



EGYPT TRANSFORMS FOR THE FUTURE

PE pipe solutions enable Minh Phu shrimp farm to thrive

BorSafe™ PE100 supports Africa's largest wastewater treatment plant – Bahr Al Baqar, Egypt

Borstar® technology enables excellent mechanical and physical properties for PP-R pipes

BorSafe™ HE3490-LS diffusers for outfall pipeline of Dahej desalination plant, Gujarat, India

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Gujarat has a long coastline of 1,600km, and to meet the growing need for water resources, the state has increasingly adopted desalination technology in recent years, accounting for over 40% of the desalination plants in India.

Built by the Gujarat Industrial Development Corporation (GIDC), the Dahej desalination plant will supply water to the Dahej Petroleum, Chemicals and Petrochemical Investment Region (PCPIR), one of the fastest developing investment regions nationwide.

With a capacity of 100 million litres per day, the plant will help supplement current water supply coming from the Narmada River and a canal, with desalinated seawater. This will enable the PCPIR to be more self-sufficient in water consumption in the long term helping them to develop sustainably.

MEETING THE CHALLENGES OF DESALINATION BRINE DISCHARGE

Desalination produces large quantities of brine and chemicals as by-products, which need to be diluted before being discharged back into the sea, to limit the environmental impact.

One such method is to mix it via a diffuser in a mixing zone at the end of an outfall pipeline. For example, once a pipeline containing the brine reaches the sea floor, it can split into many branches, each releasing brine gradually through duck-billed valves.

However, diffusers made of conventional materials such as steel are extremely costly, heavy and prone to corrosion, whilst other materials such as glass reinforced plastic (GRP) may undermine the integrity of the diffuser assembly.

A SUSTAINABLE, RELIABLE CHOICE FOR DESALINATION OUTFALL PIPES

Sangir Plastics Pvt Ltd, a leading manufacturer of piping solutions in India, was selected to produce the diffuser for the outfall pipeline of Dahej desalination plant.

The outfall diffuser required was a massive size of 1,200mm in diameter and 44m in length, making it technically demanding to produce without sacrificing structural integrity and strength.

Having used BorSafe™ HE3490-LS PE100 material successfully for 17 years in numerous intake and outfall lines projects, Sangir Plastics chose it once again for its reliability, to accomplish this rigorous task.

To meet the challenges of operating in marine environments, HDPE is an environmentally sustainable and cost-effective choice because of its many advantages:

- Lightweight and flexible for ease of installation
- High resistance to corrosion and abrasion for long-term protection of environments
- Leak-proof welded joints that withstand ground movements and rough terrains
- Versatility in design, e.g. pressure rating of up to 16bars and pipe diameter of up to 2,500mm

Additionally, BorSafe™ HE3490-LS pre-compounded PE100 material has excellent carbon black dispersion and better mechanical properties compared to natural resins and masterbatch, enabling pipes to have better quality consistency.

In traditionally fabricated HDPE diffusers, reducer tees are used and there is extensive welding required. For this project, the use of electro-fusion saddles to install the 10 sections of 630mm diameter branches for duck-billed valves ensured that there was no pressure de-rating of the 1,200mm diameter pipe nor compromise of its structural integrity.

Sangir Plastics' excellent workmanship, together with the innovative fabrication techniques using PE pipes and fittings, delivered a brine discharge diffuser that sets a nationwide record of being the largest in its class, with its impressive size.

DELIVERING HIGH QUALITY INFRASTRUCTURE SOLUTIONS

The superior product performance of BorSafe™ HE3490-LS as well as the expertise and quality assurance offered by Borouge are the reasons Sangir Plastics Pvt Ltd counts on Borouge as a trusted partner to succeed in such demanding projects.

Sangir Plastics continues to support the infrastructure industry in India in delivering safe, durable and reliable pipe networks that drive sustainable urban development.