

### Berri Ltd., Retort Modification for Cooking of Packed Rice

#### INTRODUCTION

Berri Ltd. is a South Australian manufacturer of fruit juices and packaged foods. Three existing rotary retorts needed to be modified electrically, mechanically and process control wise to allow for the cooking of rice in small plastic containers. Existing Eurotherm control equipment is no longer supported and requires complete replacement.

#### APPLICATION

The existing retorts ( large industrial pressure cookers) were initially designed for the cooking of food in cans. The new product (plastic containers) required a much improved control process. This included the redesign of the heating circuit (using steam) and the cooling circuit (using cold water). In addition all sensors such as level, temp and pressure, required replacement.

A new local and central control system was required to provide the ability to select and design cooking recipes. All previous control equipment required replacement with 3 retorts to share common control equipment.

This was necessary since the 3 retorts shared a common water and steam supply.

#### SCOPE

- Redesigning the process
- Inspect and where required replace existing control valves.
- Provide both local (touch screen) and central control
- Completely rewire all 3 retorts
- Design and build a new switchboard including all programming (PLC & MMI)
- Factory acceptance testing
- Site commissioning
- Full documentation including a substantial amount of drawings.

#### EQUIPMENT USED

- Koyo 405 series PLC
- 10" colour QuickPanel by Total Control for local control
- Klockner Moeller switchgear
- Citect SCADA system
- Temperature transmitters by S-Products
- Power and current transducers by Faget

#### END RESULT

The system successfully controls all three retorts using advanced control and recipe handling techniques. The temperatures are controlled to within 1 deg of their setpoints. Careful design of the cooling system using pressure control, meant that the plastic containers do not explode or collapse when entering the cooling cycle.

#### HIGHLIGHTS

**Temperature and pressure control in large industrial pressure cookers (retorts) including recipe handling.**

**Local touch screen and central SCADA control of the process.**

**Extensive use of PID functions in Koyo PLC.**

**Custom designed form 2 switchboard.**