



扫码关注企业微信

地 址: 江苏省南京市隐龙路28号

电 话: 025-66980700

网 址:www.daqo.com

本资料由南京大全变压器有限公司印制,仅用于说明本公司的相关信息,我公司随时可能因技术升级或采用更新的生产工艺而改进画册有关内容,或对本画册的制作错误及不准确的信息进行必要的修改,恕不另行通知。













New benchmark in intelligent transformer manufacturing

南京大全变压器有限公司将现代数字技术与制造业深度融合,颠覆了传统制造模式。依托于互联网技术、大数据技术、云计算与边缘计算技术、人工智能技术、数字孪生技术、5G通讯技术、AR/VR技术等先进技术,实现了数据信息在人、机器、系统之间自动传输,并将过程数据信息进行计算、匹配、储存、分析、反馈和优化。

以数据作为核心驱动力,对生产和制造进行全生命周期的数据管理,实现数字化设计、数字化生产和数字化运营。

世界一流的设备硬件与软件结合,实现了工业化与信息化的深度融合,作为配电变压器行业的领跑企业,大全变压器已经成为行业内智能制造的新标杆。

Nanjing Daqo Transformer Co., Ltd. deeply integrates modern digital technology with the manufacturing industry, subverting the traditional manufacturing mode. The automatic transmission of data information among people, machines and systems is realized and the process data information is computed, matched, stored, analyzed, fed back and optimized, relying on Internet technology, big data technology, cloud computing and edge computing technology, artificial intelligence technology, digital twin technology, 5G communication technology, AR/VR technology and other advanced technologies.

With data as the core thrust, the full-life cycle data management of manufacturing is carried out to realize digital design, digital production and digital operation.

The combination of world-class equipment hardware and software realizes the deep integration of industrialization and informatization. As a leading enterprise in the distribution transformer industry, Daqo transformers have become a new benchmark of intelligent manufacturing in the industry.

CONTENTS

目录

Ⅰ公司概况	Company profile	01
Ⅰ智能制造	Intelligent manufacturing	03
产品介绍	Product descriptions	07
・产品结构	Product structure	07
・工艺亮点	Process highlight	11
・产品特点	Product features	13
・性能参数	Performance parameters	15
・其他产品	Other products	19
大全工业云	Daqo Industrial Cloud	21
Ⅰ数字厂牌	Digital brand	22
行业应用	Industrial applications	23
一企业愿景	Corporate vision	29

公司概况 COMPANY PROFILE

大全集团是电气、新能源、轨道交通领域的领先制造商,主要研发生产中低压成套电器设备、变压器、智能元器件、轨道交通设备、太阳能多晶硅等。在江苏扬中、南京江宁、重庆万州、新疆石河子、湖北武汉拥有4个生产基地、3个研究院、23家制造企业,与德国西门子、美国伊顿、瑞士赛雪龙等国际公司设有多家合资企业,在美洲、欧洲、东南亚、中东、非洲建立二十多家分支机构,有近1万名员工。

南京大全变压器有限公司是大全集团旗下全资控股从事变压器设计制造的子公司,是全球技术工艺领先的变压器制造厂商之一。

公司成立于2004年,注册资金11000万元,占地面积50000平方米,拥有员工400余名,年产变压器10000台,容量达到1500万kVA,累计全社会运行的变压器达60000台。

Daqo Group, a leading manufacturer in the fields of electricity, new energy and rail transit, researches, develops and produces complete sets of low and medium-voltage electrical equipment, transformers, intelligent components, rail transit equipment, solar polysilicon, etc. It has four production bases, three research institutes and 23 manufacturing enterprises in Yangzhong, Jiangsu, Jiangning, Nanjing, Wanzhou, Chongqing, Shihezi, Xinjiang and Wuhan, Hubei, has set up many joint ventures with Siemens, Eaton, Secheron and other international companies and has over 20 branches in America, Europe, Southeast Asia, Middle East and Africa, with nearly 10,000 employees.

Nanjing Daqo Transformer Co., Ltd., a wholly-owned subsidiary of Daqo Group, is one of the leading transformer manufacturers in the world.

Founded in 2004 and with 50,000 m2 of land, the company has registered capital of 110 million yuan, over 400 employees, an annual output of 10,000 transformers, and a capacity of 15 million KVA, with a total of 60,000 transformers running across the country.





公司荣誉

THE COMPANY HONOR

南京大全变压器,坚持以创新为企业发展的源动力,在配电变压器领域取得了一批具有行业先进水平的研发成果,形成了较为完善的技术和产品体系。

面向未来,南京大全变压器将着力提升科技创新能力,以"智能制造"为平台,以"信息化"和"工业化"的高层次深度融合为载体,致力于成为中国配电变压器领域的先行者和开拓者,为用户提供卓越的产品和服务。

Nanjing Daqo Transformer, adhering to innovation as the driving force of its development, has made a number of industrial advanced R&D achievements in the field of distribution transformers, and formed a relatively perfect technology and product system.

In future, Nanjing Daqo Transformer will strive to enhance its scientific and technological innovation capability, take "intelligent manufacturing" as the platform, take the high-level and deep integration of "informatization" and "industrialization" as the carrier, with the aim of becoming the frontrunner and pioneer in the field of distribution transformers in China, and provide excellent products and services for users.





南京大全变压器有限公司 NANJING DAQO TRANSFORMER CO.,LTD

智能制造

INTELLIGENT MANUFACTURING



南京大全变压器坚持以管理创新为发展的驱动力,近年来,公司积极推行两化融合,推行数字化转型战略,引入SAP信息化系统,以客户订单为主线,销售、工程设计、履约、服务、财务、人力资源各环节形成跨组织、端到端的业务协同平台,SAP与生产MES系统、销售系统、一采通平台、服务平台等实现集成,实现了物流、资金流和信息流的"三流合一",为更好给客户创造价值提供了信息化支撑。

南京大全变压器积极进行智能制造的探索,努力打造行业领先的现代化工厂,2019年公司实现智能制造升级,引入德国乔格铁芯全自动剪切叠装生产线、智能检测线、立体仓库、AGV物流小车等一批设备,新设备与SAP、MES、设计平台等实现了有效集成,保证了生产工艺与物料流转的平衡,更好地提高了生产效率与产品品质,提升了公司的履约能力。

Nanjing Daqo Transformer adheres to management innovation as the driving force of development. In recent years, the company has actively implemented the integration of informatization and industrialization, implemented a digital transformation strategy, introduced the SAP information system, and integrated sales, engineering design, contract performance, service, finance and human resources into a cross-organization and end-to-end business collaboration platform with customer orders as the main line. SAP is integrated with the production MES system, the sales system, the 1caitong platform and the service platform, realizing the "three flows into one" of logistics, fund flow and information flow and providing information support for creating value for customers.

Nanjing Daqo Transformer is actively exploring intelligent manufacturing and striving to build a leading modernized plant in the industry. In 2019, the company upgraded its intelligent manufacturing, introduced a batch of equipment such as GEORG automatic iron core cutting and stacking production line from Germany, intelligent detection line, three-dimensional warehouse and automated guided vehicles and effectively integrated the new equipment with SAP, MES and design platform, ensuring the balance of production processes and material flows, well improving the production efficiency and the product quality and improving the company's contractual capacity.

INTELLIGENT MANUFACTURING

2019年

公司引进了世界最先进的德国乔格公司铁芯全自动剪切叠装智能生产线,该生产线可实现硅钢片从原材料到铁芯的智能生产,是世界上首条智能化、信息化、自动化的铁芯生产线。

智能化的生产线大幅提升产能的同时,产品质量稳定性得到极大提升,与传统手工叠片相比,变压器噪音降低5dB,空载损耗降低5%。

In 2019, the company introduced the world's most advanced intelligent production line of GEORG automatic iron core cutting and lamination from Germany, which is the first intelligent, informatized and automated iron core production line in the world and can realize the intelligent production of silicon steel sheets from raw.

In addition to the capacity of the intelligent production line, the product quality consistency is also greatly improved. Compared with conventional manual lamination, the transformer noise is reduced by 5 dB and the no-load loss is reduced by 5%.materials to iron cores.













工厂制造所需的原材料出入库均通过MES系统调度,原材料进货检验合格后扫码入库,堆垛机器人将不同规格的原材料整齐有序的码放至立体仓库,并在取用时通过MES系统领用。

Raw materials needed for manufacturing in the factory are dispatched by the MES system for warehouse movements. After passing the incoming inspection, the raw materials will be scanned and stored in the warehouse. The stacking robot will stack the raw materials of different specifications in good order to the three-dimensional warehouse and collect them through the MES system.



工厂实现5G信号全覆盖,物流流转通过AGV小车可以自动运输到指定库位,现场高效、动态的工作流,大幅降低人工投入,缩短了生产周期,为项目更好的履约提供了保障。

The whole factory is covered by 5G signals, automatic transportation to the designated warehouse location is realized in logistics circulation with automated guided vehicles, the on-site efficient and dynamic workflow greatly reduces labor input, shortens the production cycle, and provides a guarantee for the better performance of projects.

产品在测试环节中,所有关键质量数据均通过本地检测设备自动上传到MES系统,相较于人工检测,精度更高,更准确,为产品品质提供了有效保障。

In the link of product testing, all key quality data are automatically uploaded to the MES system by the local testing equipment, which, compared with manual testing, provides higher accuracy and precision and provides an effective guarantee for product quality.

南京大全变压器拥有中频发电机组、智能测试系统,高压工频试验仪、四通道局放测量系统等全套变压器产品检测设备并通过了国家变压器检测中心35KV及以下比对试验。

Nanjing Daqo Transformer has a complete set of transformer product testing equipment, such as medium frequency generator set, intelligent testing system, high-voltage power-frequency tester, four-channel partial discharge measurement system and has passed the 35 kV and below comparison test of the national transformer testing center.



环氧树脂浇注式干式电力变压器

Epoxy Resin Cast Dry Type Power Transformer

SCB系列环氧树脂浇注干式电力变压器,适用于三相、50Hz、配电电网系 统。用于电网一次侧的输入、二次侧的输出,实现一二次侧电压的转换。本 系列的变压器符合IEC60076、GB/T10228、GB1094、GB20052-2020等 国际/国家标准。通过温度综合控制器适时监测变压器的温度状态,并控制 超温报警及超温跳闸输出,以保证变压器运行在安全状态,从而延长变压 器的工作寿命。

The SCB series of epoxy resin cast dry-type power transformers is suitable for three-phase, 50 Hz, distribution grid systems. These transformers are used for the input of the primary side of the grid and the output of the secondary side to realize voltage conversion of the primary and secondary sides. This series of transformers conform to international/national standards such as IEC 60076, GB/T10228, GB1094 and GB20052-2020. The integrated temperature controller is used to duly monitor the temperature state of the transformer, and control the output of the over-temperature alarm and over-temperature trip to ensure safe operations of the transformer and prolong its operating life.

铁芯 Iron core

选用高导磁优质冷轧晶粒取向硅钢片, 乔格线自动堆垛机器人叠装铁心, 大幅降低空载损耗、空载电流及噪声;表面涂覆树脂漆、防潮防锈、降低 噪声。

High-quality cold-rolled grain-oriented silicon steel sheets with high magnetic conductivity are selected, and the core is laminated by the GEORG stacking robot, which greatly reduces no-load loss, no-load current and noise; while the surface is coated with resin paint to prevent moisture and rust and reduce noise.

高压线圈 High voltage coil

线圈采用优质铜导线绕制,带填料环氧树脂在真空状态下浇注,薄绝缘结 构,光亮美观。较大容量线圈设计轴向气道,确保散热能力,局放<5pc。

The coil is made of high-quality copper wires; the filled epoxy resin is cast in vacuum to form a thin insulation structure with a bright and elegant appearance. Larger-capacity coils are designed with axial air passages to ensure the heat dissipation capacity and the partial discharge of less than 5pc.

低压线圈 Low voltage coil

线圈采用优质铜箔,自动箔式绕线机绕制,氩气保护内部焊接,焊接质量 高,焊接电阻小,选用DMD作为层间绝缘,采用进炉固化工艺,不浇注。

The coil is made of highquality copper foil by an automatic foil coil winding machine, and the internal welding is protected with argon, featuring high welding quality and low welding resistance; the DMD is selected as the interlayer insulation and curing is carried out in the oven without casting.

·绝缘性能优异,运行可靠稳定 Excellent insulation performance, reliable and stable operation

- ·空负载损耗低,节能效果显著 Low no-load loss and remarkable energy saving effects
- ・局放低、产品使用寿命持久 Low partial discharge and long service life
- ·抗突发短路能力强,抵御电网冲击 Strong capability to withstand sudden short circuit and grid impact



风机 Fan

自然冷却(AN)时可连续输出100%额定容量,在配置风机强迫空气冷却 (AF)情况下,可短时150%运行。

Continuous output of 100% of the rated capacity when natural cooling (AN) is used, When configured with a fan for forced air cooling (AF), it can run at 150% for a short time.

温控 Temperature control

通过预埋在低压线圈内的PT100铂电阻进行温度检测并送温控器实现控

三相绕组温度的巡回检测和显示,故障自检;

最热一相绕组的温度值显示;

超温报警、超温跳闸、黑匣子功能;

风机自动启停或定时启停。

备选功能:

模拟电流输出/通讯接口/增加一路铁芯或环境温度检测点/增加一对有 源输出触点。

The temperature is measured with the PT100 platinum resistance thermometer embedded in the low-voltage coil and sent to the temperature controller: Circuit detection and display of three-phase winding temperature and fault

Display of the winding temperature value of the hottest phase;

Over-temperature alarm, over-temperature trip and black box function; Automatic startup or stop or timed startup or stop of the fan.

Alternative functions:

Analog current output/communication interface/addition of an iron core or ambient temperature detection point/addition of a pair of active output contacts.

垫块 Cushion block

隔绝铁芯与线圈的机械振动,从而降低噪音。

For isolating the mechanical vibration of the iron core and the coil to reduce noise.

高压端子 High voltage terminal

可根据用户使用场景设计优化方案,高压分接片可在断电情况下调节以 适应系统电压。同时可选配有载调压开关,在不断电的情况下调节电压。

Optimization solutions can be designed according to the usage scenarios. The high voltage tap can be adjusted in case of power failure to adapt to the system voltage. At the same time, the on-load tap changer can be selected to adjust the voltage without disconnection.

低压铜排 Low voltage copper bar

从变压器本体引出连接可靠的铜排,供客户连接电缆、母线。

A reliably connected copper bar is led out from the transformer body for customers to connect cables and busbars.

结构夹件 Structural clamps

固定变压器本体的铁芯及线圈。由钢板制作,激光一次性成型。

For fixing the iron core and coil of the transformer body. Made of steel plates and formed once by laser.

油浸式电力变压器

Oil-immersed power transformer

S13、S20、S22系列油浸式电力变压器,适用于三相、50Hz、电力电 网系统。用于电网一次侧的输入、二次侧的输出。本系列的变压器 符合IEC 60076、GB/T6451、GB1094、GB20052-2020等国际/国 家标准。

S13, S20 and S22 series oil-immersed power transformers are suitable for three-phase, 50 Hz power grid systems. These transformers are used for the input of the primary side of the grid and the output of the secondary side. This series of transformers conform to international/national standards such as IEC 60076, GB/T6451, GB1094 and GB20052-2020.

铁芯 Iron core

选用高导磁优质冷轧晶粒取向硅钢片, 乔格线自动堆垛机器人叠装铁心, 大 幅降低空载损耗、空载电流及噪声;表面涂覆树脂漆、防潮防锈、降低噪声。

High-quality cold-rolled grain-oriented silicon steel sheets with high magnetic conductivity are selected, and the core is laminated by the GEORG stacking robot, which greatly reduces no-load loss, no-load current and noise; while the surface is coated with resin paint to prevent moisture and rust and reduce noise.

高压线圈 High voltage coil

线圈采用优质漆包铜线,选用高密度点胶纸作为层间绝缘,有效提高抗

The coil uses high-quality enamelled copper wire and high-density adhesive tape as interlayer insulation to effectively improve the ability of anti-short circuit.

低压线圈 Low voltage coil

线圈采用优质铜箔,采用自动箔绕机绕制,氮气保护内部焊接,焊接质 量高,电阻小。层间绝缘选用F级预浸布,提高电气及结构强度。

The coil is made of high-quality copper foil, wound by automatic foil winding machine, and welded internally with nitrogen protection, with high welding quality and low resistance. F-grade prepreg cloth is selected for interlayer insulation to improve electrical and structural strength.

储油柜 Oil storage tank

变压器油的体积随着油的温度膨胀或缩小,储油柜起储油或补油的作 用,保证油箱内充满油,同时也使变压器缩小了油与空气的接触面积, 可减少油的劣化速度。储油柜侧面装有油位计,用以监视油位变化。

The volume of transformer oil expands or shrinks with the temperature of the oil, and the oil storage tank plays the role of storing or replenishing oil to ensure that the oil tank is full of oil. at the same time, the transformer reduces the contact area between oil and air, which can reduce the deterioration speed of oil. The side of the oil storage tank is equipped with an oil level meter to monitor the change of oil level.



- ·防护性能强,户外恶劣环境运行 Strong protection performance, outdoor operation in a harsh environment
- ·导热性能良好的油作为绝缘介质,体积轻巧,散热性能优异 Use of oil with good thermal conduction performance as the insulation medium, light and handy volume and excellent heat dissipation performance
- ·过载能力优异 Excellent overload capacity

IL-IMMERSED POWER TRANSFORMER

套管 Casing pipe

套管采用瓷瓶式,绝缘强度高。安装于箱盖表面,绕组的引出线穿过绝 缘套管,使引出线与变压器外壳之间绝缘,同时起固定引出线的作用。

The casing adopts porcelain bottle type with high insulation strength. It is installed on the surface of the box cover, and the lead wire of the winding passes through the insulating sleeve to insulate the lead wire and the transformer shell, and at the same time play the role of fixing the lead wire.

油箱 Tank

变压器油箱内部装铁芯和绕组并充满变压器油,使铁芯和绕组浸在油 内。油箱使用钢板拼装焊接而成,再经过喷丸、酸洗、磷化、喷漆等流 程,防腐、耐厚性能优越,体积小、安装方便。

The transformer oil tank is filled with iron core and winding and filled with transformer oil, so that the iron core and winding are immersed in the oil. The fuel tank is made of steel plate assembly and welding, and then through shot peening, pickling, phosphating, painting and other processes, anti-corrosion, thickness resistance is superior, small size, convenient installation.

分接开关 Tap changer

可根据用户使用场景,无励磁分接开关可在断电情况下调节以适用系 统电压。同时可选配有载调压开关,在不断电的情况下调节电压。

According to the user's usage scenario, the unexcited tap-changer can be adjusted to adapt to the system voltage when the power is off. At the same time, it can be equipped with on-load voltage regulating switch to adjust the voltage without power outage.

压力释放阀 Pressure relief valve

当变压器油箱内部压力因事故急剧升高,迅速开启,释放压力,避免造 成油箱变形甚至爆裂。当压力降到关闭压力值时,压力释放阀又可靠 关闭, 使油箱内保持正压, 有效防止空气、水分及其它杂质进入空气, 起到保护变压器的作用。

When the internal pressure of the transformer tank rises sharply due to the accident, it opens quickly and releases the pressure to avoid causing the tank to deform or even burst. When the pressure drops to the closing pressure value, the pressure release valve is reliably closed to maintain the positive pressure in the fuel tank, effectively prevent air, moisture and other impurities from entering the air, and protect the transformer.

温控 Temperature control

实时测量和监控变压器油顶层温升。采用复合传感技术,通过装在温 包内的Pt100铂电阻信号,远传到控制室内的二次仪表,可实现现场与 控制室同步显示,监控变压器的顶层油温。

Real-time measure and monitor the temperature rise of the top layer of transformer oil. By using the compound sensing technology, the Pt100 platinum resistance signal installed in the temperature package is transmitted to the secondary instrument in the control room, which can realize the synchronous display between the field and the control room, and monitor the top oil temperature of the transformer.

工艺亮点 PROCESS HIGHLIGHT



全自动机器人叠片

Automatic lamination by robots

铁芯以宝武钢优质的冷轧品粒取向硅钢片为原材料,使用最先 进的德国乔格公司自动剪切堆叠机器人加工,使得成型硅钢片 尺寸准确、毛刺小。铁芯堆叠采用定位叠片及不叠上铁轭技术, 使得铁芯的空载损耗和空载电流进一步降低。这种结构有效的 降低了噪音。

Iron cores are processed by the most advanced automatic cutting and laminating robot from GEORG of Germany, with Baowu Steel's high-quality cold-rolled grain-oriented silicon steel sheets as the raw materials, so that formed silicon steel sheets have accurate dimensions and small burrs. The technology of laminate positioning without upper yoke lamination is adopted for iron core lamination, which further reduces the no-load loss and no-load current of the iron core. This structure effectively reduces the noise.

智能真空浇注

Intelligent vacuum casting

绕组在自动化的真空浇注设备中按特定固化温度曲线浇注成型。采取卧式浇注工艺,更有利于气体排出。设备实时 精确控制树脂组分配比和浇注真空度,杜绝一切浇注质量隐患。与浸渍产品相比,其机械强度和抗短路能力更强。

The winding is cast and formed in automatic vacuum casting equipment according to the specific curing temperature curve. The adoption of the horizontal pouring process helps remove gas. The equipment controls the resin component proportion and the pouring vacuum in a real-time and accurate manner, to eliminate all casting quality hazards. Compared with impregnated products, the mechanical strength and the short-circuit withstand capability



高压绕组

High voltage winding

高压绕组由高纯度电解铜线绕制。真空浇注排除了绕组中 的气体从而确保变压器的低局放。因为导体与浇注树脂的 热膨胀系数非常相近,所以由负载变化引起的热应力差被 控制在最小程度从而提高了绕组的抗开裂能力。与浸渍产 品相比,其过载能力更强。

The high voltage winding is made of high-purity electrolytic copper wires. The vacuum casting removes the gas in the winding to ensure low partial discharge of the transformer. Because the coefficient of thermal expansion of the conductor is very close to that of the cast resin, the thermal stress difference caused by the change of load is controlled to a minimum, thus improving the cracking resistance of the winding. Compared with impregnated products, it has a stronger overload capacity.



PROCESS HIGHLIGHT



低压箔式绕组 Low voltage foil winding

低压绕组由铜箔绕制而成,层间绝缘所受应力 小,绝缘采用环氧树脂预浸布。绕制好的线圈在 固化炉中按曲线固化成形,均匀粘合而且防潮, 这样设计的绕组,在短路情况下表现出良好的动 稳定性。

The low voltage winding is made of copper foil, the stress on the interlayer insulation is small and the insulation is epoxy resin pre-preg cloth. The wound coil is solidified along the curve in the curing furnace, uniformly bonded and made moisture-proof. The winding of such a design shows good dynamic consistency in case of short circuit.

产品特点

PRODUCT FEATURES

温度监控

Temperature monitoring

每台浇注式配电变压器配备一个温度指示器,在低压绕组中安装三个温度传感器。 PT100传感器用于检测绕组的最高温度。温度指示器能够输出报警、跳闸信号来保 护变压器。特殊型号的温度指示器(RS485,4~20mA)可根据客户需求提供。同时, 通过选配的边界控制器及物联网卡,可接入大全工业云平台,实现变压器的关键点 在线测温度、局放智能检测、能耗管理。

Each cast distribution transformer is equipped with a temperature indicator as well as three temperature sensors installed in the low voltage winding. The PT100 sensor is used to detect the maximum temperature of the winding. The temperature indicator can output alarm and trip signals to protect the transformer. Temperature indicators of special models (RS485, 4~20mA) can be provided according to customer needs. Besides, through the optional border controller and the IOT network card, it can access the Dago industrial cloud platform for online temperature measurement, intelligent partial discharge detection and energy consumption management at the key points of the transformer.



防火安全

Fire safety

南京大全变压器通过了C2E2F1试验,变压器本体只使用 阻燃与自熄材料,不使用额外的材料。电气故障造成的内 部电弧与外部火灾不会导致变压器爆炸或燃烧。扑灭火 源后,变压器会自熄。

Nanjing Dago Transformer has passed the C2E2F1 test. Only flame retardant and self-extinguishing materials are used for the transformer body and no additional materials are used. Internal arc and external fire caused by electrical faults will not lead to transformer explosion or combustion. After the fire source is extinguished, the transformer will self-extinguish.





过载能力

Overload capacity

安装冷却风机后,变压器可以过载40%。只要在过 载时间内没有超过线圈最高温度,短时过载不会对 变压器寿命造成影响。

If a cooling fan is installed, the transformer can be overloaded by 40%. As long as the maximum temperature of the coil is not exceeded during the overload time, a short-time overload will not affect the service life of the transformer.

外壳

SHELL

用户可根据使用场景选择喷塑钢板、不锈钢、铝合 金外壳。IP防护等级也可根据用户运行环境进行订 制生产。

Users can choose from plastic sprayed steel plate, stainless steel, aluminum alloy shells according to the usage scenarios. The IP protection degree can also be customized according to the user's operating environment.







性能参数 Performance parameters







10kV级SC(B)型干式变压器

产品标准: GB 20052-2020 GB/T 1094.11-2022 GB/T 10228-2015

额定高压:10(11、10.5、6.6、6.3、6)kV

联结组别: Dyn11或Yyn0

额定低压:0.4kV **绝缘水平:**LI75AC35/AC3

SCB12 **干式变压器参数表** Table of SCB12 series dry type transformer parameters

额定容量 Rated power (kVA)	短路阻抗 Short-circuit impedance (%)	空载损耗 No-load loss (W)	负载损耗 Load loss (W)	本体尺寸(mm) Transformer dimensions 宽×深×高 Width/ Depth/ Height	外壳尺寸(mm) Shell dimensions 宽×深×高 Width/ Depth/ Height	轨距(mm) Rail gauge d1×d2
30	4	150	760	780×500×628	1400×1200×2200	300×400
50	4	215	1070	850×700×706	1400×1200×2200	400×600
80	4	295	1480	890×800×796	1400×1200×2200	400×700
100	4	320	1690	900×900×856	1400×1200×2200	400×800
125	4	375	1980	920×900×876	1400×1200×2200	400×800
160	4	430	2280	930×900×916	1400×1200×2200	400×800
200	4	495	2710	940×950×986	1400×1200×2200	450×850
250	4	575	2960	950×950×1057	1400×1200×2200	450×850
315	4	705	3730	1000×1000×971	1700×1300×2200	660×900
400	4	785	4280	1020×1000×1016	1700×1300×2200	660×900
500	4	930	5230	1140×1050×1049	1700×1300×2200	660×950
630	6	1040	6400	1230×1100×1086	1900×1400×2200	660×1000
800	6	1215	7460	1300×1100×1045	1900×1400×2200	820×1000
1000	6	1415	8760	1400×1100×1105	1900×1400×2200	820×1000
1250	6	1670	10370	1420×1200×1200	1900×1400×2200	820×1100
1600	6	1960	12580	1460×1200×1268	2200×1700×2200	820×1100
2000	6	2440	15560	1560×1200×1330	2200×1700×2200	820×1100
2500	6	2880	18450	1660×1300×1463	2200×1700×2200	820×1200



额定容量 Rated power (kVA)	短路阻抗 Short-circuit impedance (%)	空载损耗 No-load loss (W)	负载损耗 Load loss (W)	本体尺寸(mm) Transformer dimensions 宽×深×高 Width/ Depth/ Height	外壳尺寸(mm) Shell dimensions 宽×深×高 Width/ Depth/ Height	轨距(mm) Rail gauge d1×d2
30	4	130	685	810×500×638	1400×1200×2200	300×400
50	4	185	965	880×700×786	1400×1200×2200	400×600
80	4	250	1330	910×800×808	1400×1200×2200	400×700
100	4	270	1520	930×900×856	1400×1200×2200	400×800
125	4	320	1780	930×900×866	1400×1200×2200	400×800
160	4	365	2050	960×900×936	1400×1200×2200	400×800
200	4	420	2440	970×950×956	1400×1200×2200	450×850
250	4	490	2665	980×950×1003	1400×1200×2200	450×850
315	4	600	3355	1040×1000×1016	1700×1300×2200	660×900
400	4	665	3850	1060×1000×1026	1700×1300×2200	660×900
500	4	790	4705	1170×1050×1026	1700×1300×2200	660×950
630	6	885	5760	1280×1100×1051	1900×1400×2200	660×1000
800	6	1035	6715	1330×1100×1085	1900×1400×2200	820×1000
1000	6	1205	7885	1390×1100×1155	1900×1400×2200	820×1000
1250	6	1420	9335	1440×1200×1230	1900×1400×2200	820×1100
1600	6	1665	11320	1530×1200×1301	2200×1700×2200	820×1100
2000	6	2075	14005	1620×1200×1396	2200×1700×2200	820×1100
2500	6	2450	16605	1690×1300×1508	2200×1700×2200	820×1200

SCB18 **干式变压器参数表** Table of SCB18 series dry type transformer parameters

额定容量 Rated power (kVA)	短路阻抗 Short-circuit impedance (%)	空载损耗 No-load loss (W)	负载损耗 Load loss (W)	本体尺寸(mm) Transformer dimensions 宽×深×高 Width/ Depth/ Height	外壳尺寸(mm) Shell dimensions 宽×深×高 Width/ Depth/ Height	轨距(mm) Rail gauge d1×d2
30	4	105	685	830×500×688	1400×1200×2200	300×400
50	4	155	965	890×700×786	1400×1200×2200	400×600
80	4	210	1330	920×800×828	1400×1200×2200	400×700
100	4	230	1520	940×900×876	1400×1200×2200	400×800
125	4	270	1780	950×900×883	1400×1200×2200	400×800
160	4	310	2050	970×900×956	1400×1200×2200	400×800
200	4	360	2440	980×950×986	1400×1200×2200	450×850
250	4	415	2665	990×950×996	1400×1200×2200	450×850
315	4	510	3355	1050×1000×1013	1700×1300×2200	660×900
400	4	570	3850	1070×1000×1036	1700×1300×2200	660×900
500	4	670	4705	1180×1050×1079	1700×1300×2200	660×950
630	6	750	5760	1300×1100×1051	1900×1400×2200	660×1000
800	6	875	6715	1350×1100×1100	1900×1400×2200	820×1000
1000	6	1020	7885	1420×1100×1175	1900×1400×2200	820×1000
1250	6	1205	9335	1450×1200×1250	1900×1400×2200	820×1100
1600	6	1415	11320	1540×1200×1320	2200×1700×2200	820×1100
2000	6	1760	14005	1640×1200×1416	2200×1700×2200	820×1100
2500	6	2080	16605	1710×1300×1528	2200×1700×2200	820×1200

性能参数 Performance parameters







10 k V 级 S 型 油 浸 式 变 压 器



产品标准: GB20052-2020 GB/T6451-2015: GB 1094.1-2013

额定高压:10(11、10.5、6.6、6.3、6)kV

联结组别: Dyn11、Yzn11、Yyn0

额定低压:0.4kV

绝缘水平:LI75AC35/AC3

S13 油浸式变压器参数表 Table of S13 series oil-immersed power transformer parameters

额定容量 Rated power (kVA)	短路阻抗 Short-circuit impedance (%)	空载损耗 No-load loss (W)	负载损耗 Load loss (W)	空载电流 No-load current (%)	油重	g) Weight 总重	外形尺寸(mm) Overall dimensions 宽×深×高	轨距(mm) Rail gauge
* * *		<u> </u>	1 1		Oil weight	Total weight	Width/ Depth/ Height	400
30	4.0	80	630/600	1.2	70	340	790×580×910	400
50	4.0	100	910/870	1.2	75	410	830×600×970	400
63	4.0	110	1090/1040	1.0	80	440	850×630×1000	400
80	4.0	130	1310/1250	1.0	85	470	900×650×1000	400
100	4.0	150	1580/1500	0.8	90	500	950×700×1000	400
125	4.0	170	1890/1800	0.8	105	600	1100×800×1000	550
160	4.0	200	2310/2200	0.7	115	700	1200×900×1050	550
200	4.0	240	2730/2600	0.7	125	750	1300×1000×1050	550
250	4.0	290	3200/3050	0.7	140	900	1400×1050×1100	550
315	4.0	340	3830/3650	0.6	175	1050	1500×1100×1150	660
400	4.0	410	4520/4300	0.6	210	1300	1550×1150×1150	660
500	4.0	480	5410/5150	0.6	260	1500	1650×1230×1200	660
630	4.5	570	6200	0.6	280	1700	1600×1250×1250	820
800	4.5	700	7500	0.5	370	2100	2100×1300×1650	820
1000	4.5	830	10300	0.5	420	2400	2150×1350×1700	820
1250	4.5	970	12000	0.5	480	2700	2200×1400×1800	820
1600	4.5	1170	14500	0.5	580	3400	2300×1450×1900	820
2000	5.0	1360	18300	0.4	800	4400	2100×2200×2100	820
2500	5.0	1600	21200	0.4	860	5000	2150×2300×2200	820

注: 对于额定容量为500kVA及以下的变压器,上表中斜线上方的负载损耗值适用于Dyn11或Yzn11联接组,斜线下方的负载损耗值适用于Yyn0联接组。表中重量、外形尺寸仅供参考,最 终尺寸以合同签订后图纸确认为准。

S20 油浸式变压器参数表 Table of S20 series oil-immersed power transformer parameters

额定容量	短路阻抗 Short-circuit	空载损耗	负载损耗			g) Weight	外形尺寸(mm) Overall dimensions	轨距(mm)
Rated power (kVA)	impedance (%)	No-load loss (W)	Load loss (W)	No-load current (%)	油重 Oil weight	总重 Total weight	宽×深×高 Width/ Depth/ Height	Rail gauge
30	4.0	70	505/480	1.2	100	480	820×600×930	400
50	4.0	90	730/695	1.2	110	550	850×620×1000	400
63	4.0	100	870/830	1.0	115	590	870×650×1000	400
80	4.0	115	1050/1000	1.0	120	610	920×680×1050	400
100	4.0	135	1265/1200	0.8	130	640	970×750×1050	400
125	4.0	150	1510/1440	0.8	140	750	1120×850×1050	550
160	4.0	180	1850/1760	0.7	150	850	1280×970×1050	550
200	4.0	215	2185/2080	0.7	190	900	1300×1000×1080	550
250	4.0	260	2560/2440	0.7	220	1050	1400×1100×1150	550
315	4.0	305	3065/2920	0.6	250	1200	1500×1150×1200	660
400	4.0	370	3615/3440	0.6	300	1500	1580×1200×1200	660
500	4.0	430	4330/4120	0.6	340	1800	1680×1250×1250	660
630	4.5	510	4960	0.6	280	2200	1700×1300×1300	820
800	4.5	630	6000	0.5	370	2600	2100×1400×1700	820
1000	4.5	745	8240	0.5	420	3100	2150×1450×1800	820
1250	4.5	870	9600	0.5	480	3600	2200×1500×1900	820
1600	4.5	1050	11600	0.5	580	4300	2250×1800×2200	820
2000	5.0	1225	14640	0.4	800	5100	2300×2100×2300	820
2500	5.0	1440	14840	0.4	860	7200	2350×2200×2300	820

注:对于额定容量为500kVA及以下的变压器,上表中斜线上方的负载损耗值适用于Dyn11或Yzn11联接组,斜线下方的负载损耗值适用于Yyn0联接组。表中重量、外形尺寸仅供参考,最 终尺寸以合同签订后图纸确认为准。

S22 油浸式变压器参数表 Table of S22 series oil-immersed power transformer parameters

额定容量	短路阻抗 Short-circuit	空载损耗	负载损耗			g) Weight	外形尺寸(mm) Overall dimensions	轨距(mm)
Rated power (kVA)	impedance (%)	No-load loss (W)	Load loss (W)	No-load current (%)	油重 Oil weight	总重 Total weight	宽×深×高 Width/ Depth/ Height	Rail gauge
30	4.0	65	455/430	1.2	130	620	870×600×970	400
50	4.0	80	655/625	1.2	140	680	890×620×1020	400
63	4.0	90	785/745	1.0	150	700	890×650×1020	400
80	4.0	105	945/900	1.0	160	750	950×680×1050	400
100	4.0	120	1140/1080	0.8	170	800	980×750×1070	400
125	4.0	135	1360/1295	0.8	180	1000	1150×850×1080	550
160	4.0	160	1665/1585	0.7	200	1200	1280×970×1100	550
200	4.0	190	1970/1870	0.7	240	1300	1320×1020×1150	550
250	4.0	230	2300/2195	0.7	260	1500	1450×1100×1200	550
315	4.0	270	2760/2630	0.6	280	1600	1550×1120×1300	660
400	4.0	330	3250/3095	0.6	300	1700	1620×1140×1300	660
500	4.0	385	3900/3710	0.6	340	2050	1650×1160×1350	660
630	4.5	460	4460	0.6	420	3000	1680×1180×1400	820
800	4.5	560	5400	0.5	560	3500	1700×1200×1600	820
1000	4.5	665	7415	0.5	620	4000	2200×1400×1800	820
1250	4.5	780	8640	0.5	700	4400	2300×1600×2100	820
1600	4.5	940	10440	0.5	750	5100	2400×1900×2300	820
2000	5.0	1085	13180	0.4	800	5400	2500×1950×2400	820
2500	5.0	1280	13360	0.4	1200	9300	2700×2000×2750	820

注:对于额定容量为500kVA 及以下的变压器,上表中斜线上方的负载损耗值适用于 Dyn11 或 Yzn11 联接组,斜线下方的负载损耗值适用于 Yyn0 联接组。表中重量、外形尺寸仅供参考,最

其他产品 OTHER PRODUCTS





非晶合金干式变压器

Amorphous alloy dry-type transformer

非晶合金干式变压器既有干式变压器阻燃自熄、防潮、耐裂的优良性能,又 有非晶合金变压器空载损耗低及空载电流小的优点。选择该产品可大大降 低用户的运行成本,该产品具有较好的社会、经济效率。

Amorphous alloy dry-type transformer not only has the excellent properties of flame-retardant self-extinguishing, moisture-proof and crack resistance of dry-type transformer, but also has the advantages of low no-load loss and low no-load current of amorphous alloy transformer. The selection of this product can greatly reduce the operating cost of users, and the product has better social and economic efficiency.



多晶硅还原炉变压器

Polysilicon reduction furnace transformers

适用于光伏多晶硅还原炉供电系统,提供低压侧不同电压等级供还原炉电

They are applicable to the power supply system of photovoltaic polysilicon reduction furnaces, and provide different voltage levels from the low voltage side for the power cabinet of the reduction furnace.



轨道交通牵引变压器

Traction transformer of rail transit

适用于城市轨道交通运输牵引整流系统,为整流器提供输出,为列车牵引

They are applicable to the traction rectification system for urban rail transit transportation, provide output for rectifier and supply power for train



24脉波整流变压器

24 pulse rectifier transformer

由于整流变压器连接普通输电线路和整流电路,防止电网的高次谐波和过 电压从网侧传至阀侧,有效减小对阀侧电网的谐波污染,提高功率因数。适 用于钢铁、造纸、汽车制造等有变频设备、谐波的场所。

Because the rectifier transformer connects ordinary transmission lines and rectifier circuits, it can prevent the transmission of high-order harmonics and overvoltage from the grid side to the valve side, effectively reduce the harmonic pollution to the valve side, and improve the power factor. It is suitable for iron and steel, papermaking, automobile manufacturing and other places with frequency conversion equipment and harmonics.



风力、光伏升压干式变压器

Wind power and photovoltaic step-up dry type transformers

适用于光伏、风电发电升压,提供干式变压器给客户。产品采用线圈轴向分 裂、幅向分裂绕制结构,电气性能强。

They are applicable to photovoltaic and wind power generation step-up, and provide dry-type transformers for customers. The coil of the product has an axial split and radial split winding structure, providing strong electrical



风力、光伏升压油浸式变压器

Wind power and photovoltaic step-up oil-immersed transformers

适用于光伏、风电发电升压,提供油浸式变压器给客户。产品采用线圈轴向 分裂、幅向分裂绕制结构,电气性能强。

They are applicable to photovoltaic and wind power generation step-up, and provide oil-immersed transformers for customers. The coil of the product has an axial split and radial split winding structure, providing strong electrical performance.

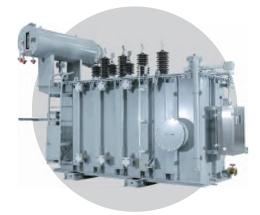


组合式美式箱变

Combined American box substation

是将变压器器身、高压负荷开关、熔断器等元件一同放在变压器油箱内,结 构紧凑,安装方便。环网和终端供电均可使用,运转便利,供电可靠;过载能 力强,抗突发短路性能优越。

The transformer body, high voltage load switch, fuse and other components are put together in the transformer oil tank with compact structure and convenient installation. The ring network and terminal power supply can be used, the operation is convenient, the power supply is reliable, the overload capacity is strong, and the anti-sudden short circuit performance is superior.



有载调压变压器

On-load-tap-changing transformers

适用于对供电要求较高的场所,实现带载情况下的自动电压调节。

They are suitable for high power supply requirements, and realization of automatic on-load voltage regulation.

大全工业云

DAQO INDUSTRIAL CLOUD



大全云是工业互联网平台,在公网大环境中,基于云计算架构,综合采用物联网通信、边缘计算、大数据分析、移动互联网等先进的信息技术,具有海量工业大数据存储和处理能力。大全智慧工业云采用了"云"+"边缘"的计算模式,可以根据业务量需要,缩放处理器、存储、网络等计算资源,能够并发处理、存储任意数量的设备所上传的海量数据;能够实施毫秒级报警检测,具备现场快照、断点续传等边缘计算功能。可广泛应用在配电智能运维、电能质量治理、用户能效分析、新能源在线检测等业务场景中。根据业务需要,可以快速实施项目配置,满足各种行业的应用需求。

Daqo Cloud is an industrial Internet platform. In the public network environment, it adopts advanced information technologies such as IoT communication, edge computing, big data analysis and mobile Internet based on the cloud computing architecture, and has the capacity of storing and processing massive industrial big data. With the computing mode of "cloud" + "edge," Daqo smart industry cloud can scale the computing resources such as processors, storage and networks according to traffic needs, and can concurrently process and store the massive data uploaded by any number of devices; and can conduct millisecond level alarm detection and has edge computing functions such as on-site snapshot and resume-from-breakpoint. It can be used in a wide range of business scenarios such as intelligent operation and maintenance of distribution, power quality management, user energy efficiency analysis and online new energy detection and can quickly implement project configuration to meet the application needs of various industries according to business needs.

通过智能网关及边界控制器,大全工业云平台将集团所有电气产品无缝接入,并通过云端计算负责各种工业数据的汇总储存和计算处理,提供远程监控、异常报警、能效分析、状态预测、交互式AR运维等各种围绕设备、项目的物联网信息服务。用户可通过手机、平板、电脑、AR眼镜等人机交互终端,实现智能运维。

Through the intelligent gateway and the boundary controller, the Daqo industrial cloud platform has seamless access to all electrical products of Group, and is responsible for the collection, storage, computing and processing of various industrial data through cloud computing, and providing remote monitoring, abnormality alarm, energy efficiency analysis, status prediction, interactive AR operation and maintenance and other IOT information services round equipment and projects. Users can realize intelligent operation and maintenance through mobile phones, tablets, computers, AR glasses and other human-computer interaction terminals.



基础管理系统

·资产管理

·用户管理

·权限管理

·网关管理



配电监测系统

·站房环境监测

设备运行监测

开关特性监测

· 负荷分析 · 报表管理

报警管理



能耗管理系统

·能耗总览

·能耗分析 ·供电损耗

·成本统计

·能耗报告

·节能省电分析 · 电能质量分析



工作票管理系统

·日检、周检

·设备点检 ·变压器操作票

·开关操作票

·报警消缺工单

·维修保养计划 ·特殊工作票



AR+数字厂牌

·设备概况

·设备参数

·出厂编号 ·设备样册

·售后服务 ·AR可视化巡检

·AR远程验收 ·AR一键报警 ·AR北斗定位

重分析 特殊工作票

www.daqo-cloud.com 工业云后台实际操作演示







数字厂牌

DIGITAL BRAND

得益于数字化生产制造,南京大全变压器出厂的变压器均带有数字厂牌,产品全过程的质量数据均存储在云端,包括产品技术参数、技术手册、出厂试验报告、一二次接线图、安装指导视频等静态信息。用户通过扫描设备表面张贴的数字厂牌二维码,可以直接查获云端管理的上述各类信息,给用户带来便捷无缝的使用体验。

Thanks to digital production and manufacturing, transformers delivered by Nanjing Daqo Transformer are all accompanied with a digital brand. The whole-process quality data of products is stored in the Cloud, including the technical parameters, technical manuals, factory test reports, primary and secondary wiring diagrams, installation guidance videos and other static information. Users can directly view the information above managed in the Cloud by scanning the digital brand QR code posted on the surface of the equipment, which brings users a convenient and seamless user experience.



电气资产管理

多维度查询入厂检、过程验、最终验过 程中各项数据、记录



一站式服务

通过手机端派发服务工单,快速响应



关键点在线测温

运行关键点测温,通过二维码访问查询,专有身份、标牌



全生命周期管理

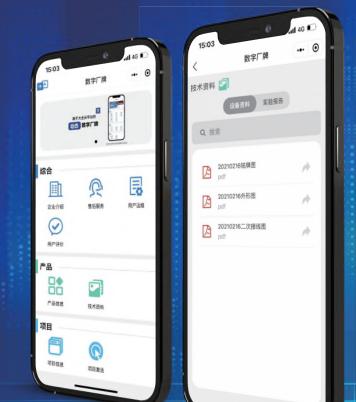
产品投运后,通过系统实现寿命周期内提供维护保养全记录,服务过程分析



202101147



扫描二维码查询设备信息





22

南京大全变压器有限公司 NANJING DAQO TRANSFORMER CO.,LTD.

行业应用 INDUSTRIAL APPLICATIONS



_		_		
天	Ŧ	ľΠ	广	t汤

中央办公厅警卫局
中国人民解放军总装司令部
中共中央党史研究室
中央民族大学
南京空军司令部
南京市政府

新能源



晶科上饶30GW光伏组件及配套项目	泗阳中利腾晖5GW电池组件项目
弘元新材料包头拉棒项目	中节能镇江电池及组件项目
青海西宁高景太阳能拉棒项目	亚洲硅业4万吨多晶硅项目
通威太阳能眉山7.5GW电池片项目	曲靖晶澳光伏20GW拉晶、切片项目
隆基高陵5GW光伏电池项目	曲靖阳光能源硅材料二期项目
江苏润阳光伏8GW电池片生产项目	通合新能源光伏单晶硅片建设项目
楚雄晶科10GW高效电池片项目	广东金湾高景太阳能15GW切片项目

























动力电池 / 储能电池



宁德时代战略采购供货商

远景动力战略采购供货商

国轩高科桐城制造基地

中创新航溧阳动力电池生产基地

亿纬锂能南通储能电池工厂

孚能电池镇江工厂

捷威锂电南通工厂

赣峰锂业新余生产基地

华友钴业津巴布韦冶炼厂

力勤集团印尼OBI镍矿冶炼厂

贝特瑞金坛负极材料生产基地

杉杉电子内蒙古正极材料生产基地

甘肃德福铜箔加工基地

浙江海亮集团兰州铜箔加工基地

造 纸



金光集团如东造纸厂

金光集团大港金东纸业

亚太森博江门造纸厂

山东晨鸣寿光造纸厂

金田纸业四川造纸厂

上饶市芦林纸业有限公司

山鹰华南纸业有限公司

贵州鹏昇纸业有限责任公司

宁波亚洲浆纸业有限公司

广东理文造纸厂

广西太阳纸业

金海浆纸业

歌芬卫生用品

河南新亚纸业

核电水电







中核龙瑞项目

中核北方项目

中核四零四项目

烟台海阳核电项目

台山核电项目

烟台玛努尔核电项目

黄河小浪底项目

上海福伊特总包埃塞GERD水电项目

斯里兰卡Broadlands水电站项目

山东沂蒙抽水蓄能电站

桐子林水电站

樱孜渡水电站

西藏金桥水电项目

黄河大河家水电站

厦门天马微电子产业基地

重庆京东方产业基地

厦门士兰集科电子产业基地

无锡华润微电子制造基地

江阴/滁州长电科技

泉州三安半导体

富士康业成科技无锡基地

重庆万国半导体

群康科技成都园区

苏宁云商雨花数据中心

中国移动广东广州数据中心

西安浐灞腾讯云大数据中心

北京亦庄正元数据中心

南通欧域数据中心



通 交



北京大兴国际机场

北京首都机场

南京禄口机场

合肥新桥机场

成都天府机场

兰州中川机场

西宁曹家堡机场

长春龙嘉机场

青海格尔木机场

赤道几内亚马拉博机场

沪宁高铁

青岛海湾大桥

崇启大桥

南京长江第四大桥

苏通大桥

芜湖大桥

城市共用



中国医学科学院

四川大学华西医学院

南京国展中心

南京奥体中心

兰州奥体中心

东部战区南京总医院

协和肿瘤医院

江苏省人民医院

解放军理工大学

华中科技大学

南京河西金鹰世界

其他行业



海尔集团

富士康

中船重工

上海宝钢

海螺水泥

中航工业

山东钢铁

南京钢铁

马鞍山钢铁

万达集团

新城控股

苏宁集团

国外客户

























企业愿景 CORPORATE VISION

