Cryogenic air separation plant

HPO oxygen production
here enclosed is shown as example a graphic page of skid1-skid2
Introduction

- Our company has developed on site HPO (high pressure oxygen) oxygen production plant skids mounted achieving a purity more than 99.6 % by vol.
Our oxygen generator is based on air fractioning to separate the gas on liquid form from the air. The main steps of the process are as follows:

1. Air filtration and compression till to 10 bar
2. Air cooling till to 7-10°C with a condensate separation using a chiller unit
3. Air dewatering and decarbonation using a PSA unit using activated alumina for water and molecular sieves for CO2
4. Cryogenic separation. Part of inlet air after a cooling in the Main Exchanger is expanded using a turbine to produce the frigories need for LOX production. The other part of air feed is partially liquefied in the Main exchanger and is totally liquefied in the bottom reboiler of the column. The liquid air is sub cooled using the top stream of the column and, after a lamination, will be fed into the fractioning column. The liquid oxygen will be extracted from the bottom of the column. To avoid the danger of the concentration of the hydrocarbon in the bottom of the column and adsorbent vessel will be installed on the column.

The gaseous stream of the top of the column and the stream coming from expansion turbine will be collected to the Main exchanger for frigories recovery. A air coming from the turbine will be collected on compressor suction.

5. The stream of the poorer oxygen air is partially used for the regeneration of PSA using an electrical resistance for increasing the temperature.
6. The liquid oxygen is collected into a storage tank, pumped till to 200 bar, vaporized using an atmospheric high pressure vaporizer and fed into the cylinders.
Process flow sheet

Here enclosed is shown the process flow sheet
Plant photos

1. Cold Box
Plant photos

- 2 Cold box
Plant photos

3. Cold box
Plant photos

4 Cold box
Plant photos

- 5. PSA and chiller skid
Plant photos

6. PSA and chiller skid
1.0 Here it is enclosed the Air purification P&I D as example for the documentation
Here it is enclosed one example of HPO plant lay out