



ALBA Projects in Bahrain

ALBA Desalination Plant-Mannesmann KTI

ALBA Coke Calcining Plant and Jetty Facility Upgrade

Overview

The birth and growth of Aluminium Bahrain (Alba) figure among the most significant industrial success stories of the Middle East. When the company was formed in 1968 the smelter had a production capacity of 56,000 metric tonnes of aluminium (mt) a year. Over the succeeding years, production capacity was increased incrementally through modernization and expansion until 830,000 mt per year was attained. Alba is now considered the worlds largest modern aluminum smelter.

Flowtite® technology for producing Glass-fibre Reinforced Polyester (GRP) pipes was introduced in the 1950's at a time when many other types of materials were being used to manufacture pipes around the world. The types of application and resistance to corrosion were limited for each type of pipe material, regardless of weight and physical properties, usually many different types of pipes were needed to fulfil the various requirements of a big project. The introduction of Flowtite® GRP pipe systems technology changed that by reducing the number of material types utilized in any given project.

The disadvantages of other types of pipes vary according to type; some conventional pipes can provide high strength and stiffness but cannot resist corrosion by chemical solutions. Some pipe materials will be heavy in weight and therefore can only be supplied in short lengths, which increases installation cost. To avoid these disadvantages, the GRP pipe was developed to be corrosive resistant, low maintenance, lightweight and easy to install, and with long service life.



Amiantit Fiberglass® Industries Ltd (AFIL) was commissioned in 1977 as a Flowtite® Glass-fibre Reinforced Polyester (GRP) pipes Systems and Fittings manufacturer, at the first industrial area in Dammam Saudi Arabia, Which represents the state of the art in GRP pipe production technology. This process allows the use of continuous glass fibre reinforcements in the circumferential direction. AFIL has supplied and supported its products nationally and internationally and delivered to destination farther than 10000Km (6213 Miles), from countries at the Mediterranean Sea like Egypt, Syria, Libya to countries at the Pacific Ocean like Hong Kong, New Zealand and Australia. AFIL also supplied to middle and south Asian countries like Malaysia, Singapore, India, Iran, Pakistan and Turkmenistan.



Product Advantages

Aluminum Bahrain (Alba) utilized AFIL's Flowtite® GRP pipe systems for two of its projects in Bahrain with many different applications and a variety of pipes including:

- Potable water transport
- Cooling water supply
- Cooling water return
- Sea water supply/brine return
- Chlorination line and
- Seawater cooling return to sea outfall

AFIL's Flowtite® GRP pipes were among many other pipe manufacturers bidding for the project, but Alba awarded the project to AFIL due to its superiority in engineering, international recognition and the excellent pipe properties such as:

- Inherent corrosive resistance.
- Long life cycle and;
- Easy installation.
- Virtually maintenance free.
- Various range of joint systems.
- Light weight

In addition to the described projects, Flowtite® pipe systems can also be used in the following main applications:

- Water transmission and distribution
- Sanitary sewerage collection systems and outfalls
- Storm water
- Hydropower
- Seawater intake and outfalls
- Circulating cooling water in power plants
- Industrial applications



Product Range

The ALBA projects in Bahrain used a variety of Flowtite® GRP pipe systems. For the ALBA desalination plant, Mannesmann KTI, the contractor installed pipe diameters ranging from DN 100-1600mm with a pressure class of PN 6 bar and a stiffness class of SN2500 N/m².

For the ALBA coke calcining plant & jetty facility upgrade the contractor was supplied with pipes ranging from DN 80-1600mm with a pressure class of PN 10 and PN 6 bar, and a stiffness class of SN10000 and SN2500 N/m withstanding an operating temperature of 60°C.

Other than the diameters listed in this project, AFIL's Flowtite® GRP pipe systems can be supplied in the following standard diameter range. Tailor made diameters can be supplied on request.

80	100	150	200	250	300	350	400	500
600	700	800	900	1000	1100	1200	1300	1400
1500	1600	1700	1800	1900	2000	2100	2200	2300
2400	2500	2600	2700	2900	3000	3100	3200	3300
3400	3500	3600	3700	3800	3900	4000		

AFIL Standard diameters in mm

In addition to the pipes, a wide range of Flowtite® GRP fittings and accessories are offered by AFIL and its affiliates through out the world. These include:

- Elbows
- Tees, Wyes and Nozzles
- Reducers
- Flanges
- Bulkheads
- Saddles
- Tapping



Installation

For all described ALBA projects the Aboveground (AG) installation was used.

Aboveground installation: Is often used inside plants and requires detailed stress analysis to ensure proper performance. The pipeline is fully exposed and supported on cradles and the support can be concrete, steel or GRP. Typically used pipe joints are Rigid butt strap (BS) or Butt-and-Wrap joints, and flanged joints. Flexible coupling joints can also be used in (AG) piping using different supporting systems

In general, AFIL's Flowtite® GRP piping system allow various installation methods which are mainly.

- Underground (UG)
- Aboveground (AG)
- Subaqueous



Project Data Sheet

General	Client	ALBA	
	Contractor	B.F.G International Ltd.	
	Location	Bahrain	
	Installation Type	Aboveground	
Product Specification and information	Project	ALBA Desalination Plant-Mannesmann KTI	ALBA Coke Calcining Plant and Jetty Facility Upgrade
	Application	Potable Water, Cooling Water Return, Cooling Water Supply, Sea Water Supply, Sea Water / brine Return	Chlorination Line, Sea Cooling Water Return to Sea Outfall
	Diameter(DN), mm	100 - 1600	80 - 1600
	Pressure(PN), bar	6	10.6
	Stiffness(SN), N/m ²	2500	10000 - 2500
	Design Temp °C	60	60



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