

Scientific

Laboratory & Pilot Plant High Speed Mixers

**Bench Top Mini Mixers
(10, 5 and 1.5-liters Bowl sizes)**



**Laboratory and Pilot Plant
Variable High-Speed Fluid Mixers
(25 and 75-liters)**



**High-Power, High-Speed Jacketed
Laboratory Mixers
with Optional Cooling Mixer**



**Laboratory & Pilot Plant
High-Speed Mixer with Cooling Mixer**



Labtech Engineering

TECHLABSYSTEMS

BENCH TOP MINI MIXERS (10,5 and 1.5-liters)



**Bench Top Mini Mixers
(10,5 and 1.5-liters)**

The Benchtop Mini Mixer has a nice and modern aesthetic design that utilizes a highly robust cabinet frame, complete with an integrated user-friendly control panel. It features simple and easy operation, and is ideal for fast mixing of industrial grade dry powders such as plastic powders, minerals, pigments, fillers, additives, pharmaceutical powders, etc. The mixer's infinitely variable speed motor is controlled by a powerful programmable frequency inverter drive with a high starting torque.

Technical Data for Mini Mixer

Mixer type		LMX1.5-VS	LMX5-VS	LMX10-VS
Mixer bowl volume	(liter)	1.5	5	10
Impeller Speed	(Rpm)	500-5,000	500-3,000	500-3,000
Motor power	(kW)	0.75	1.5	2.2
Net weight	(kG)	46	60	70
Dimensions	WxLxH(cm)	35x55x60	35x67x61	42x68x76

Features :

- Available in 1.5, 5, or 10-liter bowl sizes
- All stainless steel mixing bowl, impeller, and lid
- Mixing process done by two-bladed impellers secured with a central locking nut
- Equipped with a safety interlock switch which cuts power when lid is opened for safe operation
- Fast and easy cleaning of the mixer components. Simply remove the impeller's central lock nut to detach the whole mixer bowl and impeller for cleaning.
- The user-friendly control panel features:
 - Impeller RPM Digital Display Controller
 - Motor Power (% of Max Power) Digital Display
 - Digital Timer for The Mixing Cycle
 - Optional Digital Temperature Display
 - START/STOP Pushbuttons
- Sturdy, self-supporting welded steel frame mounted on vibration-damping rubber feet



LABORATORY & PILOT PLANT VARIABLE HIGH-SPEED FLUID MIXERS (25 & 75 LITERS)



**Laboratory and Pilot Plant 75 liter
Variable Speed Fluid High-Speed Mixers**

Features : The LMX-VS/W Fluid Mixer's impellers are powered by the standard high power motor with infinitely variable speed drive ideal for heavy duty mixing. The impellers consists three levels of blades and can also be equipped with an internal water cooling system.

Mixing Tool :

- Highly polished stainless steel.
- Self-cleaning.
- Three levels of two-bladed impellers with the top level having an upward blade angle of 30°
- Central locking nut.



Laboratory and Pilot Plant 25 liter Variable Speed Fluid High-Speed Mixers

- Variable speed drive with RPM range :
 - 500 to 2500 for LMX25-VS/W
 - 500 to 2500 for LMX25-VS/W
 - Optional water-cooling of impellers for heat sensitive mixtures where the material has a tendency to stick to the impellers. With this version, the impeller has a total of four levels of two-bladed mixing tools where all the levels are mounted on a single sleeve with the internal cooling channels
- Deflector :**
- Highly polished stainless steel.
 - Thermocouple fitted inside the deflector with its measuring tip exposed for optimum accuracy
 - Adjustable deflector angle towards the side of mixing bowl

Mixer Bowl :

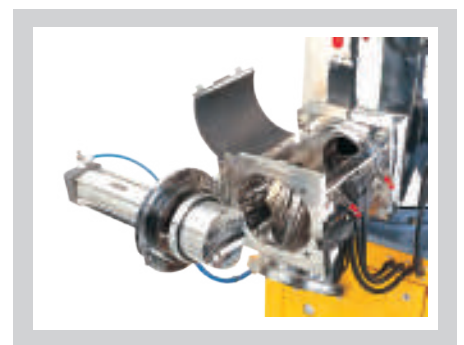
- Bowl net volume available in 25 and 75-Liters. 75 liter. *Others on request.*
- Made of stainless steel with highly polished interior surface finish.
- Jacketed for water cooling/heating with max water pressure at 5 bar. The water jacket is divided into two sections where the upper section covers 2/3 of the mixing bowl. The lower section covers the lower 1/3 part of the bowl including large part of the bottom as well as the discharge valve area. Each section is regulated with individual solenoid valves.

Mixer Lid :

- Made of stainless steel with polished interior surface finish
- Heavy-duty lid seal.
- Quick lock/release lid latches for easy and secure closure
- Dust-free air discharge thanks to the filtered discharge valve on lid
- A separate inlet with lid for adding additives.
- Optional sight glass on lid.
- Double-safety with two safety interlock switches, one on the lid hinge and the other on the lock handle to ensure that mixer cannot run if lid is opened.

Discharge Spout :

- Pneumatically operated discharge valve all made in stainless steel
- Valve plug shaped like the mixing bowl without any dead spots
- Easily removable valve assembly for cleaning
- Safety interlock switch fitted at discharge so that mixer cannot operate when valve assembly is removed.



Motor Drive :

- LMX25-VS/W: 11 kW variable speed AC motor Drive
- LMX75-VS/W: 22 kW variable speed AC motor Drive
- Variable speed with programmable frequency inverter
- High starting torque

Controls :

- Separate floor-mounted electric cabinet featuring a control panel covered by a swing-able Plexiglas lid and is connected to the mixer via the supplied heavy-duty cable
- Speed display controllers with three potentiometers that enables the setting of three automatic mixing speeds at any rpm within the model's specified RPM range
- Three digital timers to control the mixing time for each pre-set impeller speed. The timers run automatically in sequence and thus enable fully automatic running through all the three user-set impeller speed settings at desired time intervals.

Controls (continued) :

- Impeller RPM digital display (*Read-only*)
- Motor ampere digital display (*Read-only*)
- Mixing bowl and mixture temperature digital display (*Read-only*)
- All digital instruments are mounted on the panel under a swing-able Plexiglas cover
- Power buttons mounted outside the Plexiglas cover for easy access. This consists of STOP/START buttons, two ON/OFF selector switches for the bowl jacket and bowl base water cooling, a discharge switch, and an emergency pushbutton



Optional water cooling of impellers and shaft :

Water-cooled impellers enable efficient production of war or low melting temperature polymers together with filler and additives. The impeller blades shown to the right are cored with water channels covering all the blade areas. The water flows to the impeller shaft through a rotary union and is led to each of the eight impeller wings via recesses in the shaft. The impeller blade design features blunt edges for optimum mixing efficiency.



Brief Technical Data

LMX25-VS/W	LMX75-VS/W
Gross volume 25 liter. Max mixing volume 17, 6 liter	Gross volume 75 liter. Max mixing volume 50 liter
Impeller speed variable from 500 to 2,500 RPM	Impeller speed variable from 300 to 1,300 RPM
Motor Power 11 kW	Motor Power 22 kW

HIGH-POWER, HIGH-SPEED JACKETED LABORATORY MIXERS WITH OPTIONAL COOLING MIXER



High Power Jacketed High-Speed Laboratory Mixers with optional cooling mixer

The mixer is highly suitable for high-power, high-speed mixing of powders such as PVC, dry blends, pigment mixtures with wax polymers, etc., where melting of the polymer wax is required. The unit can be equipped with an optional mixing bowl with water cooling for precise temperature control.

Available in two sizes :

- LMX5-S-VSFI : 7.8-liter mixing bowl with net mixing capacity of 5 liters
- LMX10-S-VSFI : 11-liter mixing bowl with net mixing capacity of 7.3 liters

Computerized Controls Version Features:

Modern-design high-speed mixer unit with large raised cabinet built of welded tubular steel frame with steel side panels. The mixer discharge chute is placed with sufficient height away from the floor so that a cooling mixer can be added. The cabinet incorporates a control panel mounted in a comfortable viewing angle and covered with a protective Plexiglas swing-able lid. The new colored LCD touch-screen control enables easy and quick programming and running of the mixer as well as printing of graphic and data of all running parameters via PC connection.



**11-liter mixing bowl
with net mixing capacity of 7.3 liter**

Features:

Mixer Bowl:

- Stainless steel with highly polished surface finish on both internal and external body parts
- Jacketed for water heating or cooling with max water pressure at 5 bar

Mixer Lid:

- Made of stainless steel with polished inner surface
- A separate inlet with lid for adding additives
- Heavy-duty lid seal
- Quick-lock/release lid latches for easy and secure closure
- Dust-free air discharge thanks to the filtered discharge valve on lid
- Double-safety with two safety interlock switches, one on the lid hinge and the other on the lock handle to ensure that mixer cannot run if lid is opened.



Drive :

- Speed variable 5.5 HP AC motor drive controlled by a programmable frequency inverter
- High starting torque

Discharge Spout :

- Pneumatically operated discharge valve.
- Valve plug is shaped like the mixing bowl without any dead spots.
- Easily removable valve assembly for cleaning
- Safety interlock switch fitted at discharge so that the mixer cannot operate when valve assembly is removed.

Computerized Control Features :

- The computerized controls with a fully-colored LCD touch-screen enables full automatic running of the mixer. The machine can be set with up to 5 different programs where each program is user-defined and can run in up to 7 steps. Each step can be setup with different impeller speeds, torque, temperature, mixing time of the step, and whether cooling should be applied or not. The control system is also linked to the optional cooling mixer which will automatically start cooling its impeller during the discharge cycle.
- The control panel can be linked to a PC via LAN connection for data recording as well as plotting trend graphs of all running parameters for analysis.

Deflector :

- Highly polished stainless steel.
- Thermocouple inside deflector with measuring tip exposed for optimum accuracy.
- Adjustable deflector angle towards that side of mixing bowl.

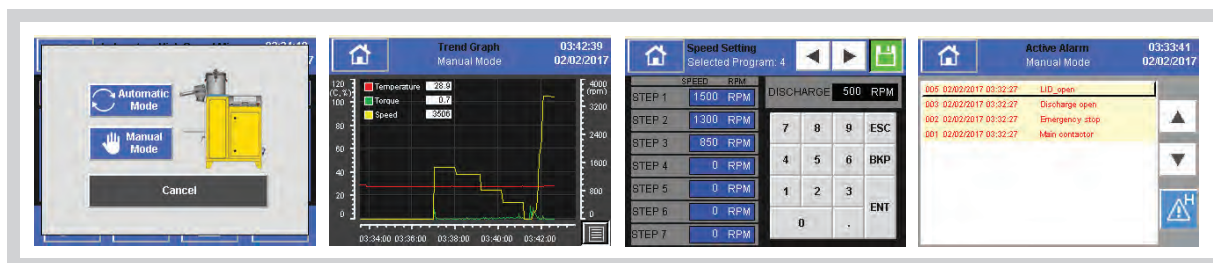
Mixing Tool :

- Stainless steel.
- Self-cleaning.
- Standard four-bladed impeller
- Central locking nut.
- Variable speed drive with RPM range: 500 to 4000



Computerized Control Features (continued):

- Motor power (shown in % of full power), impeller speed, batch temperature, elapsed time, water-cooling status are all monitored and shown on the panel.
- MANUAL and AUTO speed control modes for the mixing process
- Power buttons, discharge, and START/STOP mixing buttons are all mounted on the control panel outside of the Plexiglas cover for easy access.



OPTIONAL COOLING MIXERS FOR 5 & 10-LITER HIGH-SPEED MIXERS



Matching Cooling Mixers for
The 5 and 10-liters High-Speed Mixers

Features :

- Matching cooling mixers for the 5 and 10-liters high-speed mixers
- All stainless steel mixing bowl, impeller, lid and discharge valve
- Wide-jacketed cooling mixer bowl for optimum cooling efficiency, with water-cooling at the bottom
- Quick lock/release design of the cooling mixer's in-feed chute allows fast and secure connection with the high speed mixer's discharge chute
- Pneumatic discharge valve



- Ready-to-link plug connection with the high-speed mixer's control interface
- **For computerized high-speed mixer versions**, the cooling mixer can be either controlled by the computer program, or manually with its own dedicated control interface. This enables the high-speed mixer to be configured to start automatically before the high-speed mixer's discharge process starts, while the mixer can run at a pre-set cooling time.
- **For manual control high-speed mixer versions**, the cooling mixer will start when the discharge button is pressed while a digital timer controls the running time.
- **For both computerized and manual control high-speed mixers**, the cooling mixer can discharge automatically after the pre-set cooling time has elapsed, or if the discharge button is pressed.

Optional Chopper Add-on for Cooling Mixers

The cooling mixers can be equipped with an additional 1 HP chopper motor and impeller. The add-on motor unit is mounted on the rear side of the cooling mixer bowl, while the chopper is placed just above the mixer's horizontal impeller. The chopper is designed to be highly efficient in breaking up any agglomerates or lumps that could have been formed from the preceding high-speed mixing. The chopper's motor unit is available at a fixed RPM of 1,400 RPM or at a variable speed ranging from 0 to 1,500 RPM, while other speed range can be requested.



Techical Data High-Speed Mixers			
MIXER TYPE	COMPUTER MANUAL	LMX5-S-VSFI LMX5-S-VS	LMX10-S-VSFI LMX10-S-VS
Net Mixing Bowl		7.8 liter	11.0 liter
Net Mixing Volume		5 liter	7.3 liter
Impeller Rpm		500 to 4,000	500 to 4,000
Motor Power		4 kW	4 kW
Pneumatic Discharger		YES	YES

Techical Data Cooler Mixers		
COOLER MIXER TYPE	LCM-12	LCM-24
Net Mixing Bowl	12 liter	24 liter
Net Mixing Volume	6 liter	12 liter
Impeller Rpm	400	400
Motor Power	0.75 kW	0.75 kW
Pneumatic Discharger	YES	YES

LABORATORY & PILOT PLANT HIGH-SPEED MIXER WITH COOLING MIXER



Laboratory & Pilot Plant High-Speed Mixer With Cooling Mixer

The laboratory and pilot plant mixer series is equipped with both a high-speed mixer and a cooling mixer all combined into one a complete mixing line for various mixing needs. It comes complete with a raised cabinet frame for the high-speed mixer and a convenient staircase to simplify access during batch loading. See picture to the left.

Control Interface functions:

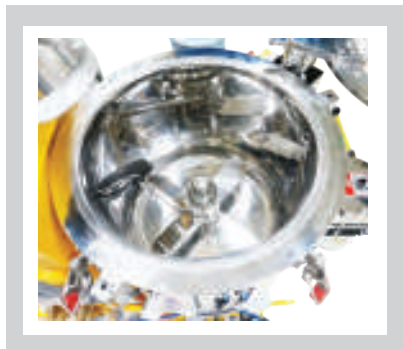
- 3-step high-speed mixing cycles where each cycle will run at a pre-set time. Cycles are automatically continued through steps 1 to 3.
- Required impeller speed can be set for each cycle with a range of 0 to 2500 RPM
- Digital temperature displays for both the high-speed and cooling mixers
- Individual START/STOP buttons for both mixers
- Water cooling selector switch for both mixers
- Discharge buttons for both mixers (*high-speed mixer to cooling mixer, and cooling mixer to an external container*)
- Optional computerized control interface available upon request

High-speed mixer

The high-speed mixer is jacketed for water cooling. It can also be equipped with water heating or alternatively, oil heating for special applications.

Cooling mixer

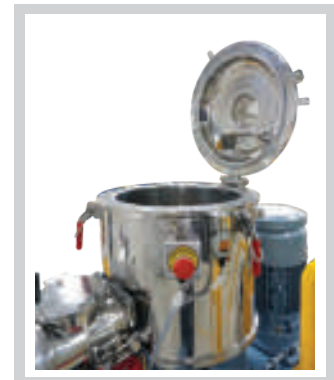
The cooling mixer has an inlet lid where the high-speed mixer's chute is connected via a discharge hose. After the high speed mixing cycle is completed, the batch is discharged from the high-speed mixer and loaded into the cooling mixer.



Brief technical data

HIGH SPEED MIXER	LMX25-VS/W	COOLING MIXER	Type LCM-75/W
Mixer bowl volume (liter)	28	Mixer bowl volume (liter)	75
Maximum load (amps)	20	Fixed Impeller speed (rpm)	290
Impeller speed range (rpm)	0-2500	Maximum load (amps)	8.4
Motor power (kW)	11	Motor power (kW)	4

- Both mixers are equipped with multiple safety features such as interlocked mixer lids and discharge valve assemblies
- Discharge valves are connected with quick-lock/release systems for easy and fast removal when cleaning
- A spring-arm support holds the lid in any position when opened
- Exhaust valve with a large dust filter prevents pressure build-up inside the mixing chamber
- Adjustable deflector inside the chamber
- A separate inlet on the lid for liquid additives
- Cooling mixer lid is opened sideways and is fastened with quick locks for easy opening and cleaning. Only the discharge hose connected with the high-speed mixer requires loosening before cleaning.
- Equipped with a large sight glass on the lid
- Thermocouple sensors are fitted near the impellers of the high-speed and cooling mixers for optimum sensing of batch temperatures
- The high-speed mixer's new impeller design for optimum mixing efficiency
- The cooling mixer impellers are turned upwards with bevelled upper impeller tips to ensure that the batch will keep moving for optimum cooling efficiency



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