



UET Mixers
26 Maple St.
Mechanic Falls, ME 04256
Tel: (207)-345-3330
Toll Free: (888)-838-9131
Fax: (603)-627-9328

PL-V Series Pipeline Mixers

Bulletin 14-100
12/19/11
Supersedes 11/10/04

**Page
01 of 09**

Table of Contents

Description	Page No.
TABLE OF CONTENTS	1
UET WARRANTY	2
INSPECTION	3
RECOMMENDED BOLTING TORQUES	4
INSTALLATION OF MAG DRIVE MIXER	5
MIXER OPERATION	6
MAINTENANCE OF MOTOR	7
LUBRICATION OF MOTOR	8
TROUBLESHOOTING GUIDE FOR ALL MIXERS	9



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Page
02 of 09

UET Warranty

1. Warranty Statement

UET warrants this exclusive product to be free from defects in material or workmanship and to be correct for the process specifications as identified by the end user. If this product does not perform as given in the process specifications by the end user, or is found to be defective in material or workmanship, UET will accept the unit's return at no charge to the customer. Our exclusive remedy will be to repair said unit or replace said unit with a new unit, or money shall be refunded to the purchaser in full.

Said unit is made of new material and is free from defect under specified and normal usage, such usage as having been given per the customer's submitted specifications; however, materials are not guaranteed against chemical attack or abrasion. Mixer components are not guaranteed against normal wear.

This warranty is in effect for a period of twelve (12) months from start-up, not to exceed eighteen (18) months from shipment.

Customer records: _____

Date of installation: _____

Date of start-up: _____

Start-up notes: _____



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Page
03 of 09

Inspection

Inspection, Storage, & Shipping Claims

- After uncrating your mixer, please check for shipping damage and report any damage immediately to the responsible carrier and the customer service department of our factory.
- Shipping package contents must be inspected for conformity with your order and for proper unit quantities. Any discrepancies must be reported to the factory service department within one week of receipt.
- Mixers must be handled with appropriate care. Careless handling may result in permanent damage. Field modifications (cutting to length, addition of fittings, etc.) to pipeline mixers should never be made without prior consultation with your local representative or the factory.
- Do not remove protective coating until the agitator is to be placed into service

Short Term Indoor Storage (6 months)

- Mixers should be stored indoors in clean, well ventilated storage areas free of vibrations, temperature variations and excessive humidity. The factory storage preparations are adequate for up to 6-months from the ship date. Rotate the motor and gear drive shafts 10-15 revolutions at least once per month to prevent brinelling and circulate bearing grease.

Long Term Indoor Storage (6 months)

- At 6-month intervals, inspect for external rust. Apply rust preventative protection as required. Note that the motor windings may require drying prior to operation.
- For extended storage in harsh environments additional coating or protection may be required. Consult the factory for further information if the storage area is harsh or external.



Recommended Bolting Torques

1. Tightening Torques

Use the values specified in the following table for fastening motors, units, and accessories to their mounting surfaces with SAE Grade 5 non-lubricated fasteners. If the tightening torque exceeds the capacity of the torque wrench, use a torque multiplier.

Thread Dia-UNC (in)	Painted Metal to Painted Metal (lb-in)	Painted Metal to Concrete (lb-in)
.250-20	90	70
.314-18	185	145
.375-16	330	255
.500-13	825	640
.625-11	1,640	1,280
.750-10	2,940	2,290
.875-9	4,560	3,750
1.000-8	6,800	5,600
1.125-7	8,900	7,000
1.250-7	12,600	10,000
1.375-6	16,500	13,000
1.500-6	22,100	17,500



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Page
05 of 09

Installation of Mag Drive Mixer

Mounting

Bolt unit securely to the mounting nozzle. Mounting fasteners and flange-to-vessel seal are not supplied unless specified. Total weight of the mixer is shown on the assembly print. The support structure must be rigid enough to prevent deflection and vibration

If required, install impellers as shown on the drawing. Propellers should be installed with the flat or concave side of the blades away from the driver.

Motor

- Check the nameplate data on the motor to assure that the available power supply agrees with the motor requirements. Protective devices should be of the proper size and rating to safely carry the load and interrupt the circuit on overloads
- If the motor has been stored in a damp location, the winding may require drying.

NOTE: Do not obstruct the normal flow of ventilating air through or over the motor.

- Connect the motor in accordance with the National Electric Code (NEC) and local requirements, but do not make the connections permanent until the motor rotation has been checked.
- Jog the motor to check for correct rotation prior to securing wiring.

Agitator

Correct installation requires both the unit assembly drawing and this manual.

Completely read and understand all of the following instructions before attempting to install or service this equipment.

1. The unit is shipped with the shaft installed and impellor(s) loose. Locate these items.
2. Remove all shipping constraints, including and protective covering on the mounting flange face.
3. Set the proper mounting flange seal (gasket or O-ring) on the vessel flange and protect in from damage.
4. Install and attach any purge inlet and outlet lines.



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**Page
06 of 09**

Mixer Operation

Your mixer has been designed for your specific application and although constructed in accordance with strict industrial standards, it is important to adhere to a few precautions so as to avoid difficulties resulting from improper handling, installation, and operating procedures. Use the following check list as a guide to trouble free service.

Operating Guidelines

1. Do not drag or push the mixer when moving it - always lift it. If the mixer is too large to lift manually, use a web sling or two heavy cloth straps. Chains, cables, and fork lifts in direct contact with the mixer could damage it.
2. Do not operate the unit before reading and following the instructions on all tags and nameplates attached to the unit.
3. Do not operate the unit for extended periods with less than (1) impeller's diameter liquid coverage above the lowest impeller. Increased side loading caused by operations at the liquid level will decrease unit life.
3. Do not operate the unit in a fluid with a specific gravity or viscosity higher than that for which the unit was designed.
4. Do not attempt to start a unit with the mixing impeller buried in solids or a "set up" fluid.
5. Do not attempt to repair or replace the magnet coupling assembly. Any operating problems should be referred directly to United Equipment Technologies Corp.
6. Do not locate large pump discharges, other agitators, down comers, coils, baffles, or other vessel internals close to the agitator impeller and extension shaft.
7. Do not make any changes in the field (i.e. motor horsepower, agitator spec, shaft length, impeller diameter, impeller blade width, etc.) without first reviewing the change with United Technologies Corp.
8. Should there be any problems operating the unit, confirm that installation is correct. If you are unable to resolve the problem, contact United Technologies Corp.



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**Page
 07 of 09**

Maintenance of Motor

1. Re-lubrication Intervals (motors having re-greasing capability)

New motors having been in storage for over a year should be re-lubricated by the procedure outlined below. The following re-lubrication intervals are suggested as a guide for long operating life.

Hours of Service per Year	NEMA Frame Size 42 to 215T	NEMA Frame Size 254 to 326T	NEMA Frame Size 364 to 477T
5000 hrs.	5 yrs.	3 yrs.	1 yr.
Continuous Normal	2 yrs.	1 yr.	9 months
Seasonal Service Motor is idle for 6 months or more	1 yr. (beginning of season)	1 yr. (beginning of season)	1 yr. (beginning of season)
Continuous high ambient, dirty or moist locations, high vibration, or where shaft end is hot	6 months	6 months	3 months.

2. Procedure for Greasing Bearing

Over-greasing bearings can cause premature bearing failure. If motor is equipped with Alemite fitting, clean tip of fitting and apply grease gun. Use 1 to 2 full strokes on motors in NEMA 215 frame and smaller. Use 2 to 3 strokes on NEMA 254 thru NEMA 365 frame. Use 3 to 4 strokes on NEMA 404 frames and larger. On motors having drain plugs, remove plug and operate motor for 20 minutes before replacing drain plug.

On motors equipped with slotted head grease screw, remove screw and apply grease tube to hole. Insert 2 to 3 inch length of grease string into each hole on motors in NEMA 215 frame and smaller. Insert 3 to 5 inch length on larger motors. Motors having grease drain plugs, remove plug and operate motor for 20 minutes before replacing drain plug.

CAUTION: Keep grease clean. Lubricate motors at standstill. Remove and replace drain plugs at standstill. Do not mix petroleum grease and silicone grease in motor bearings.



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**Page
08 of 09**

Lubrication of Motor

1. Motor Lubrication

The motor supplied with the mixer is a ball bearing type. The bearings have been lubricated at the factory. Motors without regreasing capability are factory lubricated for normal bearing life.

On regreaseable motors equipped with an Alemite fitting or slotted head grease screw, we recommend one of the following greases.

Manufacturer	Lubricant
Shell Oil Company	Dolium R
Chevron U.S.A Inc.	SRI No. 2
Texaco Inc.	Premium RB

See bulletin 04-200 for maintenance information.



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**Page
 09 of 09**

Troubleshooting Guide for All Mixers

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
Noises and Vibration	Mounted on poor foundation	Improve installation rigidity. Tighten foot bolts.
	Misaligned couplings	Recheck alignment.
	Loose or broken parts	Check for breaks or cracks. Tighten all bolts.
	Excessively worn gears	Check Shimming for Proper contact. Check Possible Machine Overload. Keep oil clean. Replace gears if necessary.
	Worn or faulty bearings	Check alignment, adjustment and possible overload. Clean and flush reducer, replace worn bearings and add new lubricant as required.
	Low liquid level or excessive forces in tank	Turn Mixer off and return tank level to 2' above lower impeller before resuming operation.
	Excessive backlash or shaft end play	Check for worn bearings, gears and proper shimming.
Overheating	Lack or, or improper lubricant	Keep oil at proper level and use recommended types. Change oil Periodically.
	Excessive churning of oil in operation	Drain excessive oil to proper level.
	Obstructed air flow	Check air supply for proper motor fan circulation. Avoid high surrounding ambient temperatures.
	Unit operating over thermal rating	Check rating with actual load.
Oil Leakage	Loose Covers or end plates	Check for torn gaskets. Tighten all bolts
	Worn or damaged oil seals	Replace with new seals. Avoid inserting seal over sharp edges.
	Too much oil	Check oil level. Drain to proper capacity.
	Improper venting	Replace clogged breathers.
	Foaming oil	Replace oil with proper type (non-foaming).
Excessive Shaft Runout	Loose bolts on coupling	Tighten all bolts.
	Misaligned coupling	Loosen all bolts, align, tighten all bolts.
	Bent shaft	Straighten or replace shaft.
	Low liquid level or excessive forces in tank	Turn mixer off and return tank level 2' above lower impeller before resuming operation.
	Worn or failed gearbox bearings	Replace bearings.
	Loose, bent, or missing impeller blade	If loose, replace and tighten all bolts. If blade is bent or missing, replace blade with proper size and type.
Mixer impeller operating in wrong direction	Motor is wired incorrectly	Switch any two leads in motor junction box (3 phase motors only!).

NOTE: IF PROBLEMS PERSIST, NOTIFY YOUR LOCAL REPRESENTATIVE OR THE FACTORY IMMEDIATELY FOR ASSISTANCE.