KAZAKH BRITISH TECHNICAL UNIVERSITY

Diploma Project

- Theme: System of automatic control of gas pressure in the tanks

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Outline:

Aim of diploma project

Introduction

Pressure control in oil and gas industry

Examples of pressure values

Process Line Panel for pressure control

Realization of PID algorithm

Development of automation system for air compressor

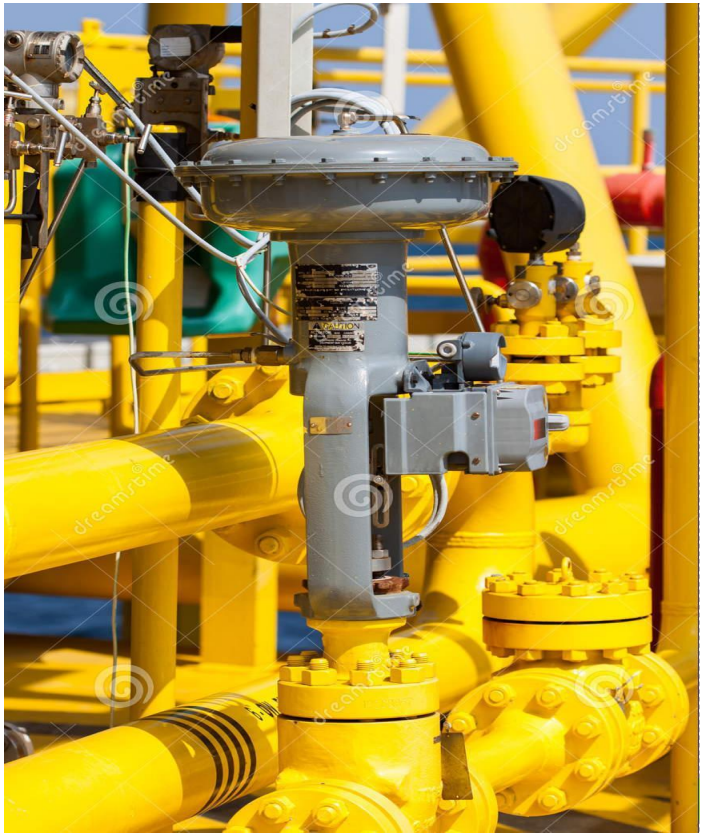
Conclusion

Goal of the diploma project

Introduction

- What is a process control?
- What is the automation?
- What is the pressure?

- Pressure regulator in oil and gas industry



Examples of pressure values

Example	Pressure (bar)
Vacuum	1,33*10^(-12)
Car tire	1,5 – 2,4
Water pipes	2,5 – 7,5
Minimum pressure level at gas distribution stations	12
Maximum pressure level in gas pipelines	118

Process Line Panel for pressure control

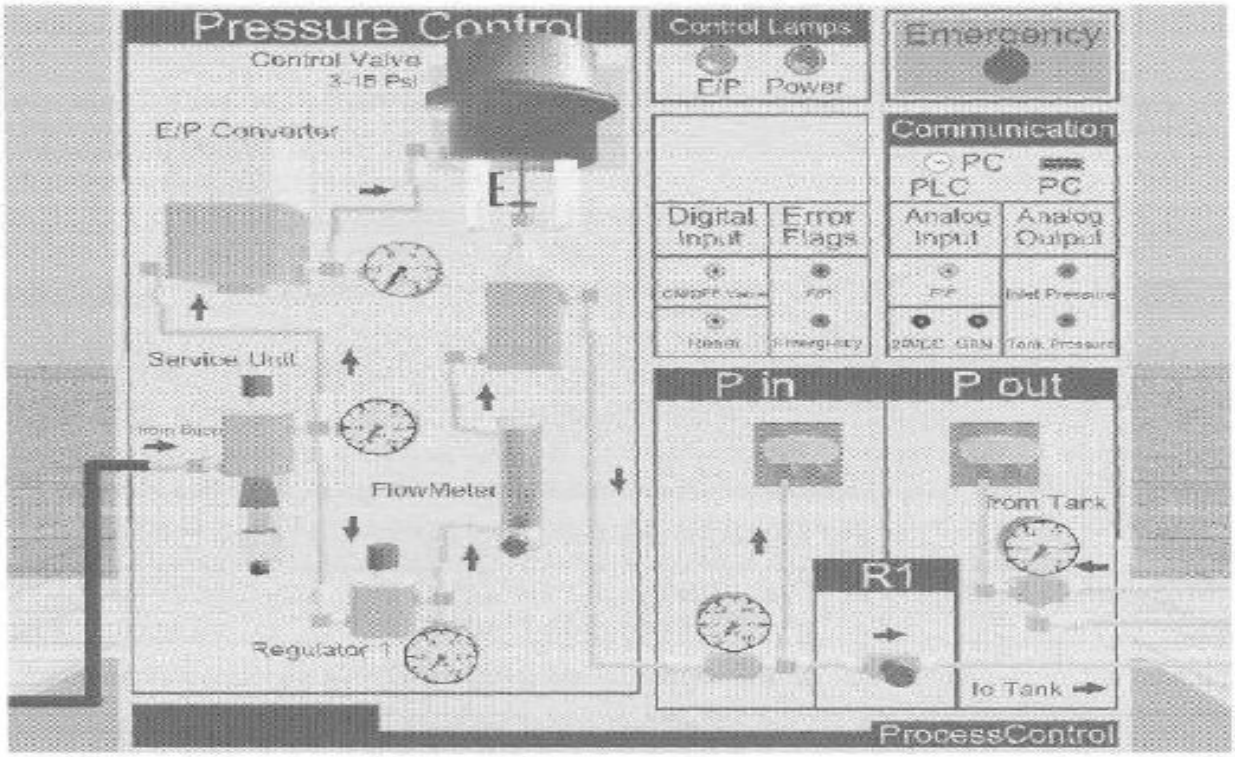
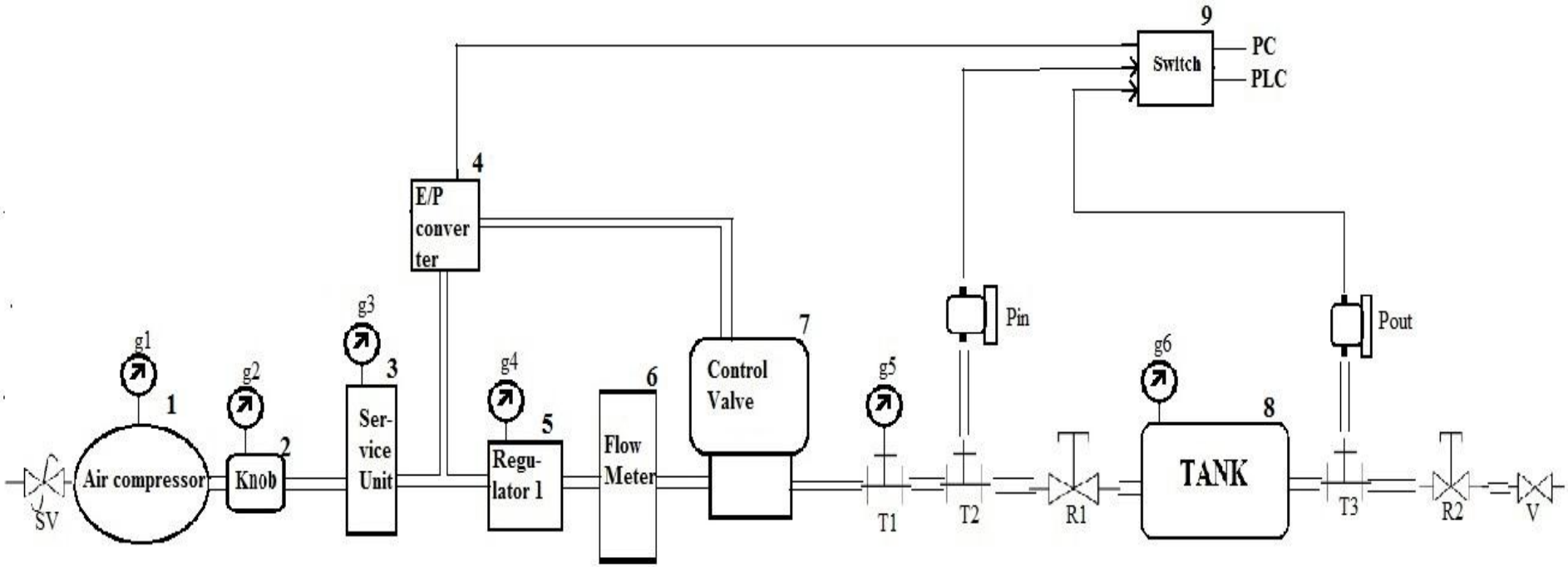


Figure 1-2: ProcessLine panel

Functional scheme of Process Line Panel

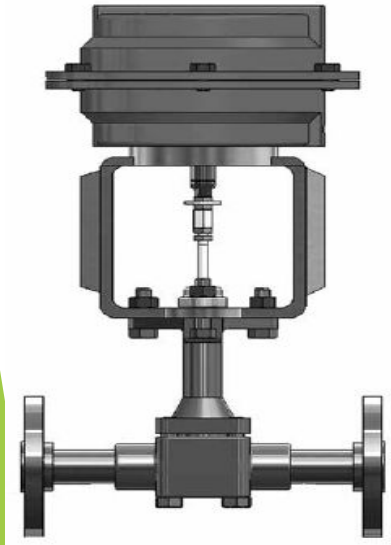


SPECIFICATION TABLE

No	Name	Mark	Parameter	Sy bol	A ount
1	Air compressor	Compressor. Power plus. Silent operation. Model: POW547 Serial number: 2003-2717-001412	230V, 50Hz Max. pressure: 7.0bar/100Psi	-	1
2	Knob	Knob	Max. pressure 100 Psi	-	1
3	Service Unit	Regulator. Camozzi. N208-00.	In. P. max. 16bar. Out P. 0.5-10bar. T. max. 60 C	-	1
4	E/P converter	Transducer. ControlAirInc. AmherST, NH. Type 500x. I/P transducer	Input: 4-20mA. Output: 3-15Psi. Supply: 18-100Psi		1
5	Regulator 1	Regulator. Camozzi. M008-R00	In. P. max. 16bar. Out P. 0.5-10bar. T. max. 60	-	1
6	Flow Meter	Flow Meter	Range: 0-1000	-	1
7	Control Valve	Jordan Valve, OH. 45209. Model: 708. Serial: 1035548A	Size: ¼. Range: 15Psi. Max. T. 500	-	1
8	Tank	Assouline Compressors ltd,		-	1


97
POWERPLUS
POWERPLUS
DESIGNED AND MARKETED BY VARO
condensate drain valve

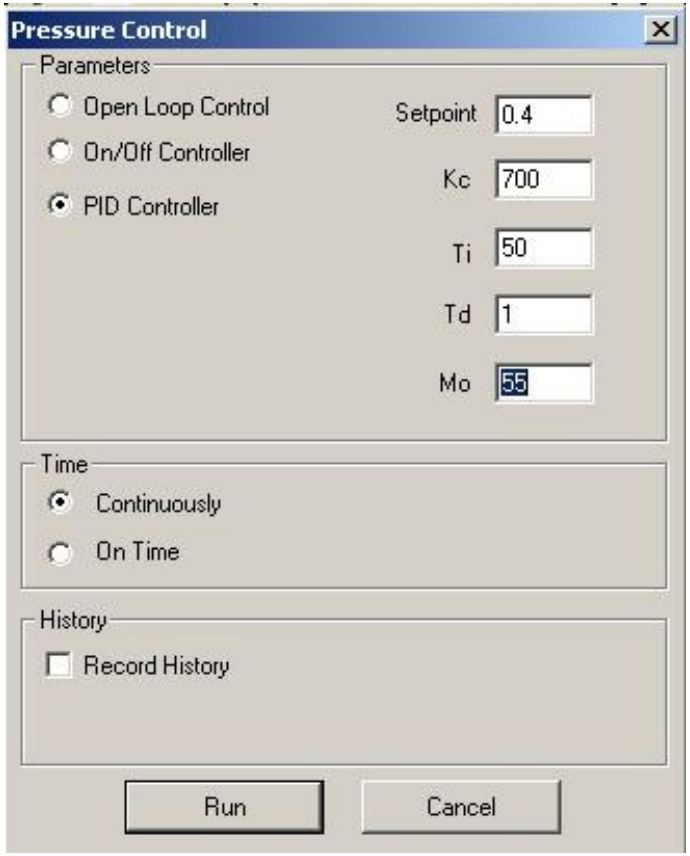

WEL-BILT




ControlAir Inc.
FM
500-AC
ControlAir Inc.


RFU-446
P. max 10 bar
A
B
CAMOZZI

Running control system
Choosing algorithm



Block diagram of the system

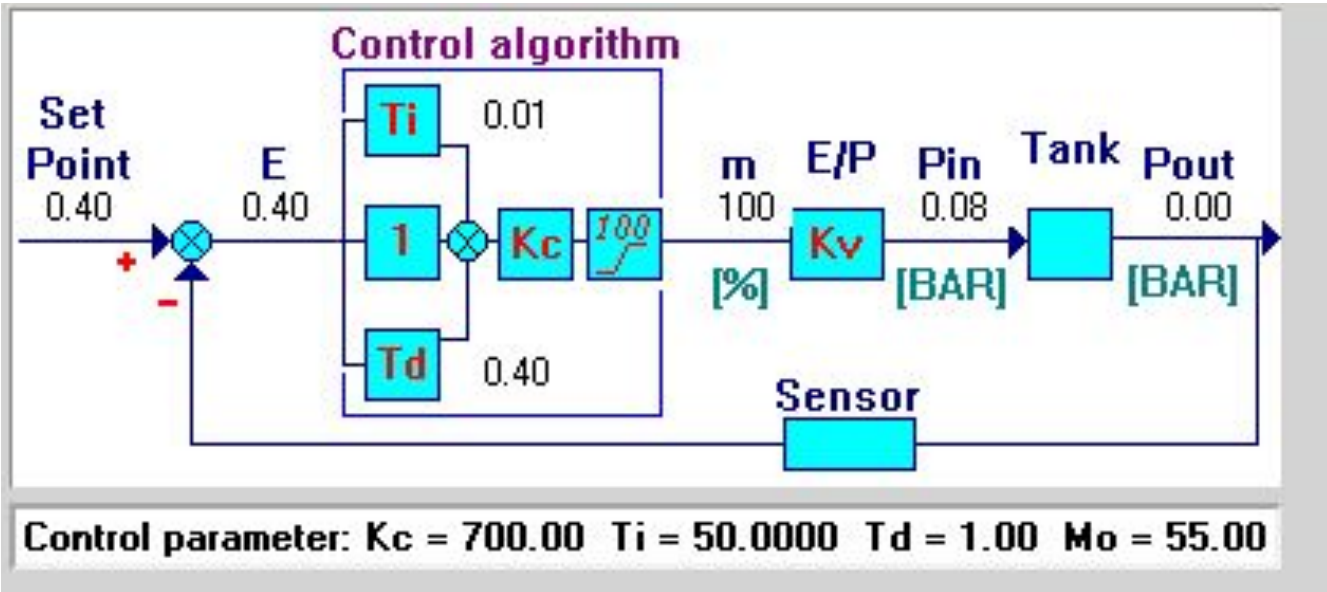
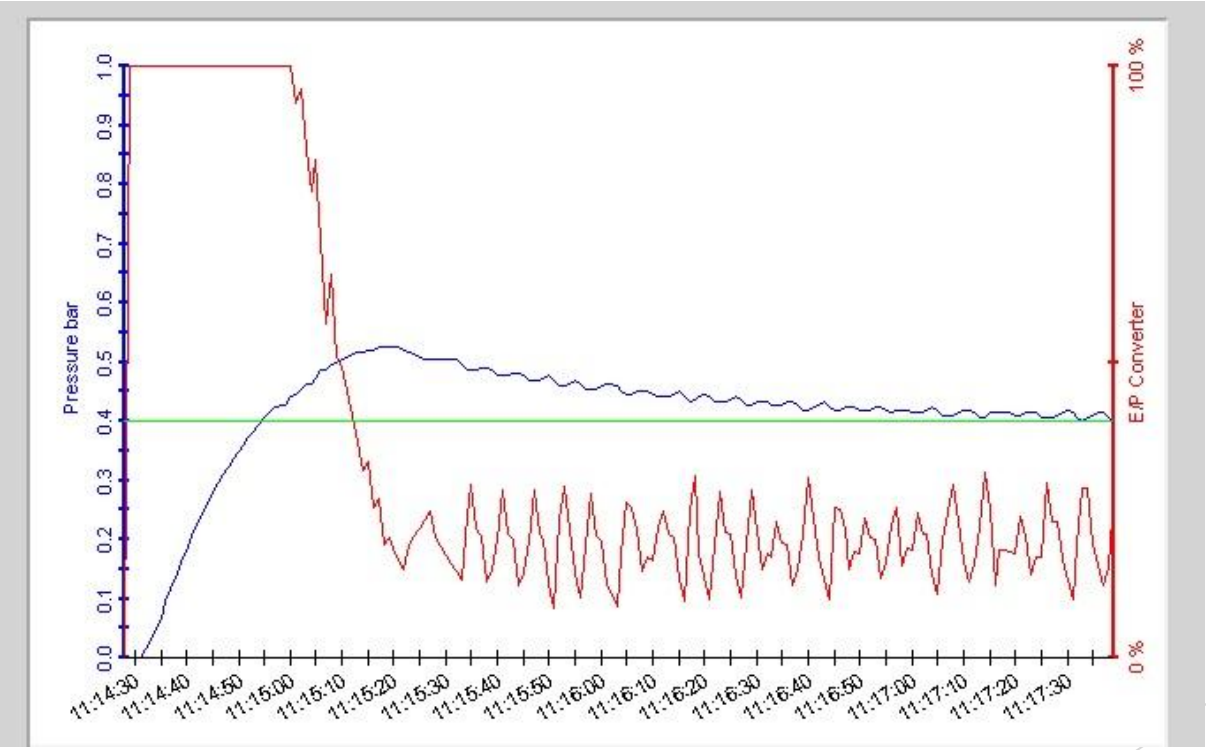
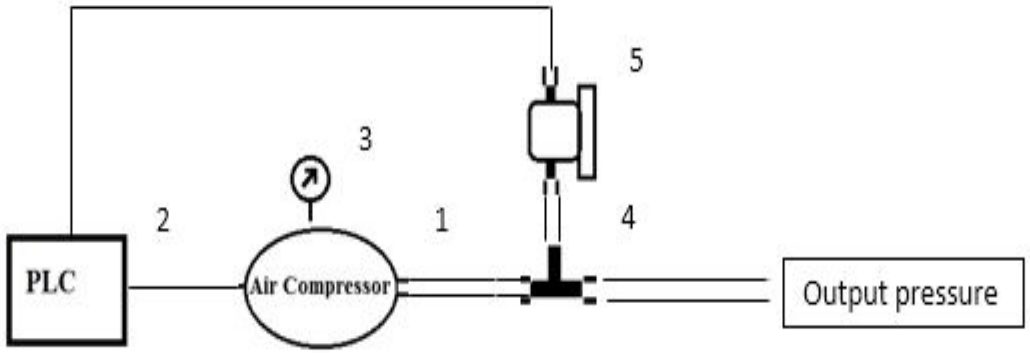


Diagram of output pressure



Development of automation system for air compressor

The scheme of controlling the output pressure of air compressor from 2 to 3 bar



Controller Oven PLC 150, for air compressor

Pressure sensor, Jumo Midas

Conclusion

- In conclusion, during the working period on diploma project were done a lot of works and obtained new skills and knowledge that they will be helpful in the future.

THANK YOU FOR YOUR ATTENTION

Reference list:

- http://fas.su/page-542
- http://www.lesman.com/unleashd/catalog/valves/Lowflow-Mark708/Lowflow-Mark-708-ds-MK708-0713-2K.pdf
- http://www.camozzi-usa.com/sites/default/files/product_branch/usaproduct/en-us-in-line-flow-control-valves-series-rfu/series-rfu.pdf
- http://www.controlair.com/downloads/500_spec.pdf