



# AIR FLOW

News, Views & Information for the Industrial Fan Industry  
from the MORSE Group of Companies

Winter 2010

Issue 4 Volume 1

## Welcome...

As we move quickly through the second half of the current financial year we see conditions in the manufacturing sector still challenging. As a preferred fan supplier to many of Australia's major manufacturers and producers, Morse Air Systems gets a firsthand glimpse of how our nation's producers are faring.

While our elected national leaders collectively pat themselves on the back and acknowledge that through their stewardships, they have successfully navigated us through the global downturn, there are many businesses still facing a range of challenges. We are no different. We have however, taken this period in the economic and business cycle to re-affirm what we do best and to focus on what areas best serve our customers. The range of onsite services that we provide including consulting, installation, upgrades and maintenance, as well as on site balancing and fault finding, are key areas of our organisation. We have been actively developing these areas so that our customers can directly benefit, or in turn offer these services to their customers.

Recently, Morse Air Systems performed an after-hours onsite balance job of a high pressure blower fan which kept the galvanising line of a major steel producer on schedule. The immediate benefit, however, was that the shift manager that we were dealing with did not need to ring his boss at 3am in the morning to tell him that they are forced to shut the line down due to a vibrating fan. Also, by our qualified staff having direct contact with the maintenance team on site, we were able to help identify the root cause of the problem and implement steps to avoid any repeat incidence in the future.

Along with other leading Australian and New Zealand fan manufacturers, Morse Air Systems is involved in establishing an association of fan manufacturers which will

be recognised as the peak body for our industry. More is mentioned about this further in this newsletter however, an intended key benefit to all those who buy industrial fans will be a guaranteed minimum efficiency grade for fans purchased in Australia.

The end to the FY09-10 is fast approaching with still plenty of appealing prospects; it's just up to us to make the most of them. As always we welcome your feedback and any suggestions for future issues.

Chris Morse - BTEch (Design)  
Sales & Marketing Manager

## FMA-ANZ Fan Manufacturers Association – Australia and New Zealand

The Government's in Aust / NZ have recently approached the fan industry with the intent of regulating or introducing **Minimum Efficiency Performance Standards (MEPS)** for non-domestic and/or industrial fans. In response to this a number of companies, including Morse Air Systems, have come together to start the Fan Manufacturers Association – Australia and New Zealand (FMA-ANZ). We have partnered with the Australian Industry Group (AiGroup) who will facilitate the administration for the association and provide support through its strong profile with government and non-government stakeholders.

The purpose of this group is to provide a vehicle for constructive discussions between the industry, government, and non-government bodies, so that strategies are effective and practical for all stakeholders. The FMA-ANZ wish to develop systems of self-regulation to be incorporated within the framework of the Minimum Efficiency Performance Standards (MEPS) in Australia and New Zealand; and work with Standards Australia and New Zealand to effect changes in appropriate standards; and to represent the non-domestic fan industry's views and capabilities in the following bodies:

- ISO
- Standards Australia and New Zealand
- Australian Building Controls Board (BCA)
- DEWHA 10 year refrigeration strategy
- DEWHA motor standards
- Testing facilities



[www.fmaanzt.com.au](http://www.fmaanzt.com.au)

Morse Air Systems is proud to be a Founding Member of the FMA-ANZ and we will keep you updated in future newsletters and on our web site as the news develops.

## Taking the Mystery Out Of Fans - Part 1 in a Technical Series by Michael Morse -

### WHAT IS A FAN

A fan is a volume machine that shovels air. The bigger the shovel the greater the air flow. Fans are predictable and follow a strict set of laws. The three basic fan laws are:-

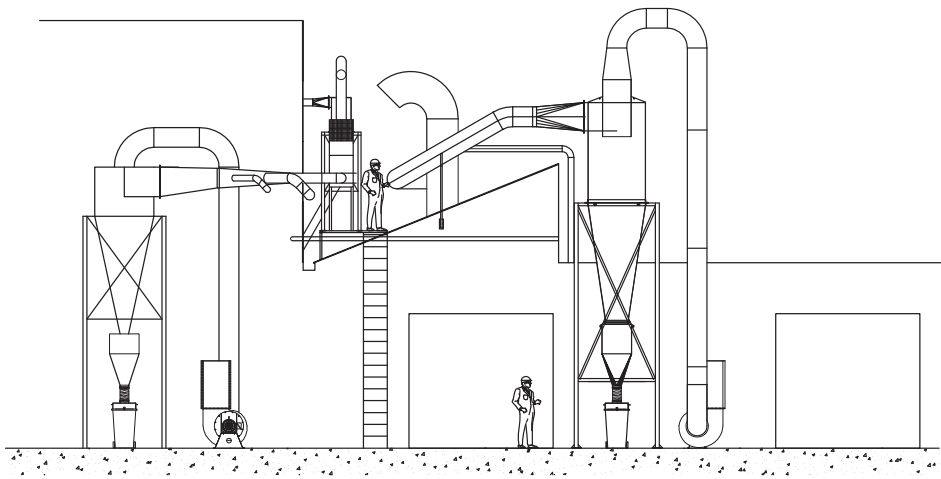
1. Air volume flow varies directly with speed, therefore **Double** the speed then the air volume flow increases **2 times**
2. Pressure varies as the square of speed, therefore **Double** the speed then the pressure increases **4 times**
3. Power varies as the cube of speed, therefore **Double** the speed then the power required increases **8 times**

Fans are used to blow or suck through duct work and other equipment – this air flow path is called "The System". The system has its own law called the systems curve which



5 Dempster Street, Ferntree Gully, Victoria 3156  
Phone: (03) 9758 7733 Fax: (03) 9758 2366  
Email: [sales@morseairsystems.com.au](mailto:sales@morseairsystems.com.au)  
[www.morseairsystems.com.au](http://www.morseairsystems.com.au)  
[www.morselownoise.com.au](http://www.morselownoise.com.au)





is the relationship between volume flow and the resistance to the flow. Pressure varies as the square of air volume flow, therefore **Double** the air volume flow then the pressure required to blow the air through the system increases by **4 times**.

Thus it is very important to select a fan that is suitable for the system requirements. A few years ago a customer rang to say that our fan, installed in their system, was no good because the pressure was okay but the volume flow was about half what it should be. In analysing this issue, we considered carefully the system curve because to double the flow through the system, the pressure increases by 4 times.

The problem was resolved by removing a blockage in the system. The fan and the system are not independent of each other and in this particular case it was the system and not the fan that had the issue.

## MY FAN IS TOO NOISEY

These days noise is an important environmental and OH&S issue. For the most part when dealing with fans it is the "rush" or roar at an inlet or outlet that is the problem. If noise is an issue for you then please talk to us about this when discussing your fan requirements, as there are some design parameters that can be changed to give better noise results.

Morse Air Systems has many years of experience in designing and fabricating silencers to suit many applications. Here are a few examples:

- Silencers from Stainless Steels or Galvanised Steel to suit aggressive environments.
- Silencers with encapsulated rockwool for moist/damp airstreams.



*Fan Discharge Silencer*

- Silencers that are able to be easily dismantled to change the rockwool for very dusty air streams.

At Morse we can also increase the casing thickness or lag and clad the fan to reduce the casing breakout noise.

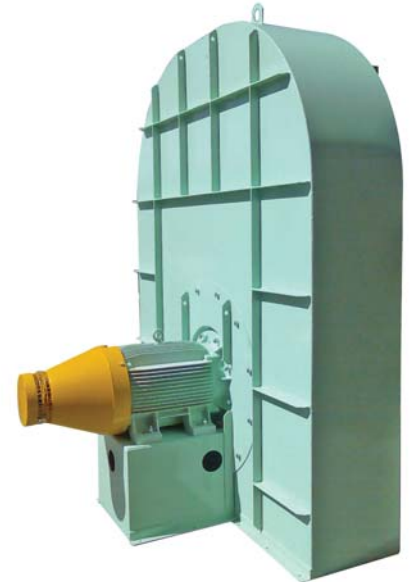
We can predict the amount of noise damping we are able to achieve and have noise level meters to enable us to check before & after noise levels, particularly useful if you want to retrofit a silencer. This is exactly what we did for a prominent lock manufacturer recently.

They are located on the border of an industrial/residential area and running a 24 hour operation found that their late



*Air cooling system with in/out sound attenuation*

night noise emissions were excessive. Over the recent Christmas shutdown Morse Air Systems installed 2 large silencers on the fan discharge dramatically cutting the noise produced. In fact the noise reduction achieved was exactly what we had calculated it would be. The customer was very happy (especially as this had been a last minute Christmas Shutdown addition) and the local residents are also very happy.



When dealing with larger motors then the noise problem may in fact be the motor itself and of course Morse Low Noise Fans has a variety of retro-fit cowls and cooling impellers which dramatically cut the motor noise (6-9dbA). In some cases we have achieved significantly more than this even!

*We are constantly updating our website with interesting and relevant technical articles. Read the latest at [www.morseairsystems.com.au](http://www.morseairsystems.com.au). If you would like us to investigate any specific fan or air handling issue then please contact our office on 03 9758 7733 or email [sales@morseairsystems.com.au](mailto:sales@morseairsystems.com.au)*