LJUNGSTROM - ARVOS GROUP

(Mahindra World City, Chengalpattu, Dist. Kanchipuram, Chennai)

Company : LJUNGSTROM ARVOS GROUP

Purpose: To understand the working and making of air preheaters and gas gas heaters and the concerning field related to this companies.

About the Company: This company's name is inspired by the Swedish engineering named Fredrik Ljungstom. He was the one who discovered AIR PREHEATERS(APH) and GAS GAS HEATERS(GGH).

In India, it operates under Alstom Pvt Ltd

Introduction:

On 21-Nov-18, I visited "LJUNGSTROM ARVOS GROUP" company located off Chennai city in Mahindra World City (MWC) . I was previously told that this company had the only patient to what they did resulting them being the only company to do research on their product.

The facility in MWC (Mahindra World City, Chengalpattu) mainly focuses on APH (AIR PREHEATERS). I had spoken to a project manager who explained me the working and making of this APH.

Observations:

Air Preheaters are basically the machinery used in power plants. They make the waste air somewhat reusable and decrease the harmfulness on the environment.
These devices use sheets of metals with groves (aerofoil type design) in the form of stacks so that the flux gas (waste gas coming out from the burning pulverized coal) when it is passed through these plates then through conduction the heat is absorbed and it is transferred to the part where pure air enters the chamber.

So a APH has chambers ranging from bi to quad.

1. 1st Chamber – it takes up about 50% of the space since it has the inlet of the flux gas. Here the flux gas is made to pass through the plates through which heat is transferred. That portion slowing moves in a circular form to go into the next 50% part of the APH.
2. 2nd Chamber – it is the one which can be either two/three bifurcations depending upon the requirement of the plant. Primary and secondary inlet of the gas are contained here. The secondary inlet of gas helps in combustion which is preheated through the same metal plates. The primary inlet also provides the air but the major function of this air is to carry the pulverized coal to the combustion chamber. Even this air is preheated as it shouldn't contain moisture.

Conclusion:

I imagined this APH to be a big washing machine where the drum inside is filled with parallel metal sheets and the drum is either bi-sector, tri-sector or quad-sector. The drum moving at a low speed. The 1st chamber having the flux gas which is harmful since it contains ash particles and sulphur. The heat is conducted to the metal sheets inside and after ½ rotation the pure air is passed through primary inlet which gets heated and is sent to transport the pulverized coal. Then again after ¼ rotation the pure air is heated through secondary inlet for combustion purpose.

To remove the sulphur content and cool down the flux gas. The gas is exposed to GGH. It cools down the flux gas and reduced the sulphur content. Then it is passed through the stack into the atmosphere at a high altitude.