

CASE STUDY

A French low density polyethylene (LDPE) plant could not achieve effective control of a booster/primary compressor.

Perfect operation through application-specific adaptation of the capacity control

Compressor manufacturer: NUOVO PIGNONE/ PARSONS

Type	6H	Gas	Ethylene
Power	1.100 kW (1496 hp)	Suction pressure	2.7 bar (39 psi)
Speed	296 rpm	Discharge pressure	287 bar (4163 psi)
Lubrication	yes		



Primary compressor

Facts in Brief

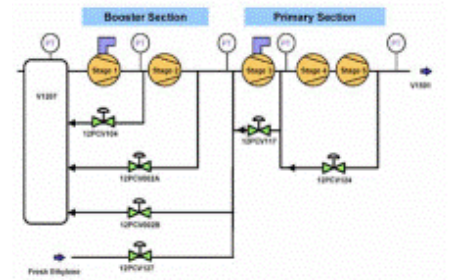
New compressors were installed by Nuovo Pignone in an LDPE plant in France. The booster/primary compressor was supplied with a high-end HydroCOM system, but the operator could not start up the reverse flow control.

Solution applied

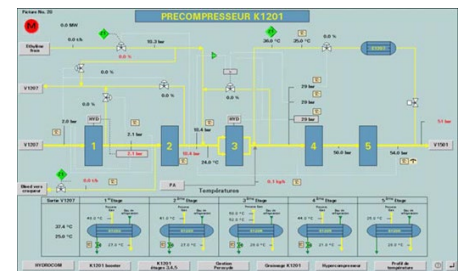
- Compressor audit traced the failure to condensation problems in the fifth stage
- Design new control scheme to reduce interstage pressure and increase the discharge temperature from the previous stage
- Repair and recondition valves, packing cases and actuators
- Install hydraulic piping, valves, actuators and top dead center according specification
- Program new control layout into the DCS
- Check installation and test software
- Start-up and monitoring

Results

- With HydroCOM operating correctly, the compressor now delivers the require flow to the hyper-compressor
- Stable interstage pressure avoids condensation
- The process is now smooth and reliable, with lower energy costs when running at partial load



New control layout



Distributed control system (DCS)