

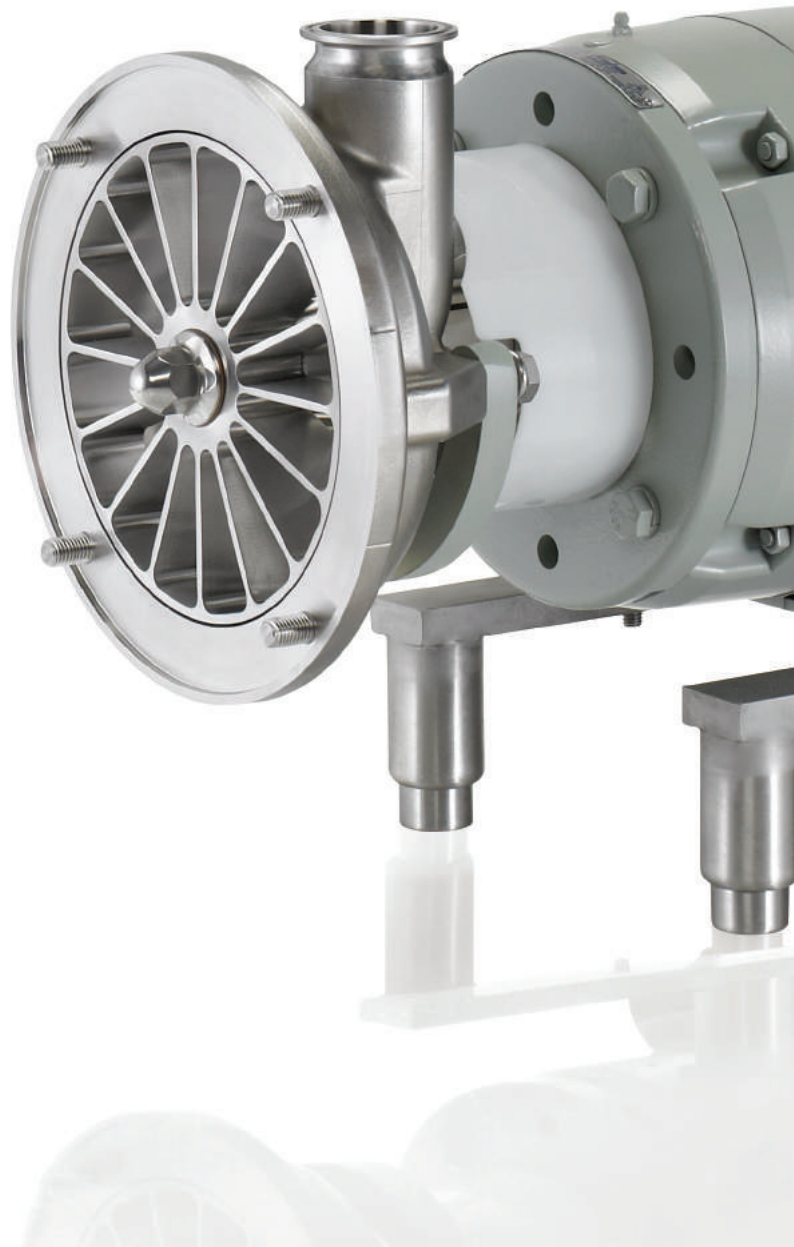
Fristam FZX Sanitary Liquid-Ring Pumps



Fristam
PUMPS®
Engineered For Lasting Performance®

Reduce Product Loss and Ensure Consistent CIP Cycles

Fristam's FZX Series sanitary liquid-ring pumps provide new capabilities for handling products with entrained air. By using a specially designed impeller and housing, FZX pumps maintain their prime when other pumps become air-bound. This feature makes the FZX more efficient for complete evacuation of tanks and lines during normal process or CIP.



Fristam is a global manufacturer of sanitary centrifugal and positive displacement pumps, mixers and blenders respected for performance, reliability and technical superiority. We are committed to continuous improvement by investing our engineering resources in research and development, to ensure our original designs provide you with the best choice in pumps, mixers and blenders.



“We have found the Fristam pumps to be very reliable with excellent seal life. This pump paid for itself in less than four months.”

– Midwest Food Processor

Pumps Liquids With Entrained Air or Gas

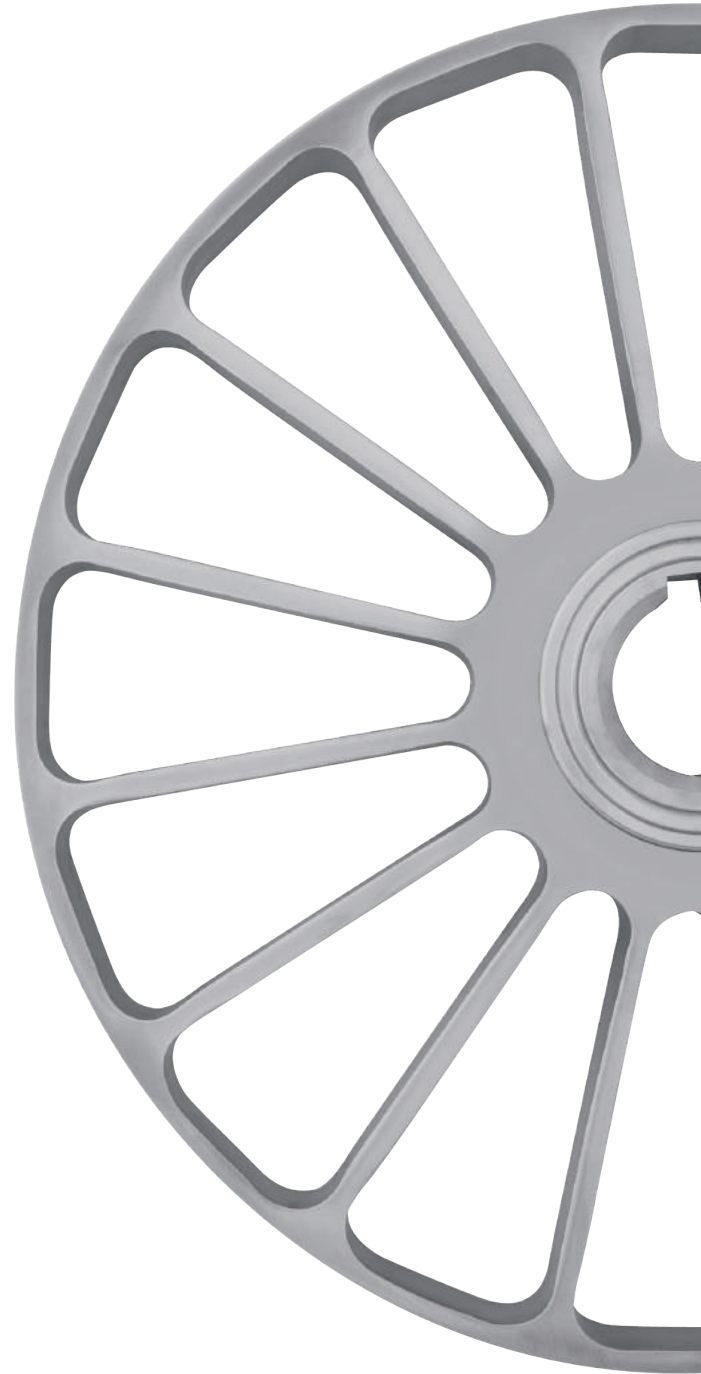
The FZX uses a special impeller and extremely tight internal clearances to produce a liquid-ring of fluid inside the pump. Once this ring is formed, the FZX can pump both liquid and air while producing vacuum capable of lifting up to 23 feet.

BENEFITS

- Less waste through efficient removal of product and CIP solution
- Shorter process and CIP time vs. standard centrifugal pumps
- Safer handling of chemicals compared to other CIP pumps
- Reduced water usage during CIP decreases your environmental footprint
- Simple piping requirements due to front inlet
- Bi-directional operation allows processors to load and unload with a single pump
- Long seal life and low maintenance
- High lifetime value

“By installing the high-suction Fristam pumps, we are now able to empty our mix tanks completely. We are able to capture all of the foam.”

– Ohio Ice Cream Maker





The turbine style impeller creates chambers of liquid/gas while channels in the cover and housing displace the liquid/gas.



FZX Cover

Designed For CIP Return

With its specially designed impeller and housing, the FZX Series maintains its prime when other pumps become air-bound. This feature, combined with its ability to produce a vacuum, makes it an excellent CIP return pump as complete removal of fluids is essential.

ADVANTAGES OVER OTHER CIP PUMPS

REPLACES CENTRIFUGAL PUMP/AIR ELIMINATOR COMBINATIONS

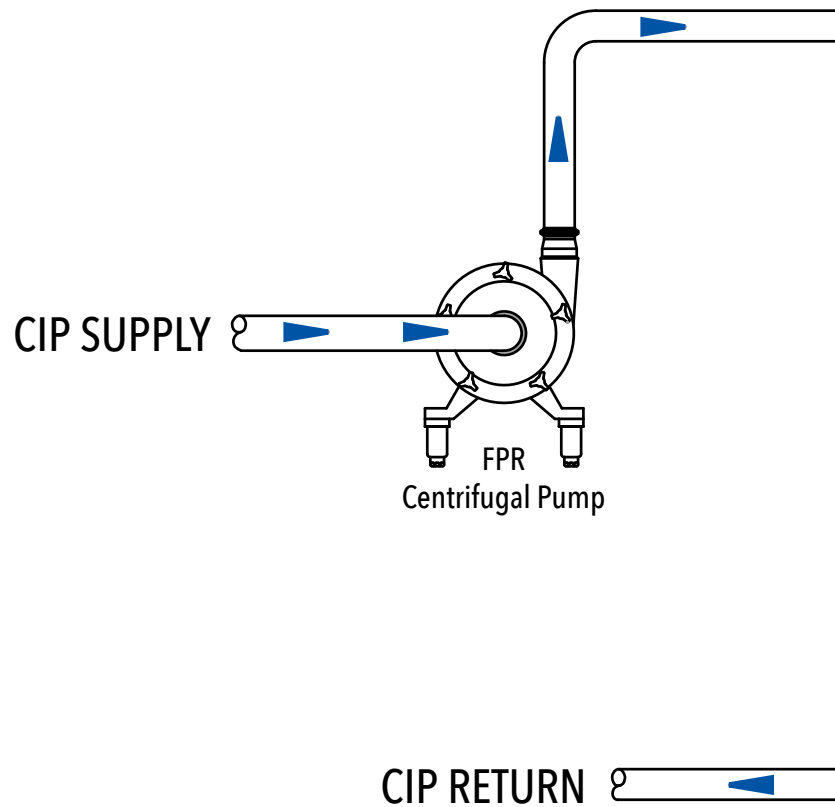
Because the FZX can pump CIP solution containing air, it replaces centrifugal pumps and the need for air eliminators and check valves on the discharge. With the FZX, processors no longer have to deal with caustic cleaning solution being discharged onto the floor.

REDUCES WATER AND CHEMICAL USAGE

The FZX pump requires less fluid to charge a system. It also reduces residual water and CIP solution left in lines and vessels and decreases soiling of wash water through better evacuation of pre-rinse.

REPLACES MULTIPLE CIP PUMPS

A single FZX pump can handle the CIP return of multiple tanks, eliminating the need for one CIP pump per tank.



“Our tank cleaning problems disappeared. The pump not only removed all the water from the tanks, but also helped pull remaining water and solution from the lines.”

- Pennsylvania Dairy Processor

Additional Applications

PUMPING AERATED PRODUCTS

The FZX's ability to pump products containing large amounts of air without becoming air-locked allows for complete emptying of tanks and lines to minimize contamination between products. The pump not only removes product from tanks, it can also pull remaining foam and solution from lines saving product and money.

- Ice cream mix
- Sweetener
- Glycerin
- Reclaimed water

LIFTING PRODUCT

The FZX can produce significant vacuum in the inlet piping and lift water up to 23 feet from drums and sumps.

- Drum unloading
- Tote unloading
- Whey removal

PUMPING SHEAR SENSITIVE PRODUCTS

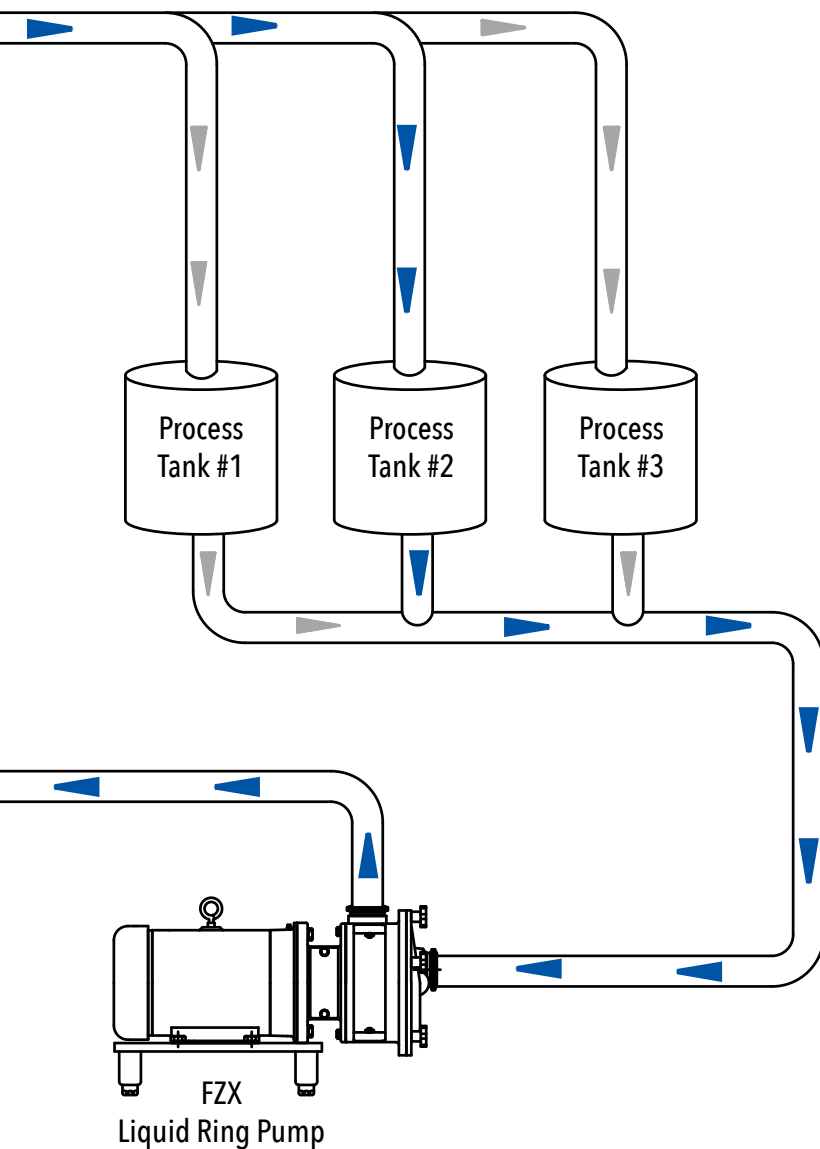
At low back pressure, the wedge-shaped impeller openings and tight internal clearances enable the FZX to efficiently pump shear-sensitive products.

- Cream
- Liquid egg
- Yeast

TEXTURIZING

At high back pressure, the FZX's unique vane-shaped impeller, along with a throttling valve, imparts a smooth consistency to products like sour cream without overworking them. It can replace positive pump and homogenizing devices to smooth products.

- Sour cream
- Yogurt



Specifications and Options

SPECIFICATIONS

- Six models
- Fully cleanable and steamable in place
- Lift capability of up to 23 feet
- Maximum inlet pressure 150 PSI
- Discharge head up to 250 feet
- Recommended maximum viscosity 5,000 cps
- Flow rates up to 400 GPM
- Horizontal inlet
- C-faced, close coupled design
- Wettable parts are polished 316L stainless steel
- Multiple seal/elastomer options
- 3-A approved, ISO registered

OPTIONAL SEAL MATERIALS

- Carbon
- Chrome oxide stainless steel
- Silicon carbide

OPTIONAL ELASTOMERS

- Viton®
- Buna
- EPDM
- Silicone
- Kalrez and equivalents
- Contact Fristam for other options

OPTIONAL FINISHES

- 25 Ra
- 20 Ra
- 15 Ra
- Electropolish
- Passivation

OTHER OPTIONS

- Stainless steel flange support
- Casing drain
- Bearing block mounted
- Adjustable base with legs

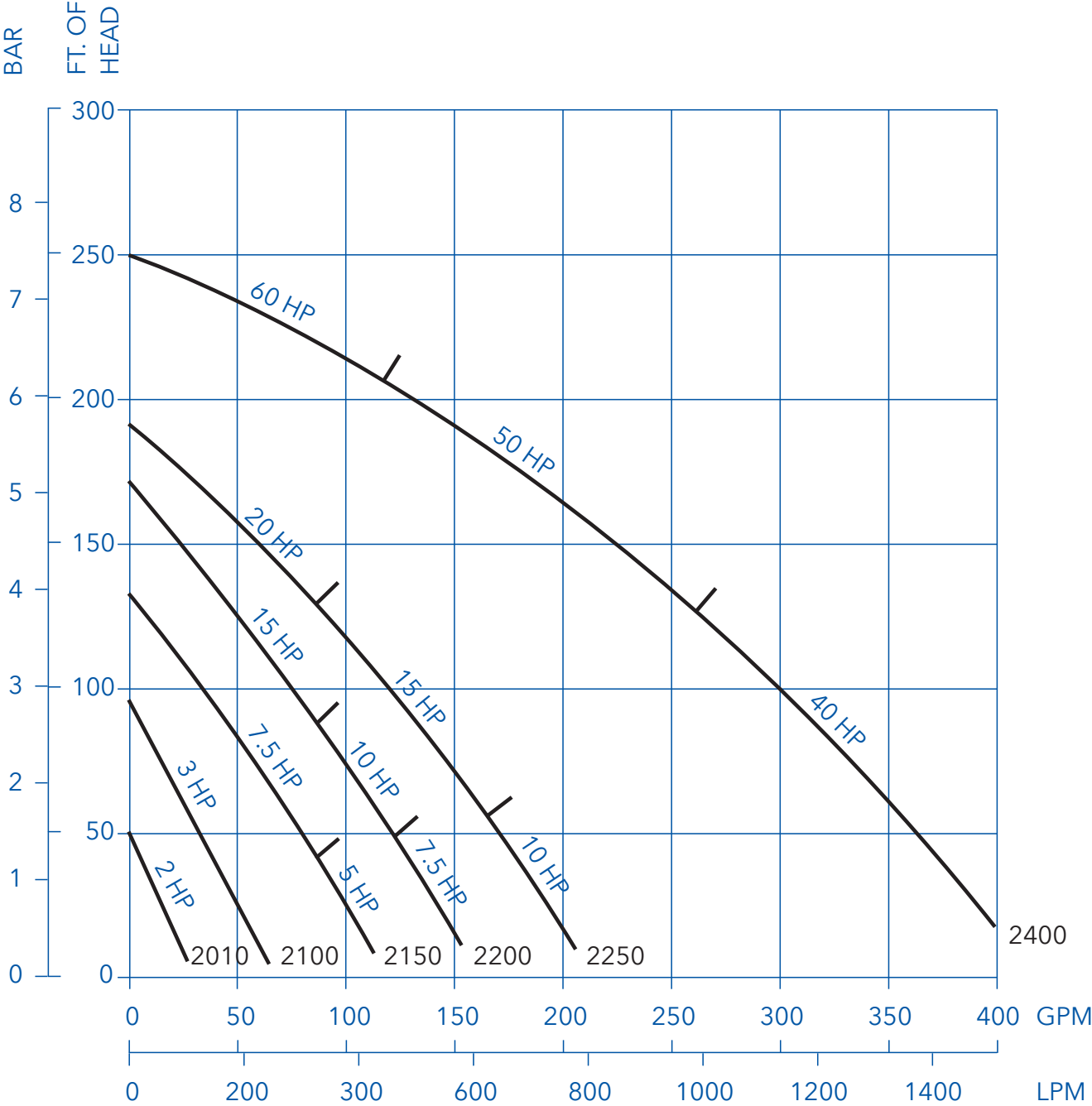
PHARMA PACKAGE

- Validation package
- Product testing and certifications
- Performance testing
- Casing drain
- Low ferrite
- Up to 15 Ra finish with electropolish on product contact surfaces
- Class VI elastomers

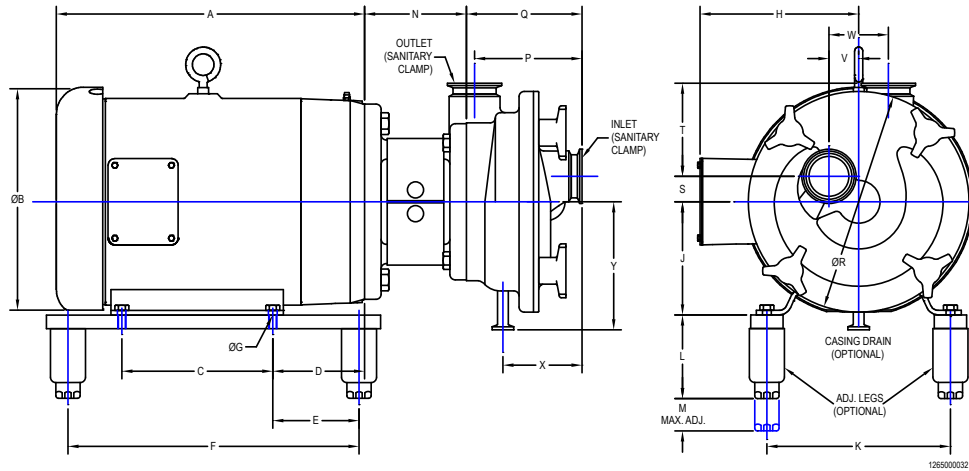
FZX Series Composite Performance Curve

1750 RPM (60 Hz)

Performance curve based on tests using 70°F water, atmospheric inlet pressure and 32 Ra μ-in finish. Please contact us for different conditions. A tolerance of ± 5% applies to all figures.



FZX Series Pump Dimensional Drawing



MOTOR HP	MOTOR FRAME	DIMENSIONS IN MILLIMETERS (INCHES)												
		A	ØB	C	D	E	F	ØG	H	J	K	L	M	N
2 HP	143TC	354 (13.92")	Ø178 (Ø7.01")	101.6 (4.00")	73 (2.87")	102 (4.00")	343 (13.50")	Ø10.5 (Ø.41")	145 (5.71")	88.1 (3.47")	139.7 (5.50")	98.5 (3.88")	38 (1.50")	120 (4.72")
3 HP	182TC	354 (13.92")	Ø183 (Ø7.19")	114 (4.50")	73 (2.87")	102 (4.00")	343 (13.50")	Ø10.5 (Ø.41")	149 (5.87")	114 (4.50")	191 (7.50")	98.5 (3.88")	38 (1.50")	120 (4.72")
5 HP	184TC	361 (14.20")	Ø226 (Ø8.92")	140 (5.50")	73 (2.87")	102 (4.00")	343 (13.50")	Ø10.5 (Ø.41")	149 (5.87")	114 (4.50")	191 (7.50")	98.5 (3.88")	38 (1.50")	120 (4.72")
7.5 HP	213TC	383 (15.10")	Ø263 (Ø10.34")	140 (5.50")	89 (3.50")	102 (4.00")	343 (13.50")	Ø10.5 (Ø.41")	187 (7.37")	133 (5.25")	216 (8.50")	98.5 (3.88")	38 (1.50")	120 (4.72")
10 HP	215TC	398 (15.65")	Ø263 (Ø10.34")	178 (7.00")	89 (3.50")	102 (4.00")	343 (13.50")	Ø10.5 (Ø.41")	187 (7.37")	133 (5.25")	216 (8.50")	98.5 (3.88")	38 (1.50")	120 (4.72")
15 HP	254TC	496 (19.56")	Ø270 (Ø10.62")	210 (8.25")	108 (4.25")	67 (2.63")	343 (13.50")	Ø13.5 (Ø.53")	244 (9.62")	159 (6.25")	254 (10.00")	98.5 (3.88")	38 (1.50")	120 (4.72")
20 HP	256TC	487 (19.16")	Ø336 (Ø13.25")	254 (10.00")	108 (4.25")	95 (3.75")	394 (15.50")	Ø13.5 (Ø.53")	244 (9.62")	159 (6.25")	254 (10.00")	98.5 (3.88")	38 (1.50")	120 (4.72")
40 HP	324TC	636 (25.03")	Ø413 (Ø16.25")	260 (10.25")	133 (5.25")	121 (4.75")	470 (18.50")	Ø16.7 (Ø.66")	359 (14.12")	203 (8.00")	318 (12.50")	117 (4.62")	44.5 (1.75")	171 (6.73")
50 HP	326TC	636 (25.03")	Ø413 (Ø16.25")	305 (12.00")	133 (5.25")	121 (4.75")	470 (18.50")	Ø16.7 (Ø.66")	359 (14.12")	203 (8.00")	318 (12.50")	117 (4.62")	44.5 (1.75")	171 (6.73")
60 HP	364TC	685 (26.96")	Ø467 (Ø18.38")	286 (11.25")	149 (5.87")	89 (3.50")	508 (20.00")	Ø16.7 (Ø.66")	383 (15.06")	229 (9.00")	356 (14.00")	127 (5.00")	44.5 (1.75")	171 (6.73")
75 HP	365TC	685 (26.96")	Ø467 (Ø18.38")	311 (12.25")	149 (5.87")	89 (3.50")	508 (20.00")	Ø16.7 (Ø.66")	383 (15.06")	229 (9.00")	356 (14.00")	127 (5.00")	44.5 (1.75")	171 (6.73")

PUMP MODEL	INLET & OUTLET	DIMENSIONS IN MILLIMETERS (INCHES)								
		P	Q	ØR	S	T	V	W	X	Y
2010	1.5"	49.5 (1.95")	114.7 (4.52")	167.2 (6.58")	6.9 (.27")	105.8 (4.17")	25.6 (1.01")	69.6 (2.74")	—	—
2100/2150	2"	133.5 (5.26")	141 (5.56")	226 (8.90")	21 (.83")	110 (4.33")	30 (1.18")	62.5 (2.46")	94 (3.70")	131.5 (5.18")
2200	2"	126.9 (5.00")	136.5 (5.37")	260 (10.24")	30 (1.18")	110 (4.33")	35 (1.38")	70 (2.75")	93 (3.66")	151 (5.94")
2250	2.5"	137.5 (5.41")	141 (5.56")	275 (10.83")	25 (.98")	117 (4.61")	37.2 (1.46")	75.5 (2.97")	100 (3.94")	153 (6.02")
2400	3"	158.2 (6.23")	164.2 (6.46")	340 (13.39")	29 (1.14")	151 (5.93")	49 (1.93")	96.6 (3.80")	110 (4.33")	186.5 (7.34")

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**Designed, Manufactured &
Assembled in Middleton, WI**





CENTRIFUGAL



POSITIVE DISPLACEMENT



MIXING & BLENDING