

APV Flex-Mix™ Instant

Application

Flex-Mix™ Instant is a highly efficient vacuum processing unit, suitable for use in a wide range of applications. It is designed to recombine, dissolve and disperse powders in liquids by means of high shear vacuum mixing.

The Flex-Mix™ Instant is among other things used for:

- Recombination/reconstitution of milk powders
- Infant formula preparation
- Fine food emulsions
- Slurries and gum dispersion
- Sugar dissolving
- Beverages
- Ice cream, yoghurt and dessert mix

CAPACITY

Batch production: Up to 10,000 litres.

Production per hour: Up to 40,000 litres per hour – All depending on the type of production plant

OPERATION

The Flex-Mix™ Instant consists of an in-line rotor/stator mixer which is connected to a tangential outlet in the bottom of the tank. The In-line mixer is both pumping and mixing the product and thus creating a large liquid flow, which is recirculated over the tank through a bypass.

The bypass flow is returned tangentially into the tank thus creating a forced vortex. The forced vortex means that liquid will “rise” up along the tank wall and thus the free liquid surface area will be considerably larger than the tank diameter.

The tank is a vacuum tank and the powder is transported into the tank by means of a special powder inlet valve (Patent pending). The powder/air mixture is led directly into the liquid below the liquid surface and due to the forced vortex and the difference in density, a separation of air/gas and liquid will take place very fast. The air/gas is centered in the middle of the tank and is subsequently drawn out. The large free liquid surface furthermore gives an effective and continuous deaeration of the product. Unlike traditional mixing that generally incorporates air during mixing. This will help to reduce oxidation, improve product quality and consistency.

The reversed cone shaped bottom of the tank ensures that the forced vortex is stagnating in the bottom and during the powder injection it will not be possible to draw out air in the tangential outlet.

Thereby it is ensured that no air can be drawn into the In-line mixer and thus into the mixed product.

If the product has to be heated/cooled indirectly, the forced vortex gives a considerable increase in the heat exchange efficiency (large heat surface and high speed).

STANDARD DESIGN

General:

- Sanitary design for CIP cleaning. Fully drainable for improved hygiene and minimal product waste
- Integrated Flex-Mix™ Instant tank with reversed cone bottom
- Integrated Flex-Mix™ In-line mixer/pump
- Integrated vacuum system
- Integrated CIP system
- Available with integrated control panel with PC/PLC
- Skid mounted
- Available with powder hoppers, open as well as closed for CIP cleaning
- Seal material in EPDM or FPM (Viton) FDA quality
- All parts in contact with the product are made of stainless steel AISI 316L / DIN1.4404

TANK DESIGN:

- Cylindrical vacuum tank in the following sizes: 1000, 2000, 3000, 6000, and 10000 litres
- Internal/external tank surfaces in quality 2B finish with polished welds. Surfaces in contact with product: Ra < 1 µm
- Available with heating/cooling jacket on tank wall and/or with insulation with outer shell
- Available with steam injection valves for direct product heating
- Top mounted manway cover, available with safety lock
- Top mounted vent/safety valve
- Top mounted sight glass with light
- With one or two CIP-inlet branches, ø25 mm, with rotating spray ball
- One or more product inlets for liquids
- One or more powder inlet valves
- Available with side mounted minor ingredient funnels
- Available with level switches and/or load cells



IN-LINE MIXER/PUMP

- In two sizes with rotor diameter: $\varnothing 250$ and $\varnothing 350$ mm
- Directly coupled motor (closed coupled design) Fully encapsulated, IEC or NEMA, IP55, covered by a stainless steel jacket, 4 and 6 poles
- Double mechanical shaft seal for water flushing in Silicon / Carbon alternatively in Silicon/Silicon seal ring material.
- Available with inducer
- Several types of stator rings

VACUUM SYSTEM

- One or two liquid ring vacuum pumps in stainless steel/plastic material resistant to CIP liquids
- Directly coupled motor (closed coupled design). Fully encapsulated, IEC or NEMA, IP55, 4 and 6 poles
- With water separator for reuse of service water
- With regulation valve for maintenance of vacuum level

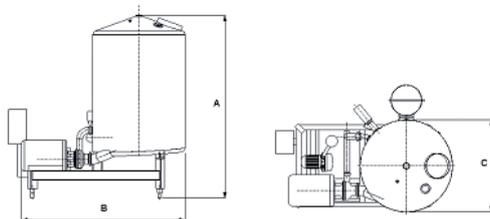
CONTROL PANEL AND CONTROL

- Available with the following APV Flex-Mix™ Instant PLC/PC control systems:
 - PLC-Relay Batch Control
 - PLC/PC Batch Control
 - PLC/PC Semi-Continuous Control
 - PLC/PC Continuous Control
- Available with either Wonderware or Siemens operation panels
- With MCC (Motor Control Centre), with and without frequency inverter

TECHNICAL DATA

TYPE FLEX-MIX™	TANK		IN-LINE MIXER				VACUUM PUMP			VALVES				
	TANK VOLUME	PRESSURE RATING	INLINE MIXER SIZE	SHARE RATE @ 50 HZ	MOTOR			DATA @ 500 MBAR ABS			MIN/MAX AIR PRESSURE			
					SIZE TYPE IEC	POWER*	SPEED @ 50 HZ	AIR CAPACITY	MOTOR @ 50 HZ	SEALING WATER				
L	BAR	S-1	KW	RPM	M3/H	KW	M3/H	BAR						
INSTANT-1000-250	1000	FULL VACUUM TO 0.5	$\varnothing 250$	25000	200	30 37	1450	150	4	0.9	6/8			
INSTANT-2000-250	2000		$\varnothing 250$		200	30 37								
INSTANT-3000-250	3000		$\varnothing 250$		200	30 37								
INSTANT-3000-350			$\varnothing 350$		315	75 90 110	975	150	4	0.9				
INSTANT-6000-350	6000		$\varnothing 350$		315	75 90 110						300	2 X 4	1.8
INSTANT-10000-350	10000		$\varnothing 350$		315	75 90 110						300	2 X 4	1.8

* ABB MOTORS



TYPE FLEX-MIX™	APPROX. DIMENSIONS (MM)		
	A	B	C
INSTANT-1000-250	2490	2430	1160
INSTANT-2000-250	2365	2770	1562
INSTANT-3000-250	3115		
INSTANT-3000-350	3305	3205	2045
INSTANT-6000-350	3870	3580	
INSTANT-10000-350	5200		

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