



Life Sciences

## Centrifugal Devices



### *Facilitate Pure Product with > 90% Recoveries in Just Minutes*

- **Speed processing** – Concentrate and purify samples with starting volumes of < 50  $\mu$ L to 60 mL.
- **Maximize sample recovery** – Obtain high flow rates and low non-specific protein and nucleic acid binding.
- **Add versatility** – Available in various membrane types including low-binding Bio-Inert<sup>®</sup> (modified nylon) and GHP (polypropylene) membranes, as well as Omega<sup>™</sup> PES ultrafiltration membranes in a variety of MWCOs.
- **Prevent solution bypass** – Membrane seals stop solution leakage, eliminating sample loss.
- **Ease visual identification** – Devices are color-coded for a wide variety of membranes, ranging from 1 kD to 0.45  $\mu$ m.

### *Applications*

- Protein or nucleic acid sample concentration
- Desalting/buffer exchange
- Purification from acrylamide gels
- Clean-up of labeling and PCR reactions
- Removal of free nucleotides
- Virus concentration or removal
- Sample prep prior to HPLC

*Filtration. Separation. Solution.<sup>SM</sup>*

## Selecting the Proper Device

### Molecular Weight Cutoff (MWCO) Selection Recommendations

Ultrafiltration (UF) is a method used to separate extremely small particles and dissolved molecules based on their size. This process is achieved through the use of membranes. In general, a MWCO that is three to six times smaller than the molecular weight of the protein to be retained should be selected. Other factors can also impact the selection of the appropriate MWCO. For example, if flow rate (or processing time) is a major consideration, selection of a membrane with a MWCO toward the lower end of this range (3x) will yield higher flow rates. If recovery is the primary concern, selection of a tighter membrane (6x) will yield maximum recovery (with a slower flow rate). The recommendations provided should be used as a general guide, as solute retention and selectivity can vary depending on many factors, such as transmembrane pressure, molecular shape or structure, solute concentration, presence of other solutions, and ionic conditions.

#### MWCO Selection for Nucleic Acid Applications

MWCO	Base Pairs (DS)	Bases (SS)
1K	5 - 16 Bp	9 - 32 Bs
3K	16 - 32 Bp	32 - 65 Bs
5K	25 - 50 Bp	50 - 95 Bs
10K	50 - 145 Bp	95 - 285 Bs
30K	145 - 285 Bp	285 - 570 Bs
50K	240 - 475 Bp	475 - 950 Bs
100K	475 - 1,450 Bp	950 - 2,900 Bs

#### MWCO Selection for Protein Applications

MWCO	Membrane Nominal Pore Size*	Biomolecule Size	Biomolecule Molecular Weight
1K			3 - 10K
3K			10 - 20K
5K			15 - 30K
10K			30 - 90K
30K			90 - 180K
50K	5 nm	15 - 30 nm	150 - 300K
100K	10 nm	30 - 90 nm	300 - 900K
300K	35 nm	90 - 200 nm	900 - 1,800K

#### MWCO Selection for Virus Applications

MWCO	Membrane Nominal Pore Size*	Virus or Particle Diameter
50K	5 nm	15 - 30 nm
100K	10 nm	30 - 90 nm
300K	35 nm	90 - 200 nm
1000K	100 nm	300 - 600 nm

A 100K device should be used to concentrate PCR\*\* products (regardless of size) if primer removal is required or if adapters are to be recovered from restriction digests.

\*Nominal pore size as measured by electron microscopy (50K is an estimate).

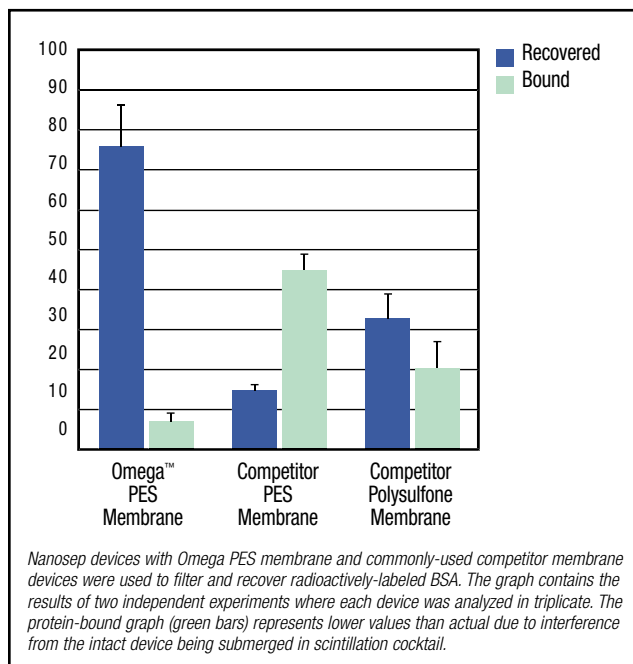
\*\*Polymerase Chain Reaction (PCR) is covered by patents owned by Roche Molecular Systems and F. Hoffman - La Roche Ltd.

### Device Size Selection Recommendations

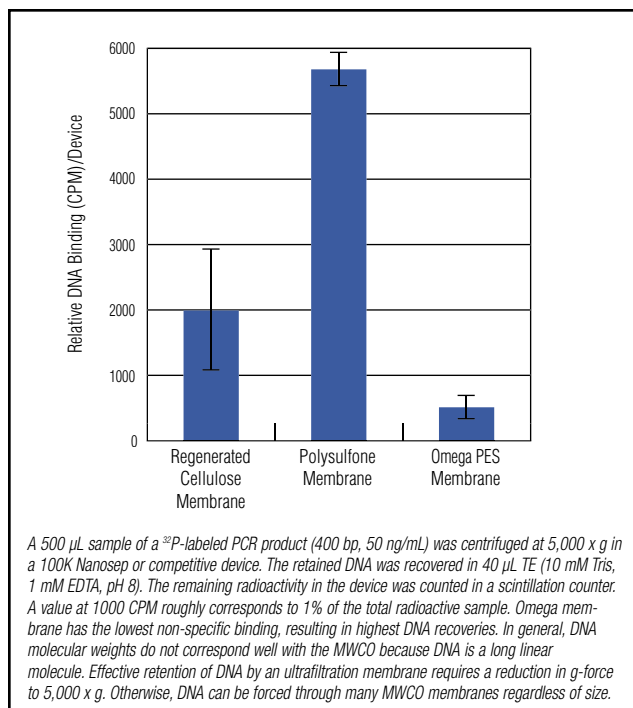
Device	Sample Volume
Nanosep®	< 0.5 mL
Microsep™	0.5 – 3.5 mL
Macrosep®	3 – 15 mL
Jumbosep™	15 – 60 mL

## Performance

### Nanosep Centrifugal Devices Ensure Maximum Protein Recovery



### Nanosep Centrifugal Devices Exhibit Minimal DNA Binding



# Ordering Information

## Nanosep® & Nanosep MF Centrifugal Devices

### Nanosep Centrifugal Devices with Omega™ PES Membrane

Product No.	Description	Packaging
OD003C33	3K, gray	24/pkg
OD003C34	3K, gray	100/pkg
OD003C35	3K, gray	500/pkg
OD010C33	10K, blue	24/pkg
OD010C34	10K, blue	100/pkg
OD010C35	10K, blue	500/pkg
OD030C33	30K, red	24/pkg
OD030C34	30K, red	100/pkg
OD030C35	30K, red	500/pkg
OD100C33	100K, clear	24/pkg
OD100C34	100K, clear	100/pkg
OD100C35	100K, clear	500/pkg
OD300C33	300K, orange	24/pkg
OD300C34	300K, orange	100/pkg
OD300C35	300K, orange	500/pkg

### Nanosep MF Centrifugal Devices with Bio-Inert® (Modified Nylon) Membrane

Product No.	Description	Packaging
ODM02C33	0.2 µm, aqua	24/pkg
ODM02C34	0.2 µm, aqua	100/pkg
ODM02C35	0.2 µm, aqua	500/pkg
ODM45C33	0.45 µm, wildberry	24/pkg
ODM45C34	0.45 µm, wildberry	100/pkg
ODM45C35	0.45 µm, wildberry	500/pkg

### Nanosep MF Centrifugal Devices with GHP (Polypropylene) Membrane

Product No.	Description	Packaging
ODGHPC34	0.45 µm, clear	100/pkg
ODGHPC35	0.45 µm, clear	500/pkg

## Microsep™ & Microsep MF Centrifugal Devices

### Microsep Centrifugal Devices with Omega PES Membrane

Product No.	Description	Packaging
OD001C41	1K, yellow	24/pkg
OD001C46	1K, yellow	100/pkg
OD003C41	3K, gray	24/pkg
OD003C46	3K, gray	100/pkg
OD010C41	10K, blue	24/pkg
OD010C46	10K, blue	100/pkg
OD030C41	30K, red	24/pkg
OD030C46	30K, red	100/pkg
OD050C41	50K, green	24/pkg
OD050C46	50K, green	100/pkg
OD100C41	100K, clear	24/pkg
OD100C46	100K, clear	100/pkg
OD300C41	300K, orange	24/pkg
OD300C46	300K, orange	100/pkg
OD990C41	1000K, purple	24/pkg
OD990C46	1000K, purple	100/pkg

### Microsep MF Centrifugal Devices with Bio-Inert (Modified Nylon) Membrane

Product No.	Description	Packaging
ODM02C67	0.2 µm, aqua	24/pkg
ODM02C68	0.2 µm, aqua	100/pkg
ODM45C67	0.45 µm, wildberry	24/pkg
ODM45C68	0.45 µm, wildberry	100/pkg

## Macrosep® Centrifugal Devices

### Macrosep Centrifugal Devices with Omega PES Membrane

Product No.	Description	Packaging
OD001C36	1K, yellow	6/pkg
OD001C37	1K, yellow	24/pkg
OD001C38	1K, yellow	100/pkg
OD003C36	3K, gray	6/pkg
OD003C37	3K, gray	24/pkg
OD003C38	3K, gray	100/pkg
OD003C39	3K, gray	500/pkg
OD010C36	10K, blue	6/pkg
OD010C37	10K, blue	24/pkg
OD010C38	10K, blue	100/pkg
OD030C36	30K, red	6/pkg
OD030C37	30K, red	24/pkg
OD030C38	30K, red	100/pkg
OD050C36	50K, green	6/pkg
OD050C37	50K, green	24/pkg
OD050C38	50K, green	100/pkg
OD100C36	100K, clear	6/pkg
OD100C37	100K, clear	24/pkg
OD100C38	100K, clear	100/pkg
OD300C36	300K, orange	6/pkg
OD300C37	300K, orange	24/pkg
OD300C38	300K, orange	100/pkg
OD990C36	1000K, purple	6/pkg
OD990C37	1000K, purple	24/pkg
OD990C38	1000K, purple	100/pkg

## Jumbosep™ Centrifugal Devices

### Starter Kits with Omega PES Membrane

Product No.	Description	Packaging
FD000K65	Generic starter kit, (no membrane or inserts)	4/pkg
FD003K65	3K starter kit, gray	4/pkg
FD010K65	10K starter kit, blue	4/pkg
FD030K65	30K starter kit, red	4/pkg
FD100K65	100K starter kit, clear	4/pkg
FD300K65	300K starter kit, orange	4/pkg

### Jumbosep Device Omega PES Membrane Inserts

Product No.	Description	Packaging
OD003C65	3K membrane insert, gray	12/pkg
OD010C65	10K membrane insert, blue	12/pkg
OD030C65	30K membrane insert, red	12/pkg
OD100C65	100K membrane insert, clear	12/pkg
OD300C65	300K membrane insert, orange	12/pkg

### Accessory Products

Product No.	Description	Packaging
FD001X65	Filtrate receiver and cap	12/pkg
FD002X65	Sample reservoir and cap	12/pkg
FD003X65	Insert release	24/pkg

## Related Literature

- Product Data, Centrifugal Devices for Ultrafiltration & Microfiltration, PN 32984
- Product Data, Stirred Cell Systems and Ultrafiltration Membrane Disc Filters, PN 32985
- Product Data, Minimate™ Tangential Flow Filtration Capsule, PN 33313
- Protocol Guide, Nanosep® Centrifugal Devices, PN 32989
- Technical Report, Purification and Handling of DNA Fragments, PN 32981
- Technical Report, Nanosep Centrifugal Ultrafiltration Devices and PCR: Before and After, PN 32980
- Technical Report, Single-tube DNA Purification and Cloning Using Ultrafiltration Devices, PN 33205
- Technical Report, Fast and Efficient Elution of Proteins from Polyacrylamide Gels Using Nanosep Centrifugal Units, PN 33216
- Technical Report, Desalting/Buffer Exchange for Biomolecules Using AcroPrep 96 Ultrafiltration Filter Plates, PN 33309

## Related Products Available From Pall

- **AcroPrep™ 96- and 384-well Filter Plates** are an excellent platform for a wide variety of molecular biology, analytical, and high throughput sample preparation and detection applications.
- **AcroWell™ 96 Filter Plates** are ideal for a wide variety of molecular biology detection applications.
- **BioTrace™, Biodyne®, and FluoroTrans® Transfer Membranes** offer precise performance and compatibility with nearly every detection system available.
- **Minimate Tangential Flow Filtration Capsule** offers fast and efficient concentration and diafiltration (desalting) of biomolecules on the same system.
- **Stirred Cell Systems** feature high performance ultrafiltration membrane ultrasonically sealed into 10 and 150 mL cells.
- **Omega™ Ultrafiltration Membrane Discs** are highly porous, providing fast flow rates and high recoveries.
- **Vivid™ Gene Array Slides** are microarray slides of unique membrane construction for high quality expression analysis.



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