DON BOSCO INSTITUTE OF TECHNOLOGY

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ISO 9001:2015, NAAC ACCREDITED WITH B++ GRADE

DEPARTMENT OF MECHANICAL ENGINEERING

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DBIT STUDENT CHAPTER

REPORT ON INDUSTRIAL VISIT AT
Advantek Air Systems Ltd

12 March, 2022

Document Title: ISHRAE DBIT Student Chapter Industrial Visit Report		
Document No. DBIT/MECH/REPORT/SC/ISHRA E/02	Revision No.: 01	Issue No.: 01
Issue Date: 28th Mar 2022		

ISHRAE DBIT Student Chapter under ISHRAE Thane Chapter went for an Industrial Visit on 12th March, 2022 at Advantek Air Systems Ltd, Bhiwandi for the student members of ISHRAE DBIT. There were total of 21 students along with DBIT faculty members Ms. Cleta Pereira and council members Saurabh Yadav, Tarun Mulani and Simran Ahiwale. The industry manufactures Air Handling unit, Vertical Air Handling Unit, Ventilation Unit and Evaporative Cooling System. Mr. Girish Beldar is the CEO of the industry. The type of company is limited and the annual turnover is about Rs 10-25 Crore. The main motto of the visit was to learn about the procedure of the entire manufacturing process of AHUs in an interactive way.

The Visit began with students reaching the industry around 11:00 am. Before entering the premises all were disinfected, after that a small brief was taken by the faculty incharge Ms. Cleta Pereira regarding the agenda and the use of AHU which is collecting outside air and room air, removing dust and other particles from the collected air, adjusting the temperature and humidity and then supplying comfortable and refreshing air conditioned air into the rooms through ducts. A guide was provided by the industry for the visit. The first process that was shown to us was the framework in which the raw materials

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used were galvanized iron, aluminum and stainless steel. After that the sheet forming station arrived where the mentor showed us how the PNC operation was done. The main two steps that included were bending and die-punch. Later station consisted of an important process which was puff injection machining. This mainly involved two types of chemicals inosinate and polyol in the ratio of 1:3. The reaction that caused the puff to bloat was an exothermic reaction producing hard foam insulation. The inspection for this was done batch wise. The solidification time for the same was explained. He also informed that previously instead of puff insulation panels, nitrate insulation was used. The panels were then taken forward to the punching station where the machine was CNC operated. After that the design section was explained. Basically there were two kinds of units the first was circulation split type and the other was 100% fresh window type. The air was passed through the filters first, to make sure of the quality of air coming through it. The types of filters were pre filter, fine filter and hepa filter. The hepa filter gave the precision of up to 0.3 micron.

The next station contained the other aspects of designing like cubicle frames, gasket for fitting. The mentor took us to the next setting where the fan motor arrangement was taking place. The design for them was in accordance with the requirement keeping the formulae of Q=mc delta PT. For the better amount of heat transfer and air flow, fan/blowers were used. Moving forward was the cooling coil arena where water and refrigerant were used for manufacturing the coils on the

base of the requirement. The mentor also educated us that the diffusers that were used were kind of impeller. The problem of excess water going with air was solved by droplet eliminator. Coming towards the last station that was about some final tests. Instruments like anemometer (measure velocity), vibration meter, tachometer (checking for vibrations above 2 mm/sec), temperature gun, hydrometer (to check dry bulb, wet bulb and RH) and noise meter (65 DB) were used. And thus the entire procedure commenced. The industry served us refreshments and the visit came to an end by a vote of thanks from Ms. Cleta Pereira.