

5119 Catlett Rd. • Midland, VA 22728 • info@EasiSet.com
www.EasiSet.com • 800-547-4045 • Fax 540-439-2541

PT Check for RP-01 & RP-02 60' Dugout(PCI MNL -

Material Data

(7) Wire lo-lax Strand - ASTM A416

Φ_{ps} 0.500 in,

A= 0.153 in²

E= 28500000 psi

fpu= 270 ksi

Strand Length **1128 in**

Assume (Info supplied by strand manufacturer)

k= 0.0007 Wobble Friction Coeff.

μ = 0.05 Curvature friction coeff. (Initial tension of 3,000 lbs)

Strand is to be stressed 70% of ultimate

= 28917 lbs

Adjustments to tensioning

1) Dead end anchor wedge seating loss

~ Expected to be 1/8 in

2) Live end anchor wedge seating loss

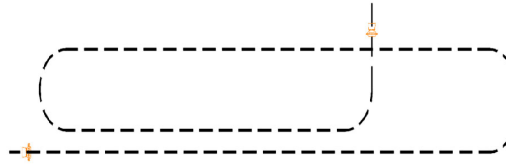
~ Expected to be 1/8 in, recommend over pull 1/8"

3) Elastic Shortening

Neglect for this pnl

4) Friction Loss

Additional force to overcome frictional forces between strand and sheathing



Cable Configuration

25-3470P7
Baseball Dugout 7C
ID - CTS
Roof - RP-01
Weight - 22,500
1 Required

Tensioning Computations

Basic Elongation =
$$\frac{(\text{Force required beyond initial tension}) (\text{Length of strand between anchorages})}{(\text{Area of strand}) (\text{Modulus of Elasticity})}$$

= 6.70 in

Adjustments

a) Dead end anchor wedge seating: Add 1/8" to elong. No force adjustment req'd

Add 1/8 in

b) Live end seating: over pull by 1/8"

1/8 in

Force adjustment t = 483 lbs lbs α = curvature = $\pi(2.5)$ 7.85 radians

c) Friction losses
$$\frac{PD}{PS} = e^{-(kL + \mu\alpha)}$$

= 0.632

Avg. strand force = 0.816 18.39% Loss

Recommend sequential jacking at both ends of the tendon be used to reduce the overstressing the strand at the live end

Friction loss at mid-point of tendon

$$\frac{PD}{PS} = e^{\frac{-(kL + \mu\alpha)}{2}}$$

= 0.795

Avg. strand force over

half of tendon = 0.898 10.24% Loss

Total force and elongation at live end must be increased to compensate for friction losses

Elong. Adjustment = 0.687 in

Force Adjustment = 2962 lbs

Total Force Required = 32362 lbs **OK**

Elongation Summary:

Gross Theoretical Elongation			
Basic Elongation	6.70 in		
Dead End Seating Loss	0.125 in		
Live End Seating Loss	0.125 in		
Friction Losses	0.687 in		
Total Elongation	7.64 in		
Rounded	7 10/16 in		
Tolerance limits	-7.0%	7.11 in	7 2/16 in
	+7.0%	8.18 in	8 3/16 in