Controlling of a bending machine................

1. Requirements

The bending of exhaust pipes is controlled by using of FAB. The procedure isn't running until both the pipe and connector are present.

2. FAB Solution

The proximity switch I1 detects whether a pipe is present. Then the pipe is clamped in the fixed position by the electromagnetic valve Q1, and if the connector is also present, the pipe is unwound and start bending by the enable reset relay Q2 (Q2=0).

The maximum limited time for bending is delayed for 5 seconds. If no pipe is detected within 5 seconds, the bending procedure is canceled by setting the enable relay (Q2=1).

If a part is detected as defect and imperfection by the detected switchI3, the indicator Q3 is lighting, then confirm a fault by I4 and unload the defective pipe, and then the bending procedure is restarted from the beginning.

3. Components used

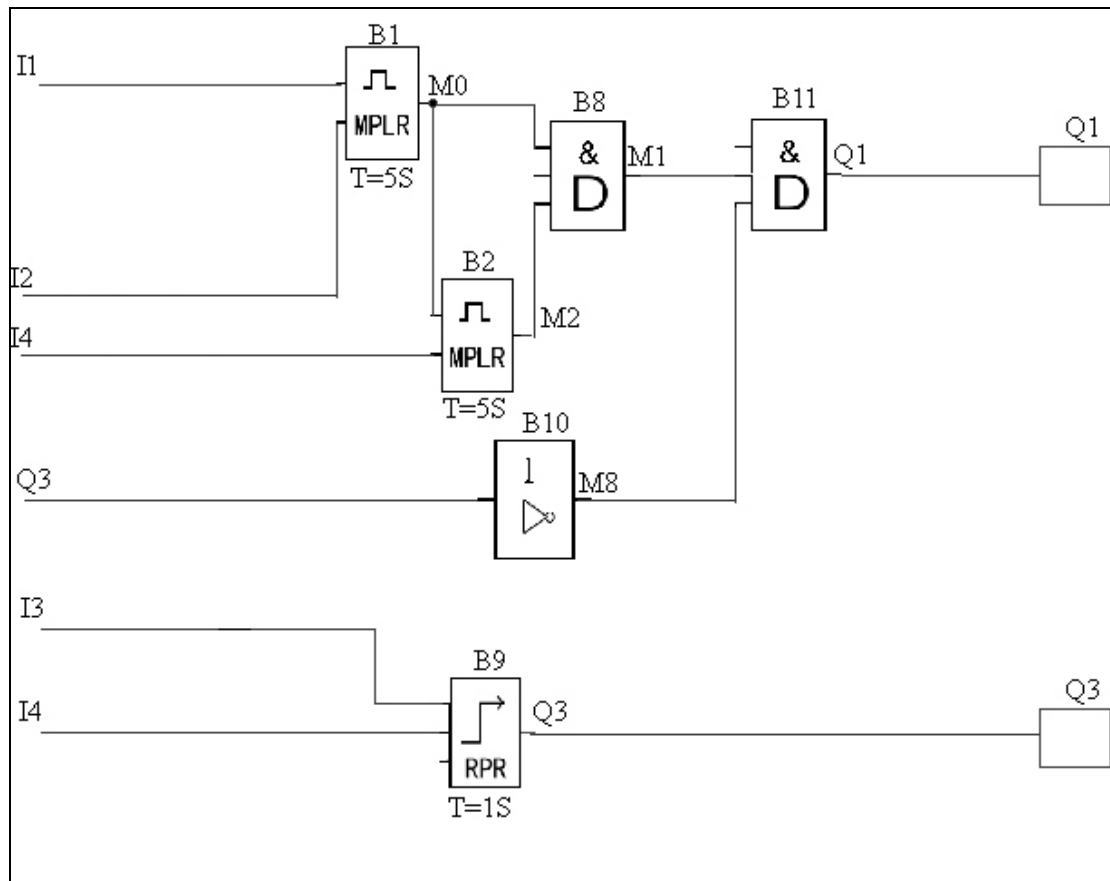| Input	Output
I1 Sensor-"pipe present" (NO contact)	Q1 Electromagnetic valve for clamping pipe
I2 Sensor-"connector present" (NO contact)	Q2 Enable output relay
I3 Detected switch (NO contact)	Q3 Fault indicator
I4 Confirmed button (NO contact)	

4. Advantages and Specialties

Function can be easily expanded;

Fewer components are necessary than the traditional solutions.

5. Software Circuit Diagram