

Single-Use Bioprocessing Probes And Sensors Market - Global Outlook & Forecast 2022-2027

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Report description:

The global single-use bioprocessing probes and sensors market is expected to grow at a CAGR of 16.32% during 2022-2027

Single-use bioprocessing probes and sensors are effective alternatives to traditional biopharmaceutical development and manufacturing methods. They are well-positioned to support the growing interest in the product's implementation of continuous bioprocessing. Conventional bioreactors and fermenters are made up of stainless steel or glass. In contrast, the vessels for single-use bioreactors and single-use fermenters are disposable plastic bags installed into outer metal containers. The increasing adoption of single-use technologies in the biopharmaceutical industry for biologics, vaccines, and cell therapy production indicates that such technology has moved far beyond its novelty stage.

The rise of bioprocessing in biopharmaceutical manufacturing, combined with the advantages of single-use systems, is driving up demand for single-use bioprocessing probes and sensors with a track record of long-term performance. The challenges for single-use technology in bioprocessing include the time for a sensor when the bioprocess has a long duration and whether the materials are durable enough to be exposed to process fluids for a more extended period.

The rising popularity of single-use bioreactors and fermenters because of its increasing demand in the development of therapeutics has drawn several vital stakeholders' attention to the single-use bioprocessing probes and sensors market. The bioreactors and fermenters meet the need of the biopharmaceutical industry for lower costs, increased efficiency, and overall greater flexibility. This is because single-use equipment can be pre-sterilized by the supplier before use, and there is the potential to eliminate classified environments from the manufacturing process. In addition, the reduced risk of cross-contamination helps companies avoid costly downtime and material waste.

Expanding the use of single-use bioreactors and fermenters has fueled the growth of the single-use bioprocessing probes and sensors market. There will be substantial growth in the utilization of single-use bioprocessing probes and sensors by 2023, with a

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214.29% increase in revenue from 2018.

The global single-use bioprocessing market is moderately competitive and offers significant growth opportunities for vendors. Thermo Fisher Scientific, Sartorius, Danaher, and Merck are some of the key companies dominating the market.

Vendors' Activities in the Market

- Expansion activities (regional business and facility expansions) are helping players strengthen the global distribution networks and thus allowing the players to explore untapped opportunities.
- Large scale investments in the single-use bioprocessing probes and sensors market through varied conglomerates and acquisitions firms
- Forging partnerships with well-established manufacturers, cementing the footprints of the players.
- Active Mergers and acquisitions play a vital role in the smooth functioning of the growth cycle.

Key Vendors

- Thermo Fisher Scientific
- Sartorius
- Danaher
- Merck KGAA

Other Prominent Vendors

- Aber Instruments
- Avantor
- Broadley-James
- CerCell
- Cole-Parmer Instrument Company
- Distek
- Emerson Electric
- ESI Technologies Group
- Hamilton Company
- High Purity New England
- Levitronix
- Liquidyne Process Technologies
- Malema Engineering
- METTLER TOLEDO
- PARKER HANNIFIN
- PreSens Precision Sensing
- PSG
- Saint-Gobain
- SONOTEC

TECHNOLOGICAL ADVANCEMENTS

To cater to the growing demand for single-use probes and sensors, vendors focus more on developing advanced single-use probes and sensors to meet the current requirements. As a result, several companies are engaged in focusing on developing improved single-use sensors. For instance, Emerson Electric's Rosemount 550 Ph single-use sensor and connector offers storage, installation, gamma sterilization, and standardization in moist conditions. The non-invasive single-use probes and sensors reduce

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the risk of cross-contamination as the sensors are read out contactless via an optical fiber. SONOTEC offers an ultrasonic clamp-on flow meter, i.e., SONOFLOW CO.55, which is non-invasive and does the contamination-free flow metering on flexible tubes. Other vendors such as PreSens Precision Sensing and HIGH PURITY NEW ENGLAND recently started offering non-invasive probes and sensors. Smart single-use probes and sensors, consisting of memory devices with gamma stability to record calibration data and carry sensor-specific information, have emerged, with applications in growth media preparation, bioreactor maintenance, cell culture harvest, buffer preparation, and tangential flow filtration.

Some smart single-use sensors are developed with better shelf life and no recalibration requirement. For instance, Emerson's Rosemount 550pH single-use sensor has sensor stability of

IMPACT OF COVID-19 PANDEMIC

The outbreak of the COVID-19 pandemic has led to a boost in demand for single-use bioprocessing probes and sensors. The demand for COVID-19 vaccine, cell and gene therapies, and monoclonal antibody manufacturing is likely to influence the market because most biopharmaceutical companies rely on advanced technologies such as single-use systems to develop therapeutic agents.

The vaccine segment has shown the highest CAGR of 16.99%, which is expected to be because of the increasing demand for vaccine development in several therapeutic areas, mainly during the COVID-19 pandemic.

WIDE ACCEPTANCE AMONG CMOs

CMOs play an important role in biopharma companies and help create a valuable investment. Companies with significant financial clout, reputation, and ability to take the risk are well-positioned to lead in the market. CMOs with adequate scale and special operations dominate the market and potentially realize high economic returns.

The wide acceptance of single-use bioreactors among CMOs is increasing the demand for single-use probes and sensors in recent years because CMOs prefer higher flexibility manufacturing with the aim of time and cost savings. It is estimated that about 60% of CMOs are currently using single-use probes and sensors for their single-use bioreactors to produce biologics. Thus, increasing the growth and manufacturing of biopharmaceuticals is boosting the demand for single-use probes and sensors.

CMOs have been among the earliest adopters of single-use bioprocessing probes and sensors. CMOs are more likely than drug manufacturers to adopt single-use bioprocessing probes and sensors - 86% vs. 66% in 2019. More than 30% of bio manufacturers and 39% of CMOs have considered probes and sensors as their interest in new product development.

INCREASED DEMAND FOR PH SENSOR

Among the single-use bioprocessing probes and sensors, pH sensors are the most used sensors in the bioprocessing industry. These pH sensors have enabled enhanced equipment inventory control for the process device manufacturer and end-user sites. The pH sensor segment has accounted for the highest market share of 23.23% among the other types of sensors.

WORKFLOW INSIGHTS

The upstream segment is dominating the single-use bioprocessing probes and sensors and has accounted for the largest revenue of 4712.96 million in 2021. The increasing adoption of single-use bioreactors for upstream bioprocessing has significantly increased the usage of single-use bioprocessing probes and sensors.

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In the downstream processing, the affinity capture step and purification are intensive and costly. Overall, less penetration of single-use systems in downstream processing has resulted in less market revenue share in this segment. However, the operating players are constantly attempting to expand the use of single-use systems in the downstream process; this segment is expected to witness considerable growth during the forecast period.

Segmentation by Type of Sensors

- pH
- Oxygen
- Pressure
- Temperature
- Flow Meters & Sensor
- Other

Segmentation by Workflow

- Upstream
- Downstream

Segmentation by Application

- Monoclonal Antibody
- Vaccines
- Cell Therapies
- Others

Segmentation by End-User

- Biopharmaceutical Manufacturers
- CMOS & CDMOS
- R&D Companies & Institutes

GEOGRAPHY INSIGHTS

Increasing expenditure on R&D for biopharmaceutical products is contributing to the high utilization of single-use bioreactors, in turn contributing to the growth of the single-use bioprocessing probes and sensors market. The increasing demand for single-use bioprocessing probes and sensors can be observed in North America and Europe. With \$409.58 million, North America was the highest revenue generator region in 2021.

In North America, the majority of the companies hold strong positions in these regions. Collaborations between the sensor's original equipment manufacturers and independent sensor suppliers contribute to growing the market. Major players such as Avantor, High Purity New England, and Merck play an essential role in the growth of the single-use bioprocessing sensors market in the United States, accompanied by rising investments by large companies to expand single-use bioprocessing facilities in the United States.

The major suppliers from North America and Europe are helping the market grow at a good pace and contributing to the market's growth in APAC, Latin America, and the Middle East & Africa.

Because of the increasing demand and expansion in usage of single-use bioreactors throughout North America and Europe is driving the growth of the market in these regions majorly. North America and Europe also dominate other areas in increasing investments to develop and distribute advanced single-use bioprocessing probes and sensors.

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In recent years, the increasing expansion of manufacturing facilities for single-use bioprocessing can be witnessed in several countries from Latin America and the Middle East & to Africa, bringing great opportunities for the market's growth.

The rising emphasis on research activities and high R&D spending in APAC leads to increased use of single-use bioprocessing technologies to manufacture biopharmaceuticals, propelling the APAC single-use bioprocessing probes and sensors market with a CAGR of 17.86%.

Segmentation by Region

-□North America

o□US

o□Canada

-□Europe

o□Germany

o□France

o□Switzerland

o□UK

o□Italy

o□Spain

-□APAC

o□China

o□Japan

o□Australia

o□South Korea

o□India

-□Latin America

o□Brazil

o□Mexico

o□Colombia

o□Argentina

-□Middle East & Africa

o□Turkey

o□Saudi Arabia

o□UAE

o□South Africa

KEY QUESTIONS ANSWERED

1.□HOW BIG IS THE GLOBAL SINGLE-USE BIOPROCESSING PROBES AND SENSORS MARKET?

2.□WHAT IS THE GROWTH RATE OF THE GLOBAL SINGLE-USE BIOPROCESSING PROBES AND SENSORS MARKET?

3.□WHO ARE THE KEY PLAYERS IN THE GLOBAL SINGLE-USE BIOPROCESSING PROBES AND SENSORS MARKET?

4.□WHAT ARE THE GROWTH FACTORS IN THE GLOBAL SINGLE-USE BIOPROCESSING PROBES AND SENSORS MARKET?

5.□WHAT ARE THE LATEST TRENDS IN THE GLOBAL SINGLE-USE BIOPROCESSING PROBES AND SENSORS MARKET?

Table of Contents:

1 RESEARCH METHODOLOGY

2 RESEARCH OBJECTIVES

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3 RESEARCH PROCESS

4 SCOPE & COVERAGE

4.1 MARKET DEFINITION

4.1.1 INCLUSIONS

4.1.2 EXCLUSIONS

4.1.3 MARKET ESTIMATION CAVEATS

4.2 BASE YEAR

4.3 SCOPE OF THE STUDY

4.3.1 MARKET SEGMENTATION BY TYPE OF SENSORS

4.3.2 MARKET SEGMENTATION BY WORKFLOW

4.3.3 MARKET SEGMENTATION BY APPLICATION

4.3.4 MARKET SEGMENTATION BY END USER

4.3.5 MARKET SEGMENTATION BY GEOGRAPHY

5 REPORT ASSUMPTIONS & CAVEATS

5.1 KEY CAVEATS

5.2 CURRENCY CONVERSION

5.3 MARKET DERIVATION

6 MARKET AT A GLANCE

7 INTRODUCTION

7.1 OVERVIEW

7.1.1 EVOLUTION OF CMOS & CDMOS

8 MARKET OPPORTUNITIES & TRENDS

8.1 FOCUS ON DEVELOPMENT OF NON-INVASIVE SINGLE-USE SENSORS

8.2 LAUNCH OF SMART SINGLE-USE SENSORS

8.3 DEVELOPMENT OF SINGLE-USE DISSOLVED OXYGEN SENSORS

9 MARKET GROWTH ENABLERS

9.1 GROWING DEMAND FOR BIOPHARMACEUTICALS

9.2 EXPANDING USE OF SINGLE-USE BIOREACTORS

9.3 RISING INVESTMENT IN SINGLE-USE BIOPROCESSING FACILITY EXPANSIONS

10 MARKET RESTRAINTS

10.1 ENVIRONMENTAL CONCERNS REGARDING SAFE DISPOSABLES AND TECHNICAL ISSUES

10.2 TRACES OF LEACHABLES & EXTRACTABLES IN FINAL PRODUCT

10.3 LIMITATIONS ASSOCIATED WITH SINGLE-USE TECHNOLOGIES IN BIOPROCESSING

11 MARKET LANDSCAPE

11.1 MARKET OVERVIEW

11.2 MARKET SIZE & FORECAST

11.2.1 INSIGHTS BY TYPE OF SENSORS

11.2.2 INSIGHTS BY APPLICATION

11.2.3 INSIGHTS BY END USERS

11.2.4 INSIGHTS BY WORKFLOW

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- 11.2.5 INSIGHTS BY GEOGRAPHY
- 11.3 FIVE FORCES ANALYSIS
 - 11.3.1 THREAT OF NEW ENTRANTS
 - 11.3.2 BARGAINING POWER OF SUPPLIERS
 - 11.3.3 BARGAINING POWER OF BUYERS
 - 11.3.4 THREAT OF SINGLE-USE SUBSTITUTES
 - 11.3.5 COMPETITIVE RIVALRY

- 12 TYPE OF SENSORS
 - 12.1 MARKET SNAPSHOT & GROWTH ENGINE
 - 12.2 MARKET OVERVIEW
 - 12.3 PH SENSOR
 - 12.3.1 MARKET OVERVIEW
 - 12.3.2 MARKET SIZE & FORECAST
 - 12.3.3 MARKET BY GEOGRAPHY
 - 12.4 OXYGEN SENSOR
 - 12.4.1 MARKET OVERVIEW
 - 12.4.2 MARKET SIZE & FORECAST
 - 12.4.3 MARKET BY GEOGRAPHY
 - 12.5 PRESSURE SENSOR
 - 12.5.1 MARKET OVERVIEW
 - 12.5.2 MARKET SIZE & FORECAST
 - 12.5.3 MARKET BY GEOGRAPHY
 - 12.6 TEMPERATURE SENSOR
 - 12.6.1 MARKET OVERVIEW
 - 12.6.2 MARKET SIZE & FORECAST
 - 12.6.3 MARKET BY GEOGRAPHY
 - 12.7 FLOW METER/SENSOR
 - 12.7.1 MARKET OVERVIEW
 - 12.7.2 MARKET SIZE & FORECAST
 - 12.7.3 MARKET BY GEOGRAPHY
 - 12.8 OTHERS
 - 12.8.1 MARKET OVERVIEW
 - 12.8.2 MARKET SIZE & FORECAST
 - 12.8.3 MARKET BY GEOGRAPHY

- 13 WORKFLOW
 - 13.1 MARKET SNAPSHOT & GROWTH ENGINE
 - 13.2 MARKET OVERVIEW
 - 13.3 UPSTREAM
 - 13.3.1 MARKET OVERVIEW
 - 13.3.2 MARKET SIZE & FORECAST
 - 13.3.3 MARKET BY GEOGRAPHY
 - 13.4 DOWNSTREAM
 - 13.4.1 MARKET OVERVIEW
 - 13.4.2 MARKET SIZE & FORECAST
 - 13.4.3 MARKET BY GEOGRAPHY

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- 14 APPLICATION
 - 14.1 MARKET SNAPSHOT & GROWTH ENGINE
 - 14.2 MARKET OVERVIEW
 - 14.3 MONOCLONAL ANTIBODIES
 - 14.3.1 MARKET OVERVIEW
 - 14.3.2 MARKET SIZE & FORECAST
 - 14.3.3 MARKET BY GEOGRAPHY
 - 14.4 VACCINES
 - 14.4.1 MARKET OVERVIEW
 - 14.4.2 MARKET SIZE & FORECAST
 - 14.4.3 MARKET BY GEOGRAPHY
 - 14.5 CELL THERAPIES
 - 14.5.1 MARKET OVERVIEW
 - 14.5.2 MARKET SIZE & FORECAST
 - 14.5.3 MARKET BY GEOGRAPHY
 - 14.6 OTHERS
 - 14.6.1 MARKET OVERVIEW
 - 14.6.2 MARKET SIZE & FORECAST
 - 14.6.3 MARKET BY GEOGRAPHY

- 15 END USER
 - 15.1 MARKET SNAPSHOT & GROWTH ENGINE
 - 15.2 MARKET OVERVIEW
 - 15.3 BIOPHARMACEUTICAL MANUFACTURERS
 - 15.3.1 MARKET OVERVIEW
 - 15.3.2 MARKET SIZE & FORECAST
 - 15.3.3 MARKET BY GEOGRAPHY
 - 15.4 CMOS & CDMOS
 - 15.4.1 MARKET OVERVIEW
 - 15.4.2 MARKET SIZE & FORECAST
 - 15.4.3 MARKET BY GEOGRAPHY
 - 15.5 R&D COMPANIES & INSTITUTES
 - 15.5.1 MARKET OVERVIEW
 - 15.5.2 MARKET SIZE & FORECAST
 - 15.5.3 MARKET BY GEOGRAPHY

- 16 GEOGRAPHY
 - 16.1 MARKET SNAPSHOT & GROWTH ENGINE
 - 16.2 GEOGRAPHIC OVERVIEW

- 17 NORTH AMERICA
 - 17.1 MARKET OVERVIEW
 - 17.2 MARKET SIZE & FORECAST
 - 17.3 NORTH AMERICA: TYPE OF SENSORS
 - 17.4 NORTH AMERICA: WORKFLOW
 - 17.5 NORTH AMERICA: APPLICATION

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17.6 NORTH AMERICA: END USER
17.7 KEY COUNTRIES
17.7.1 US: MARKET SIZE & FORECAST
17.7.2 CANADA: MARKET SIZE & FORECAST

18 EUROPE
18.1 MARKET OVERVIEW
18.2 MARKET SIZE & FORECAST
18.3 EUROPE: TYPE OF SENSORS
18.4 EUROPE: WORKFLOW
18.5 EUROPE: APPLICATION
18.6 EUROPE: END USER
18.7 KEY COUNTRIES
18.7.1 GERMANY: MARKET SIZE & FORECAST
18.7.2 FRANCE: MARKET SIZE & FORECAST
18.7.3 SWITZERLAND: MARKET SIZE & FORECAST
18.7.4 UK: MARKET SIZE & FORECAST
18.7.5 ITALY: MARKET SIZE & FORECAST
18.7.6 SPAIN: MARKET SIZE & FORECAST

19 APAC
19.1 MARKET OVERVIEW
19.2 MARKET SIZE & FORECAST
19.3 APAC: TYPE OF SENSORS
19.4 APAC: WORKFLOW
19.5 APAC: APPLICATION
19.6 APAC: END USER
19.7 KEY COUNTRIES
19.7.1 CHINA: MARKET SIZE & FORECAST
19.7.2 JAPAN: MARKET SIZE & FORECAST
19.7.3 AUSTRALIA: MARKET SIZE & FORECAST
19.7.4 SOUTH KOREA: MARKET SIZE & FORECAST
19.7.5 INDIA: MARKET SIZE & FORECAST

20 LATIN AMERICA
20.1 MARKET OVERVIEW
20.2 MARKET SIZE & FORECAST
20.3 LATIN AMERICA: TYPE OF SENSORS
20.4 LATIN AMERICA: WORKFLOW
20.5 LATIN AMERICA: APPLICATION
20.6 LATIN AMERICA: END USER
20.7 KEY COUNTRIES
20.7.1 BRAZIL: MARKET SIZE & FORECAST
20.7.2 MEXICO: MARKET SIZE & FORECAST
20.7.3 COLOMBIA: MARKET SIZE & FORECAST
20.7.4 ARGENTINA: MARKET SIZE & FORECAST

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- 21 MIDDLE EAST & AFRICA
 - 21.1 MARKET OVERVIEW
 - 21.2 MARKET SIZE & FORECAST
 - 21.3 MIDDLE EAST & AFRICA: TYPE OF SENSORS
 - 21.4 MIDDLE EAST & AFRICA: WORKFLOW
 - 21.5 MIDDLE EAST & AFRICA: APPLICATION
 - 21.6 MIDDLE EAST & AFRICA: END USER
 - 21.7 KEY COUNTRIES
 - 21.7.1 TURKEY: MARKET SIZE & FORECAST
 - 21.7.2 SAUDI ARABIA: MARKET SIZE & FORECAST
 - 21.7.3 UAE: MARKET SIZE & FORECAST
 - 21.7.4 SOUTH AFRICA: MARKET SIZE & FORECAST

- 22 COMPETITIVE LANDSCAPE
 - 22.1 COMPETITION OVERVIEW
 - 22.2 MARKET SHARE ANALYSIS
 - 22.2.1 THERMO FISHER SCIENTIFIC
 - 22.2.2 SARTORIUS
 - 22.2.3 DANAHER
 - 22.2.4 MERCK KGAA

- 23 KEY COMPANY PROFILES
 - 23.1 THERMO FISHER SCIENTIFIC
 - 23.1.1 BUSINESS OVERVIEW
 - 23.1.2 PRODUCT OFFERINGS
 - 23.1.3 KEY STRATEGIES
 - 23.1.4 KEY STRENGTHS
 - 23.1.5 KEY OPPORTUNITIES
 - 23.2 SARTORIUS
 - 23.2.1 BUSINESS OVERVIEW
 - 23.2.2 PRODUCT OFFERINGS
 - 23.2.3 KEY STRATEGIES
 - 23.2.4 KEY STRENGTHS
 - 23.2.5 KEY OPPORTUNITIES
 - 23.3 DANAHER
 - 23.3.1 BUSINESS OVERVIEW
 - 23.3.2 PRODUCT OFFERINGS
 - 23.3.3 KEY STRATEGIES
 - 23.3.4 KEY STRENGTHS
 - 23.3.5 KEY OPPORTUNITIES
 - 23.4 MERCK KGAA
 - 23.4.1 BUSINESS OVERVIEW
 - 23.4.2 PRODUCT OFFERINGS
 - 23.4.3 KEY STRATEGIES
 - 23.4.4 KEY STRENGTHS
 - 23.4.5 KEY OPPORTUNITIES

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- 24 OTHER PROMINENT VENDORS
 - 24.1 ABER INSTRUMENTS
 - 24.1.1 BUSINESS OVERVIEW
 - 24.1.2 PRODUCT OFFERINGS
 - 24.2 AVANTOR
 - 24.2.1 BUSINESS OVERVIEW
 - 24.2.2 PRODUCT OFFERINGS
 - 24.3 BROADLEY-JAMES
 - 24.3.1 BUSINESS OVERVIEW
 - 24.3.2 PRODUCT OFFERINGS
 - 24.4 CERCELL
 - 24.4.1 BUSINESS OVERVIEW
 - 24.4.2 PRODUCT OFFERINGS
 - 24.5 COLE-PARMER INSTRUMENT COMPANY
 - 24.5.1 BUSINESS OVERVIEW
 - 24.5.2 PRODUCT OFFERINGS
 - 24.6 DISTEK
 - 24.6.1 BUSINESS OVERVIEW
 - 24.6.2 PRODUCT OFFERINGS
 - 24.7 EMERSON ELECTRIC
 - 24.7.1 BUSINESS OVERVIEW
 - 24.7.2 PRODUCT OFFERINGS
 - 24.8 ESI TECHNOLOGIES GROUP
 - 24.8.1 BUSINESS OVERVIEW
 - 24.8.2 PRODUCT OFFERINGS
 - 24.9 HAMILTON COMPANY
 - 24.9.1 BUSINESS OVERVIEW
 - 24.9.2 PRODUCT OFFERINGS
 - 24.10 HIGH PURITY NEW ENGLAND
 - 24.10.1 BUSINESS OVERVIEW
 - 24.10.2 PRODUCT OFFERINGS
 - 24.11 LEVITRONIX
 - 24.11.1 BUSINESS OVERVIEW
 - 24.11.2 PRODUCT OFFERINGS
 - 24.12 LIQUIDYNE PROCESS TECHNOLOGIES
 - 24.12.1 BUSINESS OVERVIEW
 - 24.12.2 PRODUCT OFFERINGS
 - 24.13 MALEMA ENGINEERING
 - 24.13.1 BUSINESS OVERVIEW
 - 24.13.2 PRODUCT OFFERINGS
 - 24.14 METTLER TOLEDO
 - 24.14.1 BUSINESS OVERVIEW
 - 24.14.2 PRODUCT OFFERINGS
 - 24.15 PARKER HANNIFIN
 - 24.15.1 BUSINESS OVERVIEW
 - 24.15.2 PRODUCT OFFERINGS
 - 24.16 PRESENS PRECISION SENSING

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24.16.1 BUSINESS OVERVIEW
24.16.2 PRODUCT OFFERINGS
24.17 PSG
24.17.1 BUSINESS OVERVIEW
24.17.2 PRODUCT OFFERINGS
24.18 SAINT-GOBAIN
24.18.1 BUSINESS OVERVIEW
24.18.2 PRODUCT OFFERINGS
24.19 SONOTEC
24.19.1 BUSINESS OVERVIEW
24.19.2 PRODUCT OFFERINGS

25 REPORT SUMMARY
25.1 KEY TAKEAWAYS
25.2 STRATEGIC RECOMMENDATIONS

26 QUANTITATIVE SUMMARY
26.1 MARKET BY GEOGRAPHY
26.2 MARKET BY TYPE OF SENSORS
26.3 MARKET BY APPLICATION
26.4 MARKET BY END USER
26.5 MARKET BY WORKFLOW
26.6 NORTH AMERICA BY TYPE OF SENSORS
26.7 NORTH AMERICA BY APPLICATION
26.8 NORTH AMERICA BY END USER
26.9 NORTH AMERICA BY WORKFLOW
26.10 EUROPE BY TYPE OF SENSORS
26.11 EUROPE BY APPLICATION
26.12 EUROPE BY END USER
26.13 EUROPE BY WORKFLOW
26.14 APAC BY TYPE OF SENSORS
26.15 APAC BY APPLICATION
26.16 APAC BY END USER
26.17 APAC BY WORKFLOW
26.18 LATIN AMERICA BY TYPE OF SENSORS
26.19 LATIN AMERICA BY APPLICATION
26.20 LATIN AMERICA BY END USER
26.21 LATIN AMERICA BY WORKFLOW
26.22 MIDDLE EAST & AFRICA BY TYPE OF SENSORS
26.23 MIDDLE EAST & AFRICA BY APPLICATION
26.24 MIDDLE EAST & AFRICA BY END USER
26.25 MIDDLE EAST & AFRICA BY WORKFLOW

27 APPENDIX
27.1 ABBREVIATIONS

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