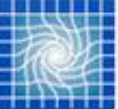


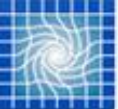


Hairdryer Fan Project Overview

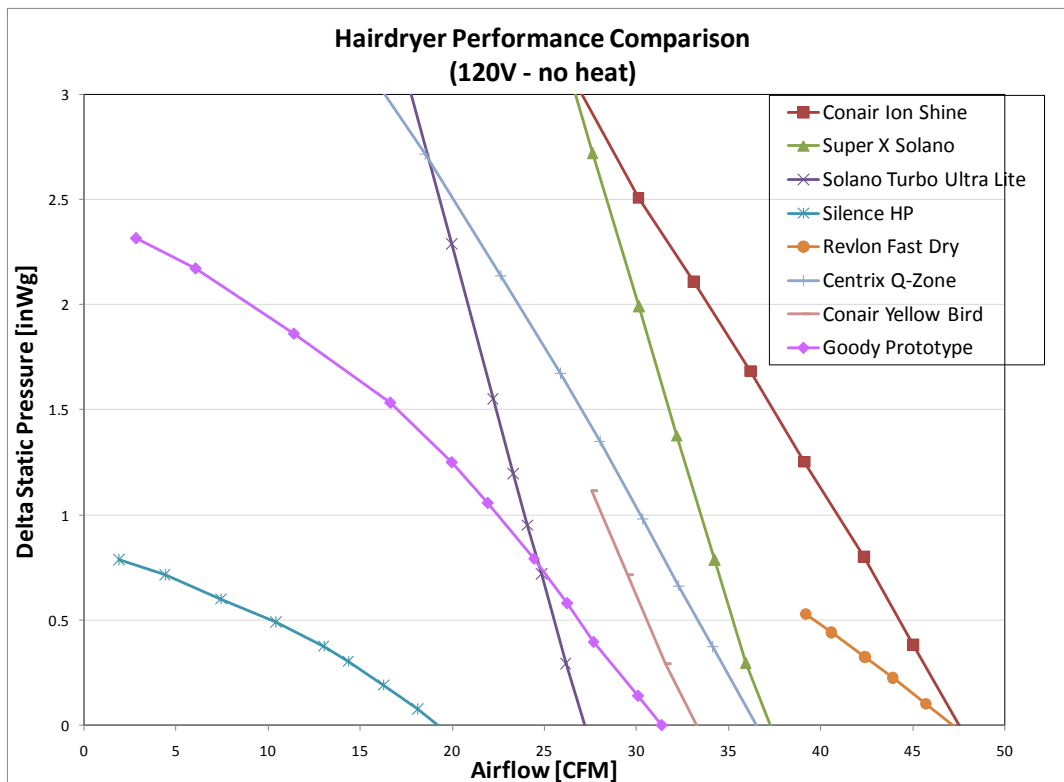


Goal & Specifications

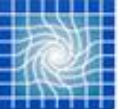
- Goal – design a hairdryer that decreases drying time compared to the Conair Ion Shine 1875 and does not increase noise
 - PAX increases airflow
 - Goody increases temperature to UL maximum
- Nozzle outlet diameter set at 42.5mm
- Must use 24VDC Johnson motor



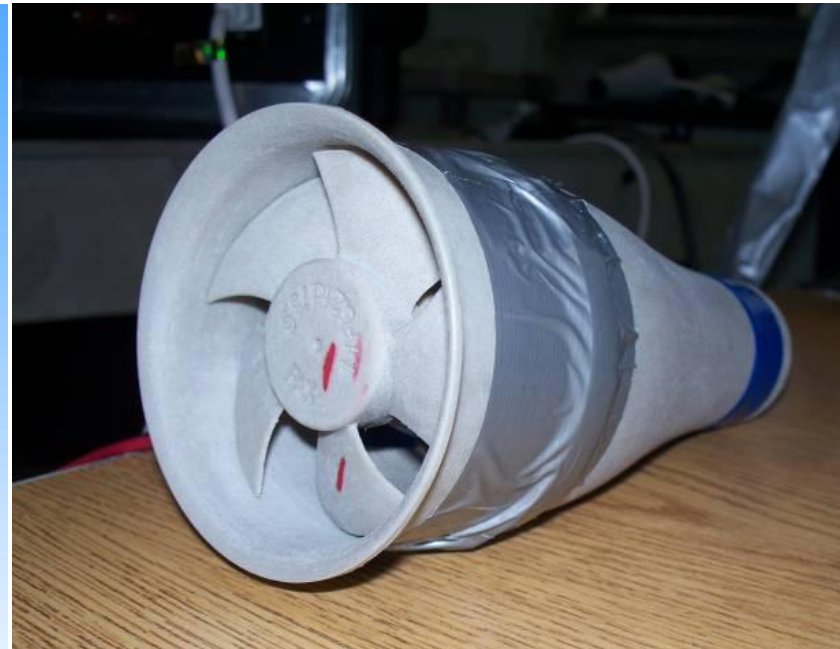
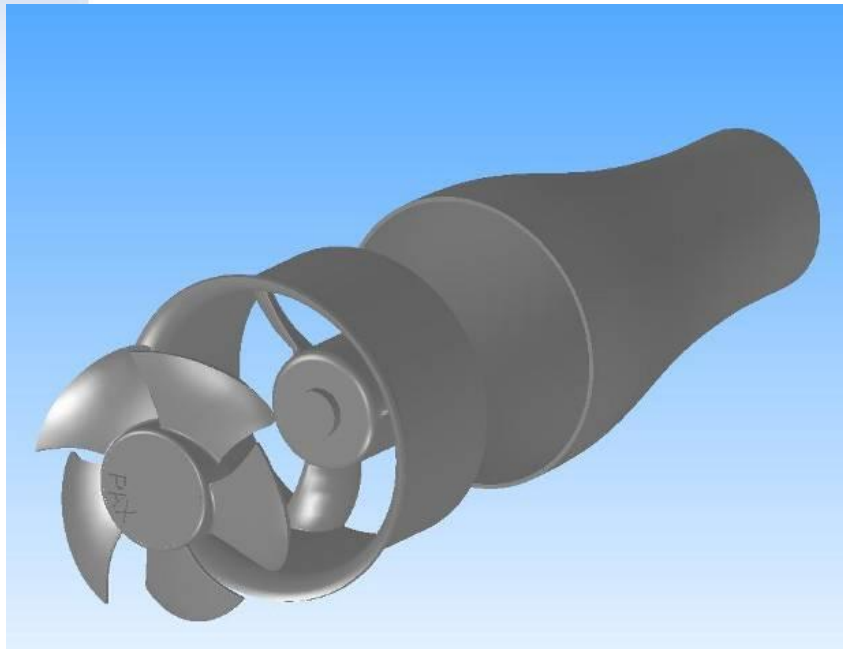
Airflow Baseline

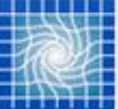


- Eight commercially available hairdryers were baselined
- The Conair, shown in red, has the highest airflow



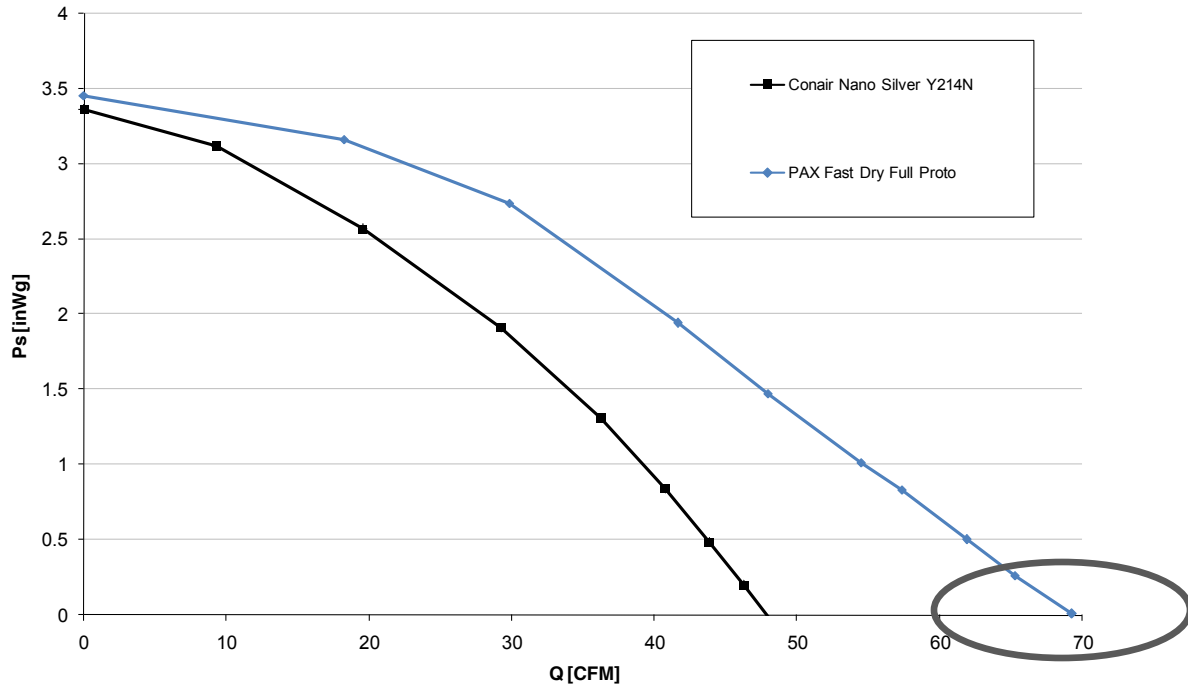
PAX Design



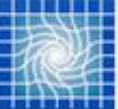


PAX Airflow

Performance for Hairdryers
(highest speed & lowest heat - 120V)

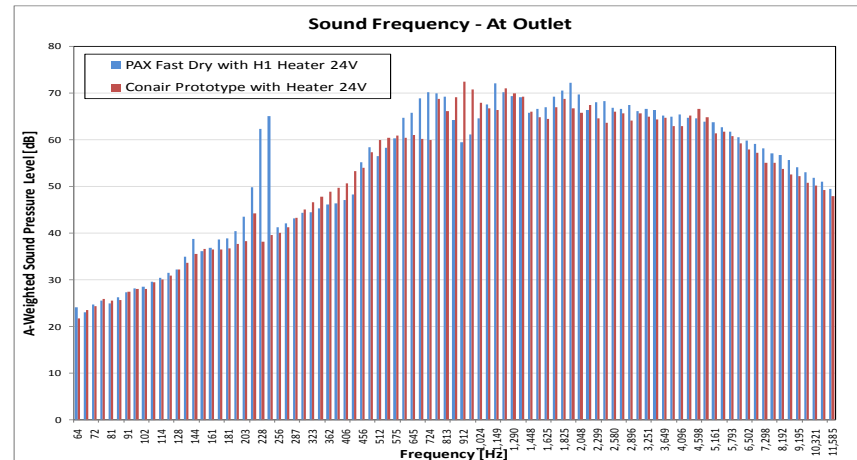
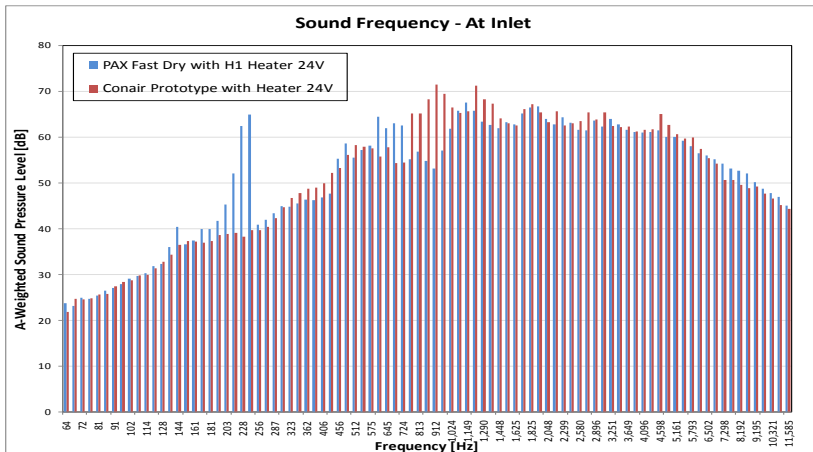


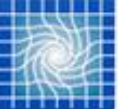
- PAX design produces 35% more airflow at free-air operating point (circled on the graph)



PAX Sound

- PAX design has very similar sound levels to Conair with grills/filter removed
- Due to prototype imbalance, PAX design showed a tone at ~240Hz, which ceased with the balanced, molded fan blade





Outcome

- Goal – decrease hair drying time while maintaining or improving current noise level
- PAX increased output, which decreased drying time by 35%

