





Case Study

PROJECT NAME:	Temù, Passo dell Tonale, Adamello group, Lombardia, IT;	
Community/Country:	Italy	
Amiantit entity	Amitech Germany	
Description: <i>project</i> <i>(short abstract)</i>	Hydro power plant, DN 2000, 3300 m, PN 6-16, SN 5' and SN 10'; - Special bends up to 8° of angular deflection without thrust blocks, designed by Högny Johnson, flowtite and Thomas Hoffmann ATG;	
<i>Application:</i>	Hydro power plant	
<i>Transported medium</i>	Water	
<i>Working pressure</i>	PN 16	
<i>Type:</i>	X new installation <input type="checkbox"/> relining <input type="checkbox"/> replacement <input type="checkbox"/> other type.	
<i>Demanded standards / specifications / approvals:</i>	EN, AWWA, Ö-Norm;	

<p><i>Special requirement on pipe-system:</i></p>	<p>Long effective live, Hydraulic characteristics constant overtime, Easy handling, Tight efficient joints, Short Installation time,</p>	
<p><i>Order value in Euro (€):</i></p>	<p>2,2 Mio €;</p>	
	<p><i>Opted pipe system:</i></p> <ul style="list-style-type: none"> X <input type="checkbox"/> GRP round filament <input type="checkbox"/> Ductile <input type="checkbox"/> GRE <input type="checkbox"/> GRP centrifugally cast <input type="checkbox"/> GRP cross winded <input type="checkbox"/> GRP oval shaped <input type="checkbox"/> Meyer Polycrrete <input type="checkbox"/> PVC <input type="checkbox"/> PE/PP X <input type="checkbox"/> steel pipes. 	
	<p><i>Other materials in this project?</i></p> <p>Only GRP pipes from “flowtite”</p>	
	<p><i>Why our product?</i></p> <ul style="list-style-type: none"> X <input type="checkbox"/> light weight X <input type="checkbox"/> corrosion resistance X <input type="checkbox"/> flow characteristics X <input type="checkbox"/> chem. properties X <input type="checkbox"/> mech. properties X <input type="checkbox"/> hydraulic characteristics, easy to handle; 	
<p><i>Owner (name, town):</i></p>	<p>Leptine s.r.l., Temù, Centroelettrica S.p.a., Saló;</p>	
<p><i>Consultant / Engineer:</i></p>	<p>Ing. Massimo Cadenelli</p>	

<i>(name, town)</i>	<p>Hydro Department Manager</p> <p>GEODATA Engineering S.p.A.</p> <p>Via Leopardi 1, 20123 Milano - Italia</p> <hr/>
<i>Contractor:</i> <i>(name, town)</i>	Avvezzi, Edolo;
Pipe Details – material 1:	
<i>Total length supplied (m)</i>	3300 m flowtite GRP pipes;
<i>Pipe lengths supplied (m)</i>	3-6-12 m pipes
<i>Diameter DN min/max (mm):</i>	DN 2000
<i>Pressure PN min/max (bar):</i>	Max. 16 bar
<i>Stiffness SN min/max (N/m²):</i>	SN 5' and SN 10';
<i>Joint types:</i>	Reka
<i>Fittings used:</i>	Straub
Pipe Details – material 2 (if different material was additionally used)	
<i>Total length supplied (m)</i>	
<i>Pipe lengths supplied (m)</i>	
<i>Diameter DN min/max (mm):</i>	
<i>Pressure PN min/max (bar):</i>	
<i>Stiffness SN min/max (N/m²):</i>	
<i>Joint types:</i>	What joints have been used in that project?
<i>Fittings used:</i>	What fittings have been used? sort/number?
Installation	Please insert a picture with "Insert-

Details:		picture-from datafile")
<i>Type:</i>	<input checked="" type="checkbox"/> open trench/below <input type="checkbox"/> micro tunneling <input type="checkbox"/> subaqueous <input type="checkbox"/> sliplining <input type="checkbox"/> jacking <input type="checkbox"/> aboveground <input type="checkbox"/> suspended <input type="checkbox"/> other.	
<i>Trench dimensions (m)</i>	3 m	
<i>Laying depth (m)</i>	4 m	
<i>Native soil type</i>	SC 1, SC 2;	
<i>Backfill soil type / compaction</i>	8/16, 8/30, 0/30,	
<i>Thrust blocks/ lockjoints</i>	Special bends up to 8 ° without thrust blocks, ➤ 8°, thrust blocks;	
<i>Angular deflection min/max in degrees</i>	0,8 °	
<i>Quality measures during installation</i>	Pipe laying, compaction, angular deflection,	
<i>Duration-months</i>	10 month	
<i>Year start</i>	2012	
<i>Year end</i>	2013	
<i>Number of shafts (jacking)</i>		
<i>Shaft distance (jacking)</i>	how has been the distance between the shafts?	
<i>Tunnelling equipment (jacking)</i>	what equipment was in use?	
Summary:	At the beginning the project was planned in steel, but after some	

	power plant site visits inside Italy, with installed flowtite pipes, the customer and the planner were convinced that flowtite is the best solution in the higher Alps;
Owner/Consultant/ Contractor comments:	Leptine s.r.l., Centroelettrica S.p.A, Geodatda S.p.a., Torino and Milano;