Most Profitable Sectors of the Food Industry for Valve Manufacturers

World GDP is $80 trillion. Over $15 trillion is spent on food. Sugar purchases are over $1 trillion.

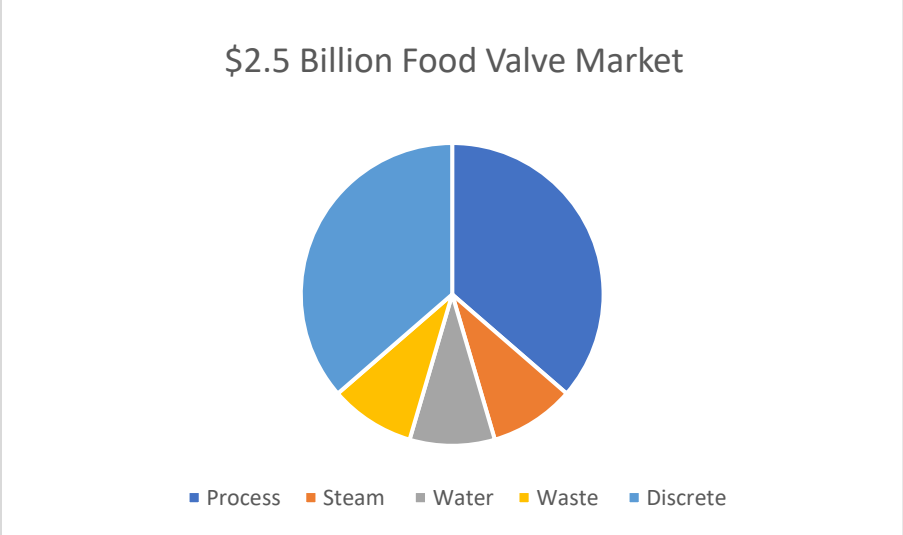
The percentage of food revenues spent for valves is very small compared to municipal water treatment and less than for mining, refining and most other industrial sectors.(1)

On the other hand because of the huge size of the food processing market the world process valve market is well over $2.5 billion. When discrete applications are included and a broader definition is used the market is close to $6 billion.

The market includes not only the valves directly involved in the process but those used in utilities such as water, electricity and waste treatment.

Many food processing companies generate their own electricity and even small processors generate steam.

The treatment of wastewater on site rather than discharge to public treatment plants is common. In fact in a number of small towns the food processing company also supplies municipal wastewater treatment for the residents.



Some of the world's largest valve suppliers look at the food market and ask themselves: where can we sell the same valves we supply to other industries? This is a relevant question because it can lead to the most profitable orders.

The rationale is that if the market for an existing valve design is expanded the cost of production will be less and margins and EBITA can be increased.

Some valve companies have taken a different approach. They ask what are the customer needs? Can we supply a product with lower total cost of ownership than our competitors?

Some valve companies who have taken this approach have generated twice the EBITA of the industry as a whole.

Much of their success has come from buying small companies who have found highly profitable niches. An alternative which is even more attractive is to thoroughly understand all the processes, the cost of ownership factors and then develop solutions which deliver lower costs than the competition.

This approach starts with a segmentation of the food and beverage markets and processes. The questions in each sector are

- How big is it?
- How fast is it growing?
- How important are valves?
- What are the specific uses in general, critical, severe, and unique service?

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Markets for Beverages - 2021

Sector	Revenues $ billions	CAGR %	Service [1]	Valve % [2]
Beer	600	6	C, G, S,	H
Coffee, Tea	120	7	C, G	L
Carbonated	420	5	C, G	L
Cider	4	3	C, G	M
Hard Seltzer	8	11	C, G	M
Juice	257	4	C, G	M
Plant Based	23	14	C, G, S, U	H
Spirits	500	7	C, G, S, U	H
Still Drinks	20	5	C, G	L
Water (bottled)	220	11	C, G	L

Wine	430	6	C, G, S, U	H

1. *C-Critical, G-General, S-Severe, U-Unique*
2. *H-High, M-Medium, L-Low*

Beer is the largest beverage market. Valves represent a relatively large percentage compared to industry revenues. There are critical and severe service applications.

Wine and spirits are substantial markets for critical and severe service. There is substantial opportunity to provide innovative designs with lower total cost of ownership. One criterion is preservation of product quality.

Markets for Food - 2021

Sector	Revenues $ billions	CAGR %	Service	Valve %
Bakery	225	3	C, G	L
Confectionary	200	3.5	C, G	M
Dairy	550	4.5	C, G, S	H
Flour	250	3	C, G, S	H
Food Ingredients	100	4	C, G, U	M
Frozen Food	300	3	C, G	VL
Fruits /Vegetables	200	5	C, G, S	M
Liquid Food	200	5	C, G, U	M
Meat Replacement	5	11	C, G, S, U	H
Oils and Fats	100	5	C, G, S	H

Pasta	22	4	C, G	L
Pet Food	86	4.5	C, G	M
Poultry Meat, Seafood	6,000	4	C, G, S, U	VL
Sugar	1,000	4	C, G, S, U	H
Snacks/cereals	70	3.5	C, G	L
Starch/Protein	45	3.6	C, G, S	M

1. *C-Critical, G-General, S-Severe, U-Unique*
2. *H-High, M-Medium, L-Low, VL-Very Low*

Valves play a key role in milk separation and pasteurization processes.

The poultry, meat, seafood industry is the largest food market. It is a big market for valves but in relationship to total industry sales valve sales are very small.

There are a number of slurry applications requiring severe service valves.

Sugar applications differ between cane and beet sugar. Cane sugar involves disposal of the waste (bagasse) which has substantial fuel value.

Cane sugar milling and refining can be undertaken in different locations.

Thailand has eight major sugar producers and 49 sugar factories. Each has site specific factors to incorporate. Its electricity prices are in the middle at $0.11/kwh. So lower valve power requirements can be quantified.

In some applications the valves used for dry conveying of product represent a larger market than the valves used for moving liquids.

Some of the most critical applications involve moving product as a liquid slurry. Diaphragm valves provide the accuracy and sanitary aspects and are widely used. Various suppliers have unique designs. The challenge is to translate these features into cost of ownership assessments.

GEA says its Vesta sterile valves meet the operational requirements for food processes, comply with the strictest safety regulations and provide a high-quality product. The most important features of the innovative design are hermetic and safe sealing by PTFE bellows with a patented sealing system, actuator systems made of high-grade synthetic material or stainless steel and easy servicing.

The Vesta sterile valve is for low volume flow rates, suitable for applications from laboratory up to highly complex process plants. The valves prevent product contamination from the outside, ensure that the process system stays free of germs and offer the following design benefits

- Pocket-free design without domes or pools
- Valve body drains completely in straight pipes
- PTFE bellows as shut-off element for universal applications
- Long service life of the PTFE bellows
- Patented bellows sealing system hermetically, safely and permanently seals off the valve interior against the outer atmosphere
- Compact design due to newly developed actuator systems
- Reliable CIP/SIP cleaning thanks to optimized flow characteristics
- Hygienic outer design, meets EHEDG/cGMP standards
- Simple and safe maintenanc

Watson Marlow Asepco says that its diaphragm valves can be most cost effective because

- No tools or special training required
- Integrated, non-adjustable travel stops
- No dead legs or dead spaces
- Flush mount design and simple clamp assembly

The conclusion is that the valve will save time and money compared to conventional basic weir-style diaphragm valves.

ITT says that its EnviZion diaphragm valve has embedded technologies for a more streamlined installation and maintenance process, delivering less downtime, longer preventative maintenance cycles and greater production capacity for manufacturers.

Assembled with a simple mount and turn motion, the EnviZion valve is installed in approximately three minutes without using any special tools or difficult torquing procedures. The valve's 360° active seal protection provides leak-free operation, helping eliminate the risk of contamination and the need to re-torque after thermal cycling.

In the past the purchaser has been challenged to weigh the various claims and features for his specific requirements. The implementation of the Industrial Internet of Wisdom (IIOW) gives the purchaser access to the actionable information which is available in each of these process niches.

(1) *Valves: World Markets* published by the McIlvaine Company