

Long Span Pier-Supported Pipelines

Ductile iron pipe is well known for its exceptional beam strength. This property in combination with Griffin's MECH-LOK™ rigid restrained joint, allows spans of 40' - 4" between piers when using standard 20 ft lengths of pipe (actual length 20'-2"). This design requires the use of fewer piers. The long span design locates piers at the midpoints of each 3-pipe assembly with no support under the middle pipe section as shown in the photo above. Long-span designs require considerable layout planning to ensure proper pier spacing. Griffin Pipe Product Engineers can help with any design questions or problems that may occur.

Thermal expansion must be considered in long pier-supported pipelines. For reference, a single 20-foot section of pipe expands approximately 0.15" per 100° F change in temperature. This is based on the coefficient of thermal expansion of 0.0000062 in./in./°F for ductile iron. The table below lists some typical expansions of pipelines due to temperature changes.

Temp Difference °F	Length of Pipeline in feet			
	100	500	1000	5280
10	0.014	0.37	0.74	3.93
20	0.149	0.74	1.50	7.86
40	0.298	1.49	2.98	15.71
60	0.446	2.23	4.46	23.57
80	0.595	2.98	5.95	31.43
100	0.744	3.72	7.44	39.28