

SLURRY-MIZER™ LIQUID DRYER

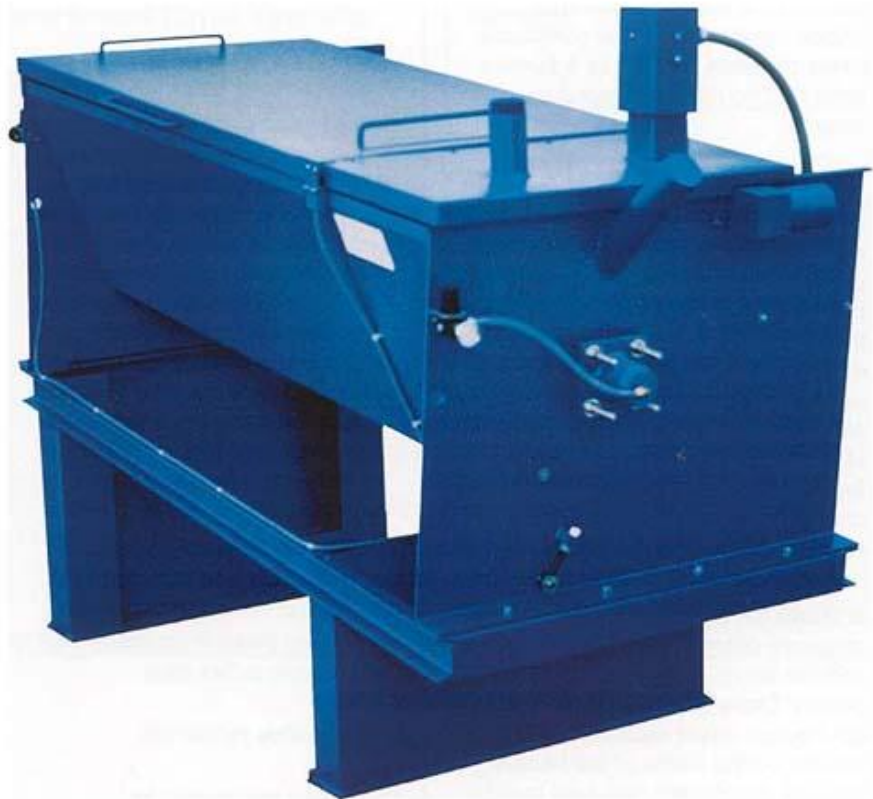
Slurry-Mizer solves the problem of disposal of hazardous waste solutions containing metal particles, concentrated salts or solutions with precipitated particles. These slurries often contain only a few percent solids in water. The presence of 90% or more of water escalates the cost of disposal. By reducing the slurry to a dry powder, disposal costs can be cut 10:1. In some instances, the dried material can be sold as valuable recovered material.

Slurry-Mizer overcomes the limitations of conventional atmospheric evaporators. The problem of forming a surface layer that retains moisture is solved by mechanical agitation by the continuous mixer. Many slurries form layers on the heated surface of evaporators which act as insulators – extending cycle times and creating hot spots that limit life. Clogging of spray nozzles is eliminated since there are no nozzles. These limitations restrict many evaporators to solids contents of less than 10%.

Slurry-Mizer reduces these solutions to dry granular material with a reduction of 90% – a tremendous cost savings.

PRINCIPLES OF OPERATIONS

The Slurry-Mizer is filled through a rigid pipe connection. Once filled, the cycle is started with a simple push button control; starting the mixer, turning on the heat and the exhaust. An adjustable timer allows a setting of the cycle time. Heat is applied to the housing walls using either steam or electricity. The heat is conducted through the wall of the housing and into the slurry in contact with the inner wall of the housing. This heats the slurry and drives off moisture. The continuous mixer runs throughout the drying cycle, creating a circulation loop from the bottom of the housing, bringing material up to the surface of the liquid and returning the material back down to the bottom. This circulation loop maintains



Reduces hazardous waste solutions from drums to quarts.

APPLICATIONS

- Concentrate from clarifier bottoms.
- Slurry from atmospheric evaporators.
- Metal bearing wash waters, especially with precious metals.
- Waterbased grinding coolants.
- Brine concentrate from reverse osmosis and ion exchange systems.
- Dumps of concentrated plating baths.
- Vibratory finishing wastewaters.

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a uniform temperature and prevents local hot spots. By maintaining a uniform temperature throughout the slurry, heat transfer is maximized for efficient use of energy and minimum cycle times.

The moisture is released from the slurry at the surface of the liquid. The unique construction of the continuous mixer prevents buildup of a surface layer that could inhibit moisture release.

The moisture is carried off through an exhaust duct. Air is drawn around the outer surfaces of the heating elements then enters the housing and passes over the surface of the slurry being dried. The moisture laden air is then drawn out through the exhaust duct. The unique air flow pattern serves two functions: 1) it maintains safe temperatures on the outer surfaces of the Slurry-Mizer and 2) preheats the air, lowering its relative humidity and allowing efficient moisture removal even on humid days.

As the slurry dries and moisture is drawn off, the liquid level drops. To conserve energy, heat is applied in multiple zones, each with independent control. Close fitting blades on the continuous mixer maintain a clean surface on the inside of the heated housing, maintaining high heat transfer rates by preventing accumulation of any surface layers that could inhibit heat transfer. The dried material accumulates at the low point of the housing, assisted by the circulation pattern of the continuous mixer. Once the preset time has elapsed, the Slurry-Mizer is automatically shut off.

When a batch is completed, the door is opened to release the material. A convenient toggle clamp releases the door – no special tools. Material then flows into the customer's container placed below the discharge door.

FEATURES AND BENEFITS

FEATURES

- Rigid pipe fill connection
- Can be connected directly to feed pumps.
- Stainless steel wetted parts.
- Steam or electric heat sources.
- Low operating temperatures.
- Positive temperature control.
- Large heated surface.
- Conduction heat transfer.
- Multiple heat zones.
- Continuous mechanical agitation prevents buildup of surface layers.
- Closed loop circulation pattern.
- Close fitting blades on continuous mixer keep inner housing surface clean.
- Positive airflow pattern.
- Airflow over heat source prior to entering dryer housing.
- Suction exhaust creates negative pressure within Slurry-Mizer.
- Convenient, toggle-locked discharge door.
- Adjustable timer and temperature controls.
- Positive sprocket and chain drive along with integral TEFC gear motor.
- Oversized bearings with positive air purged seals.

BENEFITS

- Positive, sealed filling.
- Continuous part of system addresses regulatory concerns.
- Long life in corrosive service.
- Utilizes most cost-effective energy source.
- Efficient drying without smoke or odors.
- Maintains low operating temperatures.
- Rapid drying cycles.
- Maximum heating rates for efficient drying at low temperatures.
- Minimizes energy consumption.
- Effective moisture release unimpeded by surface layer.
- Maximizes drying rate and produces uniform product.
- Fast drying unimpeded by buildup of insulating surface layers.
- Rapid removal of evaporated moisture.
- Maintains safe surface temperatures and facilitates moisture removal on humid days.
- Positive dust control.
- Easy, rapid removal of dried material.
- Requires minimal operator attention.
- Reliable operation.
- Reliable operation.

BATCH OR CONTINUOUS MODE

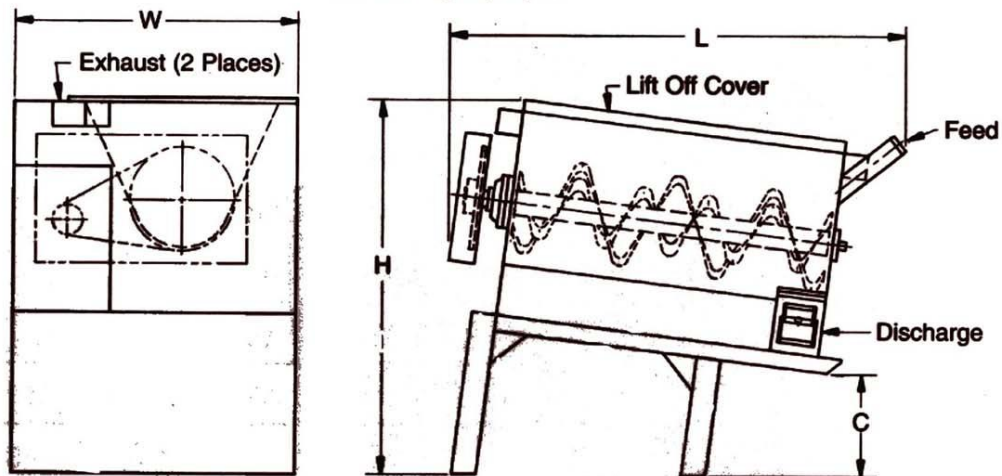
The Slurry-Mizer can be operated in either of two modes – batch or continuous. The batch mode is used for dumps of accumulated slurry to be dried on an intermittent schedule. For a continuing accumulation (flow) or for maximum evaporation rates, the continuous mode is recommended.

In the batch mode, the Slurry-Mizer is loaded up to capacity and the drying cycle is started. An adjustable timer allows setting of the cycle time. Once the preset time has elapsed, the Slurry-Mizer is automatically shut off.

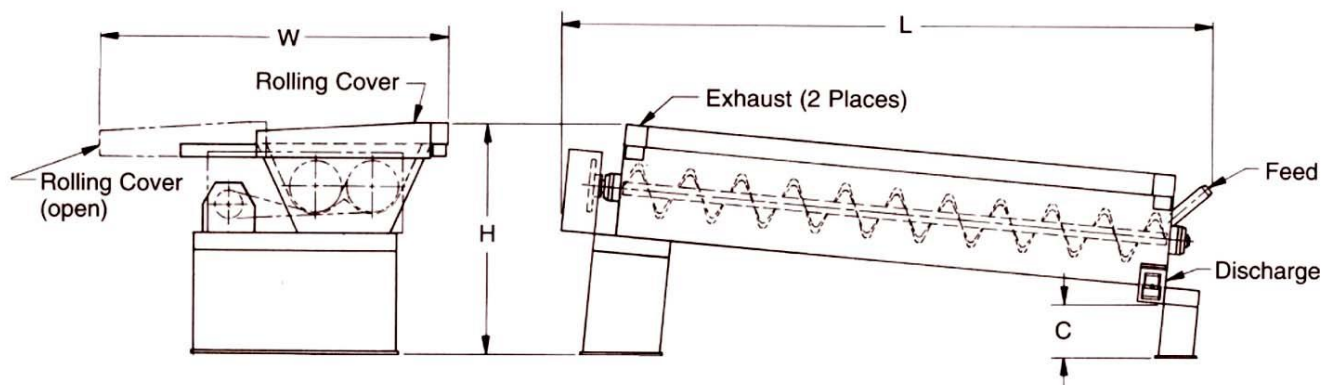
In the continuous mode, liquid level sensors provide a signal for

refilling the Slurry-Mizer, maintaining a full liquid level. This mode maximizes the wetted contact area for high heat transfer and in turn peak evaporation rates. Once the slurry thickens or after a preset quantity of refilling, the slurry is dried to a granular form for discharge.

Models 15, 30, 50, 75



Model 150



SLURRY-MIZER™ SPECIFICATIONS (Subject to change without notice.)

MODEL NO.	15E	30E	50E	75E	150E		15S	30S	50S	75S	150S
Holding Capacity, gal	15	30	50	75	150		15	30	50	75	150
Heat Source	Electric	Electric	Electric	Electric	Electric		Steam	Steam	Steam	Steam	Steam
Evaporation Rate, *gpd	80	160	250	400	800		80	160	250	400	800
Heating Capacity, kw	12	24	36	60	120						
Steam Consumption, #hr.							45	90	140	220	450
Heating Zones	2	2	2	2	4		2	2	2	2	4
Drive, hp	1	2	3	5	7.5		1	2	3	5	7.5
Length, L	57	81	97	140	184		57	81	97	140	184
Width, W	36	36	48	54	82		36	36	48	54	82
Height, H	48	48	56	56	58		48	48	56	56	58
Discharge Clearance, C	12	12	12	12	12		12	12	12	12	12
Pan Opening	24x40	24x64	34x80	34x116	36x160		24x40	24x64	24x80	34x116	36x160
Shipping Weight, lbs.	600	800	1050	1700	4000		550	750	1000	1600	4000
Electric Requirements	230/460 3 Phase						110V/20A 1 Phase		230/460 3 Phase		
Steam Requirements	N/A						Up to 50 PSIG				
Temperature Control	Adjustable, Positive Feedback						Determined by Steam Pressure				
Overtemp. Protection	Independent Thermal Cutout						Relief Valve Available				
Cycle Time, Batch	6-10 Hours, Depends on Water Content, Composition and Model										
Drying Temperature	Up to 250°F										
Wetted Parts	Stainless Steel – Type 304 standard, Type 316 and Others Available										
Exterior	Sandblasted and Painted With Chemically Resistant Polyurethane										

*full tank, with continuous make-up

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