

博菲电气 Zhejiang Bofay Electric (001255 CH)

下游风电轨交拉动绝缘材料需求，绝缘材料龙头稳步推进在建产能

Insulating Materials Leader with Capacity Expansion to Capture on Increasing Demand from Wind Power and Rail Transportation

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 热点速评 Flash Analysis

(Please see APPENDIX 1 for English summary)

- 下游多产业发展带动绝缘材料需求，公司具备较为完善的绝缘材料产品体系。**随着下游机电工业及电力电子技术发展，市场对稳定、安全、环保的绝缘材料需求日益突出，对绝缘材料产品的应用趋向于高性能、多品种；新能源方面，2020 年和 2021 年我国风电新增装机容量持续处于高位，分别为 72.38GW 和 46.83GW，根据全球风能理事会 GWEC 预测，2022-2026 年我国累计新增风电装机容量将达 249.1GW，行业对 VPI 浸渍绝缘漆、高强槽楔等绝缘材料的需求将持续增加；轨道交通方面，随高铁动车开行密度逐渐增大，对动车组牵引电机用高性能绝缘材料的生产与维保需求稳步上升。公司产品涵盖七大类电气绝缘材料，具备研发和生产 B 级、F 级、H 级、C 级及以上等各耐热等级绝缘材料的能力，能够为下游各领域的绝缘材料应用提供系统化解决方案。此外，公司于 2020 年 3 月收购控股子公司时代绝缘，该公司专门从事绝缘树脂、云母制品等产品的研发与生产，和母公司现有业务形成了显著的协同效应。
- 绝缘材料行业具备高技术、客户壁垒，公司与下游优质客户已建立可持续合作关系，风电行业为最主要收入来源。**绝缘材料产品种类众多，不同种类的产品需适用于不同的生产标准和工艺技术，耐高压、耐高温、耐电晕、高导热等高性能产品已成为业内主要研发方向，这对企业的技术与工艺提出了较高的要求。经过数年的技术积累与客户验证，公司已与下游各领域优质客户建立了良好、可持续的合作关系。公司近年的前五大客户分别为中国中车、南京汽轮、浙江尚驰、兆源机电、哈尔滨电气，2019-2021 年公司对该五大客户的销售金额合计分别占营收比例的 69.54%、80.18%、65.93%。客户集中度相对较高的原因为公司优先保障长期合作优质客户的供货、下游风电行业市场集中度较高，风电行业收入为公司收入的最主要来源，2019-2021 年分别占总收入的 64.29%、62.64%、54.74%。公司第一大客户中国中车现为全球规模最大的轨交装备供应商，近年其风电装备产业也不断发展，市占率领先。
- 公司投资 6.6 亿建设绝缘材料新项目，推进多种新材料研发进程。**公司投资 5 亿元建设年产 35000 吨轨道交通和新能源电气用绝缘材料建设项目；控股子公司时代绝缘投资 1.6 亿元建设年产 8000 吨电气绝缘新材料厂房及生产线项目。同时，公司积极推进新材料研发进程，根据公司公告，公司目前与光伏组件公司开展合作探讨高分子复合型新材料在光伏组件中的应用；另有耐腐蚀耐高温环保型 VPI 树脂基活性复合物研发及应用、磁悬浮直线电机灌注胶及工艺开发等项目正处验收阶段。
- 风险提示：**宏观经济环境变化的风险；下游市场需求不及预期的风险；在建产能投产进度不及预期的风险。

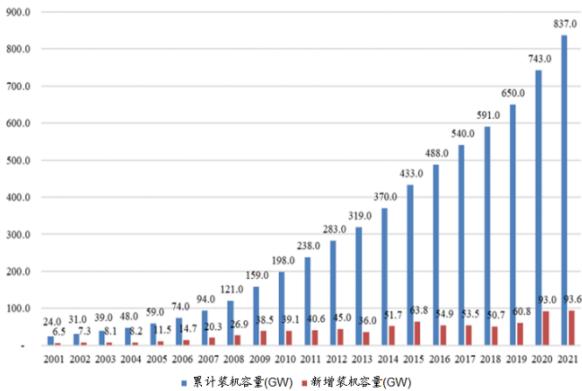
一、下游多产业发展带动绝缘材料需求，公司具备较为完善的绝缘材料产品体系。

公司的主营业务为电气绝缘材料等高分子复合材料的研发、生产与销售。公司产品涵盖《电气绝缘材料产品分类、命名及型号编制方法》(JB/T2197-1996)中所列举的八大类中的前七类，具有较为完整的绝缘材料产品体系，同时公司具备研发和生产B级、F级、H级、C级及以上等各耐热等级绝缘材料的能力，能够根据客户差异化需求提供定制化产品，为风力发电、轨道交通、工业电机、家用电器、新能源汽车、水力发电等领域的绝缘材料应用提供系统化的解决方案。

绝缘材料作为电气设备的基础材料，下游应用领域极为广泛，为实现资源优化配置，公司将主要发展方向聚焦于少数高端应用领域如风力发电、轨道交通、工业电机、家用电器电机、新能源汽车驱动电机、水轮发电机等。

风力发电方面，2020年和2021年我国风电新增装机容量持续处于高位，分别为72.38GW和46.83GW，根据全球风能理事会GWEC预测，2022-2026年我国累计新增风电装机容量将达249.1GW。由于风力发电机主要在野外环境工作，维修困难且维保成本昂贵，对绝缘材料的可靠性要求极高，行业对高性能绝缘材料的需求持续增加。目前，公司已具备根据风力发电机的具体设计要求，提供完整绝缘系统设计和供应单一绝缘材料的能力，相关产品主要包括环保型VPI浸渍漆、高强度引拔槽楔、热膨胀型玻璃毡、绝缘套管、膨体绳、聚酯纤维绑扎带、芳纶纤维绑扎带等。

图1 2001年-2021年全球累计风电装机容量和新增风电装机容量



资料来源:公司招股书, 海通国际

图2 2010年-2021年我国风电新增装机容量及累计装机容量

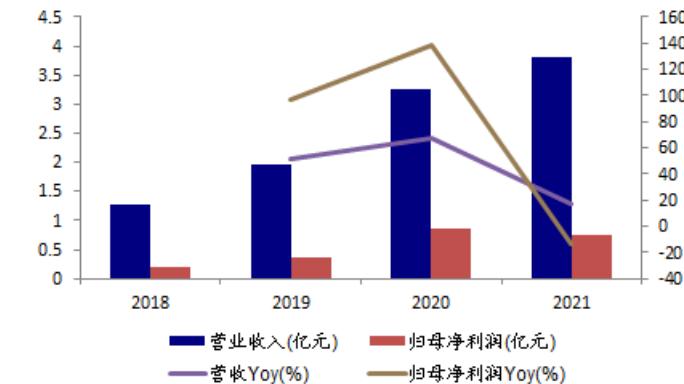


资料来源:公司招股书, 海通国际

公司于2020年3月收购控股子公司时代绝缘，该公司专门从事绝缘树脂、云母制品等产品的研发、生产与销售，产品主要应用于风力发电、轨道交通行业。根据公司招股书，收购时代绝缘后，时代绝缘实际在产项目包括绝缘树脂和云母制品两类，该等产品的环保核定产能为0.17万吨。

时代绝缘下游客户与母公司同以中车系为主，和母公司现有业务形成了显著的协同效应，加之风力行业与轨道交通行业近年快速发展，公司销售业绩逐年增长，2019-2021年分别实现营业收入1.95亿元、3.26亿元、3.82亿元，同比增速51.70%、67.20%、17.09%。2022年前三季度实现营收2.79亿元，同比增长26.93%；营业利润0.62亿元，同比增长29.93%。

图 3 博菲电气 2018-2021 年营业收入、归母净利润（亿元）及同比增速



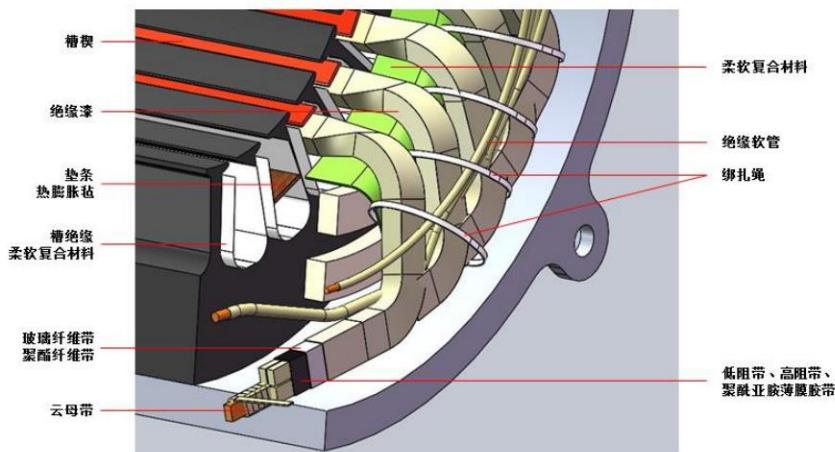
资料来源：同花顺 iFind，海通国际整理

公司研发费用率持续保持高位。2018 年至 2021 年研发费用率分别为 7.17%、6.99%、6.81%、5.65%。保持较高水平。

二、绝缘材料行业具备高技术、客户壁垒，公司与下游优质客户已建立可持续合作关系，风电行业为最主要收入来源。

绝缘材料产品种类众多，不同种类的产品需适用于不同的生产标准和工艺技术，耐高压、耐高温、耐电晕、高导热等高性能产品已成为业内主要研发方向，因此，绝缘材料行业在研发能力和技术工艺积累方面均存在较高的进入壁垒，这对企业的技术与工艺提出了较高的要求。另一方面，由于绝缘材料的产品特性，绝缘材料生产企业一般要通过长期的技术验证和服务检验，才能逐步形成稳定的下游客户群，因此优质客户资源的争夺是行业内企业竞争的焦点。同时，由于该等优质客户对产品的质量、服务体系有很高的要求，通常会选择行业内具有一定规模且技术研发实力较强的绝缘材料生产企业作为合作伙伴，以保证相关产品供应的持续性、稳定性，并保障售后服务的及时性。行业新进入者一般很难在短期内培养出稳定的客户群。

图 4 电气绝缘系统及相关绝缘材料应用示意图



资料来源：公司招股书，海通国际整理

技术方面，公司始终坚持自主研发、持续创新的发展道路，积极跟进国内外绝缘材料行业技术水平的发展趋势，积累并创新了一批拥有自主知识产权的生产工艺或技术，现阶段公司主要产品生产技术成熟，相关产品均处于规模化生产阶段。研发项目立项主要系依据行业未来发展趋势、下游客户需求等因素综合判断，在满足下游客户需求的同时保持公司技术先进性，通过不断改进现有产品的技术性能，进一步实现替代公司原有产品或竞争对手相关产品的目标。此外，公司持续与下游客户保持紧密合作，跟踪下游客户对于新技术、新工艺的需求，依托公司长期积累的技术研发实力和快速的响应机制，能够为客户提供定制化的研究开发工作，进而有效增强客户粘性，在研项目包括汽车动力电机用阻燃引拔槽楔、超导磁浮地面线圈内框、定子绕组端部固定用端箍注射胶等。2019-2021 年公司研发费用占营业收入比例分别为 7.00%、6.81%、5.66%，保持在较高水平，为公司的研发工作提供了充足的资金保障。公司顺应市场变化，将在未来继续加大研发投入，优化研发流程，为持续提升公司的研发能力和创新水平提供支持。

经过数年的技术积累与客户验证，公司已与下游各领域优质客户建立了良好、可持续的合作关系。公司近年的前五大客户分别为中国中车、南京汽轮、浙江尚驰、兆源机电、哈尔滨电气，2019-2021 年公司对该五大客户的销售金额合计分别占营收比例的 69.54%、80.18%、65.93%。客户集中度相对较高的原因为公司优先保障长期合作优质客户的供货，且下游风电行业市场集中度较高。风电行业收入为公司收入的最主要来源，2019-2021 年分别占总收入的 64.29%、62.64%、54.74%。在未来较长时间内，我国风力发电及轨道交通行业仍将处于持续上升发展期，公司第一大客户中国中车作为目前国内领先的风电装备及轨道交通装备制造，公司预计将迎来良好的发展机遇，并能够有效带动我国风电装备及轨道交通装备产业链快速发展。

由于公司主要客户群体为国内大中型电机设备制造企业，该等厂商对供应商有着严格的质量认证体系，因此公司主要通过直销模式开展销售业务，将产品直接销售给下游的电机厂商。此外，由于公司产品下游应用领域较为广泛，为拓宽业务渠道，公司还存在向少量经销商销售的情形。公司主要通过商务谈判、招投标或竞争性谈判等方式取得订单，并且能够根据客户实际需求提供专业的定制化产品服务，同步参与客户项目开发流程，为客户提供绝缘系统整体解决方案和服务。

三、公司投资 6.6 亿建设绝缘材料新项目，推进多种新材料研发进程

根据公司招股书，截止至 2021 年，公司拥有绝缘树脂、槽楔与层压制品、纤维制品、云母制品、绑扎制品产能共计 1.08 万吨，2021 年度基本实现满产满销。

根据环评报告书，公司投资 5 亿元建设年产 35000 吨轨道交通和新能源电气用绝缘材料建设项目，于 2020 年 11 月开工建设，涉及产品包括 2000 吨/年轨道交通装备与工程防护涂料、5000 吨/年风电及高压电气用 VPI 树脂、1500 吨/年 IGBT 灌封胶、半导体用胶粘剂、8300 吨/年中低压电气绝缘浸渍树脂等，拟于 2023 年 11 月建成；控股子公司时代绝缘由于原有工程项目园区土地周边经济发展，工业废气污染排放对周边学校和居民住宅影响较大，拟进行搬迁，该搬迁项目共投资 1.6 亿元，新建年产 8000 吨电气绝缘新材料厂房及生产线项目，包括年产 3000 吨绝缘胶和表面防腐涂料生产线、年产 3500 吨绝缘复合材料生产线、1500 吨新型绝缘部件生产线。上述项目建成后，将大幅提高公司的产业优势和技术优势，为企业带来良好的经济效益，促使企业在电气绝缘新材料行业占据一席之地，同时也将对促进区域经济的发展产生较大的影响力。

同时，公司积极推进新材料研发进程，根据公司公告，公司目前与光伏组件公司开展合作探讨高分子复合型新材料在光伏组件中的应用；另有耐腐蚀耐高温环保型VPI 树脂基活性复合物研发及应用、磁悬浮直线电机灌注胶及工艺开发等项目正处验收阶段。随上述项目与规划逐步推进，公司预计将进一步加强公司在现有主营业务领域的生产工艺和技术研发优势，并逐步扩展业务范围。

四、风险提示

宏观经济环境变化的风险；下游市场需求不及预期的风险；在建产能投产进度不及预期的风险。

APPENDIX 1

Summary

- **The development of downstream industries drives the demand for insulating materials, and the company has a relatively complete product system of insulating materials.** With the development of downstream electromechanical industry and electronic technology, the market demand for stable, safe and environment-friendly insulating materials is increasingly prominent, and insulating materials of high-performance and multi variety are needed; In terms of new energy, the newly-installed capacity of wind power in China keeps a high level in 2020 and 2021, respectively 72.38GW and 46.83GW, and according to the prediction of GWEC, the cumulative newly-installed capacity of wind power in China from 2022 to 2026 will reach 249.1GW, and the industry's demand for VPI impregnated insulating paint, high-strength slot wedges and other insulating materials will continue to increase; In terms of rail transportation, the demand for the production and maintenance of high-performance insulating materials for traction motors of EMUs has steadily increased with the increasing density of high-speed rail motor cars. The company's products cover 7 categories of electrical insulation materials. It has the ability to research, develop and produce insulation materials of B-level, F-level, H-level, C-level and above, and can provide systematic solutions for the application of insulation materials in various downstream fields. In March 2020, the company acquired the holding subsidiary Shidai Insulation, which is specialized in the research and production of insulating resin, mica products and other products.
- **Insulation material industry has high-tech and customer barriers. The company has established a sustainable cooperative relationship with downstream high-quality customers, and the wind power industry is the main source of income.** There are many types of insulating materials, and different types of products need to be applied to different production standards and processes, and high performance products such as high voltage, high temperature, corona resistance, and high thermal conductivity have become the main research and development direction in the industry, which puts forward higher requirements for enterprises' technology and processes. After years of technology accumulation and customer verification, the company has established a good and sustainable cooperative relationship with high-quality customers in various downstream fields. The biggest five customers of the company in recent years are CRRC, Nanjing Turbine, Zhejiang Shangchi, Zhaoyuan Electromechanical and Harbin Electric. The total sales amount of the company to these five customers in 2019-2021 accounted for 69.54%, 80.18% and 65.93% of the revenue respectively. The reason for relatively high customer concentration is that the company gives priority to ensuring the supply of high-quality customers for long-term cooperation, and the market concentration of the downstream wind power industry is relatively high. The income of the wind power industry is the main source of the company's income, accounting for 64.29%, 62.64% and 54.74% of the total income in 2019-2021. CRRC, the company's largest customer, is now the world's largest supplier of rail transportation equipment. In recent years, its wind power equipment industry has also continued to develop, leading the market share.
- **A total investment of 660 million yuan was invested in the construction of new insulation materials projects, and the construction projects are steadily promoted.** The company invested 500 million yuan in the construction project of 35,000 tons of insulation materials for rail transportation and new energy electrical applications, involving products including rail transportation equipment and engineering protective coatings, VPI resin for wind power and high-voltage electrical applications, IGBT potting adhesive, semiconductor adhesive, medium and low voltage electrical insulation resin, etc; The holding subsidiary, Shidai Insulation, invested 160 million yuan to build a plant and production line project with an annual output of 8000 tons of new electrical insulation materials, including a production line with an annual output of 3000 tons of insulating glue and surface anti-corrosion paint, a production line with an annual output of 3500 tons of insulating composite materials, and a production line of 1500 tons of new insulating parts. At the same time, the company actively promotes the research and development process of new materials. According to the company's announcement, the company is currently cooperating with the photovoltaic module company to discuss the application of new polymer composite materials in photovoltaic modules; In addition, the R&D and application of corrosion resistant, high temperature resistant and environment-friendly VPI resin based active composite, magnetic suspension linear motor injection glue and process development are in the acceptance stage.
- **Risk:** Changes in the macroeconomic environment; changes in downstream market demand; risk that the production progress of the capacity under construction is not as expected.

附录 APPENDIX

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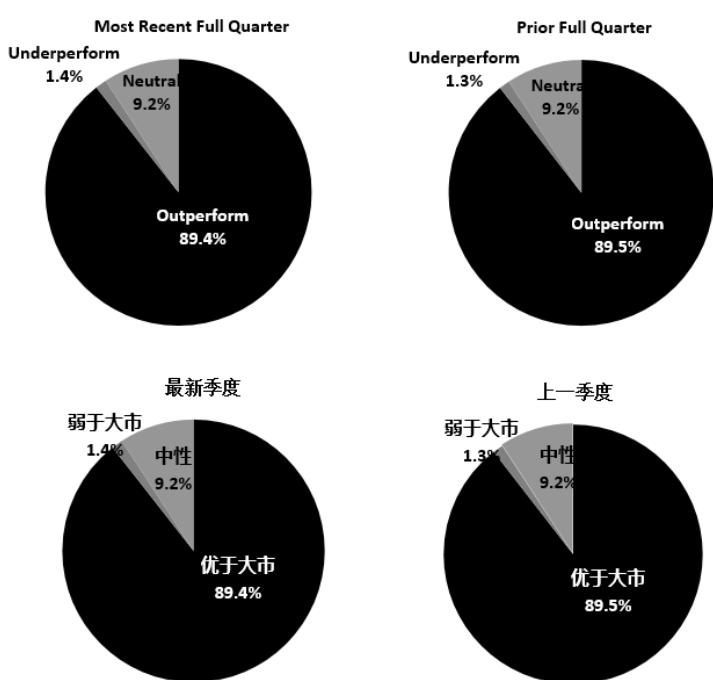
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