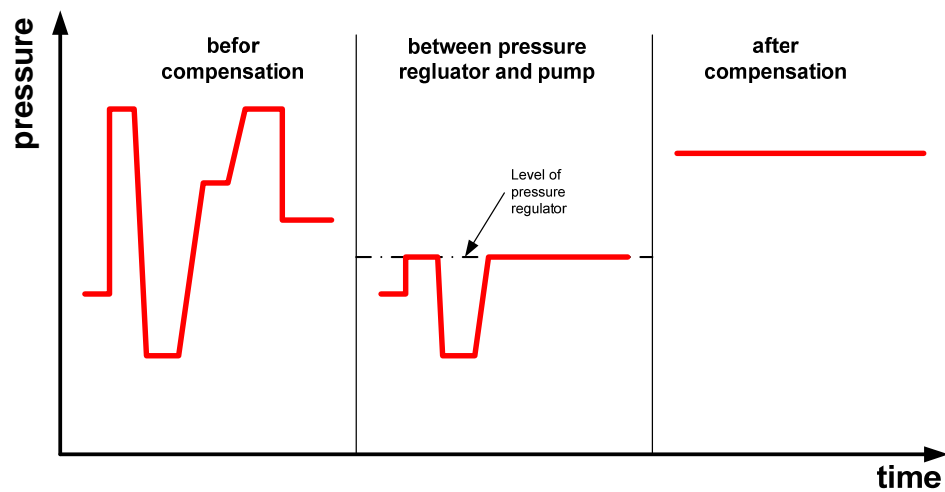


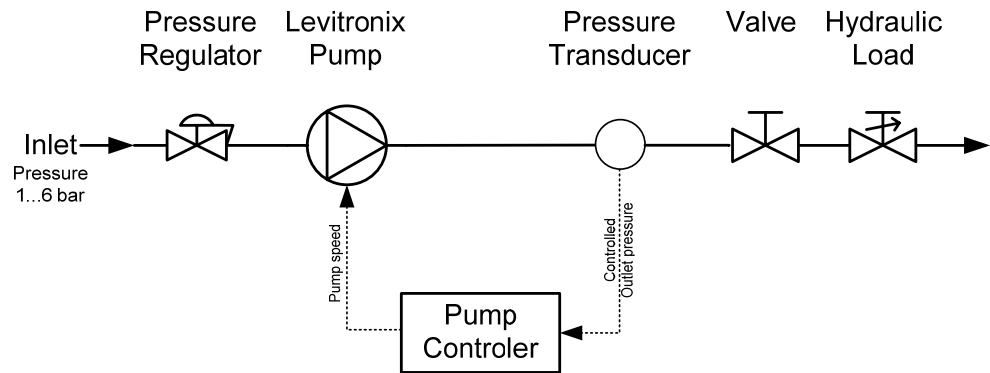
## Introduction

Pressure variations in supply lines or other applications can be a problem for tools or processes they need a constant inlet pressure. With a combination of pressure regulator and a Levitronix® pump (combined with a pressure transducer in pressure control loop) it is possible to compensate pressure fluctuations independent if they are higher or lower than the needed pressure:

- pressure regulator reduce high pressure to a fix level and pass lower pressures
- Levitronix® pump increase pressure to needed pressure



## Test setup schematic



- Inlet pressure can be changed from 1 to 6 bar
- Pressure regulator is fixed on one pressure level
- Pump is running in pressure control loop (P/I-Controller) for a fix outlet pressure
- Hydraulic load generate the needed flow based on controlled outlet pressure

Results for following tests are showed on the next pages:

- Test 1: Inlet pressure changed from 1 to 6 bar, flow keep constant at 10 l/min
- Test 2: Inlet pressure changed from 1 to 6 bar, flow keep constant at 45 l/min
- Test 3: Inlet pressure keep constant at 1 bar, flow changed from 10 to 40 l/min
- Test 4: Inlet pressure keep constant at 6 bar, flow changed from 10 to 40 l/min

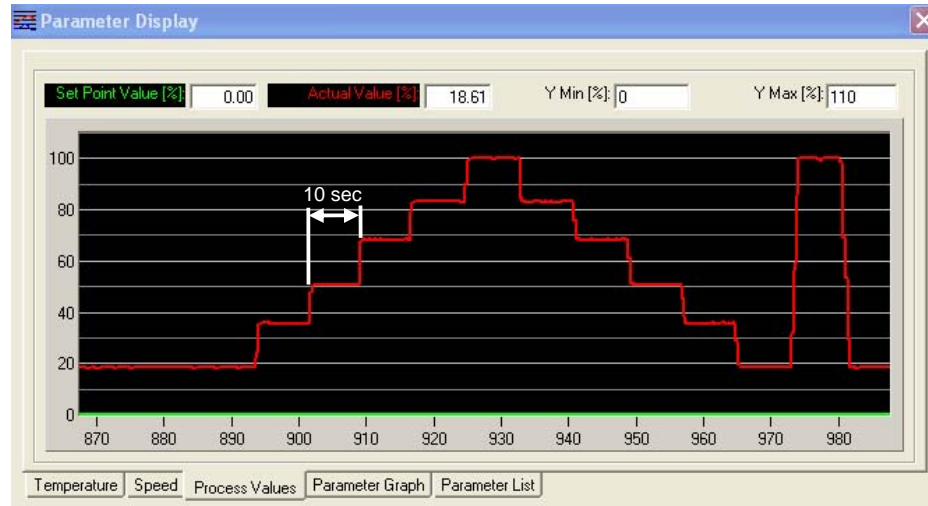
## Test 1: Variations of inlet pressure with constant flow of 10 l/min

Flow: 10 l/min

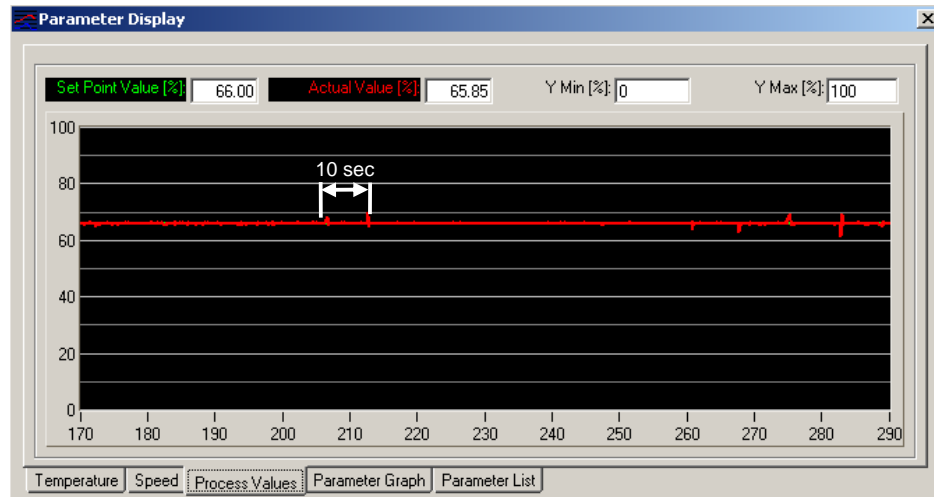
Outlet pressure: controlled to 4 bar

Time of one inlet pressure step: approximately 10 sec

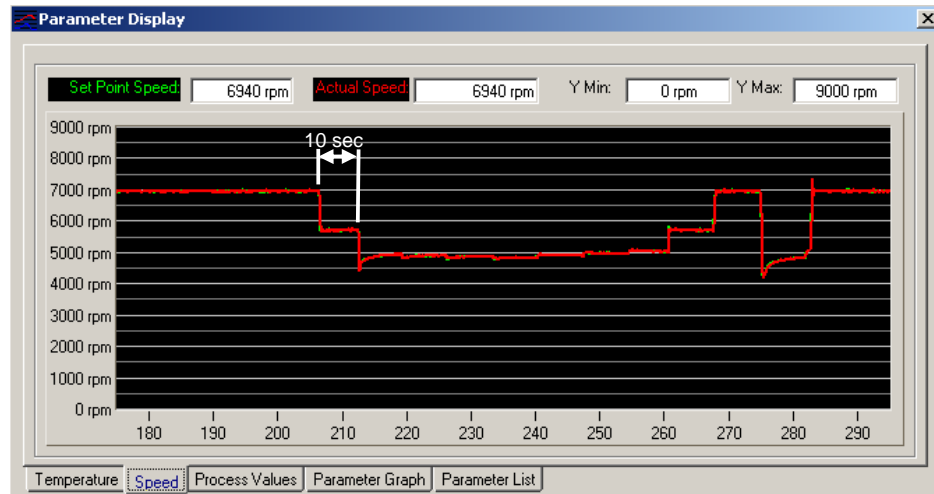
Inlet pressure [0...100% = 0...6 bar]



Outlet pressure [0...100% = 0...6 bar]



Pump speed [rpm]



## Test 2: Variations of inlet pressure with constant flow of 45 l/min

Flow: 45 l/min

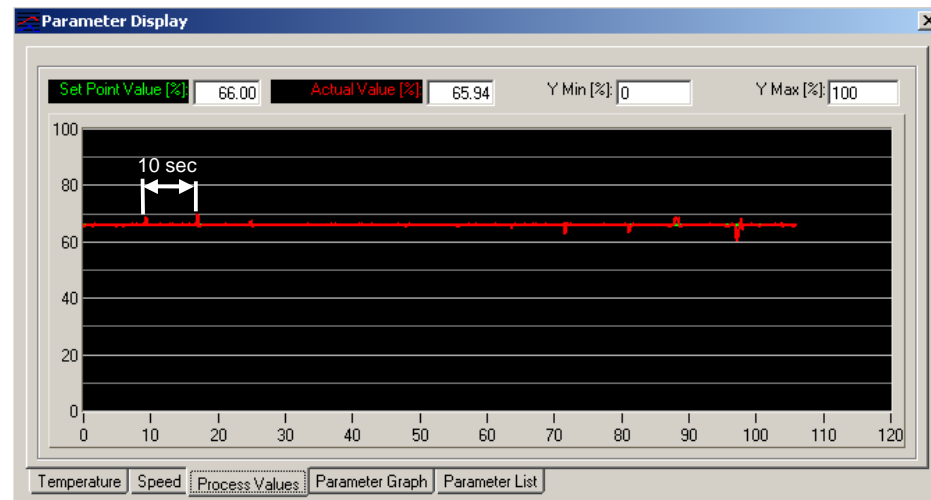
Outlet pressure: controlled to 4 bar

Time of one inlet pressure step: approximately 10 sec

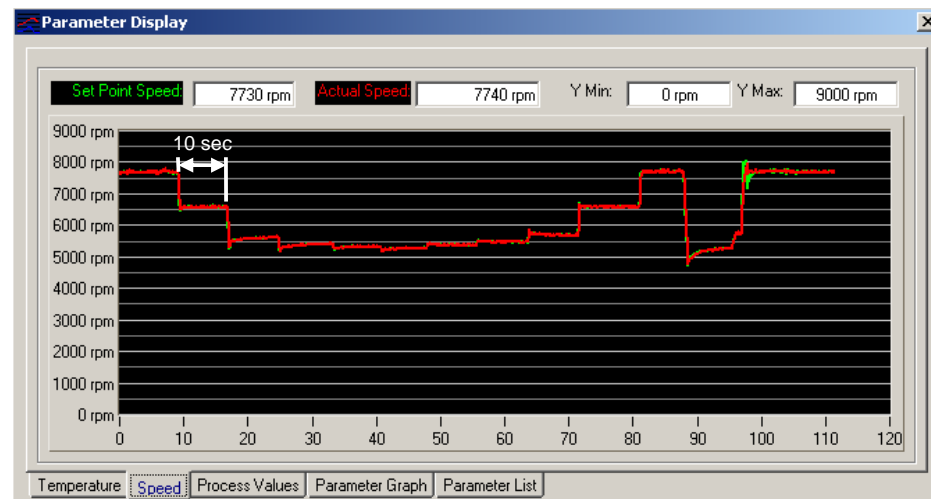
Inlet pressure  
[0...100% =  
0...6 bar]



Outlet pressure  
[0...100% =  
0...6 bar]



Pump speed [rpm]



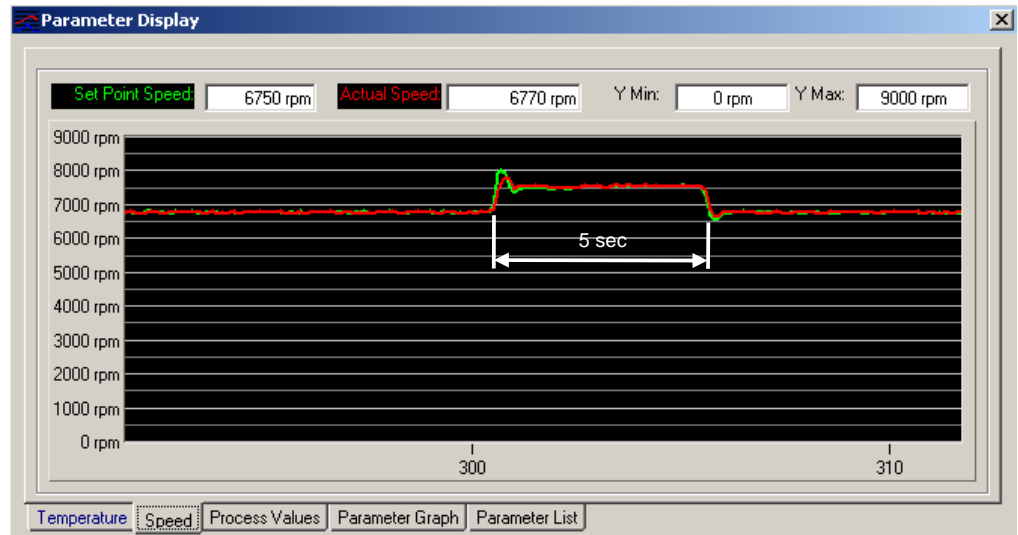
### Test 3: Variations of flow with constant inlet pressure of 1 bar

Inlet pressure constant 1bar  
Flow step from 10 to 40 l/min and back to 10 l/min  
Outlet pressure: controlled to 4 bar  
Time of flow step: approximately 5 sec

Outlet pressure  
[0...100% =  
0...6 bar]



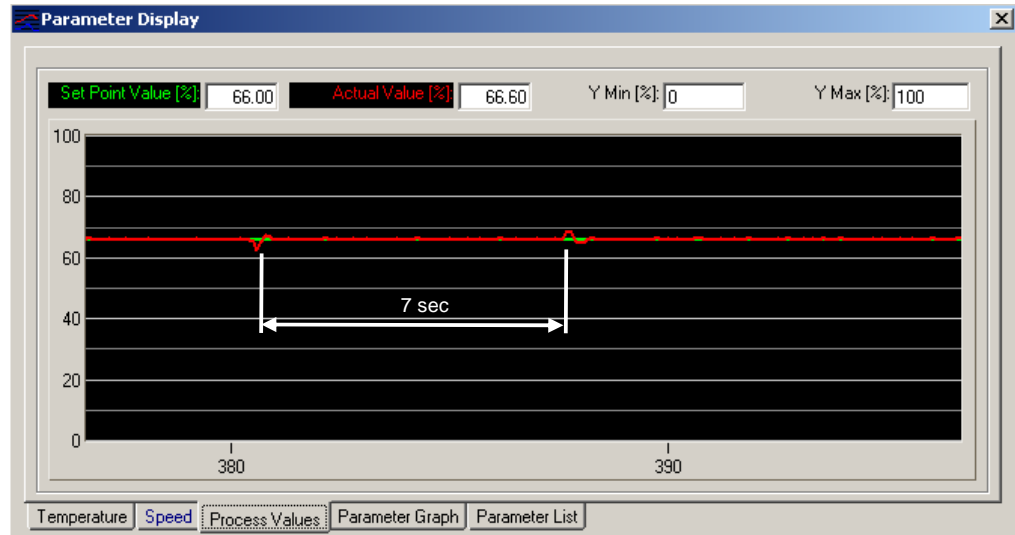
Pump speed [rpm]



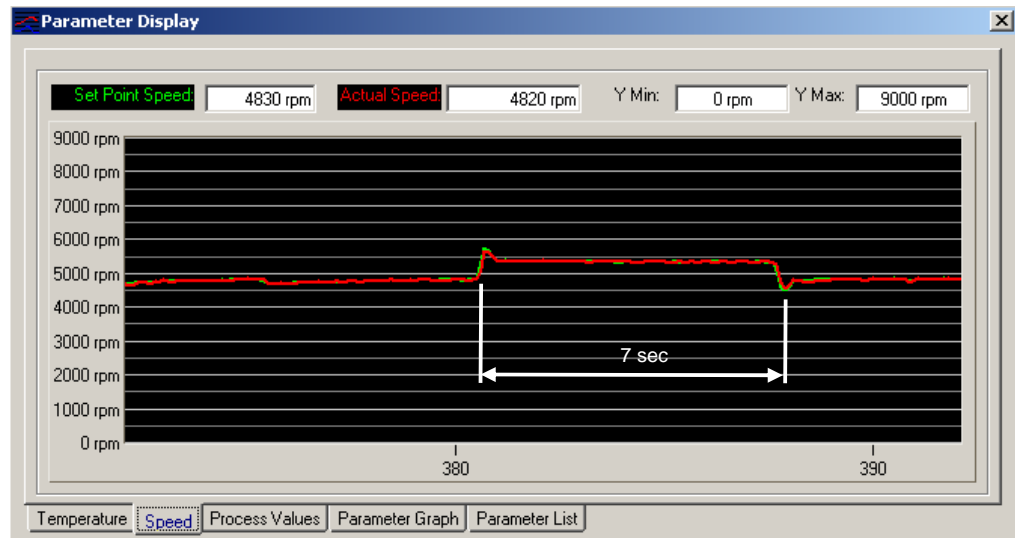
## Test 4: Variations of flow with constant inlet pressure of 6 bar

Inlet pressure constant 6bar  
 Flow step from 10 to 40 l/min and back to 10 l/min  
 Outlet pressure: controlled to 4 bar  
 Time of flow step: approximately 7 sec

Outlet pressure  
 [0...100% =  
 0...6 bar]



Pump speed [rpm]



## Technical Support

For troubleshooting, support and detailed technical information contact Levitronix® Technical Service Department:

**Levitronix Technical Service Department**  
 Technoparkstr. 1  
 CH-8005 Zurich  
 Switzerland  
 Phone: +41-44-445 19 13  
 E-Mail: [info@levitronix.com](mailto:info@levitronix.com)