



Technical data

Type	EC Plug Fans	
ebm-papst Product	52x	K3G500-PB33-01
Power consumption	kW	3.9
Airflow	m ³ /h	between 93,000 and 129,000
Fan static pressure	Pa	1,150

Background



A recent multi-million dollar upgrade at one of Brisbane's largest buildings, the GPT-owned and managed Riverside Centre, has set a new benchmark for innovative HVAC refurbishment, utilising compact EC plug fans to replace large and inefficient DWDI fans. The upgrade aimed at elevating the building to a modern 5.5 star NABERS energy rating, and has also delivered in maintaining its status as one of Brisbane's premium, iconic office towers.

After 30 years, the original forward-curved double-width double-inlet (DWDI) fans were approaching their end of life. In addition to their large size, the existing fans displayed issues such as bearing failure, bearing lubrication issues, belt and pulley wear, as well as some signs of pitting corrosion on the fan wheels. While the HVAC upgrade was primarily a lifecycle replacement, additional driving factors for the refurbishment were increased energy efficiency and customer comfort.

Project



When the original design for the HVAC upgrade, consisting of the replacement of six air-handling units, was put to tender, it specified fewer and larger EC plug fans. In a review of the project, the option to select a smaller individual fan size (500mm instead of 630mm) was put forward by ebm-papst.

This was due to logistics considerations as well as a reduction of actual available space because of the upgrade and enlargement of the coils, requiring a reduction in size at higher efficiency. Up to ten 500mm ebm-papst EC plug fans replaced one large DWDI fan. The plug fans are aligned in a grid and mounted off the floor.

All previous electrical as well as controls and monitoring features remained (incl. motor protection, MODBUS connectivity, two-parameter set with external switch via digital input and infinite speed control).

Results



The project led to a breakthrough in installation, handling, efficiency and serviceability of the AHUs.

All work was completed after hours by contractors Hiflow, without interruption to the tenants.

With continuity of service being a major requirement for commercial buildings, suppliers that can offer continued selection and technical advice is an important selection criterion. ebm-papst can deliver in this regard, as the largest supplier of EC plug fans into the Australian HVAC industry, with 4,450 units supplied in 2015 alone (and in addition to ebm-papst products installed in imported equipment).

While the savings were not able to be measured directly, anecdotal evidence suggests a reduction in fan power use by 15%.