput applications or continuous usage, the air exchange cannot dissipate the arising heat entirely. In these cases, refrigerated centrifuges are used. For all refrigerated centrifuges, the temperature display is calibrated at the factory to show the actual specimen temperature on the display. With a powerful cooling system, a

sample temperature of $\leq 4^{\circ}\text{C}$ can be guaranteed for typical clinic applications.

The unrefrigerated Sigma 4-5L with temperature monitoring is a special case. It covers the gap between unrefrigerated and refrigerated models and is recommended for varying throughput or to cover peak usage periods. By continuously measuring the sample temperature, it shows its strength particularly in climate-controlled labs. For this field of application, the Sigma 4-5L is a particularly compact and cost-effective solution that meets all requirements for loading capacity and imbalance tolerance.

Another feature, specially developed for clinical diagnostics, is the adjustable coagulation waiting time for CAT tubes in the Sigma 2-7. The recommended clotting time can be defined as part of a program, so that centrifugation starts automatically after the waiting period. A blue LED on the base of the centrifuge indicates the operating status.

In addition to thoughtfully designed functions, all controllers on Sigma units are intuitive to operate and provide the ability to save at least 10 programs. For large controllers, program names can be saved in clear text and optionally transmitted to other devices via barcode. To protect programs and prevent unintentional parameter changes, there is a security function with password protection. The highly visible progress bar provides continuous information about the operating state of the centrifuge.

Sigma 1-7

Benchtop centrifuge

The Sigma 1-7 is excellently suited to the separation of blood or urine samples. The compact size makes it ideal for medical practices, veterinarians and small laboratories. The included fixed-angle rotor can hold up to six blood collection tubes for in vitro diagnostics (IVD). With a maximum RCF of 6,153 x g, separation times can be reduced dramatically. The clearly organized display is easy to read at a distance and offers sophisticated functions like two pairs of acceleration and braking curves as well as user-configurable automatic lid opening at the end of run.



Highlights

- Max. 6 tubes
- 10 programs
- Short acceleration/deceleration times
- Motorized lid lock
- Compact space saving device

Sample capacities for different blood/urine tubes in various rotors

Rotor 91429

- Max. speed: 8,000 rpm
- Max. RCF: 6,153 x g


 A beige, conical rotor with a green interior. It is designed to hold six tubes in a fixed-angle configuration.

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75	13 x 100	16 x 100	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	–	6	6	–	–	6	–	6
13075	6	–	–	6	6	–	–	–

Centrifuge lid unlocks automatically after run

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 1 Sigma 1-7 + rotor 91429

Sigma 2-7

Benchtop centrifuge

The Sigma 2-7 is a compact and versatile blood processing centrifuge ideal for small clinical labs or physicians' and veterinary offices. It sets the standard with the capacity of up to 30 blood collection tubes 16 x 100 mm per run. That boosts throughput in the laboratory and enables faster patient diagnoses. A highlight is the blue LED running indicator, which enables operators to see whether the device is still running – even at a distance. Other unique features are the optional programmable centrifuge wait and start times (clotting times can be preset to simplify work processes) and the possibility to store 10 programs.



Highlights

- Max. 30 tubes
- 10 programs
- LED light as running indicator
- Short acceleration/deceleration times
- Motorized lid lock
- Clotting time function

Sample capacities for different blood/urine tubes in various rotors

Rotor 11071 + bucket 13296

- Max. speed: 4,000 rpm
- Max. RCF: 2,379 x g



2

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	24	24	–	24	24	24	16*	24

*only partial loading of bucket possible

Rotor 11037 + bucket 13035

- Max. speed: 4,000 rpm
- Max. RCF: 2,379 x g



3

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	8	8	4*	8	–	8	8	8
13073	–	–	–	–	8	–	–	–

*only partial loading of bucket possible

Rotor 12073 inkl. bucket 13011

- Max. speed: 4,000 rpm
- Max. RCF outer row: 2,486 x g
- Max. RCF inner row: 2,111 x g



4

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	30**	30	30	30**	–	–	30	–
13070	30***	–	–	30***	–	–	–	–
13073	–	–	–	–	30	30	–	30

only 13 x 100 mm / 13 x 90 mm *only 13 x 75 mm

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 2 Sigma 2-7 + rotor 11071, 4 x bucket 13296
- 3 Sigma 2-7 + rotor 11037, 2 x bucket 13035
- 4 Sigma 2-7 + rotor 12073, 30 x bucket 13011

Sigma 2-16KL

Benchtop centrifuge

The refrigerated Sigma 2-16KL centrifuge features high performance, compact size and intuitive operation. The centrifuge is pleasantly quiet and has many features tailored to the requirements of clinical diagnostics. Thanks to the intelligent design, the swing-out rotor allows up to 24 blood collection tubes (16 x 100 mm) per run to be centrifuged at a maximum RCF of up to 3,717 x g. Standard routines can be stored and recalled conveniently in up to 50 programs. Ten selectable acceleration and braking curves facilitate optimisation of separation processes and additionally shorten run times.



Highlights

- Max. 30 tubes
- 50 programs
- Refrigerated
- Low noise level
- Short acceleration/deceleration times
- Heated version for 37 °C applications available (2-16KHL)

Sample capacities for different blood/urine tubes in various rotors

Rotor 11170 + bucket 13299 5

- Max. speed: 5,000 rpm
- Max. RCF: 3,969 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
14302	20	–	–	20	–	–	–	–
14303	–	16	–	–	16	16	16	–
14307	–	12	–	–	12	12	12	12

Rotor 11170 + bucket 13296 6

- Max. speed: 5,000 rpm
- Max. RCF: 3,717 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	24	24	–	24	24	24	16*	24

*only partial loading of bucket possible

Rotor 12073 inkl. bucket 13011 7

- Max. speed: 4,000 rpm
- Max. RCF outer row: 2,486 x g
- Max. RCF inner row: 2,111 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
–	30**	30	30	30**	–	–	30	–
13070	30***	–	–	30***	–	–	–	–
13073	–	–	–	–	30	30	–	30

only 13 x 100 mm / 13 x 90 mm *only 13 x 75 mm

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 5 Sigma 2-16KL + rotor 11170, 4 x bucket 13299, 4 x adapter 14302, 14303 or 14307
- 6 Sigma 2-16KL + rotor 11170, 4 x bucket 13296
- 7 Sigma 2-16KL + rotor 12073, 30 x bucket 13011

Sigma 3-16L / 3-16KL

Benchtop centrifuge

The compact benchtop centrifuges Sigma 3-16L and the refrigerated version 3-16KL have become indispensable in mid-size clinical laboratories. The compact centrifuges are easy to operate, pleasantly quiet, and have an extraordinary capacity of maximum 68 blood collection tubes per run. The patented one-knob controller is highly practical and offers outstanding features like 50 programs, rotor life monitoring or controller locking to prevent unintentional alteration of operating parameters. The backlit LCD display is easy to read at a distance.



Highlights

- Max. 68 tubes
- 50 programs
- Refrigerated (3-16KL)
- Low noise level
- Multifunction 1 knob controller

Sample capacities for different blood/urine tubes in various rotors

Rotor 11180 + bucket 13190

8+9

- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g



Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
17356	68	–	–	68	–	–	–	–
17358	–	48	12*	–	48	48	48	48

*only partial loading of adapter possible

Rotor 11180 + bucket 13180

10+11

- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,372 / 3,871 x g



Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
18012	48	–	–	48	–	–	–	–
18010	–	48	–	–	48	48	48	–
18020	–	44	28*	–	44	44	44	44

*only partial loading of adapter possible

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 8 Sigma 3-16L + rotor 11180, 4 x bucket 13190, 4 x adapter 17356 or 17358
- 9 Sigma 3-16KL + rotor 11180, 4 x bucket 13190, 4 x adapter 17356 or 17358
- 10 Sigma 3-16L + rotor 11180, 4 x bucket 13180, 4 x adapter 18012, 18010 or 18020
- 11 Sigma 3-16KL + rotor 11180, 4 x bucket 13180, 4 x adapter 18012, 18010 or 18020

Unsurpassed range of accessories

More information on:
www.sigma-zentrifugen.de/en/products/centrifuges

Sigma 4-16 KS

Benchtop centrifuge

The refrigerated Sigma 4-16KS centrifuge is ideal for large clinical laboratories, since it features outstanding performance, intuitive operation and advanced features. Up to 92 blood collection tubes can be centrifuged per run at a maximum RCF of up to 4,643 x g. The patented one-knob controller provides superior operating convenience, safety and versatility. Up to 60 routine procedures can be stored with user-defined names and quickly retrieved from the integrated process library.

Highlights

- Max. 92 tubes
- 60 programs
- Refrigerated
- Controller with 10 selectable languages
- Motorized lid locks
- Heated version for 37 °C applications available (4-16KHS)



Sample capacities for different blood/urine tubes in various rotors

Rotor 11650 + bucket 13450 12

- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
17656	92	–	–	92	–	–	–	–
17655	–	80	28*	–	80	80	80	–
17658	–	76	28*	–	76	76	76	76

*only partial loading of adapter possible

Rotor 11156 + bucket 13127 13

- Max. speed: 4,800 rpm
- Max. RCF: 4,920 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
18012	72	–	–	72	–	–	–	–
18010	–	72	–	–	72	72	72	–
18020	–	66	18*	–	66	66	66	66

*only partial loading of adapter possible

Centrifugation of racks

Various solutions are available. Please inquire for more details.



Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 12 Sigma 4-16KS + rotor 11650, 4 x bucket 13450, 4 x adapter 17656, 17655 or 17658
- 13 Sigma 4-16KS + rotor 11156, 6 x bucket 13127, 6 x adapter 18012, 18010 or 18020

Sigma 4-5L

Benchtop centrifuge

The Sigma 4-5L centrifuge is designed for high throughput laboratories with changing work-loads. The optimized air guidance guarantees very low specimen heating and pleasantly quiet running. As an additional innovative feature, the centrifuge has a sensor to monitor the specimen temperature making it a valuable tool for protecting sensitive clinical samples. The maximum capacity for blood collection tubes is up to 25% more than in comparable units in its class.

Highlights

- Max. 144 tubes
- 50 programs
- Monitoring of specimen temperature and alarm function (patented)
- Short acceleration/deceleration times
- Motorized lid lock
- High imbalance tolerance



Sample capacities for different blood/urine tubes in various rotors

Rotor 11650 + bucket 13450 14

- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
17656	92	–	–	92	–	–	–	–
17655	–	80	28*	–	80	80	80	–
17658	–	76	28*	–	76	76	76	76

*only partial loading of adapter possible

Rotor 11660 + bucket 13460 15

- Max. speed: 4,700 rpm
- Max. RCF: 4,470 x g

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
18461	144	–	–	144	–	–	–	–
18460	–	100	44*	–	100	100	100	100

*only partial loading of adapter possible

Smart
unrefrigerated
centrifuge with
temperature
alarm

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 14 Sigma 4-5L + rotor 11650, 4 x bucket 13450, 4 x adapter 17656, 17655 or 17658
- 15 Sigma 4-5L + rotor 11660, 4 x bucket 13460, 4 x adapter 18461 or 18460

Sigma 6-16KS

Benchtop centrifuge

The refrigerated 6-16KS centrifuge is perfectly suited for high throughput processing of blood collection tubes. Thanks to its powerful cooling system a consistent specimen temperature can be maintained, even in case of heavy workload. The patented one-knob controller provides superior operating convenience, safety and versatility. With automatic rotor identification, password-protected access to the controller and secure program storage, this centrifuge stands for uncompromising safety.

Highlights

- Max. 168 tubes
- 60 programs
- Refrigerated
- Controller with 10 selectable languages
- Motorized lid locks
- Heated version for 37 °C applications available (6-16KHS)



Sample capacities for different blood/urine tubes in various rotors

Rotor 11650 + bucket 13635

- Max. speed: 4,700 rpm
- Max. RCF: 4,816 x g

 A black rotor with four yellow buckets attached. The buckets are arranged in a circular pattern.

Adapter	BD Vacutainer / Greiner Vacuette			Sarstedt Monovette				
	13 x 75 / 100	16 x 100	16 x 125	13 x 75 / 90	15 x 75	15 x 92	15 x 102	16 x 92
18609	168	–	–	168	–	–	–	–
18608	–	144	72*	–	144	144	144	–
18610	–	128	–	–	128	128	128	128

*only partial loading of adapter possible

Clinical Packages (in case of inquiry please indicate package number and required adapter, if applicable)

- 16 Sigma 6-16KS + rotor 11650, 4 x bucket 13635, 4 x 18609, 18608 or 18610

Centrifugation of racks

Various solutions are available. Please inquire for more details.







Solutions for lab automation and blood banks

Various options available







Blood bank centrifuge Sigma 8KBS

-  12 x 1,000 ml
-   5,100 rpm
-  8,578 x g

The Sigma 8KBS is a refrigerated floor-standing centrifuge specifically developed for deployment in blood banks and transfusion facilities. With a maximum capacity of 12 x 750 ml blood bag systems per run, it enables efficient processing of large specimen volumes. The device delivers reliably excellent and reproducible sedimentation results thanks to its very smooth running. Along with its outstanding specifications, the Sigma 8KBS features impressive energy efficiency and perfectly matched accessories.



Centrifuge for laboratory automation Sigma 4-5KRL

-  100 x 15 ml
-   4,700 rpm
-  4,470 x g

The innovative Sigma 4-5KRL is specifically designed for integration into laboratory automation systems (total lab automation). This refrigerated centrifuge is laid out for robot loading / unloading and high throughput of tubes for clinical in vitro diagnostics (IVD). Based on Sigma's many years of experience with centrifuges suitable for robot operation, the Sigma 4-5KRL boasts noteworthy innovations and advanced features. The patented bucket lifting device is one of its unique features.

Legend

-  Max. capacity
-  Swing-out rotor
-  Max. speed
-  Max. RCF



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