



Components for which systems are available

▶ FEEDING IN THE LATEST

▶ VIBRATORY BOWL FEEDER FOR RAW CASHEWS

▶ AIR JET TOOLING

Elscint Ahead

Feeding In The Latest ... Monish Shete

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Last week I visited Bangalore. The traffic situation there has gone from bad to worse. However, with the new flyover on Hosur Road, going to Hosur / Electronic City is fast, whether you use the flyover or not. The flyover has reduced a lot of bottlenecks. In my city, Pune too, the old Mumbai Pune Highway passing through Pimpri Chinchwad, has been increased to 8 lanes and 4 lanes are for vehicles which wish to go straight. It has reduced my commuting time to just about 20 minutes from more than 35 minutes in the morning (for 15 kms), which I guess is very good for a city having a population of almost 5 million. What a difference the removal of bottlenecks has made! In fact, the same concept is used in a vibratory bowl feeder. Only difference is that instead of a flyover, air jet tooling is used. Read more about it in the second news story.

The first news is about how Elscint has developed a bowl for feeding of raw cashews.

Elscint Vibratory Bowl Feeder for raw cashews

Elscint recently manufactured a special vibratory bowl feeder for feeding of raw cashews. The cashews being raw and fresh, there was a lot of variation in the sizes. The sizes varied from 20 mm length to 40 mm length, width from 15 mm to 25 mm and height from 8 mm to 14 mm. Due to this huge variation, there was a possibility of jamming. The orientation required was lengthwise and a speed or feed rate of 60 parts per minute was required. Elscint designed a special type of tooling which ensured that all these sizes could be accommodated in a single bowl feeder and a speed of 100 parts per minute was achieved. A cast aluminium bowl was used and it was PU coated with Elscinthane PU coating. This increased not only the life of the bowl but also improved the performance drastically. A gravity chute with a sensor in the same was also provided which conveyed the cashews from the bowl feeder to the next operation. Once, the chute was full of cashews, the vibrator used to automatically switch off and switch on again once the chute became part empty. The tooling as well as the chute was made in stainless steel.



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Air Jet Tooling for Vibratory Bowl Feeders

A vibratory bowl feeder is tooled for a particular component or a family of components. It gets the parts or components being fed in the right or correct orientation. To achieve this, the path on which the components or parts travel is made in such a way that only the right component goes forward while the rest which are wrongly oriented fall down and are re-circulated. If possible, the orientation of the wrongly oriented components is changed into the correct way. This achieves a two fold effect, first of all, the wrong component does not come forward and secondly, if it comes forward, it is in the right direction. To achieve all this, bowl toolers use a variety of techniques like creating obstructions in the path of the components as they move up or down, create barriers etc. These are called wipers, bowl tooling, change over tooling etc. Another way of achieving this is the use of a small jet of air. The air flow helps in either eliminating the wrong component or else turning them around. Air jets are also used for improving the feed rate or speed of the vibratory feeder. For a high speed bowl feeder, an air jet can increase the speed of the vibratory feeder tremendously, upto even 25% with a single air jet. Air jets are also used for ensuring that the components flow in a single line and do not override one another. However, the use of a lot of air jets leads to the question, whether it is necessary to use air jets for bowl tooling and increasing the speed? Air, that too continuous air jets are costly to say the least and increase the running cost of the bowl feeder tremendously. Hence, this is a very pertinent question and should be answered in detail.

First let us take the question of using air jet for component or part orientation. Is it really required? The answer is not in black and white i.e. yes or no. Its maybe, some components do require the use of air for orientation, mainly plastic ones which do not have any particular profile to hold on or there is no difference in the weight of any particular side. In such a case, there is no choice but to use air for achieving the required orientation. However, in case of most parts, air jets can be avoided for doing the orientation due to their huge running cost. Then why do bowl toolers use air for orienting even the easy parts like caps? The simple answer is to save them the tooling time and reduce their work! From a customer's point of view, he should ask at the order placement stage whether the bowl will be having air jets for orientation. He should inquire whether it is really required and if so, why. Is orientation possible without the of air? Why not? Asking such questions will make the bowl tooler re-evaluate the planned bowl tooling and if possible, achieve the orientation without the use of air.

Second use of air is for increasing the speed of a vibratory feeder. Air jet is used first to eliminate the dead spots of a vibratory feeder and for further improving the flow. Dead spot is the part of the bowl whether the components do not move forward. The reason might be due to the bowl being unwieldy or not properly tuned. This is something which can be easily avoided by making the bowl properly and tuning it. Using a cast aluminium bowl eliminates a lot of problems of the bowl becoming unwieldy or not properly tuned. Hence, insisting on a cast aluminium bowl with polyurethane coating can help reduce the dead spots and result in the saving on the air jets being used to increase the speed of the bowl feeder. In case the speed required is quite high which cannot be possibly be achieved through a vibratory feeder, then the use of air jets would be unavoidable. Hence, it is always advisable to speak to the bowl feeder company and ask the reasons for the use of air. If they are unsatisfactory, then better to look for another company! Of course, I need not mention at this juncture that Elscint avoids the use of air for orientation and improving the feed rate unless it is utmost necessary.



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