



Form, Fill & Seal Technologies Comparison 2006

Introduction

This document aims to provide a quick glance at two different technologies used to Form, Fill and Seal (FFS) pouches of shredded cheese. This equipment will be part of a complete line upgrade in the Ingleside, ON Kraft factory.

1.1 Summary

This section will provide a brief comparison between the Vertical FSS and Horizontal FSS technologies. The technologies will be compared using very basic characteristics to provide the pros and cons of each technology.

More details will be provided for different suppliers and models in the subsequent sections.

1.1.1 Vertical FFS vs. Horizontal FFS

The following table presents the advantages (+) and inconvenients (-) of both technologies:

	Vertical	Horizontal
Foot print	+	-
Production speed	-	+
Sealing quality	-	+
Versatility		
• Pouches size	+	-
Changeover speed		
• Product change	+	-
• Length change	+	+
• Width Change	-	-
Price	+	-

Figure 1 – Vertical FSS vs. Horizontal FSS

1.1.2 Vertical FSS

Vertical FSS will allow for production of a wider range of pouches size. As shown in the following tables, range will vary with a width ratio of 4:1. (E.g. 50mm – 200mm) In comparison, Horizontal FSS has a width ratio that is more likely to be 2:1. (E.g. 50mm – 100mm)

Product changeover will require a few operations for a “length only” change. When the width of pouches is modified, the forming tube and other parts have to be changed.

Vertical FSS has the smallest foot print of all technologies. It can be assumed that the foot print of Vertical FSS will be four times smaller than Horizontal FSS.

Vertical FSS is the least expensive technology. As an example, **Triangle** quoted approximately **US\$375,000** for their BC6CTZ and **Rovema** quoted **US\$255,000** for their VPI-R-400. This price includes no options such as splice unit or zipper kit.

1.1.3 Horizontal FFS

Horizontal FFS is the fastest technology of the two technologies, with speed of up to 300 pouches / minutes. However this speed is only achievable with smaller pouches. The faster it goes, the smaller the pouches are.

On the other hand, quality can be assumed to be better with HFFS. The process used to fill the pouch, a filler that moves inside the pouch, will ensure less dust and a better seal.

It is recommended to only vary the length of the pouches with Horizontal FSS. This allow for quick setup changes. A change of width, which is not recommended, will require more extensive manipulations.

Horizontal FSS is the most expensive technology. As an example, **Bossar** quoted approx. **US\$600,000** or their B 3700 STU SD model. This price includes no options such as splice unit or zipper kit.

1.1.4 Recommendation

The data provided will show that HFFS while the fastest technology, seems inappropriate for the filling of larger bag at rapid speed. Of the model shown, very few can actually handle the width and length of our bag.

On the other hand, VFFS have no problem handling the width and length of our bag. While the speed seems acceptable, it is important to note that this speed will depend greatly on the type of material and the type of material packaged. This technology however seems more appropriate for our need.

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