

Coca Cola

Location: Radzymin, near Warsaw, Poland



Building characteristics

Purpose:

Industrial object belonging to the food industry company that specialises in mass production of beverages.

In 2006 the plant was expanded with a logistics centre within the framework of the development and modernisation works of the plant in Radzymin; the plant is one of the four production plant of Coca-Cola HBC Polska Sp. z o.o.

The conception of ventilation system

The superior feature required from the devices that provide proper air ventilation in a big production plant that specialises in the food industry is the guarantee of complying with the hygienic requirements. Owing to this, the investor demanded that the ventilation system be totally aseptic.

This requirement concerned not only the developed network of ventilation ducts, but also the ventilation units that operate the whole system. The project planned that the total process of air filtration would be operated both by the ventilation units, and the further sections of the ducts.

Therefore, the designer decided that the air filtration would be realised by the AHUs at the EU9 level, while the further air purification by means of the duct filters at the EU13 level. Another requirement related to the aseptic condition of the production rooms ventilation was the elimination of sucking in the external air by possible leakage of the building.

Consequently, a typical solution was applied that consisted in maintaining constant overpressure in the production halls through the diversification of the capacities of the supply and exhaust units.

Project AHUs functions



General characteristic of devices		
Number of AHUs	4	
Configuration	cross-plate exchanger, heating, cooling, Glycol system	
Operational parameters		
Total AHUs heating capacity [kW]	310	
Total supply AHUs electric power consumption [kW]	33,887	
Total exhaust AHUs electric power consumption [kW]	33,512	
Total supply Air Flow Rate [m ³ /h]	55 740	
Total exhaust Air Flow Rate [m ³ /h]	68 580	
Average SFP [kW/m ³ /s]/[W/m ³ /h]	0,98	3,54
Noise parameters for loudest units at 250Hz		
	Supply	Exhaust
Inlet [dB]	77,1	79
Outlet [dB]	80	74,5
Environment [dB]	57,6	53

Solution provided by VTS

The requirements concerning the hygiene in conjunction with the necessity of energy recovery in the ventilation system made us use such a configuration of AHUs that could guarantee the best possible separation of the supply and exhaust air. The hall in which the Naste beverages are produced is operated by three sets of supply and exhaust VENTUS AHUs: two of them have the recovery system based on the cross-flow exchanger, and one of them uses the glycol system. The total air capacity of the AHUs with reference to cubic capacity of the production halls guarantees the 40-time air exchange per one hour of their operation. The operation of all used AHUs is realised by means of the VTS control automatics system. At the specific request of the investor, the AHU feeding and controlling system was configured in accordance with these requirements by authorised service of VTS.