



CASE STUDY

INDUSTRIAL SHIELDS



MEAT SELECTION LINE BY INDUSTRIAL SHIELDS

In this use case, we have implemented a meat selection line controlled by an Industrial Shields arduino based PLC. The system we are going to build is very easy to install and program due to the few elements and open source programming.

SUMMARY

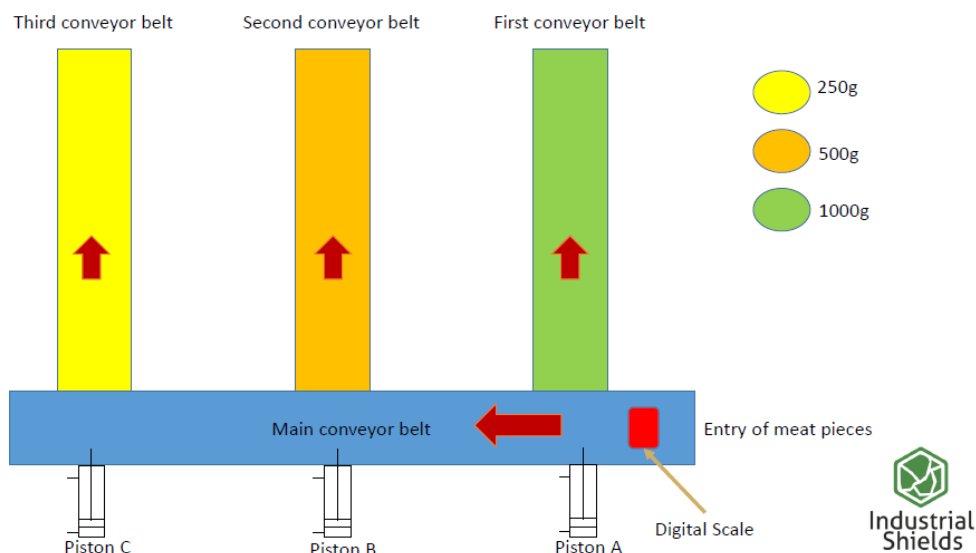
Installing the system that we are showing, you will have a completely automatized meat selection line which can offer you many advantages, since there are no personnel handling, therefore it is completely hygienic, as well as there is a high degree of accuracy in selection and there will be perfect climatic conditions for meat. You can also save a lot of time since the system has a very high speed. Following the proposed system, there is the option of implementing a packaging and labeling system since the meat is directly selected.

GOAL

The system that we are going to implement consists of the selection between three calibres of meat by weight. To do this, first you will need to install 4 conveyor belts: a main one through which all the pieces of different sizes will come together and the other 3 will carry each type separately. For the selection, you must install a digital scale on the first belt and depending on the weight of the piece, it will be automatically diverted through one of the 3 channels. The deviation of the pieces will be done by a pneumatic piston controlled by an electrovalve.

Another very important aspect that you have to implement is the air conditioning system in the room to ensure that the handling is done in optimal conditions.

Below you can see the distribution of the tapes and devices.



CASE STUDY

IMPLEMENTATION

The Industrial Shields PLC will control the whole system, so firstly you are going to connect the conveyor belts to the PLC, which will be relay outputs since they work at 220Vac. The main conveyor belt will always work since you must have a constant flow of meat. The other 3 conveyor belts will only be activated when the corresponding piston is activated, because if there is no piece of meat you are not interested in it working so as not to waste energy.

The digital scale will be an analog input for your PLC and will be in charge of weighing each piece and transmitting the data to the PLC. Depending on the weight of the piece, we will activate the piston corresponding to each belt. To activate the piston just when the piece passes in front of it, you have to install an infrared sensor that ensures that the piston pushes the piece of meat to the other belt. As we mentioned before, you will need 3 solenoid valves to activate each of the pistons and for the PLC there will be 3 digital outputs.

The climate of the room will be controlled by 2 sensors (humidity and temperature) and depending on the collected values, you will turn on the air conditioning and dehumidifier.

Finally your PLC has Ethernet communication, so you can create three registers for each size of meat and constantly send the number you have registered to the server. This allows you to have a real time inventory of the production.

