



MASTER GRADUATION PROJECT

EXERGY SAVING PNEUMATIC SYSTEMS

For autonomous and/or portable systems, like for instance hand prostheses or walking bipeds, pneumatic actuation is designated. For the energy supply pressurized carbon dioxide is used, and stored at its saturation pressure [5.7 MPa]. Previously performed theoretical analysis, based upon an isothermal approach, combined with limited experimental data, suggest the amount of gas used for an operating cycle of the system is at its minimum if the saturation pressure is reduced to a supply pressure level of 1.2 MPa. In reducing the gas pressure from 5.7 to 1.2 MPa a lot of potential energy [exergy] originally stored in the gas at saturation pressure is wasted.

ASSIGNMENT

Investigate possible ways to utilize more of the potential energy of carbondioxide stored at saturation pressure. Design, construct, and build an experiment based upon one of these options and prove the energy savings.

ADDITIONAL INFORMATION:

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