tuffmix®
Mixer Series

DOC. NO.: CAT/BEM/2223/R00

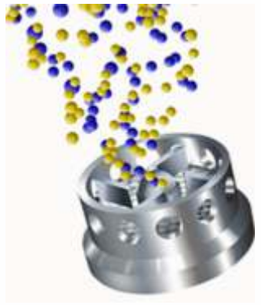
Food | Dairy | Pharma | Cosmetics | Chemicals | Brewery | Distillery | Paints | Inks

BOTTOM & TOP ENTRY HIGH SHEAR MIXERS

Introduction:

TUFFMIX® high shear mixers are used for dispersing either one or several solids into liquid phase or one liquid into another liquid. It is an efficient and reliable equipment for many immiscible liquids.

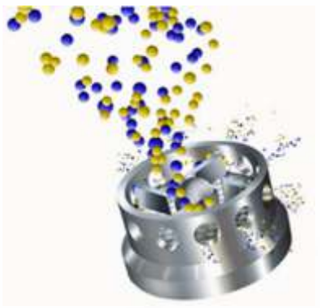
TUFFMIX® mixers have an innovative stator-rotor design with double row cutters in rotor as well as in stator. This design not only helps to simply mix, but also disperse, emulsify, homogenize and disintegrate liquid and solids.



How it works:

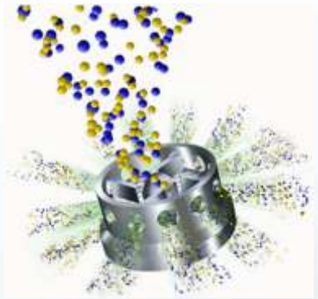
Stage 1

The high speed rotation of the rotor (impeller) exerts a powerful suction, towards the impeller eye drawing, liquid and solid materials downwards into the center of the work head.



Stage 2

Centrifugal force then pushes the materials towards the periphery of the work head where they are reduced into smaller particle sizes because of lower clearance between the rotor and the stator.



Stage 3

The materials are subjected to intense hydraulic shear as they are forced out through the stator and projected radially at high speed towards the sides of the mixing vessel. Fresh material is simultaneously drawn into the work head, maintaining the mixing cycle.

STATOR/ROTOR Types:

We offer various types of Stator & Rotor systems (work heads). The reason to have so many designs of stator & rotor systems is to offer more selections for our customers to choose the most suitable one for their specific application needs.

Top Entry Mixer:

Materials of construction: All wetted parts are in 316L stainless steel. Special materials on request.

Bushing material: The bushing will normally be bronze alloy or reinforced PTFE, Peek depending on the application.

Motors: TEFC, washdown duty and explosion proof motors are available as options. Inverter duty motor is also available on request. Control panels and wiring can be supplied as an option.

Mounting: Models 90 up to 130 can be mounted on mobile hydraulic floor stands. Alternatively they can be supplied with either a rectangular or circular flange for mounting on the vessel. Tri-clamp mounting is also available for 90 and 115. Larger machines (Model 150 and above) require vessel mounting.

Sealing: All TUFFMIX® batch mixers are designed for operation in open vessels and pressurised vessels both. Single and double mechanical shaft sealing is available for operation under vacuum and/or positive pressure.

S. NO.	MIXER MODEL	MAX MOTOR POWER IN HP	BATCH SIZE IN LITERS	RPM	TIP SPEED
1	TMX080	2	50	3000	13
2	TMX100	3	100	3000	16
3	TMX120	5	300	3000	19
4	TMX140	10	800	3000	22
5	TMX160	15	1500	3000	25
6	TMX180	25	2000	3000	28
7	TMX200	30	4000	1500	16
8	TMX220	40	5000	1500	17
9	TMX240	50	6500	1500	19
10	TMX270	75	10000	1500	21
11	TMX290	100	12000	1500	23
12	TMX300	120	15000	1500	24

Bottom Entry Mixer:

Materials of construction: All wetted parts are in 316L stainless steel. Special materials on request. Electropolished finish is available as an optional extra.

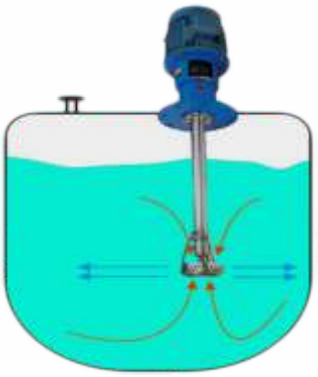
Motors: TEFC, washdown duty and explosion proof motors are available as options. Inverter duty motor is also available on request. Control panels and wiring can be supplied as an option.

Mounting: Stainless steel flange fitting is available as standard. Clamp-on fitting is optional for smaller machines.

Sealing: Single mechanical shaft sealing: A single Carbon/Silicon Carbide mechanical shaft seal with viton elastomers is standard. Other face materials and elastomers are available as an optional extras. Double mechanical shaft sealing: These are required when processing products that are abrasive, sticky or viscous or when the system is under vacuum. Sealant flushing systems can be supplied as optional extras.

S. NO.	MIXER MODEL	MOTOR POWER	BATCH SIZE	RPM @ 50HZ	TIP SPEED @ 50HZ
1	BMX115	2.2KW(3HP)	400 L	3000	16 m/s
2	BMX115	3.7KW(5HP)	400 L	3000	16 m/s
3	BMX130	3.7KW(5HP)	500 L	3000	19 m/s
4	BMX130	5.5KW(7.5HP)	500 L	3000	19 m/s
5	BMX150	5.5KW(7.5HP)	750 L	3000	22 m/s
6	BMX150	7.5KW(10HP)	750 L	3000	22 m/s
7	BMX150	11KW(15HP)	750 L	3000	22 m/s
8	BMX180	15KW(20HP)	1000 L	3000	24 m/s
9	BMX180	18.5KW(25HP)	1000 L	3000	24 m/s
10	BMX220	18.5KW(25HP)	1200 L	1500	16 m/s
11	BMX220	22KW(30HP)	1200 L	1500	16 m/s

Installations



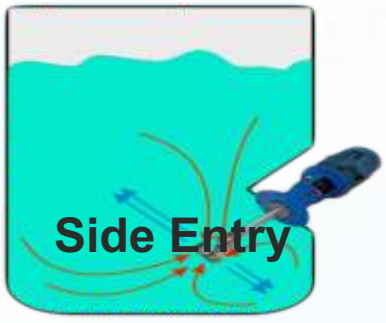
Top Entry

Top Entry Mixer/TMX

TUFFMIX® offers two kinds of Top Entry Mixers – one is working in an open vessel, and the other is working in a closed (pressurised or under vacuum) vessel.

- An open vessel is a vessel with atmospheric pressure. The top entry mixers can be installed onto a vessel by a lifting stand or directly into the vessel by a flange or traverse. A coupling between the motor and shaft is optional for low noise and stable running.
- A closed vessel is a vessel with vacuum or pressure in the vessel. In this case, the top entry mixers must be equipped with a mechanical seal, which enables that there is no air ingress between inside and outside of the vessel.

Side Entry Mixer/SMX



Side Entry

TUFFMIX® side entry mixer is very useful when the tank is deep but narrow, or when the top space of the vessel is limited for the top entry mixers and bottom space is not sufficient for a bottom entry mixers.

- A side entry mixer is much more cost effective compared with the top entry mixer, because it makes the shaft shorter.
- Side entry is designed according to specific tank size.

Bottom Entry

Bottom Entry Mixer/BMX

TUFFMIX® bottom entry mixers are most efficient in many cases:

- When the liquid level in the tank may become very low during processing, top or side entry mixer is not able to work without the liquid in the vessel. In this case bottom entry mixer is most suitable.
- There is very limited space above or around the tank for either top or side mounted mixers.
- Strong vortex as well as aeration is greatly reduced with the TUFFMIX® bottom entry mixers.

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