eppendorf

# Growth in Motion

The next evolution in biological shakers—the Innova® S44i

DOMNICK HUNTER SAS

»Make your cells shine in the newest Innova shaker from Eppendorf. The Innova S44i combines the reliable performance of Innova shakers with the latest precision engineering from Eppendorf.«

DOMLABORTECHNIK

# »The future is what you make it— Eppendorf makes it reliable.«

Eppendorf has helped scientists achieve better results for over 70 years. Now, we want to move your lab forward by moving shaker technology forward; we want to grow your lab by growing better cultures. Eppendorf has been a trusted partner to the life science community, and the new Innova S44i Biological Shaker is the next great addition to our renowned portfolio of life science solutions. Expand the potential of your lab and reap the benefits of the exceptional performance and reliability that come with every Eppendorf product.

**Reliable shaking**
> The new Eppendorf X-Drive provides smooth and uniform agitation
> Intelligent counterbalance mechanism for vibration-free motion and longevity
> Equally robust for shaking heavy and uneven loads

**Exceeding demands**
> Highest flask capacity in a smaller footprint – grow more cells in less space
> Ethernet connectivity for easy integration with building alarm systems or monitoring software
> Intuitive touchscreen with user management capabilities

**Exceptionally convenient**
> Optimize your space with double- and triple-stacked configurations
> Easily reach all your samples using the slide-out platform
> Glide-up doors for convenient and effortless access

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Industrial, brushed stainless steel panels provide enhanced corrosion resistance

Optional photosynthetic LED lights

Use flasks up to 5 L volume

Stackable up to three units for increased capacity

Easy-to-use slide-out platform

Intuitive touchscreen interface

Ergonomic one-handed platform release

Built-in USB port for fast and easy data export

Easy-to-use and space-saving glide-up door

10.5 and 30.7 cm (4.1 and 12.1 in) positioning bases

9 interchangeable universal and dedicated platforms provide vessel flexibility

DOWNLOADED FROM LSEP SAS

Shake faster, smoother, and longer with the new Eppendorf X-Drive Shaker Mechanism. The five eccentric mounting points for the shaker platform are precisely engineered to ensure long-lasting, repeatable performance for years to come.

# Built on Innovation

Since its introduction, the cast iron triple-eccentric drive from Eppendorf has been the gold-standard in shaker drive technology. It is the foundation upon which Eppendorf shakers and the trust of the scientific community are built.

Eppendorf has now designed the next-generation shaker drive to offer you maximum performance, flexibility, and peace-of-mind. We proudly unveil the patented*, Eppendorf X-Drive.

**A smarter shaker**

The Eppendorf X-Drive is precisely engineered with five-eccentric shafts to balance even the heaviest load while providing consistent and smooth shaking. The robust and industrial construction of the drive is designed for round-the-clock operation.

Intelligent counterbalance technology of the Eppendorf X-Drive ensures vibration-free shaking even with uneven loads. This advanced technology senses imbalance and decelerates the platform to a safe speed to protect you and your cultures. The intuitive touchscreen controller of the Innova S44i will alert the user and provide step-by-step guidance to resolve imbalance and resume optimal agitation.

> 80 % higher weight capacity on the platform than Innova 44/44R and up to 183 % higher weight capacity on the platform than competitors
> Propriety technology provides years of reliable operation
> Efficient oxygen transfer for demanding applications with shaking speeds up to 400 rpm**
> Available in orbit sizes of 2.5 or 5.1 cm (1 or 2 in) for flexibility

* Patent number US 8,226,291 B2.
** With 2.5 cm (1 in) orbit only; maximum speed is 300 rpm with 5.1 cm (2 in) orbit

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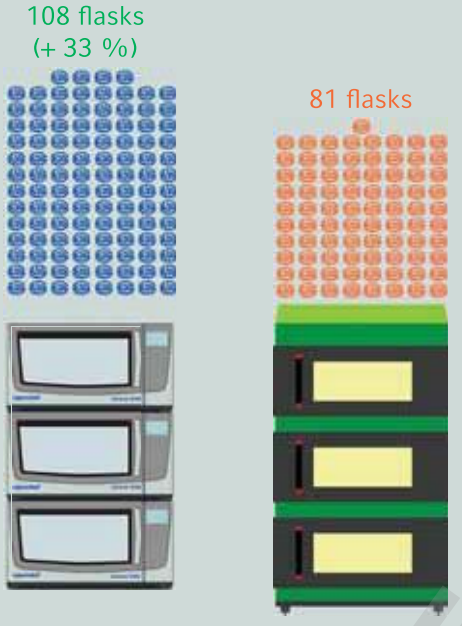
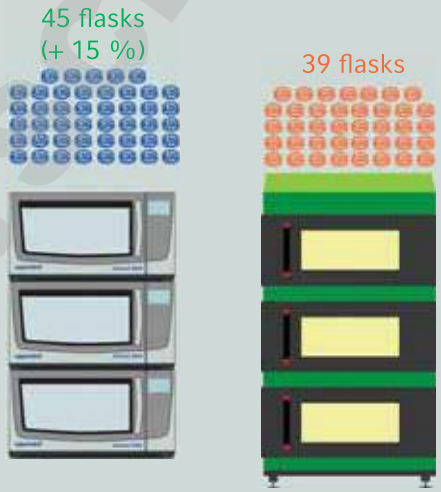
# Gain the Innova® Advantage

The new Innova S44i beats the competition with greater flask and load capacity![1]
Maximize the potential of your laboratory.

**500 mL Erlenmeyer Flasks on Universal Platform**




**2 L Erlenmeyer Flasks on Dedicated Platform**




**Engineered to perform**

The Innova S44i has optimized chamber, platform, and features to maximize your options and capacity.

> Up to 156 % more flask capacity than the previous Innova 44 with a smaller footprint[2]
> Up to 102 % higher flask capacity than competitor[2]
> Chamber easily accommodates up to 5 L Erlenmeyer flasks and a large variety of racks, plates, and vessels for flexibility
> Double- or triple-stack the Innova S44i to increase capacity without sacrificing more valuable lab space
> Optional static shelf for incubating samples that do not require agitation

**Applications**

Expand your potential and utilize the Innova S44i for even more processes and applications.

> Grow bacteria, yeast, fungus, cyanobacteria, and algae
> Plasmid DNA production and protein expression
> Process and media development
> Media screening and optimization
> Seed cultures for bioprocess scale-up
> Biofuel research
> Food quality testing

[1] Based on published data.
[2] 25 mL Erlenmeyer flask capacity on universal platform:
Innova S44i – 238
Innova 44 – 93
Competitor – 118

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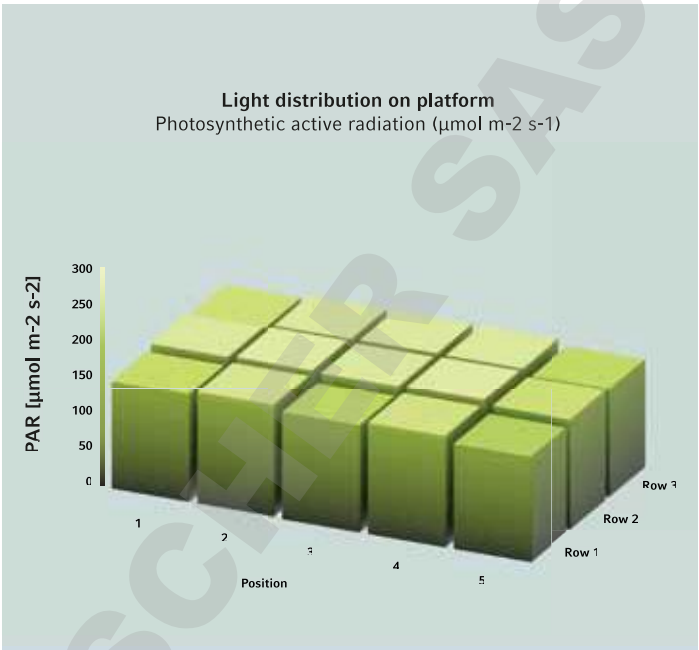
Grow phototrophic cells using integrated photosynthetic LED lights




Grow confidently under 78 high quality LED lamps with optimized placement for uniform coverage

# Excellent Control

The Innova S44i is designed to adapt to your needs and meet your strict requirements. It is one of the most versatile shakers of its kind and allows for virtually any application:

**Exacting temperature control**
The Innova S44i provides broad temperature capabilities for culturing a wide variety of organisms. Consistent temperature control and quick recovery rate maintain optimum conditions for cell growth.

> Precise temperature control from 5 °C above ambient to 80 °C [3]
> Refrigerated model provides temperature control down to 4 °C (environmentally friendly CFC-free refrigerant)
> High temperature uniformity across the entire platform for reproducible results
> Triple-pane insulated glass window maintains stable chamber conditions for energy-efficient operation

**Photosynthetic LED lights**
Installed before leaving the factory, this high-quality light source lets you grow more cells more efficiently as soon as the shaker arrives in your lab.

> Grow algae, cyanobacteria, and other phototrophic cells
> Highly uniform light coverage across the entire platform
> Control light intensity levels using responsive and easy-to-use touchscreen
> Easily program LED lights to turn ON/OFF and change intensity at timed intervals to mimic circadian rhythm; programs can be looped for ultimate convenience

[3] Maximum temperature cannot exceed 60 °C if photosynthetic LED lights option is in place.

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# Advanced Operation

The new touchscreen user interface of the Innova S44i offers more than just easy operation. This multi-touch capacitive display makes all the information you need easy to monitor and track.

**Intuitive operating, distinct design**

> Information is just one touch away: alarm status, event log, and user information
> Comprehensive data at your fingertips: see the performance history of your device and view informative graphs
> Configure the home screen to your ideal needs: get intuitive and fast access to all functions that are relevant to you
> Make complicated runs simple: create multi-step programs for automated control of the shaker
> Manage multiple users with different levels of authorization for device access: supports traceability requirements in regulated labs

**State-of-the-art touch screen technology**

> Whether wearing lab gloves (nitryl or latex) or using your bare hands, it doesn't make a difference
> The longevity you expect from Eppendorf: durable and easy to clean

Whether you are wearing gloves or not, the touchscreen is always responsive and easy to use

Easily access your trend and tracking data with multiple graphs; export data via USB drive

See the setpoints that are important to you with a customizable home screen—all your data in one glance

Adjusting your setpoint is simple and fast using either the scroll bar, +/- buttons, or numbered keypad

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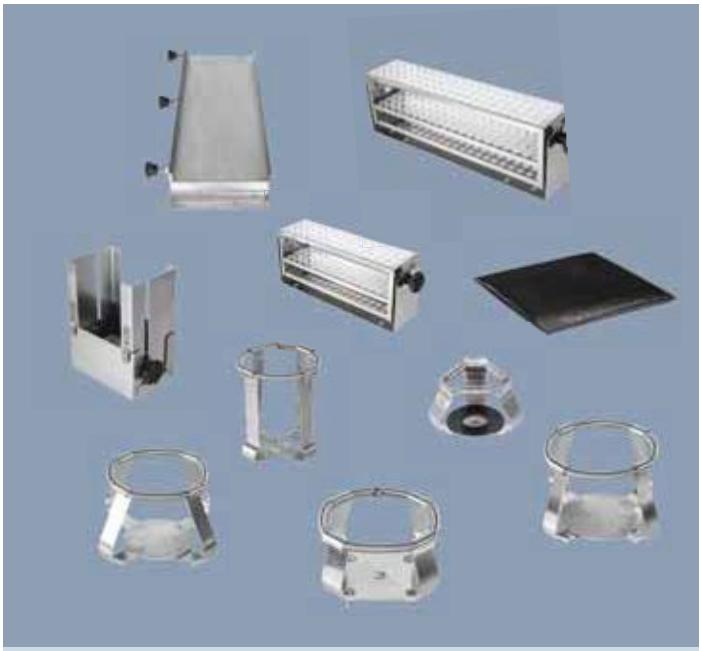

Our universal and dedicated platforms, along with a vast portfolio of accessories, provide over 10,000 unique configurations

Accessory window shade will block external light from the chamber to protect your light-sensitive materials and cultures

# Customize Your Process

**Grow it your way**

Eppendorf is your single source for life science solutions. Along with the new Innova S44i Biological Shaker, Eppendorf is proud to offer a wide range of accessories to allow you to customize your process. We provide the tools and expertise you need to make your applications a success.

From the smallest flask clamp to the largest rack, our extensive collection of accessories can be interchanged to give you the exact shaker and incubator environment that you require. When you combine the number of accessories with the range of S44i options available, the result is thousands and thousands of custom solutions for every life science laboratory.

> 9 different universal and dedicated platforms that can be easily interchanged to quickly meet changing requirements
> Universal platform optimized for maximum capacity to give you the freedom to mix and match your accessories for custom solutions
> Sticky pads are available and can be applied on both universal and dedicated platforms
> 18 different sizes of test tube racks for your convenience and flexibility
> Microplate racks for attaching plates in layers or stacks, depending on your needs
> Perforated static incubation shelf for incubating dishes

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Conveniently reach all areas of the shaker platform and chamber using the slide-out tray

Easy-to-use glide-up door lets users open door with minimal force and gives full access to samples

# Designed for Your Comfort and Ease

PhysioCare concept

**Raising the bar**

The Eppendorf PhysioCare Concept® was developed to optimize ergonomics of laboratory devices. Each instrument at Eppendorf is developed with the PhysioCare Concept to provide comprehensive solutions for improved user and lab safety. The new Innova S44i follows in this tradition of conscious design to reduce user stress, support an ergonomic workspace, and provide optimal workflow in the lab.

> Glide-up door provides effortless access to the chamber; easily opened with one hand and little force
> New slide-out platform design with quick-release handle for comfortable access to samples at the back
> Entire platform can be removed and replaced quickly using two fasteners at the front of the chamber

**Excellent convenience and safety**

> Intuitive programming for complete automated control; any of the key parameters can be changed at timed intervals for ultimate convenience
> Large window and chamber light allows viewing of samples without disturbing cultures
> Large access port for addition of multiple sensors
> Refrigeration and reservoir drain ports on the side make routine maintenance easy
> Ethernet interface to connect the shaker to your computer or network
> Fast and gentle stopping of shaker when the door is opened for maximum user safety

> For further information: www.eppendorf.com/physiocare

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**Innova® S44i Ordering Information**

| Orbit | Europe† 230 V, 50/60 Hz | USA 120 V, 50/60 Hz | Japan 100 V, 50/60 Hz |
|---|---|---|---|
| 2.5 cm (1 in) orbit, incubated | S44I300001 | S44I200005 | S44I200006 |
| 2.5 cm (1 in) orbit, refrigerated | S44I310001 | S44I210005 | S44I210006 |
| 2.5 cm (1 in) orbit, refrigerated, photosynthetic LED lights | S44I311001 | S44I211005 | |
| 5.1 cm (2 in) orbit, incubated | S44I320001 | S44I220005 | S44I220006 |
| 5.1 cm (2 in) orbit, refrigerated | S44I330001 | S44I230005 | S44I230006 |
| 5.1 cm (2 in) orbit, refrigerated, photosynthetic LED lights | S44I331001 | S44I231005 | |

†Last digit is country dependent. For UK/HKG, change 1 to 2; for Australia, change 1 to 3; for China, change 1 to 4; for Argentina, change 1 to 8; for Brazil, change 1 to 9.

**Additional Accessories Ordering Information**

| Description | Order No. |
|---|---|
| Darkening window shade | S44I042002 |
| Static incubation shelf | S44I042001 |
| 10.5 cm (4.1 in) positioning base* | S44I041001 |
| 30.7 cm (12.1 in) positioning base* | S44I041002 |
| Stacking kit, double stack of Innova® S44i | S44I041005 |
| Stacking kit, triple stack of Innova® S44i | S44I041003 |
| Stacking kit, Innova® S44i to Innova® 44/44R** | S44I041006 |

*All Innova® S44i shakers must be installed on a positioning base.
**Maximum agitation speed of Innova® S44i reduced to 300 rpm when stacked on one Innova® 44/44R and 250 rpm when triple stacked.

**Innova® S44i Technical Specifications[1]**

| | | |
|---|---|---|
| **Temperature** | | |
| Temperature range[2] | Incubated | 5 °C above ambient temperature to 80 °C |
| | Refrigerated | 20 °C below ambient temperature (minimum 4 °C) to 80 °C |
| Control increments | ±0.1 °C | |
| Control accuracy | ±0.1 °C at 37 °C | |
| Uniformity | ±0.25 °C at 37 °C and 250 rpm | |
| **Agitation** | | |
| Drive | Eppendorf X-Drive with semi-automated counterbalance | |
| Orbit | 2.5 cm (1 in) or 5.1 cm (2 in) | |
| Speed | 2.5 cm (1 in) orbit: 20 – 400 rpm<br>5.1 cm (2 in) orbit: 20 – 300 rpm | |
| Control increments | ±1 rpm | |
| Control accuracy | ±0.5 rpm | |
| Maximum platform load | 35.4 kg (78.3 lb) | |
| **Photosynthetic LED lights** | | |
| Main wavelength | Wide band spectrum; 400 nm – 700 nm | |
| Intensity range | 15 PAR to 150 PAR | |
| Control increments | 1 PAR | |
| Light uniformity | ±10 % | |
| **Program modes** | | |
| Timed mode | Up to 95:59 hours; timed programs with multiple steps and cycling | |
| **Dimensions and weight** | | |
| External dimensions, single unit (W × D × H) | 118.2 × 95.8 × 63.1 cm (46.5 × 37.7 × 24.8 in), plus positioning base of choice | |
| Platform dimensions (W × D × H) | 76.2 × 62.0 × 0.8 cm (30.0 × 24.4 × 0.3 in) | |
| Net weight | Incubated | 186 kg (411 lb) |
| | Refrigerated | 198 kg (437 lb) |
| | Platform | 10 kg (22 lb) |
| Interfaces | USB and Ethernet | |
| Certifications | | |

[1]Specifications subject to change.
[2]Maximum temperature cannot exceed 60 °C if photosynthetic LED lights option is in place.

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# Eppendorf Handling Solutions

Liquid Handling
Cell Handling
Sample Handling

To make your job in the lab easier and more efficient – with this goal in mind we are developing products and solutions in the areas of Liquid Handling, Cell Handling, and Sample Handling. Visit the Eppendorf Handling Solutions online sphere and dive into the area of your choice, learn new things, and have fun as well: **www.eppendorf.com/handling-solutions**

## Liquid Handling

**In 1961, Eppendorf launched the first piston-stroke pipette.** Today, our broad product offerings in Liquid Handling range from manual pipettes to electronic pipettes, dispensers and burettes to automated pipetting systems. Eppendorf products are associated with state-of-the-art technology, outstanding ergonomics and award-winning design. This applies to both devices and the requisite consumables such as pipette tips and Combitips®.

### Multipette® E3/E3x

A motor-driven dispensing system that utilizes the positive displacement principle and is capable of accurately pipetting any liquid.

> Eliminates time-consuming volume calculations with auto Combitip recognition
> One-button tip ejector for one-handed operation and contact-free advanced ejection

### Eppendorf Combitips advanced®

Eppendorf Combitips advanced have been completely redesigned and optimized to meet all the needs of any modern laboratory.

> The 9 volume sizes (0.1 mL – 50 mL) offer a maximum range of dispensing volumes
> High-precision dispensing regardless of the physical properties of the liquid

### ep*Motion*® 96

The Eppendorf epMotion 96 is a semi-automated electronic pipette for fast and precise parallel 96-channel microplate processing.

> Without changes to the system, a large volume range of 0.5 µL to 300 µL is available
> Performs 12 times faster than 8-channel pipettes

### Eppendorf Xplorer®

The Eppendorf Xplorer electronic pipettes are designed to eliminate many potential error risks associated with manual pipetting.

> Single, 8-, and 12-channel pipettes for liquid volumes from 0.5 µL to 10 mL
> Intuitive operating concept for quick and easy work

## Are You Pipetting With Problematic Liquids?

Find out tips on
www.eppendorf.com/pipetting

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**Universal Platform Flask Clamp Capacities**

| Description | No. of clamps |
|---|---|
| 10 mL Erlenmeyer flask clamps | 238 |
| 25 mL Erlenmeyer flask clamps | 238 |
| 50 mL Erlenmeyer flask clamps | 130 |
| 125 mL Erlenmeyer flask clamps | 81 |
| 250 mL Erlenmeyer flask clamps | 49 |
| 500 mL Erlenmeyer flask clamps | 36 |
| 1000 mL Erlenmeyer flask clamps | 20 |
| 2000 mL Erlenmeyer flask clamps | 13 |
| 2000 mL Lauber Thomson clamp | 15 |
| 2800 mL Fernbach flask clamps | 8 |
| 3000 mL Erlenmeyer flask clamps | 8 |
| 4000 mL Erlenmeyer flask clamps | 8 |
| 5000 mL Erlenmeyer flask clamps | 6 |
| Test tube racks, small | 12 |
| Test tube racks, medium | 10 |
| Test tube racks, large | 8 |
| Microplate racks, for single layer of five plates | 4 |
| Microplate racks, stack three deepwell or nine standard plates | 20 |
| Sticky pads | 9 |

**Innova® S44i Platform Ordering Information**

| Description | No. of clamps | Order No. |
|---|---|---|
| Universal platform | | S44I040001 |
| 125 mL Erlenmeyer flask dedicated platform | 86 | S44I040002 |
| 250 mL Erlenmeyer flask dedicated platform | 53 | S44I040003 |
| 500 mL Erlenmeyer flask dedicated platform | 39 | S44I040004 |
| 1000 mL Erlenmeyer flask dedicated platform | 23 | S44I040005 |
| 2000 mL Erlenmeyer flask dedicated platform | 15 | S44I040006 |
| 2000 mL Lauber Thomson flask dedicated platform | 15 | S44I040010 |
| 2800 mL Fernbach flask dedicated platform | 8 | S44I040007 |
| 4000 mL Erlenmeyer flask dedicated platform | 8 | S44I040008 |

**Flask Clamp Ordering Information**

| Description | Order No. |
|---|---|
| 10 mL Erlenmeyer flask clamps | ACE-10S |
| 25 mL Erlenmeyer flask clamps | M1190-9004 |
| 50 mL Erlenmeyer flask clamps | M1190-9000 |
| 125 mL Erlenmeyer flask clamps | M1190-9001 |
| 250 mL Erlenmeyer flask clamps | M1190-9002 |
| 500 mL Erlenmeyer flask clamps | M1190-9003 |
| 1000 mL Erlenmeyer flask clamps | ACE-1000S |
| 2000 mL Erlenmeyer flask clamps | ACE-2000S |
| 2000 mL Lauber Thomson flask clamps | M1190-9005 |
| 2800 mL Fernbach flask clamps | ACFE-2800S |
| 3000 mL Erlenmeyer flask clamps | ACE-3000S |
| 4000 mL Erlenmeyer flask clamps | ACE-4000S |
| 5000 mL Erlenmeyer flask clamps | ACE-5000S |

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**Platform Accessories Ordering Information**

| Description | Order No. |
|---|---|
| Microplate rack, stack three deepwell or nine standard plates | M1289-0700 |
| Microplate rack, for single layer of five plates | TTR-221 |
| Sticky tape, 500 × 4.1 Cm | M1250-9600 |
| Sticky pad, 20 × 20 cm | M1250-9700 |
| Angled test tube rack holder, for user-supplied test tube racks and microplates | TTR-210 |
| Spacer bar for TTR-210 | TTR-215 |
| **Test tube racks, small** | |
| 8 – 11 mm diameter | M1289-0001 |
| 12 – 15 mm diameter | M1289-0002 |
| 15 – 18 mm diameter | M1289-0003 |
| 18 – 21 mm diameter | M1289-0004 |
| 22 – 26 mm diameter | M1289-0005 |
| 26 – 30 mm diameter | M1289-0006 |
| **Test tube racks, medium** | |
| 8 – 11 mm diameter | M1289-0010 |
| 12 – 15 mm diameter | M1289-0020 |
| 15 – 18 mm diameter | M1289-0030 |
| 18 – 21 mm diameter | M1289-0040 |
| 22 – 26 mm diameter | M1289-0050 |
| 26 – 30 mm diameter | M1289-0060 |
| **Test Tube racks, large** | |
| 8 – 11 mm diameter | M1289-0100 |
| 12 – 15 mm diameter | M1289-0200 |
| 15 – 18 mm diameter | M1289-0300 |
| 18 – 21 mm diameter | M1289-0400 |
| 22 – 26 mm diameter | M1289-0500 |
| 26 – 30 mm diameter | M1289-0600 |

# Trust Your Innova® S44i in the Hands of Eppendorf Service

epServices
for premium performance

Eppendorf shaker service solutions help you comply with regulatory requirements and ensure the consistent and reliable performance of your over the full service life. A comprehensive list of services ranging from professional installation, Installation Qualification (IQ), Operational Qualification (OQ), and a variety of service maintenance packages are available. An annual inspection by an Eppendorf certified service technician is highly recommended for peak performance and years of productive operation.

**Performance Plans for Innova® S44i Ordering Information**

| Description | Order No. |
|---|---|
| Installation service | 0082 080 231 |
| Installation Qualification (IQ) | 0082 080 217 |
| Operational Qualification (OQ) | 0082 080 218 |
| Installation Qualification/Operational Qualification (IQ/OQ) | 0082 080 219 |
| Essential check | 0082 080 213 |
| Advanced maintenance | 0082 080 214 |
| Premium service | 0082 080 215 |
| Deep cleaning and disinfection | 0082 080 237 |

> For further information: ww.eppendorf.com/epServices

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# »Explore the biological shaker of the future: the Innova® S44i«

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www.eppendorf.com/InnovaS44i

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