

# Sigma 4-5L Sigma 4-5KL



Benchtop centrifuge

- Unrefrigerated
- Refrigerated



# Top performer for high throughput



**Sigma is a leading international manufacturer of laboratory centrifuges for biotechnology, pharmaceutical, medical, environment analysis, and other sectors. Laboratories, institutions and companies everywhere in the world have been relying on premium Sigma quality – Made in Germany – for more than 40 years. The company stands for innovative products and development of durable, energy-efficient and especially user-friendly devices.**

The high-performance Sigma 4-5L and Sigma 4-5KL laboratory centrifuges are designed for throughput and capacity. The high torque enables especially short acceleration times and makes laboratory processes efficient. These centrifuges are recommended for applications in clinical diagnostics and for life sciences applications.

The Sigma 4-5L boasts impressive features. Optimal air guidance ensures very low specimen heating and pleasantly quiet running. As an additional innovative feature, the IVD version of the device has a temperature sensor to monitor the specimens.

The refrigerated version Sigma 4-5KL, with a temperature adjustment range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ , is recommended for the protection of temperature sensitive samples.

# Higher throughput in the laboratory

## Result-oriented, convenient and robust

The Sigma 4-5 centrifuge series is designed for research and routine tasks in the laboratory. With their versatile rotor configurations, these models are suitable for research laboratories, hospitals, universities, cell culture applications, pharmaceutical laboratories, and applications in the biotechnology sector.

The IVD version of the non-refrigerated Sigma 4-5L features the innovative temperature monitoring function, a valuable aid for the protection of sensitive specimens. The maximum permissible specimen temperature can be freely set by the user. The device monitors this temperature and informs the user by an alert on the display if the limit was exceeded during the separation process. The innovative features enable compliance with the strict quality demands of clinical diagnostics.

### Sigma 4-5L

- High-performance benchtop centrifuge
- Speed range up to 4,700 rpm
- Maximum capacity: 4 x 750 ml
- Up to 144 blood collection tubes per run
- User-friendly Spincontrol L controller
- Capacity for 50 programs
- Compact, space-saving device
- Low noise level
- Short braking and acceleration times
- Zero-maintenance induction motor
- High imbalance tolerance
- Motorized lid opening
- Automatic imbalance monitoring
- Rotor life monitoring for high safety
- Easily cleaned stainless steel chamber
- Window in lid for external speed checking
- Manufactured according to the latest national and international standards (e.g. EN 61010-2-020)

### Sigma 4-5L with IVD

- Temperature monitoring: sensor for monitoring the maximum specimen temperature.

The Sigma 4-5KL refrigerated centrifuge is recommended for all applications in which the constant temperature between 4 °C and 22 °C must be maintained. To save energy and reduce costs, the refrigerated centrifuge offers the ECO mode feature. After a user-settable time, the centrifuge automatically switches to standby mode if it is not being used. Along with being energy efficient, this improves the working atmosphere in the lab by switching off the refrigeration to significantly reduce the noise level. The refrigerated centrifuge has a very small footprint and offers good value for money.

### Sigma 4-5KL

All features of the Sigma 4-5L, plus:

- Speed range up to 13,500 rpm
- Temperature adjustment range –10 °C to +40 °C
- Optimized refrigeration compliant with the fluorinated greenhouse gases regulation (EU) No. 517/2014
- Rapid Temp function for fast temperature control
- Rotor temperature control even at standstill
- Adjustable ECO mode for energy-efficient standby mode

### Sigma 4-5KL with IVD

All features of the Sigma 4-5KL.





# Rotors and accessories

## Comprehensive options for the laboratory

A dedicated range of rotors are available for the compact Sigma 4-5 device series. The extensive range of accessories for swing-out rotors can hold tubes and vials from 1.5 ml to 750 ml as well as microtiter and deepwell plates. For working with samples that must be kept contained, the hexagonal bucket can be closed with a transparent cap for biosafe operation. The bail allows the buckets to be opened quickly and easily with just one hand.

There are also fixed-angle rotors for 48 x 1.5 ml reaction tubes, 8 x 50 ml conical vials and 6 x 94 ml vials. All fixed-angle rotors are suitable for biosafe operation.

As a special feature, custom accessories can be produced on request. The rotors and accessories are made of certified high-performance materials to withstand the most severe stresses.

### Sigma 4-5L und Sigma 4-5KL rotor options

#### Swing-out rotor 11650 / 11660

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Biosafe with cap 17170 
- Angle: 90°



► p. 7

#### Swing-out rotor 11660 and bucket 13460

- Max. capacity: 100 x 15 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,470 x g
- Biosafe with cap 17460 
- Angle: 90°



► p. 10

#### MTP swing-out rotor 11650 / 11660

- Max. capacity: 16 microtiter plates
- Max. speed: 4,700 rpm
- Max. RCF: 3,877 x g
- Angle: 90°



► p. 11

### Sigma 4-5KL rotor options

#### MTP swing-out rotor 11118

- Max. capacity: 10 microtiter plates
- Max. speed: 5,700 rpm
- Max. RCF: 5,485 x g
- Biosafe with cap 17108 
- Angle: 90°



► p. 11

#### Fixed-angle rotor 12449

- Max. capacity: 48 x 2 ml
- Max. speed: 13,500 rpm
- Max. RCF: 20,376 x g
- Biosafe with aluminum lid 17612 
- Angle (outer / inner row): 25° / 53°



► p. 12

#### Fixed-angle rotor 12269

- Max. capacity: 8 x 50 ml conical
- Max. speed: 11,360 rpm
- Max. RCF: 15,000 x g
- Biosafe with aluminum lid 17604 
- Angle: 25°



► p. 13

#### Fixed-angle rotor 12265

- Max. capacity: 6 x 94 ml round-bottom
- Max. speed: 10,000 rpm
- Max. RCF: 11,851 x g
- Biosafe with aluminum lid 17607 
- Angle: 25°



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## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°

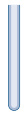
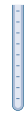


### Swing-out rotor 11660

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°

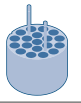


| Tube                                 |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 1.5                                                                               | 2                                                                                 | 5                                                                                 | 5                                                                                 | 6 (5)                                                                             | 7                                                                                 | 10                                                                                  | 10                                                                                  | 10                                                                                  | 10                                                                                  |
| Diameter x length [mm]               | 10.7 x 42                                                                         | 10.7 x 42                                                                         | 12 x 75                                                                           | 17 x 60                                                                           | 12 x 100                                                                          | 12 x 100                                                                          | 16.1 x 81.1                                                                         | 16.1 x 81.1                                                                         | 16.1 x 81.1                                                                         | 16 x 100                                                                            |
| Tube material                        | PP                                                                                | PP                                                                                | PS                                                                                | PPCO                                                                              | Glass                                                                             | Glass                                                                             | PF                                                                                  | PC                                                                                  | PPCO                                                                                | Glass                                                                               |
| Item no.                             | 15008                                                                             | 15040                                                                             | 15060                                                                             | —                                                                                 | 15007                                                                             | 15027                                                                             | 15000                                                                               | 15010                                                                               | 15039                                                                               | 15015                                                                               |

#### Adapter

for round bucket 13450



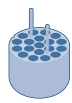
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|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Bore diameter x length [mm] | 11.1 x 38.5                                                                         | 12.8 x 52                                                                           | 17 x 52                                                                             | 12.8 x 74                                                                           | 16.5 x 55                                                                             | 17.5 x 55                                                                             |
| Tubes per adapter / rotor   | 26 / 104                                                                            | 37 / 148                                                                            | 12 / 48                                                                             | 32 / 128                                                                            | 20 / 80                                                                               | 19 / 76                                                                               |
| Centrifuging radius [mm]    | 181                                                                                 | 180                                                                                 | 185                                                                                 | 182                                                                                 | 183                                                                                   | 183                                                                                   |
| Item no.                    | 17653                                                                               | 17652                                                                               | 17211                                                                               | 17654                                                                               | 17655                                                                                 | 17658                                                                                 |

| Tube                                 |  |  |  |  |  |  |  |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 10                                                                                  | 14                                                                                  | 14                                                                                  | 15 (13)                                                                             | 15                                                                                    | 25                                                                                    | 25                                                                                    | 25                                                                                    | 30 (26)                                                                               |
| Diameter x length [mm]               | 16 x 100                                                                            | 17 x 100                                                                            | 17 x 100                                                                            | 17 x 110                                                                            | 16.5 x 120                                                                            | 25 x 90                                                                               | 24 x 100                                                                              | 24 x 100                                                                              | 25.3 x 98                                                                             |
| Tube material                        | Glass                                                                               | PS                                                                                  | PP                                                                                  | Glass                                                                               | PP                                                                                    | PP                                                                                    | Glass                                                                                 | Glass                                                                                 | PF                                                                                    |
| Item no.                             | 15024                                                                               | 15020                                                                               | 15023                                                                               | 15022                                                                               | 15115                                                                                 | —                                                                                     | 15025                                                                                 | 15026                                                                                 | 15029                                                                                 |

#### Adapter

for round bucket 13450



|                             |  |  |  |  |  |
|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Bore diameter x length [mm] | 17.5 x 55                                                                           | 17 x 78.5                                                                           | 17 x 78.5                                                                            | 25.5 x 70                                                                             | 25.5 x 77                                                                             |
| Tubes per adapter / rotor   | 19 / 76                                                                             | 12 / 48                                                                             | 15 / 60                                                                              | 7 / 28                                                                                | 8 / 32                                                                                |
| Centrifuging radius [mm]    | 183                                                                                 | 187                                                                                 | 187                                                                                  | 175                                                                                   | 185                                                                                   |
| Item no.                    | 17658                                                                               | 17659                                                                               | 17660*                                                                               | 17662                                                                                 | 17670                                                                                 |

\* Only possible without cap 17170

Sigma 4-5L and Sigma 4-5KL

Swing-out rotor 11650

Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170
- Tmin at maximum speed: <4 °C
- Angle: 90°



Swing-out rotor 11660

Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170
- Tmin at maximum speed: <4 °C
- Angle: 90°



| Tube                                 |    |  |    |  |    |  |  |  |    |
|--------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 30 (26)                                                                             | 30 (28)                                                                           | 30                                                                                  | 30                                                                                | 50 (38)                                                                             | 50 (43)                                                                             | 50                                                                                  | 50                                                                                  | 50                                                                                    |
| Diameter x length [mm]               | 25.3 x 98                                                                           | 25.3 x 98                                                                         | 24 x 105                                                                            | 25 x 107                                                                          | 28.8 x 107                                                                          | 28.5 x 107                                                                          | 28.5 x 101.5                                                                        | 34 x 100                                                                            | 34 x 100                                                                              |
| Tube material                        | PPCO                                                                                | PC                                                                                | Glass                                                                               | PP                                                                                | PPCO                                                                                | PF                                                                                  | Stainless steel                                                                     | Glass                                                                               | Glass                                                                                 |
| Item no.                             | 15032                                                                               | 15030                                                                             | 15033                                                                               | —                                                                                 | 15052                                                                               | 15051                                                                               | 13055                                                                               | 15045                                                                               | 15049                                                                                 |
| Adapter                              |  |                                                                                   |  |                                                                                   |  |                                                                                     |  |                                                                                     |  |
| Bore diameter x length [mm]          | 25.5 x 77                                                                           |                                                                                   | 25.5 x 70                                                                           |                                                                                   | 29.5 x 77                                                                           |                                                                                     | 35.5 x 77.5                                                                         |                                                                                     |                                                                                       |
| Tubes per adapter / rotor            | 8 / 32                                                                              |                                                                                   | 7 / 28                                                                              |                                                                                   | 7 / 28                                                                              |                                                                                     | 4 / 16                                                                              |                                                                                     |                                                                                       |
| Centrifuging radius [mm]             | 185                                                                                 |                                                                                   | 175                                                                                 |                                                                                   | 185                                                                                 |                                                                                     | 185                                                                                 |                                                                                     |                                                                                       |
| Item no.                             | 17670                                                                               |                                                                                   | 17662                                                                               |                                                                                   | 17676                                                                               |                                                                                     | 17675                                                                               |                                                                                     |                                                                                       |

| Tube                                 |  |  |  |  |  |  |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 50                                                                                  | 50                                                                                  | 50                                                                                  | 85 (73)                                                                             | 85 (76)                                                                               | 94 (85)                                                                               | 94                                                                                    | 100 (75)                                                                              |
| Diameter x length [mm]               | 35 x 100                                                                            | 29 x 117                                                                            | 29 x 117                                                                            | 38 x 112                                                                            | 38 x 112                                                                              | 38 x 103                                                                              | 38 x 110                                                                              | 44 x 100                                                                              |
| Tube material                        | Glass                                                                               | PP                                                                                  | PP                                                                                  | PF                                                                                  | PPCO                                                                                  | Stainless steel                                                                       | PC                                                                                    | Glass                                                                                 |
| Item no.                             | 15056                                                                               | —                                                                                   | 15151                                                                               | 15080                                                                               | 15076                                                                                 | 13085                                                                                 | 15094                                                                                 | 15078                                                                                 |
| Adapter                              |  |                                                                                     |                                                                                     |                                                                                     |   |                                                                                       |  |                                                                                       |
| Bore diameter x length [mm]          | 35.5 x 77.5                                                                         | 29.5 x 74                                                                           | 29.5 x 78.5                                                                         | 29.5 x 78                                                                           | 38.5 x 77                                                                             |                                                                                       | 45.5 x 77                                                                             |                                                                                       |
| Tubes per adapter / rotor            | 4 / 16                                                                              | 5 / 20                                                                              | 5 / 20                                                                              | 7 / 28                                                                              | 3 / 12                                                                                |                                                                                       | 2 / 8                                                                                 |                                                                                       |
| Centrifuging radius [mm]             | 185                                                                                 | 182                                                                                 | 186                                                                                 | 186                                                                                 | 185                                                                                   |                                                                                       | 185                                                                                   |                                                                                       |
| Item no.                             | 17675                                                                               | 17678                                                                               | 17677                                                                               | 17649*                                                                              | 17685                                                                                 |                                                                                       | 17690**                                                                               |                                                                                       |

\* Only possible without cap 17170 \*\* Including rubber cushion 16051

## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°



### Swing-out rotor 11660

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°



| Tube                                 |    |    |    |    |    |     |    |    |    |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 100                                                                                 | 100                                                                                 | 150                                                                                 | 175                                                                                 | 175                                                                                 | 200 (168)                                                                            | 200                                                                                   | 225                                                                                   | 250 (232)                                                                             |
| Diameter x length [mm]               | 44 x 100                                                                            | 45 x 100                                                                            | 51 x 99                                                                             | 61 x 118                                                                            | 62 x 139.2                                                                          | 56 x 112                                                                             | 61 x 130                                                                              | 61 x 137                                                                              | 61.4 x 122                                                                            |
| Tube material                        | Glass                                                                               | PC                                                                                  | PP                                                                                  | PP                                                                                  | PP                                                                                  | PPCO                                                                                 | PP                                                                                    | PP                                                                                    | PF                                                                                    |
| Item no.                             | 15100                                                                               | 15103                                                                               | 15125                                                                               | —                                                                                   | 15175                                                                               | 15202                                                                                | 15174                                                                                 | —                                                                                     | 15247                                                                                 |
| Adapter<br>for round bucket 13450    |  |  |  |  |  |  |  |  |  |
| Bore diameter x length [mm]          | 45.5 x 77                                                                           | 51.5 x 77                                                                           | 61 x 100                                                                            | 62.5 x 110                                                                          | 57.5 x 77                                                                           | 62.5 x 110                                                                           | 61 x 100                                                                              | 62.5 x 77                                                                             | 62.5 x 77                                                                             |
| Tubes per adapter / rotor            | 2 / 8                                                                               | 1 / 4                                                                               | 1 / 4                                                                               | 1 / 4                                                                               | 1 / 4                                                                               | 1 / 4                                                                                | 1 / 4                                                                                 | 1 / 4                                                                                 | 1 / 4                                                                                 |
| Centrifuging radius [mm]             | 185                                                                                 | 185                                                                                 | 188                                                                                 | 188                                                                                 | 185                                                                                 | 188                                                                                  | 188                                                                                   | 188                                                                                   | 185                                                                                   |
| Item no.                             | 17690*                                                                              | 17692                                                                               | 17694                                                                               | 17693                                                                               | 17696                                                                               | 17693                                                                                | 17694                                                                                 | 17694                                                                                 | 17698                                                                                 |

| Tube                                 |  |  |  |  |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 250                                                                                 | 250                                                                                 | 400                                                                                 | 500                                                                                 | 500                                                                                 | 650                                                                                  |
| Diameter x length [mm]               | 61.4 x 125                                                                          | 61 x 145                                                                            | 85 x 118                                                                            | 85 x 135                                                                            | 95.5 x 147                                                                          | 100 x 111                                                                            |
| Tube material                        | Stainless steel                                                                     | PP                                                                                  | PPCO                                                                                | PPCO                                                                                | PP                                                                                  | PPCO                                                                                 |
| Item no.                             | 13255                                                                               | —                                                                                   | 15401                                                                               | 15501                                                                               | —                                                                                   | 13456                                                                                |
| Adapter<br>for round bucket 13450    |  |  |  |  |  |  |
| Bore diameter x length [mm]          | 62.5 x 77                                                                           | 62.5 x 110                                                                          | 86 x 107                                                                            | 96.3 x 110                                                                          | 101 x 102                                                                           | 101 x 102                                                                            |
| Tubes per adapter / rotor            | 1 / 4                                                                               | 1 / 4                                                                               | 1 / 4                                                                               | 1 / 4                                                                               | — / 4                                                                               | — / 4                                                                                |
| Centrifuging radius [mm]             | 185                                                                                 | 188                                                                                 | 185                                                                                 | 188                                                                                 | 188                                                                                 | 188                                                                                  |
| Item no.                             | 17698                                                                               | 17693**                                                                             | 13654                                                                               | 17682**                                                                             | —                                                                                   | —                                                                                    |

\* Including rubber cushion 16051 \*\* Only possible without cap 17170

## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°



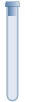
### Swing-out rotor 11660

#### Bucket 13460 with cap 17460 (1 set = 2 pcs)

- Max. capacity: 100 x 15 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,470 x g
- Max. tube length, mid-bucket without / with cap: 141 / 135 mm
- Biosafe with cap 17460 
- Tmin at maximum speed: <4 °C
- Angle: 90°



#### Blood and urine tubes

|                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                      |  |  |  |  |  |  |  |  |  |  |
| Rated capacity (filling volume) [ml] | 1.1 – 1,4                                                                         | 2.7 – 5                                                                           | 1.6 – 6                                                                           | 4 – 6                                                                             | 1.8 – 7                                                                           | 4 – 10                                                                             | 9.5 – 10                                                                            | 6 – 10                                                                              | 9 – 10                                                                              | 8                                                                                   |
| Diameter x length [mm]               | 8 x 82                                                                            | 11 x 82 – 108                                                                     | 13 x 81 – 106                                                                     | 13 x 81 – 106                                                                     | 13 x 81 – 107                                                                     | 15 x 91 – 118                                                                      | 15 x 106                                                                            | 16 x 106 – 107                                                                      | 16 x 108                                                                            | 16 x 131                                                                            |
| Tube material                        | PP                                                                                | PP                                                                                | PP                                                                                | PET                                                                               | PET                                                                               | PP                                                                                 | PET                                                                                 | PET                                                                                 | PP                                                                                  | Glass                                                                               |
| Item no.                             | –                                                                                 | –                                                                                 | –                                                                                 | –                                                                                 | –                                                                                 | –                                                                                  | –                                                                                   | –                                                                                   | –                                                                                   | –                                                                                   |

#### Adapter

for round bucket 13450



|                             |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                             |  |  |  |  |  |
| Bore diameter x length [mm] | 12.8 x 52                                                                           | 13.8 x 54                                                                           | 16.5 x 55                                                                             | 17.5 x 55                                                                             | 17.5 x 55                                                                             |
| Tubes per adapter / rotor   | 37 / 148                                                                            | 23 / 92                                                                             | 20 / 80                                                                               | 19 / 76                                                                               | 7 / 28                                                                                |
| Centrifuging radius [mm]    | 180                                                                                 | 182                                                                                 | 183                                                                                   | 183                                                                                   | 183                                                                                   |
| Item no.                    | 17652                                                                               | 17656                                                                               | 17655                                                                                 | 17658                                                                                 | 17658*                                                                                |

#### Blood and urine tubes

|                                      |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                      |  |  |  |  |  |  |  |  |  |  |
| Rated capacity (filling volume) [ml] | 1.1 – 1,4                                                                           | 2.7 – 5                                                                             | 4 – 6                                                                               | 1.6 – 5.6                                                                           | 1.8 – 7                                                                             | 4 – 10                                                                               | 6 – 10                                                                                | 9 – 10                                                                                | 10                                                                                    | 8                                                                                     |
| Diameter x length [mm]               | 8 x 82                                                                              | 11 x 82 – 108                                                                       | 13 x 81 – 106                                                                       | 13 x 81 – 106                                                                       | 13 x 81 – 107                                                                       | 15 x 91 – 108                                                                        | 16 x 106 – 107                                                                        | 16 x 108                                                                              | 15 x 118                                                                              | 16 x 131                                                                              |
| Tube material                        | PP                                                                                  | PP                                                                                  | PET                                                                                 | PP                                                                                  | PET                                                                                 | PP                                                                                   | PET                                                                                   | PP                                                                                    | PP                                                                                    | Glass                                                                                 |
| Item no.                             | –                                                                                   | –                                                                                   | –                                                                                   | –                                                                                   | –                                                                                   | –                                                                                    | –                                                                                     | –                                                                                     | –                                                                                     | –                                                                                     |

#### Adapter

for bucket 13460



|                             |                                                                                     |                                                                                       |                                                                                       |                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                             |  |  |  |  |
| Bore diameter x length [mm] | 13.5 x 56                                                                           | 17.5 x 57                                                                             | 17.5 x 57                                                                             | 17.5 x 57                                                                             |
| Tubes per adapter / rotor   | 36 / 144                                                                            | 25 / 100                                                                              | 25 / 100                                                                              | 11 / 44                                                                               |
| Centrifuging radius [mm]    | 177                                                                                 | 178                                                                                   | 178                                                                                   | 178                                                                                   |
| Item no.                    | 18461                                                                               | 18460                                                                                 | 18460*                                                                                | 18460*, **                                                                            |

## Sigma 4-5L and Sigma 4-5KL

### MTP swing-out rotor 11650 / 11660

#### Rectangular bucket 13421\* (1 set = 4 pcs), with extractor 17979

- Max. plate height: 61 mm
- Max. speed: 4,700 rpm
- Max. RCF: 3,877 x g
- Max. load per carrier: 500 g
- Tmin at maximum speed: <4 °C
- Angle: 90°

\* Also usable in rotor 11660  
with same specifications



## Sigma 4-5KL

### MTP swing-out rotor 11118

#### with 1 set (2 pcs) rectangular buckets 13218, caps 17108 and extractor 17978

- Max. plate height without / with cap: 93 / 80 mm
- Max. speed: 5,700 rpm
- Max. RCF: 5,485 x g
- Max. load per carrier: 520 g
- Biosafe with cap 17108 
- Max. speed for 4°C: 5,600 rpm
- Angle: 90°



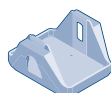
#### Plate



| Description    | MTP<br>(without lid) | MTP<br>(with lid) | DWP             | PCR plate<br>96-fold | Filter plate  |
|----------------|----------------------|-------------------|-----------------|----------------------|---------------|
| W x D x H [mm] | 128 x 86 x 15        | 128 x 86 x 17.5   | 128 x 86 x 44.5 | 128 x 86 x 20        | 128 x 86 x 60 |

#### Adapter

for  
rectangular  
bucket  
13421



| Bore diameter x length [mm] | —            |    |   |    |   |
|-----------------------------|--------------|----|---|----|---|
| Plates per rotor            | 16           | 12 | 4 | 12 | 4 |
| Centrifuging radius [mm]    | 157<br>17979 |    |   |    |   |
| Item no.                    |              |    |   |    |   |

#### Plate



| Description    | MTP<br>(without lid) | MTP<br>(with lid) | DWP             | PCR plate<br>96-fold | Filter plate  |
|----------------|----------------------|-------------------|-----------------|----------------------|---------------|
| W x D x H [mm] | 128 x 86 x 15        | 128 x 86 x 17.5   | 128 x 86 x 44.5 | 128 x 86 x 20        | 128 x 86 x 60 |

#### Adapter

for  
rectangular  
bucket  
13218



| Bore diameter x length [mm]           | —       |        |       |       |       |
|---------------------------------------|---------|--------|-------|-------|-------|
| Plates per rotor (without / with cap) | 12 / 10 | 10 / 8 | 4 / 2 | 8 / 8 | 2 / 2 |
| Centrifuging radius [mm]              | 151     |        |       |       |       |
| Item no.                              | 17978   |        |       |       |       |

Sigma 4-5KL

Fixed-angle rotor 12449

- with aluminum lid 17612
- Max. capacity: 48 x 2 ml
  - Max. speed: 13,500 rpm
  - Max. RCF: 20,376 x g
  - Biosafe with aluminum lid 17612
  - Max. speed for 4 °C: 13,000 rpm
  - Angle (outer / inner row): 25° / 53°



Tube

|                                      |  |  |  |  |  |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 0,2                                                                               | 0,4                                                                               | 0,5                                                                               | 1,5                                                                               | 2                                                                                 |
| Diameter x length [mm]               | 5.85 x 20                                                                         | 5.8 x 47                                                                          | 7.9 x 28                                                                          | 10.7 x 42                                                                         | 10.7 x 42                                                                         |
| Tube material                        | PP                                                                                | PE                                                                                | PP                                                                                | PP                                                                                | PP                                                                                |
| Item no.                             | 15042                                                                             | 15014                                                                             | 15005                                                                             | 15008                                                                             | 15040                                                                             |

Adapter

for  
fixed-angle  
rotor 12449



|                                          |  |  |  |             |
|------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------|
| Bore diameter x length [mm]              | 6.3 x 18.5                                                                          | 6 x 45                                                                              | 8 x 45                                                                              | 11.1 x 38.5 |
| Tubes per adapter / rotor                | 1 / 48                                                                              | 1 / 48                                                                              | 1 / 48                                                                              | – / 48      |
| Centrifuging radius (outer / inner) [mm] | 96 / 96                                                                             | 98 / 98                                                                             | 98 / 98                                                                             | 100 / 100   |
| Item no.                                 | 13021                                                                               | 13000                                                                               | 13002                                                                               | –           |

Sigma 4-5KL

Fixed-angle rotor 12269

with aluminum lid 17604

- Max. capacity: 8 x 50 ml conical
- Max. speed: 11,360 rpm
- Max. RCF: 15,000 x g
- Biosafe with aluminum lid 17604 
- Tmin at maximum speed: <4 °C
- Angle: 25°



Tube

|                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                      |  |  |  |  |  |  |
| Rated capacity (filling volume) [ml] | 15                                                                                | 25                                                                                | 30                                                                                | 50 (38)                                                                           | 50 (43)                                                                           | 50                                                                                |
| Diameter x length [mm]               | 16.5 x 120                                                                        | 25 x 90                                                                           | 25 x 107                                                                          | 28.8 x 107                                                                        | 28.5 x 107                                                                        | 29 x 117                                                                          |
| Tube material                        | PP                                                                                | PP                                                                                | PP                                                                                | PPCO                                                                              | PF                                                                                | PP                                                                                |
| Item no.                             | 15115                                                                             | —                                                                                 | —                                                                                 | 15052                                                                             | 15051                                                                             | 15151                                                                             |

Adapter

for  
fixed-angle  
rotor 12269



|                                       |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                       |  |  |  |  |
| Bore diameter x length [mm]           | 17 x 107                                                                            | 25.5 x 71                                                                           | 30 x 91                                                                             | 29.5 x 102                                                                          |
| Plates per rotor (without / with cap) | 1 / 8                                                                               | 1 / 8                                                                               | 1 / 8                                                                               | — / 8                                                                               |
| Centrifuging radius [mm]              | 103                                                                                 | 81                                                                                  | 94                                                                                  | 104                                                                                 |
| Item no.                              | 13060                                                                               | 13064                                                                               | 13079                                                                               | —                                                                                   |

Sigma 4-5KL

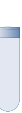
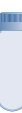
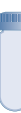
Fixed-angle rotor 12265

- with aluminum lid 17607
- Max. capacity: 6 x 94 ml round-bottom
  - Max. speed: 10,000 rpm
  - Max. RCF: 11,851 x g
  - Biosafe with aluminum lid 17607
  - Tmin at maximum speed: <4 °C
  - Angle: 25°



| Tube                                 |  |  |  |  |  |
|--------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 10                                                                                | 10                                                                                | 10                                                                                | 14                                                                                  | 14                                                                                  |
| Diameter x length [mm]               | 16.1 x 81.1                                                                       | 16.1 x 81.1                                                                       | 16.1 x 81.1                                                                       | 17 x 100                                                                            | 17 x 100                                                                            |
| Tube material                        | PF                                                                                | PC                                                                                | PPCO                                                                              | PS                                                                                  | PP                                                                                  |
| Item no.                             | 15000                                                                             | 15010                                                                             | 15039                                                                             | 15020                                                                               | 15023                                                                               |

| Adapter                     |  |  |  |  |  |
|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Bore diameter x length [mm] | 16.2 x 71                                                                           | 16.2 x 71                                                                           | 16.2 x 71                                                                           | 16.2 x 71                                                                             | 16.2 x 71                                                                             |
| Tubes per adapter / rotor   | 2 / 12                                                                              | 2 / 12                                                                              | 2 / 12                                                                              | 2 / 12                                                                                | 2 / 12                                                                                |
| Centrifuging radius [mm]    | 77                                                                                  | 77                                                                                  | 77                                                                                  | 77                                                                                    | 77                                                                                    |
| Item no.                    | 13084                                                                               | 13084                                                                               | 13084                                                                               | 13084                                                                                 | 13084                                                                                 |

| Tube                                 |  |  |  |  |  |  |  |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated capacity (filling volume) [ml] | 30                                                                                  | 50 (38)                                                                             | 50 (43)                                                                             | 50                                                                                  | 50                                                                                  | 85 (73)                                                                             | 85 (76)                                                                               | 94 (85)                                                                               | 94                                                                                    |
| Diameter x length [mm]               | 23.6 x 106                                                                          | 28.8 x 107                                                                          | 28.5 x 107                                                                          | 28.5 x 101.5                                                                        | 29.5 x 117                                                                          | 38 x 112                                                                            | 38 x 112                                                                              | 38 x 103                                                                              | 38 x 110                                                                              |
| Tube material                        | HS Glass                                                                            | PPCO                                                                                | PF                                                                                  | Stainless steel                                                                     | PP                                                                                  | PF                                                                                  | PPCO                                                                                  | Stainless steel                                                                       | PC                                                                                    |
| Item no.                             | 15086                                                                               | 15052                                                                               | 15051                                                                               | 13055                                                                               | 15151                                                                               | 15080                                                                               | 15076                                                                                 | 13085                                                                                 | 15094                                                                                 |

| Adapter                     |  |  |  |  |  |
|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Bore diameter x length [mm] | 24.5 x 88                                                                           | 24.5 x 88                                                                           | 24.5 x 88                                                                           | 24.5 x 88                                                                           | 24.5 x 88                                                                             |
| Tubes per adapter / rotor   | 1 / 6                                                                               | 1 / 6                                                                               | 1 / 6                                                                               | 1 / 6                                                                               | 1 / 6                                                                                 |
| Centrifuging radius [mm]    | 99                                                                                  | 99                                                                                  | 99                                                                                  | 99                                                                                  | 99                                                                                    |
| Item no.                    | 16031                                                                               | 16031                                                                               | 16031                                                                               | 16031                                                                               | 16031                                                                                 |

# Material properties

## Guideline for optimal tube/vial selection

Due to the many factors that influence material properties, this overview is only intended as a general recommendation. There is no guarantee of the stated properties. Users should therefore

carefully test materials for suitability under specific application conditions. Tubes and vials should be discarded as soon as they show any sign of material fatigue.

|                            | Polycarbonate (PC)                             | Polyvinyl fluoride (PF)                                                              | Polystyrene (PS) | Polyethylene (PE) | Polypropylene (PP) |
|----------------------------|------------------------------------------------|--------------------------------------------------------------------------------------|------------------|-------------------|--------------------|
| <b>Autoclave resistant</b> | Yes                                            | Yes                                                                                  | nein             | nein              | Yes                |
| <b>Elasticity</b>          | Not elastic                                    | Not elastic                                                                          | Not elastic      | Good              | Not elastic        |
| <b>Transparency</b>        | Transparent                                    | Translucent                                                                          | Transparent      | Translucent       | Translucent        |
| <b>Microwave resistant</b> | Moderate                                       | Yes                                                                                  | No               | Limited           | Moderate           |
| <b>Chemical resistance</b> |                                                |                                                                                      |                  |                   |                    |
| Weak acids                 | Yes                                            | Yes                                                                                  | Yes              | Yes               | Yes                |
| Strong acids               | No                                             | Yes                                                                                  | Limited          | Yes               | Yes                |
| Alcohols and alkalis       | No                                             | Yes                                                                                  | Yes              | Yes               | Yes                |
| Salts                      | Limited                                        | Yes                                                                                  | Limited          | Yes               | Yes                |
| <b>Note</b>                | Frequent autoclaving leads to loss of strength | Tubes and vials should be completely filled and closed for deployment at maximum RCF |                  |                   |                    |

|                            | PP copolymer (PPCO) | Glass                                                      | High-speed glass (HS glass)              | Stainless steel |
|----------------------------|---------------------|------------------------------------------------------------|------------------------------------------|-----------------|
| <b>Autoclave resistant</b> | Yes                 | Yes                                                        | Yes                                      | Yes             |
| <b>Elasticity</b>          | Moderate            | Not elastic                                                | Not elastic                              | Not elastic     |
| <b>Transparency</b>        | Translucent         | Transparent                                                | Transparent                              | Opaque          |
| <b>Microwave resistant</b> | Moderate            | Yes                                                        | Yes                                      | No              |
| <b>Chemical resistance</b> |                     |                                                            |                                          |                 |
| Weak acids                 | Yes                 | Yes                                                        | Yes                                      | Limited         |
| Strong acids               | Yes                 | Yes                                                        | Yes                                      | Limited         |
| Alcohols and alkalis       | Yes                 | Yes                                                        | Yes                                      | Yes             |
| Salts                      | Yes                 | Yes                                                        | Yes                                      | Limited         |
| <b>Note</b>                |                     | Max. RFC for all glass tubes/vials approximately 4,000 x g | High-speed glass for max. RCF 13,100 x g |                 |

# Spincontrol L controller

## Easy operation, maximum safety

The Spincontrol L controller combines intuitive operation with a multitude of options in a well-conceived package. It is still based on a patented Sigma concept. The brilliantly simple design of the Spincontrol L has only three buttons (Start, Stop, and Lid) along with the proven multifunction knob. Operating parameters can be entered conveniently and stored in up to 50 programs using the intuitive user interface. The backlit LCD display is easy to read at a distance.

A special feature is automatic monitoring of the number of operational rotor cycles. The integrated cycle counter keeps track of all completed rotor runs and informs the user when a defined limit value is reached. This alert system is based on real measurement data and helps to reliably avoid damage to rotors and the centrifuge.

The high-performance cooling system provides precise setting range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  with fine adjustment in  $1^{\circ}\text{C}$  increments. Along with the fast pre-cooling function, the Sigma 4-5KL features standstill cooling.

The optional ECO mode, which switches off the centrifuge after a defined time without use, can be adjusted quickly.

The time interval can be set between 30 minutes and 8 hours. When the time interval expires, the cooling is switched off and the lid is opened to allow ice to melt and water to evaporate.

| Display                                                                      | Backlit LCD |
|------------------------------------------------------------------------------|-------------|
| Constant display of setpoints and actual values                              | +           |
| Speed/RCF display                                                            | +           |
| Timer (s; h:min)                                                             | 10 – 99:59  |
| The timer starts after the setpoint speed is reached and can be switched off | +, +        |
| Short run, Continuous run                                                    | +, +        |
| Time increment [s]                                                           | 1           |
| Speed increment [rpm]                                                        | 100         |
| Temperature increment [ $^{\circ}\text{C}$ ]                                 | 1*          |
| RCF increment [x g]                                                          | 10          |
| Programs                                                                     | 50          |
| Acceleration curves                                                          | 10          |
| Braking curves                                                               | 10          |
| Free run-out                                                                 | +           |
| Automatic lid opening at end of run, can be switched off                     | +, +        |
| Standstill cooling                                                           | +           |
| Rapid Temp fast pre-cooling function                                         | +           |
| Audible signal, mutable                                                      | +, +        |
| Visual standstill indication                                                 | +           |
| Rotor cycle monitoring                                                       | +           |
| Rotor end-of-life warning                                                    | +           |
| Lockable controller                                                          | +           |
| Microprocessor control                                                       | +           |
| Adjustable energy-efficient ECO mode                                         | +           |

\* Only Sigma 4-5KL

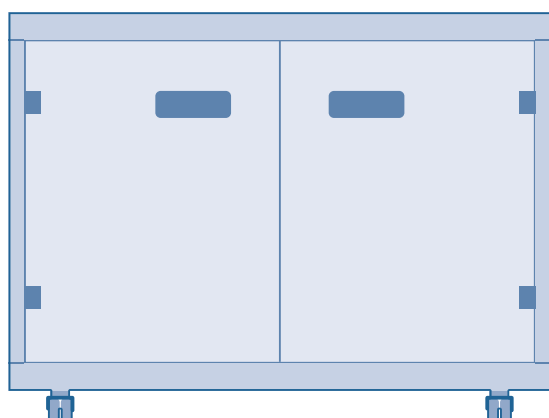
### Spincontrol L

View our video for more information:



# Centrifuge tables

Sigma centrifuge tables are available in six different sizes. Matched to the respective centrifuge dimensions, they combine a convenient work height with an optimally calculated footprint. The tables are made of coated sheet steel and are equipped with a storage compartment (with two doors) and a convenient pull-out shelf. Lockable castors allow the centrifuge tables to be easily moved and positioned in the laboratory.



## **Centrifuge table 17920**

for Sigma 2-16KL

W x H x D [mm]: 600 x 501 x 550

## **Centrifuge table 17921**

for Sigma 6-16KS

W x H x D [mm]: 790 x 515 x 684

## **Centrifuge table 170001**

for Sigma 4-5KL

W x H x D [mm]: 605 x 581 x 635

## **Centrifuge table 17922**

for Sigma 6-16S

W x H x D [mm]: 581 x 481 x 684

## **Centrifuge table 17923**

for Sigma 3-30KS

W x H x D [mm]: 570 x 481 x 616

## **Centrifuge table 17926**

for Sigma 3-16KL / 3-18KS / 4-16KS

W x H x D [mm]: 650 x 501 x 647

## **Centrifuge table 17927**

for Sigma 3-16L / 4-5L / 4-16S

W x H x D [mm]: 490 x 497 x 647

# Premium quality

## Made in Germany

The Sigma 4-5L series meets the highest technical requirements of laboratory standards. Developed and produced at our facility in Osterode, Germany, they are high-performance, durable and energy-efficient quality products and conform to the latest safety, emission and environmental standards. Sigma guarantees the availability of spare parts and wearing parts for at least 10 years. Furthermore, you benefit from our extensive range of services,

including commissioning, maintenance, device calibration and more. Our qualified service technicians are ready to provide professional maintenance and repair as well as loaner devices if necessary. All support services are designed to maintain reliability and optimise system availability. With our three service locations (South, West and North/East), we can provide comprehensive support and short response times.

|                                                            | Sigma 4-5L      | Sigma 4-5KL     |
|------------------------------------------------------------|-----------------|-----------------|
| <b>Max. capacity [ml]</b>                                  |                 |                 |
| Swing-out rotor                                            | 4 x 750         | 4 x 750         |
| Fixed-angle rotor                                          | –               | 6 x 94          |
| <b>Max. RCF</b>                                            | 4,643           | 20,376          |
| <b>Max. speed [rpm]:</b>                                   | 4,700           | 13,500          |
| <b>Min. speed [rpm]:</b>                                   | 100             | 100             |
| <b>Noise level at maximum speed (approximate) [dB (A)]</b> |                 |                 |
| Fixed-angle rotor 12449                                    | –               | ≤55             |
| Swing-out rotor 11660 with bucket 13460 and cap            | ≤66             | ≤54             |
| <b>Max. acceleration time [s]</b>                          |                 |                 |
| Fixed-angle rotor 12449                                    | –               | ≤32             |
| Swing-out rotor 11660 with bucket 13460 and cap            | ≤23             | ≤26             |
| <b>Min. braking time [s]</b>                               |                 |                 |
| Fixed-angle rotor 12449                                    | –               | ≤48             |
| Swing-out rotor 11660 with bucket 13460 and cap            | ≤23             | ≤38             |
| <b>Temperature adjustment range [°C]</b>                   | –               | -10 to +40      |
| <b>Power consumption [W]</b>                               | 1,230           | 1,910           |
| <b>Height x width x depth [mm]</b>                         | 390 x 496 x 634 | 390 x 602 x 634 |
| <b>Height with open lid [mm]</b>                           | 880             | 865             |
| <b>Weight without rotor [kg]</b>                           | 77              | 110             |
| <b>Refrigerant</b>                                         |                 | R452a           |
| Fill quantity [kg] / Pressure [bar]                        |                 | 0.290 / 31      |
| CO <sub>2</sub> equivalent [t]                             |                 | 0.621           |

### Sigma-Service

For maintenance and repairs please contact our Service department at:



### Calibration

Documented proof of compliance with essential technical parameters.

Speed or run time (Item no. 17713)  
 Speed and run time (Item no. 17714)  
 Speed, run time, temperature (Item no. 17715)

### Device qualification (IQOQ)

This comprehensive device qualification includes installation qualification and metrological checking of all functional parameters with a rotor.

IQOQ documents (Item no. 170000)  
 IQOQ on site (on request)



#### Sigma 4-5L centrifuge

220–240 V, 50/60 Hz (Item no. 10405)  
 120 V, 60 Hz (Item no. 10404)

#### Sigma 4-5L centrifuge, IVD version

220–240 V, 50/60 Hz (Item no. 10407)

#### Sigma 4-5KL centrifuge

220–240 V, 50 Hz (Item no. 100004)

200 V, 50/60 Hz  
 & 208 V, 60 Hz (Item no. 100005)

#### Sigma 4-5KL centrifuge, IVD version

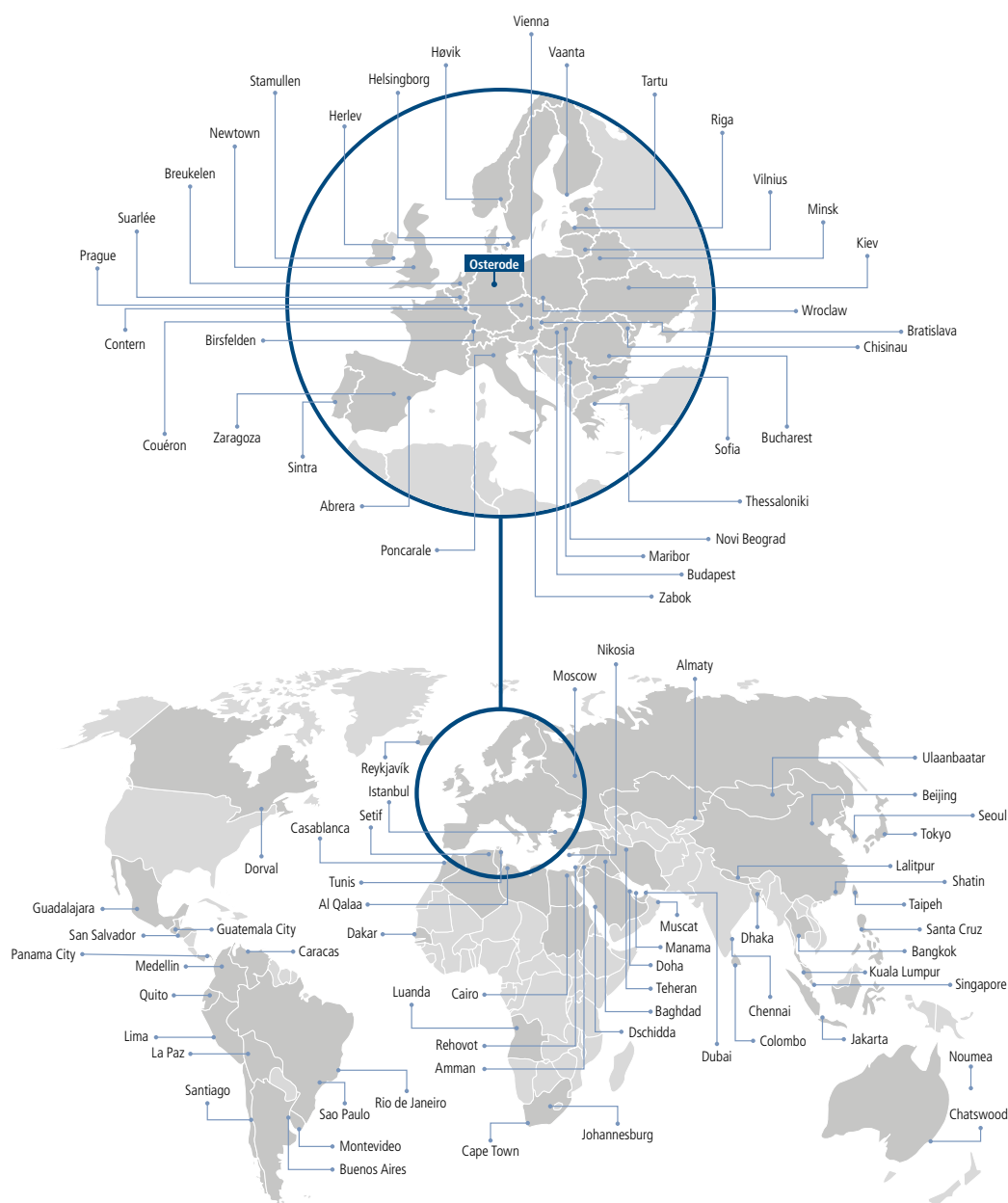
220–240 V, 50 Hz (Item no. 100006)

200 V, 50/60 Hz  
 & 208 V, 60 Hz (Item no. 100007)

# Global service

## For local product security

Our trained service partners in over 100 countries ensure consistently high quality in accordance with national regulations. Our specialists can also be engaged quickly around the world, either remotely or on site in person.



Selected locations of our representatives.

An overview of all representatives with detailed contact information can be found at <https://www.sigma-zentrifugen.de/en/sales-partners>



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