



comefri USA

# COMEFRI CASE STUDY

FAN COMPARISON- BRAKE HP VS STATIC EFFICIENCY

## COMPANY OVERVIEW

For over four decades Comefri Group has excelled in engineering, manufacturing and worldwide distribution of centrifugal fans. Our fans are acknowledged around the world for their quality and performance.

### CHALLENGE

While the exact percentage can vary depending on system design and usage, generally, fans account for around 20-30% of the operating costs in an HVAC system. Comefri USA was invited to design and implement a ventilation control system that would optimize the supply of fresh air in an HVAC system while reducing energy consumption and operating costs.

### SPECIFIC ISSUES

- Up-front Purchase Costs

Customer was interested in product capable of bringing both cost and energy savings.

- Efficiency vs BHP

Fan energy consumption is proportional to the fan speed cubed.

- Optimization-Temp Use Units

Units were designed to be short-term rental units that were a tradeoff between up-front costs and energy usage.

### SOLUTION

#### Objective

Select the optimal fan for customer requirements regarding BHP, efficiency and purchase price regarding a product redesign.

#### Approach

Comefri USA utilized our Aeolus4Next fan selection program to run a comparison between 5 different fan arrays and selections:

- ATZAF 20-20 FF BT2/T1 X 1
- DDA5V ANPA 25 20HP X 2
- DDA5V ANPL 25 15HP X 2
- DDA5V ANPA 22 15HP X 2
- DDA4V ANPA 20 10HP X 3

#### Conclusion

Comefri USA has a strong portfolio of fan designs from DWDI to SWSI with air volumes of over up to 100,000 cfm or more. By comparing our different fan designs, Comefri USA was able to select an inexpensive fan with static efficiencies of over 77%.



## The Outcome

In this application, the selection of the ATZAF FF 20-20 BT2 represented an 8% increase in static efficiency over 2 "DDA5V" (vertical shaft) ANPA 25 15 HP fans and a 7.1% SE improvement over the next best option (DDA5V ANPL 25 15HP).

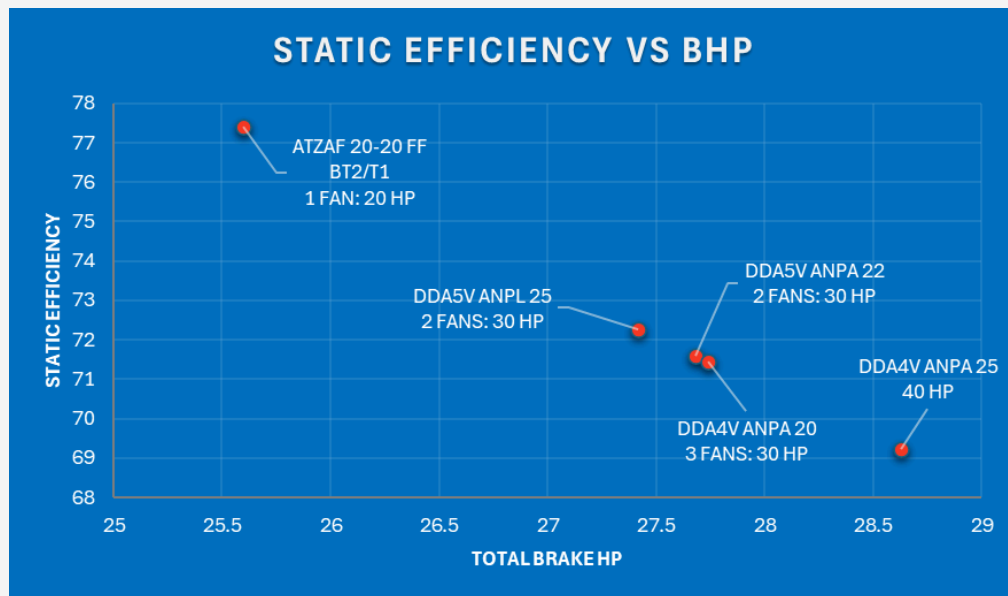
While direct drive fans have specific advantages, the analysis revealed that in this application, the belt drive double fan (ATZAF BT2) was by far the most efficient option. Estimated yearly running cost of the ATZAF FF 20-20 BT2 were \$1,800/yr less than the DDA4 ANPA 20 3-fan array.

Finally, overall purchase costs for the ATZAF FF 20-20 BT2 were similar to all ANPA direct drive fan arrays.



ATZAF FF 12-12 BT2

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