



Turkmenistan Projects

Ministry of Water Project # 1021 – Turkmenistan

Overview

Turkmenistan has an area of 488,100 km² (188,457 mi²). It is slightly smaller than the Republic of Yemen, and somewhat larger than the Riyadh Region.

Over 80% of the country is covered by a desert region, the Karakum Desert which is in-framed by hilly areas.



The climate mostly consists of an arid subtropical desert, with little rainfall. That makes irrigation and water networks for the important agricultural areas and cities necessary.



For vital infrastructure projects as potable and sewer water networks, it was crucial for the Turkmenistanian Government to make the right decision of what pipe material they were going to install for their new infrastructure.

One of the challenges that faced other pipe manufactures other than the corrosive soil is the extreme weather fluctuation of hot summers of 50° C and of sub-zero winters. AFIL's Flowtite[®] double bell couplings with the rubber gaskets inside were engineered to withstand temperature fluctuation without effecting the efficiency or life of the joints.

Among many other materials and suppliers Flowtite[®] GRP pipe systems were chosen for the following reasons;

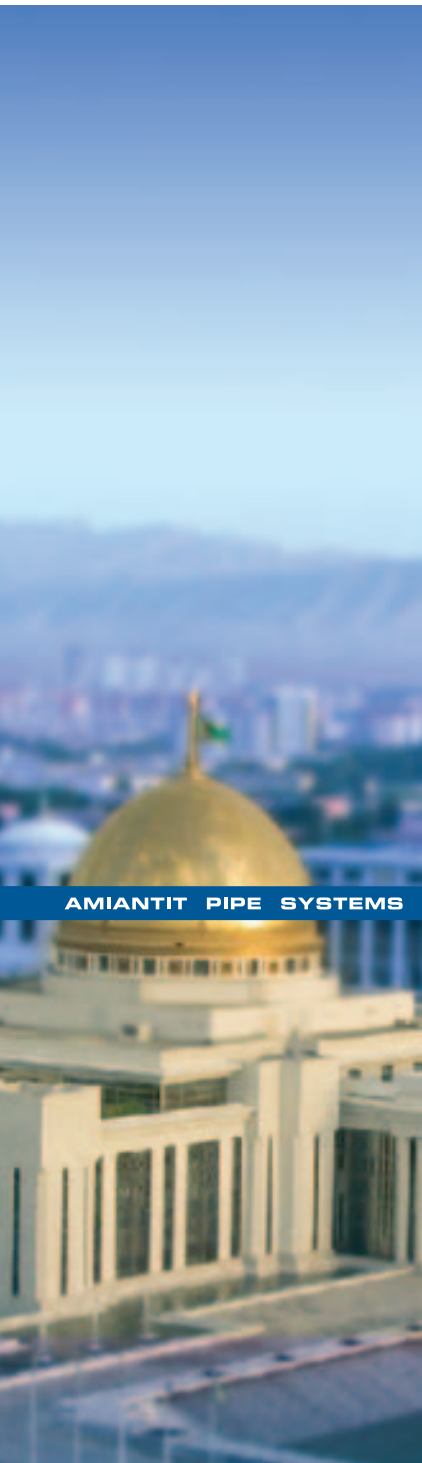
- High resistance to corrosion, especially applicable to the sewer networks applications
- High strength to weight ratio
- Pipes supplied in long standard lengths which reduces transportation costs and increases installation productivity
- Lighter weight compared to steel and concrete pipes which reduces transportation costs and allows easy handling on site

Project

Amiantit Fibreglass[®] Industries Ltd (AFIL) pioneered the use of it's Flowtite[®] GRP pipes systems in Turkmenistan. Between April 2002 and November 2003, AFIL fulfilled a number of orders for its Flowtite[®] GRP pipes systems and fittings in Turkmenistan for potable and sewer water networks in the cities of Ruhabad, Ashgabat and Archabyl. The total lengths of the pipes supplied were more than 480,000 meters (1,574,000 ft), that is worth more than US \$40million.

In addition to the described projects, Flowtite[®] pipes systems are also used predominantly for projects in;

- Water Transmission and distribution
- Sanitary Sewerage collection systems and outfalls
- Storm water
- Hydropower
- Seawater intake and outfalls
- Circulating cooling water in power plants
- Industrial application



Product Range

Project owner is SUW Enjamlary (Union of the Ministry of Water Economy of Turkmenistan). The main contractor CAI Interbudmontaz was supplied with a variety range of Flowtite® GRP pipes systems and fittings with the double bell coupling as a joint system. The installed diameters ranged from DN100-1200mm in pressure class PN 3 bar and PN 18 bar with a stiffness of SN5000 and SN10000 N/m². Both applications of Flowtite® GRP pipelines, potable water and sewer networks, were for new infrastructure projects in different cities in Turkmenistan. 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. This includes:

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



Installation

For the Turkmenistan projects, AFIL's Flowtite® GRP pipes were installed underground. Installing pipes underground permits the area to be utilized for roads, highways and other constructions. Furthermore it protects the pipes and the investment against impact, vandalism and other external accidents. For pipe laying a normal trench was dug and the pipes were installed.

Given that the native soil was found cohesive and stiff (fine grained) according to Native Soil Groups Classification, the same excavated material could be used for pipe bedding and backfilling purposes. Required Standard Proctor Density Values (S.P.D.) was achieved after water sprays and mechanical compaction.

For joining the pipe segments, double bell couplings for better operation and cost reduction were used.

One of the advantages of using Flowtite® GRP pipe systems with double bell couplings in the Turkmenistan projects is the acceptable angle of deflection that can be applied at each coupling joint. This resulted in three benefits;

- It reduced the number of fittings
- It allows flexibility in design and execution of direction changes
- It gives flexibility in pipe movement during earthquakes

Other than the described installation method, AFIL's Flowtite® GRP piping system allow various installation methods which are mainly.

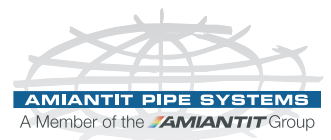
- Underground (UG)
- Aboveground (AG)
- Subaqueous



Project and Data Sheet

General	Project	Ministry of Water Project # 1021 – Turkmenistan	
	Client	SUW Ejamlary, Union of the Ministry of Water Economy of Turkmenistan	
	Contractor	CAI Interbudmontaz	
	Location	Ruhabad, Ashgabat, Sahri and Archabyl - Turkmenistan	
Product Specification and information	Installation Type	Underground	
	Application	Potable Water and Sewer Water	
	Diameter(DN), mm	100 - 1200	
	Pressure(PN), bar	3 - 18	
	Stiffness(SN), N/m ²	5000 and 10000	
	Design Temp °C	50°	
	Resin	Isophthalic	

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