

# Systematic Comparison of five industrial Feeders with five challenging Test Objects

Degree programme : BSc in Micro- and Medical Technology | Specialisation : Sensor technology  
Thesis advisor : Prof. Dr. Bertrand Dutoit

The industry tends to achieve fast processes in order to increase productivity. One of the problems that remained was the handling of parts. They have to be picked up and brought to the next step of the production in order to be used easily. To achieve this goal, industrial feeders are used. The goal of this work is to compare the performances of various feeders available on the market with a practical approach.

## Introduction

Several manufacturers offer flexible feeders, but which ones are the most suitable for industry? In order to check this, a study is being launched to find comparison criteria for these devices and compare five flexible feeders: AIVE 3.0 from AIM, Aflex 200 from Afag, Asycube 240 from Asyrl, Varioshaker 270 from Variobotic and Flexibowl 500 from Ars.

## Objectives

Five flexible feeders are studied and tested in this work. The aim is to observe the performance of each of the machines, highlighting strengths and weaknesses. The most important parameter for the use of such a device is the cycle time. This factor will be of great importance in determining which of these machines is the most efficient. Different criteria had to be chosen in order to be able to compare the machines. As the technology and the way of working are different, the points had to check every aspect of the feeders in an unbiased way. The kind of parts which will be used during the study is relevant to compare the behavior of all objects on the machines and see their performances.

## Methods

A selection of parts to be tested on the feeders is made at the beginning of the study. The tests carried out on the feeders are used to determine which ones are most suitable for industrial application. In order to achieve short cycle times, displacement and changeover tests are carried out. At the same time, measurements are taken to analyse the feeders'

movements with a 2D laser Doppler vibrometer, but also to check the movement time of the parts, the stabilization time of the parts and the acoustic noise generated by the machines. Following the results, the performance of the feeders is compared in order to highlight those that stand out.

## Results

The comparison of performances made it possible to identify the most efficient machines and to classify them according to the order of the best feeder to the least efficient. The performances of the machines are evaluated and classified. The following ranking from the best feeder to the least efficient one has been found: Flexibowl 500 from Ars, Asycube 240 from Asyrl, AIVE 3.0 from AIM, Varioshaker 270 from Variobotic, and finally Aflex 200 from Afag. This ranking is based on a few criteria. Some other points can be important for some customers, like the workspace needed by these machines, the installation, the autonomy of them, after sales service, etc.



Niveethan Krishnasamy  
079 472 38 41  
krishnivee@gmail.com

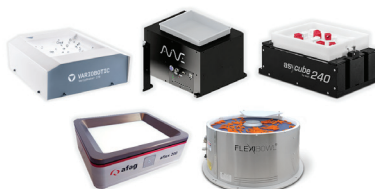


Fig.1: Pictures of the 5 feeders used during the study.

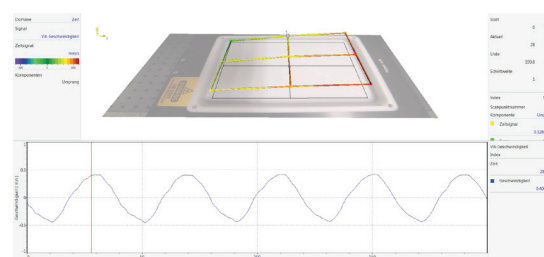


Fig.2: Measure of a vibrating plate with a the vibrometer PSV500 from Polytech to analyse the movement and the