

Tangential Flow Filtration Market by Product (Single Use Systems, Cassettes, Capsules), Material (PES, PVDF), Technique (Ultrafiltration), Application (Protein, Vaccine, API, Cell Separation), Scale of Operation (R&D), End User - Global Forecast to 2030

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Report description:

The tangential flow filtration market is projected to reach USD 3.20 billion by 2030 from USD 1.86 billion in 2025, at a CAGR of 11.4% during the forecast period. The growth of this market can be attributed to increasing spending on R&D activities. TFF technology has advanced significantly, leading to efficient, reliable, and cost-effective processes. This trend is expected to drive the growth of the tangential flow filtration market in the coming years.

<https://www.marketsandmarkets.com/Images/tangential-flow-filtration-market-Overview.webp>

The Polyethersulfone (PES) segment accounted for the largest share of the membrane material segment in 2024. Based on membrane material, the tangential flow filtration market is segmented into polyethersulfone (PES), polyvinylidene difluoride (PVDF), nylon, polytetrafluoroethylene (PTFE), mixed cellulose ester & cellulose acetate (MCE & CA), polycarbonate track-etched (PCTE), regenerated cellulose, and other membrane materials. In 2024, the PES segment accounted for the largest share of the market owing to its favorable characteristics, such as high flow rates, low protein-binding properties, and broad chemical compatibility. These features make PES membranes ideal for critical biopharmaceutical applications like protein concentration, buffer exchange, and cell harvesting.

By scale of operation, the manufacturing scale operation segment accounted for the largest share of the market in 2024. Based on the scale of operation, the tangential flow filtration market is segmented into manufacturing scale operations, pilot scale

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operations, and R&D scale operations. In 2024, the manufacturing scale operation segment accounted for the largest share of the global tangential flow filtration market, owing to the widespread use of TFF systems in large-scale biopharmaceutical production. Consistent product yield, process efficiency, and regulatory compliance are critical at this stage. TFF plays a central role in achieving these objectives, particularly in ultrafiltration, diafiltration, and concentration of biologics. The growing number of commercial biologics and the increasing adoption of continuous processing further contribute to the high demand for TFF systems at the manufacturing scale.

The US dominated the tangential flow filtration market in 2024.

In 2024, the US led the tangential flow filtration market in North America. The US holds a prominent position as the world's largest biopharmaceutical market with a strong emphasis on research and investment in biopharmaceuticals. Moreover, the country has a strong presence of leading market players and high R&D investment in biologics and advanced therapies. The country's focus on innovation, regulatory compliance, and large-scale manufacturing capacity, especially for monoclonal antibodies, gene therapies, and vaccines, continues to fuel the widespread adoption of TFF systems, membranes, and single-use technologies.

The primary interviews conducted for this report can be categorized as follows:

- By Respondent: Supply-side- 70% and Demand-side 30%
- By Designation: Managers - 45%, CXOs & Directors - 30%, and Executives - 25%
- By Region: North America - 40%, Europe -25%, the Asia Pacific -25%, Latin America -5% and the Middle East & Africa- 5%

List of Companies Profiled in the Report:

- Danaher Corporation (US)
- Merck KGaA (Germany)
- Sartorius AG (Germany)
- Repligen Corporation (US)
- Parker Hannifin Corporation (US)
- ANDRITZ (Austria)
- Alfa Laval Corporate AB (Sweden)
- Solaris Biotechnology Srl (Italy)
- Kovalus Separation Solutions (US)
- Synder Filtration, Inc. (US)
- Antylia Scientific (US)
- FORMULATRIX (US)
- ABEC, Inc. (US)
- VERDOT (France)
- Meissner Filtration Products, Inc. (US)
- Sterlitech Corporation (US)
- APPLEXION (France)
- ZETA BIOSYSTEM (India)
- Smartflow Technologies (US)
- Tecnic Bioprocess Solutions (Spain)
- Bionet (Spain)
- TAMI Industries (France)
- jiangsu Hanbon Science&Technology Co., Ltd. (China)
- Pendotech (US)
- Microfilt India Pvt. Ltd. (India)
- Cobetter Filtration Equipment Co., Ltd. (China)

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Research Coverage

This research report categorizes the tangential flow filtration market by product [membrane filtration devices (cassettes and capsules & cartridges), systems (single-use systems and reusable systems), and other TFF products], membrane material (PES, regenerated cellulose, PVDF, PTFE, MCE & CA, nylon, PCTE, and other membrane materials), technique (ultrafiltration, microfiltration, nanofiltration, and other techniques), application [final product processing (API filtration, protein purification, vaccine and antibody processing, formulation & filling solutions, and viral clearance), raw material filtration (media & buffer filtration, prefiltration, and bioburden testing), cell separation, and water purification], scale of operation (manufacturing scale operations, pilot scale operations, and R&D scale operations), end user (pharmaceutical & biotechnology companies, CMOs & CROs, and academic & research institutes), and by region (North America, Europe, the Asia Pacific, Latin America, Middle East, and Africa). The report's scope covers detailed information regarding the leading factors, such as drivers, restraints, challenges, and opportunities, influencing the growth of the tangential flow filtration market. A thorough analysis of the key industry players has provided insights into their business overview, products, solutions, key strategies, collaborations, partnerships, and agreements. New launches, collaborations, and acquisitions are the recent developments associated with the tangential flow filtration market.

Key Benefits of Buying the Report

The report will help market leaders/new entrants by providing the closest approximations of the revenue numbers for the overall tangential flow filtration market and its subsegments. It will also help stakeholders better understand the competitive landscape and gain more insights to position their business better and make suitable go-to-market strategies. This report will enable stakeholders to understand the market's pulse and provide them with information on the key market drivers, restraints, opportunities, and challenges.

The report provides insights on the following pointers:

- Analysis of key drivers (technological advancements in TFF systems, rising R&D spending and growing pharmaceutical & biotechnology industries, and stringent regulatory requirements), restraints (high capital investments to limit the entry of small players and competition from alternative technologies), opportunities (growing opportunities in emerging economies, increasing demand for biologics, and increasing focus on developing and manufacturing cell & gene therapies), and challenges (complexities introduced by excipient-protein interaction) influencing the growth of the market.
- Product Development/Innovation: Detailed insights on newly launched products of the tangential flow filtration market
- Market Development: Comprehensive information about lucrative markets - the report analyses the market across varied regions.
- Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the tangential flow filtration market
- Competitive Assessment: Danaher Corporation (US), Merck KGaA (Germany), Sartorius AG (Germany), Repligen Corporation (US), Parker Hannifin Corporation (US), ANDRITZ (Austria), Alfa Laval Corporate AB (Sweden), Solaris Biotechnology Srl (Italy), Kovalus Separation Solutions (US), Synder Filtration, Inc. (US), Antylia Scientific (US), FORMULATRIX (US), ABEC, Inc. (US), VERDOT (France), Meissner Filtration Products, Inc. (US), Sterlitech Corporation (US), APPLIXION (France), ZETA BIOSYSTEM (India), Smartflow Technologies (US), Tecnic Bioprocess Solutions (Spain), Bionet (Spain), TAMI Industries (France), Jiangsu Hanbon Science&Technology Co., Ltd. (China), Pendotech (US), Microfilt India Pvt. Ltd. (India), and Cobetter Filtration Equipment Co., Ltd. (China).

Table of Contents:

- 1□ INTRODUCTION□42
- 1.1□ STUDY OBJECTIVES□42
- 1.2□ MARKET DEFINITION□42
- 1.3□ STUDY SCOPE□43
- 1.3.1□ MARKETS & REGIONS COVERED□43
- 1.3.2□ INCLUSIONS & EXCLUSIONS□44
- 1.3.3□ YEARS CONSIDERED□45

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1.3.4	CURRENCY CONSIDERED	45
1.4	STAKEHOLDERS	45
1.5	SUMMARY OF CHANGES	46
2	RESEARCH METHODOLOGY	47
2.1	RESEARCH DATA	47
2.1.1	SECONDARY DATA	48
2.1.1.1	Key sources of secondary data	48
2.1.1.2	Key objectives of secondary research	48
2.1.2	PRIMARY DATA	48
2.1.2.1	Breakdown of primaries	49
2.1.2.2	Key objectives of primary research	49
2.2	MARKET ESTIMATION METHODOLOGY	50
2.2.1	MARKET SIZE ESTIMATION, 2024	50
2.2.1.1	Insights from primary sources	53
2.2.2	SEGMENTAL MARKET ASSESSMENT (TOP-DOWN APPROACH)	53
2.3	MARKET GROWTH RATE FORECAST	55
2.4	MARKET BREAKDOWN & DATA TRIANGULATION	58
2.5	STUDY ASSUMPTIONS	59
2.6	RESEARCH LIMITATIONS	60
2.7	RISK ANALYSIS	60
3	EXECUTIVE SUMMARY	61
3.1	KEY INSIGHTS AND MARKET HIGHLIGHTS	61
3.2	STRATEGIC IMPERATIVES FOR STAKEHOLDERS	67
3.3	DISRUPTIVE TRENDS	68
4	PREMIUM INSIGHTS	69
4.1	TANGENTIAL FLOW FILTRATION MARKET SNAPSHOT	69
4.2	NORTH AMERICA: TANGENTIAL FLOW FILTRATION MARKET, BY PRODUCT & COUNTRY (2024)	70
4.3	TANGENTIAL FLOW FILTRATION MARKET, BY APPLICATION (2024)	71
4.4	TANGENTIAL FLOW FILTRATION MARKET, BY END USER (2024)	71
4.5	TANGENTIAL FLOW FILTRATION MARKET: GEOGRAPHIC GROWTH OPPORTUNITIES	72
5	MARKET OVERVIEW	73
5.1	INTRODUCTION	73
5.2	MARKET DYNAMICS	73
5.2.1	DRIVERS	74
5.2.1.1	Rising technological advancements in TFF systems	74
5.2.1.2	Rising R&D spending and growth in pharmaceutical & biotechnology industries	75
5.2.1.3	Increasing adoption of single-use technologies	77
5.2.1.4	Stringent regulatory requirements for biopharmaceutical products	77
5.2.2	RESTRAINTS	78
5.2.2.1	High capital investments to limit entry of small players	78
5.2.2.2	Issues associated with membrane fouling	79
5.2.2.3	Competition from alternative technologies	79
5.2.3	OPPORTUNITIES	80
5.2.3.1	Growth opportunities in emerging economies	80
5.2.3.2	Expansion of biologics & biosimilars pipelines	80
5.2.3.3	Integration of TFF in continuous bioprocessing workflows	83

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5.2.4	CHALLENGES	84
5.2.4.1	Impact of PFAS restrictions	84
5.2.4.2	Complexities introduced by excipient-protein interaction	84
5.3	TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES	85
5.4	PRICING ANALYSIS	86
5.4.1	AVERAGE SELLING PRICE TREND OF PRODUCTS, BY KEY PLAYERS, 2022-2024	86
5.4.2	AVERAGE SELLING PRICE TREND OF TFF PRODUCTS, 2022-2024	87
5.4.3	AVERAGE SELLING PRICE TREND OF PRODUCTS, BY REGION, 2022-2024	88
5.5	PORTER'S FIVE FORCES ANALYSIS	89
5.5.1	THREAT OF NEW ENTRANTS	90
5.5.2	THREAT OF SUBSTITUTES	90
5.5.3	BARGAINING POWER OF BUYERS	90
5.5.4	BARGAINING POWER OF SUPPLIERS	90
5.5.5	INTENSITY OF COMPETITIVE RIVALRY	90
5.6	TECHNOLOGY ANALYSIS	91
5.6.1	KEY TECHNOLOGIES	91
5.6.1.1	Ultrafiltration	91
5.6.1.2	Microfiltration	91
5.6.1.3	Nanofiltration	92
5.6.2	COMPLEMENTARY TECHNOLOGIES	92
5.6.2.1	Single-use technology	92
5.6.2.2	Automation & control software	92
5.6.3	ADJACENT TECHNOLOGIES	93
5.6.3.1	Chromatography	93
5.6.3.2	Centrifugation	93
5.6.3.3	Microfluidics	93
5.7	VALUE CHAIN ANALYSIS	94
5.8	ECOSYSTEM ANALYSIS	96
5.8.1	ROLE IN ECOSYSTEM	96
5.8.2	EMERGING BUSINESS MODELS & ECOSYSTEM SHIFTS	97
5.9	PATENT ANALYSIS	98
5.9.1	TOP APPLICANTS/OWNERS (COMPANIES) FOR TANGENTIAL FLOW FILTRATION PATENTS, 2014-2024	99
5.10	KEY CONFERENCES & EVENTS, 2025-2026	101
5.11	REGULATORY LANDSCAPE	101
5.11.1	REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	102
5.11.2	REGULATORY FRAMEWORK	104
5.11.2.1	North America	104
5.11.2.2	Europe	105
5.11.2.3	Asia Pacific	105
5.11.2.4	Latin America	106
5.11.2.5	Middle East & Africa	106
5.11.3	REGULATORY CHALLENGES IN TANGENTIAL FLOW FILTRATION MARKET	106
5.11.4	SUSTAINABILITY IMPACT ON TANGENTIAL FLOW FILTRATION MARKET	107
5.12	TRADE DATA	107
5.13	KEY STAKEHOLDERS AND BUYING CRITERIA	110
5.13.1	KEY STAKEHOLDERS IN BUYING PROCESS	110

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- 5.13.2 BUYING CRITERIA FOR END USERS 111
- 5.13.3 UNMET NEEDS OF END USERS 112
- 5.14 INVESTMENT & FUNDING SCENARIO 113
- 5.14.1 VC/PRIVATE EQUITY INVESTMENT TRENDS & STARTUP LANDSCAPE, 2024 114
- 5.15 IMPACT OF AI/GENERATIVE AI ON TANGENTIAL FLOW FILTRATION PRODUCTS MARKET 114
- 5.15.1 INTRODUCTION 114
- 5.15.2 MARKET POTENTIAL OF AI IN TANGENTIAL FLOW FILTRATION APPLICATIONS 114
- 5.15.3 AI-USE CASES 115
- 5.15.4 KEY COMPANIES IMPLEMENTING AI 115
- 5.15.5 FUTURE OF GENERATIVE AI IN TANGENTIAL FLOW FILTRATION ECOSYSTEM 116
- 5.16 TRUMP TARIFF IMPACT ON TANGENTIAL FLOW FILTRATION MARKET 116
- 5.16.1 INTRODUCTION 116
- 5.16.2 KEY TARIFF RATES 117
- 5.16.3 PRICE IMPACT ANALYSIS 118
- 5.16.4 IMPACT ON COUNTRY/REGION 118
- 5.16.4.1 US 118
- 5.16.4.2 Europe 118
- 5.16.4.3 Asia Pacific 119
- 5.16.5 IMPACT ON END-USE INDUSTRIES 119
- 5.16.5.1 Pharmaceutical & biotech companies 119
- 5.16.5.2 Academic & research institutes 119
- 5.16.5.3 Contract research organizations 120
- 6 TANGENTIAL FLOW FILTRATION MARKET, BY PRODUCT 121
- 6.1 INTRODUCTION 122
- 6.2 MEMBRANE FILTER DEVICES 122
- 6.2.1 CASSETTES 126
- 6.2.1.1 Reduction of downtime and elimination of cleaning validation to fuel uptake 126
- 6.2.2 CAPSULES & CARTRIDGES 130
- 6.2.2.1 Increased flow path and higher efficiency of hollow-fiber filters to boost demand 130
- 6.3 SYSTEMS 133
- 6.3.1 SINGLE-USE SYSTEMS 137
- 6.3.1.1 Reduced need for product validation and minimized cross-contamination risks to boost usage 137
- 6.3.2 REUSABLE SYSTEMS 141
- 6.3.2.1 Availability of automated & semi-automated varieties to fuel uptake 141
- 6.4 OTHER PRODUCTS 144
- 7 TANGENTIAL FLOW FILTRATION MARKET, BY MEMBRANE MATERIAL 147
- 7.1 INTRODUCTION 148
- 7.2 PES 148
- 7.2.1 HIGH RELIABILITY AND BROAD APPLICATIONS TO DRIVE MARKET 148
- 7.3 REGENERATED CELLULOSE 152
- 7.3.1 LOW PROTEIN BINDING & BIOCOMPATIBILITY FEATURES TO FUEL UPTAKE 152
- 7.4 PVDF 155
- 7.4.1 HIGH DURABILITY AND ENHANCED PERFORMANCE IN INTENSIVE PROCESSES TO BOOST DEMAND 155
- 7.5 PTFE 158
- 7.5.1 HIGH CHEMICAL RESISTANCE IN HARSH FILTRATION ENVIRONMENTS TO FUEL UPTAKE 158
- 7.6 MCE & CA 162
- 7.6.1 COST-EFFECTIVENESS AND FAST FLOW FOR BASIC FILTRATION REQUIREMENTS TO SUPPORT MARKET GROWTH 162

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- 7.7□PCTE□165
- 7.7.1□USAGE IN CELL BIOLOGY & ANALYTICAL TESTING APPLICATIONS TO AID ADOPTION□165
- ?
- 7.8□NYLON□168
- 7.8.1□INCREASED ENDOTOXIN ADSORPTION CAPACITY OF NYLON FILTERS TO DRIVE DEMAND□168
- 7.9□OTHER MEMBRANE MATERIALS□172
- 8□TANGENTIAL FLOW FILTRATION MARKET, TECHNIQUE□175
- 8.1□INTRODUCTION□176
- 8.2□ULTRAFILTRATION□176
- 8.2.1□EXPANDING APPLICATIONS IN BIOPHARMACEUTICAL INDUSTRY FOR POST-FERMENTATION CELL HARVESTING TO DRIVE MARKET□176
- 8.3□MICROFILTRATION□180
- 8.3.1□ABILITY FOR BIOMASS RECOVERY & PURIFICATION DURING ANTIBIOTIC PRODUCTION TO BOOST DEMAND□180
- 8.4□NANOFILTRATION□183
- 8.4.1□INCREASING APPLICATIONS IN PHARMA & BIOTECH INDUSTRY TO PROPEL MARKET□183
- 8.5□OTHER TECHNIQUES□187
- 9□TANGENTIAL FLOW FILTRATION MARKET, BY APPLICATION□190
- 9.1□INTRODUCTION□191
- 9.2□FINAL PRODUCT PROCESSING□191
- 9.2.1□API FILTRATION□195
- 9.2.1.1□Need for continuous filtration of APIs to drive market□195
- 9.2.2□PROTEIN PURIFICATION□198
- 9.2.2.1□Recent advancements in protein therapeutic drugs to fuel uptake□198
- 9.2.3□VACCINE & ANTIBODY PROCESSING□202
- 9.2.3.1□Development of vaccines for viral diseases to boost demand□202
- 9.2.4□FORMULATION & FILLING SOLUTIONS□206
- 9.2.4.1□Rising need for aseptic filling and bioburden reduction to support market growth□206
- 9.2.5□VIRAL CLEARANCE□209
- 9.2.5.1□Increasing development of therapeutic monoclonal antibodies to boost usage□209
- 9.3□RAW MATERIAL FILTRATION□213
- 9.3.1□MEDIA & BUFFER FILTRATION□217
- 9.3.1.1□Growth in biopharmaceutical manufacturing to drive market□217
- 9.3.2□PREFILTRATION□220
- 9.3.2.1□Issues associated with membrane fouling to boost demand□220
- 9.3.3□BIOBURDEN TESTING□224
- 9.3.3.1□Stringent quality control of biopharmaceuticals to support market growth□224
- 9.4□CELL SEPARATION□227
- 9.4.1□RISING DEMAND FOR PERSONALIZED MEDICINE TO SUPPORT MARKET GROWTH□227
- 9.5□WATER PURIFICATION□230
- 9.5.1□GROWING FOCUS ON PURIFIED WATER FOR BIOPHARMACEUTICAL PROCESSES TO FUEL UPTAKE□230
- 10□TANGENTIAL FLOW FILTRATION MARKET, BY SCALE OF OPERATION□234
- 10.1□INTRODUCTION□235
- 10.2□MANUFACTURING SCALE OPERATIONS□235
- 10.2.1□GROWING FOCUS ON LARGE VOLUME BIOPRODUCTION AND HIGH-THROUGHPUT TFF SOLUTIONS TO DRIVE MARKET□235
- 10.3□PILOT SCALE OPERATIONS□240
- 10.3.1□RISING OUTSOURCING OF SERVICES TO BOOST DEMAND□240
- 10.4□R&D SCALE OPERATIONS□244

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- 10.4.1 INCREASING INVESTMENTS IN R&D OF BIOLOGICS TO SUPPORT MARKET GROWTH 244
- 11 TANGENTIAL FLOW FILTRATION MARKET, BY END USER 248
 - 11.1 INTRODUCTION 249
 - 11.2 PHARMACEUTICAL & BIOTECHNOLOGY COMPANIES 249
 - 11.2.1 DEVELOPMENT & PRODUCTION OF BIOLOGICS, BIOSIMILARS, AND ADVANCED THERAPIES TO PROPEL MARKET 249
 - 11.3 CONTRACT RESEARCH ORGANIZATIONS 253
 - 11.3.1 RISING DEMAND FOR OUTSOURCING OF CLINICAL ACTIVITIES TO FUEL MARKET 253
 - 11.4 ACADEMIC & RESEARCH INSTITUTES 256
 - 11.4.1 INCREASING PHARMA-ACADEMIA COLLABORATIONS TO SUPPORT MARKET GROWTH 256
- 12 TANGENTIAL FLOW FILTRATION MARKET, BY REGION 260
 - 12.1 INTRODUCTION 261
 - 12.2 NORTH AMERICA 261
 - 12.2.1 NORTH AMERICA: MACROECONOMIC OUTLOOK 262
 - 12.2.2 US 268
 - 12.2.2.1 High healthcare expenditure and presence of stringent regulatory guidelines for product approvals to drive market 268
 - 12.2.3 CANADA 273
 - 12.2.3.1 Favorable government support for expansion of biologics manufacturing facilities to fuel market 273
 - 12.2.3 EUROPE 278
 - 12.2.3.1 EUROPE: MACROECONOMIC OUTLOOK 278
 - 12.2.3.2 GERMANY 284
 - 12.2.3.2.1 Expansion in biologics & biosimilar production to fuel market 284
 - 12.2.3.3 UK 288
 - 12.2.3.3.1 Rising demand for high-quality drugs and increasing uptake of filtration processes to boost market 288
 - 12.2.3.4 FRANCE 293
 - 12.2.3.4.1 Government investments in pharmaceutical industry to drive market 293
 - 12.2.3.5 ITALY 298
 - 12.2.3.5.1 Availability of funding for NME development to support market growth 298
 - 12.2.3.6 SPAIN 303
 - 12.2.3.6.1 Rising focus on development of targeted therapeutics to drive market 303
 - 12.2.3.7 REST OF EUROPE 308
 - 12.2.4 ASIA PACIFIC 313
 - 12.2.4.1 ASIA PACIFIC: MACROECONOMIC OUTLOOK 314
 - 12.2.4.2 CHINA 320
 - 12.2.4.2.1 Rising incidence of infectious diseases to propel market 320
 - 12.2.4.3 JAPAN 324
 - 12.2.4.3.1 Growing focus on pharmaceutical research and potential hub for CRO services to drive market 324
 - 12.2.4.4 INDIA 329
 - 12.2.4.4.1 Favorable scenario for foreign direct investments to favor market growth 329
 - 12.2.4.5 SOUTH KOREA 334
 - 12.2.4.5.1 Growth in biotechnology industry to fuel market 334
 - 12.2.4.6 AUSTRALIA 339
 - 12.2.4.6.1 Rising demand for innovative filtration solutions to support market growth 339
 - 12.2.4.7 REST OF ASIA PACIFIC 344
 - 12.2.5 LATIN AMERICA 349
 - 12.2.5.1 LATIN AMERICA: MACROECONOMIC OUTLOOK 349
 - 12.2.5.2 BRAZIL 355

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12.5.2.1	Expansion of clinical research activities to support market growth	355
12.5.3	MEXICO	359
12.5.3.1	Increasing demand for chronic disease management treatment to fuel uptake	359
12.5.4	REST OF LATIN AMERICA	364
12.6	MIDDLE EAST	368
12.6.1	MIDDLE EAST: MACROECONOMIC OUTLOOK	368
12.6.2	GCC COUNTRIES	374
12.6.2.1	Kingdom of Saudi Arabia (KSA)	379
12.6.2.1.1	Growth in healthcare sector to drive market	379
12.6.2.2	United Arab Emirates (UAE)	384
12.6.2.2.1	Adoption of efficient & precise filtration processes to drive market	384
12.6.2.3	Other GCC Countries	389
12.6.3	REST OF MIDDLE EAST	394
	?	
12.7	AFRICA	399
12.7.1	INCREASING FOCUS ON PHARMACEUTICAL R&D TO SUPPORT MARKET GROWTH	399
12.7.2	AFRICA: MACROECONOMIC OUTLOOK	399
13	COMPETITIVE LANDSCAPE	404
13.1	OVERVIEW	404
13.2	KEY PLAYER STRATEGIES/RIGHT TO WIN	404
13.2.1	OVERVIEW OF STRATEGIES ADOPTED BY KEY PLAYERS IN TANGENTIAL FLOW FILTRATION MARKET	405
13.3	REVENUE ANALYSIS, 2020-2024	406
13.4	MARKET SHARE ANALYSIS, 2024	407
13.5	COMPANY EVALUATION MATRIX: KEY PLAYERS, 2024	410
13.5.1	STARS	410
13.5.2	EMERGING LEADERS	410
13.5.3	PERVASIVE PLAYERS	410
13.5.4	PARTICIPANTS	410
13.5.5	COMPANY FOOTPRINT: KEY PLAYERS, 2024	412
13.5.5.1	Company footprint	412
13.5.5.2	Region footprint	413
13.5.5.3	Product footprint	414
13.5.5.4	Application footprint	415
13.5.5.5	Scale of operation footprint	416
13.6	COMPANY EVALUATION MATRIX: STARTUPS/SMES, 2024	417
13.6.1	PROGRESSIVE COMPANIES	417
13.6.2	RESPONSIVE COMPANIES	417
13.6.3	DYNAMIC COMPANIES	417
13.6.4	STARTING BLOCKS	417
13.6.5	COMPETITIVE BENCHMARKING: STARTUPS/SMES, 2024	419
13.6.5.1	Detailed list of key startups/SMEs	419
13.6.5.2	Competitive benchmarking of key startups/SMEs	420
13.7	COMPANY VALUATION & FINANCIAL METRICS	421
13.7.1	FINANCIAL METRICS	421
13.7.2	COMPANY VALUATION	421
13.8	BRAND/PRODUCT COMPARISON	422
13.8.1	BRAND/PRODUCT COMPARATIVE ANALYSIS	422

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13.9	COMPETITIVE SCENARIO	423
13.9.1	PRODUCT LAUNCHES	423
13.9.2	DEALS	423
13.9.3	EXPANSIONS	424
	?	
14	COMPANY PROFILES	425
14.1	KEY PLAYERS	425
14.1.1	DANAHER CORPORATION	425
14.1.1.1	Business overview	425
14.1.1.2	Products offered	427
14.1.1.3	Recent developments	430
14.1.1.3.1	Product launches	430
14.1.1.3.2	Deals	430
14.1.1.3.3	Expansions	431
14.1.1.3.4	Other developments	433
14.1.1.4	MnM view	433
14.1.1.4.1	Key strengths	433
14.1.1.4.2	Strategic choices made	433
14.1.1.4.3	Weaknesses & competitive threats	433
14.1.2	MERCK KGAA	434
14.1.2.1	Business overview	434
14.1.2.2	Products offered	435
14.1.2.3	Recent developments	437
14.1.2.3.1	Deals	437
14.1.2.3.2	Expansions	438
14.1.2.4	MnM view	439
14.1.2.4.1	Key strengths	439
14.1.2.4.2	Strategic choices	439
14.1.2.4.3	Weaknesses & competitive threats	440
14.1.3	SARTORIUS AG	441
14.1.3.1	Business overview	441
14.1.3.2	Products offered	442
14.1.3.3	Recent developments	443
14.1.3.3.1	Product launches	443
14.1.3.3.2	Deals	444
14.1.3.3.3	Expansions	445
14.1.3.4	MnM view	446
14.1.3.4.1	Key strengths	446
14.1.3.4.2	Strategic choices	446
14.1.3.4.3	Weaknesses & competitive threats	446
14.1.4	REPLIGEN CORPORATION	447
14.1.4.1	Business overview	447
14.1.4.2	Products offered	448
14.1.4.3	Recent developments	449
14.1.4.3.1	Product launches	449
14.1.4.3.2	Deals	450
14.1.4.3.3	Expansions	451

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14.1.4.3.4	Other developments	451
14.1.4.4	MnM view	451
14.1.4.4.1	Key strengths	451
14.1.4.4.2	Strategic choices	451
14.1.4.4.3	Weaknesses & competitive threats	452
14.1.5	PARKER-HANNIFIN CORPORATION	453
14.1.5.1	Business overview	453
14.1.5.2	Products offered	454
14.1.5.3	Recent developments	455
14.1.5.3.1	Product launches	455
14.1.5.3.2	Expansions	455
14.1.5.4	MnM view	455
14.1.5.4.1	Key strengths	455
14.1.5.4.2	Strategic choices	455
14.1.5.4.3	Weaknesses & competitive threats	456
14.1.6	ALFA LAVAL CORPORATE AB	457
14.1.6.1	Business overview	457
14.1.6.2	Products offered	458
14.1.7	ANDRITZ	460
14.1.7.1	Business overview	460
14.1.7.2	Products offered	461
14.1.8	DONALDSON COMPANY	462
14.1.8.1	Business overview	462
14.1.8.2	Products offered	463
14.1.9	MEISSNER FILTRATION PRODUCTS, INC.	464
14.1.9.1	Business overview	464
14.1.9.2	Products offered	464
14.1.10	ANTYLIA SCIENTIFIC	465
14.1.10.1	Business overview	465
14.1.10.2	Products offered	465
14.1.10.3	Recent developments	468
14.1.10.3.1	Other developments	468
14.1.11	KOVALUS SEPARATION SOLUTIONS	469
14.1.11.1	Products offered	469
14.1.11.2	Recent developments	470
14.1.11.2.1	Deals	470
14.1.12	SYNDER FILTRATION, INC.	471
14.1.12.1	Business overview	471
14.1.12.2	Products offered	471
14.1.13	ABEC, INC.	473
14.1.13.1	Business overview	473
14.1.13.2	Products offered	473
14.1.14	FORMULATRIX, INC.	474
14.1.14.1	Business overview	474
14.1.14.2	Products offered	474
14.1.15	VERDOT	475
14.1.15.1	Business overview	475

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- 14.1.15.2 Products offered 475
- 14.2 OTHER PLAYERS 476
 - 14.2.1 STERLITECH CORPORATION 476
 - 14.2.2 APPEXION 478
 - 14.2.3 PENDOTECH 479
 - 14.2.4 MICROFILT INDIA PVT. LTD. 480
 - 14.2.5 BIONET 481
 - 14.2.6 HANGZHOU COBETTER FILTRATION EQUIPMENT CO., LTD. 482
 - 14.2.7 SMARTFLOW TECHNOLOGIES, INC. 482
 - 14.2.8 TAMI INDUSTRIES 483
 - 14.2.9 ZETA BIOSYSTEM 483
 - 14.2.10 JIANGSU HANBON SCIENCE & TECHNOLOGY CO., LTD. 484
 - 14.2.11 TECNIC BIOPROCESS EQUIPMENT MANUFACTURING 485
- 15 APPENDIX 486
 - 15.1 DISCUSSION GUIDE 486
 - 15.2 KNOWLEDGESTORE: MARKETSDMARKETS' SUBSCRIPTION PORTAL 490
 - 15.3 CUSTOMIZATION OPTIONS 492
 - 15.4 RELATED REPORTS 492
 - 15.5 AUTHOR DETAILS 494

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