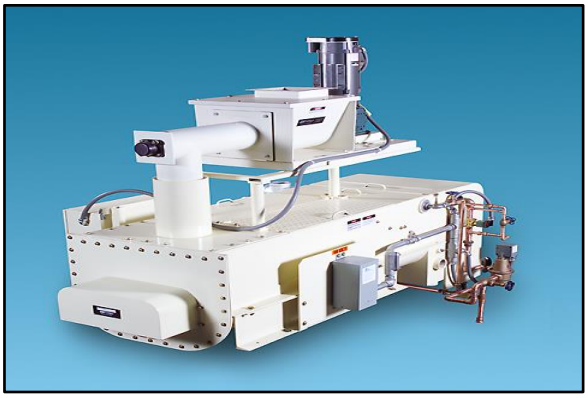
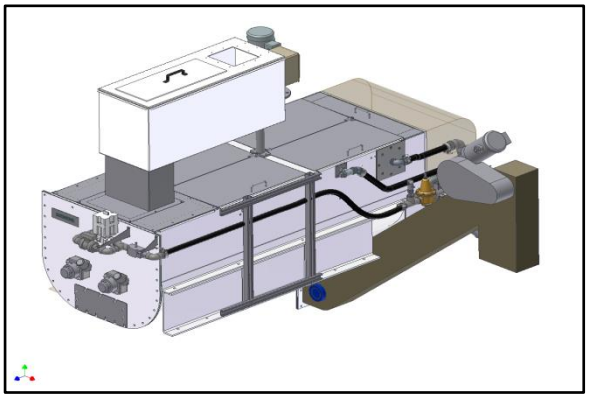
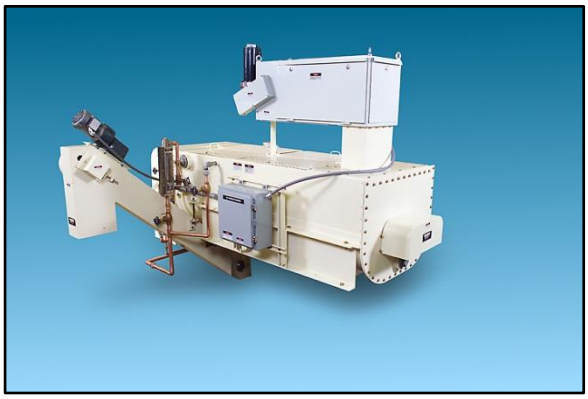
COST PROPOSAL

LIME SLAKING SYSTEMS
FOR
CITY OF HOLLYWOOD, FL







IMS File No.: D20-003 *Rev. 03*

Revised on: *March 30, 2022*

SALES REPRESENTATIVE

Mike Robbins

Water Treatment and Controls, Inc.

9900A N. Palafox St.

Pensacola, FL 32534

Phone: (850) 474-1805

Cell: (352) 267-3223

Email: mrobbins@watertc.com

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March 30, 2022

Mr. Luis Montoya
Public Utilities Manager – WTP
City of Hollywood
Department of Public Utilities
3441 Hollywood Blvd.
Hollywood, FL 33021
Phone: (954) 967-4230 Ext. 5405
Fax: (954) 967-4232
Email: lmontoya@hollywoodfl.org

RE: City of Hollywood, FL
Lime Slaking System*s*

Dear Luis,

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

Per the request of our representative, Mr. Mike Robbins at Water Treatment and Controls, Inc., we have prepared this cost proposal for providing two (2) Lime Slaking Systems for the City of Hollywood, FL. Our proposal is based on the following design criteria:

Design Criteria

Quicklime Feed Rate, lb/hr	1,000
Slaker Maximum Capacity, lb/hr	1,000
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 Water Treatment and Controls, Inc., or call me directly at (858) 248-7834.

Thank you.

Sincerely,

Khaled Roueiheb
Director of Sales

Cc: Mike Robbins; Water Treatment and Controls, Inc.

EQUIPMENT SELECTION SHEET

FEEDER ACCESSORIES

☐ Inlet Rotary Valve ☐ Rotary Valve Adapter ☒ Inlet Flexible Connector

FEEDER

☐ Volumetric Screw (32-300SP) ☒ Volumetric Belt (32-215) ☐ Gravimetric Belt (31-165)

Feeder Material of Construction

☐ Carbon Steel ☒ 304SS ☐ 316SS

☒ Unpainted ☐ Painted

SLAKER MAXIMUM CAPACITY

☒ 1,000 lb/hr ☐ 2,000 lb/hr ☐ 4,000 lb/hr ☐ 8,000 lb/hr

Slaker Material of Construction

☐ Carbon Steel ☒ 304SS ☐ 316SS

☒ Unpainted ☐ Painted

GRIT REMOVER

☒ Conveyor ☐ Screen ☐ Screw

Grit Remover Material of Construction

☐ Carbon Steel ☒ 304SS ☐ 316SS

☒ Unpainted ☐ Painted

WATER SUPPLY OPTIONS

Water Valve:	☒ Mechanical	☐ Electronic
Water Piping Selection:	☐ Slaker-Mounted Piping	☒ Water Panel
Water Piping Material:	☒ Copper	☐ PVC
Water Panel Location (If Applicable):	☐ Unit-Mounted ☐ Local Freestanding	☒ Remote

POWER SUPPLY

☒ 480V/3ph/60Hz ☐ 230V/3ph/60Hz ☐ 120V/1ph/60Hz ☐ 230V/1ph/60Hz

CONTROL PANEL

☐ Mounted on Slaker ☒Remote-Mounted

☐ Relay Logic Based ☒ PLC Based

SECTION 1

COMMERCIAL PROPOSAL

Proposal D20-003 ***Rev. 03***

Date: ***March 30, 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.

No.	Item Description	Qty.
1.	**Inlet Flexible Connection, Canvas**	2
2.	**Series 32-215 Volumetric Belt Feeder – 1,000 PPH Capacity**, including: a) Unpainted 304SS Housing Construction b) 1/2 HP AC Motor – 230/460V, 3 ph, 60 Hz c) VFD Drive (In Control Panel) d) Broken Belt Sensor and Flood Switch e) Feeder Support Posts and Discharge Connection	2
3.	**Series A-758 Lime Paste Slaker – 1,000 PPH Capacity**, including: a) Unpainted 304SS Trough b) 1/2 HP Paddle Shaft Motor – 230/460V, 3 ph, 60 Hz c) Mechanical Torque Operated Water Valve d) Vapor & Dust Arrestor e) Pre-Assembled Copper Water Panel (Remote-Mounted) a. Water Pressure Reducing Valve, Water Strainer, Pressure Gauge, Water Low Pressure Switch b. Solenoid Valve for Auto Batching f) Slaker delivers up to 18% Lime Slurry Concentration g) Unit is shipped pre-Wired/pre-Piped, Assembled and Tested at the Factory	2
4.	**Conveyor Type Grit Remover – 1,000 PPH Capacity**, including: a) Unpainted 304SS Housing Construction b) 1/4 HP Grit Remover Motor – 230/460V, 3 ph, 60 Hz, TEFC & Gearbox c) Grit Remover Attachments, Grit Remover Rotameter, Parts and Piping for 18% Lime Slurry Concentration d) Grit Remover Support	2
5.	**PLC Based Control Panel for Slaker, Grit Remover & Feeder,** including: a) NEMA 4X Enclosure – Unpainted 304SS (Remote-Mounted) b) Stainless Steel Stand with Sunshade for Remote Mounting Outside of Silo c) Allen-Bradley CompactLogix PLC with Color 10" Allen-Bradley Panelview Plus 1000 HMI (Touch Screen Operator Interface) d) Auto-Batching e) Input Power Disconnect Switch f) Control Circuit Transformer for 460V, 3 ph, 60Hz Power Input g) 4-20 mA Control of Feeder h) Conduit and Parts for Grit Remover, Junction Box, Feeder	2

i) Audible Alarm Mounted to Control Panel

6.	**Remote E-Stop Mounted Under Slaker Discharge Area (with Button Parallel to Slaker Trough Body)**	2
7.	**Junction Box for Remote Mounting of Control Panel (Mounted on Slaker Side Closest to Silo Wall) – Unpainted 304SS**	2
8.	**Manufacturer's Services for Installation Inspection, System Start-Up and Operator Training (2 Trips for up to 3 Days each at the Jobsite)**	Included
9.	**Design Submittal and Operation and Maintenance Manuals**	Included
10.	**F.O.B. Factory with Full Freight Allowed to Jobsite, City of Hollywood, FL**	Included
	EQUIPMENT PRICE [ITEMS 1-10]	**$332,000**

SCOPE OF WORK BY BUYER

1. Equipment unloading and installation
2. All civil works and concrete pad for equipment including anchor bolts supply
3. Demolition of all existing equipment to be removed
4. Electrical power to slaker control panel (480V/3 ph/60Hz)
5. All overflow drain piping from slaker to plant drain
6. Installation of control panel stand and sunshade outside of the silo
7. Remote installation of control panel on stand provided by IMS and interconnecting wiring from remote-mounted control panel to junction box, water panel junction box, etc.
8. All electrical conduit, wiring, electrical material, etc. from control panel to plant SCADA, etc.
9. Process signal and wiring from process for feeder operation
10. Quicklime supply equipment to feeder inlet **including any required knife gate valve**
11. Vent piping from vapor & dust arrestor connection onwards (3")
12. Lime slurry discharge piping from slaker connection to process (2")
13. Remote installation of water panel and interconnecting piping from remote-mounted water panel to slaker
14. 1 ½" water supply piping to water connection- **18 gpm at 75 psi**
15. Room ventilation, air conditioning, or lighting
16. 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 after shipment, whichever occurs first

PROPOSAL VALIDITY

Seller's Cost Proposal dated *March 30, 2022* is valid until *June 30, 2022*. The stated price is predicated on shipment no later than *June 30, 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 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: *The Terms and Conditions*, 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.

TERMS AND CONDITIONS

The following Terms and Conditions are applicable to this order entered into by and between the City of Hollywood (referred to as Buyer) and Vendor (referred to as Seller).

MODIFICATIONS
This purchase order form, and any other document pertaining to this transaction which has been acknowledged in writing by the Director is a complete and exclusive statement of this order. Accordingly no modification or amendment shall be binding upon the Buyer unless signed by the Director. The City Attorney has approved these standard terms and conditions as to form and legality. Accordingly no modification of these terms and conditions shall be binding upon buyer unless they are endorsed and approved by the City Attorney. In the event of a conflict between these terms and conditions and any other document pertaining to the transaction covered by this order, these terms and conditions shall prevail.

ASSIGNMENT
Any assignment of this order or the performance of work hereunder, in whole or in part, is prohibited.

EXCUSABLE DELAYS
The Buyer may grant additional time for any delay or failure to perform hereunder if the delay will not adversely impact the best interests of the Buyer and is due to causes beyond the control of to Seller. Such grant must be in writing and made part of the order.

DEFAULT
In the event of default by the Seller, Buyer may procure the articles or services covered by this order from other sources and hold to Seller responsible for any excess costs occasioned thereby, in addition to all other available remedies at law or equity.

TERMINATION
Buyer, acting through its City Manager or his/her designee, reserves the right to terminate this order In whole or in part for default (a) if Seller fails to perform In accordance with any of the requirements of this order or (b) If Seller becomes insolvent or suspends any of its operations or if any petition is filed or proceeding commenced by or against Seller under any State or Federal Law relating to bankruptcy, reorganization, receivership or assignment for the benefit of creditors. Any such termination will be without liability to Buyer except for completed Items delivered and accepted by the Buyer. Seller, will be liable for excess costs of reprocurement.

F.O.B.
In those cases where F O.B. point is not Destination, Seller is required to prepay freight charges and list separately on invoice. Collect shipments will not be accepted.

TERMS
By accepting this order, the Seller agrees that payment terms shall be Net 30 unless otherwise stated.

INVOICING
Seller must render original invoice to the City of Hollywood, Department of Financial Services, P.O. Box 229045, Hollywood, Florida 33022-9045.

TAX
The City of Hollywood is exempt from Federal and State taxes for tangible personal property. Sellers doing business with the City, which are not otherwise exempt, shall not be exempt from paying sales tax to their suppliers for materials to fulfill contractual obligations with the City, nor shall any Seller be authorized to use the City Tax Exemption Number in securing such materials

RESPONSIBILITY
Responsibility will not be accepted for any goods delivered or services performed unless covered by a duly signed and authorized City of Hollywood order, issued by the Procurement Services Division.

ACCEPTANCE
Sellers acceptance of this order will be presumed unless Seller acknowledges exception, in writing, to Buyer within ten (10) calendar days after date of order.

DELIVERIES
Deliveries are to be made during the hours of 7:30 a.m. to 4:00 p.m. Monday through Friday, excluding holidays, unless otherwise stipulated. Seller shall notify the Buyer of deliveries that require special handling and/or assistance for off-loading. Failure to notify the Buyer concerning this type of delivery will result in the billing to Seller of any add-on redelivery, storage or handling charges.

INSPECTION
All Commodities delivered on this order are subject to inspection upon receipt by a representative of the Buyer. All rejected commodities shall remain the property of the Seller and will be returned at the Seller's expense.

QUANTITIES
Quantities specified in the order cannot be changed without Buyer approval. Goods shipped in excess of quantity designated may be returned at the Seller's expense.

PAYMENT CHANGES
Payments will be made only to the company and address as set forth on order unless the Seller has requested a change thereto on official company letterhead, signed by an authorized officer of the company.

ANTI-DISCRIMINATION
Sellers doing business with the Buyer are prohibited from discriminating against any employee, applicant or client because of race, creed, color, national origin, sex or age with regard to but not limited to the following: employment practices, rates of pay or other compensations, methods and training selection.

~~UNIFORM COMMERCIAL CODE~~GOVERNING LAW
Florida law, ~~including without limitation the Uniform Commercial Code (Chapter 670 – 680, Florida Statutes),~~ shall apply to ~~and supplement the terms and conditions of~~ this order. Venue shall lie in a court of competent jurisdiction in Broward County, Florida.

LEGAL RESPONSIBILITY
By accepting this order, Seller understands and agrees that the items covered herein, or services to be rendered, shall be manufactured, sold or performed in compliance with applicable Federal, State, County and Local laws, ordinances, rules and regulations. Lack of knowledge by the Seller shall in no way be a cause for relief from responsibility

LIABILITY - COPYRIGHT/PATENT/TRADEMARK
Seller shall save and hold harmless Buyer, its officers, employees and agents from liability for infringement of any United States patent, trademark or copyright for or on account of the use of any product sold to Buyer or used in the performance of this order.

INDEMNIFICATION
Seller shall indemnify, hold harmless and defend Buyer, its officers, employees and agents from and against any and all claims, damages, liability, judgments or causes of action, including costs, expenses and attorney fees, for bodily injury, wrongful death or damage to property (other than the goods provided by Seller hereunder), to the extent incurred as a result of any error, omission or negligent act by the Seller, its officers, employees, agents, subcontractors or assignees arising out of this order.

OCCUPATIONAL SAFETY AND HEALTH
Seller must comply with requirements under Chapter 442, Florida Statutes, that any toxic substance delivered as a part of this order must be accompanied by a Materials Safety Data Sheet (M.S.D.S.).

REPRESENTATIVE
All parties to this order agree that the representatives named herein are, in fact, bonafide and possess full and complete authority to bind said parties.

PUBLICITY
No endorsement by the City of the product and/or service will be used by Seller in an way, manner or form in product literature or advertising.

INSURANCE
The Seller of services must have secured and maintained the required amount of $1,000,000 general and $500,000 automobile liability limits and must list the City as an additional insured of this coverage. The Seller must have worker's compensation coverage as required by law. Any exception to the above stated limits or other requirements must be endorsed and approved by the City of Hollywood Risk Manager.

WARRANTY
Seller warrants to Buyer that during the period that ends18 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 (y) if Buyer is in default of any payment obligation to Seller under this Agreement. Seller's warranty does not cover any consumables used in the Equipment, regardless of whether such consumables were supplied by Seller. THE WARRANTIES SET FORTH IN THIS SECTION ARE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO "LIMITATION OF LIABILITY" SECTION BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

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 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 foregoing limitations and exclusions shall not apply to any claims for which seller is responsible pursuant to "Indemnification" article above.

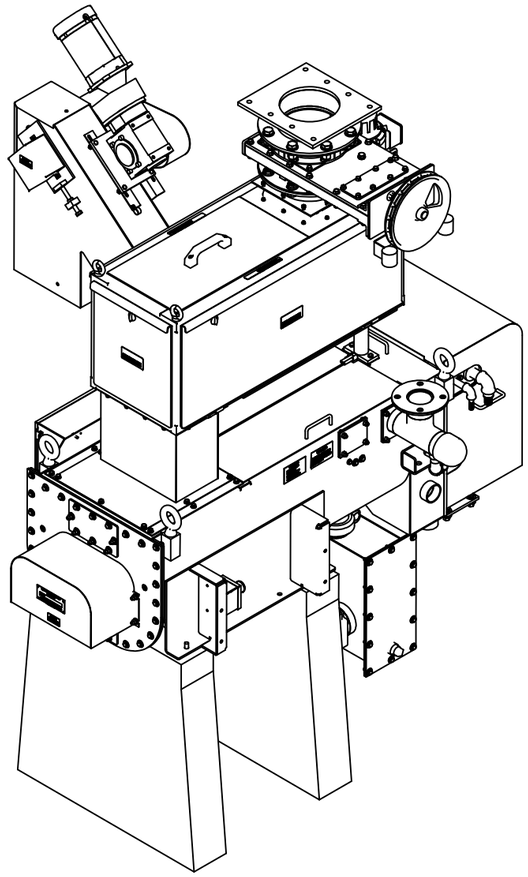
SECTION 2

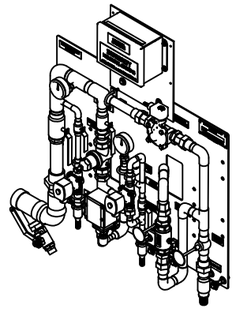
GENERAL ARRANGEMENT SELECTION, DRAWINGS, AND BROCHURES

DRAWING FOR SALES PURPOSES ONLY

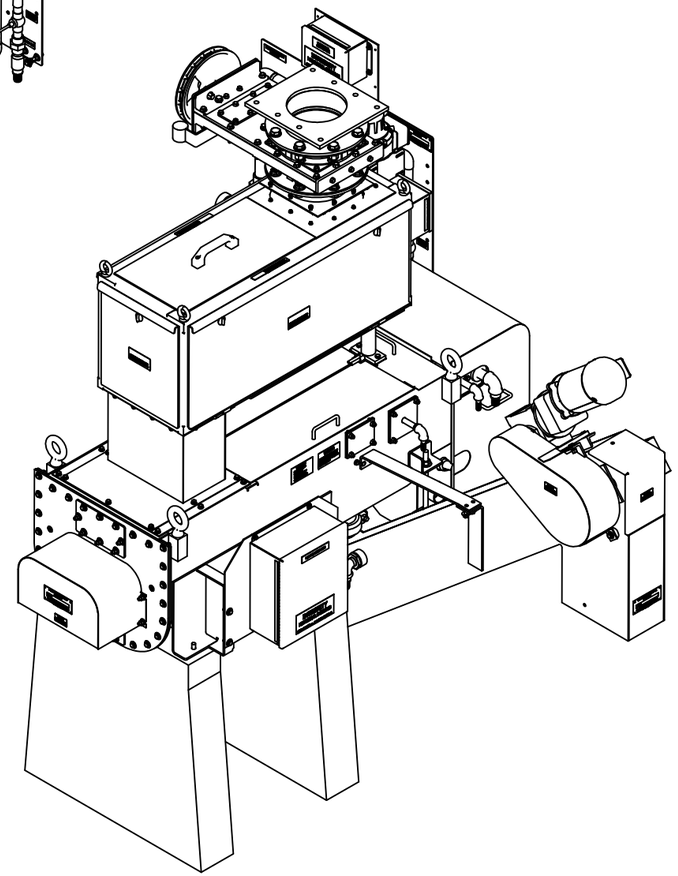
UNIT SHOWN CONSIST OF:
- 1000 LB PER HOUR BASE LIME SLAKER
- VOLUMETRIC BELT FEEDER
- CONVEYOR TYPE GRIT REMOVER
- SLAKER MOUNTED JUNCTION BOX (NO E-STOP)
- REMOTE E-STOP
- REMOTE MOUNTED WATER PANEL
- REMOTE MOUNTED MAIN CONTROL PANEL (NOT SHOWN)

NOTE: UNIT IS MIRRORED BETWEEN SILO 2 AND SILO 3





NOTE: THE KNIFE GATE AND ADAPTERS SHOWN IN DRAWINGS ARE NOT INCLUDED UNDER IMS' SCOPE OF SUPPLY AND ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. KNIFE GATE AND ADAPTERS, IF REQUIRED, SHALL BE PROVIDED BY OWNER/OTHERS.



THIRD ANGLE PROJECTION

ALL WELD SYMBOL DIMENSIONS ARE MINIMUM. DIMENSIONS IN [mm] ARE MILLIMETERS. DO NOT SCALE DRAWING

DRAWN PER ASME Y14.5M
UNLESS OTHERISE SPECIFIED
ALL DIMENSIONS ARE INCHES
AND TOLERANCES TO BE AS FOLLOWS.

FABRICATION	MACHINE
.XX +/- .06	.XXX +/-.005
.X +/- .13	.XX +/-.01
[X +/- .25]	.X +/- .03
< +/- .5	[X +/- .05]

STD: BORDER-11X17MI — BAR = 1" AT PLOT SCALE

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
B	UPDATED E-STOP CONFIGURATION; CHANGED TO CONVEYOR GRIT REMOVER	9/7/21	KAL			
A	RELEASE FOR SALES PURPOSES ONLY	11/19/20	CMW	KAL	KAL	

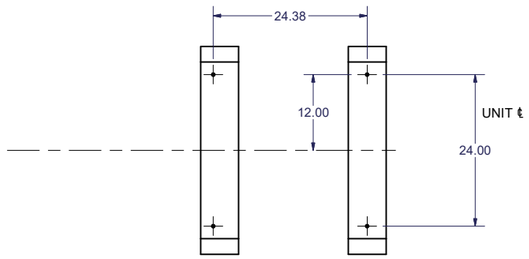
		DATE
DESIGNER	CMW	11/11/2020
CHECKER		DATE
ENGINEER		DATE
MANAGER		DATE
FILE:		
SCALE:	DNS	

TITLE: GENERAL ARRANGEMENT

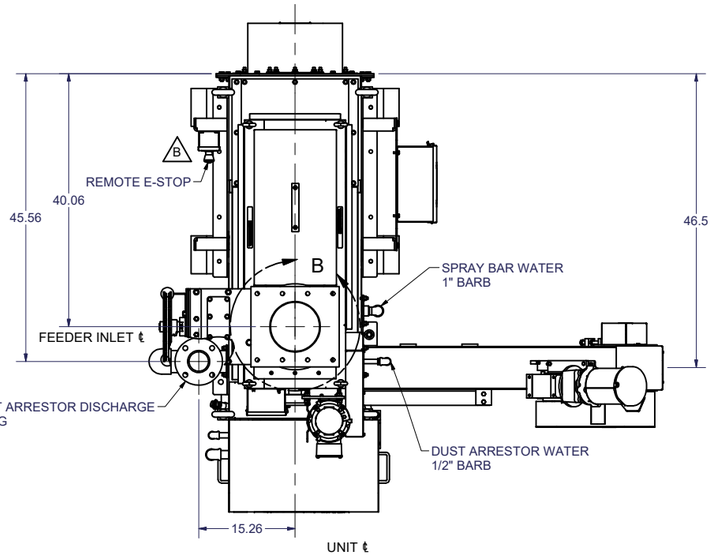
CLIENT: CITY OF HOLLYWOOD, FL

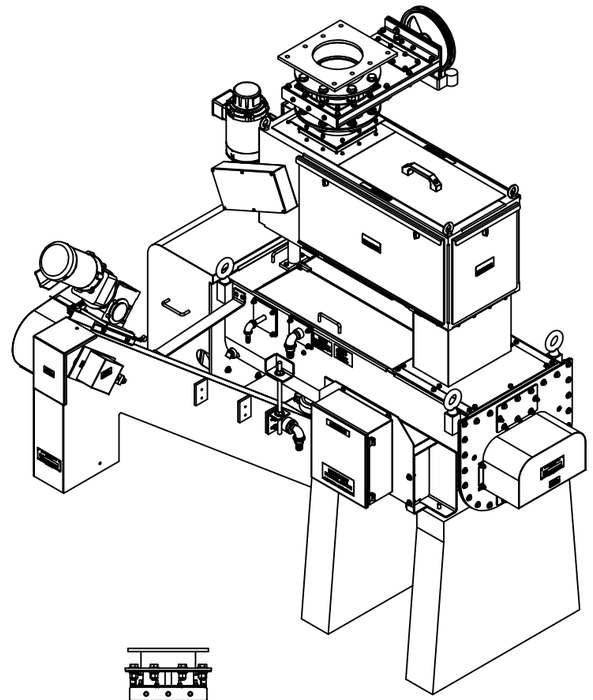
Integrity MUNICIPAL SYSTEMS
500 E. WASHINGTON AVE., SUITE 80
ZEELAND, MI 49464, USA
TEL: 858-486-1620

PROJECT	CODE	DRAWING	SHEET	REV
D20-003	G1	D20-003_G1	1 OF 5	B

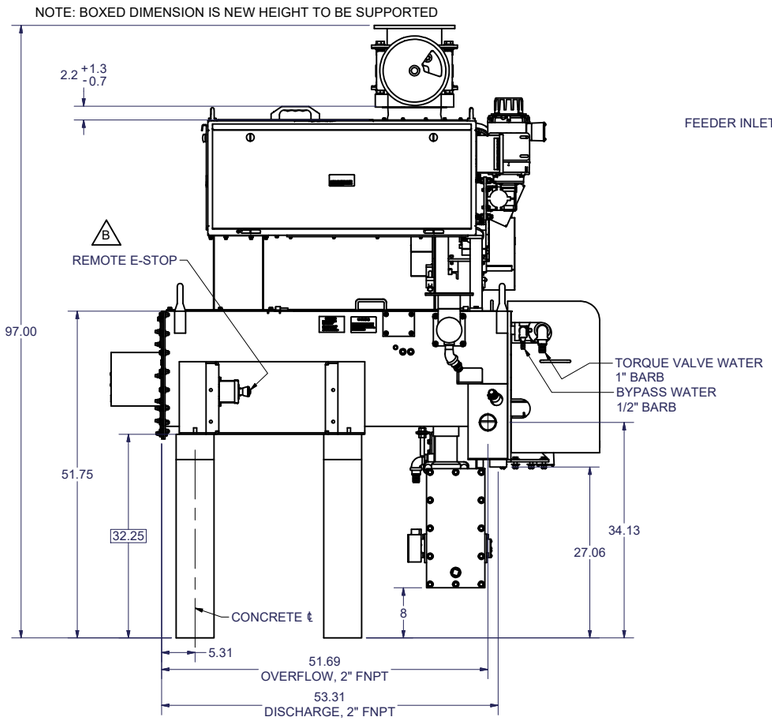


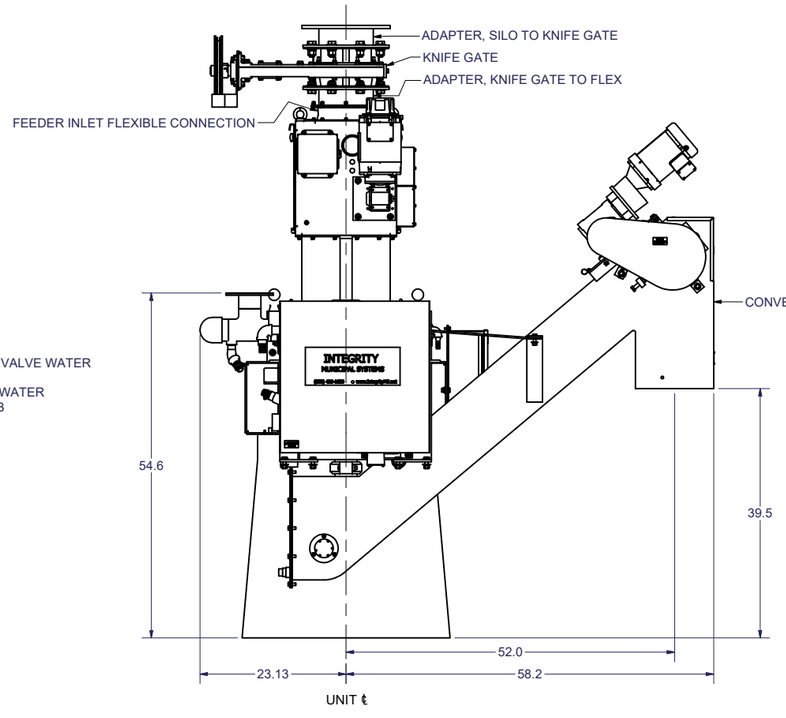
SECTION A-A
ANCHOR DETAIL NTS

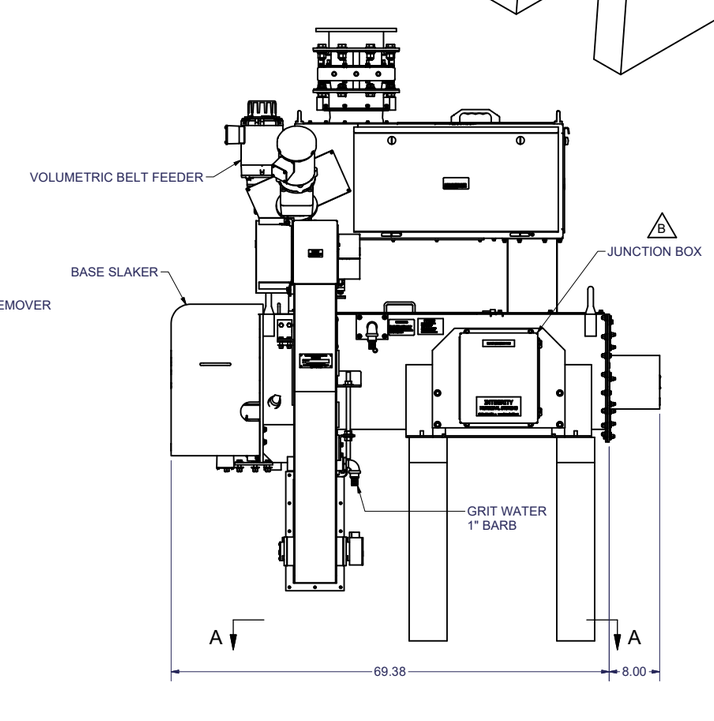




NOTE: BOXED DIMENSION IS NEW HEIGHT TO BE SUPPORTED







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FABRICATION	MACHINE
.XX +/- .06	.XXX +/-.005
.X +/- .13	.XX +/-.01
[X +/- .25]	.X +/- .03
< +/- .5	[X +/- .05]

STD: BORDER-11X17MI | BAR = 1" AT PLOT SCALE

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN

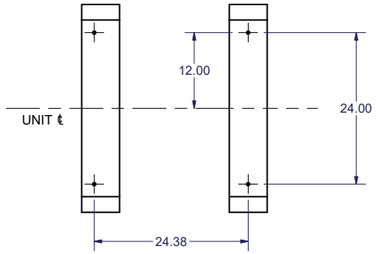
DESIGNER	CMW	11/6/2020
CHECKER		
ENGINEER		
MANAGER		
FILE:		
SCALE:	DNS	

TITLE: LIME SLAKER ASSEMBLY - SILO 3

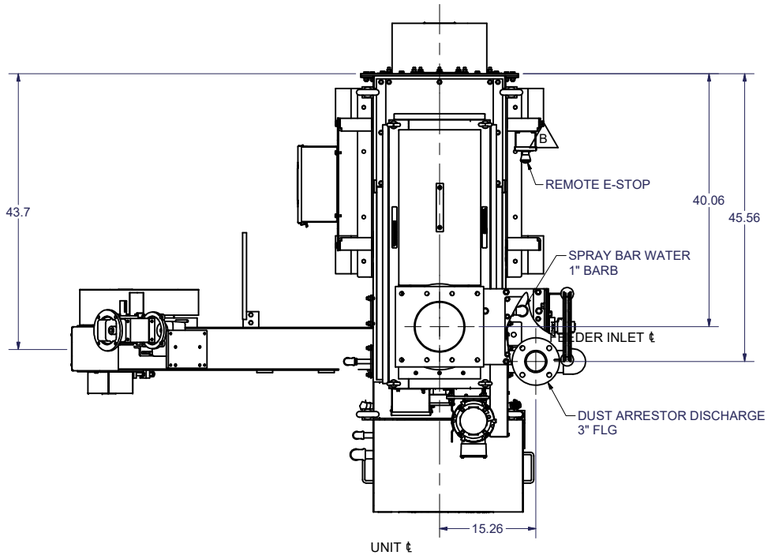
CLIENT: CITY OF HOLLYWOOD, FL

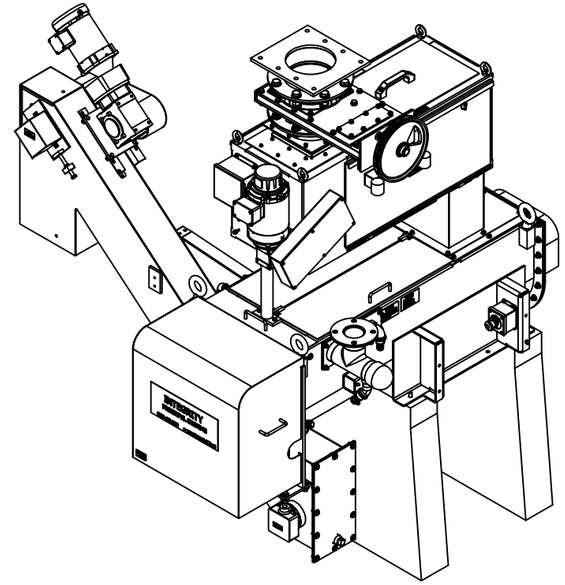
Integrity MUNICIPAL SYSTEMS
500 E. WASHINGTON AVE., SUITE 80
ZEELAND, MI 49464, USA
TEL: 858-486-1620

PROJECT	CODE	DRAWING	SHEET	REV
D20-003	A1	D20-003_A1	2 OF 5	B

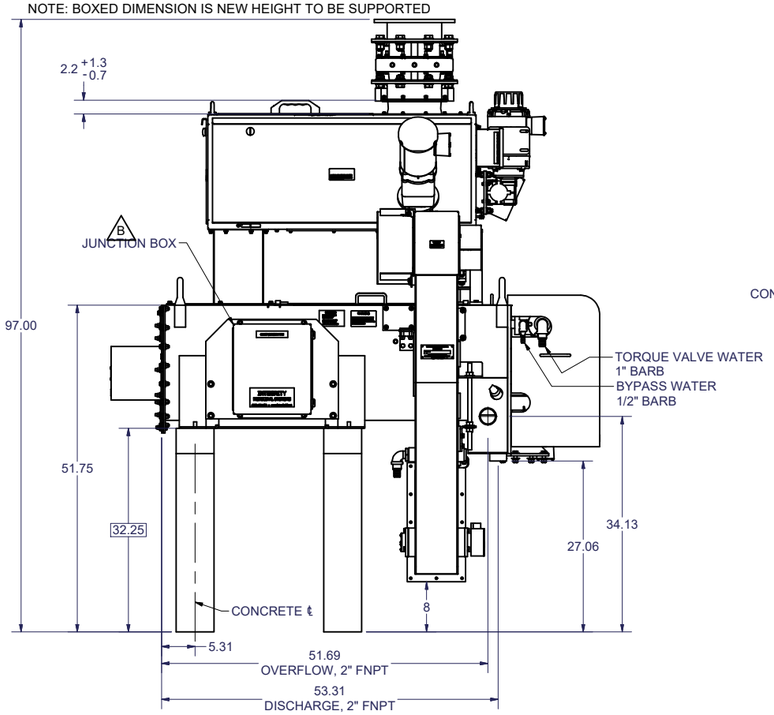


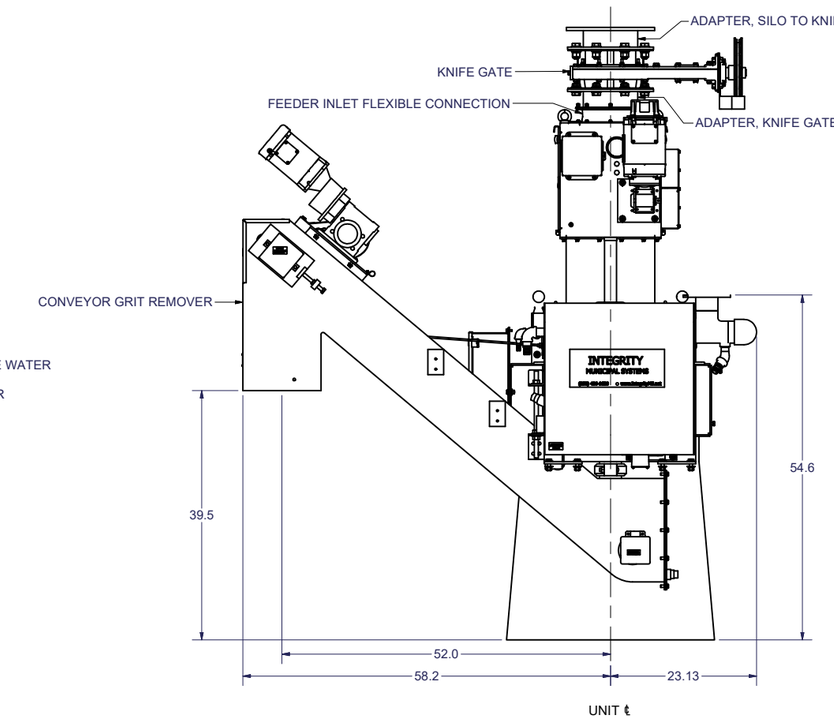
SECTION C-C
ANCHOR DETAIL NTS

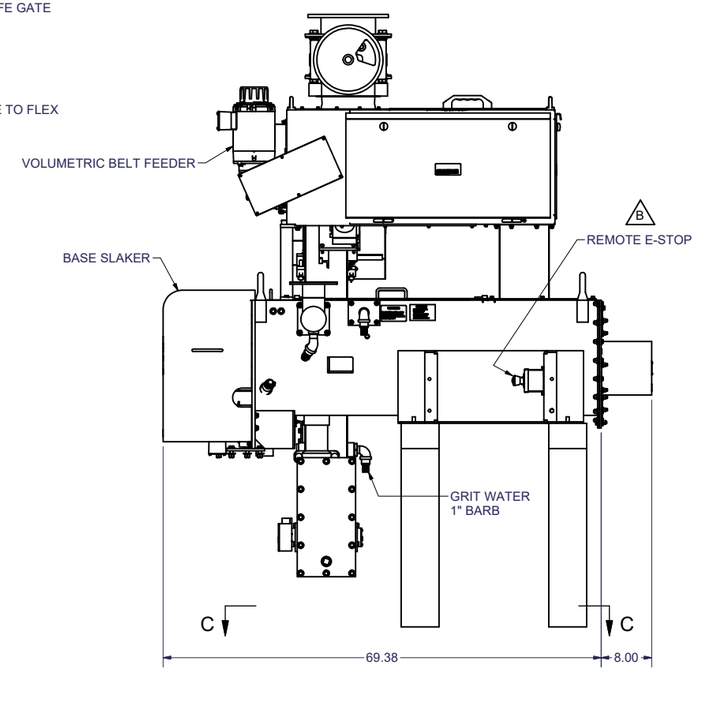




NOTE: BOXED DIMENSION IS NEW HEIGHT TO BE SUPPORTED







THIRD ANGLE PROJECTION

ALL WELD SYMBOL DIMENSIONS ARE MINIMUM.
DIMENSIONS IN [mm] ARE MILLIMETERS.
DO NOT SCALE DRAWING

DRAWN PER ASME Y14.5M
UNLESS OTHERISE SPECIFIED
ALL DIMENSIONS ARE INCHES
AND TOLERANCES TO BE AS FOLLOWS.

FABRICATION	MACHINE
.XX +/- .06	.XXX +/-.005
.X +/- .13	.XX +/-.01
[X +/- .25]	.X +/- .03
< +/- .5	[X +/- .05]

STD: BORDER-11X17MI

BAR = 1" AT PLOT SCALE

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN

DESIGNER	CMW	11/6/2020
CHECKER		DATE
ENGINEER		DATE
MANAGER		DATE
FILE:		
SCALE:	DNS	

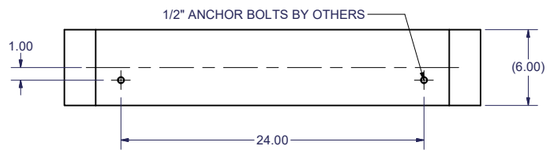
TITLE: LIME SLAKER ASSEMBLY - SILO 2

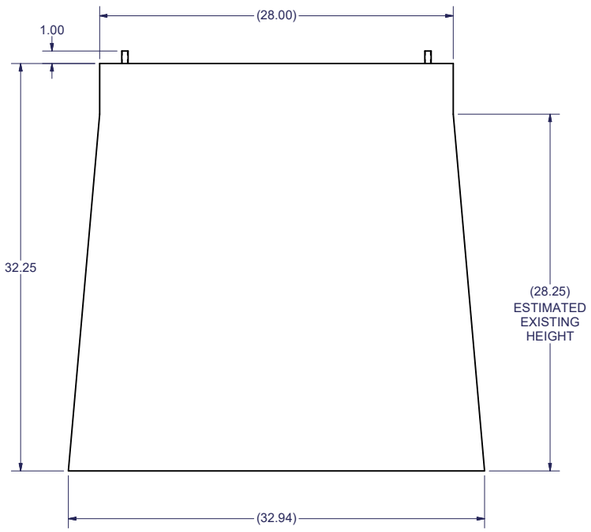
CLIENT: CITY OF HOLLYWOOD, FL

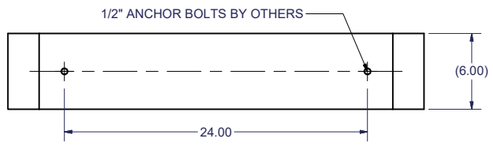
Integrity MUNICIPAL SYSTEMS
500 E. WASHINGTON AVE., SUITE 80
ZEELAND, MI 49464, USA
TEL: 858-486-1620

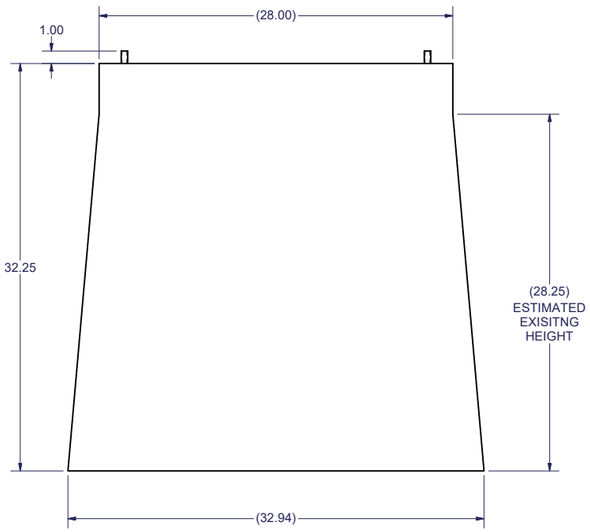
PROJECT	CODE	DRAWING	SHEET	REV
D20-003	A2	D20-003_A2	3 OF 5	B

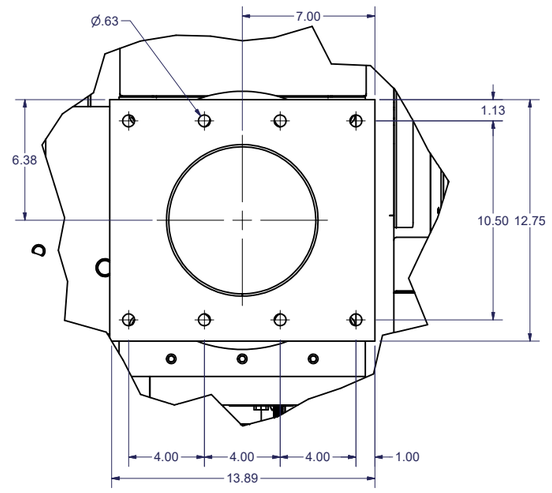
NOTES:
1. CONCRETE SUPPORTS SHOWN ARE BY OTHERS.
2. CONCRETE SUPPORTS ARE FOR REFERENCE ONLY. DESIGN AND PROVISION OF ALL SUPPORTS ARE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR/OTHERS.
3. SUPPORTS ARE SHOWN WITH STANDARD DIMENSIONS. CUSTOMER TO VERIFY LOCATION OF SUPPORTS.
4. IF REQUIRED, MODIFCATION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











DETAIL B
SILO ADAPTER
NTS

THIRD ANGLE PROJECTION

ALL WELD SYMBOL DIMENSIONS ARE MINIMUM.
DIMENSIONS IN [mm] ARE MILLIMETERS.
DO NOT SCALE DRAWING

DRAWN PER ASME Y14.5M
UNLESS OTHERISE SPECIFIED
ALL DIMENSIONS ARE INCHES
AND TOLERANCES TO BE AS FOLLOWS.

FABRICATION	MACHINE
.XX +/- .06	.XXX +/-.005
.X +/- .13	.XX +/-.01
[X +/- .25]	.X +/- .03
< +/- .5	[X +/- .05]

STD: BORDER-11X17MI BAR = 1" AT PLOT SCALE

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN

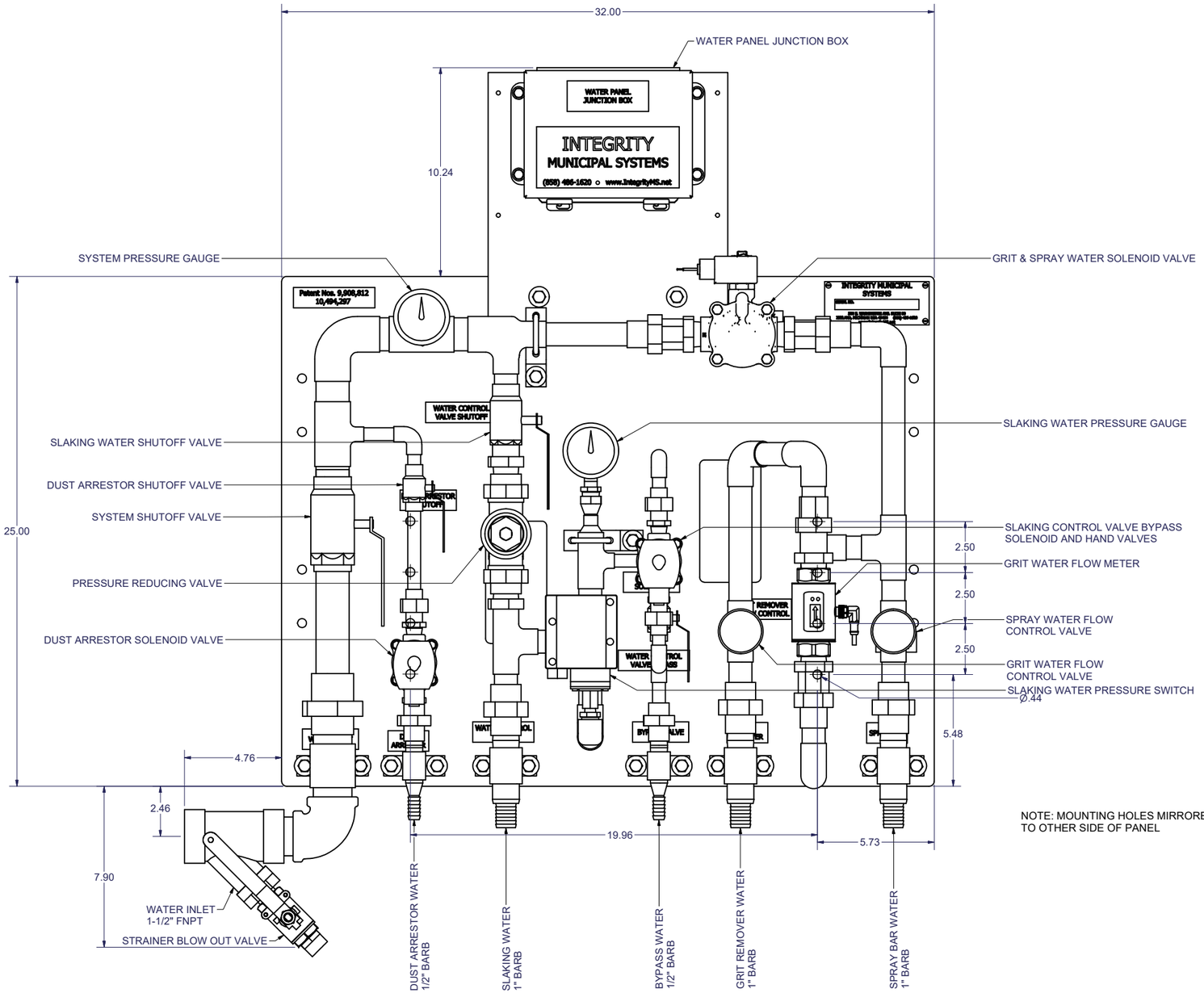
		DATE
DESIGNER	CMW	11/11/2020
CHECKER		
ENGINEER		
MANAGER		
FILE:		
SCALE:	DNS	

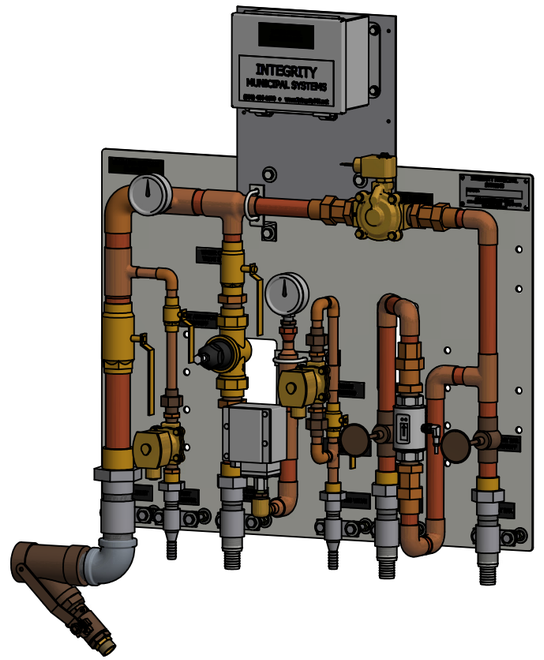
TITLE: GENERAL ARRANGEMENT
CONCRETE PILLAR & SILO ADAPTER DETAIL

CLIENT: CITY OF HOLLYWOOD, FL

Integrity MUNICIPAL SYSTEMS
500 E. WASHINGTON AVE., SUITE 80
ZEELAND, MI 49464, USA
TEL: 858-486-1620

PROJECT	CODE	DRAWING	SHEET	REV
D20-003	G1	D20-003_G1	4 OF 5	B





NOTE: MOUNTING HOLES MIRRORED TO OTHER SIDE OF PANEL

THIRD ANGLE PROJECTION

ALL WELD SYMBOL DIMENSIONS ARE MINIMUM.
DIMENSIONS IN [mm] ARE MILLIMETERS.
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DRAWN PER ASME Y14.5M
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FABRICATION	MACHINE
.XX +/- .06	.XXX +/-.005
.X +/- .13	.XX +/-.01
[X +/- .25]	.X +/- .03
< +/- .5	[X +/- .05]

STD: BORDER-11X17MI | BAR = 1" AT PLOT SCALE

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN

DESIGNER	CMW
DATE	11/6/2020
CHECKER	
DATE	
ENGINEER	
DATE	
MANAGER	
DATE	
FILE:	
SCALE:	DNS

TITLE: LIME SLAKER ASSEMBLY - SILO 3
WATER PANEL DETAIL

CLIENT: CITY OF HOLLYWOOD, FL

Integrity MUNICIPAL SYSTEMS
500 E. WASHINGTON AVE., SUITE 80
ZEELAND, MI 49464, USA
TEL: 858-486-1620

PROJECT	CODE	DRAWING	SHEET	REV
D20-003	A1	D20-003_A1	5 OF 5	B

NEW WATER PANEL DESIGN [PATENT NO. 9,908,812]

The new water panel design provides all water piping preassembled in a water panel that can be freestanding next to the slaker or remote-mounted.

Features & Advantages:

1. **Minimized Installation Time:**

   With the water panel design, the water piping does not need to be re-assembled at the jobsite as is the case with the on-unit water supply piping, which requires disassembly for shipment to prevent damage during transit from the factory. The water panel design provides all water piping preassembled in a water panel that can be quickly installed and connected at the jobsite (One (1) water supply connection from water source and five (5) water connections from water panel to slaker [control valve, control valve bypass, spray bar, dust arrestor, and grit remover]).

2. **Reduction of Equipment Manufacturing Lead Time:**

   The water panel can be assembled ahead of time (not at the same time as the slaker), reducing equipment lead time by up to 2-3 weeks.

3. **Remote Installation of Water Panel (Option):**

   The water panel provides flexible installation configurations for different installation requirements and preferences. The water panel can be installed freestanding next to the slaker unit or remote-mounted.

4. **Ease of Maintenance:**

   All parts are easily accessible on the water panel and are therefore easier to maintain.

5. **Ease of Connections:**

   All water connections are in one area (on the water panel) - Much easier to connect.

6. **Improved Slaker Access:**

   The removal of the water piping from the slaker and its relocation to the water panel, frees up space in front of the slaker, improving ease of slaker access, ease of maintenance, etc.

7. **Design Repeatability and Consistency:**

   A more consistent product can be produced, which in turn results in high quality equipment.

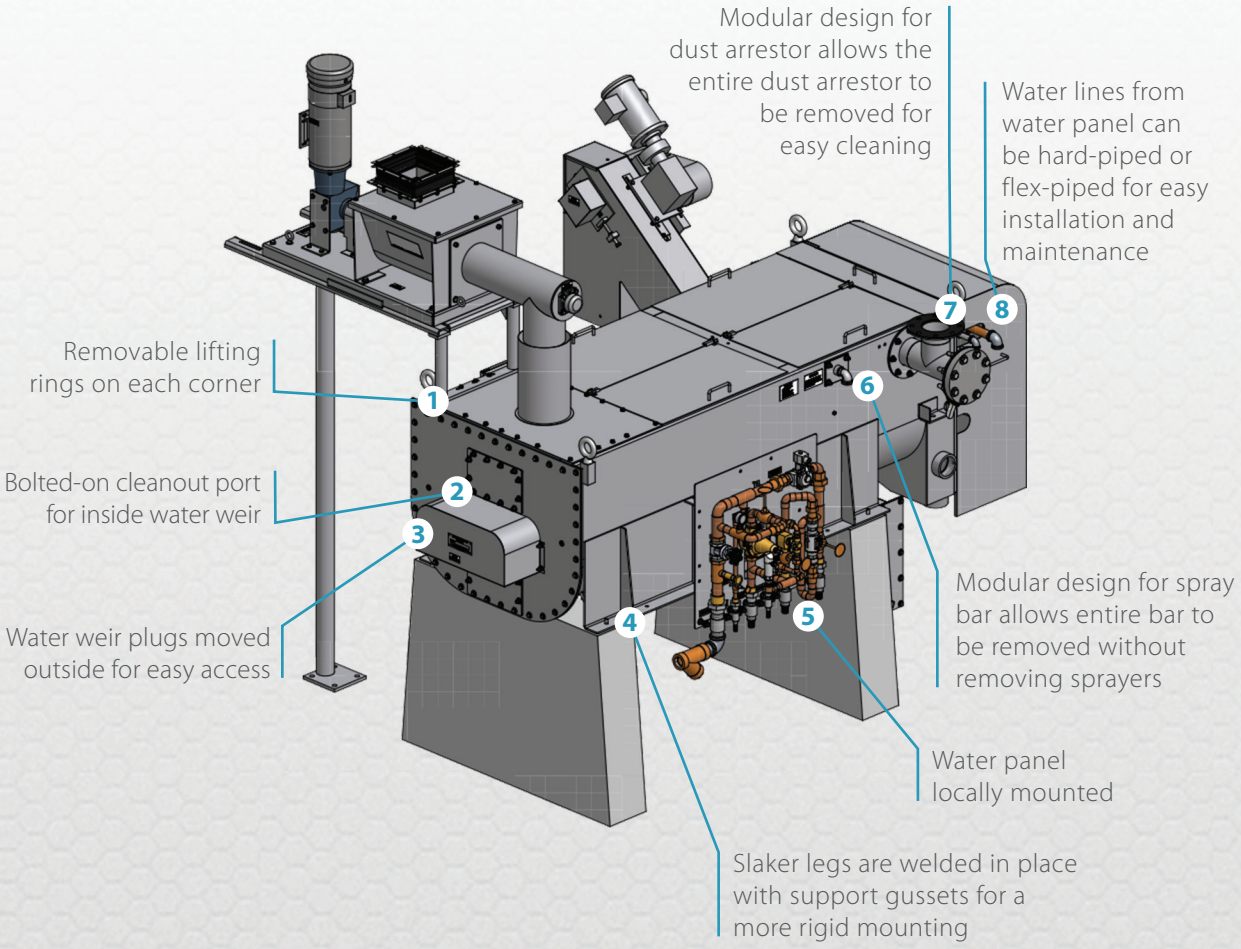
8. **Decreased Likelihood of Damage:**

   The water piping is less likely to be damaged during shipping and, more importantly, during operation due to the improved access for maintenance and increased space around the slaker and water panel.

INTRODUCING THE IMPROVED

A-758™ AND ***A-758 PLUS™*** LIME SLAKER:

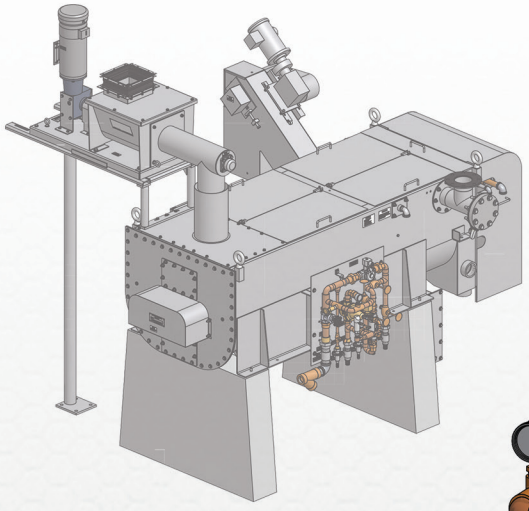
EASIER. FASTER. INNOVATIVE.

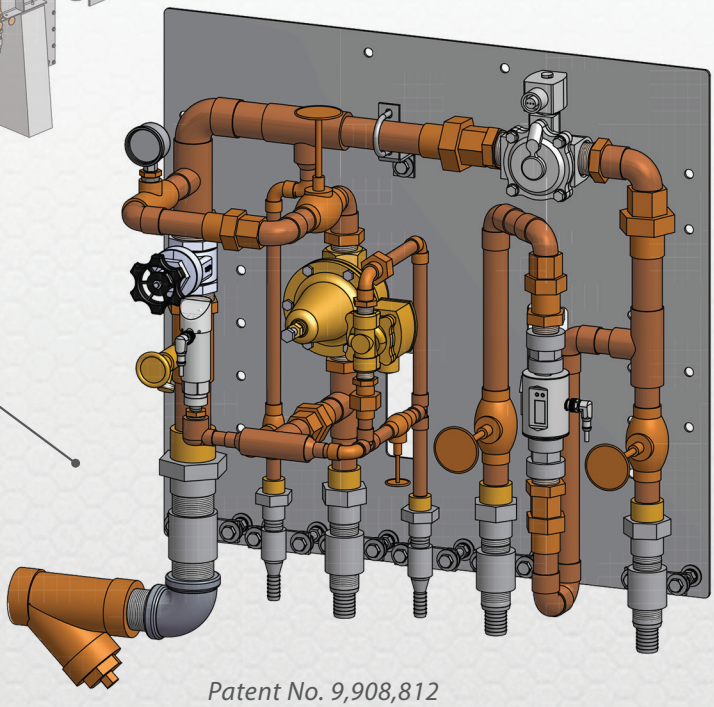


Integrity MUNICIPAL SYSTEMS

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

Integrity Municipal Systems
13135 Danielson St, Suite 204 Poway, CA 92064
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 ft^3/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 ±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

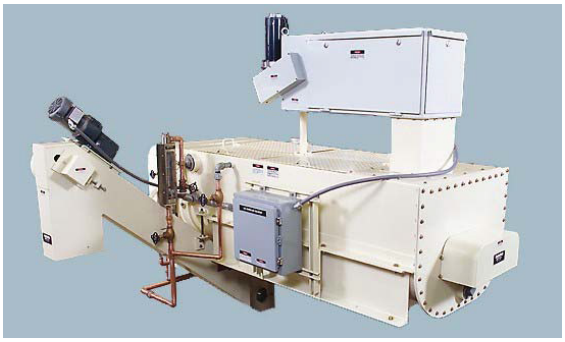
Materials in contact with the product flow include 304ss, nickel plated steel, neoprene, Hypalon® inlet seals, and feed belt of polyester substrate with a polyurethane topcoat. The feeder enclosure is unpainted 304 stainless steel.

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

13135 DANIELSON STREET, SUITE 204 POWAY, CA 92064
PHONE: (858) 486-1620 FAX: (858) 486-1659 www.integrityms.net

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.



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

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 ($CaO+H_20 = Ca(OH)_2$ + 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.

More Reactive Hydrate Particles
The intense heat [>82° 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

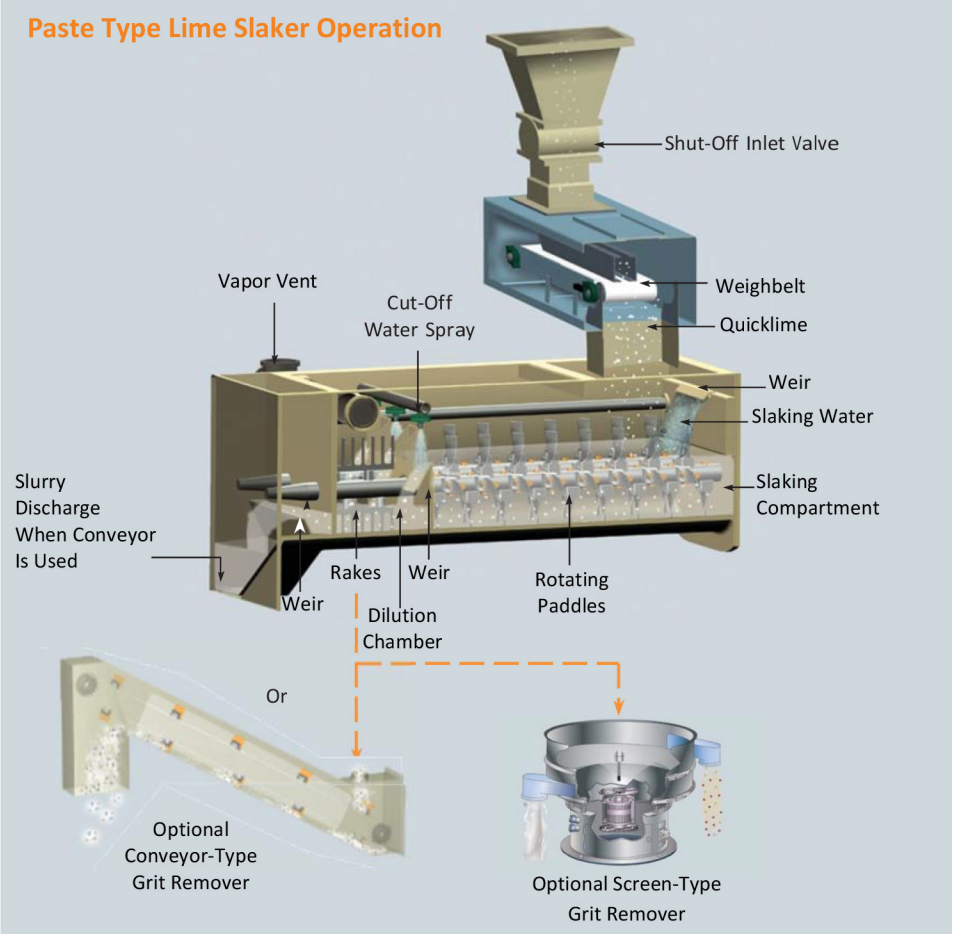
Water and quicklime (CaO) are fed into the slaker mixing compartment at an approximate 2:1 ratio. The lime is metered by either a gravimetric weighbelt feeder or a volumetric screw or belt-type feeder. Controlling the lime feedrate determines the output of the slaker system. The water flow is automatically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

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

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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 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.

"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.

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

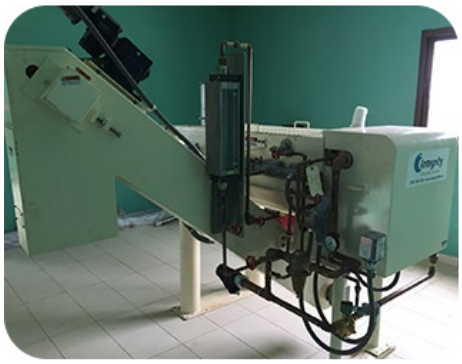
Plug-and-Play Installation – each system is piped, wired and tested at the factory before shipment

Campbell's Soup Manufacturing Plant, Napoleon OH

Public Water Supply District #2, Defiance MO

Edmond, OK

Nebraska City WWTP, NE



Cote D'Ivoire

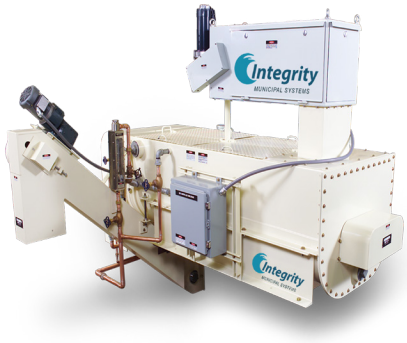
Fort Pierce Utilities Authority, FL

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 cfrm (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.

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Integrity MUNICIPAL SYSTEMS