



## New simplified vacuum system helps improve productivity and reduce energy consumption

by: Ashok Mouli RAYAPUDI

Marketing-Communications Manager-COVAL

### Application & Problem Description:

France based Plastic moulding and tool manufacturer CF Plastiques recently opted for a new compact and powerful vacuum system to improve efficiency and productivity. Established in 1982, CF Plastiques offers Plastic EDM & CNC machining, custom plastic injection molding, vacuum forming & tooling solutions to packaging, mechanical, medical, textile and to other diverse industrial segments.



Example of a CF Plastiques finished product

Given the fragility of the objects to be handled during the manufacturing processes, CF Plastiques opted for a vacuum handling system in its CNC tooling center. At CF Plastiques production processes, the objective is to reach -900 mbars vacuum level at a quick pace to carry out the pick and place task. The vacuum system was equipped with an additional vacuum reserve so as to boost the performance vacuum generating task.

Although the vacuum system helped to fulfil the needs of vacuum handling task; CF Plastiques still faced several limitations and assessed that there was still room for improvement with regard to the floor space, downtime & maintenance costs, noise level and energy consumption of its overall vacuum system supported by a traditional electric vacuum pump. Also the performance of the entire system was affected due to large tube diameter of the vacuum network, which resulted in unnecessary energy losses and increase in evacuation time.

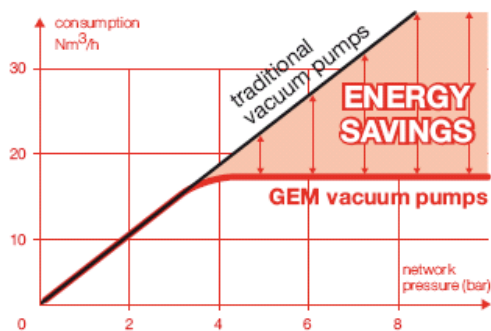
The installation cost and maintenance were important as the application needed several external functions such as distributors, blow-off, vacuum monitoring and pressure regulation. This not only increased installation time and investment costs but also restricted the overall performance and efficiency of the vacuum system.

### New Solution & Trouble Shooting:

In search of a better solution, CF Plastiques approached COVAL the leading worldwide vacuum automation solutions provider since more than 20 years.

Coval offers a full range of compact air driven vacuum pumps, suction cups and accessories which meet the requirements of wide range of vacuum handling applications mainly used in Automobile, Packaging, Plastic moulding, Sheet metal, Wood and Printing industries.





CF Plastiques' focus on consistent product quality and betterment of productivity went hand in hand with Coval's philosophy of innovation and vacuum management to improve the overall efficiency and performance of vacuum automation applications.

With the help of GEM compact and integrated air driven vacuum pump, Coval offered an all in one solution to overcome the limitations faced by CF Plastiques. The fact that GEM has all necessary functions in a compact and integrated format with negligible mass helped CF Plastiques to reduce the overall investment, order and installation time while eliminating the need to install additional modules: distributors, pressure regulator, solenoid pilots and valves.

The new IPR system auto-regulates the feed pressure to 4 bars which means whatever may be the feed pressure in the network the system consumes an optimal pressure while still offering the necessary pressure for other applications which needed more than 4 bars feed pressure. Result, CF Plastiques' energy consumption was reduced by 50%. The efficiency of the vacuum network was also optimized and the energy losses were eliminated while attaining the optimum vacuum level necessary for the application.

nozzle ø	compressed air consumption (Nl/mn)			
1.2 mm	65	108	139	139
1.5 mm	97	157	203	203
2 mm	179	278	357	357
2.5 mm	260	404	519	519
3 mm	385	614	797	797
network pressure	4 to 8 bar	6 bar	8 bar	8 bar
	<b>GEM</b>	traditional vacuum generators		

nozzle ø	sound level (dBA)			
1.2 mm	57	76	84	84
1.5 mm	57	77	85	85
2 mm	57	78	85	85
2.5 mm	65	76	85	85
3 mm	67	78	85	85
network pressure	4 to 8 bar	6 bar	8 bar	8 bar
	<b>GEM</b>	traditional vacuum generators		

The noise level is reduced considerably thanks to the silent technology incorporated in GEM. A 30 dB reduction of noise level meant calm working conditions for the operators. Also the fact that GEM possesses a through type exhaust silencer system with no moving parts inside, CF Plastiques was able to eliminate clogging problem which needed frequent maintenance of the vacuum pump. In addition the new system needed no lubrication at all compared to the standard electric vacuum pumps.

In sum, with new solution (GEM vacuum pump) CF Plastiques was able to build a simpler and more efficient vacuum system and improve the efficiency and productivity of the overall vacuum system. <<The reduction of energy consumption, noise level and additional costs related to external peripheral modules were a bonus>>, said Cyrille Lobe, CF Plastiques Engineer.