Fast-Speed Mixers – FRM Series



Power Transmission Solutions

PTS Process Engineering Co

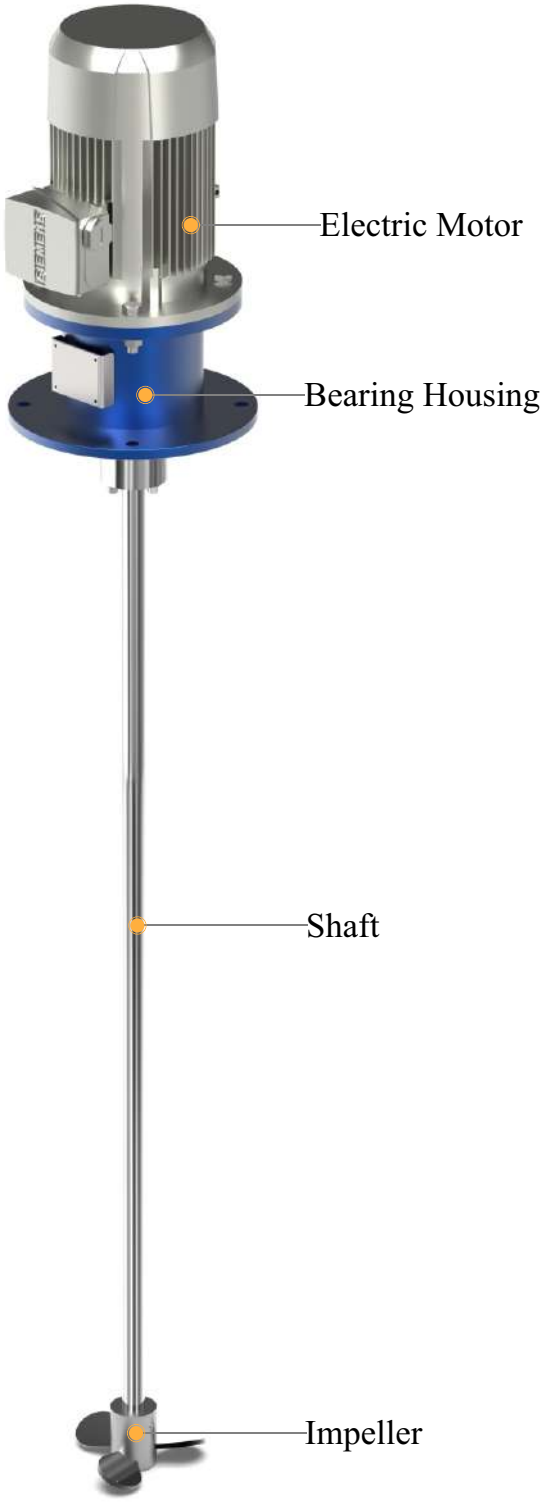
Fast-Speed Mixers – FRM Series

FRM series mixers are specifically designed for light-duty applications and for tanks with capacities ranging from 100 to 12,000 liters. The robust bearing system design, together with the use of high-strength alloy steel grade 1.6582 in the shaft support section, ensures continuous 24/7 operation with high efficiency and excellent reliability.

As the name of the series indicates, power transmission from the electric motor to the shaft and impeller is carried out directly through a direct coupling system (Direct Coupling), without the need for additional equipment such as gearboxes for speed reduction or adjustment. This design not only reduces manufacturing costs but also significantly lowers maintenance and operational requirements.

FRM mixers have been engineered to deliver cost-effective and efficient performance across a wide range of industrial processes, including dissolving, heat transfer, temperature homogenization, liquid-liquid mixing, and the production of light suspensions.

When handling highly corrosive or oxidizing fluids, optional coatings such as ETFE and PE can be provided at competitive prices to ensure enhanced durability and protection of the equipment



FRM Series Mixer Configurations

These mixers are classified, based on size and capacity, into three categories: small, medium, and large.

Mixer model	Max Shaft Diameter	Max Applicable Power	Max speed	Max Shaft Length	Max Tank Capacity
FRMS	35	0.75 KW	900-1500 RPM	1,600 mm	2,000 L
FRMM	50	1.5 KW		2,400 mm	4,000 L
FRML	75	4 KW		3,200 mm	12,000 L

Two mounting systems are available for these mixers for installation onto the support frame:

1. Flange Mounted

For fixed mixers with no need for relocation, flange mounting is recommended. To prevent vortex formation in flange-mounted mixers, the use of baffled tanks is recommended, or alternatively, the mixer should be installed in an off-center position.

2. Clamp Mounted

For applications requiring mixer relocation, or where a dedicated mounting frame is not available, clamp mounting is recommended. This mounting system allows installation angles of up to 20 degrees, which effectively helps prevent

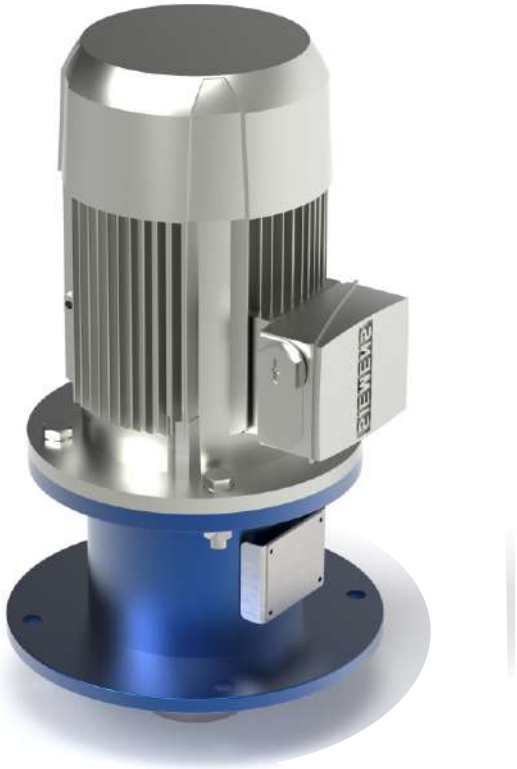


Mixer Features

Technical Data

- Suitable for small tanks and low-viscosity fluids.
- Designed with minimal vibration and low shaft runout during operation.
- Available in single-phase and three-phase configurations with various voltage ranges.
- Operating capacity: 100 to 12,000 liters.





Design Features

- Designed for stable and continuous 24/7 industrial operation.
- Economical and optimized design in terms of investment and operating costs.
- Shaft available in single-piece or two-piece design configuration.
- Housing finished with durable electrostatic powder coating.

Optional Features

- Corrosion-resistant coatings such as ETFE and PE available upon request.
- Explosion-proof (Ex-proof) motors available as an optional configuration.

FRM Series Mixer Selection Guidelines

Mixer Selection

FRM Fast Rotation Mixers

Mixer Version Indicator

S	Small
M	Medium
L	Large

Tank Capacity Indicator

A	220 Liters	E	500 Liters	I	2000 Liters
B	250 Liters	F	800 Liters	J	2500 Liters
C	300 Liters	G	1000 Liters	K	3000 Liters
D	350 Liters	H	1500 Liters	L	4000 Liters

Impeller Type Selection

1	Propeller With Zero Pitch
2	Pitched Blade Turbine
3	Saw Blade

Wet Parts Material

S4	SS 304
S6	SS 316L
S8	Super Duplex SS

Powder Coating

0	N/A
P	Polyethylene
T	ETFE

Electric Motor Selection

A	IP 55 (STANDARD)
B	EX db IIB zone1
C	EX db IIC zone1
D	EX eb IIC zone1
E	EX ec zone2

Motor Supply

1	Single PHASE 220/230 VAC
3	Three PHASE 230/400 VAC

Shaft Connection Type

DC	Direct Coupling
FC	Flange Coupling

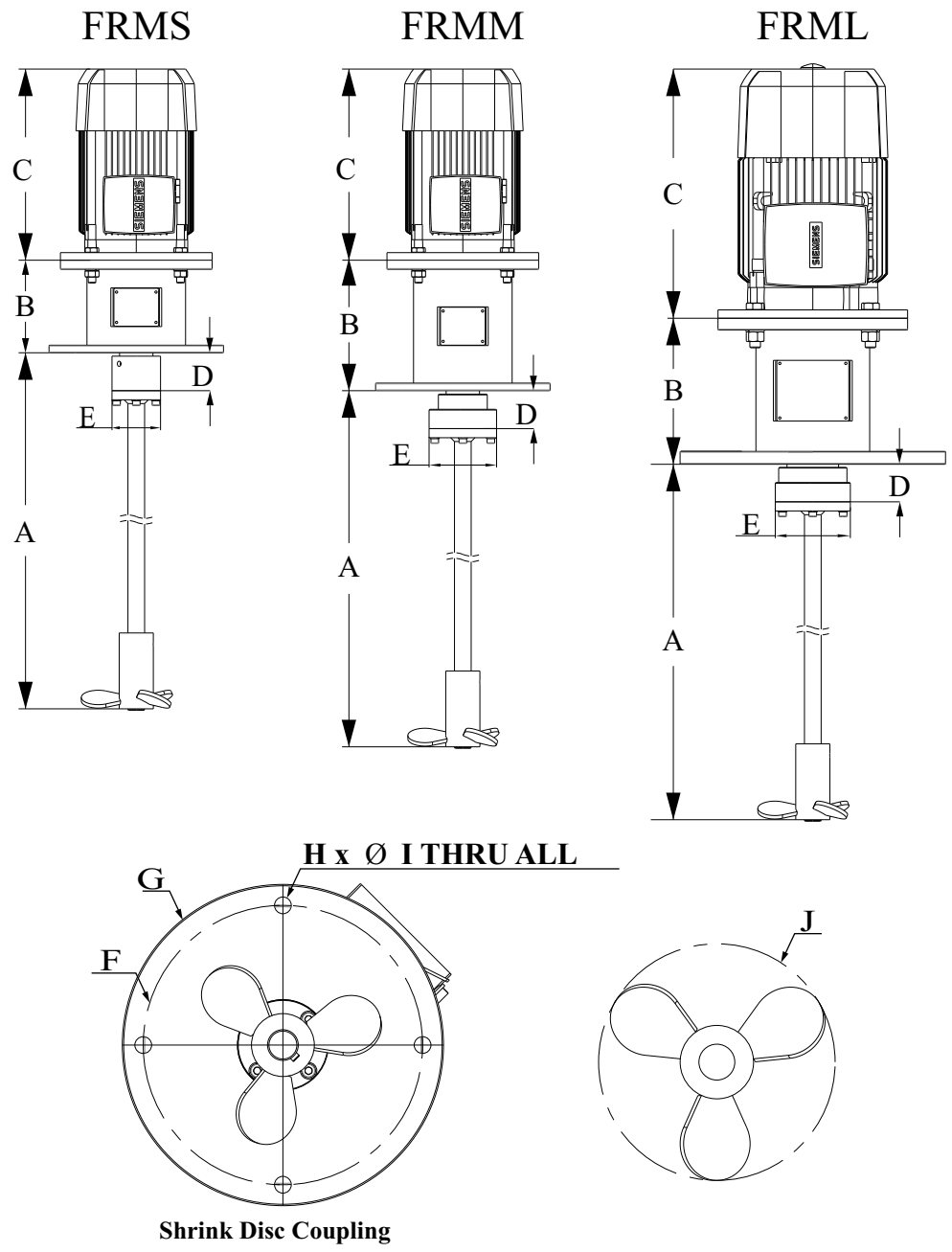
Housing Coupling Type

1	Flange Type
2	Clamp Type

Housing Coating

C1	Polyester
C2	Epoxy
C3	3 Layer Coating

FRM Series Mixer Dimensional Drawing



Mixer Model	Motor Frame Size	Speed Range	A	B	C	D	E	F	G	H	I	J
		RPM	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
FRMS	IEC80	1000~1500	600~1600	122	252	50	64	200	230	4	12(M10)	125~180
FRMM	IEC80		1200~2400	172	252		89	200	230	4	12(M10)	145~250
	IEC90				297							
FRML	IEC100		1500~3200	192	335		99	300	350	6	19(M16)	160~300
	IEC112				330							
	IEC132				385							