Half-day Seminar on New Technologies for Energy Saving with Central Air Handling Unit

by ***Engr. Gary Lim*** *MIEM, P. Eng.*

FROM 7 March to 21 March 2008, Henry Moehnle, Sales Director of Robatherm Germany, had visited the IEM Headquarters and the Penang branch office respectively to present the new technologies for energy saving with central air handling units. Robatherm was established in Germany in 1853 and have been producing air handlers for 40 years. In 2002, Robatherm setup its factory in Thailand to be closer to the Asian market. robatherm is one of the leading European manufacturers of customised air handling units. Although the company is a specialist, it is not limited to sectors such as electronic and semiconductor, pharmaceutical, automotive and hospitals.

Moehnle explained the position of AHU standards in Europe, *i.e.* EN13053, EN13779, VDI 3803, VDI 6002, EN1886 and DIN1946-4. The importance of these standards towards energy saving is shown in many ways such as the condensate prevention factor, fan classes, heat recovery system efficiencies and Fan Specific Power (SFP). He stated that these standards have not been widely used by consultants in the Asian market. There is a need to enthuse engineering designers and to emphasis on the potential. Moreover, he mentioned that the Classification of Energy efficiency by the EUROVENT organisation, every AHU sold in European market shall be classified this way and will deliver its rated energy consumption. Class A will stand for the state-of-the-art of unit design.

Plug fans are one of the highlight technologies to reduce energy consumption and to increase the efficiency of the entire unit. Moreover, its cleanability and hygienic performance support the function of clean rooms, hygienic installations, hospitals, etc. Moehnle compared the efficiency of a forward curved fan, a backward curved fan and a plug fan. Plug fan has shown to be the preferred choice in terms of performance.

Heat recovery systems were emphasised during the seminar as well, namely, heat recuperation, plate heat exchangers and run-around coils. Finally, he gave his opinion on the future trends of air handling units in the Asian market. For example, he drew attention to life cycle cost (LCC) and the improvement of air quality through hygienic matters. ■

EUROVENT

Energy Efficiency Classification

Class	Type of Unit	Air Flow-Class	HR-Class	Max. Power Consuption [kW]
A	Units w/o Thermodynamical Treatment	V4	---	0,95 x $P_{input\ max}$
	Units c/w with Heating	V3	---	0,95 x $P_{input\ max}$
	Units with additional Components, such as Cooling, Air Flow < 3 m³/s	V3	H2	0,95 x $P_{input\ max}$
	Units with additional Components, such as Cooling, Air Flow < 3 m³/s	V2	H2	0,95 x $P_{input\ max}$
B	Units w/o Thermodynamical Treatment	V5	---	1 x $P_{input\ max}$
	Units c/w with Heating	V4	---	1 x $P_{input\ max}$
	Units with additional Components, such as Cooling, Air Flow < 3 m³/s	V4	H3	1 x $P_{input\ max}$
	Units with additional Components, such as Cooling, Air Flow < 3 m³/s	V3	H3	1 x $P_{input\ max}$
C	All Others	No requirement		

$P_{input\ max} = [\text{Delta } p_{stat}/450)]^{0,925} \times [q_v + 0,08]^{0,95}$ in [kW]. Delta p_{stat} in [Pa]. q_v in [m3/s]

08.04.2008 Folie 62