

**Sewer Lift Stations
Spec Sheets
&
Standard Operating Guideline
Timber Crest Estates
& Kingsbury Village**

August 6, 2019

CONTENTS:

1. Hayes Pump Inc, cover letter and specs for Pumping Station No. 1 and 3, November 12, 2018
2. Hayes Pump Inc, cover letter and specs for Pumping Station No. 2, November 9, 2018.
3. Standard Operating Guidelines

Flow solutions since 1898



HAYES PUMP, INC.

66 Old Powder Mill Road

West Concord, MA 01742

PH: 978-369-8800

FAX: 978-369-8461

November 12, 2018

Mr. Christopher J. VanDenBerghe, EIT
Outback Engineering, Inc.
165 East Grove Street
Middleborough, MA 02346

Subject: Pumping Station No. 1 and 3
Medway, Massachusetts

Gentlemen:

We are pleased to furnish the following budget quotation for a duplex Zoeller pump station package complete with two (2) 'reversible' explosion proof 2 HP grinder pumps, float control Explosion Proof Control panel and 72" D x 140-inch-deep fiberglass chamber with isolation valves and check valves with 2-inch discharge. Price included cellular auto dialer in NEMA 4 panel for alarm notifications.

Package Net Budget Price delivered

Price quoted above is for equipment only. All installation, including wiring, shall be by others. Price is FOB factory with freight allowed to job site. Price quoted is plus sales tax when appropriate. Fiberglass chamber above is maximum depth and diameter. Smaller units are available at less cost. Mission RTU units are sold with a minimum of one year fixed unit service package which is included above. Delivery should be approximately 6-8 weeks.

We thank you for the opportunity of quoting and trust that you will find the above complete and satisfactory. If you have any questions on the above quotation, please do not hesitate to contact me.

Sincerely,

Gerry Nye
Manager, Pumping Station Sales

Attachments

Cc: D. Deems

HAYES PUMP, INC. TERMS AND CONDITIONS

GENERAL

The following terms and conditions, including those on the front side of this document, shall constitute the entire Agreement for the Purchase and sale of Hayes Pump's products. Any acceptance contained herein is made expressly conditional upon the Purchaser's assent to the terms which are different from, in addition to, or vary the terms contained in the Purchaser's purchase order or request for quotations. Such assent shall be deemed to occur upon the failure of the Purchaser to object in writing specifically to such term or terms within 14 days from the receipt hereof. Any terms and Conditions in the Purchaser's purchase order or request for quotation which are different from, in addition to, or vary Hayes Pump Terms and Conditions shall not be binding upon Hayes Pump, and Hayes Pump hereby objects thereto.

Changes

Prior to the date of delivery of any product or products thereunder, the Purchaser shall have the right to make changes in its order only if Hayes Pump receives written notice of the desired changes and accepts the additional charge therefore as determined by Hayes Pump. Changes which interfere with or after Hayes Pump's production or delivery schedules will not be acceptable unless the time for performance is extended for such a period as deemed necessary by Hayes Pump. Failure of Hayes Pump to accept a Purchaser's request to change its purchase order shall not be cause for Purchaser's cancellation of this order.

Cancellation

(a) Hayes Pump shall have the absolute right to cancel this Agreement upon breach thereof by the Purchaser, failure by the Purchaser to make any payment required by this Agreement, or the insolvency or bankruptcy of the Purchaser.

(b) Orders are not cancelable by Purchaser unless and until all cancellation provisions, if any, are agreed to by Hayes Pump in writing and all cancellation charges, if any, have been paid by Purchaser.

Limited Warranties

(a) Except as set forth in the following paragraph, the only warranties on products and systems sold by Hayes Pump are the warranties, if any, by the respective manufacturers for such products and systems. Reference should be made by Purchaser to the terms of such manufacturer's warranties for the conditions thereof. In the event Hayes Pump has modified, altered or fabricated any of the products or systems sold by it, Hayes Pump warrants that such modification, alteration or fabrication shall be free of defects in material or workmanship for one year from shipment to Purchaser. As to such warranties by Hayes Pump at its option, its liability is limited exclusively to making replacement or repairs or to refunding the price for such modifications, alteration or repairs (actual or attempted) to the products or systems supplied by Hayes Pump shall void all warranties of Hayes Pump unless Purchaser has obtained prior written authorization from Hayes Pump consenting to such modifications or alterations.

(b) HAYES PUMP MAKES NO OTHER WARRANTY. ALL OTHER WARRANTIES, ORAL OR WRITTEN, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A SPECIFIC PURPOSE, ARE HEREBY EXCLUDED AND DISCLAIMED. IN NO EVENT SHALL HAYES PUMP BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

(c) Hayes Pump employees are not authorized to warrant the suitability of products or systems for any particular application.

(d) Hayes Pump reserves the right to inspect products claimed defective under warranty either at the Purchaser's location or at an office of Hayes Pump. A defective product is not to be returned to Hayes Pump's office unless authorized by Hayes Pump. Products so returned shall be returned to Hayes Pump's office, freight prepaid. Any products which within one year from date of shipment prove defective due to faulty modifications or alterations made by Hayes Pump will be replaced or repaired free of charge, F.O.B. Hayes Pump's office, West Concord, Massachusetts. Hayes Pump assumes no liability for labor charges incidental to the adjustment, service, repairing, removal or replacement of the product or other costs, or for the expense of repairs made outside of its factory except when made pursuant to Hayes Pump's prior written consent. Hayes Pump, at its option, may ship a replacement or replacements immediately under standard billing and make warranty adjustment after inspection of the defective product by means of credit memorandum.

Delays

Hayes Pump shall not be liable for damages for delays in performance due to circumstances beyond its reasonable control, including without limiting the generality of the foregoing, any priority system established by any agency of the United States Government, fires, energy shortages, floods, storms, and other acts of God, accidents, strikes, insurrections, war, shortage of materials, lack of transportation and failure of performance of subcontractors and/or suppliers for similar reasons. Failure of Hayes Pump to perform for these reasons aforesaid shall not be grounds for Purchaser's cancellation of its order but the delivery date shall be extended accordingly.

Limitation of Liability

No claim made hereunder by the Purchaser, whether as to goods delivered or for non-delivery, shall be greater than the purchase price of the goods in respect of which such claim is made.

Taxes

All applicable federal, state or local sales, use, or excise taxes are the responsibility of the Purchaser and shall be in addition to the price or prices stated on the front side of this document unless specifically stated. Hayes Pump shall have the right to invoice separately any such tax as may be imposed at a later time. Applicable tax exemption certificates must accompany any order to which the same applies.

Payment Terms; Delivery

(a) CASH PAYMENT NET 30 DAYS. A FINANCE CHARGE AT THE MAXIMUM RATE ALLOWED BY LAW WILL BE CHARGED ON BALANCES WHICH ARE OVER 30 DAYS.

(b) F.O.B. - SHIPPING POINT UNLESS OTHERWISE STATED. ALL RISK OF LOSS OF DAMAGE SHALL PASS TO PURCHASER UPON DELIVERY OF THE PRODUCT TO THE CARRIER.

Miscellaneous

(a) This Agreement may not be assigned or otherwise transferred by Purchaser without the prior written consent of Hayes Pump, and any such assignment or transfer without such prior written consent shall be null and void and of no force whatsoever.

(b) Hayes Pump's failure to insist, in one or more instances, upon the performance of any term or terms of this Agreement shall not be construed as a waiver or relinquishment of its right to such performance or the future performance of such term or terms, Purchaser's obligation with respect thereto shall continue in full force and effect.

(c) Any notice or other communication required or permitted hereunder shall be sufficiently given if sent in writing by registered or certified mail, postage prepaid, to the other party thereto at its respective address first above written. Any such notice, if so mailed, shall be deemed to have been received on the third business day following such mailing. Either party hereto may change its address for notice purposes by written notice to the other party.

(d) The paragraph heading in this Agreement are used for convenience only. They form no part of this Agreement and are in no way intended to alter or affect the meaning of this Agreement.

(e) This Agreement may be amended at any time by mutual agreement of the parties hereto by a written amendment to this Agreement signed by each of them.

(f) The invalidity, in whole or in part, of any provision of this Agreement shall not affect the validity or enforceability of any other of its provisions.

(g) This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

Trusted. Tested. Tough.™

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: Z4.10.160

ZM2624

0218

Supersedes

0815

MAILTO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

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zoellerengprod.com



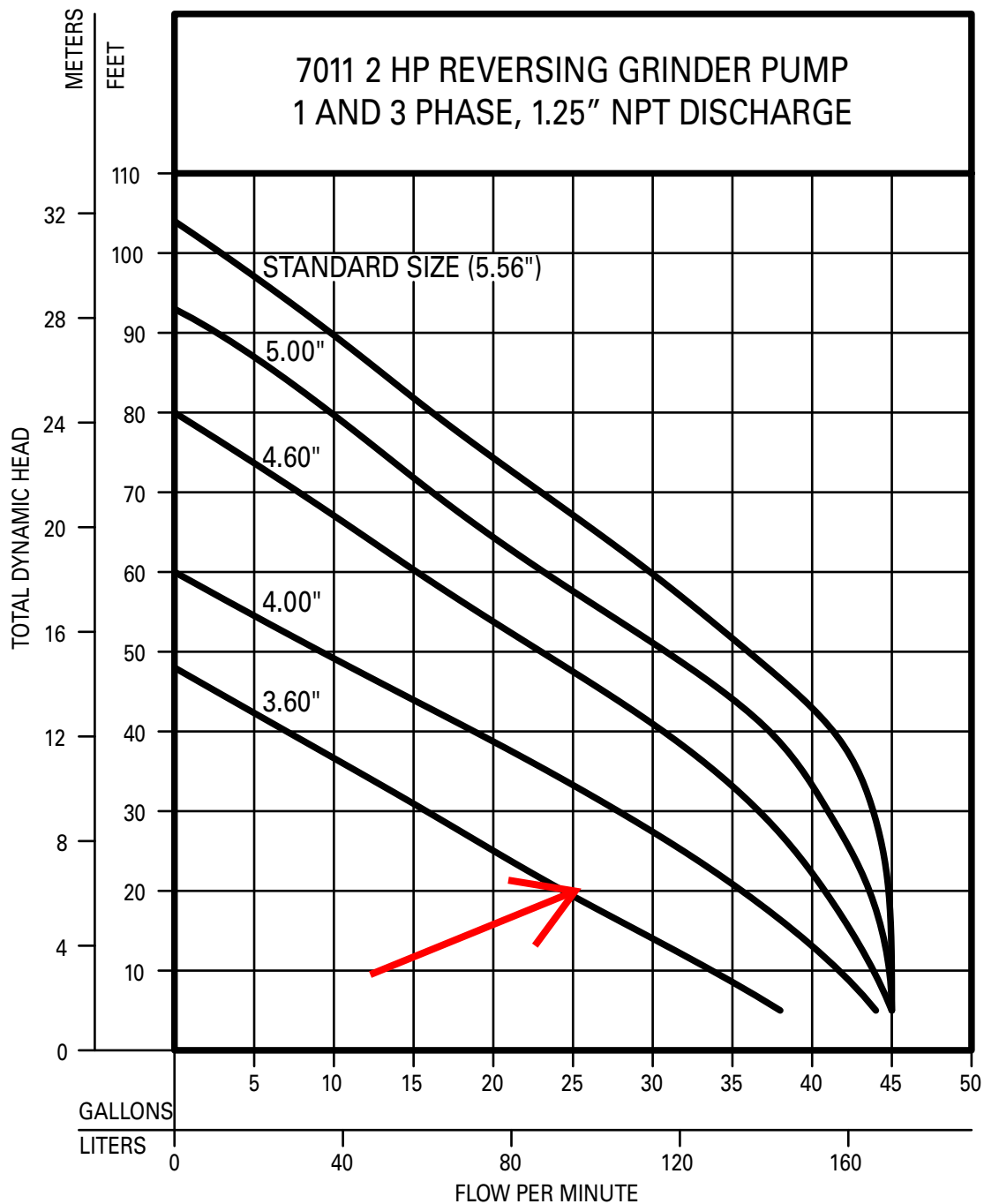
Patent No.
6,364,620



70 SERIES • MODEL 7011

PERFORMANCE DATA

2 HP Grinder Pump - Dual Seal - Reversing



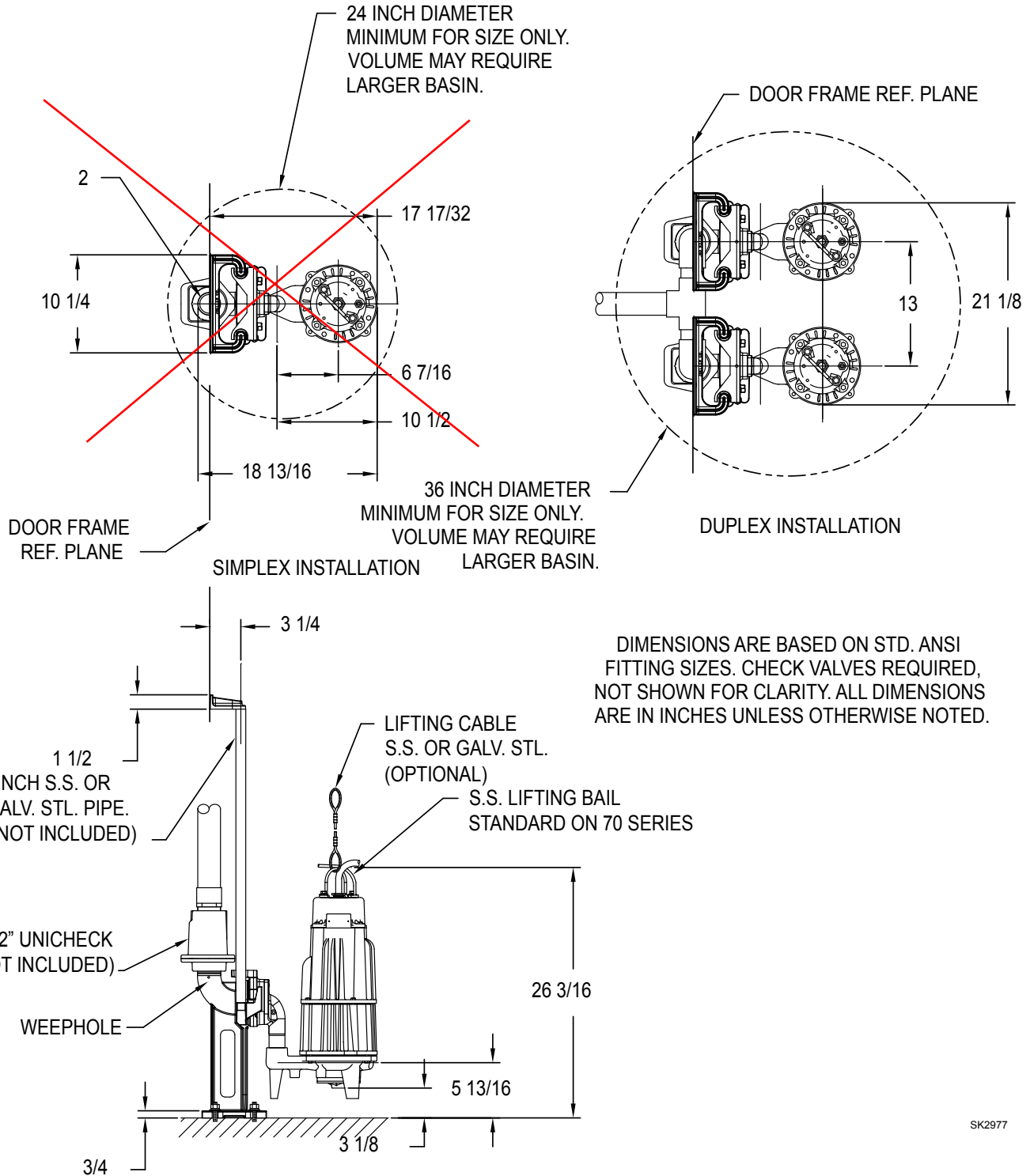
70 SERIES • MODELS 7011-7012-7013

DIMENSIONAL DATA

2 HP GRINDER PUMP - DUAL SEAL

1.25" NPT X 2" NPT Discharge

39-0134 & 39-0135 Z-Rail® Disconnect System



SK2977

Zoeller Engineered Products • 3649 Cane Run Road • Louisville, Kentucky 40211-1961 • (502) 778-2731

SWPA Data Categories Presented -- Data on this sheet supply design information as the minimum recommended by the Submersible Wastewater Pump Association and is defined in accordance with SWPA's Standardized Definitions for Pump and Motor Characteristics. The accuracy of the data is the responsibility of Zoeller Engineered Products.

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DUPLEX SYSTEM **THREADED DISCHARGE PUMPS - SIDE DISCHARGE**

PUMP INFORMATION

TYPE: ☐ DEWATERING

☐ GRINDER

☐ SOLIDS HANDLING

PUMP MODEL _____

_____ GPM _____ TDH

_____ DISCHARGE

_____ HP _____ RPM

_____ AMPS (FLA)

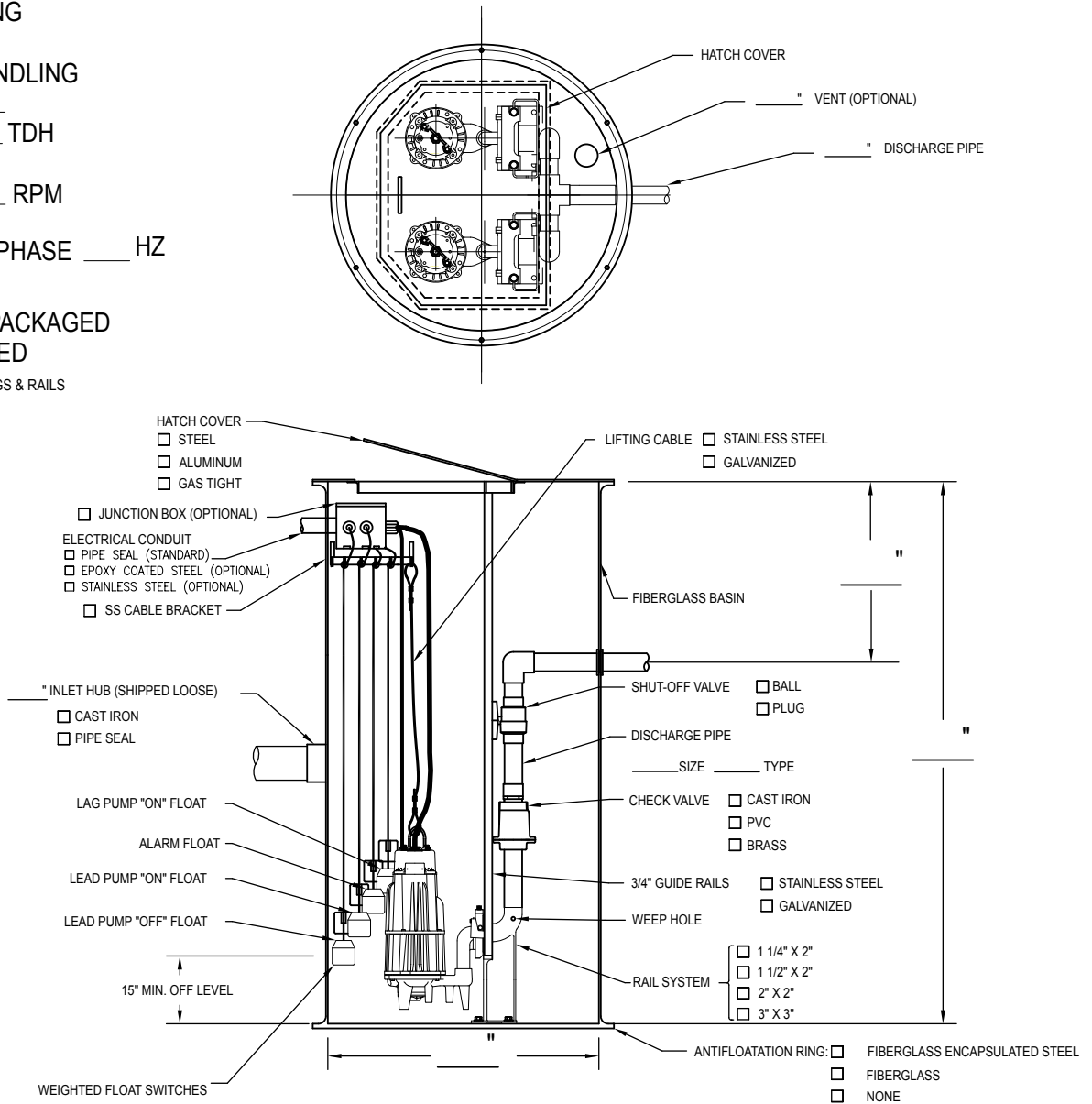
_____ VOLTS _____ PHASE _____ HZ

INSTALLATION

☐ FACTORY PRE-PACKAGED

☐ FIELD ASSEMBLED

*DISCHARGE PIPING, FITTINGS & RAILS
SUPPLIED BY OTHERS IF
FIELD ASSEMBLED



SK2425



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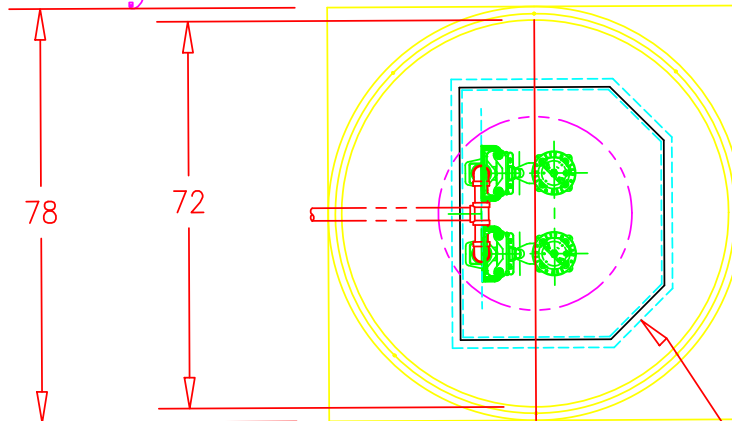
visit our web site:
zoellerengineered.com

Preliminary

DRAWING REVISIONS

LTR	BY	DATE	ECO #	DESCRIPTION
-----	----	------	-------	-------------

PB



ALUMINUM HATCH

SS LIFT
CABLES

SS GUIDE
RAILS

144

8" PIPE SEAL
(FIELD INSTALLED)

2" CHECK VALVE

UNCHECK
(NOT INCLUDED)
WEEPHOLE

NOTE: PUMP CORDS NOT
SHOWN FOR CLARITY.

DRAWING DESCRIPTION:

NUMBERS ENCLOSED IN A CIRCLE; ①, ARE CRITICAL TO QUALITY (CTQ) ITEMS. THIS INDICATES A CRUCIAL SPECIFICATION THAT MUST BE ROUTINELY VERIFIED.

ITEMS MARKED (CTQ) ARE CONTROLLED BY A SEPARATE DIVISION'S QUALITY SYSTEM.

TOLERANCES:

.X ±	~	.XXXX±
.XX ±	~	ANGLES ±
.XXX ±	~	FRACTIONS ±

DRAFTER:

DATE:

CHECKED:

DATE:

APPROVED:

DATE:

BASIN & RAIL ASSEMBLY

72 X 120/ 2.5-3" RAILS

ALUMINUM HATCH COVER

3" PVC SCH 80 PLUMBING

ELECTRONIC SCALE:

DO NOT SCALE PRINT

EXCEPT AS NOTED
DIMENSIONS ARE IN INCHES.

SHEET:

PART NUMBER:

PART REVISION:

DRAWING NUMBER:

33-XXXX

1 OF 1

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



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ZOELLER ENGINEERED PRODUCTS NEMA 4X SIMPLEX & DUPLEX PANELS 1 - 20 BHP



COMMERCIAL DUTY EJECTORS, SOLIDS HANDLING AND GRINDER PUMPS

- ☐ Commercial Effluent
- ☐ Commercial Sewage
- ☐ 61 HD Series

Standard Features:

1. NEMA-4X Thermoplastic Enclosure
2. cULus Labeled
3. Input Power Terminal Block
4. Float Switch Terminal Block
5. Ground Lug
6. Control Side Fuses
7. Control On/Off Switch
8. Lockable Hasp
9. HOA Switch(es)
10. IEC Rated Motor Contactor(s)
11. 120 Volt Control Circuit or Transformer
12. Pump Circuit Breaker(s) or Motor Overload Protection w/ Disconnect (3 Phase and 61 HD Series)
13. External High Water Alarm Light
14. Audible High Water Alarm Horn
15. High Water Alarm Dry Contact
16. Alarm Test and Silence Switch (Externally Mounted)
17. Green Pump Run Light(s)
18. Capacitors and Start Relay (1 Phase 61 HD Series)
19. Alternating Circuit Board (Duplex)
20. Float Status Indicator Lights

* Standard Options

- ☐ Seal Fail Indicator w/ Relay & Thermal Cutout Circuit 61 HD
- ☐ Seal Fail Indicator w/ Relay
- ☐ Elapsed Time Meter(s)
- ☐ Event Counter(s)
- ☐ Flasher for High Water Alarm Light
- ☐ Redundant Off
- ☐ Inner Door
- ☐ Lightning Arrestor
- ☐ Anti-Condensation Heater
- ☐ Manual Alarm Reset
- ☐ Pump Run Dry Contact
- ☐ Seal Fail Dry Contact
- ☐ Main Non-Fused Disconnect
- ☐ Alternator 1-2 Selector Switch

* Consult Factory for Options Not Listed

- ☐ 62 HD Series
- ☐ Grinder Pumps

Standard Features:

1. NEMA-4X Thermoplastic Enclosure
2. cULus Labeled
3. Input Power Terminal Block
4. Float Switch Terminal Block
5. Ground Lug
6. Control Side Fuses
7. Control On/Off Switch
8. Lockable Hasp
9. HOA Switch(es)
10. IEC Rated Motor Contactor(s)
11. 120 Volt Control Circuit or Transformer
12. Pump Disconnect(s) and Motor Overload Protection
13. External High Water Alarm Light
14. Audible High Water Alarm Horn
15. High Water Alarm Dry Contact
16. Alarm Test and Silence Switch (Externally Mounted)
17. Green Pump Run Light(s)
18. Capacitors and Start Relay (Single Phase)
19. Alternating Circuit Board (Duplex)
20. Float Status Indicator Lights
21. Seal Fail Relay(s) w/ Indication Thermal Cut-out Circuit(s)

* Standard Options

- ☐ Elapsed Time Meter(s)
- ☐ Event Counter(s)
- ☐ Flasher for High Water Alarm Light
- ☐ Redundant Off
- ☐ Inner Door
- ☐ Lightning Arrestor
- ☐ Anti-Condensation Heater
- ☐ Manual Alarm Reset
- ☐ Automatic Reversing (Grinder Pump Only)
- ☐ Pump Run Dry Contact
- ☐ Seal Fail Dry Contact
- ☐ Main Non-Fused Disconnect
- ☐ Alternator 1-2 Selector Switch

HAZARDOUS LOCATION SERIES** (Class I, Division 1, Group C & D)

- ☐ Commercial Duty Ejectors
- ☐ X61 HD and X62 HD Series
- ☒ X70 & X71 Series Grinder Pumps

Standard Features:

1. NEMA-4X Thermoplastic Enclosure
2. cULus Labeled
3. Input Power Terminal Block
4. Float Switch Terminal Block
5. Ground Lug
6. Control Side Fuses
7. Control On/Off Switch
8. Lockable Hasp
9. HOA Switch(es)
10. IEC Rated Motor Contactor(s)
11. 120 Volt Control Circuit or Transformer
12. Pump Circuit Breaker(s) or Motor Overload Protection w/ Disconnect
13. External High Water Alarm Light
14. Audible High Water Alarm Horn
15. High Water Alarm Dry Contact
16. Alarm Test and Silence Switch (Externally Mounted)
17. Green Pump Run Light(s)
18. Capacitors and Start Relay (1 Phase Models)
19. Alternating Circuit Board (Duplex)
20. Float Status Indicator Lights
21. Seal Fail Relay(s) w/ Indication, Thermal Cut-out Circuit(s), Intrinsically Safe Relays

* Standard Options

- ☐ Elapsed Time Meter(s)
- ☐ Event Counter(s)
- ☐ Flasher for High Water Alarm Light
- ☐ Redundant Off
- ☐ Inner Door
- ☐ Lightning Arrestor
- ☐ Anti-Condensation Heater
- ☐ Manual Alarm Reset
- ☐ Automatic Reversing (Grinder Pump Only)
- ☐ Pump Run Dry Contact
- ☐ Seal Fail Dry Contact
- ☐ Main Non-Fused Disconnect
- ☐ Alternator 1-2 Selector Switch

** Control Panel must be wired according to NEC and located outside the hazardous area.

NEMA 4X CONTROL PANELS ^{1,2,3}
GRINDER PUMPS, 2 - 7-1/2 BHP
AUTOMATIC REVERSING PUMPS

PUMP DATA						SIMPLEX			DUPLEX		
Model Number	HP	Voltage	Phase	Full Load Amps	Panel Amp Range	Part Number	*Weight (lbs.)	*Dimensions H x W x D	Part Number	*Weight (lbs.)	*Dimensions H x W x D
E7011	2	230	1	17.2	15.0-20.0	10-1551	22	14" x 12" x 6"	10-1552	33	16" x 14" x 6"
I7011	2	200	1	20.0	15.0-20.0	10-1551	22	14" x 12" x 6"	10-1552	33	16" x 14" x 6"
J7011	2	200	3	12.3	9.0-14.0	10-1701	26	16" x 14" x 6"	10-1700	30	18" x 16" x 10"
F7011	2	230	3	10.8	9.0-14.0	10-1701	26	16" x 14" x 6"	10-1700	30	18" x 16" x 10"
G7011	2	460	3	5.5	4.0-6.3	10-3850	26	16" x 14" x 6"	10-3299	30	18" x 16" x 10"
BA7011	2	575	3	4.5	4.0-6.3	10-3851	26	16" x 14" x 6"	10-3852	30	18" x 16" x 10"
J7110RV	3	200	3	17.3	17.0-23.0	10-2433	26	16" x 14" x 6"	10-1530	30	18" x 16" x 10"
F7110RV	3	230	3	15.1	13.0-18.0	10-1858	26	16" x 14" x 6"	10-1498	30	18" x 16" x 10"
G7110RV	3	460	3	7.5	6.0-10.0	10-3860	26	16" x 14" x 6"	10-1341	30	18" x 16" x 10"
BA7110RV	3	575	3	6.0	6.0-10.0	10-3851	26	16" x 14" x 6"	10-3852	30	18" x 16" x 10"
J7111RV	5	200	3	20.7	17.0-23.0	10-2433	26	16" x 14" x 6"	10-1530	30	18" x 16" x 10"
F7111RV	5	230	3	18.0	17.0-23.0	10-2433	26	16" x 14" x 6"	10-1530	30	18" x 16" x 10"
G7111RV	5	460	3	9.0	9.0-14.0	10-1701	26	16" x 14" x 6"	10-1700	30	18" x 16" x 10"
BA7111RV	5	575	3	7.2	6.0-10.0	10-3861	26	16" x 14" x 6"	10-3862	30	18" x 16" x 10"
J7112RV	7-1/2	200	3	25.3	23.0-32.0	10-3863	26	16" x 14" x 6"	10-1466	30	18" x 16" x 10"
F7112RV	7-1/2	230	3	22.0	20.0-25.0	10-3864	26	16" x 14" x 6"	10-1790	30	18" x 16" x 10"
G7112RV	7-1/2	460	3	11.0	9.0-14.0	10-1701	26	16" x 14" x 6"	10-1700	30	18" x 16" x 10"
BA7112RV	7-1/2	575	3	9.0	9.0-14.0	10-3865	26	16" x 14" x 6"	10-3866	30	18" x 16" x 10"

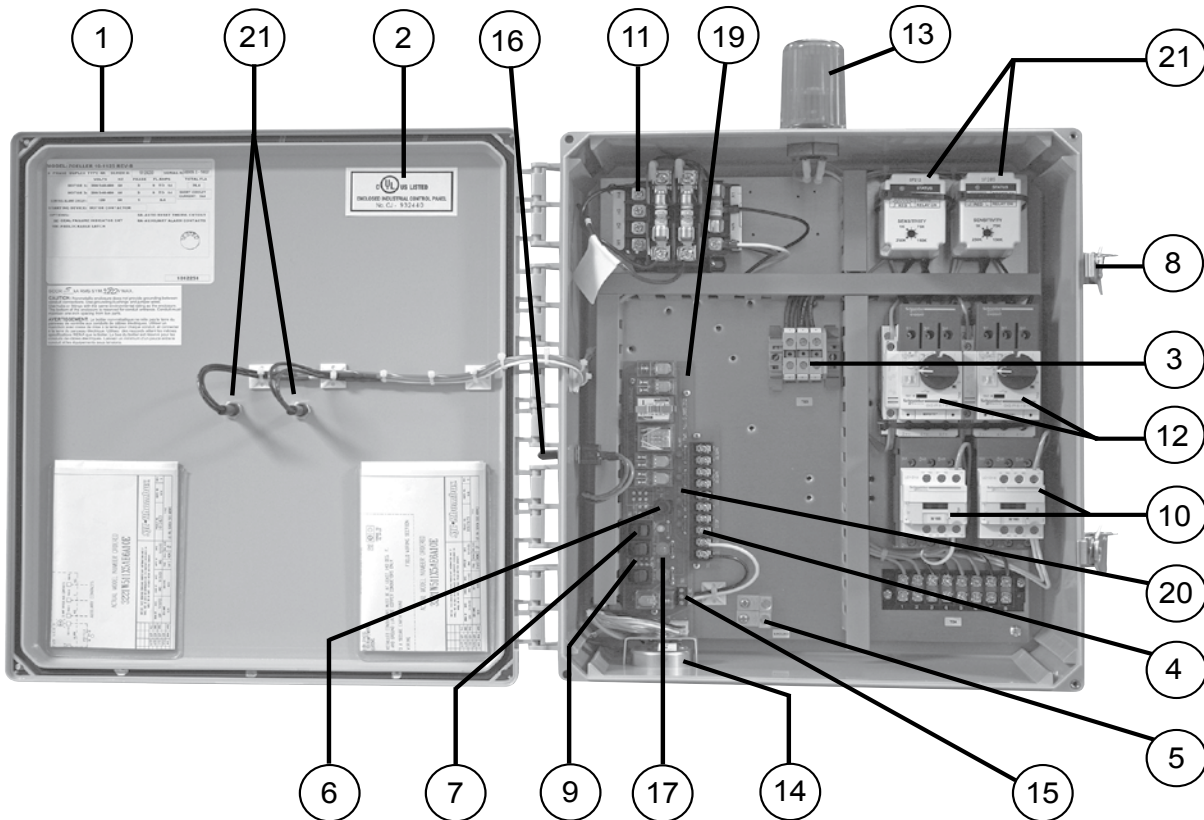
NEMA 4X CONTROL PANELS ^{1,2,3}
INTRINSICALLY SAFE
EXPLOSION PROOF GRINDER PUMPS, 2 - 7-1/2 BHP, AUTOMATIC REVERSING PUMPS

PUMP DATA						SIMPLEX			DUPLEX		
Model Number	HP	Voltage	Phase	Full Load Amps	Panel Amp Range	Part Number	*Weight (lbs.)	*Dimensions H x W x D	Part Number	*Weight (lbs.)	*Dimensions H x W x D
EX7011	2	230	1	17.2	15.0-20.0	10-2709	26	18" x 16" x 10"	10-2713	34	28" x 20" x 10"
IX7011	2	200	1	20.0	15.0-20.0	10-2709	26	18" x 16" x 10"	10-2713	34	28" x 20" x 10"
JX7011	2	200	3	12.3	9.0-14.0	10-2710	25	16" x 14" x 6"	10-2714	31	24" x 16" x 9"
FX7011	2	230	3	10.8	9.0-14.0	10-2710	25	16" x 14" x 6"	10-2714	31	24" x 16" x 9"
GX7011	2	460	3	5.5	4.0-6.3	10-2711	25	16" x 14" x 6"	10-2715	31	24" x 16" x 9"
BAX7011	2	575	3	4.5	4.0-6.3	10-2712	25	16" x 14" x 6"	10-2716	31	24" x 16" x 9"
JX7110RV	2	200	3	17.3	17.0-23.0	10-3870	27	24" x 16" x 9"	10-2759	31	24" x 16" x 9"
FX7110RV	2	230	3	15.1	13.0-18.0	10-3869	27	24" x 16" x 9"	10-2246	31	24" x 16" x 9"
GX7110RV	2	460	3	7.5	6.0-10.0	10-1862	27	24" x 16" x 9"	10-2548	31	24" x 16" x 9"
BAX7110RV	2	575	3	6.0	6.0-10.0	10-3868	27	24" x 16" x 9"	10-3872	31	24" x 16" x 9"
JX7111RV	5	200	3	20.7	17.0-23.0	10-3870	27	24" x 16" x 9"	10-2759	31	24" x 16" x 9"
FX7111RV	5	230	3	18.0	17.0-23.0	10-3870	27	24" x 16" x 9"	10-2759	31	24" x 16" x 9"
GX7111RV	5	460	3	9.0	9.0-14.0	10-2710	27	24" x 16" x 9"	10-2714	31	24" x 16" x 9"
BAX7111RV	5	575	3	7.2	6.0-10.0	10-3868	27	24" x 16" x 9"	10-3872	31	24" x 16" x 9"
JX7112RV	7-1/2	200	3	25.3	24.0-32.0	10-3871	27	24" x 16" x 9"	10-1913	34	28" x 20" x 10"
FX7112RV	7-1/2	230	3	22.0	17.0-23.0	10-3870	27	24" x 16" x 9"	10-2759	34	28" x 20" x 10"
GX7112RV	7-1/2	460	3	11.0	9.0-14.0	10-2710	27	24" x 16" x 9"	10-2714	31	24" x 16" x 9"
BAX7112RV	7-1/2	575	3	9.0	9.0-14.0	10-3867	27	24" x 16" x 9"	10-3873	31	24" x 16" x 9"

- NOTES:**
- (1) Single phase panels have starting capacitors and relays mounted in the enclosure. Therefore, these panels can only be used with Zoeller pumps.
 - (2) Three phase panels up to 20-25 amps have multi-tap transformers for 200-230-460 volt applications and are selected based on pump features and rated full load amps (FLA).
 - (3) The above listed panels meet our standard configurations. If any standard or nonstandard options are required, consult factory.
- *Weights and dimensions are approximations and could vary.

TYPICAL DUPLEX CONTROL PANEL FEATURES

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. NEMA-4X Thermoplastic Enclosure 2. cULus Labeled 3. Input Power Terminal Block 4. Float Switch Terminal Block 5. Ground Lug 6. Control Side Fuse 7. Control On/Off Switch 8. Lockable Hasp 9. HOA Switch(es) 10. IEC Rated Motor Contactor(s) 11. 120 Volt Control Circuit Transformer
Used on 3 Phase Panels | <ol style="list-style-type: none"> 12. Pump Disconnect(s) and Motor Overload
Protection (3 Phase and Large Single Phase) 13. External High Water Alarm Light 14. Audible High Water Alarm Horn 15. Dry Auxilliary Contacts For High Water Alarm 16. Alarm Test and Silence Switch (Externally Mounted) 17. Green Pump Run Light(s) 18. Capacitors and Start Relay (Not pictured) 19. Alternating Circuit Board (Duplex) 20. Float Status Indicator Lights 21. Seal Fail Relay(s) (set at 110K*) w/ Indication
Thermal Cut-out Circuit(s) |
|--|--|



*Should be verified at time of installation.

NON STANDARD OPTIONS

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

ZOELLER 
ENGINEERED PRODUCTS

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zoellerengprod.com

Wireless Real-Time Alarm System

Identify problems quickly with real-time alarms

Purpose-Built Hardware Is Easy to Install

Each M110 is a complete wireless monitoring system. It includes the necessary hardware for installation, such as a cellular radio, enclosure, backup battery, transformer, antenna with cable and mounting hardware. Standardized RTUs speed and simplify installation.

Reliable Wireless Communications

RTUs operate on current generation (2G, 3G and 4G) cellular radios for dependable data transmissions. Mission maintains direct relationships with the largest cellular carriers in the U.S. and Canada to ensure the best service possible. There are no radios to program, cellular contracts to set up or radio licenses to purchase and maintain.

Real-Time Alarms for Problem Identification

Real-time alarms are delivered via phone, text message, email, fax, pager and even to your existing HMI software via an OPC data link. Each alarm is logged with a timestamp on your web portal for tracking and reporting. Settings can be tailored to better fit your alarming needs. The alarm call out schedule setup is easy, flexible, and intuitive. With a variety of options, you can design it to be simple or sophisticated. Numerous alarm features save time and money.

Managed Service - The Complete Package

The Mission service includes all communications, data storage, alarm call outs, reports and technical support. Alarm conditions are reported in real-time. Pump runtimes and pump data are summarized hourly. Analog data and RTU status are reported hourly. No engineering or programming is required and there are no networks to maintain.

Robust and Secure Web Portal

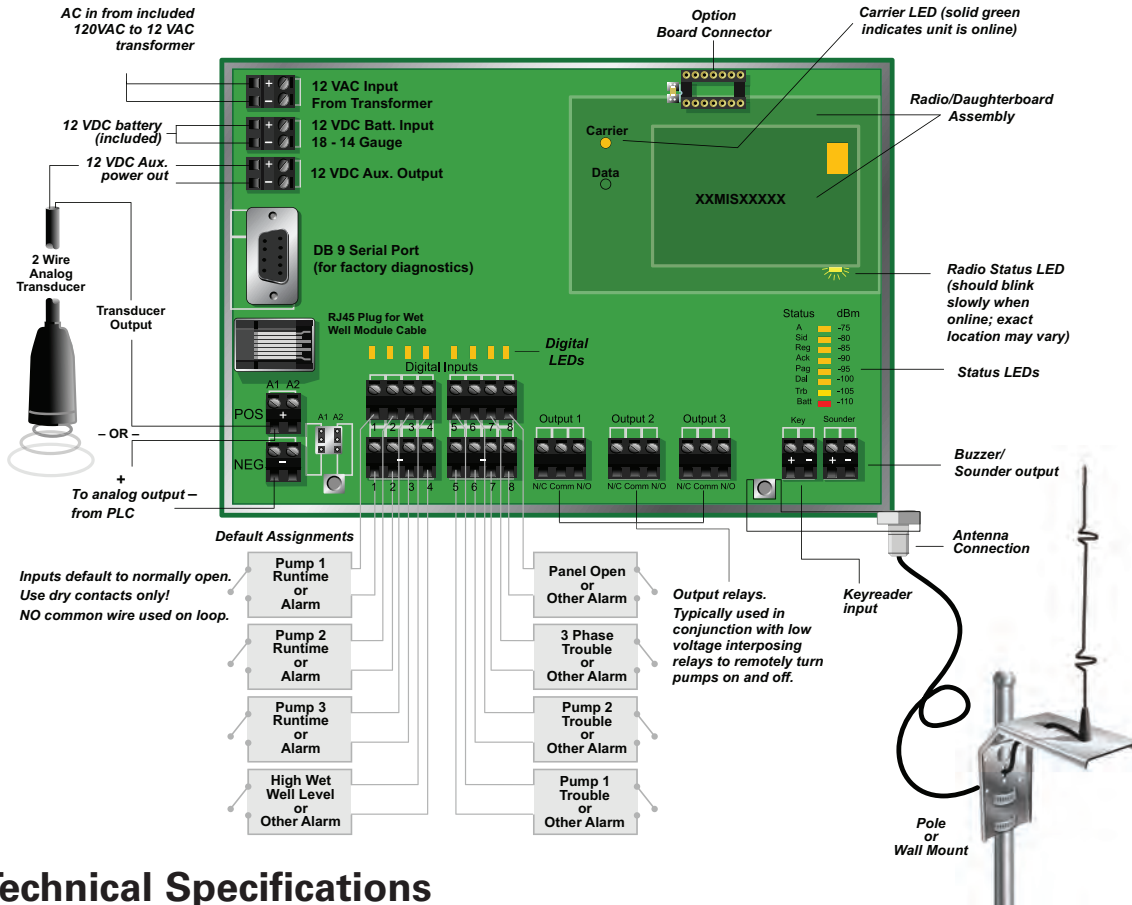
Data and reports are accessible on your secure web portal from any web-enabled device. This includes desktops, smartphones and tablets. Because the system is web-based, enhancements are immediately available and included at no cost. Tabular and graphical reports can be used for CMOM programs, compliance reports and comparative studies. Historical data is archived and never discarded. Refer to the Managed SCADA document for further details..

Flatpak NEMA 1 enclosure option shown

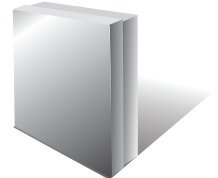


- Easy to Install
- Identify Problems With Real-Time Alarms
- Secure Data Transmission
- Managed Service Includes Communications, Alarm Call Outs and Web Portals
- Data and Reports Accessible from Desktops, Smartphones and Tablets

Details



Outdoor NEMA 4X enclosure:
Front sun shield
13.25"l x 6.25"w x 13.75"h
(with sun shield)



NEMA 1 enclosure:
11.375"l x 3.5"w x 11.25"h
Use indoors, wall mounting



Flatpak NEMA1 enclosure:
10.5"l x 1.5"w x 7.75"h
Use inside MCC cabinet

Technical Specifications

Hardware:

- 8 supervised digital inputs; 3 configurable to runtime/starts accumulators. Option board expands digital inputs to 16.
- 2 analog inputs: 4-20 mA or 0-5 VDC, 10-bit resolution, 4 real-time alarm set points per input. Option board expands analogs to 6.
- 4 built-in alarms (AC, low battery, temperature and communications fail).
- 1 electronic key reader for site activity tracking and service mode.
- 3 remotely controllable, form C dry contact relay outputs (1 amp @ 12 VDC), SPDT, N.O./N.C.
- Supervised 120 VAC to 12 VAC, 1.2 amp power supply with UL Recognized Class II / Class III transformer.
- 5 AH battery provides up to 40 hours of back up power.
- Includes Antenna Kit (PN R8005) with mounting bracket and 11' of cable. Omnidirectional outdoor antenna can be wall or pole mounted.
- 8 vertical LEDs for diagnostics.
- 8 digital input LEDs display input status and wiring faults.
- RJ45 connection for optional Wet Well Module (PN 651).

Radio:

- Units automatically self enroll with no startup delays. Radios make live, continuous, encrypted socket connections with all data and alarms being "end-to-end" acknowledged. Mission does not use SMS "text" messaging to transmit RTU data.
- AT&T, Verizon and Sprint radios have 128-bit encryption. All use TCP data transmission protocol.
- GSM: HSPA+ (ATT 3.5G and lower) Penta band (850, 900, 1700, 1900, 2100 MHz).

- CDMA: 1XRTT.

- 0.6 to 2 watt maximum transmit power and -112 dBm sensitivity.

Data Frequency:

- Digital alarm inputs and analog alarm set points: real-time.
- Digital runtime inputs: summarized hourly.
- Built-in telemetry and analog inputs: reported hourly.

Physical:

- Operating temperature -20F° to +160F°.

Hardware Options:

- Option Board - Digital Input (PN 650).*
- Option Board - Analog Input and Pulse Input (PN 459).*
- Option Board - Analog Output (PN 459).*
- Option Board - Pulse Input (PN 463).*
- Option Board - Analog Output and Pulse Input (PN 01000).*
- Wet Well Module (PN 651).
- Refer to Option Board and Wet Well Module data sheets for specifications; additional accessories described in the Accessories brochure.
- *One option board per RTU.

Software

- Requires Service Package - M110 Series (PN 51X).
- Optional SCADA Integration OPC Link (PN 586) to client/server HMI.

Warranty:

- RTUs include a 1 year manufacturing and material warranty.



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Flow solutions since 1898



HAYES PUMP, INC.

**66 Old Powder Mill Road
West Concord, MA 01742
PH: 978-369-8800
FAX: 978-369-8461**

November 9, 2018

Mr. Christopher J. VanDenBerghe, EIT
Outback Engineering, Inc.
165 East Grove Street
Middleborough, MA 02346

Subject: Pumping Station No. 2
Medway, Massachusetts

Gentlemen:

We are pleased to furnish the following budget quotation for a complete OneLift package pumping station your project in Medway, Massachusetts:

One (1) - OneLift Model RC509x2410-0-300-4P2-0B pump station package.

Outfitting standard material and labor: pumps, piping, valves, couplings, supports, fasteners, drains, hatches, ladder, guide rails, duplex pump controls – see details listed below.

Optional & specialty equipment packages as may be listed below.

Freight - Flatbed delivery to jobsite included, off-loading by others.

Overview:

OneLift submersible pump station with integral valve vault will be preassembled as a complete package, prior to delivery to ensure the proper fit for concrete and all components. Oldcastle Precast will incorporate and pre-install all equipment in our factory minimize re-assembly time and potential problems in the field.

Precast Structure: integral valve vault, interior fillet and exterior anti-floatation collar:
Overall exterior height: 25'-6".

Maximum pick weight: 11-tons

Hatch Loading: 300# Pedestrian rated access hatches

Selected Standard Options:

- None

Selected Special Non-standard Options:

- None

Pump Equipment: Duplex 5 HP SFV Vortex submersible pumps supplied by Hayes Pump, Inc. and factory installed by Oldcastle Precast.

- Clarification: pump base elbows and rail support system to be shipped to Oldcastle Precast for factory installation with package piping system. Pumps to be shipped to jobsite for installation by others

Controls package: Duplex 5 HP 480v, three phase control panel equipment with FVNR motor starters, supplied by Hayes Pump, Inc.

- Clarification: pump control NEMA 4X panel to be shipped with all level control sensors (floats) to the Jobsite for installation and wiring by site electrician. **Also included is Mission M110 Cellular RTU for alarm notification per TRS 16.**

Standard equipment Included:

- Installation of (2) submersible sewage pump base elbows for pump as described above.
- 4" Interior PVC discharge piping, fittings and SS hardware for flange packs as required to common pump station discharge (ending plain-end approx. 4" outside of station). DI piping & fittings to be supplied tar-coated as received from the manufacturer, unless stated otherwise in options above.
- (2) Flanged check valves (L&W), epoxy coated as supplied by the manufacturer
- (2) Flanged round port plug valves w/lever operator, epoxy coated as supplied by the manufacturer
- (2) floor pipe stands in valve vault, galvanized
- (1) Valve vault drain w/trap & back water valves to pump station
- (1) Wall-mounted aluminum ladder in valve vault
- (1) Manhole boots as required for discharge piping
- Manhole boot(s) as required for inlet(s) (customer to verify elevation and location, 1-inlet assumed)
- (1) 30" x 36" aluminum valve vault access hatch, loading as selected above
- (1) 1 1/2" SCH 40 PVC hatch drain from valve vault hatch to pump station
- (1) 30" x 48" aluminum pump access hatch with safety grating, loading as selected above
- (2) Sets 2" 304 Stainless steel pump removal guide rails, SCH40 (upper/intermediate guide brackets as required).
- 4-gang electrical coupling plate mounted to station for incoming electrical conduit and conductors (for pumps and level controls). Exterior conduits to station, pulling of conductors to local pump control panel by others.
- (1) 4" Sch80 PVC gooseneck passive vent piping with SS insect screen (final glue fitting to station completed in the field by others).
- **Select Standard and Special Optional packages as listed above.**

Standard Services:

- Delivery of OneLift to the job site on flatbed trailers (off-loading by others)
- Concrete chamber (compressive strength) tests by Oldcastle Precast for minimum 5000 psi at 28 days.
- Structural calculations for structures stamped by a Professional Engineer (State Specific), if required by project specifications.
- Detailed project submittal packages and O & M manuals (electronic versions) for equipment supplied.
- Warranty for (1) year from date of start-up or 18 months from date of factory completion, whichever occurs first.

Excludes:

- All work and appurtenances external to the above mentioned structures and not specifically quoted
- Site mounting and wiring of pump control panel to pump station.
- Site installation and wiring of submersible pumps
- Site adjustment and wiring of level control/alarm devices
- All permits and costs for local inspections.
- All components not standard to the OneLift product as proposed.

- All site re-assembly of equipment disassembled or shipped loose

Special Notes:

- Delays in returning approved shop drawings to Oldcastle Precast, which delays the release of this material into production may result in a price increase and delay in shipment.
- Contractor to verify layout and all project elevations and locations at submittal start date.
- Pump station inlet(s) opening(s) for manhole boot(s), which requires location too close to, or over structural joints, will require location coring in the field after structure installation, by others.

Submittals: Structural/mechanical: 3 Weeks

Pumps & Control Panel: 3 Weeks

Delivery: Equipment as listed above: 6-8 Weeks after approval of submittal

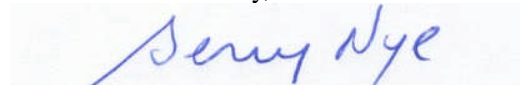
- Delivery to jobsite jobsite 2-loads, off-loading by others

BUDGET PRICE DELIVERED.....

Budget price quoted above is for equipment only. Installation, including wiring, shall be by others. Price is FOB factory with freight allowed. Price quoted is plus MA sales tax when appropriate.

We thank you for the opportunity of furnishing this budget proposal and trust that you will find the above and the attachments complete and satisfactory. If you have any questions on the above quotation, please do not hesitate to contact me.

Sincerely,



Gerry Nye
Manager, Pumping Station Sales

Attachment

Cc: Karen Derby, Ken Pasco

HAYES PUMP, INC. TERMS AND CONDITIONS

GENERAL

The following terms and conditions, including those on the front side of this document, shall constitute the entire Agreement for the Purchase and sale of Hayes Pump's products. Any acceptance contained herein is made expressly conditional upon the Purchaser's assent to the terms which are different from, in addition to, or vary the terms contained in the Purchaser's purchase order or request for quotations. Such assent shall be deemed to occur upon the failure of the Purchaser to object in writing specifically to such term or terms within 14 days from the receipt hereof. Any terms and Conditions in the Purchaser's purchase order or request for quotation which are different from, in addition to, or vary Hayes Pump Terms and Conditions shall not be binding upon Hayes Pump, and Hayes Pump hereby objects thereto.

Changes

Prior to the date of delivery of any product or products thereunder, the Purchaser shall have the right to make changes in its order only if Hayes Pump receives written notice of the desired changes and accepts the additional charge therefore as determined by Hayes Pump. Changes which interfere with or after Hayes Pump's production or delivery schedules will not be acceptable unless the time for performance is extended for such a period as deemed necessary by Hayes Pump. Failure of Hayes Pump to accept a Purchaser's request to change its purchase order shall not be cause for Purchaser's cancellation of this order.

Cancellation

(a) Hayes Pump shall have the absolute right to cancel this Agreement upon breach thereof by the Purchaser, failure by the Purchaser to make any payment required by this Agreement, or the insolvency or bankruptcy of the Purchaser.

(b) Orders are not cancelable by Purchaser unless and until all cancellation provisions, if any, are agreed to by Hayes Pump in writing and all cancellation charges, if any, have been paid by Purchaser.

Limited Warranties

(a) Except as set forth in the following paragraph, the only warranties on products and systems sold by Hayes Pump are the warranties, if any, by the respective manufacturers for such products and systems. Reference should be made by Purchaser to the terms of such manufacturer's warranties for the conditions thereof. In the event Hayes Pump has modified, altered or fabricated any of the products or systems sold by it, Hayes Pump warrants that such modification, alteration or fabrication shall be free of defects in material or workmanship for one year from shipment to Purchaser. As to such warranties by Hayes Pump at its option, its liability is limited exclusively to making replacement or repairs or to refunding the price for such modifications, alteration or repairs (actual or attempted) to the products or systems supplied by Hayes Pump shall void all warranties of Hayes Pump unless Purchaser has obtained prior written authorization from Hayes Pump consenting to such modifications or alterations.

(b) HAYES PUMP MAKES NO OTHER WARRANTY. ALL OTHER WARRANTIES, ORAL OR WRITTEN, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A SPECIFIC PURPOSE, ARE HEREBY EXCLUDED AND DISCLAIMED. IN NO EVENT SHALL HAYES PUMP BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

(c) Hayes Pump employees are not authorized to warrant the suitability of products or systems for any particular application.

(d) Hayes Pump reserves the right to inspect products claimed defective under warranty either at the Purchaser's location or at an office of Hayes Pump. A defective product is not to be returned to Hayes Pump's office unless authorized by Hayes Pump. Products so returned shall be returned to Hayes Pump's office, freight prepaid. Any products which within one year from date of shipment prove defective due to faulty modifications or alterations made by Hayes Pump will be replaced or repaired free of charge, F.O.B. Hayes Pump's office, West Concord, Massachusetts. Hayes Pump assumes no liability for labor charges incidental to the adjustment, service, repairing, removal or replacement of the product or other costs, or for the expense of repairs made outside of its factory except when made pursuant to Hayes Pump's prior written consent. Hayes Pump, at its option, may ship a replacement or replacements immediately under standard billing and make warranty adjustment after inspection of the defective product by means of credit memorandum.

Delays

Hayes Pump shall not be liable for damages for delays in performance due to circumstances beyond its reasonable control, including without limiting the generality of the foregoing, any priority system established by any agency of the United States Government, fires, energy shortages, floods, storms, and other acts of God, accidents, strikes, insurrections, war, shortage of materials, lack of transportation and failure of performance of subcontractors and/or suppliers for similar reasons. Failure of Hayes Pump to perform for these reasons aforesaid shall not be grounds for Purchaser's cancellation of its order but the delivery date shall be extended accordingly.

Limitation of Liability

No claim made hereunder by the Purchaser, whether as to goods delivered or for non-delivery, shall be greater than the purchase price of the goods in respect of which such claim is made.

Taxes

All applicable federal, state or local sales, use, or excise taxes are the responsibility of the Purchaser and shall be in addition to the price or prices stated on the front side of this document unless specifically stated. Hayes Pump shall have the right to invoice separately any such tax as may be imposed at a later time. Applicable tax exemption certificates must accompany any order to which the same applies.

Payment Terms; Delivery

(a) CASH PAYMENT NET 30 DAYS. A FINANCE CHARGE AT THE MAXIMUM RATE ALLOWED BY LAW WILL BE CHARGED ON BALANCES WHICH ARE OVER 30 DAYS.

(b) F.O.B. - SHIPPING POINT UNLESS OTHERWISE STATED. ALL RISK OF LOSS OF DAMAGE SHALL PASS TO PURCHASER UPON DELIVERY OF THE PRODUCT TO THE CARRIER.

Miscellaneous

(a) This Agreement may not be assigned or otherwise transferred by Purchaser without the prior written consent of Hayes Pump, and any such assignment or transfer without such prior written consent shall be null and void and of no force whatsoever.

(b) Hayes Pump's failure to insist, in one or more instances, upon the performance of any term or terms of this Agreement shall not be construed as a waiver or relinquishment of its right to such performance or the future performance of such term or terms, Purchaser's obligation with respect thereto shall continue in full force and effect.

(c) Any notice or other communication required or permitted hereunder shall be sufficiently given if sent in writing by registered or certified mail, postage prepaid, to the other party thereto at its respective address first above written. Any such notice, if so mailed, shall be deemed to have been received on the third business day following such mailing. Either party hereto may change its address for notice purposes by written notice to the other party.

(d) The paragraph heading in this Agreement are used for convenience only. They form no part of this Agreement and are in no way intended to alter or affect the meaning of this Agreement.

(e) This Agreement may be amended at any time by mutual agreement of the parties hereto by a written amendment to this Agreement signed by each of them.

(f) The invalidity, in whole or in part, of any provision of this Agreement shall not affect the validity or enforceability of any other of its provisions.

(g) This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

DISCHARGE MANHOLE

INVERT ELEV= 272.04

DIA= 4"

FORCE MAIN
204'

SEWER MANHOLE OUTLET ELEV= 272.0

MINIMUM WATER LEVEL= 253.5

STATIC HEAD= 18.6

EQUIVALENT LENGTH= 450'

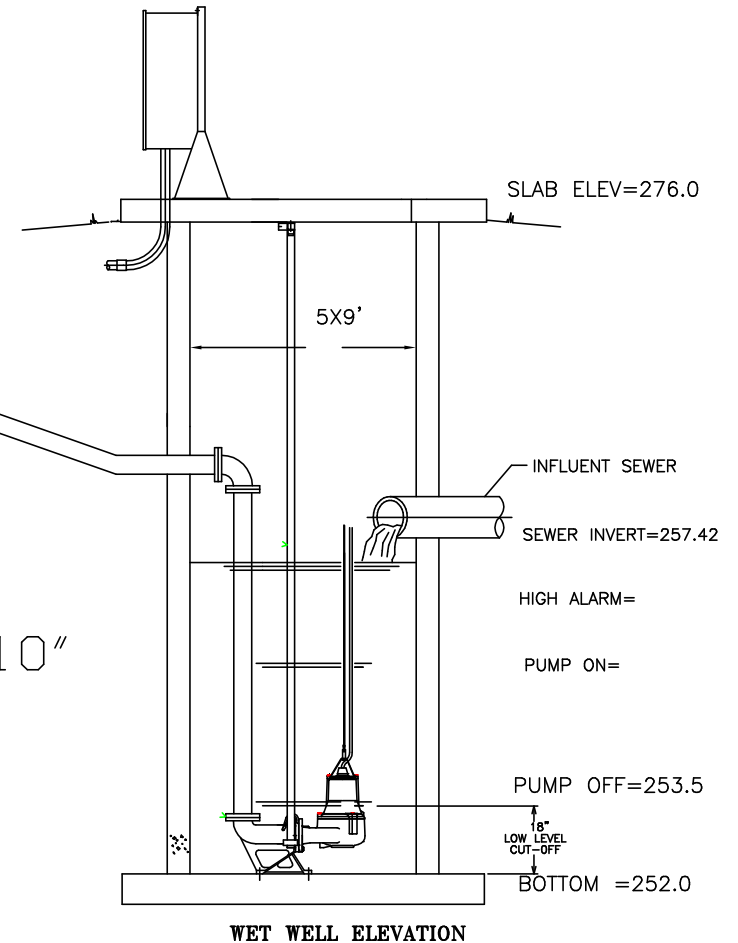
DESIGN FLOW= 160 GPM

DISCHARGE FRICTION= 7.6

STATIC DISCHARGE HEAD= 18.6

TOTAL DYNAMIC HEAD= 26.2'

24' - 10"



HAYES PUMP, INC.
West Concord, Massachusetts 01742

Dwn By: GDN	Date: 06/09/93	Title: SUB DESIGN DATA	
Revised: GDN	03/15/04		
Scale: NDT TO SCALE		FOR: MEDWAY PS #2R	
		Drawing Number: SUB DESIGN. PDF	Rev. 0

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Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: Z3.30.146

ZM2582

0818

Supersedes

1017

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
 (502) 778-2731 • 1 (800) 928-PUMP • **FAX** (502) 774-3624

visit our web site:
zoellerengineered.com



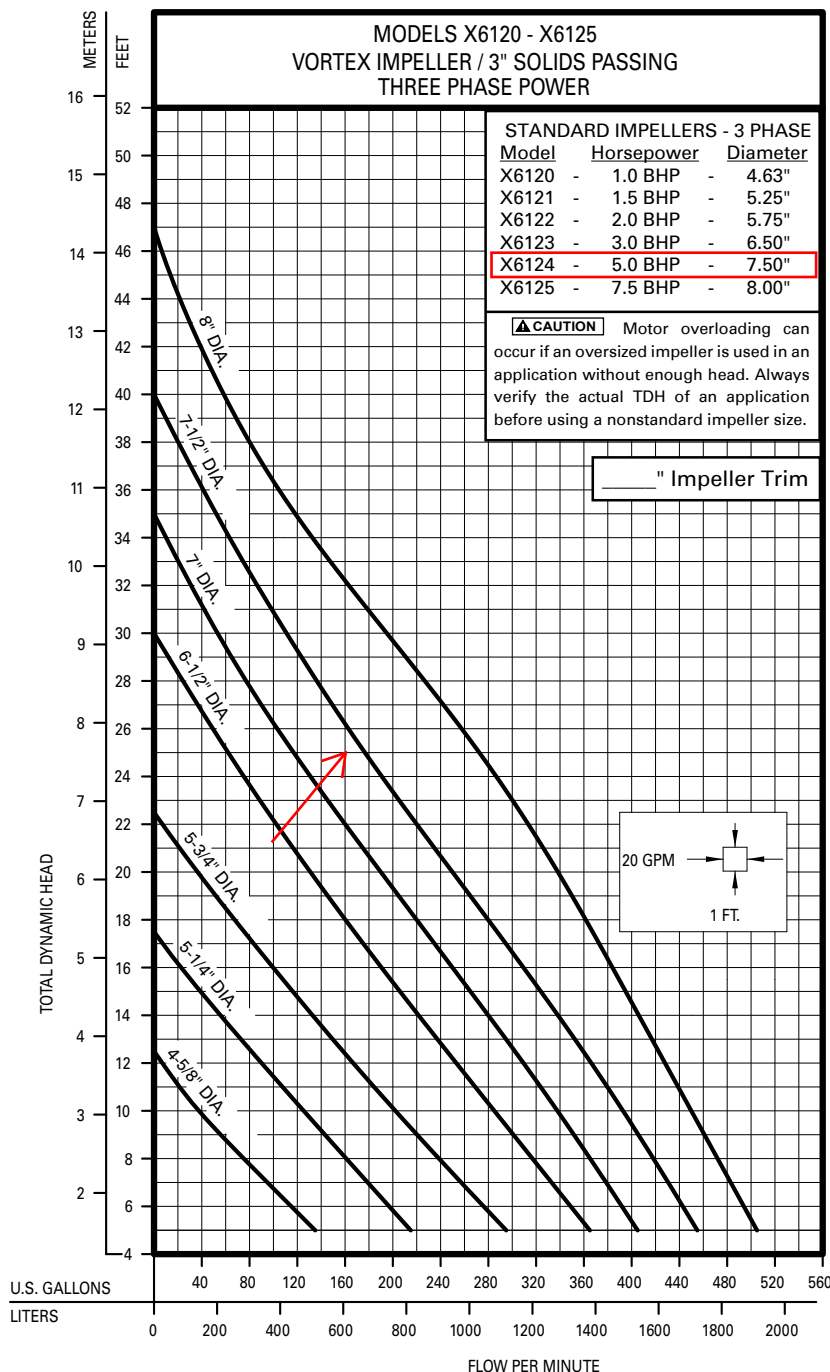
X61 HD HAZARDOUS LOCATION SERIES

CLASS I, DIVISION 1, GROUP C & D

PERFORMANCE DATA

1 - 7.5 BHP / 1750 RPM / 3 Phase

4" Horizontal Flanged Discharge



A00668X

X61 HD HAZARDOUS LOCATION SERIES

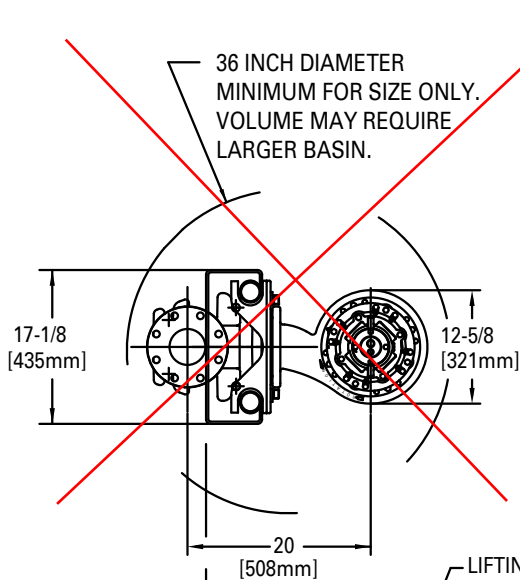
CLASS I, DIVISION 1 GROUP C & D

DIMENSIONAL DATA

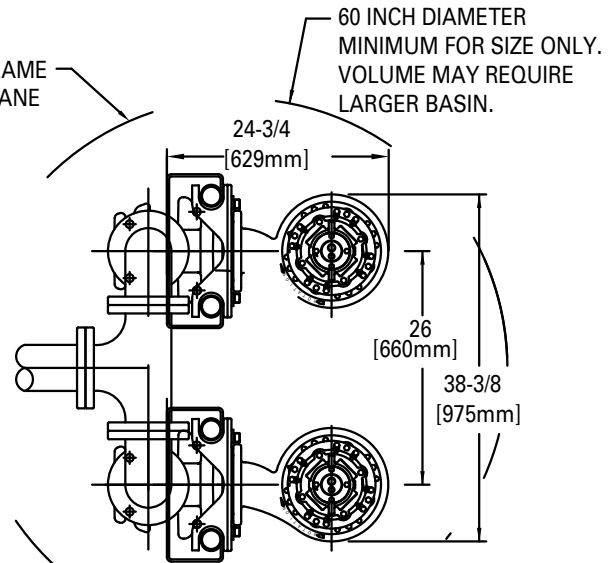
4" Flanged Discharge Units

P/N 39-0155 Rail Mounted

MODELS: X6120-X6125



DOOR FRAME
REF. PLANE



SIMPLEX INSTALLATION

DOOR FRAME
REF. PLANE

5-1/16 [129mm]
Ø1/2 - 2 HOLES

2" GUIDE RAIL
(BY OTHERS)

1 [25mm]
5 [127mm]

4 INCH CHECK VALVE
P/N 6030-0203

15-3/4 [400mm]

4 INCH-125 LB
ANSI FLANGE

3/4 [19mm]
12 [305mm]

30-3/8 [772mm]

LIFTING CABLE
S.S. OR GALV. STL.
(OPTIONAL)

CABLE CONNECTOR
S.S. OR GALV. STL.
(OPTIONAL)

Ø.48
[12mm]

2 [51mm]

37-3/16
[944mm]

1-5/64
[27mm]

9-3/16 [233mm]
6-1/16 [154mm]
6-9/16 [166mm]

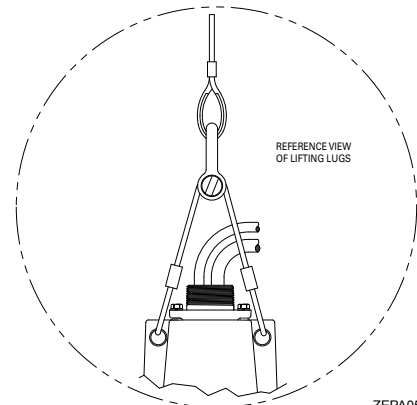
LIFTING HEIGHT = 46-13/16
(WITHOUT CABLE CONNECTOR)
LIFTING HEIGHT = 49-7/16
(WITH CABLE CONNECTOR)

DUPLEX INSTALLATION

DIMENSIONS BASED ON STANDARD ANSI FITTING SIZES
CHECK VALVES REQUIRED, NOT SHOWN FOR CLARITY
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

FLA	DIAMETER
<20	.68 [17mm]
>20	.96 [24mm]

1-1/2" NPT CONDUIT CONNECTION



ZEPA0570

FOR 2-1/2" SOLID HANDLING PUMPS
FOR 3" SOLID HANDLING PUMPS



X61 HD HAZARDOUS LOCATION SERIES

PRODUCT FEATURES

CLASS I, DIVISION 1, GROUP C & D


3" & 4" Flanged Horizontal Discharge Units



Certified to CSA Standard
C22.2 No. 145

Covered by US Patent Number 6,364,620.

APPLICATIONS:

- Pumping Stations
- Storm Water Removal
- All Wastewater Removal
- Industrial Waste
- Food Industry By-Product
- Animal Processing Removal
-  **WARNING:** Not for use in acidic atmospheres.



SPECIFICATIONS PUMP:

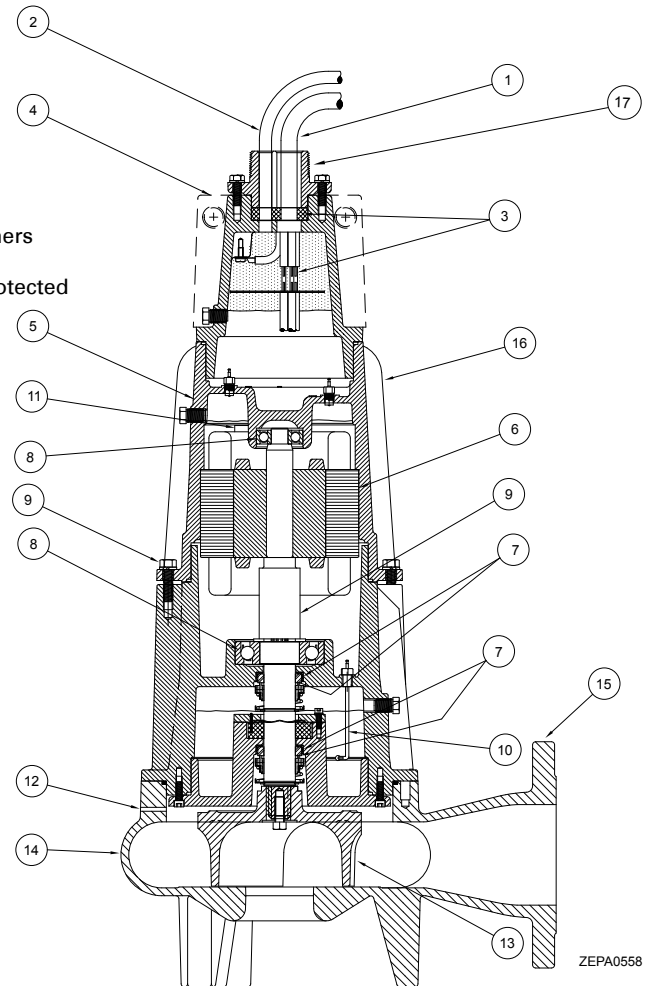
- Solids - 2-1/2" spherical capability
- Discharge Size - 3" & 4" Flanged horizontal
- Seals - dual mechanical carbon/rotary ceramic/stationary, Buna-N elastomers
- Moisture detection system
- Construction - Cast Iron ASTM A-48, Class 30, 30,000# tensile strength, protected with a corrosion resistant baked on epoxy powder coating.
- Balanced concentric pump housing and impeller
- Attaching Hardware - 304 stainless steel
- "O" Ring Seals: Buna-N
- Ductile Iron Impeller - 2 blade semi-open with top pump out vanes

Optional:

- | | |
|--|---|
| <input type="checkbox"/> Trimmed Impeller | <input type="checkbox"/> 3450 RPM High Head Units (3" discharge units only) |
| <input type="checkbox"/> Vortex Impeller | <input type="checkbox"/> 3" solids capacity (4" discharge units only) |
| <input type="checkbox"/> Bronze Impeller | <input type="checkbox"/> Inverter Duty Motor (not CSA listed) |
| <input type="checkbox"/> Silicon Carbide Seal(s) | |
| <input type="checkbox"/> 50' Power and Sensor Cables | |
| <input type="checkbox"/> Non-sparking Rail Systems | |

MOTOR:

- FM and cCSAus rated Class I, Division 1, Group C & D construction
- 1 Phase - 230 Volt, 1750 RPM
- 3 Phase - 200/230/460/575 Volt, 1750 RPM
- Stator - Class F insulation and lead wires NEMA B design
- Oil-filled motor housing
- Thermal sensor
- Ball Bearings - Dual high carbon chromium steel
- Power and sensor cable length - 25'



ZEPA0558

STANDARD FEATURES:

1. 25' of heavy duty power cord
2. 25' of heavy duty sensor cord
3. Specially designed splices and potted cord entry system provides strain relief and prevents wicking of liquids into the housing.
4. Lifting lug integral part of housing (orientation 90° from illustrated view)
5. Finned oil-filled explosion proof rated motor housing assures uniform heat distribution, lubricates bearings, and conducts heat for cooler running.
6. Heavy duty explosion proof rated motor features ball bearing construction. Class F motor insulation is double dipped and baked. End connections and lead wires are Class F. At maximum load, winding temperature will not exceed 250 °F with motor housing not submerged.
7. Tandem seals, Carbon/rotating, ceramic/stationary, Buna-N elastomers

8. Upper and lower high carbon chromium steel ball bearings
9. Stainless steel shaft and hardware resists corrosion
10. Patented moisture detection system with upper and lower probes, protecting the motor from liquid entry
11. Thermal sensor will deactivate pump if internal motor temperature reaches 250 °F
12. Vent hole helps prevent air locking
13. Balanced Ductile Iron 2 vane semi-open impeller with top pump out vanes for seal protection. Keyed and bolted to shaft
14. Concentric volute reduces radial loading for longer bearing and seal life.
15. 3" and 4" flanged horizontal discharge available
16. Entire unit protected with a corrosion resistant powder coated epoxy finish.
17. 2" male NPT conduit connection

For information on additional Zoeller products refer to catalog on Non-Sparking Rail Systems ZM1347; Control Panels ZM1342 and ZM1343; Float Switch Brackets ZM1328; Pump Lifting Cables ZM1328; Check Valves and Piping Accessories ZM1348.

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Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: Z3.30.110

ZM2196

1017

Supersedes

0817

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:
zoellerengprod.com



X61 HD HAZARDOUS LOCATION SERIES

TECHNICAL DATA
CLASS I, DIVISION 1, GROUPS C & D
1 - 7-1/2 HP / 1750 RPM



Patent No.
6,364,620

MODEL NUMBER:	<input type="checkbox"/> X6120	<input type="checkbox"/> X6121	<input type="checkbox"/> X6122	<input type="checkbox"/> X6123	<input checked="" type="checkbox"/> X6124	<input type="checkbox"/> X6125
PUMP NAME PLATE HORSEPOWER: BHP	1.0	1.5	2.0	3.0	5.0	7.5
SERVICE FACTOR:	1.2	1.2	1.2	1.2	1.2	1.0
NEC LOCKED ROTOR CODE:	M	J	K	F	E	C
MAXIMUM KW INPUT:	1.4	1.9	2.4	3.5	5.5	6.9
3 PHASE IMPELLER DIA.: in (mm) STANDARD	4-7/8" (124 mm)	5-3/8" (137 mm)	5-3/4" (146 mm)	6-3/8" (162 mm)	7" (178 mm)	7-1/2" (191 mm)
DISCHARGE SIZE:	<input type="checkbox"/> 3" NPT Vertical <input type="checkbox"/> 3" Horizontal Flange <input type="checkbox"/> 4" Horizontal Flange					

SOLID SIZE: in (mm)	2-1/2"(64 mm) OPTIONAL <input type="checkbox"/> 3"(76 mm)	TANDEM SEALS:	Standard
IMPELLER TYPE:	Ductile iron Semi-open OPTIONAL <input type="checkbox"/> Ductile iron Vortex <input type="checkbox"/> Bronze Semi-open	MOTOR DESIGN LETTER:	NEMA B
FLANGE:	ANSI B16.1	POWER & SENSOR CORD LENGTH: ft(m)	25' (7.6 m)
PUMP NET WEIGHT: lbs(kg)	295 lbs. (134kg)	OPTIONAL CORD LENGTH:	<input type="checkbox"/> 50' (15.2 m) <input type="checkbox"/> _____'
MOTOR SHAFT	416 SS	POWER/SENSOR CORD:	#12-4 SO* / #18-5 SO**
RPM:	1750	STATOR & LEAD WIRES INSULATION:	Class F
MOTOR TYPE:	Submersible Explosion Proof	MAXIMUM STATOR TEMPERATURE:	311 °F (155 °C)
<input type="checkbox"/> *** Inverter Duty Submersible (1-5 BHP ONLY)			

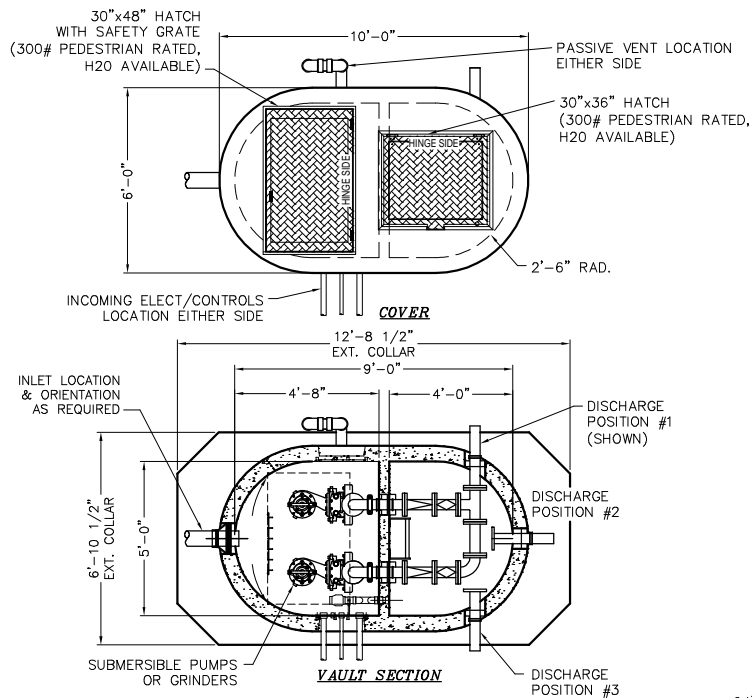
SHAFT SEAL CONSTRUCTION:	STANDARD	CARBON/CERAMIC
	OPTIONAL UPPER	<input type="checkbox"/> CARBON /SILICON CARBIDE <input type="checkbox"/> SILICON CARBIDE/SILICON CARBIDE
	OPTIONAL LOWER	<input type="checkbox"/> CARBON /SILICON CARBIDE <input type="checkbox"/> SILICON CARBIDE/SILICON CARBIDE
O-RING ELASTOMERS	STANDARD	BUNA-N
	OPTIONAL	<input type="checkbox"/> VITON
SENSING DEVICES**	MOTOR THERMAL SHUTOFF	THERMAL SENSORS
	MOISTURE DETECTION	MOISTURE SENSING PROBES
IMPELLER TRIM:	OPTIONAL	<input type="checkbox"/> DESIGN POINT: _____ GPM @ _____' TDH, IMPELLER DIA. _____"
RECOMMENDED FLUID LEVEL FOR CONTINUOUS OPERATION: in (m)	24" (0.6 m) (FOR CONTINUOUS DUTY, REFER TO WARRANTY)	
MAXIMUM WATER TEMPERATURE FOR CONTINUOUS OPERATION:	104 °F (40 °C)	

* Models with a FLA greater than 20 amps use #8-4 gauge power cord.

** Requires a circuit in control panel to function.

*** 30-60 Hz, NEMA MG-1 Part 30 (not CSA listed), 230/460 Volt, 3 Ph models only

MODEL	BHP	SERVICE FACTOR	<input type="checkbox"/> 230V / 1 PH		<input type="checkbox"/> 200V / 3 PH		<input type="checkbox"/> 230V / 3 PH		<input type="checkbox"/> 460V / 3 PH		<input type="checkbox"/> 575V / 3 PH	
			FLA	LRA	FLA	LRA	FLA	LRA	FLA	LRA	FLA	LRA
X6120	1	1.2	6.9	48.0	4.8	32.0	4.2	28.0	2.1	14.0	1.7	11.5
X6121	1.5	1.2	8.9	48.0	5.9	32.0	5.1	28.0	2.6	14.0	2.0	11.5
X6122	2	1.2	14.5	86.0	7.8	46.0	6.8	41.0	3.4	20.5	2.7	16.2
X6123	3	1.2	17.0	86.0	11.0	46.0	9.6	41.0	4.8	20.5	3.9	16.2
X6124	5	1.2	28.0	139.0	17.5	64.0	15.2	58.0	7.6	29.0	6.1	23.0
X6125	7.5	1.0	--	--	25.3	83.0	22.0	72.0	11.0	36.0	9.0	29.0



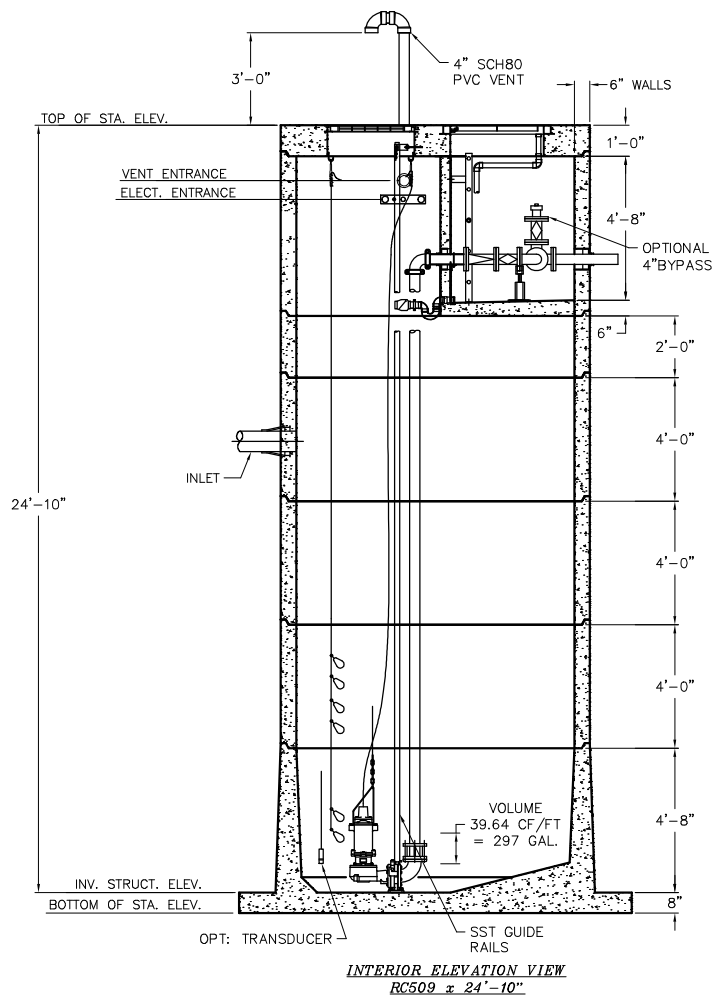
COMMONLY SELECTED OPTIONS LIST:

- ☐ H2O LOAD RATING ON HATCHES
- ☐ SAFETY GRATING FOR VALVE VAULT HATCH
- ☐ LADDER EXTENSION FOR VALVE VAULT ACCESS
- ☐ ADMIXTURE FOR HYDROGEN SULFIDE PROTECTION
- ☐ NON-FIBRATED EXTERIOR DAMPPROOFING
- ☐ BYPASS W/ISOLATION VALVE AND QUICK CONNECT (2"-4")
- ☐ DISCHARGE PRESSURE GAUGES
- ☐ VENTING WITH ODOR CONTROL
- ☐ TRANSDUCER W/FLOAT LEVEL CONTROL
- ☐ INTERIOR JUNCTION BOX
- ☐ EXTERIOR JUNCTION BOX
- ☐ ALUMINUM OR STAINLESS STEEL TRASH BASKETS
- ☐ STAINLESS STEEL PORTABLE HOIST (300#, 1000#)
- ☐ 2' OR 4' VALVE VAULT EXTENSION RISERS TO INCREASE HEADROOM OR FORCE MAIN COVER WHEN REQUIRED.

COMPLETE LIST OF OPTIONS AVAILABLE IN THE ONELIFT SPECIFICATION GUIDE.

APPROX. WEIGHTS:

- BASE SECTION W/FLOAT COLLAR & FILLETS = 11.0 TONS
- TOP SLAB & VALVE ARE FACTORY SEALED, AND SHIP AS 1-PIECE = 9.5 TONS
- 2' RISER SECTION = 2.0 TONS
- 4' RISER SECTION = 4.0 TONS



REF:
6'Ø=28.27 CF/FT
8'Ø=50.26 CF/FT
RC509=39.64 CF/FT
297 Gal/Vert. FT

PUMP INFO	
DESIGN FLOW (GPM)	
DESIGN HEAD (TDH)	
HORSEPOWER (HP)	
VOLTAGE/PHASE	
RPM	
MANUFACTURER	
MODEL #	
IMPELLER DIA.	
PUMP DISCHARGE, in.	
STATION PIPING SIZE, in.	
SYSTEM INFO	
AVERAGE DAILY FLOW (ADF)	
OPERATING HOURS	
PEAKING FACTOR	
FORCE MAIN VELOCITY (ft/s)	
FORCE MAIN SIZE, in.	
FORCE MAIN HIGH ELEV.	
LENGTH OF FORCE MAIN, ft.	
TIE IN PRESSURE, psi	
REQ'D STORAGE (min.)	
OneLift STATION SCHEDULE	
100 yr FLOOD ELEV.	
TOP OF STATION ELEV.	
INLET 1 ELEV./SIZE (in.)	
INLET 2 ELEV./SIZE (in.)	
INLET 3 ELEV./SIZE (in.)	
HHWA (FLOAT)	
HIGH WATER ALARM	
LAG PUMP ON	
LEAD PUMP ON	
PUMP(S) OFF	
BACKUP OFF LEVEL (FLOAT)	
STRUCTURE INVERT ELEV.	
BOTTOM OF STA. ELEV.	
DISCHARGE PIPING SIZE	<input type="checkbox"/> 2" <input type="checkbox"/> 3" <input type="checkbox"/> 4"
DISCHARGE PIPING MATERIAL	<input type="checkbox"/> PVC <input type="checkbox"/> DIP <input type="checkbox"/> Other
DISCHARGE POSITION	<input type="checkbox"/> #1 <input type="checkbox"/> #2 <input type="checkbox"/> #3
DISCHARGE PIPE ELEV.	

ONELIFT IS PROTECTED UNDER AT LEAST ONE OF U.S. PATENT NUMBERS U9,587,392; D736,834; D736,835; D737,333 AND HAS OTHER PATENTS PENDING.

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ONELIFT PUMP STATION
24'-10" RC509 TYPICAL LAYOUT DRAWING

OWNER/ENGINEER					
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
DRAWING NUMBER RC509-24-10.dwg			REVISION REV DATE 2/2017	SHEET 1 OF 1	

Wireless Real-Time Alarm System

Identify problems quickly with real-time alarms

Purpose-Built Hardware Is Easy to Install

Each M110 is a complete wireless monitoring system. It includes the necessary hardware for installation, such as a cellular radio, enclosure, backup battery, transformer, antenna with cable and mounting hardware. Standardized RTUs speed and simplify installation.

Reliable Wireless Communications

RTUs operate on current generation (2G, 3G and 4G) cellular radios for dependable data transmissions. Mission maintains direct relationships with the largest cellular carriers in the U.S. and Canada to ensure the best service possible. There are no radios to program, cellular contracts to set up or radio licenses to purchase and maintain.

Real-Time Alarms for Problem Identification

Real-time alarms are delivered via phone, text message, email, fax, pager and even to your existing HMI software via an OPC data link. Each alarm is logged with a timestamp on your web portal for tracking and reporting. Settings can be tailored to better fit your alarming needs. The alarm call out schedule setup is easy, flexible, and intuitive. With a variety of options, you can design it to be simple or sophisticated. Numerous alarm features save time and money.

Managed Service - The Complete Package

The Mission service includes all communications, data storage, alarm call outs, reports and technical support. Alarm conditions are reported in real-time. Pump runtimes and pump data are summarized hourly. Analog data and RTU status are reported hourly. No engineering or programming is required and there are no networks to maintain.

Robust and Secure Web Portal

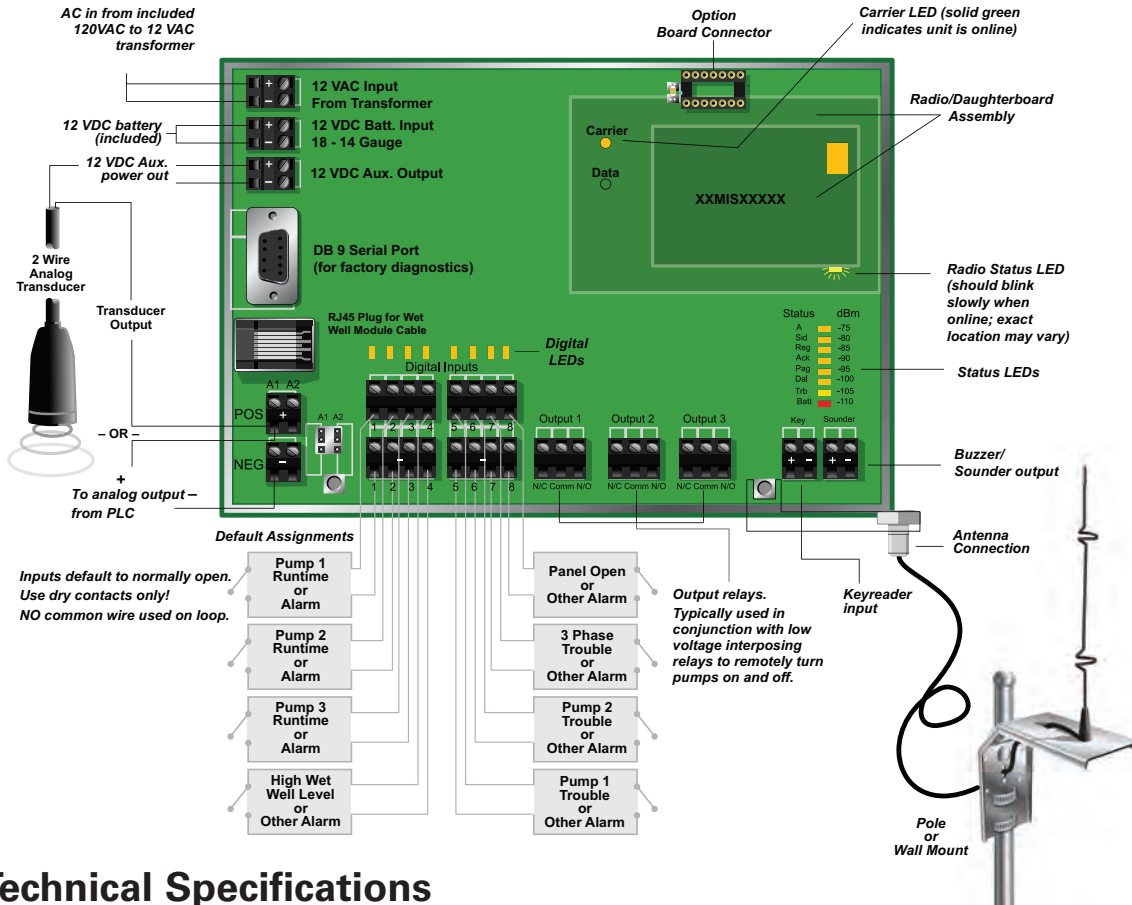
Data and reports are accessible on your secure web portal from any web-enabled device. This includes desktops, smartphones and tablets. Because the system is web-based, enhancements are immediately available and included at no cost. Tabular and graphical reports can be used for CMOM programs, compliance reports and comparative studies. Historical data is archived and never discarded. Refer to the Managed SCADA document for further details..

Flatpak NEMA 1 enclosure option shown



- Easy to Install
- Identify Problems With Real-Time Alarms
- Secure Data Transmission
- Managed Service Includes Communications, Alarm Call Outs and Web Portals
- Data and Reports Accessible from Desktops, Smartphones and Tablets

Details



Technical Specifications

Hardware:

- 8 supervised digital inputs; 3 configurable to runtime/starts accumulators. Option board expands digital inputs to 16.
- 2 analog inputs: 4-20 mA or 0-5 VDC, 10-bit resolution, 4 real-time alarm set points per input. Option board expands analogs to 6.
- 4 built-in alarms (AC, low battery, temperature and communications fail).
- 1 electronic key reader for site activity tracking and service mode.
- 3 remotely controllable, form C dry contact relay outputs (1 amp @ 12 VDC), SPDT, N.O./N.C.
- Supervised 120 VAC to 12 VAC, 1.2 amp power supply with UL Recognized Class II / Class III transformer.
- 5 AH battery provides up to 40 hours of back up power.
- Includes Antenna Kit (PN R8005) with mounting bracket and 11' of cable. Omnidirectional outdoor antenna can be wall or pole mounted.
- 8 vertical LEDs for diagnostics.
- 8 digital input LEDs display input status and wiring faults.
- RJ45 connection for optional Wet Well Module (PN 651).

Radio:

- Units automatically self enroll with no startup delays. Radios make live, continuous, encrypted socket connections with all data and alarms being "end-to-end" acknowledged. Mission does not use SMS "text" messaging to transmit RTU data.
- AT&T, Verizon and Sprint radios have 128-bit encryption. All use TCP data transmission protocol.
- GSM: HSPA+ (ATT 3.5G and lower) Penta band (850, 900, 1700, 1900, 2100 MHz).

- CDMA: 1XRTT.

- 0.6 to 2 watt maximum transmit power and -112 dBm sensitivity.

Data Frequency:

- Digital alarm inputs and analog alarm set points: real-time.
- Digital runtime inputs: summarized hourly.
- Built-in telemetry and analog inputs: reported hourly.

Physical:

- Operating temperature -20F° to +160F°.

Hardware Options:

- Option Board - Digital Input (PN 650).*
- Option Board - Analog Input and Pulse Input (PN 459).*
- Option Board - Analog Output (PN 459).*
- Option Board - Pulse Input (PN 463).*
- Option Board - Analog Output and Pulse Input (PN O1000).*
- Wet Well Module (PN 651).
- Refer to Option Board and Wet Well Module data sheets for specifications; additional accessories described in the Accessories brochure.
- *One option board per RTU.

Software

- Requires Service Package - M110 Series (PN 51X).
- Optional SCADA Integration OPC Link (PN 586) to client/server HMI.

Warranty:

- RTUs include a 1 year manufacturing and material warranty.



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Standard Operating Guideline – Lift Station Inspection

Standard Operating Guideline (SOG)

Title: LIFT STATION INSPECTION

Lift Station Location _____

Date Prepared: _____ Date Revised: _____

Lift stations within Timber Crest Estates and Kingsbury Village are to be privately maintained by the developer until such time the homeowners association shall be responsible

OBJECTIVE:

Lift stations are used to lift or raise wastewater from a lower elevation to a higher elevation. The term “lift station” usually refers to a wastewater facility with a relatively short discharge line to a down stream gravity sewer. A “pump station” commonly is a similar type of facility that is discharging into a force main. The purpose of this document is to provide adequate equipment and process control information, necessary to ensure the station operates as designed, routine inspections and preventative maintenance are performed to prevent costly repair bills, eliminate spills, and avoid property losses. The following are suggestions that may insure fewer breakdowns and problems:

RATIONALE / PURPOSE:

- Lift stations should be inspected at least a weekly. (Based on system design and capacity, more frequent inspections may be required).
- Records of these inspections must be maintained through the use of written notes, logs, notebooks, and /or computer format.
- These are to be referenced by management, operations, and maintenance crews, to ensure established procedures are being followed to ensure the maximum lifespan of all facilities and equipment.
- Documentation may also be required by outside regulatory agencies and insurance companies in the event of a spill, equipment failure, or property loss.

METHODS / PROCEDURES:

1. Wet wells should be pumped out and cleaned at least twice a year, or more often if necessary, to prevent solids and grease build-up. Build-up of solids can create odors and damage to the pump.
2. Inspection of pumps (submersible and dry) should be performed quarterly. Inspection of the impeller should be performed quarterly or when motor hours are not within 10 percent of each other. The inspections would assure that the impeller is free of debris.

Standard Operating Guideline – Lift Station Inspection

3. Inspection of the check valves should be performed at least twice a year, to insure proper working order and to prevent backflow from the force main to the wet well.
4. Cleaning and inspections of floats should be performed four times a year to assure proper performance. The buildup of grease prevents floats from working properly.
5. Inspection of the light and alarm systems should be performed weekly. An alarm system in working order can alert you to problems immediately.
6. Installation of an hour meter on each motor will give one an accurate record of how often each motor is cycling; and hence, the amount of water being pumped through the system. It is recommended to alternate lead pumps at least weekly. A logbook of motor hours, dates and maintenance performed should be kept.
7. Installation of a flow meter on each pump will give one an accurate record of how much flow is being processed through the system. A logbook of flow records, dates and maintenance performed should be kept.
8. Amp and vibration readings should be taken at least once a month on each motor in the on-site lift station. If the readings do not meet the manufacturer's specifications, it is an indication that debris is lodged in the propeller within the motor, or that water has entered the motor housing or the wiring.
9. An annual inspection of all electrical motor control equipment should be performed to find poor connections and worn parts. This inspection should include infrared testing and panel maintenance.
10. During routine inspections, the emergency back up generator needs to be visually checked for fuel level, battery, and general condition. At least quarterly, the generator is to be operated, under load, to ensure proper operation and per operating permit requirements. This test is to be conducted by tripping power to the station and observing a successful transfer to generator power for at least 15 minutes.
11. All Lift pump stations are to be monitored 24 hours a day by owners rep. using a remote notification system, such as modem dialer, telemetry or SCADA system. These systems must be able to provide 24 hour notification to system operators, and remote monitoring and control of pumps, water level, alarms and power status. This system must be accessible to all assigned employees during non-duty hours.

The following information should be included within the lift station inspection information collected:

- Date;
- Time;
- Initials of person performing inspection;
- Meter readings for each pump;

Standard Operating Guideline – Lift Station Inspection

- Flow reading for each pump;
- General appearance (note if there is grease buildup or if wet well baskets need to be cleaned);
- Any maintenance done to the lift station;
- Date of pump and equipment calibrations;
- Pump ratings in gallons per minute; and
- Power usage (if available).

SAFETY CONSIDERATIONS:

Safety is directly related to your level of professionalism which in turn is directly related to knowledge and ultimately certification. It is imperative that employees conduct all day-to-day activities safely through a combination of awareness and professionalism.

Multiple hazards exist in the performance of the employee's routine daily tasks and work assignments. The following are some of the more common hazards to be aware of:

- Slips
- Falling Objects
- Infections and Infectious Diseases
- Lacerations and Contusions
- Falls
- Explosions
- Confined Space Entry Procedures and Permit Requirements
- Poisonous or Toxic Gases
- Strains or Ruptures
- Traffic Mishaps
- Bites (insects, bugs, rodents, snakes)
- Excavations and Trench Shoring
- Drowning
- Fire
- Electrical Shock and Arc Flash
- Noise

Contractor is required to follow their company's Safety Practices and Procedures. These Procedures establish guidelines in compliance with applicable safety regulations, mandated by State and Federal Occupational Safety and Health Administration (OSHA) regulations.

COST BENEFIT:

Management support is critical to the success of any preventive maintenance and inspection program. Critical to any owner is being able to identify and control activities within both the Operation and the Maintenance areas.

The elimination of sewage spills, improved sewer maintenance, inspection of facilities and equipment and implementing long-term Capital Improvement programs to renew aging infrastructure can reduce the possibility of fines and citations from other State and local

Standard Operating Guideline – Lift Station Inspection

agencies. These costs usually come directly from the owner's general operating budget and are not covered by insurance.

Preventive maintenance (PM) is a time based strategy conducted at a set interval or predetermined time when a piece of equipment is routinely inspected and/or taken off line for schedule service or repairs. The result of moving from “Run to Failure” or reactive maintenance to planned PM and scheduled repairs is significant to the maintenance repair budget. Emergency repairs typically take labor, time and equipment. Overtime costs are often involved.

Routine inspections, scheduled maintenance and accurate recordkeeping can help reduce costs and increase equipment reliability and lifespan. Table 1 below shows the four different maintenance approaches used in the water / wastewater industry.

Reactive Maintenance	Fix it when it breaks	High repair budget
Preventive Maintenance	Scheduled Maintenance	Planned Component Replacement
Predictive Maintenance	Condition Based Monitoring	Maintenance based on condition of equipment
Proactive Maintenance	Source failure detection	Monitor and correct failure and root causes

Table 1. Maintenance Categories

INSPECTION FORMS / CHECKLISTS / DOCUMENTATION:

This development has two types of lift stations, each with their own set of operating procedures, inspection guidelines and specific needs. The following is an outline of the minimum inspections that should to be performed and documented by the owner and or its contractor.

Sample Lift Station Inspection Schedule

Daily / Weekly

1. Visually inspect the station for vandalism.
2. Clean up any trash or debris material.
3. Record pump hours for each pump.
4. Run each pump by hand / manual control and watch level control go up and down to ensure pumps are operating properly.
5. Wash down wet well.
6. Place pump controls back in auto position prior to leaving station.
7. Visually inspect emergency generator for fuel and ability to operate properly.
8. Test all panel lights and change as needed to ensure proper operation.
9. Lock up station, including exterior power panels if required, prior to leaving.
10. Complete all required paper work.

Standard Operating Guideline – Lift Station Inspection

Monthly

1. Open up wet well and visually inspect the pumping of each pump.
2. Completely pump down the wet well to its lowest point and make a visual inspection.
3. Hose the wet well down during the pump down process.
4. Inspect wet well for excessive grease build up on surface, clean when needed.
5. Check wet well floats for rag build up, clean as needed.
6. Pumps and piping are checked visually for defects.
7. Power back up generator needs to be checked, and started (fuel level, battery and general condition).
8. Turn in operations log sheets at end of the month.

Quarterly

1. Clean grit and grease from the wet well using a vac-con truck.
2. Generator is to be operated, under load, for 15 minutes. This test is to be conducted by tripping power to the station and observing a successful transfer to generator power. Emergency generators are to be operated per manufacturer's requirements and in compliance with any City, County, or State agency operating permit.

Other Duties

1. Assist maintenance staff as needed for repair work requirements.
2. Respond to all lift station alarms.
3. Maintain all required lift station field logs.
4. Report all problems with the lift station to the operations supervisor.
5. Record all problems or observations at the lift station in the lift station journal.

Standard Operating Guideline – Lift Station Inspection

Sample Lift Station Inspection Log

Pump Rating (gpm):

Date of most recent pump calibration:

Date	Time	Meter Reading 1	Meter Reading 2	General Appearance	Initials

Operator Notes: