

Pipeline Maximum Support Spacing Report

ASME B31.8 Compliance Analysis

PROJECT NAME

Demo - Case #1

CLIENT

ABC Pipeline

CALCULATED BY

John Smith, PE

DATE

June 29, 2026

Pipeline Maximum Support Spacing Report

ASME B31.8 Compliance Analysis
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EXECUTIVE SUMMARY

Maximum Allowable Span:	56.28 ft
Governing Criteria:	Deflection
MAOP:	1,404.00 psig

1. INPUT PARAMETERS

1.1 Pipe Properties

Parameter	Value	Unit
Outside Diameter (D)	20.000	inches
Wall Thickness (t)	0.375	inches
SMYS	52,000	psi
Young's Modulus (E)	29,500,000	psi

1.2 Operating Conditions

Parameter	Value	Unit
Operating Pressure	750.00	psig
Operating Temperature	250	°F
Class Location	Class 1	-
Joint Type	Seamless	-

1.3 Design Factors

Factor	Value	Reference
Design Factor (F)	0.72	§192.111
Joint Factor (E)	1	§192.113
Temperature Factor (T)	1	§192.115

2. CALCULATIONS & RESULTS

2.1 Structural Properties

Property	Formula	Value	Unit
Moment of Inertia (I)	$(\pi/64) \times (D^4 - d^4)$	1,113.47	in ⁴
Section Modulus (S)	$I / (D/2)$	111.35	in ³

2.2 Stress Analysis

Parameter	Formula	Value	Unit
MAOP	$2St \times F \times E \times T/D$	1,404.00	psig
Hoop Stress	$PD/(2t)$	20,000.00	psi
Max Bending Stress	$F \times SMYS$	37,440.00	psi

2.3 Span Length Results

Criterion	Max Span	Limiting Factor
Bending Stress Limit	116.50 ft	-
Deflection Limit (L/480)	56.28 ft	GOVERNING

FINAL RESULT

Maximum Allowable Support Spacing:	56.28 ft
Bending Moment at Max Span:	4,168,833.3 lbf-ft
Deflection at Max Span:	1.407 in

2.4 Loading Conditions

Pipe Weight:	78.60 lb/ft
Additional Load:	0 lb/ft
Hydrotest Condition:	Yes (Water Filled)

3. SUPPORT CONFIGURATION DIAGRAM

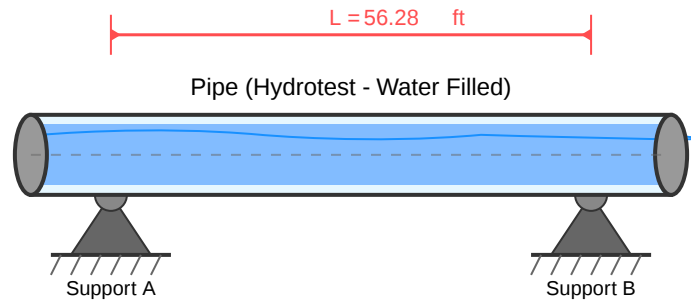


Figure 1: Pipeline Support Configuration (Hydrotest Condition - Water Filled)

4. RECOMMENDATIONS

4.1 Support Spacing Guidelines

- Maximum support spacing shall not exceed 56.28 ft
- Consider reducing spacing by 10-15% for conservative design
- Account for thermal expansion and contraction in final design
- Ensure proper support alignment to prevent excessive stress

4.2 Installation Considerations

- Verify support foundation stability before installation
- Use appropriate pipe guides to prevent lateral movement
- Install supports on level ground or properly graded surfaces
- Regular inspection of support conditions is recommended

4.3 Compliance Notes

- Calculations performed per ASME B31.8 requirements
- Design factors applied per 49 CFR Part 192 regulations
- All safety factors have been incorporated as specified

Certification Statement

This analysis has been performed in accordance with ASME B31.8 and applicable federal regulations. The maximum support spacing of 56.28 ft is based on the governing criterion of deflection.