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**Objective**
This case study tests the cooling power of JULABO FP50-HL with a 10 liters glass reactor. The FP50-HL is connected to the reactor via two 2 m metal tubings. The FP50-HL is programmed to cool down from +20 °C to -20 °C.

**Test Conditions**

- **JULABO unit**: JULABO FP50-HL
- **Cooling power**:
  - +20 °C: 0.9 kW
  - 0 °C: 0.8 kW
  - -20 °C: 0.5 kW
- **Heating capacity**: 2 kW
- **Band limit**: without
- **Flow pressure**: 0.4 bar
- **Bath fluid**: JULABO Thermal H10
- **Reactor**: 10 liters glass reactor (Normag) filled with 10 liter JULABO Thermal H10
- **Jacket volume**: 5 l
- **Control**: External (ICC)

**Environment**
- **Room temperature**: 20 °C
- **Humidity**: 45 %
- **Voltage**: 230V / 50 Hz

**Test Results**
See chart on back page: The FP50-HL cooling process from +20 °C to -20 °C in 2 h 30 min without overshoot.

**Tip**
You can also use the robust Pt100 with PTFE coating.

More tips on back page >>

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*Tip*

Use the free of charge *EasyTEMP* software to control the units with the PC and to show the temperature curves graphically.

Cool-down time 2 h 30 min

**Setpoint**

**Temperature in reactor’s interior**

**Temperature in reactor’s jacket**

*Measured with EasyTEMP Professional*