

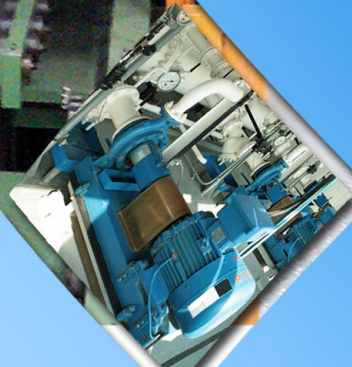
NAK Successful Cases of Large Diameter Seals



ISO-9001/14001
ISO/TS-16949
OHSAS-18001



Heavy Duty / Large rubber vulcanizing machine (3,800 Tons) has the capability of producing customized seals up to 90 inches in diameter (2.3 meters).



World Class Brand World Class Manufacturing

NAK's High Performance Large Diameter Sealing Solutions



NAK large diameter seals, for shaft diameters above 8 inch or 200 mm , provide special features and are intended for use in heavy and large-size engineering applications, such as wind turbines, heavy-duty presses, metallurgical works, mining and construction machinery, pulp and paper, ship hydraulics, forging equipments, automotive stamping press and so on. These applications provide extreme conditions for seals and require either very large or specially designed seals. In all cases, the seals are supposed to reliably retain lubricants while preventing contaminants from entering into the interior under exceptionally environmental conditions due to elevated temperatures, pressures, speeds and possibly poor lubrication.

Obviously, it is important to select large diameter seals that are competent for these applications as the greater demands placed on conventional rubber or thermoplastic seals will cause them to fail prematurely, leading to sudden and potentially expensive equipment down time.



NAK has set up high tech machines and equipments including lathe, rubber vulcanizing machine and precision hot-air ovens to produce customized seal designs up to 90 inches in diameter (2.3 meters). Our extensive experience combined with the use of sophisticated CAD/CAM technology, FEA (Finite Element Analysis) and etc. which enable us to accurately predict final product capabilities and performance.



Precision hot-air oven is specially made for sulfurization and formation of large-sized rubber products.



Heavy Duty precision lathe is the largest one for manufacturing molds of oil seals in Taiwan. It completes NAK making molds up the largest diameter 2.3 meters.



Why should I choose NAK sealing solutions?



Expert and reliable supplier

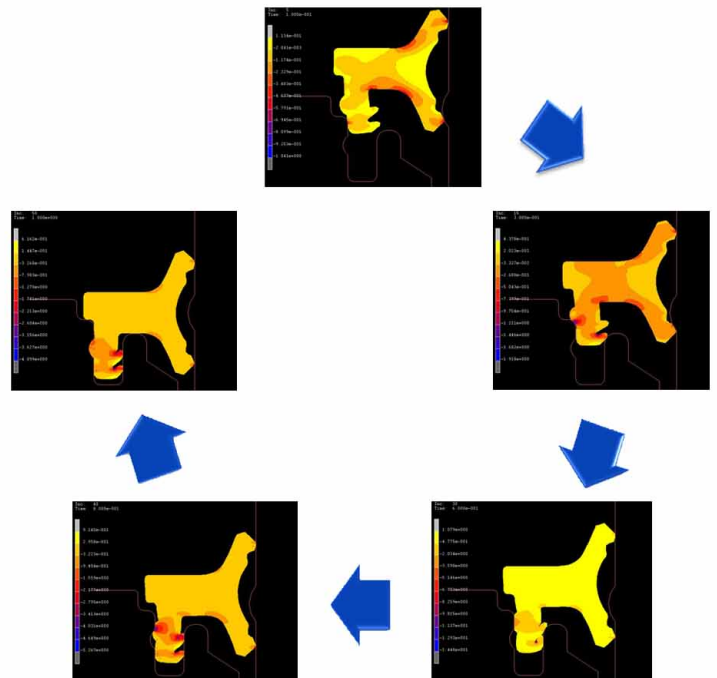
NAK is an ISO-9001/14001, TS-16949 and OHSAS-18001 registered manufacturer of large diameter sealing solutions. NAK offers sealing solutions which are developed with a series of advanced lab instruments and latest technologies to meet or exceed the ASTM, DIN, BS, and the SAE international standards. NAK also implements 6 σ (Six Sigma) management to advance sophisticated products and higher quality for years.

Dedicated R&D team and support

NAK has a strong and dedicated R&D team to offer technical consultation and support for mutual connection. To enhance R&D capability, NAK has invested in modern software and hardware development of FEA (Finite Element Analysis), SCAD, in house dynamic test center and etc. to build up theoretical analysis for operating conditions, decrease the failure rates during trial runs, and improve the efficiency of new product development.

State-of-the-art Technologies

NAK has a complete line of equipment and ingredient research lab. We implement rubber testing method including processibility of unvulcanized rubber, hardness of plastic and rubber, material tensile strength and adhesive strength, heat aging / oil immersion / fuel immersion / low temperature properties / compression set, rebound properties / microscopy of compound dispersion, FT-IR analysis, and etc.



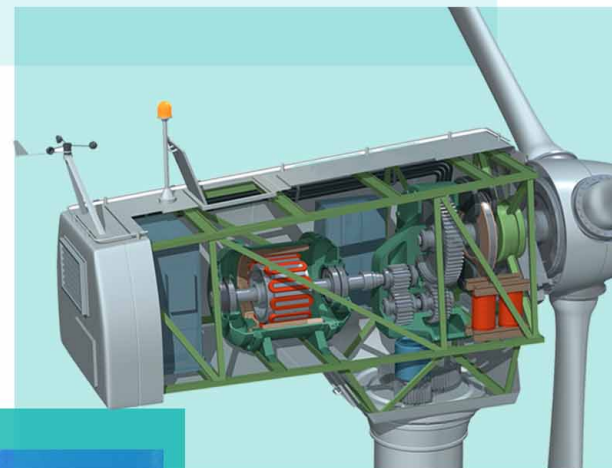
Efficiency manufacturing process

NAK has implemented full automation and computerization in manufacturing process by deploying machineries such as automatic spring loading machines, automatic packaging machines, automatic storage system and etc. NAK keeps improving efficiency and capability to satisfy and even exceed requirements from different OE customers.

NAK's Partnership With OEM Customers

With more than 35 years of experience in manufacturing sealing products, NAK has lots of successful projects in large diameter seals with OEM customers all over the world. Especially in wind energy applications, NAK has cooperated with several top wind turbine manufacturers for many customized projects.

In Europe and Asia, NAK cooperates with Gamesa who is a global technological leader in the design, manufacture, installation and maintenance of wind turbines, with around 23,000 MW installed in 30 countries on four continents and 15,000 MW under maintenance. With manufacturing facilities in Europe, the US, Asia (China and India) and Brazil, the company is focusing on expanding in target countries, in the line with market growth in those target countries or in partnership with its main customers. Gamesa's end-to-end offering in the wind turbine manufacturing business is evident in the comprehensive range of operation and maintenance services provided by over 2,500 highly-qualified professionals to respond to the need for optimal availability and returns on close to 15,000 MW under maintenance for over 130 clients.

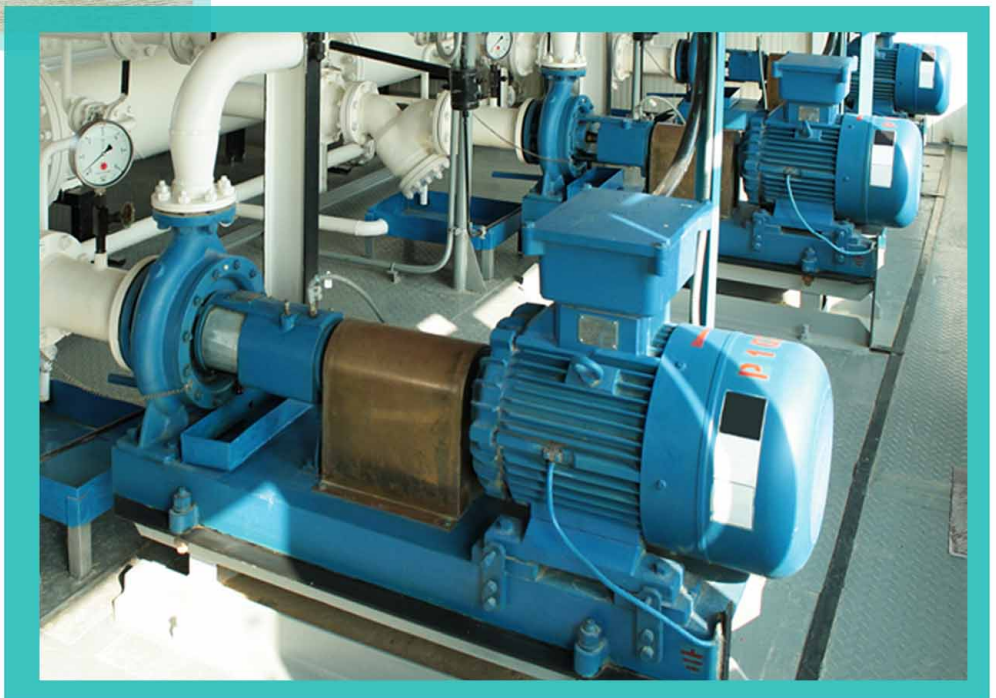


In Germany and Korea, NAK provides large diameter seals to ENERCON who has been the market leader in Germany since the mid-nineties. In keep researching and developing, ENERCORN is the manufacturer at the international level in wind energy with more than 18,000 wind turbines installed in over 30 countries now.

In Korea, NAK provides large diameter sealing solutions to Hyosung who stands as a top-class global enterprise based on the outstanding technology and services providing in various business areas, heavy industry, industrial materials, fibers, chemicals, and construction, trade, and information technology.



NAK has a strong and dedicated R&D team and offers technical consultation and support for mutual connection. For more detailed information about technical data, size range and additional recommendations, please contact with us.





Subsidiary map

Existing subsidiaries worldwide

● Factory

● Service office & warehouse



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