Re: Completely discredit H2−PV, PV−H2's claims on VAWT that can outperform any HAWT!!

Source: http://sci.tech−archive.net/Archive/sci.energy/2007−02/msg00129.html

- *From*: "bill" <ford_prefect42@xxxxxxxxxxx>
- *Date*: 6 Feb 2007 11:13:57 −0800

On Feb 4, 4:17 pm, "daestrom" <daestrom@xxxxxxxxxxxxxxxxxxxxxxxxx>
wrote:

> "Exxon's Dick Pumping Hanson's Mouth" <Global.Warm...@xxxxxxxx> wrote in
> messagenews:1170551809.221241.3550@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> On Feb 3,
> 10:12 am, "daestrom" <daestrom@xxxxxxxxxxxxxxxxxxxxxxx>
>
> > wrote:
>
> <snip>
> <snip>
>
> > You again fail to produce any math or valid statements. You just fling
> > turds like a monkey in a zoo.
>
> Sprinkling vulgarities again I see.
>
> <snip>
>
> > > So you now you have air at a 'low' pressure but
> > > high velocity inside your unit. If you extract some of its
> > > kinetic
> > > energy,
> > > then as it leaves the back side, how does travel through the
> > > divergent
> > > 'nozzle' on that side?
>
> > You are not particularly coherent in this paragraph. At no time or
> > place is there "low pressure" lower than current "ambient pressure" on
> > the windward face of the tower or inside the windward face.

Never said 'low pressure' on the windward face. I said the low pressure was 'inside your unit'. Since the velocity of the air increases as it enters the unit, the pressure of the air would be lower (this is >100 year old Bernoulli). Oh, but you don't think it will drop, you think it will rise as the air flows into a constriction. That's against years of experimental evidence.

> Pressure
> increases as wind is constricted than returns to ambient after the constriction.

Gee, that statement seems to disagree with >100 years of physics. Every text I've read on fluid mechanics says the pressure in the throat of a convergent nozzle drops, not rises.

Try "Elementrary Fluid Mechanics" (Vennard&Street) chapter 3, Kinematics of fluid motion.
Or "Fluid Mechanics with Engineering Applications" (Daugherty & Franzini) chapter 4, Energy Considerations in Steady Flow.

A few experiments I did in fluid flow classes (years ago now) also seem to support the theory that pressure drops as fluid flow cross−section decreases. That's the basis for all sorts of flow measuring equipment as well.

> You are ignoring NEWTON. At no time do molecules of air cease to exist. At one point they are concentrated to 1.8 times their density, then they return to their prior density.

Such an increase in density/pressure is not possible with wind velocities under discussion. Period. Even with a wind velocity of 17 m/s, the full stagnation pressure is only about 173 Pa (~3.6 lbf / ft^2). Since full stagnation pressure is the *highest* pressure you could achieve without doing work on the fluid, it's clear you cannot get pressures/density anywhere near 1.8 times higher than the inlet.

> "Low pressure" is defined as
> fewer air molecules than ambient pressure. It's a worse abuse of a term than my using crankshaft instead of drive shaft which you complained about.

> You asked exactly, precisely, one question
> related to "force", which
> is answered above.

> No fool, I asked precisely one question related to power and
> energy. If
> the
> air speed is increased, where does the energy come from?

> Ultimately the energy comes from the sun, or Jesus YHVH if you prefer.

Evasive. Still not an answer.

> A air molecule at 70 degrees farenheit and zero mph speed is not empty
> of energy. One at 0 degrees kelvin is empty of energy. An air molecule
> at 70 degrees moving at 10 mph is not empty of energy.

Trivial statements that don't answer the question. Just blowing smoke.

> When you
> constrict air into a smaller volume a complex number of interdependent
> things occur. Collisions occur more frequently because the density is
> increased and the distances between molecules is smaller, plus there
> are fewer gaps between molecules.

That all depends on how you constrict it. In a closed cylinder, yes. A free−flowing stream is something different. When you constrict the flow cross−section in a flowing stream, the density of the air does not rise. Actually, the density goes down. This is basic >100 year old fluid flow.

You can babble about molecules getting closer together and pressure rising all you want. But 100 years of experimental evidence shows that pressure does *not* rise in the constriction placed in a flowing stream.

> The sum of increased collisions is
> oft expressed as heat increase, as collisions release photons of heat
> energy easily observed and measured.

Collisions between molecules do not of themselves 'release photons'. Collisions between molecules transfer heat directly. Simple kinetics transfers kinetic energy from the faster traveling molecule to the slower one (depending on exact angle of recoil). This is the principle of conduction.

Molecules above absolute zero radiate photons spontaneously without collisions. See 'thermal radiation' or 'black body radiation'.

> Heat radiation energy moves at
> the speed of light, not at the speed of wind, so the equalization of heat energy is everywhere in the mass, not concentrated in one spot.

> Compression of a fluid (gas or liquid) followed by decompression of the fluid is the basis for air conditioning and refrigeration. Sorry you are so technically illiterate that you have to ask.

Actually, if you knew very much about A/C, you'd know that most use phase−changing cycles (reverse Rankine), not simple compression/expansion. By compressing the working fluid, the boiling point is changed and a phase change takes place in the condenser. Then the pressure on the liquid is reduced to allow a reverse phase change in the evaporator. The latent−heat of vaporization of most fluids provides for much higher amounts of heat to be transferred for a given work of compression over simple compression/expansion systems.

A few designs work by compressing/expanding a nearly ideal gas such as air. This compression not only raises the pressure but also the temperature (in case you didn't know, the amount of temperature rise for an adiabatic compression is governed by the ratio of specific heats for the gas). The compressed (and hotter) gas is cooled by conduction/convection in a heat−exchanger and then expanded again. Because the expansion takes place from a lower temperature than that were the compression discharged, the final temperature of the expanded gas is cooler than the original state. Some auto manufacturers toyed with this design in the '80's but found it not very practical. The moisture in ambient air caused problems since it does not behave like an 'ideal gas' and kept condensing out. The result was the discharge air was too dry and the water caused problems in the expander.

Sorry you are so illiterate about thermodynamics and fluid flow systems.

> Radiant energy is omnidirectional. Any travelling in a reverse direction to the wind preheats molecules soon entering the process,

> while any travelling in the direction of the wind adds heat to molecules leaving the system.
>
> Both motion and heat are classifiable under kinetic energy. Why would a person subscribe to science groups who doesn't know this?

Another 'back handed' insult from someone that *still* hasn't answered the question. It's apparent you're just dancing around throwing out BS trying to avoid revealing your faults.

> Neither atoms nor molecules have brains. They don't know what the "pressure" is, or what it is "supposed to be". That includes all the molecules in wind, tower, or windcatchers inside the tower. All they "know" is their current energy quanta, and any direct impacting forces.
>
> The windcatchers don't know they are in tower instead of in the open air. All they care about is the number per instant of impacts of molecules on their surfaces and the speed of those molecules. If the speed doubles, the impact force cubes.

'...the impact force cubes'??? Perhaps you mean that when the velocity doubles the impact force goes up by a factor of 2 cubed? But sorry, that's not right. When you change the speed of the fluid, the impact force goes up by the square of the speed change factor. Double the speed and force is four times higher. The *power* in the fluid flow goes up by 8 (2 cubed). Or don't you remember the difference between power and force??

> Get with the program. We don't make the laws of nature.

Apparently, you don't even understand the laws of nature. The best compression you can get with any form of nozzle/deflector/window is the dynamic head of the wind. That is a very tiny pressure increase over static pressure. No where near a factor of 1.8 (see above).

<snip>

> But they still impart a force 'downwind'. The angle of the plane
> determines
> the portion of the total force that is in line with the wind and the
> portion
> that is perpendicular. In your design, even with 'negligible' surfaces
> that
> are exactly perpendicular, there are certainly 'non−negligible' surfaces
> and
> the sum of their forces will be substantial.

> Then you could do the math and demonstrate that. If you are unable to produce fault−free math, then I guess you are just pulling statements out of your ass, aren't you?

Silly debating tactic. Ask for something that can only be derived through detailed wind tunnel tests, and then claim that since I haven't the time to do such tests, that I'm obviously wrong.

Modern engineers can use various empirically derived 'rules of thumb' for common structures, but yours is uncommon. A key to using such 'rules of thumb' is to know when *not* to apply them.

> I believe Bernouli and Pascal had the
> equations to
> resolve the wind speed increase difference of
> opinion. Why don't you
> post your spreadsheet showing what you
> think the real numbers would
> be?

> I can cup my hands and blow air into a
> campfire to get it started to
> prove my point. It's the same air with or
> without cupping my hands −−
> the cupping can make all the difference if
> there is ample air flow to
> oxygenate the spark.

> Silly non−scientific analysis. And you can get a more
> 'directed' stream
> of
> air

Enormous kudos Daestrom on maintaining civility with him. The fundamental bust is that he does not get the bow wave concept or accept the first law. I doubt that can be fixed at this point.
possibly the problem is that he assumes wake effects travel only downstream, and doesn't understand that in a compressible fluid there's a pressure gradient upstream (or upwind) of the constriction that will result in less air mass entering his "tower".

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