IN-LINE INSPECTION

In-line inspection is conducting inspection during the production process. Quality control is essential for any company that wants to succeed in the market. In order to ensure the high quality of products, final inspection is very important. However, it is not less important to conduct inspection during the production, i.e. in-line inspection. This approach of inspection helps to control the quality of products by helping to fix the sources of defects immediately after they are detected.

PROSPECTIVE USERS:

In-line inspection is useful for any factory that wants to improve quality and productivity, reduce defect rates, and reduce re-work and waste.

This practice can be applied to all kinds of factories.

PROBLEMS ADDRESSED

- Product defects due to common sources of mistakes.
- A variety of minor defects which can be fixed immediately.
- High levels of waste due to defective products.

PROCESS

In-line inspection is conducted to ensure that the production process conforms to specified requirements. The inspection is normally carried out by production personnel. Random audits of the in-line inspection process are conducted by quality control personnel.

To implement in-line inspection, it is necessary to establish in-line inspection check points for the product. These are the key points that workers need to check during the production process, as well as provide any samples of defects as an aid for workers to carry out in-line inspection.

Steps in implementation

1. The purpose of in-line inspection is to identify problems with the system that need correction and also to identify errors earlier in the production process.
2. In-line inspection can be implemented by line workers under the supervision of QC staff.
3. Set up pre-determined in-line inspection points to help the workers to implement the in-line inspection. Samples of the range of defects should be displayed so that QC staff can see and access them easily. These samples serve as in-line inspection aids and should be clearly visible, easy to understand and made available at each production line.
4. Develop and use an in-line inspection checklist or report to record the frequency of each type of mistake. (See FIP Good Practice Guide: *Using Inspection Checklists for QC*)
5. Conduct training for line workers on how to conduct in-line inspection and use the in-line inspection points and samples.
6. The workers should perform their own in-line inspections before they start their normal tasks.
7. A reject ticket should be filled in when a defect is detected to identify the rejected product.
8. Defective products should be sorted into different types, e.g. easy to fix the errors or substantial re-work required.
9. Products with minor defects that can be easily repaired should be returned to the previous operators in the line for rapid repair, together with their reject ticket detailing the defects. This also helps workers to learn from their mistakes and avoid them in the future. Once the error is fixed by the previous operator and the corrective action is annotated on the reject ticket, the corrected items are re-inspected.
10. If there are any significant mistakes in line, use devices such as lights, marks or flags to highlight the problems in line for a quick response.
11. Random examinations of the in-line inspection can be conducted by QC staff. QC staff can select a random number of products in the production line inspected by line workers to check for certain types of defects. Any defects detected should be recorded and feedback should be provided to the line managers to conduct instant repairs or to alert the workers.
12. In-line inspection QC staff should wear a special uniform, shirt or hat to distinguish them from the workers and other QC staff.
13. QC staff should be provided with sample defects and in-line inspection checklists to record the defects.
14. Data on the defects detected during in-line inspection should be stored and used for statistical quality control by the QC division.

RESOURCES REQUIRED

- Training of workers to conduct in-line inspection.
- At least one in-line QC staff member per line.
- List of in-line inspection points.
- Reject tickets available for all workers.

CHALLENGES AND PITFALLS

- Additional inspection efforts.
- May create unwanted stress on workers.
- Workers may focus more on production rather than in-process inspection.

POSITIVE IMPACT

- Reduces end-line defects.
- Saves time and efforts of final inspection.
- Helps to fix the problems at the outset, and prevents common mistakes being made repeatedly.
- Helps to ensure quality of the products of a production line.

INDICATORS FOR MONITORING

- Workers know how to conduct simple in-line inspections.
- In-line inspectors assigned.
- In-line inspection is conducted in all working shifts**.**
- In-line inspection reports filled with all observed defects.
- Simple defects are fixed immediately.

Further Information Available:

FIP References:
Module 2 - Quality

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