



## CONTRIBUTION TO THE STAGE OF FORESEEABLE RELIABILITY EQUIPMENT FOR THE MEAT-FILLED MEMBRANE

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**Abstract:** Reliability has emerged as an effect of the special importance of operating safety of industrial equipment, devices and components, and is now an indispensable engineering technique for engineers. The operation of a product is limited by the occurrence of an offense or defect. From this point of view, reliability can also be seen as a science of failures. Reliability lies in the ability of a product to function without damage. At the same time, reliability is a synthesis of four notions: probability; performance and mission to accomplish; operating and operating conditions and prescribed operating time.

**Keywords:** reliability, membrane filling equipment,

### 1. INTRODUCTION

The theory of reliability has emerged as a science in the last 40-50 years, and at the beginning it aimed at studying defects, causes and processes of their occurrence and development, forecasting the behavior of products in exploitation, determining the ways of insuring, maintaining and increasing the duration use of products. Reliability is the probability that a technical equipment will perform its specific functions without failures for a determined period of time under previously specified operating conditions. In the last few decades, reliability has become a technical condition, a parameter in product design, manufacture and exploitation, and one of the basic issues of today's technology.

Determining the reliability of sausage membrane filling equipment is a complex issue, given the probability of reliability indicators and the fact that establishing them with certain certainty involves long research and a good organization of the collection and processing of information about its behavior in the production, about maintenance, repair, and causes of failure.

In the design of filling machines, materials must be chosen correctly, maximum loads established, equipment durability determined and an estimate of predictive reliability calculated, predicting the likely appearance and nature of falls, as well as prevention or removal measures their.

The reliability of this stage in the life of the product is called preliminary, predictive or projected.

### 2. TECHNICAL REQUIREMENTS

Reliability shall be maintained by using appropriate methods of preservation, commissioning and, in particular, the way in which technical equipment is used, by understanding the methods and periodicity of the technical status checks, the quality of maintenance and technical revisions and, in particular, the quality of the repairs.

The reliability of this stage in the life of technical equipment is called operational reliability.

The notion of reliability is also closely related to the notion of maintainable, that is to say, that property of a product, expressed by the property, that it can be registered in a certain period of time.

#### 2.1. FCT Triangle

Reliability is a synthesis parameter whose appreciation, in the context of costs and deadlines, can be represented graphically by a FCT triangle (reliability, costs, deadlines) as shown in Figure



1.

**Fig.1 FCT Triangle**

A common concept of reliability is the notion of falling, which is the defect (failure, disruption, disruption, incident) that prevents the product from performing one or more of the basic functions provided. I mean, not any defect of a product is a fall.

Falls can be classified into:

- partial falls that cause one or more basic functions of the product to be discontinued without completely removing it from operation;
- total drops that cause paralysis of all the basic functions of the product and have the effect of putting it out of service.

By their way of occurrence, falls can also be classified into:

- Instant failures, which occur at times and are based on hidden product defects
- Progressive wear-related drops, which gradually occur by moving the product parameters from the admissible limits.

## 2.2. Filling the compositions into the membranes

- the process of filling in the membranes is a process of plastic deformation by pushing the composition through the sponge pipe. low occurs only on the minimum strength line and only when the displacement pressure reaches a certain value. Working pressures vary for different types of salami, they are dependent on the viscosity of the composition and this is in turn dependent on the moisture content of the composition and the fat content that provides a certain lubrication of the pasta and the pipe filling and a lower degree of adhesion of the composition to the pushing assembly and the pipe of the string. Membranes can be classified into three categories:

- natural membranes;
- artificial
- semisynthetic membranes.



**Fig.2 Filling the composition into the membrane**



**Fig.3** Head filling machine; wolf

### **CONCLUSIONS:**

1. In designing the filling machines, choose the correct materials, determine the maximum loads, establish the durability of the equipment, and make a guideline of predictive predictability.
2. The process of filling in the membranes is a process of plastic deformation by pushing the composition through the strand pipe.
3. The reliability of the filling equipment is the regular check of the technical condition, the quality of the maintenance and technical revisions and, in particular, the quality of the repairs.
4. Reliability is a synthesis parameter whose appreciation, in the context of spending and deadlines, can be represented graphically by a FCT triangle (reliability, costs and timing).

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