

Specific Fan Power (regarding Fan Coil Units)



Issue 2

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Specific Fan Power (SFP) of Fan Coil Units has recently become a very significant number within project specifications. With effect from 15th June 2022, the new Approved Document L Volume 2 Buildings other than dwellings 2021 edition Table 6.9 limits specific fan power of fan coil units to a maximum of 0.4W/(l/s), measured as the rating weighted average of the fan coil unit installation. Specific fan power should be measured and calculated in accordance with BS 8850 Fan coil unit performance – Determination of specific fan power – Test method. Currently Part L Building Regulations 2013 gives minimum energy efficiency standards for building services components. Importantly it notes that standards higher or better than many of these recommended standards will need to be achieved if buildings are to meet the required target carbon dioxide emission rate (TER).

The Compliance Guide gives a maximum weighted average SFP of 0.5W/(l/s) for fan coil units. However, many specifications are now calling for unrealistically low SFPs, often 0.25 W/(l/s), sometimes down to 0.19 W/(l/s) and even as low as 0.15 W/(l/s).

For all Fan Coil manufacturers, these are difficult levels to achieve.

The key factor in determining whether the SFP that can be achieved is the External Static Pressure (ESP) the Fan Coil must operate against. If the project specification asks for 30 Pascals ESP and a typical office noise level of NR35 to 38, then it is only realistic to expect an SFP of 0.25 W/(l/s).

Specifications that call for very low SFPs (sub 0.2 W/(l/s)) whilst still maintaining a requirement for 30 - 50 Pascals ESP are unrealistic. Very low SFPs tend to promote 'oversized' selections ending up with physically larger units which are obviously more expensive from a capital outlay perspective. Ultimately, this larger unit selection ends up costing more to buy and then to run in operational terms than it would have been the case had one accepted a fractionally higher SFP figure.

Moving forward, there are better ways of improving the efficient operation of a Fan Coil installation other than simply striving for the lowest SFP. These are typically; variable air volume strategies, unoccupied setbacks and the use of fan enable relays which cut the mains power to fans when they are not needed. One can immediately see that these three solutions are the right things to do but although they reduce the overall energy consumed

We would cautiously suggest that product testing gives a very clear indication of the actual situation. We believe that, just like thermal and acoustic performance testing, this should also be a consideration to eliminate the possible misunderstanding or mis-representation of SFP figures.

We also believe that it is very important to make it clear that all EC motor fan coils perform to very similar levels regarding SFPs at ESPs, regardless of the manufacturer.