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Dehydrating Breather Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Type (Conventional Breather, Self-Dehydrating Breather), By End User (Utilities, Industrial, Heavy-Duty Vehicle), By Region and Competition

https://marketpublishers.com/r/D52F99BCF7DBEN.html
Date: November 2023
Pages: 180
Price: US$ 4,900.00 (Single User License)
ID: D52F99BCF7DBEN

Abstracts

Global Dehydrating Breather Market has valued at USD486.23 million in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 4.01% through 2028. Dehydrating breathers play a crucial role in preventing air moisture from contaminating the oil in electrical equipment. Typically, they are installed either on the oil compartment of on-load chargers or on the airside of power transformers. These breathers are equipped with silica gel, known for its moisture-absorbing properties, which effectively absorbs any moisture present in the air breather. The lack of moisture level control in transformers or industrial devices is often a major reason behind their failure, underscoring the importance of maintaining low humidity using dehydrating breathers filled with moisture-absorbing silica. By preventing any contact between moisture-laden air and silica, these breathers ensure a longer lifespan and lower maintenance requirements. Additionally, alternative breathers may also be fitted to the same device to enhance transformer reliability and maintain the required silica gel saturation level.

The Dehydrating Breather Market is experiencing significant growth driven by several factors. Firstly, the growing need for increasing capacity utilization, coupled with the rising demand for smart power infrastructure, is fueling market growth. Furthermore, the increasing sales of heavy-duty vehicles are also contributing to the expansion of the market. Next-generation dehydrating breathers for power transformers are now

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equipped with accurate pressure sensors that monitor incoming air. This enables precise pattern recognition and determines the optimal time for silica regeneration. For remote applications, dehydrating breathers are integrated with indicators that provide operational status and other controls, ensuring efficient performance.

Moreover, there is increasing government support for energy-efficient and power-saving systems, which further propels market growth. The wide range of applications for transformers, coupled with ongoing product development and investments in the power transmission sector, are also creating growth opportunities. For instance, Maschinenfabrik Reinhausen GmbH introduced the MTRAB 2.5, a new generation dehydrating breather in 2019. This innovative product is specifically designed to help customers reduce the life cycle costs of their equipment and overcome various challenges.

However, it is essential to note that the market does face some challenges. High maintenance costs and the adoption of substitute products, such as dry-type transformers that offer similar functionality to dehydrating breathers, can potentially hinder market growth. Despite these challenges, the Dehydrating Breather Market continues to expand, driven by the increasing demand for reliable and efficient power transmission systems.

Key Market Drivers

Increasing Demand for Transformer Protection

Dehydrating breathers are crucial protective devices employed to safeguard the insulation properties of transformer oil. They effectively prevent the absorption of moisture by the transformer oil when it cools down and contracts, ensuring its optimal performance and extending its lifespan. By maintaining the oil's dryness, dehydrating breathers significantly reduce the risk of failure and contribute to an efficient and reliable power distribution network.

Power transformers play an integral role in energy distribution, making their efficient functioning critical. Any faults or failures in these transformers can lead to significant losses and disruptions. Therefore, there is an increasing demand for effective transformer protection mechanisms such as dehydrating breathers.

As global energy consumption continues to rise, the need for reliable power distribution

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networks becomes more pronounced. Consequently, there has been a substantial increase in investment in transformer infrastructure, which further drives the demand for dehydrating breathers.

The expansion of the power sector, coupled with the growing emphasis on reducing equipment failure due to moisture ingress, is expected to fuel the continued growth of the dehydrating breather market. As the global demand for electricity escalates, so does the need for reliable and efficient power transformers, consequently driving the demand for effective transformer protection solutions like dehydrating breathers.

Moreover, the increasing adoption of smart grid technology presents significant opportunities for the dehydrating breather market. Smart grids require highly efficient transformer systems, which are likely to intensify the demand for dehydrating breathers.

In conclusion, the escalating demand for transformer protection serves as a key driver for the global dehydrating breather market. As the world becomes increasingly energy-dependent, the importance of maintaining efficient and reliable power distribution networks cannot be overstated. Dehydrating breathers, by ensuring the longevity and optimal performance of transformers, play a critical role in meeting this global energy demand. Their effectiveness in safeguarding transformer insulation properties makes them an indispensable component in the power sector.

Expansion of Renewable Energy

Dehydrating breathers are essential devices used to maintain the performance and longevity of power transformers by preventing the absorption of moisture by transformer oil. This is crucial as even a small amount of moisture can degrade the oil's insulation properties, leading to potential transformer failure.

Power transformers play a pivotal role in the distribution of electricity, including that generated from renewable sources such as solar and wind. Therefore, ensuring their efficient functioning and protection is vital for maintaining the integrity of power networks and supporting the global shift towards cleaner energy.

With the increasing global focus on renewable energy, there has been a significant surge in the construction of new power infrastructure, including power transformers. These transformers need to be adequately protected to ensure their efficient operation and prevent any potential downtime or damage. As a result, there is a growing demand for dehydrating breathers to safeguard these valuable assets.

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The Asia Pacific region, in particular, holds a significant share of the global dehydrating breather market. This can be attributed to the region's rapid infrastructural development and the expansion of renewable energy projects. As countries in this region continue to invest in renewable energy sources, there is a greater need to upgrade and expand the existing transmission and distribution infrastructure, further increasing the demand for dehydrating breathers.

Moreover, the increasing focus on asset optimization, including the efficient operation of transformers, will also contribute to the sustained growth of the dehydrating breather market. As organizations strive to maximize the lifespan and performance of their power transformers, they recognize the importance of implementing preventive measures like dehydrating breathers.

In conclusion, the expansion of renewable energy is a key driver of the global dehydrating breather market. As the world continues to embrace cleaner energy sources, the demand for dehydrating breathers, as an essential component in protecting power transformers, is set to rise. By ensuring the proper functioning and longevity of power transformers, dehydrating breathers play a crucial role in supporting the transition to a more sustainable and reliable energy future.

Key Market Challenges

Scaling for Varying Transformer Sizes

Dehydrating breathers are crucial devices used to safeguard the insulation properties of transformer oil. By preventing moisture absorption, these devices effectively preserve the oil's insulation capabilities, thereby mitigating the risk of transformer failure. The significance of employing such protective measures becomes increasingly pronounced as the size and number of transformers in operation escalate, consequently fueling the growth of the dehydrating breather market.

The size of a power transformer plays a pivotal role in determining its oil volume, which in turn impacts the size and type of dehydrating breather required for effective protection. Large-scale power generation stations necessitate larger dehydrating breathers to accommodate the higher oil volume, while smaller distribution transformers found in residential areas typically require more compact breathers.

The diversification in transformer sizes is anticipated to persist, particularly with the

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proliferation of renewable energy projects and the implementation of smart grids. Renewable energy initiatives often rely on smaller, more distributed transformers, while the advent of smart grids necessitates a wide variety of transformer sizes to facilitate efficient power management. Both of these emerging trends contribute to the growing demand for scalable dehydrating breathers, consequently driving the expansion of the market.

In conclusion, the need to cater to varying transformer sizes emerges as a key driver of the global dehydrating breather market. As the world continues to diversify its energy sources and optimize power distribution, the demand for scalable and effective solutions for transformer protection, such as dehydrating breathers, is poised to experience significant growth.

Key Market Trends

Advanced Filtration and Moisture Control

As the technology behind power transformers continues to evolve, the demand for more sophisticated protective mechanisms becomes increasingly apparent. Advanced filtration systems incorporated in dehydrating breathers not only offer superior protection against particulate contamination but also enhance the overall performance and lifespan of transformers.

Additionally, the implementation of advanced moisture control mechanisms is critical in preventing the ingress of moisture into the transformer oil. This aspect of transformer maintenance cannot be overlooked, as the presence of moisture can significantly decrease the dielectric strength and potentially lead to transformer failures.

The ongoing trend towards advanced filtration and moisture control has become a driving force behind the growth of the dehydrating breather market. With industries worldwide heavily reliant on electrical power, the need for efficient and reliable power transformers has become paramount. Consequently, the demand for high-quality dehydrating breathers equipped with advanced filtration and moisture control systems continues to rise.

Moreover, the advancement in filtration technology and moisture control mechanisms has opened up new opportunities for manufacturers within the dehydrating breather market. Companies that can offer innovative and effective solutions are poised to gain a competitive edge, further contributing to the market's growth.

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As the global energy demand continues to surge, the need for reliable and efficient power transformers remains a top priority. This ongoing trend is expected to fuel the growth of the dehydrating breather market. Furthermore, as transformer technology progresses, the demand for advanced filtration and moisture control systems within dehydrating breathers is predicted to increase accordingly.

To summarize, advanced filtration and moisture control represent significant trends within the global dehydrating breather market, playing a crucial role in its growth. As the world becomes increasingly reliant on energy, the importance of maintaining efficient and reliable power distribution networks cannot be overstated. Dehydrating breathers, equipped with advanced filtration and moisture control systems, are instrumental in meeting this ever-growing global energy demand.

Segmental Insights

Type Insights

Based on the category of type, the conventional breather segment emerged as the dominant player in the global market for Dehydrating Breather in 2022. The Conventional is the first generation of dehydrating breathing devices, introduced in the early 60s. It enjoyed a long period of usage due to its reliability, effective performance, and cost-effectiveness compared to later generations. This device utilizes pure oxygen or a mixed gas mixture, which is supplied either through an external source of pressure or a compressed air inhalation machine. Its long-standing popularity can be attributed to its dependable performance, affordability, and ability to provide a steady supply of breathable gases.

End User Insights

The utilities segment is projected to experience rapid growth during the forecast period. The application of dehydrating breathers is widely adopted in various utility applications, encompassing power generation, water treatment, pulp and paper production, and many others. These versatile products serve multiple purposes, including the prevention of toxic gas recirculation and the control of moisture-laden air within utility plants.

In addition to utility applications, dehydrating breathers find extensive use in industrial settings, particularly in chemical processing industries. They play a crucial role in maintaining proper ventilation in process rooms, effectively preventing the entry of

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personnel or external materials through openings smaller than the specified size. Moreover, these breathers are indispensable in heavy-duty vehicles like construction equipment, agricultural machinery, and trucks, offering robust protection against extreme temperatures and other environmental conditions that prevail inside vehicle cabins during transportation or operation.

By incorporating dehydrating breathers, utility plants and industrial facilities can ensure optimal performance, enhanced safety, and efficient operation in a wide range of demanding applications.

Regional Insights

Asia Pacific emerged as the dominant player in the Global Dehydrating Breather Market in 2022, holding the largest market share in terms of value. The impressive growth of the dehydrated food market can be attributed to the increasing demand from various end-use industries, such as food & beverage, pharmaceuticals, and chemicals. In particular, China has emerged as a key player, dehydrating large volumes of agricultural produce to meet the high demand from local consumers at competitive prices.

Furthermore, the Middle East & Africa (MEA) region is expected to witness significant growth in the coming years, driven by substantial investments in infrastructure development by governments in countries like Saudi Arabia and UAE. This infrastructure development is aimed at supporting the region's economic growth and catering to the evolving needs of its population.

Key Market Players

ABB Ltd

Siemens AG

Des-Case Corp

Drytech Inc.

AGM Container Controls Inc

BTRAC LTD

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MAIER GMBH

Hubbell Incorporated

Trico Ltd.

Whitmore Manufacturing LLC

Report Scope:

In this report, the Global Dehydrating Breather Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Dehydrating Breather Market, By Type:

Conventional Breather

Self-Dehydrating Breather

Dehydrating Breather Market, By End User:

Utilities

Industrial

Heavy-Duty Vehicle

Dehydrating Breather Market, By Region:

North America

United States

Canada

Mexico

Europe

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France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

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- Kuwait
- Turkey
- Egypt

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Dehydrating Breather Market.

Available Customizations:

Global Dehydrating Breather Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

- Detailed analysis and profiling of additional market players (up to five).

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