

# PENGUIN

PUMPS AND FILTERING SYSTEMS



## SERIES PM TANK/DRUM MIXERS

MODELS	PROPELLER MATERIALS
PM-1/20	B - Polypropylene
PM-1/4	S - 316SS
PM-1/3	A - CPVC
PM-1/2	
PM-1	<b>MOUNT</b>
	C - Clamp
	B - Bracket
	F - Flange
	T - Thread



## INTRODUCTION

Penguin mixers are designed to handle a large range of chemicals for both tanks and drums without difficulty. These mixers are completely constructed of 316SS shafts, couplings, and propellers. For a completely metalless mixer where in contact with the solution, a polypropylene propeller and sleeved shaft are supplied. All mixers have been tested for proper operation. To obtain optimum service life, please follow all instructions.

## INSTALLATION

Model PM mixers must be mounted at least two times the propeller diameter off the bottom of the tank. If the mixer is to be used in a fully baffled tank, a bracket or flange mount must be utilized. For maximum mixing, install the unit vertically in the center of the tank.

**Clamp Mount** - A clamp mount mixer is most efficient 10-20 degrees off the vertical axis for non-fully baffled tanks. Exceeding a 20 degree angle is not recommended. On clamp mount mixers, the motor and mixer shaft are mounted off center in respect to the clamp, thus the force on the tip and the spindle of the clamp is very high. For mixers ¼ hp and larger, it is necessary to support the tip and the end of the spindle with rigid flat pieces of wood or plastic in order to prevent damage to the tank wall or lip. Some force on the handle is necessary in order to move the mixer in the desired position. Once the mixer is in the desired position, it will not move by itself. Models PM-1/4 through

PM-1 require even greater force due to the heavier weight of the unit. Do not adjust the bolt and nut of the swivel clamp mount. The bolt and nut are adjusted properly and locked.

## ELECTRICAL

Model PM-1/20 mixers are supplied in single phase, 115V, 60c motors. All other models supplied in single phase are dual voltage, 115/230V motors. When the factory supplies a cord and plug, all dual voltage motors are wired for the lower voltage (115V) unless otherwise requested. When changing 115V wiring to 230V wiring, follow the motor manufacturer's wiring instructions which are found in the motor junction box or motor label. The three phase motor is dual voltage 230/460V, 50/60c, which is not wired at the factory. Many options are available on the PM Series mixers including single phase-50c and explosion-proof motors. If these options are required, please check the motors carefully or consult the factory.

## OPERATION

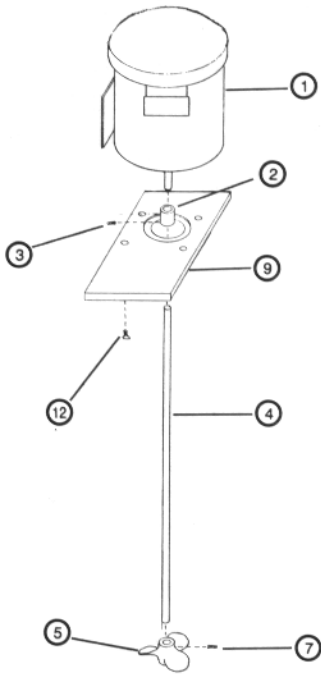
**Dual Propellers** - The top propeller of the dual propeller mixer is adjustable. It is very important to position this propeller halfway between the liquid level and the bottom propeller. Do not exceed ⅓ of the total shaft length measured from the bottom propeller.

Dual propellers should only be utilized when  $\frac{H}{D} > 1$

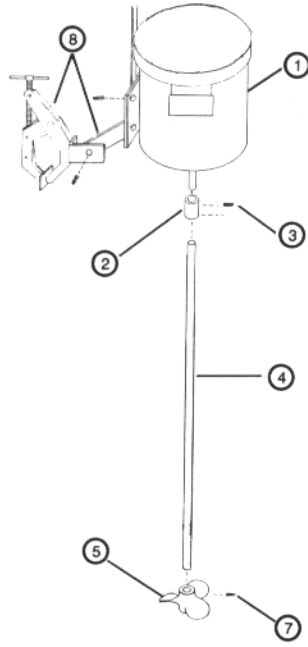
H - Tank height

D - Average diameter of the tank. (The largest dimension of a rectangular tank is to be considered your average diameter.)

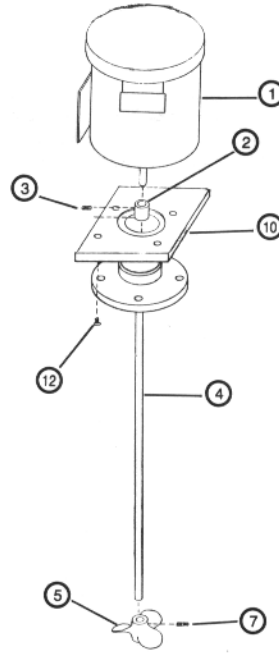
**BRACKET MOUNT**



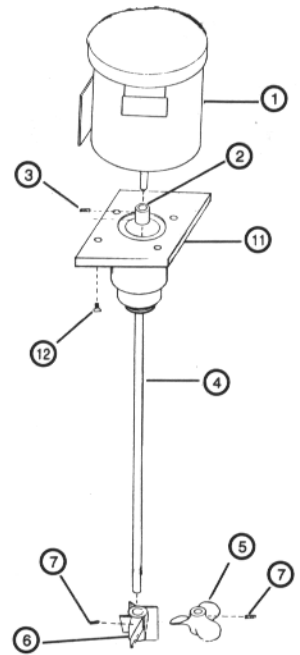
**CLAMP MOUNT**



**FLANGE MOUNT**



**THREAD MOUNT**



**SERIES PM TANK/DRUM MIXER SPARE PARTS LIST**

Item	Description	PM-1/20 Part No.	PM-1/4 Part No.	PM-1/3 Part No.	PM-1/2 Part No.	PM-1 Part No.
1	Motor Phase-Voltage-Cycle 1 115 60 1 230 60 1 115/230 60 3 230/460 60	PM-120-01 PM-120-21		PM-14-01	PM-13-01	PM-12-01 PM-12-31
2S	Coupling-316SS	PM-120-02S	PM-14-02S	PM-14-02S	PM-12-02S	PM-10-01 PM-10-31
3S	Coupling Set Screw-316SS	PM-120-03S (2)	PM-120-03S (2)	PM-120-03S (2)	PM-120-03S (2)	PM-12-02S
4S	Shaft-316SS (specify shaft length)	PM-120-04S	PM-140-04S	PM-13-04S	PM-12-04S	PM-120-03S (2) PM-10-04S
4BS	Shaft-Polypro Sleeved (specify shaft length)	PM-120-04BS	PM-140-04BS	PM-13-04BS	PM-12-04BS	
5S-03	Propeller-316SS (3" diameter)	PM-120-05S3	PM-120-05S3	PM-120-05S3		
5S-04	Propeller-316SS (4" diameter)		PM-14-05S4	PM-14-05S4	PM-12-05S4	
5S-05	Propeller-316SS (5" diameter)				PM-12-05S5	PM-12-05S5
5BS-03	Propeller-Polypro (3" diameter)	PM-120-05BS3	PM-120-05BS3	PM-120-05BS3		
5BS-04	Propeller-Polypro (4" diameter)		PM-14-05BS4	PM-14-05BS4	PM-12-05BS4	
6A	Turbine-CPVC (thread mount only)	PM-120-06A	PM-120-06A			
7S-01	Propeller/Turbine Set Screw- 316SS (polypro propeller only)	PM-120-07S	PM-120-07S	PM-120-07S	PM-120-07S	PM-120-07S
7S-02	Propeller Set Screw-316SS (316SS propeller only)	PM-120-03S	PM-120-03S	PM-120-03S	PM-120-03S	PM-120-03S
8	Clamp Mount Ass'y	PM-120-08	PM-14-08	PM-14-08	PM-14-08	PM-14-08
8SJA	Swivel Joint Ass'y	PM-120-08SJA	PM-14-08SJA	PM-14-08SJA	PM-14-08SJA	PM-14-08SJA
8MCA	Motor-Clamp Connecting Ass'y	PM-120-08MCA	PM-14-08MCA	PM-14-08MCA	PM-14-08MCA	PM-14-08MCA
9	Bracket Mount Ass'y	PM-120-09	PM-14-09	PM-14-09	PM-14-09	PM-14-09
10	Flange Mount Ass'y	PM-120-10	PM-14-10	PM-14-10	PM-14-10	PM-14-10
11	Thread Mount Ass'y	PM-120-11	PM-14-11			
12	Motor Bolts	PM-120-12 (2)	PM-14-12 (4)	PM-14-12 (4)	PM-14-12 (4)	PM-14-12 (4)

( ) indicates quantity required other than one (1)

**FILTER PUMP INDUSTRIES**

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Penguins Perform