Emission lines are often observed in high luminosity stars and provide evidence of the presence of extended stellar envelopes. Hα is the most frequently observed across the H-R diagram, but lines of HeI or FeII are also found in emission in these stars. They could be used as diagnostics of the structure of their outer atmospheres and winds. High resolution (1/dl $\sim 10^5$) high S/N profiles of Hα and HeI 5876 in the galactic LBVs η Car, AG and HR Car, and in the LMC star S22 have been obtained with the ESO CAT-CES during 1984-87, and are described in Figs.1-5. We find that these stars show a large variety of profiles with narrow and broad emissions, wide or multiple blue-shifted absorptions. The profiles are largely variable. Once, a kind of inverse P Cyg profile was observed in HR Car (Fig.4). These results indicate the presence of large scale phenomena and high velocity fields which are dramatically variable in time. Continuous HIRES monitoring of these stars is urgently needed.
Figure 2. Variation of the Hα profile in AG Car.

Figure 3. Variation of the Hα profile in HR Car.

Fig. 4. HeI 5876 Å in HR Car.  

Fig. 5. Hα profile in S22.