

Maxicaps® MR

Simplified, Standardized
Large-Scale Filtration



Product Information

Maxicaps® MR is a unique, preassembled, single-use, large-scale filtration unit that reduces connections and complexity while allowing for multiple configuration options for seamless process integration. The novel design provides integrated fluid distribution with no tubing and only require two process connections. This decreases the risk of faulty connections by up to 90% and shortens installation, test, and dismantling time significantly. Maxicaps® MR represents a new way to perform large-scale single-use filtration in clinical and commercial scale. It enables fast and easy installation, minimizes the number of components required, and mitigate risk in a novel, compact design.

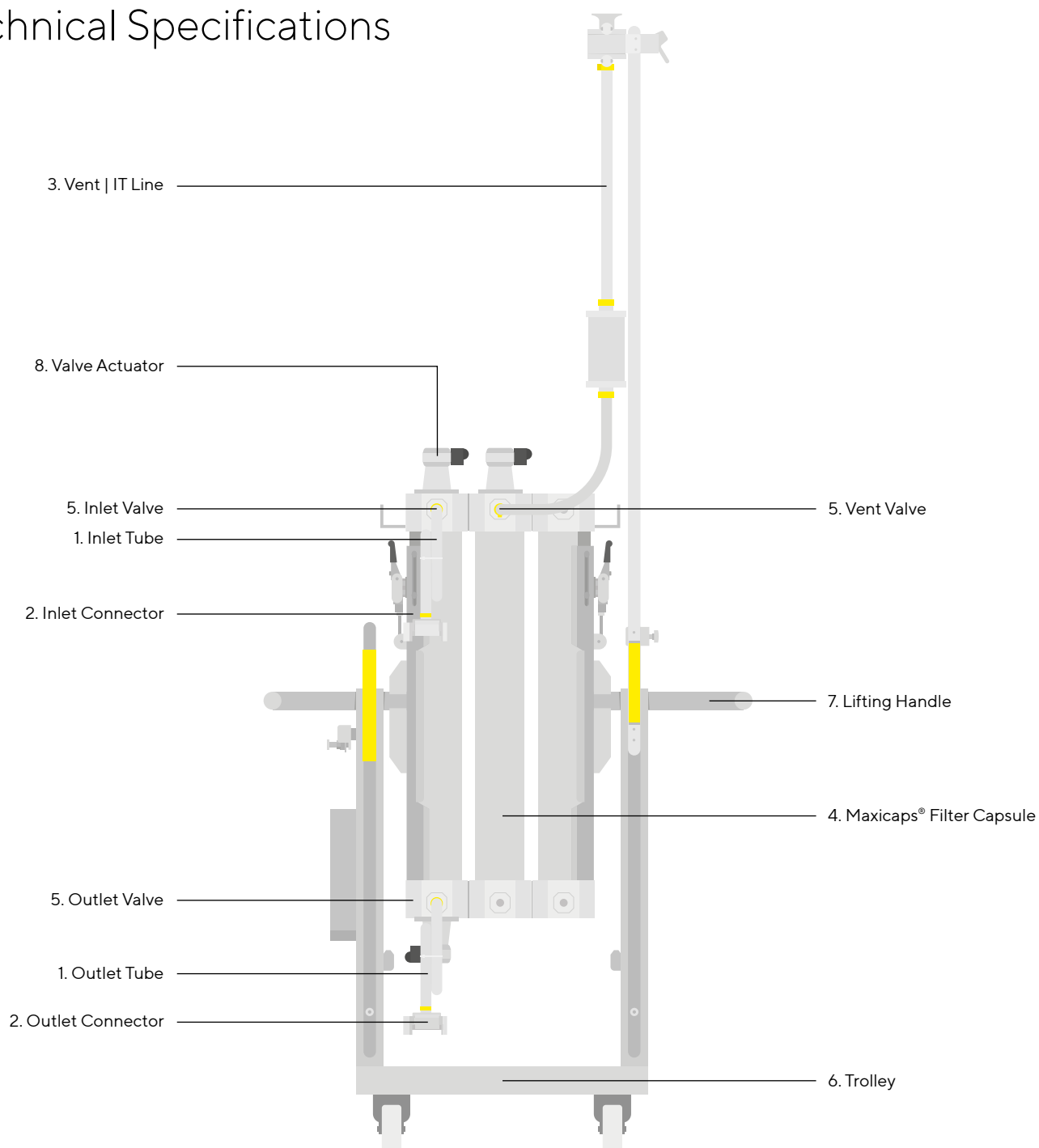
Features and Benefits

- Designed for fast and easy set-up
- Decrease risk of contamination and accelerate filter integrity testing
- Reduce leaks by decreasing risk of faulty connections
- Order one standardized product instead of multiple assemblies
- Lower carbon footprint with a system designed for sustainability

Relevant Applications

- Media and feeds filtration
- Post cell harvest bioburden reduction
- Clarification of vaccines
- Capture-column guard filtration
- Adsorptive virus pre-filtration

Technical Specifications



Single-Use Assembly

1. Inlet & Outlet Tube		
Tube Type Tube Size ID×OD Length	▪ Tuflux® Sil ¾"×⅝" 750 mm 2.5 ft ▪ Pharma-50 ¾"×⅝" 750 mm 2.5 ft ▪ Tuflux® TPE ¾"×1" 1,500 mm 4.9 ft ▪ C-Flex® 374 ¾"×1" 1,500 mm 4.9 ft ▪ Sani-Tech® STHT® ¾"×1¼" 750 mm 2.5 ft	
2. Inlet & Outlet Connector		
	▪ Opta® SFT ▪ AseptiQuik® G ▪ AseptiQuik® L ▪ Kleenpak® Presto ▪ Sanitary Clamp 1.5" ▪ Plug for TPE tube for sterile weld	
3. Vent IT Line		
	Basic	Advanced
Filter type Filter size	Sartopore® Air 0.2 µm Size 7	Sartopore® Air 0.2 µm Size 7
Tube type	Sani-Tech® STHT®	Sani-Tech® STHT®
Sight glass	Semi-transparent PP	Semi-transparent PP
Transparent connector	N/A	Inlet and outlet of sight glass
4. Maxicaps® Filter Capsules		
	Filter Type	Filter Size
	Sartopore Evo® Sartopore® Platinum Sartopore® 2 Sartopore® 2 XLG Sartopore® 2 XLI Sartopore® 2 XLM Sartoguard PES Sartoguard GF Sartobran® P Sartoclean® CA Sartoclean® GF Sartopure PP3 Sartopure GF Plus Virosart® Max	2 – 9 Maxicaps® 30"
5. Valves		
Inlet, outlet and vent valve	Diaphragm valve	

Hardware

6. Trolley Maxicaps® MR	
Primary construction material	AISI 304
Surface finishing	Ra 1.2 µm
Max. dimension (W×D×H)	1,010×900×2,300 mm 40×35×90.5"
Weight trolley	64 kg 141 lbs
7. Lifting Handle	
Primary construction material	AISI 304
Surface finishing	Ra 1.2 µm
Weight lifting handle (each)	4 kg 8.8 lbs
8. Valve Actuator	
Primary construction material	AISI 316 316 L Lever: PA
Surface finishing	Ra 1.2 µm
Total weight	1.5 kg 3.3 lbs

General Technical Specifications

Max. operating pressure Filter integrity test pressure (depending on tubing, connector combination)	1, 1.5, 2, 3 2.5 barg 14.5, 22, 29, 43.5 36 psig
Max. pressure for draining with compressed air or N ₂	0.5 barg 7.3 psig
Operating temperatures	5–40 °C 41–104 °F

	MR2	MR3	MR4	MR5	MR6	MR7	MR8	MR9
Weight*								
Dry weight	6.8 kg 15 lbs	9.6 kg 21.2 lbs	12.2 kg 26.9 lbs	15 kg 33.1 lbs	17.6 kg 38.8 lbs	20.3 kg 44.8 lbs	23 kg 50.7 lbs	25.7 kg 56.7 lbs
Weight filled with water	14.2 kg 31.3 lbs	20.6 kg 45.4 lbs	26.9 kg 59.3 lbs	33.3 kg 73.4 lbs	40.5 kg 89.3 lbs	46 kg 101.4 lbs	52.3 kg 115.3 lbs	59.5 kg 131.2 lbs
Including packaging (max.)	9.2 kg 20.3 lbs	12.6 kg 27.8 lbs	14.8 kg 32.6 lbs	18.1 kg 39.9 lbs	20.7 kg 45.6 lbs	23.8 kg 52.5 lbs	26.5 kg 58.4 lbs	29.2 kg 64.4 lbs

Volume								
Hold-up volume*	7.3 L	11 L	14.7 L	18.3 L	22.8 L	25.7 L	29.3 L	33.8 L
Net volume**	7.225 L	9.558 L	12.691 L	15.425 L	18.158 L	20.891 L	23.625 L	26.358 L
Residual volume of membrane filter after draining with diffusion test pressure*	0.9 L	1.3 L	1.7 L	2.2 L	2.9 L	3.1 L	3.5 L	4 L
Residual volume of depth filter after draining at 0.5 barg 7.3 psig*	0.9 L	1.3 L	1.7 L	2.2 L	2.9 L	3.1 L	3.5 L	4 L

Dimensions for Disposal (W×D×H)*								
mm	390×230×910	520×230×910	390×260×910	520×260×910	520×260×910	520×490×910	520×490×910	520×490×910
inch	15×9×36	20×9×36	15×10×36	20×10×36	20×10×36	20×19×36	20×19×36	20×19×36

Ordering								
Quantity per box	1	1	1	1	1	1	1	1
Minimum order quantity	4	2	4	2	2	2	2	2
Sterile delivery condition	2	1	2	1	1	1	1	1
Sanitary delivery condition	2	2	2	2	2	2	2	2
Non-sterile delivery condition	1	1	1	1	1	1	1	1
Maximum quantity per pallet	6	3	4	2	2	2	2	2

Storage

Storage conditions	- Storage in a closed, dry area - No direct solar radiation - No direct contact with moisture				
Temperature	5 °C – 40 °C 41 – 104 °F				
Relative humidity	10% – 75%				
Total shelf life	3 years				
Packaging	Type	Material		Size (L×W×H) mm	inch
Primary packaging	Double bags	PA PE bags		700×1,600 820×1,700 950×1,800	28×63 32×67 37×71
Secondary packaging	Cardboard box and cut protector	Double wall carton	MR2	965×295×405	38×12×16
			MR3	965×420×405	38×16.5×16
			MR4	965×300×535	38×12×21
			MR5	965×420×535	38×16.5×21
			MR6	965×420×535	38×16.5×21
			MR7	965×420×665	38×16.5×26
			MR8	965×420×665	38×16.5×26
			MR9	965×420×665	38×16.5×26
	Cut protector	Double wall carton		467×940 605×940	18×37 24×37
	Cushion foam	LDPE		948×284×60 948×413×60	37×11×2 37×16×2

*Indicative values, values may vary depending on system configuration

**Calculated values

Technical Specification Filter

Filter Type	Filter Area		Max. Diffusion mL/min	Delivery Condition
	m²	ft²		
Sartopore Evo® 0.2 µm				
MR2	4.8	51.7	132 mL/min at 2.5 bar 36 psi	Sterile
MR3	7.2	77.5	198 mL/min at 2.5 bar 36 psi	Sterile
MR4	9.6	103.3	264 mL/min at 2.5 bar 36 psi	Sterile
MR5	12	129.2	330 mL/min at 2.5 bar 36 psi	Sterile
MR6	14.4	155.0	396 mL/min at 2.5 bar 36 psi	Sterile
MR7	16.8	108.8	462 mL/min at 2.5 bar 36 psi	Sterile
MR8	19.2	206.7	528 mL/min at 2.5 bar 36 psi	Sterile
MR9	21.6	232.5	594 mL/min at 2.5 bar 36 psi	Sterile
Sartopore® Platinum 0.2 µm				
MR2	6	64.6	150 mL/min at 2.5 bar 36 psi	Sterile
MR3	9	96.9	225 mL/min at 2.5 bar 36 psi	Sterile
MR4	12	129.2	300 mL/min at 2.5 bar 36 psi	Sterile
MR5	15	161.5	375 mL/min at 2.5 bar 36 psi	Sterile
MR6	18	193.8	450 mL/min at 2.5 bar 36 psi	Sterile
MR7	21	226.0	525 mL/min at 2.5 bar 36 psi	Sterile
MR8	24	258.3	600 mL/min at 2.5 bar 36 psi	Sterile
MR9	27	290.6	675 mL/min at 2.5 bar 36 psi	Sterile

Filter Type	Filter Area		Max. Diffusion mL/min	Delivery Condition
	m²	ft²		
Sartopore® 2 0.45 µm				
MR2	3.6	38.8	72 mL/min at 1.7 bar 25 psi	Sterile
MR3	5.4	58.1	108 mL/min at 1.7 bar 25 psi	Sterile
MR4	7.2	77.5	144 mL/min at 1.7 bar 25 psi	Sterile
MR5	9	96.9	180 mL/min at 1.7 bar 25 psi	Sterile
MR6	10.8	116.3	216 mL/min at 1.7 bar 25 psi	Sterile
MR7	12.6	135.6	252 mL/min at 1.7 bar 25 psi	Sterile
MR8	14.4	155.0	288 mL/min at 1.7 bar 25 psi	Sterile
MR9	16.2	174.4	324 mL/min at 1.7 bar 25 psi	Sterile
Sartopore® 2 0.2 µm				
MR2	3.6	38.8	108 mL/min at 2.5 bar 36 psi	Sterile
MR3	5.4	58.1	162 mL/min at 2.5 bar 36 psi	Sterile
MR4	7.2	77.5	216 mL/min at 2.5 bar 36 psi	Sterile
MR5	9	96.9	270 mL/min at 2.5 bar 36 psi	Sterile
MR6	10.8	116.3	324 mL/min at 2.5 bar 36 psi	Sterile
MR7	12.6	135.6	378 mL/min at 2.5 bar 36 psi	Sterile
MR8	14.4	155.0	432 mL/min at 2.5 bar 36 psi	Sterile
MR9	16.2	174.4	486 mL/min at 2.5 bar 36 psi	Sterile
Sartopore® 2 XLG				
MR2	4.8	51.7	138 mL/min at 2.5 bar 36 psi	Sterile
MR3	7.2	77.5	207 mL/min at 2.5 bar 36 psi	Sterile
MR4	9.6	103.3	276 mL/min at 2.5 bar 36 psi	Sterile
MR5	12	129.2	345 mL/min at 2.5 bar 36 psi	Sterile
MR6	14.4	155.0	414 mL/min at 2.5 bar 36 psi	Sterile
MR7	16.8	180.8	483 mL/min at 2.5 bar 36 psi	Sterile
MR8	19.2	206.7	552 mL/min at 2.5 bar 36 psi	Sterile
MR9	21.6	232.5	621 mL/min at 2.5 bar 36 psi	Sterile
Sartopore® 2 XLI				
MR2	4.8	51.7	126 mL/min at 2.5 bar 36 psi	Sterile
MR3	7.2	77.5	189 mL/min at 2.5 bar 36 psi	Sterile
MR4	9.6	103.3	252 mL/min at 2.5 bar 36 psi	Sterile
MR5	12	129.2	315 mL/min at 2.5 bar 36 psi	Sterile
MR6	14.4	155	378 mL/min at 2.5 bar 36 psi	Sterile
MR7	16.8	180.8	441 mL/min at 2.5 bar 36 psi	Sterile
MR8	19.2	206.7	504 mL/min at 2.5 bar 36 psi	Sterile
MR9	21.6	232.5	567 mL/min at 2.5 bar 36 psi	Sterile

Filter Type	Filter Area		Max. Diffusion mL/min	Delivery Condition
	m²	ft²		
Sartopore® 2 XLM				
MR2	4.8	51.7	144 mL/min at 2.5 bar 36 psi	Sterile
MR3	7.2	77.5	216 mL/min at 2.5 bar 36 psi	Sterile
MR4	9.6	103.3	288 mL/min at 2.5 bar 36 psi	Sterile
MR5	12	129.2	360 mL/min at 2.5 bar 36 psi	Sterile
MR6	14.4	155.0	432 mL/min at 2.5 bar 36 psi	Sterile
MR7	16.8	180.8	504 mL/min at 2.5 bar 36 psi	Sterile
MR8	19.2	206.7	576 mL/min at 2.5 bar 36 psi	Sterile
MR9	21.6	232.5	648 mL/min at 2.5 bar 36 psi	Sterile
Sartoguard PES 0.2 µm nom.				
MR2	4.8	51.7	108 mL/min at 1.5 bar 22 psi	Sterile
MR3	7.2	77.5	162 mL/min at 1.5 bar 22 psi	Sterile
MR4	9.6	103.3	216 mL/min at 1.5 bar 22 psi	Sterile
MR5	12	129.2	270 mL/min at 1.5 bar 22 psi	Sterile
MR6	14.4	155.0	324 mL/min at 1.5 bar 22 psi	Sterile
MR7	16.8	180.8	378 mL/min at 1.5 bar 22 psi	Sterile
MR8	19.2	206.7	432 mL/min at 1.5 bar 22 psi	Sterile
MR9	21.6	232.5	486 mL/min at 1.5 bar 22 psi	Sterile
Sartoguard PES 0.1 µm nom.				
MR2	4.8	51.7	150 mL/min at 1.5 bar 22 psi	Sterile
MR3	7.2	77.5	225 mL/min at 1.5 bar 22 psi	Sterile
MR4	9.6	103.3	300 mL/min at 1.5 bar 22 psi	Sterile
MR5	12	129.2	375 mL/min at 1.5 bar 22 psi	Sterile
MR6	14.4	155.0	450 mL/min at 1.5 bar 22 psi	Sterile
MR7	16.8	180.8	525 mL/min at 1.5 bar 22 psi	Sterile
MR8	19.2	206.7	600 mL/min at 1.5 bar 22 psi	Sterile
MR9	21.6	232.5	675 mL/min at 1.5 bar 22 psi	Sterile
Sartoguard GF 0.2 µm				
MR2	2.7	29.1	114 mL/min at 2 bar 29 psi	Non-sterile
MR3	4.05	43.6	171 mL/min at 2 bar 29 psi	Non-sterile
MR4	5.4	58.1	228 mL/min at 2 bar 29 psi	Non-sterile
MR5	6.75	72.7	285 mL/min at 2 bar 29 psi	Non-sterile
MR6	8.1	87.2	342 mL/min at 2 bar 29 psi	Non-sterile
MR7	9.45	101.7	399 mL/min at 2 bar 29 psi	Non-sterile
MR8	10.8	116.3	456 mL/min at 2 bar 29 psi	Non-sterile
MR9	12.15	130.8	513 mL/min at 2 bar 29 psi	Non-sterile

Filter Type	Filter Area		Max. Diffusion mL/min	Delivery Condition
	m²	ft²		
Sartoguard GF 0.1 µm				
MR2	2.7	29.1	102 mL/min at 2.5 bar 36 psi	Non-sterile
MR3	4.05	43.6	153 mL/min at 2.5 bar 36 psi	Non-sterile
MR4	5.4	58.1	204 mL/min at 2.5 bar 36 psi	Non-sterile
MR5	6.75	72.7	255 mL/min at 2.5 bar 36 psi	Non-sterile
MR6	8.1	87.2	306 mL/min at 2.5 bar 36 psi	Non-sterile
MR7	9.45	101.7	357 mL/min at 2.5 bar 36 psi	Non-sterile
MR8	10.8	116.3	408 mL/min at 2.5 bar 36 psi	Non-sterile
MR9	12.15	130.8	459 mL/min at 2.5 bar 36 psi	Non-sterile
Sartobran® P 0.45 µm				
MR2	3.6	38.8	90 mL/min at 1.5 bar 22 psi	Sanitary
MR3	5.4	58.1	135 mL/min at 1.5 bar 22 psi	Sanitary
MR4	7.2	77.5	180 mL/min at 1.5 bar 22 psi	Sanitary
MR5	9	96.9	225 mL/min at 1.5 bar 22 psi	Sanitary
MR6	10.8	116.3	270 mL/min at 1.5 bar 22 psi	Sanitary
MR7	12.6	135.6	315 mL/min at 1.5 bar 22 psi	Sanitary
MR8	14.4	155.0	360 mL/min at 1.5 bar 22 psi	Sanitary
MR9	16.2	174.4	405 mL/min at 1.5 bar 22 psi	Sanitary
Sartobran® P 0.2 µm				
MR2	3.6	38.8	90 mL/min at 2.5 bar 36 psi	Sanitary
MR3	5.4	58.1	135 mL/min at 2.5 bar 36 psi	Sanitary
MR4	7.2	77.5	180 mL/min at 2.5 bar 36 psi	Sanitary
MR5	9	96.9	225 mL/min at 2.5 bar 36 psi	Sanitary
MR6	10.8	116.3	270 mL/min at 2.5 bar 36 psi	Sanitary
MR7	12.6	135.6	315 mL/min at 2.5 bar 36 psi	Sanitary
MR8	14.4	155.0	360 mL/min at 2.5 bar 36 psi	Sanitary
MR9	16.2	174.4	405 mL/min at 2.5 bar 36 psi	Sanitary
Sartoclean® CA 0.8 µm 0.65 µm nom.				
MR2	3.6	38.8		Sanitary
MR3	5.4	58.1		Sanitary
MR4	7.2	77.5		Sanitary
MR5	9	96.9		Sanitary
MR6	10.8	116.3		Sanitary
MR7	12.6	135.6		Sanitary
MR8	14.4	155.0		Sanitary
MR9	16.2	174.4		Sanitary

Filter Type	Filter Area		Max. Diffusion	Delivery Condition
	m ²	ft ²	mL/min	
Sartoclean® GF 0.8 µm 0.65 µm nom.				
MR2	2.82	30.4		Sanitary
MR3	4.23	45.5		Sanitary
MR4	5.64	60.7		Sanitary
MR5	7.05	75.9		Sanitary
MR6	8.46	91.1		Sanitary
MR7	9.87	106.2		Sanitary
MR8	11.28	121.4		Sanitary
MR9	12.69	136.6		Sanitary
Sartopure® PP3 0.45 µm nom.				
MR2	2.4	25.8		Non-sterile Sanitary
MR3	3.6	38.8		Non-sterile Sanitary
MR4	4.8	51.7		Non-sterile Sanitary
MR5	6	64.6		Non-sterile Sanitary
MR6	7.2	77.5		Non-sterile Sanitary
MR7	8.4	90.4		Non-sterile Sanitary
MR8	9.6	103.3		Non-sterile Sanitary
MR9	10.8	116.3		Non-sterile Sanitary
Sartopure® PP3 0.65 – 3 µm nom.				
MR2	2.7	29.1		Non-sterile Sanitary
MR3	4.05	43.6		Non-sterile Sanitary
MR4	5.4	58.1		Non-sterile Sanitary
MR5	6.75	72.7		Non-sterile Sanitary
MR6	8.1	87.2		Non-sterile Sanitary
MR7	9.45	101.7		Non-sterile Sanitary
MR8	10.8	116.3		Non-sterile Sanitary
MR9	12.12	130.8		Non-sterile Sanitary
Sartopure® PP3 5 – 100 µm nom.				
MR2	3.9	42		Non-sterile Sanitary
MR3	5.85	63		Non-sterile Sanitary
MR4	7.8	84		Non-sterile Sanitary
MR5	9.75	104.9		Non-sterile Sanitary
MR6	11.7	125.9		Non-sterile Sanitary
MR7	13.65	146.9		Non-sterile Sanitary
MR8	15.6	167.9		Non-sterile Sanitary
MR9	17.55	188.9		Non-sterile Sanitary

Filter Type	Filter Area		Max. Diffusion	Delivery Condition
	m²	ft²	mL/min	
Sartopure® GF Plus 1.2 µm 0.65 µ nom.				Non-sterile Sanitary
MR2	2.4	25.8		Non-sterile Sanitary
MR3	3.6	38.8		Non-sterile Sanitary
MR4	4.8	51.7		Non-sterile Sanitary
MR5	6	64.6		Non-sterile Sanitary
MR6	7.2	77.5		Non-sterile Sanitary
MR7	8.4	90.4		Non-sterile Sanitary
MR8	9.6	103.3		Non-sterile Sanitary
MR9	10.8	116.3		Non-sterile Sanitary
Virosart® Max				
MR2	4.2	45.2	48 mL/min at 2 bar 29 psi	Sanitary
MR3	6.3	67.8	72 mL/min at 2 bar 29 psi	Sanitary
MR4	8.4	90.4	96 mL/min at 2 bar 29 psi	Sanitary
MR5	10.5	113	120 mL/min at 2 bar 29 psi	Sanitary
MR6	12.6	135.6	144 mL/min at 2 bar 29 psi	Sanitary
MR7	14.7	158.2	168 mL/min at 2 bar 29 psi	Sanitary
MR8	16.8	180.8	192 mL/min at 2 bar 29 psi	Sanitary
MR9	18.9	203.4	216 mL/min at 2 bar 29 psi	Sanitary

Product Quality

Quality management system	DIN ISO 9001
Manufacturing environment	ISO 8 cleanroom
Sterilization method	- Gamma irradiation - Autoclaving of Maxicaps® filter capsules for sanitary delivery condition
Statements	
Biological safety Filter capsule Other product contact material	USP <88> USP <87> or ISO 10993 at minimum
TSE-BSE	Compliance with EMA/410/01
Sterilization ¹	Following ISO 11137
Monitoring on Regular Basis	
Endotoxin	USP <85> and EP 2.6.14
Subvisible particles	USP <788> and EP 2.9.19
Bioburden	Bioburden test is performed by filtration and passes the internal acceptance criteria
Batch Testing	
Bacterial retention for 0.2 µm 0.1 µm filter	Membrane lot tested according to ASTM F838
Mycoplasma retention for 0.1 µm filter	Membrane lot tested according to PDA Standard 05 - 2021
Visual inspection	100%
Product conformity	Technical drawing compliance and batch record review
Gamma irradiation	25 kGy minimum

¹Not applicable for non-sterile and sanitary delivery condition

Connection qualification	Tightness according to Sartorius test protocol, after 3 years shelf life
Packaging validation	ASTM D4169 - 09, enhanced by pre-conditioning at a tropical climate (ASTM D4332)
Seal seam of primary pouch	EN ISO 11607
Hot steam sterilization process for Maxicaps [®] sanitary delivery condition	Conform with EN ISO 17665
Pressure equipment directive	Conform with 2014/68/EU
Others	REACH and RoHs compliance
Extractables	Extractable data for components available Product-specific extractable data available via extractables simulator

Ordering Information Hardware

Item	Order No.	Comment
Trolley Maxicaps [®] MR	FIA500010	
Lifting handles Maxicaps [®] MR	FIA500011	Package incl. 2 handles
Lifting gear Maxicaps [®] MR	FIA500012	Peripheral for Biostat STR [®] Lifting Device
Manual valve actuator Maxicaps [®]	FIA500013	Package incl. 1 piece – 3 pieces required
Pressure safety device	26787---PS	Required for filter integrity test

Germany

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