Neptune™ Mixer Selection

PORTABLE MIXERS

Neptune™ offers a complete line of portable mixers for a wide variety of critical blending and mixing operations. Engineered to provide a long life and trouble-free operation, Neptune mixers are ideally suited for the following applications:

1. Blending liquids
2. Suspending or dissolving solids
3. Dispersing immiscible liquids
4. Dispersing small amounts of gases in liquids

Neptune mixers can be clamp- or base-mounted on beams, tank walls and other supports (angle of entry may be adjusted to meet specific mixing requirements). Neptune mixers are used in a variety of industrial applications, including waste treatment, water treatment and batch chemical preparation. These portable mixers are also ideal for mixing paints; varnishes; polymers; textile sizes and dyes; pharmaceuticals; soaps; and countless other materials from 1 to over 25,000 cP viscosity. Neptune mixers are available at either 350 or 420 rpm (gear-driven) or 1,750 rpm (direct-drive).

To help you select the proper Neptune mixer for your application, Neptune has developed the following guide to provide users with valuable information such as specifications, dimensions and dimensional drawings. It is important to note that selecting the proper mixer depends on a number of parameters, including the size of the batch, viscosity of the components, final product and other parameters.

NEPTUNE MIXER SELECTION CHART

The chart below provides some basic guidelines for selecting the proper Neptune mixer(s) that offers mild blending of various viscosity liquids in different size tanks.

The information provided is based on an approximate mix/blend time of two liquids for 30 minutes, with both liquids already in the tank. Mixing times will be shorter if one liquid is added to a second liquid while the mixer is operating. Powders should always be added while the mixer is running.

This chart also applies to the suspension of solids with settling velocities of less than one ft. (304.8 mm) per min.

For more rapid or vigorous mixing, use a mixer one or two sizes larger.

Dual propellers are recommended for tanks 1,000 gal. (3,785.4 L) and larger at viscosities of 1,000 cP and higher.

VISCOSITY CP	UP TO 50 GAL. (189.3 L)	UP TO 100 GAL. (378.5 L)	UP TO 200 GAL. (757.1 L)	UP TO 500 GAL. (1,892.7 L)	UP TO 1,000 GAL. (3,785.4 L)	UP TO 2,000 GAL. (7,570.8 L)	UP TO 3,000 GAL. (11,356.2 L)	UP TO 5,000 GAL. (18,927.1 L)
≤1	BN-3.0*	BN-3.0*	JD-2.0	JD-2.0	JG-2.0	JG-2.0	JG-2.0	JG-4.0
≤100	BN-3.0*	BN-3.0*	JD-2.0	JG-2.0	JG-2.0	JG-2.0	JG-3.0	JG-5.0
≤300	BN-3.0*	BN-3.0*	JG-2.0	JG-2.0	JG-2.0	JG-4.0	JG-5.0	JG-5.0
≤500	BN-3.0*	JG-2.0	JG-2.0	JG-2.0	JG-3.0	JG-5.0	JG-6.0	JG-7.0
≤1,000	JD-2.0	JG-2.0	JG-2.0	JG-2.0	JG-4.0	JG-6.0	JG-7.0	JG-8.0
≤2,000	JG-2.0	JG-2.0	JG-3.0	JG-3.0	JG-5.0	JG-6.0	JG-8.0	JG-9.0
≤3,000	JG-2.0	JG-2.0	JG-4.0	JG-4.0	JG-6.0	JG-8.0	JG-9.0	
≤5,000	JG-2.0	JG-2.0	JG-5.0	JG-5.0	JG-7.0	JG-8.0		
≤15,000	JG-3.0	JG-3.0	JG-5.0	JG-8.0	JG-9.0	JG-9.0		
≤25,000	JG-6.0	JG-7.0	JG-8.0	JG-9.0				

For full specifications and information on the above mixers: Series JG – see page 4, Series JD – see page 8, Series BN – see page 10
*Specifications are for sanitary 3A applications too. See page page (insert page number for BNS model) for more information on BNS models

Portable mixers for small batches play an essential role in critical industrial liquid-handing applications. Neptune's range of small-batch, portable mixers can blend liquids, suspend or dissolve solids, and disperse immiscible liquids and small amounts of gases in liquids. Small batch mixers are best suited for batches sizes up to 100 gallons and viscosity CPS' of 500 or less. These mixers are also ideal when the final product is small in volume with a low viscosity. Small batch mixers can also be clamped to the side of the tank, which provides for the proper angle for optimum mixing.

CONNECTION	UNDER 50 GALLON	50 GALLON	100 GALLON	55 GALLON DRUM	55 GALLON DRUM HIGH VISCOSITY		TOTE/IBC CONTAINERS		PAIL/5 GALLON/ SPECIALTY	NOTES	
Clamp	L-1-CL			F-1.X			JGT-3.X	***			
	A-1.0	B-2.X	B-3.X	F-2.X			JGT-4.X	***			
		B-4.0*	B-4.0*	F-3.X			JGT-5.X	***		JGT VISCOSITY LIMIT 5000 CPS	
	BN-1.X	BN-2.X	BN-3.X	F-4.0*			JGT-3.4*	***			
		BN-4.0*	BN-4.0*				JGT-5.4*	***			
			BC-5.4*								
			BC-7.4*								
			BC-8.4*								
Bung				E-1.X	H-2.X	HGS-2.X	HGL-3.X	RAB-3.X		HGL & RAB VISCOSITY LIMIT 5000 CPS	
				E-2.X	H-3.X	HGS-3.X	HGL-5.X	RAB-5.X		H MIXER LIMIT	HGS MIXER LIMIT
				E-3.X	H-4.0*	HGS-4.0*	HGL-6.X	RAB-6.X		2.X -1,000 CPS	2.X -4,000 CPS
				E-4.0*	H-5.0	HGS-5.0	HGL-4.0*	RAB-4.0*		3.X -4,000 CPS	3.X -16,000 CPS
					H-6.0	HGS-6.0	HGL-7.0*	RAB-7.0*		5.X -6,000 CPS	5.X -24,000 CPS
					H-7.0*	HGS-7.0*				6.X -8,000 CPS	6.X -32,000 CPS
										7.X -8,000 CPS	7.X -32,000 CPS
Bracket	L-1-BK						RGT-1.X	**			
							RGT-2.X	**			
							RGT-3.X	**		RGT VISCOSITY LIMIT 5000 CPS	
							RGT-1.4*	**			
							RGT-3.4*	**			
Flange			BF-5.4*								
			BF-7.4*								
			BF-8.4*								
Pipe Clamp									B-4.0P*	VISCOSITY LIMITS 1000 CPS	
Pail Rim Clamp									PAM-6.0*		
Handle Bar									HAJ-3.X*		
Hand Held									HH12*		
									HH10*		
									HH55*	HH55 55 GALLON MODEL	

X - Electric motors: specify specific motor - Voltage, phase, enclosure (TEFC / Explosion proof).

Motor Examples: BN-3.0 = 1/2hp-1ph-115/220-TEFC motor | E-2.3 = 1/3hp-3ph-220/460-EXP motor.

*Air motor models.

**Series RGT opional adjustable mounting bracket fits flat top, square edge containers from 31-1⁄2" to 50" wide. Available in painted steel / Model RGT-BKT.

*** Series JGT optional adjustable mounting bracket fits 32" to 50 1⁄2" wide containers. Model DTS, Steel.

PVC coatings available.

Unless noted vicosity limits are water like materials.

Proper Mixer Mounting and Positioning

In most applications involving small mixing tanks of 1,000 gal. (3,785.4 L) or less, the mixer is clamped to the side of the tank. Optimum mixing will be achieved when the mixer is angled from the tank wall, either off-center (figure 1) or on-center (figure 2). Improperly mounting a portable mixer will greatly lessen mixing efficiency, cause vibration and could possibly damage the mixer.

Angling off-center is preferred when good material turnover is required, as in mixing slurry. Angling on-center is desired for more gentle mixing and when vortexing must be minimized.

Larger size tanks may require that a mixer be mounted directly in the center of the tank with the shaft vertical (figure 3). When a mixer is used in this arrangement, baffles are recommended to prevent the contents of the tank from turning in the direction of the mix. If this occurs, mixing action will be poor.

Such baffling will avoid vortexing and allow mixing to be as thorough as possible. Neptune suggests that four baffles be used, located 90° apart and sized approximately 1/12 of the tank diameter. The baffle should not fully extend to the bottom of the tank and a gap should be provided between the baffle and the tank wall.

For assistance in choosing a mixer or to help solve your mixing problems, please call one of our sales engineers at +1 (215) 699-8700.

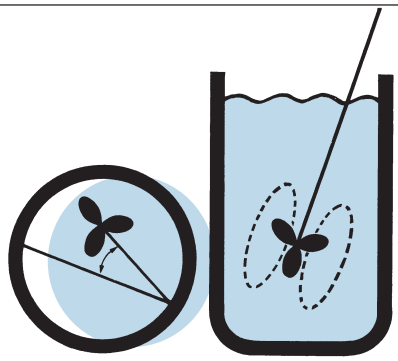

FIGURE 1 – Angling the portable mixer off-center is the position recommended by Neptune for rapid turnover of tank contents and good bottom washing.

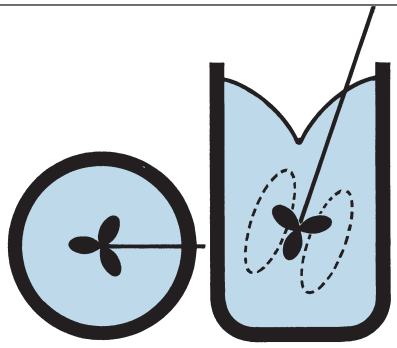

FIGURE 2 – On-center angling will produce good mixing with minimum vortexing. Tank contents turn over thoroughly but gently.

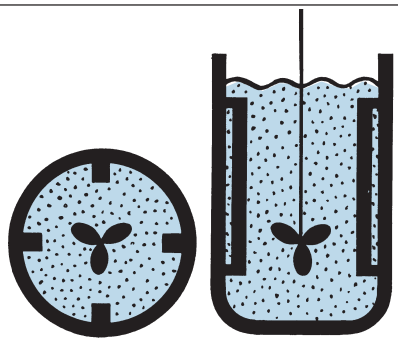

FIGURE 3 – For mixing in larger tanks, the mixer is often placed vertically on-center. In this configuration, baffles are recommended to prevent the contents of the tank from rotating, avoid vortexing and achieve good mixing and top-to-bottom turnover.