

Clean Power VFD Market by Voltage (Low, Medium), Power Rating (Micro Power Drives, Low Power Drives, Medium Power Drives and High Power Drives), End User (Commercial Construction, Data Centers, Defense, EV Charging Infrastructure, Industrial Facilities, Infrastructure, Mining, Oil & Gas, Renewables, Transportation and Utilities), Application, and Region - Global Forecast to 2030

Market Report | 2025-11-04 | 330 pages | MarketsandMarkets

AVAILABLE LICENSES:

- Single User \$4950.00
- Multi User \$6650.00
- Corporate License \$8150.00
- Enterprise Site License \$10000.00

Report description:

The global clean power VFD market is estimated to grow from USD 1.16 billion in 2025 to USD 1.52 billion by 2030, at a CAGR of 5.6% during the forecast period.

<https://mnmimg.marketsandmarkets.com/Images/clean-power-vfd-market-new-overview.webp>

The need to drive faster expansion of infrastructural development in key markets worldwide is a major factor spurring demand for clean power VFDs. India is witnessing a resurgence of state-driven investment in infrastructure through the National Infrastructure Pipeline and increased capital expenditure, which is leading to renewed investment in mature assets such as power and transportation, as well as the growth of new digital-related infrastructure. Such endeavors entail major overhauls in electrical and control systems, and the number of clean power VFDs involved in these systems is large and highly complex, and needs to be handled very efficiently to create a secure environment with a guarantee of expediency. In the United States, infrastructure continues to be chronically underfunded and deteriorating, and federal infrastructure investment policy is targeting a significant upgrade of energy, transportation, and digital networks, including trillion-dollar spending, with the signature legislation of the Infrastructure Investment and Jobs Act. This high level of infrastructure development increases the demand for clean power VFDs

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

to drive motor efficiency, ease installation, and enable operations and maintenance.

"By application, the pumps segment is expected to be the largest application segment in the clean power VFD market during the forecast period."

The application segments in the clean power VFD market include the pumps, compressors, fans and blowers, conveyors, chillers and cooling systems, elevators and escalators, medical devices and imaging systems, clean rooms and precision environmental controls, marine and space limited equipment, cranes and hoisting equipment, and other specialty equipment. The pumps segment is expected to dominate the clean power VFD market due to several interconnected factors related to widespread industrial demand, energy optimization needs, and operational efficiencies. Clean power VFDs, which utilize advanced technologies such as wide-bandgap semiconductors for low-distortion, high-efficiency power conversion, align particularly well with pump applications that require precise speed control and minimal electrical harmonics to support sustainable operations.

"By voltage, the medium voltage segment is the fastest segment in the clean power VFD market during the forecast period."

The medium voltage segment is projected to be the fastest-growing segment in the clean power VFD market, due to a combination of surging demand in high-power industrial applications, advancements in energy-efficient technologies, and alignment with global infrastructure and sustainability initiatives. Clean power VFDs, which emphasize low-harmonic, distortion-free operation through innovations like silicon carbide (SiC) semiconductors, are particularly suited for medium voltage ranges, where they enable precise motor control in large-scale systems while minimizing grid impact. The industries often involve high-power motors for pumps, compressors, and fans, where Medium Voltage VFDs provide efficient variable speed control for variable loads, outpacing low-voltage alternatives limited to smaller applications.

"By region, Europe is estimated to be the second-largest market during the forecast period."

Europe is projected to be the second-largest market for the clean power VFD market during the forecast period, driven by a combination of robust policy support, significant investments in sustainable infrastructure, and growing demands from the industrial and energy sectors. Clean power VFDs, leveraging technologies like wide-bandgap semiconductors for low-harmonic, efficient motor control, align closely with Europe's strategic goals. Europe's investment in grid upgrades, supported by initiatives like the Horizon Europe program, fuels demand for VFDs that minimize transmission losses and enhance stability.

In-depth interviews have been conducted with various key industry participants, subject-matter experts, C-level executives of key market players, and industry consultants, among other experts, to obtain and verify critical qualitative and quantitative information and assess future market prospects. The distribution of primary interviews is as follows:

By Company Type: Tier 1- 30%, Tier 2- 45%, and Tier 3 - 25%

By Designation: C-level Executives - 30%, Directors - 20%, and Others - 50%

By Region: North America - 18%, Europe - 8%, Asia Pacific - 60%, Middle East & Africa - 10%, and Latin America - 4%

Notes: The tiers of the companies are defined based on their total revenues as of 2024. Tier 1: > USD 1 billion, Tier 2: USD 500 million to USD 1 billion, and Tier 3: < USD 500 million.

Other designations include sales managers, engineers, and regional managers.

ABB (Switzerland), Danfoss (Denmark), Rockwell Automation (US), Eaton (Ireland), and Schneider Electric (France) are some of the major players in the clean power VFD market. The study includes an in-depth competitive analysis of these key players, including their company profiles, recent developments, and key market strategies.

Research Coverage:

The report defines, describes, and forecasts the global clean power VFD market by voltage, application, power rating, end user, and region. It also offers a detailed qualitative and quantitative analysis of the market. The report comprehensively reviews the major market drivers, restraints, opportunities, and challenges. It also covers various important aspects of the market. These include an analysis of the competitive landscape, market dynamics, market estimates in terms of value, and future trends in the clean power VFD market.

Key Benefits of Buying the Report

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- It provides an analysis of key drivers (Rising need for enhancing efficiency and decreasing energy consumption; Increasing need of motion control systems in automated production plants), restraints (High installation and maintenance costs), opportunities (Government regulations for sustainability; Growing use of industrial internet of things and robotics technologies), challenges (Lack of skilled workforce for installation, programming and maintenance of clean power variable frequency drives) influencing the growth of the clean power VFD market.

- Market Development: Comprehensive information about lucrative markets - the report analyses the clean power VFD market across varied regions.

- Market Diversification: Exhaustive information about new products and services, untapped geographies, recent developments, and investments in the clean power VFD market.

- Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like ABB (Switzerland), Eaton (Ireland), Schneider Electric (France), Danfoss (Denmark), Rockwell Automation (US), GE Vernova (US), WEG (Brazil), Nidec Corporation (Japan), Yaskawa Electric Corporation (Japan), Parker Hannifin Corp (US), LS Electric Co., Ltd. (South Korea) and Fuji Electric Co., Ltd. (Japan); among others in the clean power VFD market.

- Product Innovation/Development: The clean power VFD market is investigating large product introduction rates, especially with the incorporation of IoT-based systems and predictive maintenance functionality. This includes innovations like Schneider Electric's EcoStruxure platform integrated with Altivar VFDs to monitor applications remotely to prevent outages and enhance efficiency. With use cases increasing in areas like renewable energy, industrial automation, and power distribution, as observed in smart grids and high-voltage systems, sustainable materials such as recyclable components and modular designs are gaining traction. The nature of modular solutions is evolving with advancements like Danfoss' iC7 Series VFD systems, which incorporate SiC technology to simplify installation and improve power distribution reliability, providing versatile high-capacity power solutions.

Table of Contents:

1	INTRODUCTION	30
1.1	STUDY OBJECTIVES	30
1.2	MARKET DEFINITION	30
1.3	STUDY SCOPE	31
1.3.1	MARKETS COVERED AND REGIONAL SCOPE	31
1.3.2	INCLUSIONS AND EXCLUSIONS	32
1.3.3	YEARS CONSIDERED	33
1.4	CURRENCY CONSIDERED	33
1.5	UNIT CONSIDERED	33
1.6	STAKEHOLDERS	33
1.7	SUMMARY OF CHANGES	34
2	RESEARCH METHODOLOGY	35
2.1	RESEARCH DATA	35
2.1.1	SECONDARY DATA	36
2.1.1.1	List of key secondary sources	36
2.1.1.2	Key data from secondary sources	36
2.1.2	PRIMARY DATA	37
2.1.2.1	List of primary interview participants	37
2.1.2.2	Key data from primary sources	37
2.1.3	KEY INDUSTRY INSIGHTS	38
2.1.4	BREAKDOWN OF PRIMARIES	39
2.2	MARKET BREAKDOWN AND DATA TRIANGULATION	40
2.3	MARKET SIZE ESTIMATION	41
2.4	BOTTOM-UP APPROACH	41
2.5	TOP-DOWN APPROACH	42

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

2.6	BASE NUMBER CALCULATION	42
2.6.1	DEMAND-SIDE ANALYSIS	42
2.6.1.1	Demand-side assumptions	43
2.6.1.1.1	Demand-side calculations	43
2.6.2	SUPPLY-SIDE ANALYSIS	43
2.6.2.1	Supply-side assumptions	44
2.6.2.2	Supply-side calculations	44
2.7	FORECAST	45
2.8	FACTOR ANALYSIS	46
2.9	RESEARCH ASSUMPTIONS	46
2.10	RESEARCH LIMITATIONS	47
2.11	RISK ANALYSIS	47
3	EXECUTIVE SUMMARY	48
3.1	KEY INSIGHTS AND MARKET HIGHLIGHTS	48
3.2	KEY MARKET PARTICIPANTS: MAPPING OF STRATEGIC DEVELOPMENTS	49
3.3	DISRUPTIONS SHAPING MARKET	50
3.4	HIGH-GROWTH SEGMENTS	51
3.5	SNAPSHOT: ASIA PACIFIC MARKET SIZE, GROWTH RATE, AND FORECAST	52
4	PREMIUM INSIGHTS	53
4.1	ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN CLEAN POWER VFD MARKET	53
4.2	CLEAN POWER VFD MARKET, BY VOLTAGE AND REGION	54
4.3	CLEAN POWER VFD MARKET, BY POWER RATING	54
4.4	CLEAN POWER VFD MARKET, BY APPLICATION	55
4.5	CLEAN POWER VFD MARKET, BY END USER	56
4.6	CLEAN POWER VFD MARKET, BY COUNTRY	57
5	MARKET OVERVIEW	58
5.1	INTRODUCTION	58
5.2	MARKET DYNAMICS	58
5.2.1	DRIVERS	59
5.2.1.1	Stringent global energy efficiency mandates and net-zero industrial goals	59
5.2.1.2	Surging demand for harmonic-free and motor-friendly control in electrified processes	59
5.2.1.3	Rapid expansion of renewable microgrids and EV charging ecosystems	60
5.2.2	RESTRAINTS	61
5.2.2.1	Premium pricing over conventional PWM VFDs limiting mass-market penetration	61
5.2.2.2	Complex certification and retrofitting in legacy industrial plants	61
5.2.3	OPPORTUNITIES	62
5.2.3.1	Booming AI data centers and liquid-cooling infrastructure requiring ultra-clean power VFDs	62
5.2.3.2	Electrification of marine propulsion and offshore wind platforms	62
5.2.3.3	Smart building retrofits and urban water infrastructure digitization	63
5.2.4	CHALLENGES	63
5.2.4.1	Global shortage of SiC/GaN power modules delaying scalable production	63
5.2.4.2	Competition from evolving multi-level inverter topologies and active front-end alternatives	64
5.3	UNMET NEEDS AND WHITE SPACES	64
5.3.1	UNMET NEEDS IN CLEAN POWER VFD MARKET	64
5.3.2	WHITE SPACE OPPORTUNITIES	65
?		
5.4	INTERCONNECTED MARKETS AND CROSS-SECTOR OPPORTUNITIES	66

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

5.4.1	INTERCONNECTED MARKETS	66
5.4.2	CROSS-SECTOR OPPORTUNITIES	66
5.5	STRATEGIC MOVES BY TIER-1/2/3 PLAYERS	67
5.5.1	KEY MOVES AND STRATEGIC FOCUS	67
6	INDUSTRY TRENDS	68
6.1	PORTER'S FIVE FORCES ANALYSIS	68
6.1.1	THREAT OF NEW ENTRANTS	69
6.1.2	THREAT OF SUBSTITUTES	69
6.1.3	BARGAINING POWER OF SUPPLIERS	69
6.1.4	BARGAINING POWER OF BUYERS	70
6.1.5	INTENSITY OF COMPETITIVE RIVALRY	70
6.2	MACROECONOMIC OUTLOOK	70
6.2.1	INTRODUCTION	70
6.2.2	GDP TRENDS AND FORECAST	70
6.2.3	TRENDS IN GLOBAL INDUSTRIAL FACILITIES	72
6.2.4	TRENDS IN GLOBAL COMMERCIAL CONSTRUCTION	73
6.2.5	TRENDS IN GLOBAL INFRASTRUCTURE	73
6.2.6	TRENDS IN GLOBAL DATACENTERS	73
6.2.7	TRENDS IN GLOBAL OIL & GAS	73
6.3	SUPPLY CHAIN ANALYSIS	74
6.3.1	RAW MATERIAL ANALYSIS	75
6.3.2	FINAL PRODUCT ANALYSIS	75
6.4	VALUE CHAIN ANALYSIS	76
6.5	ECOSYSTEM ANALYSIS	77
6.6	PRICING ANALYSIS	80
6.6.1	AVERAGE SELLING PRICE TREND, BY POWER RATING, 2022-2024	80
6.6.2	AVERAGE SELLING PRICE TREND OF CLEAN POWER VFDS, BY POWER RATING, 2022-2024	80
6.6.3	AVERAGE SELLING PRICE TREND OF CLEAN POWER VFDS, BY REGION, 2022-2024	81
6.6.4	AVERAGE SELLING PRICE TREND OF CLEAN POWER VFDS, BY REGION, 2022-2024	81
6.7	TRADE ANALYSIS	82
6.7.1	IMPORT SCENARIO (HS CODE 850110)	82
6.7.2	EXPORT SCENARIO (HS CODE 850110)	83
6.7.3	IMPORT SCENARIO (HS CODE 850120)	85
6.7.4	EXPORT SCENARIO (HS CODE 850120)	86
6.8	KEY CONFERENCES AND EVENTS, 2025-2026	87
6.9	TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS	88
6.10	INVESTMENT AND FUNDING SCENARIO	89
?		
6.11	CASE STUDY ANALYSIS	90
6.11.1	SMARTD VFD RETROFIT BOOSTS ENERGY EFFICIENCY AND RELIABILITY IN WATER PUMP STATION	90
6.11.2	SMARTD CLEAN POWER VFD POWERS RELIABLE CONTINUOUS MOTOR OPERATION IN TOUGH STEEL MILL ENVIRONMENTS	91
6.11.3	SIC-BASED CLEAN POWER VFD SUPPORTS EFFICIENT, COMPLIANT PUMP OPERATION WITH MINIMAL LOSSES	91
6.12	IMPACT OF 2025 US TARIFF ON CLEAN POWER VFD MARKET	92
6.12.1	INTRODUCTION	92
6.12.2	KEY TARIFF RATES	92
6.12.3	PRICE IMPACT ANALYSIS	93
6.12.4	IMPACT ON COUNTRIES/REGIONS	93

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 6.12.4.1 US 93
- 6.12.4.2 Europe 94
- 6.12.4.3 Asia Pacific 94
- 7 TECHNOLOGICAL ADVANCEMENTS, AI-DRIVEN IMPACT, PATENTS, INNOVATION 97
- 7.1 KEY EMERGING TECHNOLOGIES 97
- 7.1.1 WIDE-BANDGAP SEMICONDUCTORS 97
- 7.1.2 AFE CONVERTORS 97
- 7.2 COMPLEMENTARY TECHNOLOGIES 98
- 7.2.1 SMART GRID & RENEWABLE ENERGY 98
- 7.2.2 HYBRID ENERGY STORAGE 98
- 7.3 TECHNOLOGY/PRODUCT ROADMAP 98
- 7.3.1 SHORT-TERM (2025-2027) | FOUNDATION & EARLY COMMERCIALIZATION 99
- 7.3.2 MID-TERM (2027-2030) | EXPANSION & STANDARDIZATION 99
- 7.3.3 LONG-TERM (2030-2035+) | MASS COMMERCIALIZATION & DISRUPTION 100
- 7.4 PATENT ANALYSIS 101
- 7.4.1 INTRODUCTION 101
- 7.4.2 METHODOLOGY 101
- 7.4.3 DOCUMENT TYPE 101
- 7.4.4 INSIGHTS 102
- 7.4.5 LEGAL STATUS OF PATENTS 103
- 7.4.6 JURISDICTION ANALYSIS 103
- 7.4.7 TOP APPLICANTS 104
- 7.4.8 LIST OF PATENTS BY SCHLUMBERGER TECHNOLOGY CORP, 2021-2024 104
- 7.4.9 LIST OF PATENTS BY US WELL SERVICES LLC, 2018-2025 104
- 7.5 FUTURE APPLICATIONS 105
- 7.5.1 SMART GRIDS: NEXT-GENERATION GRID STABILITY AND VOLTAGE OPTIMIZATION 105
- 7.5.2 DATA CENTERS: ENERGY-EFFICIENT AND LOW-HARMONIC POWER INFRASTRUCTURE 106
- 7.5.3 ELECTRIC VEHICLE CHARGING SYSTEMS: FAST-CHARGING RELIABILITY AND POWER QUALITY ENHANCEMENT 106
- 7.5.4 RENEWABLE ENERGY INTEGRATION: GRID-CONNECTED SOLAR AND WIND POWER OPTIMIZATION 107
- 7.6 IMPACT OF AI/GEN AI ON CLEAN POWER VFD MARKET 107
- 7.6.1 TOP USE CASES AND MARKET POTENTIAL 107
- 7.6.2 BEST PRACTICES IN CLEAN POWER VFD MARKET 108
- 7.6.3 CASE STUDIES OF AI IMPLEMENTATION IN CLEAN POWER VFD MARKET 108
- 7.6.4 INTERCONNECTED ADJACENT ECOSYSTEM AND IMPACT ON MARKET PLAYERS 108
- 7.6.5 CLIENTS' READINESS TO ADOPT GENERATIVE AI IN CLEAN POWER VFD MARKET 109
- 7.7 SUCCESS STORIES AND REAL-WORLD APPLICATIONS 109
- 7.7.1 ABB: REGENERATIVE CRANE SYSTEMS AND V2G-ENABLED FLEETS 109
- 7.7.2 SCHNEIDER ELECTRIC: ECOSTRUXURE POWER MONITORING AND AUTOMATION 109
- 7.7.3 EATON: UPS AND INDUSTRIAL POWER SYSTEMS 109
- 8 SUSTAINABILITY AND REGULATORY LANDSCAPE 110
- 8.1 REGIONAL REGULATIONS AND COMPLIANCE 110
- 8.1.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 110
- 8.1.2 INDUSTRY STANDARDS 112
- 8.2 SUSTAINABILITY INITIATIVES 113
- 8.2.1 CARBON IMPACT AND ECO-APPLICATIONS OF CLEAN POWER VFD 113
- 8.3 SUSTAINABILITY IMPACT AND REGULATORY POLICY INITIATIVES 114

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

8.4	CERTIFICATIONS, LABELING, ECO-STANDARDS	115
9	CUSTOMER LANDSCAPE AND BUYER BEHAVIOR	116
9.1	DECISION-MAKING PROCESS	116
9.2	BUYER STAKEHOLDERS AND BUYING EVALUATION CRITERIA	117
9.2.1	KEY STAKEHOLDERS IN BUYING PROCESS	117
9.2.2	BUYING CRITERIA	118
9.3	ADOPTION BARRIERS AND INTERNAL CHALLENGES	119
9.4	UNMET NEEDS FROM VARIOUS END USERS	121
9.5	MARKET PROFITABILITY	123
9.5.1	REVENUE POTENTIAL	123
9.5.2	COST DYNAMICS	123
9.5.3	MARGIN OPPORTUNITIES BY END USER	123
10	CLEAN POWER VFD MARKET, BY VOLTAGE	125
10.1	INTRODUCTION	126
10.2	LOW	127
10.2.1	EXPANSION OF SMART BUILDINGS TO FUEL MARKET GROWTH	127
10.3	MEDIUM	128
10.3.1	MINIMIZED HARMONIC DISTORTION AND ELECTROMAGNETIC INTERFERENCE TO FOSTER MARKET GROWTH	128
11	CLEAN POWER VFD MARKET, BY APPLICATION	130
11.1	INTRODUCTION	131
11.2	PUMPS	132
11.2.1	GLOBAL PUSH TOWARD SMART WATER GRIDS TO OFFER GROWTH OPPORTUNITIES	132
11.3	COMPRESSORS	134
11.3.1	ADVANCED OIL-FREE COMPRESSOR TECHNOLOGIES AND CLEANROOM COMPATIBILITY TO FOSTER MARKET GROWTH	134
11.4	FANS AND BLOWERS	135
11.4.1	ADVANCED AI-BASED FAN CURVE MAPPING FOR PRECISION AIRFLOW DELIVERY TO FUEL MARKET GROWTH	135
11.5	CONVEYORS	136
11.5.1	EASE OF ELIMINATING MECHANICAL STRESS THROUGH ADAPTIVE CURRENT SIGNATURES TO DRIVE MARKET	136
11.6	CHILLERS AND COOLING SYSTEMS	138
11.6.1	ADVANCED REGENERATIVE EFFICIENCY IN URBAN COOLING INFRASTRUCTURES TO SUPPORT MARKET GROWTH	138
11.7	ELEVATORS AND ESCALATORS	139
11.7.1	ABILITY TO DELIVER ULTRA-SMOOTH TORQUE CONTROL TO BOOST DEMAND	139
11.8	MEDICAL DEVICES AND IMAGING SYSTEMS	140
11.8.1	PRESSING NEED FOR UNINTERRUPTED LIFE-SUPPORT FUNCTIONS IN ELECTRICALLY SENSITIVE ENVIRONMENTS TO FUEL MARKET GROWTH	140
11.9	CLEANROOMS AND PRECISION ENVIRONMENTAL CONTROLS	142
11.9.1	DEPLOYMENT OF VFD-ENABLED PREDICTIVE AIRFLOW MANAGEMENT MODELS TO SUPPORT MARKET GROWTH	142
11.10	MARINE AND SPACE-LIMITED EQUIPMENT	143
11.10.1	INTEGRATION OF AI-BASED PREDICTIVE OVERHAUL SYSTEMS TO SUPPORT MARKET GROWTH	143
11.11	CRANES AND HOISTING EQUIPMENT	144
11.11.1	ADVANCEMENTS IN ANTI-COLLISION AND OFF-GRID OPERATION CAPABILITIES TO BOOST DEMAND	144
11.12	OTHER SPECIALTY EQUIPMENT	145
12	CLEAN POWER VFD MARKET, BY END USER	147
12.1	INTRODUCTION	148
12.2	COMMERCIAL CONSTRUCTION	149
12.2.1	ACCELERATION OF NET-ZERO COMPLIANCE INITIATIVES TO BOOST DEMAND	149
12.3	DATA CENTERS	150

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

12.3.1	STRENGTHENING OF SUSTAINABLE MICROGRID CONNECTIVITY TO FUEL MARKET GROWTH	150
	?	
12.4	DEFENSE	152
12.4.1	ADOPTION OF RADIATION-TOLERANT ELECTRONICS FOR DEFENSE MOBILITY PLATFORMS TO SUPPORT MARKET GROWTH	152
12.5	EV CHARGING INFRASTRUCTURE	153
12.5.1	IMPLEMENTATION OF REGENERATIVE ENERGY RECAPTURE MECHANISMS TO FUEL MARKET GROWTH	153
12.6	INDUSTRIAL FACILITIES	154
12.6.1	DEVELOPMENT OF ENERGY-EFFICIENT AND LOW-VIBRATION INDUSTRIAL DRIVES TO FOSTER MARKET GROWTH	154
12.7	INFRASTRUCTURE	155
12.7.1	PROMOTION OF PUBLIC-PRIVATE PARTNERSHIPS FOR SUSTAINABLE INFRASTRUCTURE UPGRADES TO BOOST DEMAND	155
12.8	MINING	157
12.8.1	DEVELOPMENT OF REAL-TIME AIRFLOW SCULPTING FOR MINE VENTILATION NETWORKS TO OFFER GROWTH OPPORTUNITIES	157
12.9	OIL & GAS	158
12.9.1	EXPANSION OF HARMONIC-NEUTRAL POWER SOLUTIONS TO FUEL MARKET GROWTH	158
12.10	RENEWABLE ENERGY	159
12.10.1	INTEGRATION OF HYBRID WIND-SOLAR-BATTERY CONTROL SYSTEMS TO DRIVE MARKET	159
12.11	TRANSPORTATION	160
12.11.1	DEVELOPMENT OF AIRPORT AND METRO MICROGRIDS TO FUEL MARKET GROWTH	160
12.12	UTILITIES	161
12.12.1	DEVELOPMENT OF RESILIENT AND SELF-BALANCING POWER NETWORKS TO SUPPORT MARKET GROWTH	161
13	CLEAN POWER VFD MARKET, BY POWER RATING	163
13.1	INTRODUCTION	164
13.2	MICRO-POWER DRIVES	165
13.2.1	ABILITY TO HANDLE LOW ELECTRICAL LOADS WITH MINIMAL ENERGY LOSS TO DRIVE MARKET	165
13.3	LOW-POWER DRIVES	166
13.3.1	REDUCED HARMONIC DISTORTION AND OVERHEATING RISKS TO BOOST DEMAND	166
13.4	MEDIUM-POWER DRIVES	167
13.4.1	INCREASING APPLICATION IN LARGE COMMERCIAL BUILDINGS TO FUEL MARKET GROWTH	167
13.5	HIGH-POWER DRIVES	169
13.5.1	ENHANCEMENT OF DIGITAL TWIN-BASED VFD SIMULATION SYSTEMS TO FOSTER MARKET GROWTH	169
14	CLEAN POWER VFD MARKET, BY REGION	171
14.1	INTRODUCTION	172
14.2	ASIA PACIFIC	174
14.2.1	CHINA	180
14.2.1.1	Increasing investments in energy-efficient technologies and automation to drive market growth	180
14.2.2	INDIA	181
14.2.2.1	Rising integration of renewable energy and industrial automation to boost market growth	181
14.2.3	JAPAN	183
14.2.3.1	Technological innovation and energy efficiency initiatives to drive market	183
14.2.4	SOUTH KOREA	184
14.2.4.1	Push toward achieving carbon neutrality to support market growth	184
14.2.5	AUSTRALIA	186
14.2.5.1	Deployment of large-scale solar farms and offshore wind projects to drive market	186
14.2.6	INDONESIA	187
14.2.6.1	Government-led initiatives to promote renewable energy to fuel market growth	187
14.2.7	REST OF ASIA PACIFIC	189

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 14.3 NORTH AMERICA 190
 - 14.3.1 US 194
 - 14.3.1.1 Ongoing modernization of manufacturing infrastructure to offer growth opportunities 194
 - 14.3.2 CANADA 196
 - 14.3.2.1 Increasing investments in clean energy and infrastructure to boost demand 196
- 14.4 EUROPE 197
 - 14.4.1 GERMANY 203
 - 14.4.1.1 Emphasis on modernizing energy infrastructure to foster market growth 203
 - 14.4.2 UK 204
 - 14.4.2.1 Commitment to achieving clean electricity generation to drive market 204
 - 14.4.3 ITALY 206
 - 14.4.3.1 Rising demand for efficient motor control solutions to support market growth 206
 - 14.4.4 FRANCE 207
 - 14.4.4.1 Presence of strong regulatory frameworks to drive market 207
 - 14.4.5 RUSSIA 209
 - 14.4.5.1 Transition toward sustainable and digitally connected solutions to offer growth opportunities 209
 - 14.4.6 SPAIN 210
 - 14.4.6.1 Rapid growth of solar and wind installations to foster market growth 210
 - 14.4.7 REST OF EUROPE 212
 - ?
- 14.5 LATIN AMERICA 213
 - 14.5.1 BRAZIL 217
 - 14.5.1.1 Expanding hydropower, wind, and solar projects to offer growth opportunities 217
 - 14.5.2 ARGENTINA 219
 - 14.5.2.1 Growing urban population and infrastructure development to drive market 219
 - 14.5.3 MEXICO 220
 - 14.5.3.1 Booming manufacturing sector to offer growth opportunities 220
 - 14.5.4 CHILE 222
 - 14.5.4.1 Emphasis on power quality improvement to drive market 222
 - 14.5.5 REST OF LATIN AMERICA 223
- 14.6 MIDDLE EAST & AFRICA 225
 - 14.6.1 GCC 230
 - 14.6.1.1 Saudi Arabia 231
 - 14.6.1.1.1 Expansion of renewable energy to offer growth opportunities 231
 - 14.6.1.2 UAE 233
 - 14.6.1.2.1 Government-led sustainability programs to support market growth 233
 - 14.6.1.3 Rest of GCC 234
 - 14.6.2 SOUTH AFRICA 236
 - 14.6.2.1 Need to maintain grid stability to fuel market growth 236
 - 14.6.3 NIGERIA 237
 - 14.6.3.1 Emphasis on improving energy efficiency to boost demand 237
 - 14.6.4 ZAMBIA 239
 - 14.6.4.1 Emphasis on enhancing industrial productivity to support market 239
 - 14.6.5 REST OF MIDDLE EAST & AFRICA 240
- 15 COMPETITIVE LANDSCAPE 242
 - 15.1 OVERVIEW 242
 - 15.2 KEY PLAYER STRATEGIES/RIGHT TO WIN, 2020-2025 242

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

15.3	MARKET SHARE ANALYSIS, 2024	243
15.4	REVENUE ANALYSIS, 2020-2024	246
15.5	COMPANY VALUATION AND FINANCIAL METRICS	247
15.6	BRAND/PRODUCT COMPARISON	248
15.7	COMPANY EVALUATION MATRIX: KEY PLAYERS, 2024	249
15.7.1	STARS	249
15.7.2	EMERGING LEADERS	249
15.7.3	PERVASIVE PLAYERS	249
15.7.4	PARTICIPANTS	249
?		
15.7.5	COMPANY FOOTPRINT: KEY PLAYERS, 2024	251
15.7.5.1	Company footprint	251
15.7.5.2	Region footprint	252
15.7.5.3	End user footprint	253
15.7.5.4	Voltage footprint	254
15.7.5.5	Power rating footprint	255
15.8	COMPANY EVALUATION MATRIX: STARTUPS/SMES, 2024	256
15.8.1	PROGRESSIVE COMPANIES	256
15.8.2	RESPONSIVE COMPANIES	256
15.8.3	DYNAMIC COMPANIES	256
15.8.4	STARTING BLOCKS	256
15.8.5	COMPETITIVE BENCHMARKING: STARTUPS/SMES, 2024	258
15.8.5.1	Detailed list of key startups/SMEs	258
15.8.5.2	Competitive benchmarking of key startups/SMEs	259
15.9	COMPETITIVE SCENARIO	260
15.9.1	PRODUCT LAUNCHES	260
15.9.2	DEALS	260
15.9.3	EXPANSIONS	264
15.9.4	OTHER DEVELOPMENTS	265
16	COMPANY PROFILES	266
16.1	KEY PLAYERS	266
16.1.1	ABB	266
16.1.1.1	Business overview	266
16.1.1.2	Products/Solutions/Services offered	267
16.1.1.3	Recent developments	268
16.1.1.3.1	Product launches	268
16.1.1.3.2	Deals	269
16.1.1.3.3	Expansions	270
16.1.1.4	MnM view	270
16.1.1.4.1	Key strengths/Right to win	270
16.1.1.4.2	Strategic choices	270
16.1.1.4.3	Weaknesses/Competitive threats	270
16.1.2	SCHNEIDER ELECTRIC	271
16.1.2.1	Business overview	271
16.1.2.2	Products/Solutions/Services offered	272
16.1.2.3	Recent developments	273
16.1.2.3.1	Deals	273

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

16.1.2.3.2 Other developments 273
?
16.1.2.4 MnM view 274
16.1.2.4.1 Key strengths/Right to win 274
16.1.2.4.2 Strategic choices 274
16.1.2.4.3 Weaknesses/Competitive threats 274
16.1.3 DANFOSS 275
16.1.3.1 Business overview 275
16.1.3.2 Products/Solutions/Services offered 276
16.1.3.3 Recent developments 277
16.1.3.3.1 Deals 277
16.1.3.4 MnM view 278
16.1.3.4.1 Key strengths/Right to win 278
16.1.3.4.2 Strategic choices 278
16.1.3.4.3 Weaknesses/Competitive threats 278
16.1.4 NIDEC CORPORATION 279
16.1.4.1 Business overview 279
16.1.4.2 Products/Solutions/Services offered 280
16.1.4.3 Recent developments 281
16.1.4.3.1 Deals 281
16.1.4.3.2 Expansions 282
16.1.4.4 MnM view 282
16.1.4.4.1 Key strengths/Right to win 282
16.1.4.4.2 Strategic choices 282
16.1.4.4.3 Weaknesses/Competitive threats 282
16.1.5 INNOMOTICS 283
16.1.5.1 Business overview 283
16.1.5.2 Products/Solutions/Services offered 283
16.1.5.3 MnM view 284
16.1.5.3.1 Key strengths/Right to win 284
16.1.5.3.2 Strategic choices 284
16.1.5.3.3 Weaknesses/Competitive threats 284
16.1.6 EATON 285
16.1.6.1 Business overview 285
16.1.6.2 Products/Solutions/Services offered 286
16.1.6.3 Recent developments 287
16.1.6.3.1 Deals 287
16.1.7 ROCKWELL AUTOMATION 288
16.1.7.1 Business overview 288
16.1.7.2 Products/Solutions/Services offered 289
16.1.7.3 Recent developments 290
16.1.7.3.1 Deals 290
?
16.1.8 GE VERNOVA 291
16.1.8.1 Business overview 291
16.1.8.2 Products/Solutions/Services offered 292
16.1.9 PARKER HANNIFIN CORP 293

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

16.1.9.1	Business overview	293
16.1.9.2	Products/Solutions/Services offered	294
16.1.9.3	Recent developments	295
16.1.9.3.1	Deals	295
16.1.10	FUJI ELECTRIC CO., LTD.	296
16.1.10.1	Business overview	296
16.1.10.2	Products/Solutions/Services offered	297
16.1.11	CG POWER & INDUSTRIAL SOLUTIONS LTD.	299
16.1.11.1	Business overview	299
16.1.11.2	Products/Solutions/Services offered	300
16.1.12	WEG	301
16.1.12.1	Business overview	301
16.1.12.2	Products/Solutions/Services offered	302
16.1.12.3	Recent developments	303
16.1.12.3.1	Other developments	303
16.1.13	YASKAWA ELECTRIC CORPORATION	304
16.1.13.1	Business overview	304
16.1.13.2	Products/Solutions/Services offered	305
16.1.13.3	Recent developments	306
16.1.13.3.1	Deals	306
16.1.14	LS ELECTRIC CO., LTD.	307
16.1.14.1	Business overview	307
16.1.14.2	Products/Solutions/Services offered	308
16.1.15	DELTA ELECTRONICS, INC.	310
16.1.15.1	Business overview	310
16.1.15.2	Products/Solutions/Services offered	311
16.1.16	DARWIN MOTION	313
16.1.16.1	Business overview	313
16.1.16.2	Products/Solutions/Services offered	313
16.2	OTHER PLAYERS	314
16.2.1	SMARTD TECHNOLOGIES, INC.	314
16.2.2	FIVE STAR ELECTRIC	315
16.2.3	BENSHAW INC.	316
16.2.4	DV8 ENERGY INC.	317
16.2.5	JIANGSU GTAKE ELECTRIC CO., LTD.	317
16.2.6	SPOC AUTOMATION	318
?		
16.2.7	PHASE TECHNOLOGIES, LLC.	319
16.2.8	SUBCOE	320
16.2.9	INOMAX TECHNOLOGY	321
17	APPENDIX	322
17.1	DISCUSSION GUIDE	322
17.2	KNOWLEDGESTORE: MARKETSandMARKETS' SUBSCRIPTION PORTAL	326
17.3	AVAILABLE CUSTOMIZATIONS	328
17.4	RELATED REPORTS	328
17.5	AUTHOR DETAILS	329

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Clean Power VFD Market by Voltage (Low, Medium), Power Rating (Micro Power Drives, Low Power Drives, Medium Power Drives and High Power Drives), End User (Commercial Construction, Data Centers, Defense, EV Charging Infrastructure, Industrial Facilities, Infrastructure, Mining, Oil & Gas, Renewables, Transportation and Utilities), Application, and Region - Global Forecast to 2030

Market Report | 2025-11-04 | 330 pages | MarketsandMarkets

To place an Order with Scotts International:

- Print this form
- Complete the relevant blank fields and sign
- Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User	\$4950.00
	Multi User	\$6650.00
	Corporate License	\$8150.00
	Enterprise Site License	\$10000.00
		VAT
		Total

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>
Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	<input type="text" value="2026-03-08"/>
		Signature	<input type="text"/>