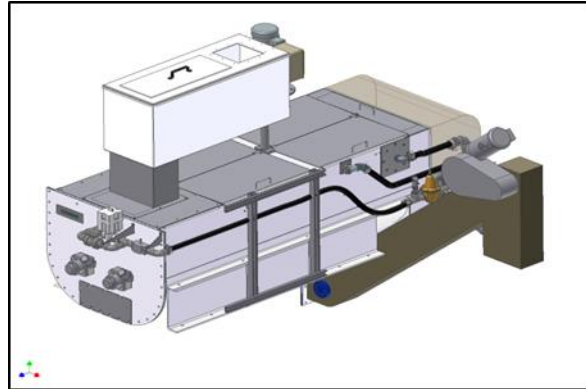
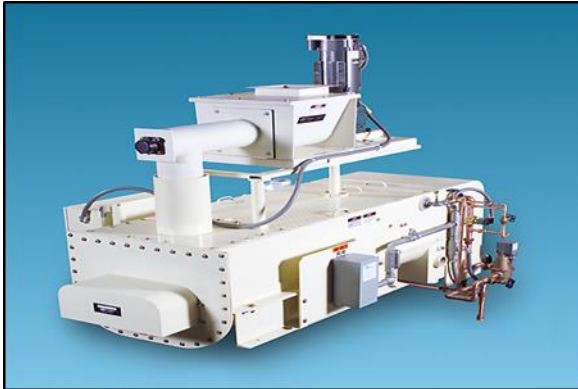




COST PROPOSAL

LIME SLAKING SYSTEM FOR CITY OF HALLANDALE BEACH, FL



IMS File No.: D16-014 *Rev. 03*

Revised on: *February 10, 2022*

SALES REPRESENTATIVE

Mike Robbins
Water Treatment and Controls Company
South Florida Sales Office
Phone: (352) 267-3223
Email: mrobbins@watertc.com



TABLE OF CONTENTS

Cover Letter

Equipment Selection Sheet

Section 1: Commercial Proposal and Order Sheet

Section 2: General Arrangement Selection, Drawings, and Brochures

IMPORTANT NOTICE: All the information in this Proposal is confidential and has been prepared for Buyer's use solely in considering the purchase of the Equipment described. Transmission of all or any part of this Proposal to others or use by Buyer for other purposes is unauthorized without Seller's advance written consent.



February 10, 2022

John Fawcett

Water Plant Manager

City of Hallandale Beach

630 NW 2nd Street

Hallandale Beach, FL 33009

Email: jfawcett@hallandalebeachfl.gov

RE: City of Hallandale Beach, FL
Lime Slaking System

Dear *John*,

Thank you for your interest in Integrity Municipal Systems LLC (IMS).

Per the request of our representative, Mr. Mike Robbins at WTC, we have prepared this cost proposal for providing one (1) Lime Slaking System for City of Hallandale Beach, FL. Our proposal is based on the following design criteria:

Design Criteria

Quicklime Feed Rate	1000 PPH
Slaker Maximum Capacity	1000 PPH
Maximum Output Lime Slurry Concentration	18%

Our lime slaking system is a packaged system. It consists of a lime feeder, lime slaker, grit remover, piping, valves, instrumentation and controls to make a complete and functional system.

The IMS A-758 Lime Slaker System incorporates many features and advantages, including:

- Economical, consistent and reliable on-site slaking
- Proven track record with 40 years of experience
- Easy to install
- Tested at the factory
- Robust construction
- Superior paste slaking process (2:1 water to lime ratio)
- Faster slaking (5 minutes)
- More reactive lime slurry
- Compact size
- External heat source not required
- Saves water, heat and power
- Completely automatic system
- Flexible configurations
- Flexible controls



We have attached our commercial proposal in Section 1 and equipment drawings and brochures in Section 2.

We look forward to working with you on this project. If we can be of any further assistance, please do not hesitate to contact our sales representative, Mike Robbins at WTC, or me at (858) 248-7834.

Thank you.

Sincerely,

Khaled Roueiheb
Director of Sales

Cc: Mike Robbins, WTC



EQUIPMENT SELECTION SHEET

<u>FEEDER ACCESSORIES</u>			
<input type="checkbox"/> Inlet Rotary Valve	<input checked="" type="checkbox"/> Rotary Valve Adapter	<input checked="" type="checkbox"/> Inlet Flexible Connector	
<u>FEEDER</u>			
<input type="checkbox"/> Volumetric Screw (32-300SP)	<input checked="" type="checkbox"/> Volumetric Belt (32-215)	<input type="checkbox"/> Gravimetric Belt (31-165)	
<i>Feeder Material of Construction</i>			
<input type="checkbox"/> Carbon Steel	<input checked="" type="checkbox"/> 304SS	<input type="checkbox"/> 316SS	
<input checked="" type="checkbox"/> Unpainted <input type="checkbox"/> Painted			
<u>SLAKER MAXIMUM CAPACITY</u>			
<input type="checkbox"/> 500 lb/hr	<input checked="" type="checkbox"/> 1,000 lb/hr	<input type="checkbox"/> 2,000 lb/hr	<input type="checkbox"/> 4,000 lb/hr <input type="checkbox"/> 8,000 lb/hr
<i>Slaker Material of Construction</i>			
<input checked="" type="checkbox"/> Carbon Steel	<input type="checkbox"/> 304SS	<input type="checkbox"/> 316SS	
<input type="checkbox"/> Unpainted <input checked="" type="checkbox"/> Painted			
<u>GRIT REMOVER</u>			
<input checked="" type="checkbox"/> Conveyor	<input type="checkbox"/> Screen	<input type="checkbox"/> Screw	
<i>Grit Remover Material of Construction</i>			
<input checked="" type="checkbox"/> Carbon Steel	<input type="checkbox"/> 304SS	<input type="checkbox"/> 316SS	
<input type="checkbox"/> Unpainted <input checked="" type="checkbox"/> Painted			
<u>WATER SUPPLY OPTIONS</u>			
<i>Water Valve:</i>	<input checked="" type="checkbox"/> Mechanical	<input type="checkbox"/> Electronic	
<i>Water Piping Selection:</i>	<input type="checkbox"/> Slaker-Mounted Piping	<input checked="" type="checkbox"/> Water Panel	
<i>Water Piping Material:</i>	<input checked="" type="checkbox"/> Copper	<input type="checkbox"/> PVC	
<i>Water Panel Location (If Applicable):</i>	<input checked="" type="checkbox"/> Unit-Mounted	<input type="checkbox"/> Local Freestanding	<input type="checkbox"/> Remote
<u>POWER SUPPLY</u>			
<input checked="" type="checkbox"/> 480V/3ph/60Hz	<input type="checkbox"/> 230V/3ph/60Hz	<input type="checkbox"/> 120V/1ph/60Hz	<input type="checkbox"/> 230V/1ph/60Hz
<u>CONTROL PANEL</u>			
<input type="checkbox"/> Mounted on Slaker	<input checked="" type="checkbox"/> Remote-Mounted		
<input type="checkbox"/> Relay Logic Based	<input checked="" type="checkbox"/> PLC Based		



SECTION 1

COMMERCIAL PROPOSAL

Proposal D16-014 *Rev. 03*

Date: *February 10, 2022*

ORDER

The undersigned authorized representative of the below named purchaser ("Buyer") hereby orders the Equipment described in the accompanying Seller's Documentation on the terms and conditions specified therein.

Buyer: _____

Signed by: _____

Print Name: _____

Print Title: _____

All orders are subject to prior acceptance by Integrity Municipal Systems LLC at its offices in Poway, CA.



SCOPE OF WORK BY INTEGRITY MUNICIPAL SYSTEMS LLC ("SELLER")

The following equipment and services are included in Seller's scope of work. All equipment will be manufactured in accordance with Seller's standard equipment specifications and installed in a non-hazardous area. Please see attached equipment general arrangement drawing for illustration and reference.

<u>No.</u>	<u>Item Description</u>	<u>Qty.</u>
1.	Transition Piece from Existing Rotary Valve Outlet to Lime Feeder Inlet	1
2.	Inlet Flexible Connection, Canvas	1
3.	Series 32-215 Volumetric Belt Feeder – 1000 PPH Capacity , including: <ul style="list-style-type: none">a) 304 Stainless-Steel Housing Constructionb) 1/2 HP AC Motor – 230/460V, 3 ph, 60 Hzc) VFD Drive (In Control Panel)d) Flood Switche) Feeder Support Posts and Discharge Connection	1
4.	Series A-758 Lime Paste Slaker, 1000 PPH Capacity , including: <ul style="list-style-type: none">a) Painted Carbon Steel Troughb) 1/2 HP Paddle Shaft Motor – 230/460V, 3 ph, 60 Hzc) Mechanical Torque Operated Water Valved) Vapor & Dust Arrestore) Pre-Assembled Copper Water Panel (Patent No. 9,908,812) (Unit-Mounted), including:<ul style="list-style-type: none">a. Water Pressure Reducing Valve, Water Strainer, Pressure Gauge, Water Low Pressure Switchb. Solenoid Valve for Auto Batchingf) Slaker delivers up to 18% Lime Slurry Concentrationg) Unit is shipped pre-Wired/pre-Piped, Assembled and Tested at the Factory	1
5.	Conveyor Type Grit Remover for 1000 PPH Capacity , including: <ul style="list-style-type: none">a) Painted Carbon Steel Housing Constructionb) 1/4 HP Grit Remover Motor – 230/460V, 3 ph, 60 Hz, TEFC & Gearboxc) Grit Remover Attachments, Grit Remover Rotameter, Parts and Piping for 18% Lime Slurry Concentrationd) Grit Remover Support	1
6.	PLC Based Control Panel for Slaker, Grit Remover & Feeder , including: <ul style="list-style-type: none">a) NEMA 4 Enclosure – Painted Carbon Steel (Remote-Mounted)b) Allen-Bradley CompactLogix PLC with Color 10" Allen-Bradley Panelview Plus 1000 HMI (Touch Screen Operator Interface)c) Auto-Batching,d) Input Power Disconnect Switch	1



- e) Control Circuit Transformer for 460V, 3 ph, 60Hz Power Input
- f) 4-20 mA Control of Feeder
- g) On/Off Control to Existing Vibrator Panel
- h) Conduit and Parts for Grit Remover, Junction Box, Feeder
- i) Audible Alarm Mounted to Control Panel

7.	Junction Box for Remote Mounting of Control Panel - Carbon Steel	1
8.	Manufacturer's Services for Installation Inspection, System Start-Up and Operator Training (1 Trip for up to 3 Days at the Jobsite)	Included
9.	Design Submittal and Operation and Maintenance Manuals	Included
10.	F.O.B. Factory with Full Freight Allowed to Jobsite	Included
EQUIPMENT PRICE [ITEMS 1-10]		\$152,375

SCOPE OF WORK BY BUYER

1. Equipment unloading and installation
2. All civil works and concrete pad for equipment including anchor bolts supply
3. Electrical power to slaker control panel (480V/3ph/60Hz)
4. All overflow drain piping from slaker to plant drain
5. Remote installation of control panel and interconnecting wiring from remote-mounted control panel to junction box, etc.
6. All electrical conduit, wiring, electrical material, etc. from control panel to plant SCADA, existing vibrator panel, etc.
7. Process signal and wiring from process for feeder operation
8. Quicklime supply equipment to feeder inlet including existing rotary valve
9. Vent piping from vapor & dust arrestor connection onwards (3")
10. Lime slurry discharge piping from slaker connection to process (2")
11. 1-1/2" water supply piping to water connection - **18gpm at 75 psi**
12. Room ventilation, air conditioning, or lighting
13. Any items not explicitly listed under Integrity Municipal Systems LLC's scope of work

SHIPPING INFORMATION

Estimated Shipping Weight: 2,400 lbs.

FIELD SERVICES

Should additional services be required for work beyond Seller's Scope of Work, Buyer may purchase such services from Seller at a standard rate of \$1,500 per eight (8) hour day, plus expenses.



WARRANTY TERM

The Warranty Period is one (1) year from Equipment acceptance or 18 months from shipment, whichever occurs first, and is subject to the Standard Terms of Sale included with this Proposal.

TAXES

Seller's Proposal does not include any sales, use, federal, state, local, excise, or other similar taxes or duties unless expressly stated in this quotation. All applicable taxes shall be paid by Buyer. Upon acceptance of an order by Seller, Buyer shall provide a resale certificate or tax exemption certificate, whichever is applicable, to Seller.

PAYMENT TERMS

Subject to prior credit approval, the terms of payment are:

20% upon submittal approval, Net 30 days

75% upon equipment shipment (or offer to ship), Net 30 days

5% upon beneficial occupancy, or 120 days from shipment, whichever occurs first

PROPOSAL VALIDITY

Seller's Cost Proposal dated *February 10, 2022* is valid until *May 31, 2022*. The stated price is predicated on shipment no later than *May 31, 2023*. In the event Buyer desires to extend the delivery date or the Warranty Period beyond the time period set forth in this Proposal, Seller can offer extended terms for an additional charge which will be provided upon request.

SCHEDULE

As part of any binding Agreement that results from this proposal, Seller and Buyer shall mutually agree upon a production and delivery schedule (not to exceed the outside delivery date stated above). Our normal lead time for this type of equipment is:

Design Submittal: 4-6 weeks after receipt of a fully executed purchase order

Equipment Shipment: *16-18* weeks after seller's written receipt of submittal approval and release for fabrication.

TERMS & CONDITIONS

NOTE 1: Seller's Standard Terms of Sale, attached to this Proposal and incorporated herein by this reference, will apply to any order resulting from this Proposal and are factored into the purchase price set forth in this Proposal.



STANDARD TERMS OF SALE

1. Applicable Terms. These terms govern the purchase and sale of the equipment and related services, if any (collectively, "Equipment"), referred to in Seller's quotation, proposal or acknowledgment, as the case may be ("Seller's Documentation"). These terms together with Seller's Documentation comprise the complete and exclusive agreement between the parties (the "Agreement"). The Agreement may only be modified by a written instrument signed by authorized representatives of both parties. Any additional, different or conflicting terms contained in Buyer's request for proposal, specifications, purchase order or in any other written or oral communication from Buyer are hereby rejected by Seller and shall not be binding in any way on Seller.
2. Price and Payment. Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation provides otherwise, freight, storage, insurance and all taxes, duties or other governmental charges relating to the Equipment shall be paid by Buyer. If Seller is required to pay any such charges, the amount so paid shall become immediately due and payable to Seller by Buyer. Unless otherwise stated in Seller's Documentation, all payments are due within 30 days after receipt of invoice. Buyer shall be charged 1½% interest per month on all amounts not received by the due date and shall pay all of Seller's costs (including attorneys' fees) of collecting amounts due but unpaid. If Buyer fails to make any payment when due, Seller may, without advance notice, terminate this order without liability; or condition such order on such modifications to the terms of payment as Seller, in its discretion, deems appropriate. In such case, Seller may also, in its discretion, withhold further manufacture or shipment; require immediate cash payments for past and future shipments; or require other security satisfactory to Seller before further manufacture or shipment is made.
3. Delivery. Delivery of the Equipment shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, delivery terms are F.O.B. Seller's facility. Risk of loss shall transfer to the Buyer upon tender of goods to Buyer, Buyer's representative, or common carrier. Claims for damage, shortage or errors in shipping must be reported within two business days following delivery to Buyer. Buyer shall have one business day from the date Seller completes start-up of the Equipment to inspect such Equipment for defects and nonconformance which are not due to damage, shortage or errors in shipping, and notify Seller, in writing, of any defects, nonconformance or rejection of such Equipment. After such one business day period, Buyer shall be deemed to have irrevocably accepted the Equipment, if not previously accepted. After such acceptance, Buyer shall have no right to reject the Equipment for any reason or to revoke acceptance.
4. Ownership of Materials. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely in connection with Buyer's use of the Equipment. Buyer shall not disclose any such material to third parties without Seller's prior written consent.
5. Changes. Seller shall not implement any changes in the scope of work described in Seller's Documentation unless Buyer and Seller agree in writing to the details of the change and any resulting price, schedule or other contractual modifications. This includes any changes necessitated by a change in applicable law occurring after the effective date of the Agreement.
6. Warranty. Seller warrants to Buyer that during the period that ends 18 months from delivery or one year from acceptance, whichever occurs first (the "Warranty Period"), the Equipment shall materially conform to the specifications set forth in Seller's Documentation and shall be free from defects in material and workmanship. If Buyer gives Seller prompt written notice of breach of this warranty within the Warranty Period, Seller shall, at its sole option and as Buyer's sole and exclusive remedy, repair or replace the Equipment or any non-conforming parts thereof. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller's then customary charges for any repair or replacement made by Seller. The warranty on repaired or replaced Equipment or parts is limited to the remainder of the Warranty Period. The foregoing warranty shall not apply to any Equipment or part thereof (x) that is (a) not operated and maintained in accordance with Seller's instructions, (b) damaged as a result of any unauthorized repairs or alterations, (c) damaged by chemical action or abrasive material, misuse, (d) damaged by improper installation (unless installed by Seller), and (e) specified or otherwise demanded by Buyer and is not manufactured or selected by Seller, as to which Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller; and (y) if Buyer is in default of any payment obligation to Seller under this Agreement. Seller's warranty does not cover any adsorbing media or other consumables used in the Equipment, regardless of whether such media or consumables were supplied by Seller. THE WARRANTIES SET FORTH IN THIS SECTION ARE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO SECTION 9 BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE. The warranty set forth herein, subject to any limitations set forth elsewhere in Seller's Documentation, shall be transferable during the Warranty Period to the initial end-user of the Product.
7. Force Majeure. Neither Seller nor Buyer shall have any liability for any breach (except for breach of payment obligations) caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, act of government or any other cause beyond such party's reasonable control.
8. Cancellation. If Buyer cancels or suspends its order for any reason other than Seller's breach, Buyer shall promptly pay Seller for work performed prior to cancellation or suspension and any other direct costs incurred by Seller as a result of such cancellation or suspension.
9. LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT OR PARTS SHALL NOT EXCEED TEN PERCENT (10%) OF THE PURCHASE PRICE PAID UNDER THIS AGREEMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY, OR ANY OTHER THEORY. THE REMEDIES SET FORTH IN THIS AGREEMENT ARE INTENDED TO CONSTITUTE A COMPLETE ALLOCATION OF THE RISKS BETWEEN THE PARTIES AND LIMITS THE REMEDIES THAT MIGHT OTHERWISE BE AVAILABLE. BECAUSE THIS AGREEMENT AND THE PRICE PAID REFLECT SUCH ALLOCATION, THE REMEDIES PROVIDED TO BUYER HEREUNDER WILL NOT HAVE FAILED OF THEIR ESSENTIAL PURPOSE EVEN IF THEY OPERATE TO BAR RECOVERY FOR CERTAIN DAMAGES THAT BUYER MAY INCUR.
10. Set-off and Backcharges. Buyer will not be entitled to set-off any amounts due Buyer against any amount due Seller from Buyer. Seller will not be responsible for any backcharges unless approved in writing in advance by an authorized representative of Seller. Any request for backcharges must be submitted by Buyer to Seller at least three business days prior to the date on which Buyer desires to assess such backcharge to enable Seller to conduct a site visit or to conduct such other investigation as it deems reasonably appropriate.
11. Export Compliance. Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Equipment provided under this Agreement, including any export license requirements. Buyer agrees that such Equipment shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with such applicable export laws and regulations.
12. Miscellaneous. If these terms are issued in connection with a government contract, they shall be deemed to include those federal acquisition regulations that are required by law to be included. If any provision of the Agreement is held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions thereof will not in any way be affected or impaired, and such provision will be deemed to be restated to reflect the original intentions of the parties as nearly as possible in accordance with applicable law. Buyer may not assign or permit any other transfer of the Agreement without Seller's prior written consent. The Agreement shall be governed by the laws of the State of California without regard to its conflict of law provisions. The application of the United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed and excluded.



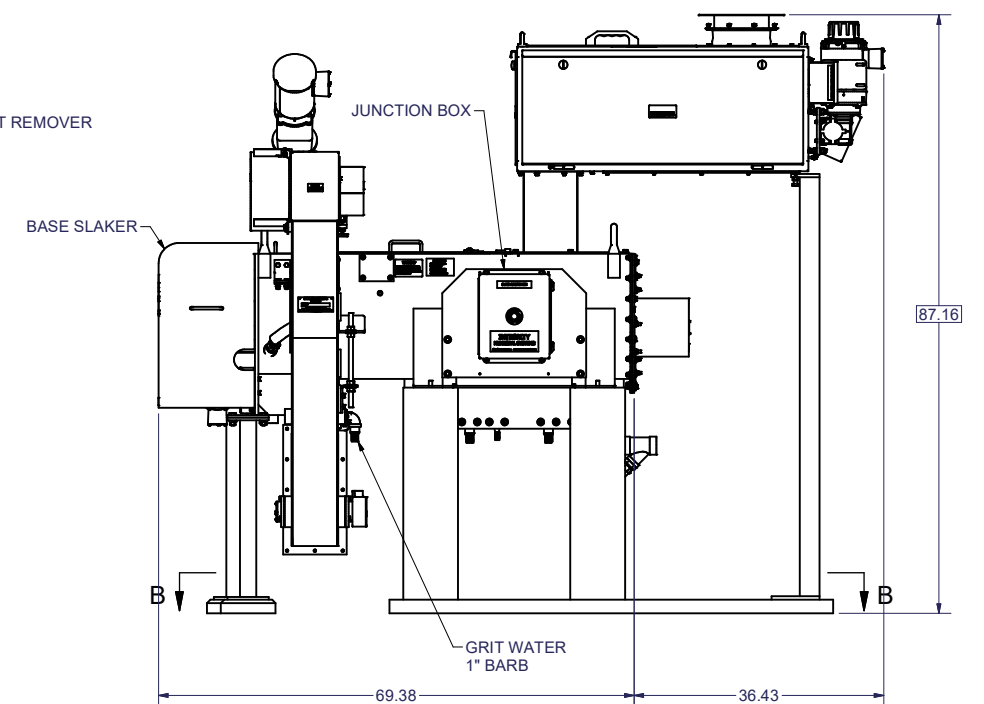
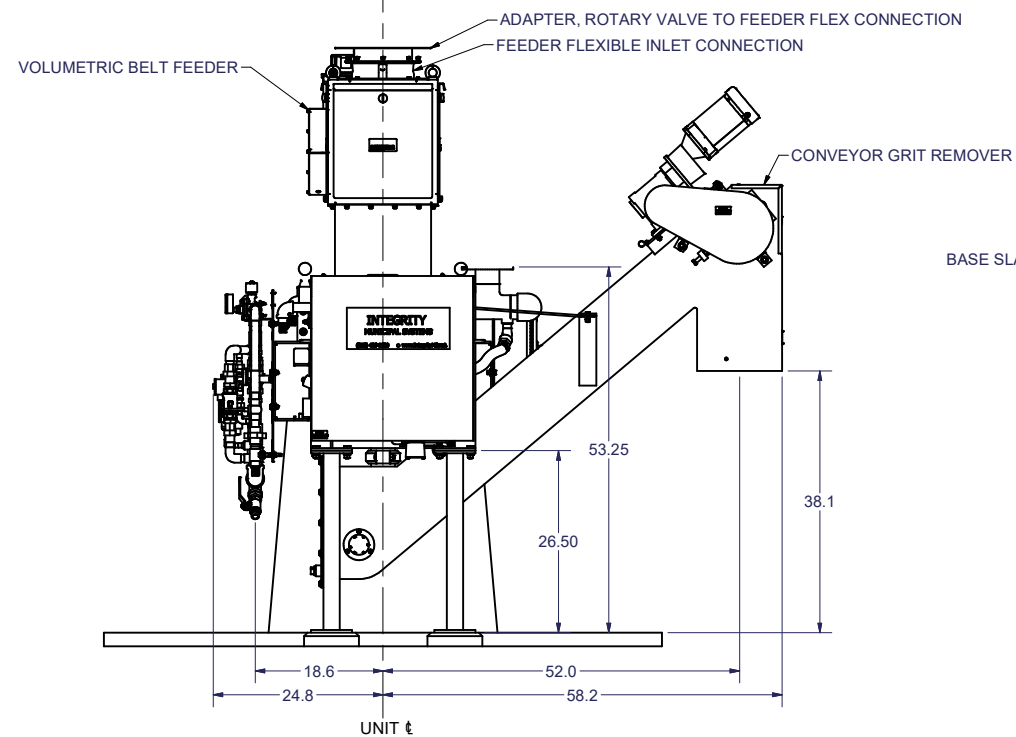
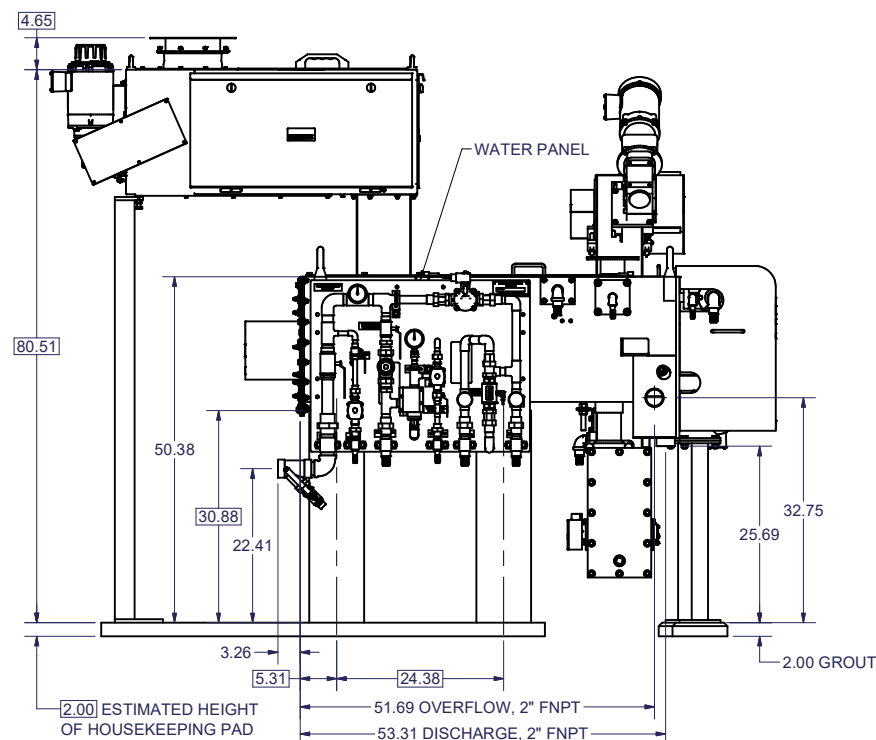
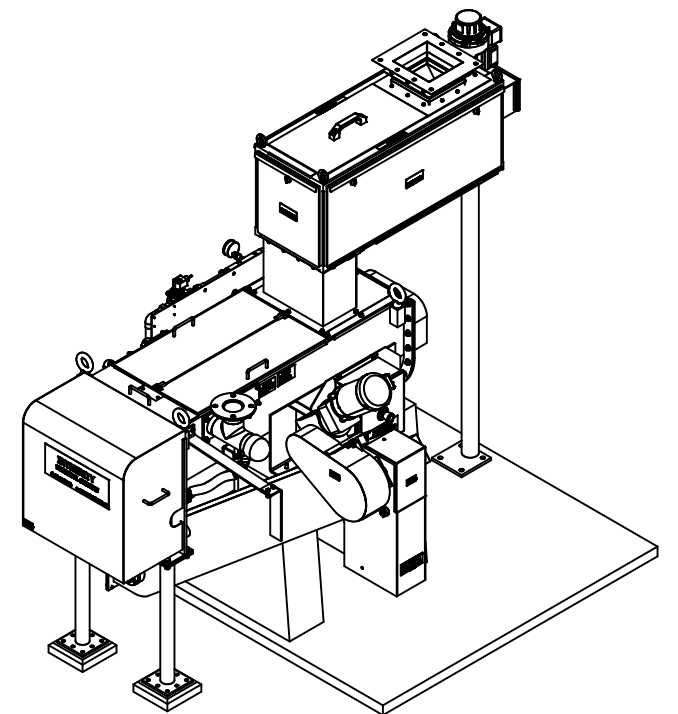
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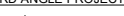
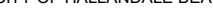
GENERAL ARRANGEMENT DRAWINGS AND BROCHURES

- 1000 POUND PER HOUR LIME SLAKER
- VOLUMETRIC BELT FEEDER
- CONVEYOR GRIT REMOVER
- LOCALLY MOUNTED WATER PANEL
- JUNCTION BOX MOUNTED TO SLAKER
- REMOTE MOUNTED MAIN CONTROL ENCLOSURE (NOT SHOWN)
- FEEDER INLET FLEXIBLE CONNECTION
- ROTARY VALVE TO FLEX CONNECTION ADAPTER
- SLAKER SUPPORT STANDS

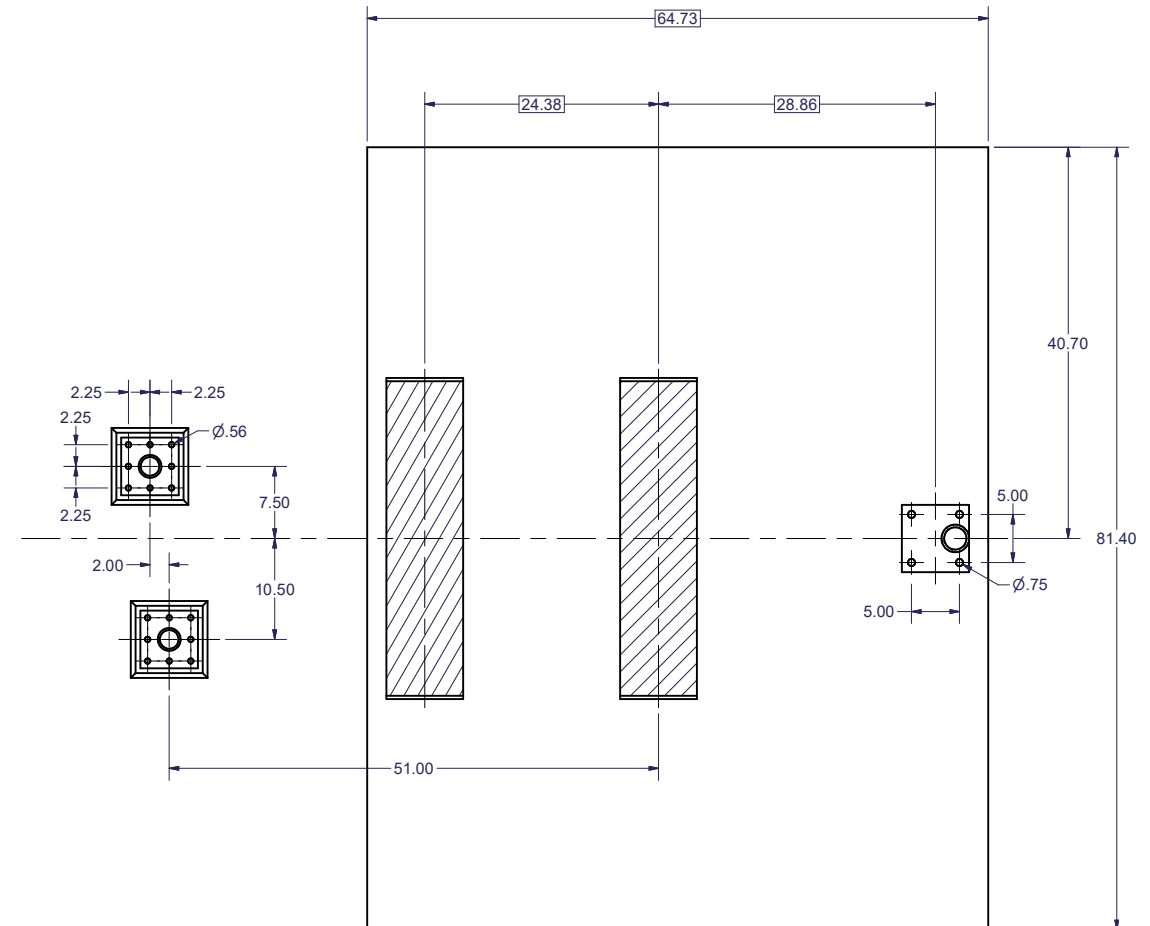
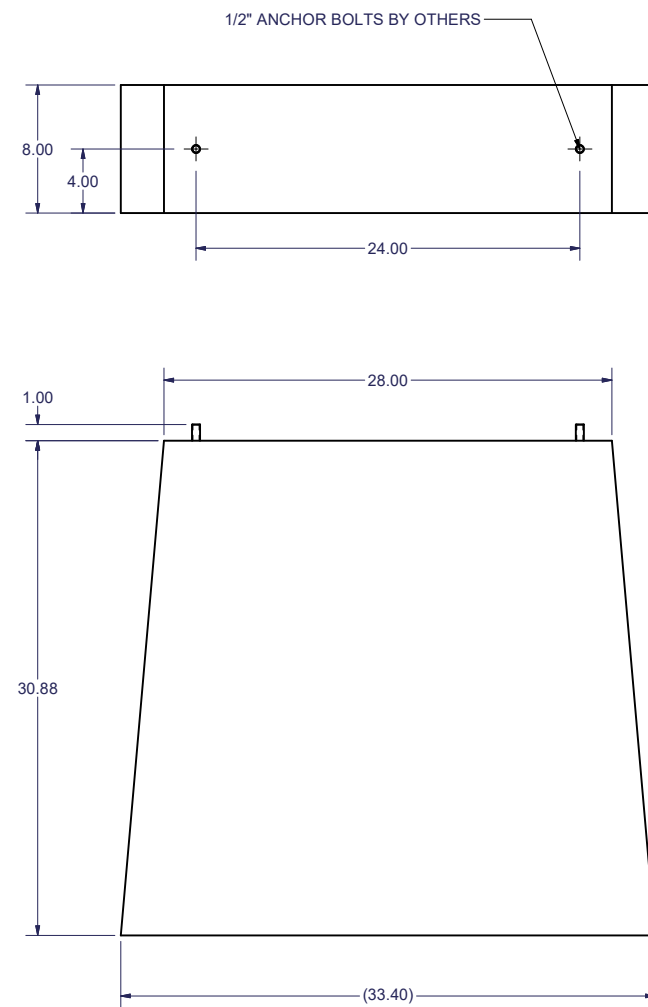
Technical drawing of a square component with a central rectangular cutout and a top flange. The drawing includes the following dimensions:

- Overall width: 14.00
- Overall height: 12.50
- Central cutout width: 8.33
- Central cutout height: 7.89
- Top flange width: 4.00 (each side)
- Top flange height: 1.00
- Distance from top flange to central cutout: 10.50
- Distance from side flange to central cutout: 1.00
- Hole diameter: Ø.63





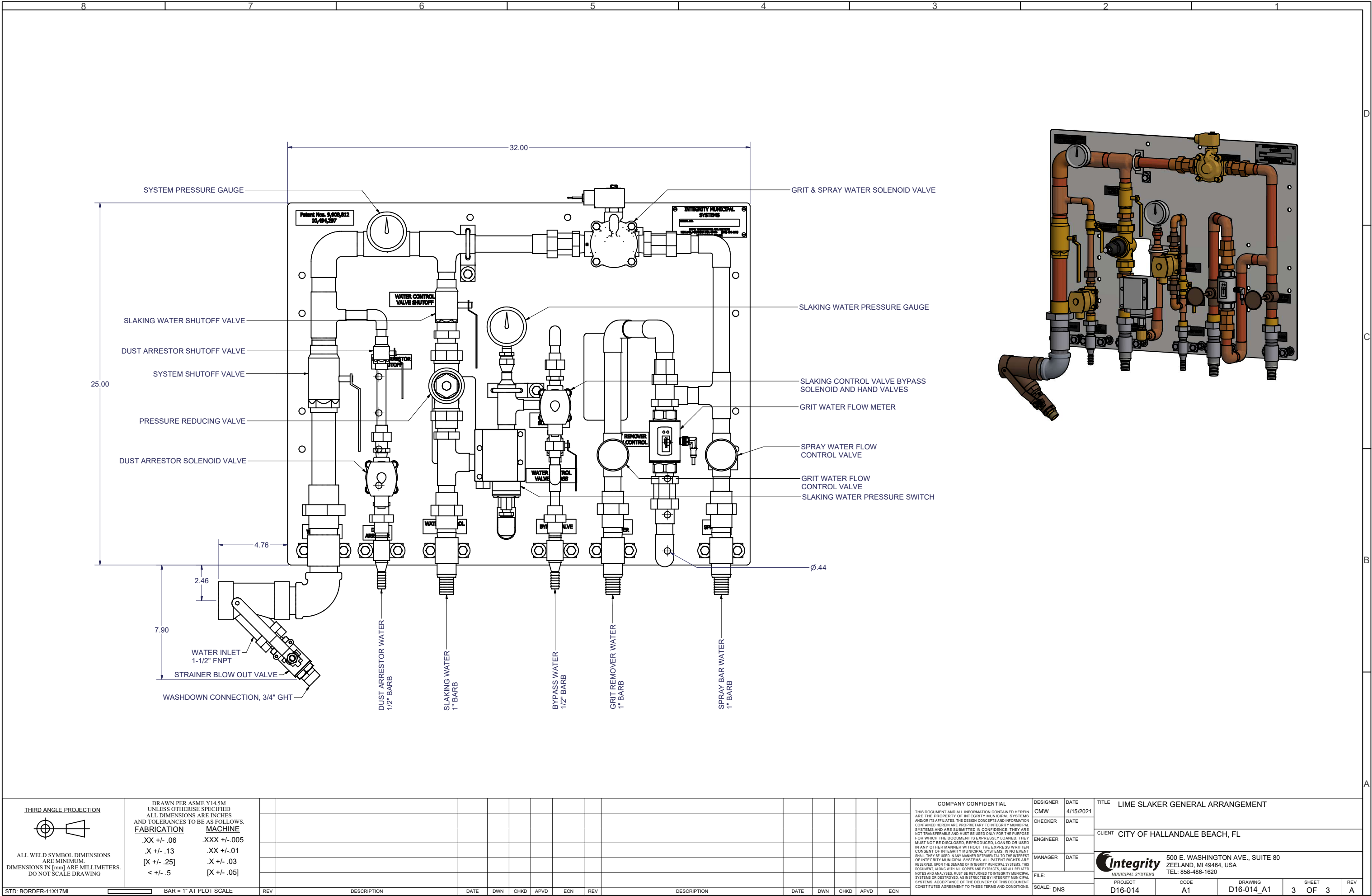
<div>THIRD ANGLE PROJECTION</div> <div></div> <div>ALL WELD SYMBOL DIMENSIONS ARE MINIMUM. DIMENSIONS IN [mm] ARE MILLIMETERS. DO NOT SCALE DRAWING</div>		<div>DRAWN PER ASME Y14.5M UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES AND TOLERANCES TO BE AS FOLLOWS.</div> <div>FABRICATIONMACHINE</div> <div>XX +/- .06XXX +/- .005</div> <div>X +/- .13XX +/- .01</div> <div>[X +/- .25].X +/- .03</div> <div>< +/- .5[X +/- .05]</div>		<div>COMPANY CONFIDENTIAL</div> <div>THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF INTEGRITY MUNICIPAL SYSTEMS AND/OR ITS AFFILIATES. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO INTEGRITY MUNICIPAL SYSTEMS AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY LOANED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF INTEGRITY MUNICIPAL SYSTEMS. IN NO EVENT SHALL THEY BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF INTEGRITY MUNICIPAL SYSTEMS. ALL PATENT RIGHTS ARE RESERVED. UPON THE DEMAND OF INTEGRITY MUNICIPAL SYSTEMS, THIS DOCUMENT, ALONG WITH ALL COPIES AND EXTRACTS, AND ALL RELATED NOTES AND ANALYSES, MUST BE RETURNED TO INTEGRITY MUNICIPAL SYSTEMS OR DESTROYED, AS INSTRUCTED BY INTEGRITY MUNICIPAL SYSTEMS. ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.</div>										<div>DESIGNER</div> <div>CMW</div>		<div>DATE</div> <div>4/15/2021</div>	<div>TITLE</div> <div>LIME SLAKER GENERAL ARRANGEMENT</div>						
														<div>CHECKER</div>	<div>DATE</div>	<div>CLIENT</div> <div>CITY OF HALLANDALE BEACH, FL</div>							
														<div>ENGINEER</div>	<div>DATE</div>								
														<div>MANAGER</div>	<div>DATE</div>								
														<div>FILE:</div>		<div>500 E. WASHINGTON AVE., SUITE 80 ZEELAND, MI 49464, USA TEL: 858-486-1620</div>							
<div>STD: BORDER-11X17MI</div>		<div>BAR = 1" AT PLOT SCALE</div>		<div>REV</div>	<div>DESCRIPTION</div>	<div>DATE</div>	<div>DWN</div>	<div>CHKD</div>	<div>APVD</div>	<div>EGN</div>	<div>REV</div>	<div>DESCRIPTION</div>	<div>DATE</div>	<div>DWN</div>	<div>CHKD</div>	<div>APVD</div>	<div>EGN</div>	<div>SCALE: DNS</div>	<div>PROJECT</div> <div>D16-014</div>	<div>CODE</div> <div>A1</div>	<div>DRAWING</div> <div>D16-014_A1</div>	<div>SHEET</div> <div>1 OF 3</div>	<div>REV</div> <div>A</div>

- NOTES:
1. CONCRETE SUPPORTS SHOWN ARE BY OTHERS.
 2. CONCRETE SUPPORTS ARE FOR REFERENCE ONLY. DESIGN AND PROVISION OF ALL SUPPORTS ARE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR/OTHERS.
 3. SUPPORTS ARE SHOWN WITH STANDARD DIMENSIONS. CUSTOMER TO VERIFY LOCATION OF SUPPORTS.
 4. IF REQUIRED, MODIFICATION OF EXISTING SUPPORTS ARE BY OTHERS.



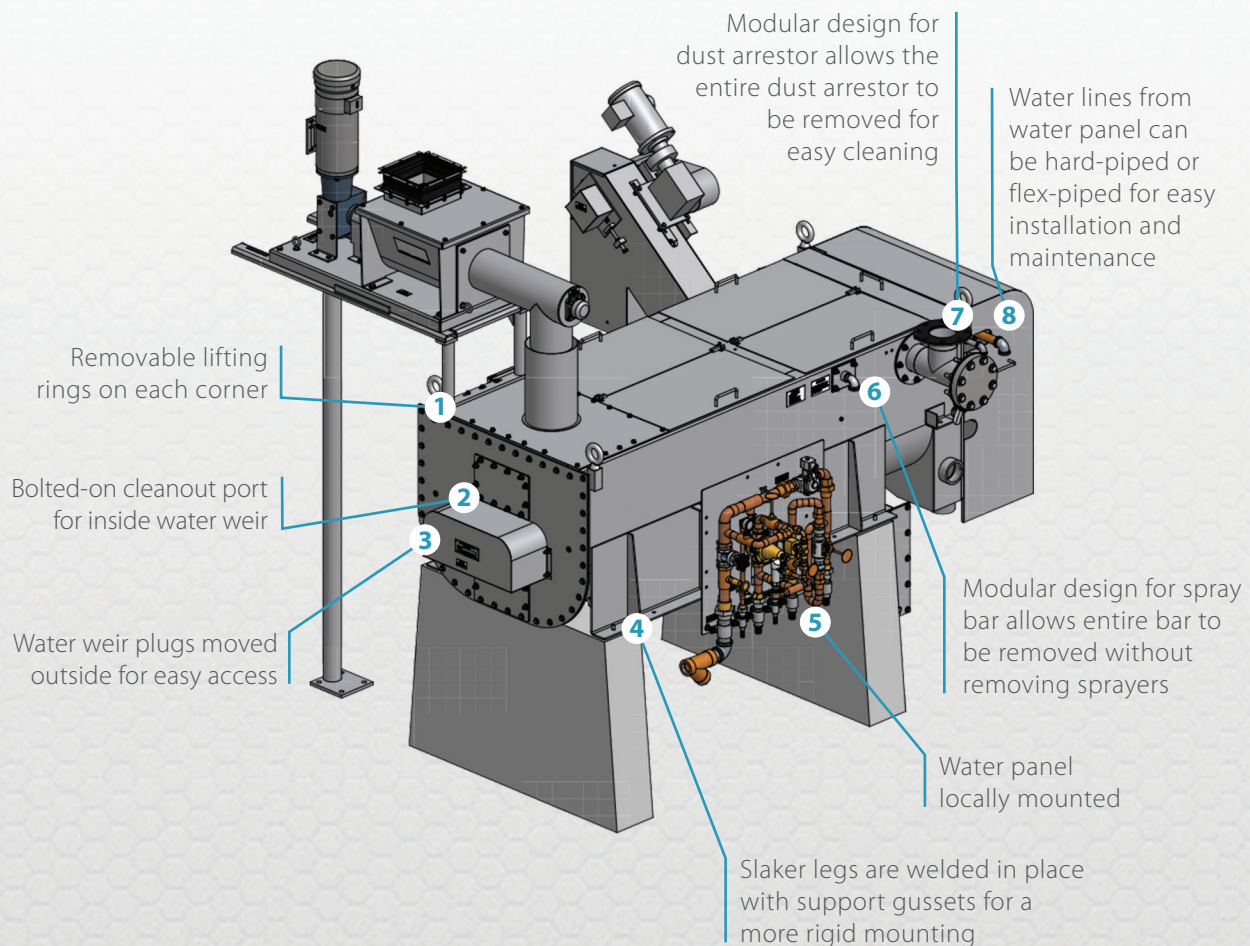
SECTION B-B
LAYOUT/ANCHOR DETAIL

THIRD ANGLE PROJECTION			DRAWN PER ASME Y14-5M UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES AND TOLERANCES TO BE AS FOLLOWS.															THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN ARE THE PROPERTY OF INTEGRITY MUNICIPAL SYSTEMS AND/OR ITS AFFILIATES. THE DESIGN CONCEPTS AND INFORMATION CONTAINED HEREIN ARE PROPRIETARY TO INTEGRITY MUNICIPAL SYSTEMS AND ARE SUBMITTED IN CONFIDENCE. THEY ARE NOT TRANSFERABLE AND MUST BE USED ONLY FOR THE PURPOSE FOR WHICH THE DOCUMENT IS EXPRESSLY LOANED. THEY MUST NOT BE DISCLOSED, REPRODUCED, LOANED OR USED IN ANY OTHER MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF INTEGRITY MUNICIPAL SYSTEMS. IN NO EVENT SHALL THEY BE USED IN ANY MANNER DETRIMENTAL TO THE INTEREST OF INTEGRITY MUNICIPAL SYSTEMS. ALL PATENT RIGHTS ARE RESERVED UPON THE DEMAND OF INTEGRITY MUNICIPAL SYSTEMS. THIS DOCUMENT ALONG WITH ALL COPIES AND EXTRACTS, AND ALL RELATED NOTES AND ANALYSES, MUST BE RETURNED TO INTEGRITY MUNICIPAL SYSTEMS OR DESTROYED, AS INSTRUCTED BY INTEGRITY MUNICIPAL SYSTEMS, ACCEPTANCE OF THE DELIVERY OF THIS DOCUMENT CONSTITUTES AGREEMENT TO THESE TERMS AND CONDITIONS.												COMPANY CONFIDENTIAL				DESIGNER CMW		DATE 4/15/2021		TITLE LIME SLAKER GENERAL ARRANGEMENT																							
			FABRICATION MACHINE															CHECKER		DATE		CLIENT CITY OF HALLANDALE BEACH, FL																																							
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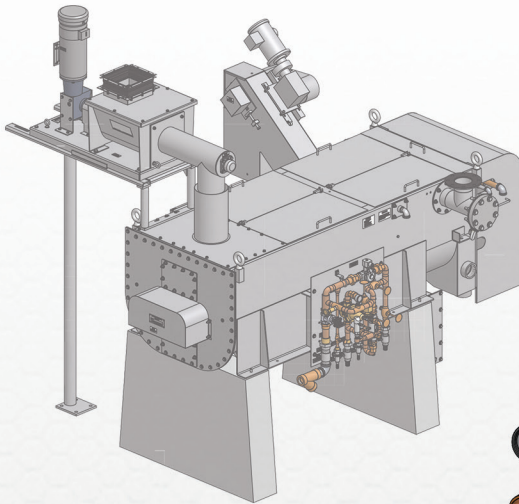
INTRODUCING THE IMPROVED
A-758™ AND *A-758 PLUS™* LIME SLAKER:

EASIER. FASTER. INNOVATIVE.



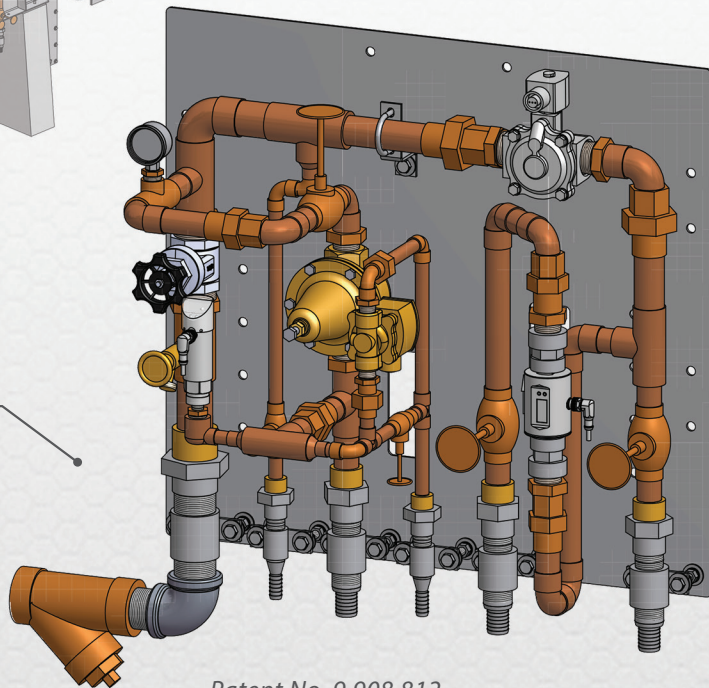
EASIER. FASTER. INNOVATIVE.

THE IMPROVED IMS LIME SLAKER



PRE-ASSEMBLED WATER PANEL

- Minimizes installation time
- Reduces manufacturing lead time
- Enables remote installation of water panel
- Makes maintenance easier
- Eases connection complexity
- Enhances slaker access
- Decreases risk of damage
- PVC or copper construction



Patent No. 9,908,812



Integrity Municipal Systems
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www.integrityms.net | **phone** (858) 486-1620 | **fax** (858) 486-1659

The Series 32-215 is a simple, high-capacity volumetric belt feeder. It gives reliable long term feeding and requires little maintenance. It easily handles lime from fine powder to pebbles. Its design and operation is simple and uncomplicated and provides reliable feeding at minimum cost. This volumetric feeder is ideal for industrial and municipal water and wastewater treatment systems or for systems treating industrial-process water.



KEY BENEFITS

- Manual or automatic control
- Simple and straightforward volumetric feeding to 133 cu ft/hr
- Easy to install and maintain
- Self-adjusting belt tracking

FEATURES

Manual or Automatic Control

Feed rate is controlled by varying the height of a manually positioned vertical gate at the feeder inlet and by varying belt speed. The variable speed belt provides a 20:1 standard operating range. Belt speed can be controlled manually or automatically from a remote 4-20 mA control signal.

Simple and Straightforward Volumetric Feeding Up to 133 ft³/hr

With gate adjustment and different gearboxes and driven sprockets, the feeder will provide a wide range of capacity selection and flexibility. Maximum rates cover virtually all water and wastewater lime feed requirements.

Simple, Automatic Belt Tension and Tracking

Constant and uniform tensioning of the feed belt is achieved by the use of counterweights acting on the moveable front (discharge) roll. An adjustable manual tensioning roller includes a belt tracking guide which, in conjunction with the movable front roller, directs the belt along a straight path. Both of these mechanisms function together to provide accurate and reliable feeder operation.

Easy to Install and Maintain

All feeders are factory calibrated and tested prior to shipment. The feeder housing is dust-tight. Side and top covers are gasketed and easily removed. The product zone is easily accessible and can be air cleaned. Sealed bearings are used throughout. Six scrapers, spaced on both sides of the belt and on the rollers, keep the belt transport free of product build up. The belt transport system is cantilevered for easy belt removal without tools.

OPERATION

Lime is supplied to the belt feeder by gravity from an overhead storage bin or hopper. The lime is introduced to the belt through the inlet chute. As the belt moves, the lime is sheared by a manually adjusted vertical gate which sets the lime bed depth. Gate position is adjustable over a 10 to 1 range. Belt speed is adjusted over a 20 to 1 range by a manual potentiometer or automatic milliamp control signal sent to the VFD.

TECHNICAL DATA

Feeder Accuracy

With uniform free flowing lime, an accuracy of 5% of full scale can be achieved over a 20:1 range.

Feed Rates and Operating Ranges

Maximum volumetric rate: Up to 133 cubic feet per hour

Maximum operating range: Belt speed of 20:1

Lime characteristics: Per AWWA Standard B202-07 Quicklime and Hydrated Lime

Inputs/Outputs

Digital Inputs: Remote start/stop from a customer supplied contact closure.

Digital Outputs: A relay provides unpowered NO & NC contacts for external indication of Feeder Running. A second relay provides one NO contact as a composite alarm for motor overload (standard), belt motion fault (optional) and material flood (optional). Relay contacts are rated 10 amps at 28 VDC or 120 VAC with 80% power factor, or 6.7 amps at 240 VAC with 80% power factor.

Analog Inputs: Remote control input via 4-20 mA.

Temperature Limits

Ambient: 14 to 122° F (-10 to 50° C)

Lime: 14 to 195° F (-10 to 90° C) standard 0 to 338° F (-18 to 170° C) optional.

Electrical

Power Requirements: 115 volts \pm 10%, 15 amps, single phase, 60 Hz

Belt Drive Motor: ½ hp, AC TE controlled by VFD

Electrical Enclosures: Rated NEMA® 4X (IP65)

Maximum Distance from Controls to Feeder: 100 feet (30 meters)

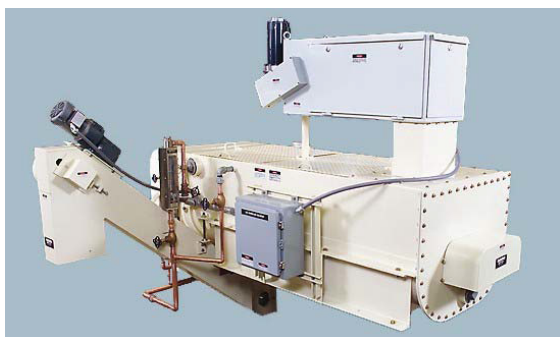
Materials of Construction

Materials in contact with the product flow include 304ss, nickel plated steel, neoprene, Hypalon® inlet seals, and feed belt of polyester substrate with a polyurethane topcoat. The feeder enclosure is unpainted 304 stainless steel.

Dimensions and Shipping Weight			
	Height	Width	Length
Feeder	21"* (533 mm)	19" (483 mm)	52" (1,321 mm)
		lbs	kgs
Weight		260	118
Shipping Weight		300	136

* (18¼ inches inlet to discharge) Dimensions: See WT.320.215.100.UA.CN

Lime is one of the most common and economical chemicals used in the water and wastewater treatment process. The cost of commercial bulk hydrated lime or prepared lime slurry solutions, however, becomes prohibitive for installations requiring a continuous, high volume supply, typically greater than 45 kgs/hr (100 lbs/hr). To help alleviate this cost, on-site slaking or hydration is the ideal solution. The Series A-758 lime slaker provides for reliable, efficient slaking of various grades of quicklime (CaO) at a substantial savings over other slaking methods. Through the pioneering use of paste-type slaking technology, the Series A-758 lime slaker consistently produces a more reactive lime slurry requiring less energy and less operator attention. The compact size and flexible configuration make this pre-engineered system ideal for new and retrofit installations.



FEATURES

Superior Paste-Slaking Process

Utilizing a 2:1 water-to-lime ratio, the A-758 unit slakes lime as paste which provides a number of benefits over the more traditional 4:1 water-to-lime or slurry slaking process. This includes less power, faster slaking, a smaller footprint and, most importantly, a more reactive lime slurry solution.

Saves Power

The 2:1 paste slaking process generates its own slaking heat from the hydration heat of reaction ($\text{CaO} + \text{H}_2\text{O} = \text{Ca(OH)}_2 + \text{Heat (490 btu/lb)}$). This avoids the need and expense of an external heat source, internal heat exchangers, and temperature control systems. Additionally, slow speed agitation requires one-half the horsepower of equivalent sized slurry slakers.

Fast Slaking

The low water-to-lime ratio and high self-generating heat of reaction completes the slaking process in approximately five minutes. This short retention time leads to efficient start-stop or batching operation and rapid changes in lime concentration when required.

Compact Size

The 2:1 slaking ratio and short retention time allows for a smaller slaking compartment without bulky insulation or any need for a water jacket. The A-758 lime slaker takes about 20% less floor space than other designs.

KEY BENEFITS

- Saves water, heat and power
- Economical and reliable on-site slaking
- Easy to install, unit is factory pre-tested
- Choice of final slurry concentration
- Flexible controls: manual, flow proportional, and automatic start-stop

More Reactive Hydrate Particles

The intense heat [$>82^\circ\text{C}$ (180°F)] generated by the 2:1 slaking ratio subjects the quicklime to steam penetration. The resulting internal pressure promotes the fracturing of the quicklime into smaller, highly reactive particles. This means more surface area for more efficient lime usage.

Controlled Consistency

An automatic, torque-actuated water inlet valve provides precise, continuous control of paste consistency and, therefore, the slaking process. Variations in lime quality and feed rate are quickly recognized and the optimum slaking rate is maintained, without operator intervention.

Integrated System Design

The pre-engineered A-758 lime slaker system is available with a broad range of capacities, capabilities and control options:

- Four different capacities from 450 to 3600 kgs/hr (1000 to 8000 lbs/hr)
- Specific gravity classification or screen-type grit removal technology
- Gravimetric or volumetric belt-type lime feeders or screw-type lime feeder
- PLC or relay logic controls with an optional automatic batching function

DESIGN AND OPERATION

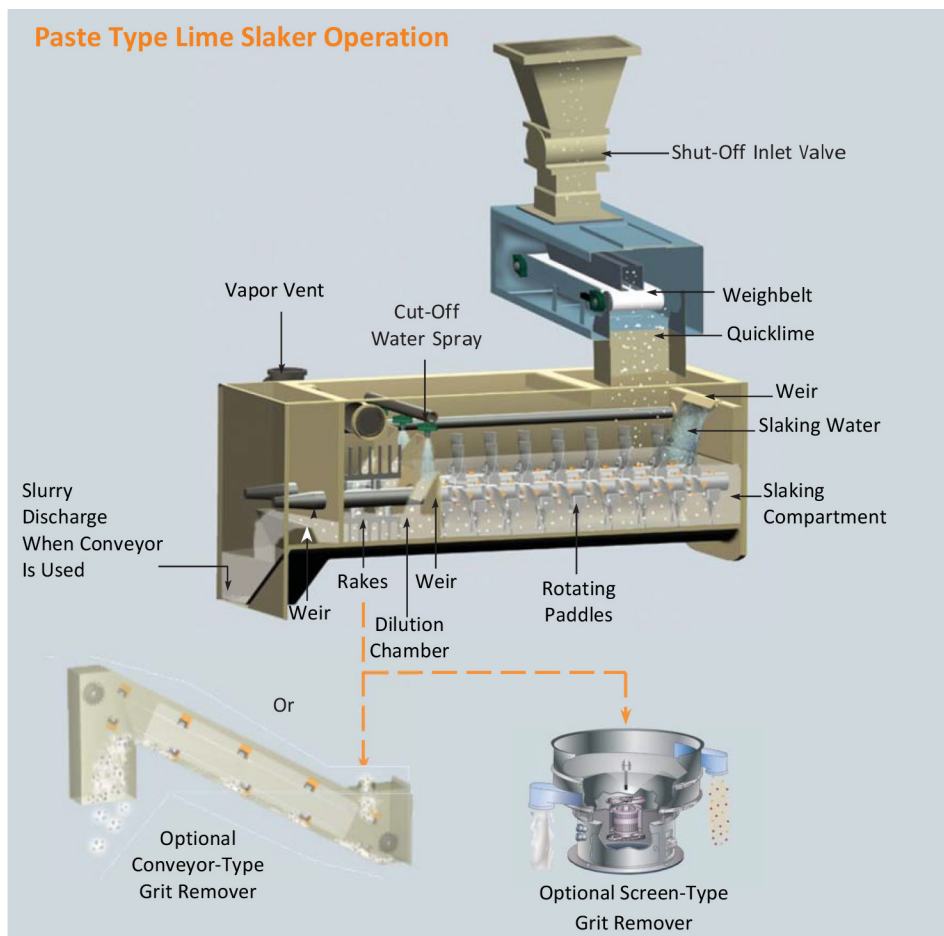
Water and quicklime (CaO) are fed into the slaker mixing compartment at an approximate 2:1 ratio. The lime is metered by either a gravimetric weighbelt feeder or a volumetric screw or belt-type feeder. Controlling the lime feedrate determines the output of the slaker system. The water flow is automatically controlled by a torque-sensitive water adjusting valve.

In the slaking compartment, two intermeshing paddle shafts, rotating in counter-clockwise directions, mix the quicklime and water into a paste-type composition, controlled by the torque valve to the 2:1 slaking ratio. Any variation in the paste consistency caused by vapor loss, lime quality or size fluctuations, or changes in the lime feed rate, results in a different torque load on the paddle shafts. This causes the torque valve to adjust the water flow to maintain the desired paste consistency.

The paste and entrained inert grit moves forward in a plug-flow fashion. After approximately 5 minutes, the completely slaked lime paste flows over a weir into the dilution compartment. Here water nozzles direct a cut-off spray to dilute the paste into a lime slurry at an approximate 4:1 concentration. This also releases the grit from the lime paste so that it can be removed. Two sets of rotating rakes keep the lime in suspension and help move the grit to the grit separator.

Dust and steam, generated by the exothermic reaction of the lime and water, are drawn off by an integral, water operated vapor-dust arrestor. The steam and dust are condensed and returned to the dilution compartment. Excess steam and water vapor are vented outside of the slaker.

A low water pressure switch in the torque valve piping is designed to stop the lime feeder when the supply pressure falls below the minimum operating requirement. This avoids heat build-up due to insufficient slaking water. The feeder automatically restarts when the pressure is restored.



CHOICE OF LIME FEEDERS

Reliable lime feed is required for proper operation of the lime slaker system. A selection of standard feeders is available to provide accurate CaO feed over a range of up to 20:1. This determines the operating range of the slaker along with lime reactivity.

Series 31-165 Gravimetric Weighbelt Feeder

A microprocessor controller unit that delivers an accuracy better than 1% of set rate over a 20:1 range. It features direct measurement of throughput for inventory control and complete alarm monitoring for any off-feed condition.



Series 32-215 Volumetric Belt-Type Feeder

Simple controls with a quick speed of response for changing feed rates. A no-feed alarm is available as an option.

Series 32-300 Volumetric Screw-Type Feeder

A rugged, heavy duty variable speed feeder with only five moving parts provides low maintenance and simple service.



CHOICE OF GRIT REMOVERS

All quicklime (CaO) contains a small amount of inert grit or unslaked material. To protect lime slurry pumps and piping, it is necessary to remove this grit as the slurry exits the slaker. The A-758 lime slaker is available with a choice of two different grit remover technologies:

Conveyor-Type Grit Remover

Grit particles are separated from the lime slurry based on their specific gravity. An up-flow of water is introduced into the dilution compartment of the slaker. The heavier grit particles fall through this flow to be subsequently removed by the chain and flight scraper. The operator can adjust the water flow to determine the size and amount of grit that is to be removed.



An accurate glass-tube flow meter is used to provide a fine degree of control and repeatability. This system removes virtually all grit down to 10 mesh in size and some portion of finer grit down to 40 mesh. Slurry concentrations up to 18% are achievable. Operation is simple and efficient with very low maintenance.

Screen-Type Grit Remover

In this system, grit particles are separated by size through a vibrating screen separator to provide positive grit removal. The lime slurry discharge passes through a 20 mesh screen (40 mesh optional), where grit is removed through an exit port. The slurry passes through the screen where it is delivered to the process or a stabilization tank. Slurry concentrations up to 20% are achievable. A high-strength slurry concentration, up to 28% at maximum feed rate, is available with this type of grit remover. This utilizes optional high velocity spray nozzles and a booster pump to decrease the amount of dilution water. This is ideal for installations where storage space is a consideration or in applications where excess water is limited in the process.



AUTOMATIC START-STOP CONTROL

The paste-type lime slaker is ideally suited for all types of control systems. In a continuous process, slaker operation remains constant. Lime slurry is continuously discharged while the lime feed rate can be varied to account for flow or process variations. Lime can be gravity flow, directly to the point of application without the need for costly slurry handling equipment. For batching applications, the slaker system can be automatically stopped and started from a single contact closure. The low water to lime ratio ensures a fast start-up to bring the slaker on line quickly. Both long-term (> 8 hours) and short-term (< 8 hours) shutdown modes are operator selectable.

TECHNICAL DATA

Capacities

450, 900, 1800, and 3600 kg of quicklime per hour (1000, 2000, 4000, and 8000 lbs/hr).

Operating Range

Up to 20:1

Slaking Ratio

Approximately 2:1 water to lime by weight before dilution.

Lime Feeder

Three types of feeders available: Series 31-165 Gravimetric weighbelt feeder; Series 32-215 Volumetric belt-type feeder; and/or Series 32-300 screw-type feeder.

Control Panel

For local or remote mounting. NEMA 12; 230/460 VAC, 3 ph, standard; 115 VAC, 1 ph, optional (not available with 3600 kg/hr (8000 lb/hr) capacity).

Paddle Shaft Mixer Motors

452 kgs/hr (1000 lbs/hr) capacity - 1/2 hp;
900 kgs/hr (2000 lbs/hr) capacity - 1 hp;
1800 kgs/hr (4000 lbs/hr) capacity - 1-1/2 hp;
3600 kgs/hr (8000 lbs/hr) capacity - 2 hp;
Standard is 230/460 VAC, 60 hz, 3 ph.
Single phase motors are available up to 1800 kgs/hr (4000 lbs/hr).

Conveyor-Type Grit Remover Motors

1/4 hp, 230/460 VAC, 60 hz, 3 ph, totally enclosed. Also available in single phase up to 1800 kgs/hr (4000 lbs/hr) capacity units.

Screen-Type Grit Remover

450 kgs/hr (1000 lbs) slaker - 1/3 hp;
900 and 1800 kgs/hr (2000 lbs & 4000 lbs/hr) slakers - 1/2 hp;
3600 kgs/hr (8000 lbs) slaker - 2-1/2 hp;
All motors are 230/460 VAC, 60 hz, 3 ph, 1200 RPM TENV.

Booster Pump Motors (High Slurry Concentration Option)

450 and 900 kgs/hr (1000 and 2000 lbs) slakers - 1/2 hp;
1800 kgs/hr (4000 lbs) slakers - 1 1/2 hp;
3600 kgs/hr (8000 lbs) slaker - 2 hp;
All motors are 230/460 VAC, 50/60 hz, 3 ph, TE turbine, all bronze housing. Note: Only available with screen-type grit remover.

Water Requirements

Recommended supply pressure for 450 to 1800 kgs/hr (1000, to 4000 lbs/hr) slakers, 2.7 bar (40 psi) minimum and 5.2 bar (75 psi) maximum; for the 3600 kgs/hr (8000 lbs/hr) slaker, 3.8 bar (55 psi) minimum and 5.2 bar (75 psi) maximum.

Control options

- Manual speed control of feeder via a potentiometer on the control panel.
- Automatic speed control of the lime feeder via a 4-20 mA input signal.
- Automatic batching and automatic system shut-down via optional start-stop configuration.

Dimensions

Complete dimension details can be found in catalog numbers WT.330.100.100.UA.CN to WT.330.100.126.UA.CN.

Total Slaker System Water Input at 40 psi (2.7 bar)

Slaker Size		Conveyor-Type Grit Remover (max 18% slurry concentration)		Screen-Type Grit Remover (max 20% slurry concentration)		Screen-Type Grit Remover (max 28% slurry concentration)	
Kg/hr	lbs/hr	lpm	gpm	lpm	gpm	lpm	gpm
450	1,000	57	15	45	12	34	9
900	2,000	91	24	76	20	64	17
1800	4,000	178	47	148	39	125	33
3600	8,000	405	107	360	95	246	65

Shipping and Operating Weights

Includes slaker, grit remover and feeder.

Capacities		Shipping		Operating	
Kg/hr	lbs/hr	kgs	lbs	kgs	lbs
450	1,000	1,900	2,400	1,410	3,110
900	2,000	1,330	2,930	1,895	4,180
1800	4,000	1,640	3,620	2,660	5,860
3600	8,000	3,335	7,350	6,160	13,580

Building on Tradition: Integrity Municipal Systems Brings Innovation to Legendary Lime Slaking Systems

Lime is one of the most common chemicals used in water and wastewater treatment processes, but the cost of bulk hydrated lime solutions becomes prohibitive as usage increases. On-site slaking – or hydration – is the ideal solution to keep costs manageable.

The A-758™ Lime Slaking System – introduced for sale in 1959 – has established itself as the industry baseline for continuous paste lime slaking. The system's continuous lime slaking process slakes quicklime with water to form hydrated lime. Paste slakers utilize half the water of slurry slakers, leading to higher slaking temperatures, shorter retention time, a smaller

“The IMS slakers greatly exceeded my expectations. The quality of the equipment, coupled with IMS’s knowledgeable staff, resulted in a first class project. IMS demonstrated why it is an elite organization on this project.”

Blake Pitts
Vice President
Matous Construction, Ltd.

equipment footprint, and – most importantly – smaller hydrate particle size for greater process chemical reactivity. The A-758™ and A-758 Plus™ systems come equipped with a conveyor or screen to remove grit after the slaking process.

Although the A-758™ and A-758 Plus™ Lime Slaking Systems are time-tested, proven products, recent enhancements have further improved the operability and effectiveness of these systems. Several features have been modularized, such as the dust arrestor and spray-bar; and select components have been redesigned to allow ease of maintenance and easier replacement of high-wear parts. IMS

also modified the water management for the system, replacing on-site, custom-constructed copper piping with a compact, pre-packaged, controlled water panel that can be placed on the unit or mounted remotely to meet the operator's space and operational requirements (see inset). The A-758™ continuous lime slaking system can also be coupled with several different quicklime feeders.



The A-758™ and A-758 Plus™ Lime Slaking Systems have long been the industry standard for on-site lime slaking. Integrity Municipal Systems has taken that standard to a higher level with new features that extend equipment life, reduce maintenance costs, and improve control and reliability. The tradition continues, with legendary design now united with the superior quality, service, and support of IMS.

A-758™/A-758 Plus™ Lime Slaking Systems

Continuous Paste Lime Slaking – higher slurry concentrations with a lower cost and smaller footprint than batch slaking systems

Paste Slakers – faster slaking with a more reactive lime slurry solution than slurry slaking systems

Ease of Maintenance – redesigned with the operator in mind for cleaning and high-wear parts replacement

Plug-and-Play Installation – each system is piped, wired and tested at the factory before shipment



*Campbell's Soup Manufacturing
Plant, Napoleon OH*



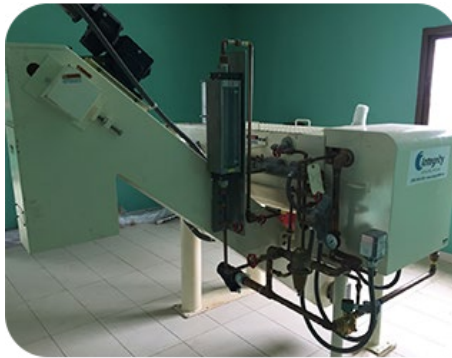
*Public Water Supply District #2,
Defiance MO*



Edmond, OK



Nebraska City WWTP, NE



Cote D'Ivoire



Fort Pierce Utilities Authority, FL



Jackson, MI



Davis WTP, Austin TX

Integrity Municipal Systems (IMS) is a specialty engineering company devoted to the design and supply of innovative, pre-assembled, process solutions for the water and wastewater industry. With over 25 years of systems engineering innovation and project execution, the IMS team has the knowledge and dedication to tackle your odor control and chemical feed needs. IMS has achieved a reputation for producing unique, practical, and cost-effective solutions for our customers. We are committed to providing quality, service, and overall value that exceed your expectations.

Lime Slaker Systems (A-758 & A-758 Plus)



The A-758 and A-758 Plus IMS Lime Slaker Systems provide continuous high volume lime slurries (up to 8,000 lbs/hour) for industrial and municipal process pH adjustment, flocculation, and chemical reaction. The superior paste-type slaking technology consistently produces a higher strength and more reactive lime slurry resulting in more efficient and more economical use of the quicklime. Systems are factory assembled and tested for quick and easy installation, and include options for lime feed and grit removal.

Lime Slaker Feeders



Series 31-165 Gravimetric Feeder



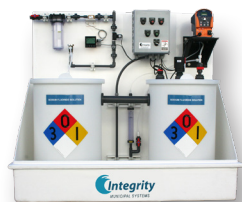
Series 32-215 Volumetric Feeder



Series 32-300 Volumetric Feeder

Chemical Feed Systems

IMS chemical feed systems are pre-assembled, fully-functional chemical delivery systems for water treatment applications. These compact, user-friendly chemical skids include local storage tanks, full secondary containment, dosing pumps, instrumentation and controls. Systems are piped and wired at the factory for easy and quick hook-up.



Fluoride Feed System

IMS Fluoride Feed Systems use sodium fluoride for community water fluoridation. They are designed with separate saturator and solution tanks, unlike conventional methods, to assure complete saturation, high reliability, low maintenance and ease of use.



Aqueous Ammonia Feed System

IMS packaged Aqueous Ammonia Feed Systems are used in the formation of chloramines for disinfection. The system includes a heavy-duty pressure rated aqueous ammonia storage tank, integral ammonia fume scrubber, peristaltic dosing pump, instrumentation and controls in a fully contained, pre-assembled skid. Optional enclosure, shown right, is ideal for outdoor or remote locations. The FRP shelter houses the equipment in an air conditioned environment and comes complete with lighting, ventilation fan, and breaker panel.

Odor Control Systems

Standardized, pre-engineered, factory assembled odor control systems for treating odors at sewage pump stations and wastewater treatment plants. Systems are simple to install, reducing installed cost and delivery time.



Biological Odor Control Systems

The I-BOx™ Biological Odor Control System (Patent Pending) uses a two-stage process with a biological stage to remove 99% of the hydrogen sulfide (H_2S), followed by an activated carbon polishing stage to remove residual H_2S and organic odors. Standard models are available to treat up to 5,000 cfm (8,500 m^3/h) of odorous air.

Carbon Odor Control Systems

The carbon adsorber odor control systems consist of an exhaust fan, damper, interconnecting ductwork, vessel with activated carbon (3 ft. bed) and a control panel. The carbon odor control systems are designed to work with a wide selection of media: virgin activated carbon for low odor level, and high capacity carbon for higher H_2S concentrations.



MCS Carbon Odor Control System

Standard models are available to treat up to 1,400 cfm (2400 m^3/h) of odorous air in a single carbon stage.



BCS Carbon Odor Control System

Standard models treat up to 6,800 cfm (11600 m^3/h) in a single carbon stage and up to 20,000 cfm (34000 m^3/h) in a dual carbon bed system.

Emergency Chlorine Scrubbers

IMS wet emergency chlorine scrubber systems contain and treat accidental releases of chlorine gas, limiting the atmospheric release of chlorine to less than 1 ppm. The compact scrubber systems are factory pre-assembled, piped, wired and tested, with a low profile suitable for either indoor or outdoor installation. The system design surpasses the requirements of the Uniform Fire Code.



EVS-150

This multi-stage wet scrubber system treats chlorine vapors from a bank of 150lb (70kg) chlorine cylinders, at leak rates of 28 lbs/min or more.

EVS-2000

This multi-stage wet scrubber system treats up to 3 tons of chlorine vapor, at leak rates of 100 lbs/min or more.

EVS-2000C

The EVS-2000C emergency chlorine scrubber is a multi-stage wet scrubber system designed to treat up to 1 ton of chlorine vapor, at leak rates of 100 lbs/min or more.