SPS Note, 5 Feb. 2004. Block every other dye hole with RTV. Too much dye is coming out, clouds the tunnel too fast, when using pure dye. Also try diluting the dye.


Bore base 1.000 through. Tap end 1-8 UNC x 2 deep. Mating shaft on end of midcone, 1.5 long. Bore midcone 0.50 for dye flow.

Dye injection holes, 6 stations. Each with 24 equally spaced holes (15 deg. interval), 0.020 dia.

Bore and tap 1-1/4-12 UNF for hollow sting support.

Notes:
1. Seal between sections by putting RTV on threads?


Notes:
1) Test section 20 inches high. Bridges (AIAA 93-2960) used ADA of 30-60 deg. Longest sting needed at 30 deg. to clear water. Cone is 22.25 inches. If tip as low as 4 inches from bottom, 16/sin(30 deg.) = 32 inches length needed. Sting as long as 10 inches. Plus clear water by 3 inches, adds 6 inches, need about 16 inches.  
2) Drawing cone-stingsupport.dwg.

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Drill 1/2 through for dye access

Thread 1.25-12 UNF to mate to cone

Tap for fitting to seal to polyflo tubing for dye

18.000
Strut for Forebody-Cone for Water Tunnel.
AAE520 Experiment 2. S.P. Schneider, 11-26-2003.
Material: 2x2x8 stainless steel bar stock.

Clamp bracket for 1.250 sting, 2 required

1.450

Drill to clear 1/4-20, 2 holes

1.000

Skim cut lower surfaces by 0.050 or so after making slot, so bracket will clamp on shaft.

Cut another clamp surface into this end, at 90-deg. rotation from the first! To clamp on rod that holds bracket to tunnel. Same dimensions as the other, from opposite end.

Drill and tap 1/4-20, 2 holes

1.000

R6.25
Support Bar for Water Tunnel.
Material: 3/8x6 6061 alum. angle and 1.250 stainless steel precision rod.

Notes:
1. Straighten angles at side of tunnel before attaching to tunnel.

Drill to clear 1/2-13 bolt.

Drill to clear 1/4-20. Six holes on 2.0-centers to match holes in tunnel. Fasten with bolts.

3/8x6 alum. angle. Cut to 12 inches long. Two pieces, one for each side of tunnel.

Drill and tap 1/2-13, 1.0 deep, both ends.

Bar length not shown to scale.

316SS prec. ground rod, 1.250 dia. Length to fit, about 15-1/2 or 16 inches.
Mount large old traverse streamwise under test section. Support using angle iron bolted to tunnel frame. Drill multiple holes in tunnel frame to allow adjusting height of assembly.


Plywood box beam, 12 deep. LDV optics breadboards to mount on top on either side of tunnel. Box beam supported on large old traverse, adjusts streamwise.