

Advertisement for Bids

Project Number: TN-20152

Owner: Claiborne County Board of Education

The Claiborne County Board of Education is hereby soliciting sealed bids for the following items: Pump Stations (Pumps only) at Springdale School under the Appalachian Regional Commission Grant program. Separate sealed bids will be accepted until April 23, 2024 at 2:00 p.m. at which time they will be opened and read aloud. All bids must be inclusive of all delivery and handling charges. Claiborne County Board of Education reserves the right to reject any and all bids. Bid quotes must be effective for 60 days after bid opening date. Further, the Claiborne County Board of Education reserves the right to contact the successful bidder for one full calendar year from award date to determine if successful bidder is willing to provide the same materials or services at the original bid price. All bidders submitting bids are required to present **ALL** the required vendor information, defined in the project specifications, as accompanying information to their bid submittal, regardless of if these documents have been submitted in previous solicitations, in order for their bid submitted to be considered a valid bid. For specifications and more information contact George Coots at gcoots@cutn.com or Ginger Stout at gstout@etdd.org. This project is funded under a grant contract with the State of Tennessee. The contract documents may be examined at the following locations:

East Tennessee Development District
216 Corporate Place
Alcoa, TN. 37701

Claiborne Utilities District
630 Davis Drive
New Tazewell, TN. 37825

Knoxville Builders Exchange
300 Clark Street
Knoxville, TN. 37921

State of Tennessee
GO-DBE website

Please send bid quotes to Claiborne County Board of Education, Attn: Meredith Arnold, 1403 Tazewell Road, Tazewell, TN 37879. All bid envelopes must be noted on outside of envelope as 2020 ARC Springdale School Wastewater Project.

INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids:

Claiborne County Board of Education (herein called the “Owner”), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the Board of Education and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to Meredith Arnold 1403 Tazewell Road, Tazewell, TN 37879 and designated as bid for 2020 ARC, Springdale School Wastewater Project.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

2. Responsibility of Bidder:

In order to closely evaluate all bids and determine the responsiveness to the customer request. Each proposal must be submitted in the same order as the customer specification for ease of comparison. Each item must have a check mark in the appropriate column indicating compliance. Those items that are different by brand, model number (when applicable), and operational performance must be clearly defined and listed separately on a document clearly identified as “Clarifications and Substitutions”. Vendors failing to comply with this request are subject to immediate rejection without further cause. (NO EXCEPTIONS)

All equipment in the bid must meet or exceed the OWNERS specifications and must meet all applicable State and Federal regulations.

BIDDER must assure that any bid will be good and may not be withdrawn for period of 60 calendar days from the date of the bid opening.

Equipment must be able to be delivered within a time specified and accepted by the vendor and the Board of Education. Delivery of all equipment will be made to the prescribed location determined by the School Supt. Mayor or their representative.

All bidders submitting bids are required to present the required vendor information as accompanying information to their bid submittal, regardless if these documents have been submitted in previous solicitation. All of these items must be included with this bid submittal in order for the bid submitted to be considered a valid bid.

- a. Acknowledgment Regarding Bidder Sam Registration (Form Attached)
- b. Iran Divestment Act (Form Attached)
- c. Certification of Non-Boycott of Israel (Form Attached)

All bidders must submit their full name, address and a contact person and phone number with bid.

3. Responsibility of the Owner:

The OWNER reserves the right to reject any and all bids.

The OWNER may not negotiate with any one Bidder to reduce or alter the stated bid.

Should the bids have to be thrown out for whatever reason a mini-rebid will be held with the parties that submitted original bids, unless only one bid is received and the State requires additional bids.

The OWNER agrees to provide written NOTICE of AWARD OF BID within 15 calendar days of the date of the bid opening.

4. Method of Bidding:

Bids must be submitted in a sealed envelope, bearing on the outside the name and address of the BIDDER and words "Bid for 2020 ARC, Springdale School Wastewater Project'-Pumps"

If forwarded by mail, the sealed envelope must be enclosed in another envelope addressed to:

Meredith Arnold
Claiborne County Board of Education
1403 Tazewell Road
Tazewell, TN. 37879

5. Qualification of Bidder:

The Owner may make such investigations as he/she deems necessary to determine the ability of the bidder to provide the equipment being requested and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the owner that such bidder is properly qualified to carry out the obligations of the contract to provide the material within a timely fashion. Conditional bids will not be accepted.

6. Bid Security:

No bid bond or certified check will be required for the submittal of the bid.

7. Addenda and Interpretations:

No interpretation of the meaning of the specifications or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to George Coats, Claiborne Utility District, 630 Davis Drive, New Tazewell, TN. 37825 and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which or emailed to all prospective bidders (at the respective addresses furnished for such purposes, not later than two days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

8. Laws and Regulations:

The bidder’s attention is directed to the fact that all applicable State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

9. Method of Award – Lowest Qualified Bidder:

After receiving bids and determining the amount of funds estimated by the OWNER as available to finance the contract, the OWNER will award the contract to the lowest responsible bidder. The lowest most responsive bidder will be determined upon the basis of the lowest base bid or lowest base bid combined with alternates (additive or deductive). If the contract is to be awarded based on the owners base bid with alternates, alternates will be accepted in the numerical order in which they are listed in the Form of Bid.

10. Obligation of Bidder:

At the time of the opening of bids each bidder will be presumed to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

Claiborne County Board of Education

Pumps

Delivery

1. Anticipated Delivery date should be listed.
2. Bids to include any shipping related costs of the equipment to:
Claiborne Utilities District. 630 Davis Drive, New Tazewell, Tn 37825
3. At time of delivery, complete operation and maintenance manuals covering the equipment will be provided.
4. BID BOND
No bid bond payment will be made. A Purchase Order Number will be issued and approved prior to delivery. Payment will be provided within 15 working days of delivery of apparatus and or equipment provided apparatus and equipment meets bid specifications.

Delivery	Yes	No	Explanation
Meets Specifications			

Bid Preparation

Bids can be prepared and submitted in sections or as a whole with sections outlined and separated. Bids may be submitted for any one section or all sections. Bids will be marked and indicated for each section submitted. Bids will be sealed and specified date of opening will be determined.

ADVERTISEMENT FOR BIDS

Project No. _____

Owner: _____

Separate sealed bids for _____ for

_____ will be received by _____ at

the office of _____ until

_____ o'clock /P.M., /E.S.T. _____, 20____, and then at

said office publicly opened and read aloud.

Bids must be submitted in a sealed envelope, bearing on the outside the name and address of the Bidder and the name of the project: "_____." If forwarded by mail, the sealed envelope must be enclosed in another envelope.

The Information for Bidders, Form of Bid, Specifications, and, and other contract documents may be examined or obtained at the following:

The owner reserves the right to waive any informalities or to reject any or all bids.

No bidder may withdraw their bid within 60 days after the actual date of the opening thereof.

_____ is an Equal Opportunity Employer. _____

prohibits discrimination on the basis of race, color, religion, sex, or national origin, in the admissions or access to, or treatment, or employment in its programs or activities.

Date: _____

INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids:

The _____ (herein called the "Owner), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the office of _____ until _____ o'clock .P.M., /E.S.T, _____, 20____, and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to Meredith Arnold _____ at _____ and designated as bid for _____.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

2. Preparation of Bid:

Each bid must be submitted on the prescribed form and accompanied by Certification of Bidder Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion and the Iran Divestment Act Certification. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certifications must be fully completed and executed when submitted.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his/her address, the name of the project for which the bid is submitted.

3. Method of Bidding:

The Owner invites the following bid(s):

TOTAL AMOUNT MUST INCLUDE ALL APPLICABLE COST, INCLUDING BUT NOT LIMITED TO SHIPPING, FREIGHT, DELIVERY, AND ASSEMBLY. PAYMENT BY INVOICE.

4. Qualification of Bidder:

The Owner may make such investigations as s/he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

5. Time of Completion and Liquidated Damages:

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" or Purchase Order from the Owner and to fully complete the project within _____ consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of \$_____ for each consecutive calendar day thereafter.

6. Addenda and Interpretations:

No interpretation of the meaning of the specifications or other pre-bid documents will be made to any bidder orally.

All requests for such interpretation should be in writing addressed to _____ at _____ and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. All such interpretations and any supplemental instructions will be not later than two days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the bid submission.

7. Laws and Regulations:

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

8. Method of Award - Lowest Qualified Bidder:

After receiving bids and determining the amount of funds estimated by the OWNER as available to finance the contract, the OWNER will award the contract based upon the lowest and most responsive bid. The lowest responsible bidder will be determined upon the basis of the lowest base bid or lowest base bid combined with alternates (additive or deductive) and meeting the bid specifications. If the contract is to be awarded based on the lowest base bid with alternates, alternates will be accepted in the numerical order in which they are listed in the Form of Bid. The OWNER may not negotiate with any Bidder to reduce or alter the submitted bid.

9. Obligation of Bidder:

At the time of the opening of bids each bidder will be presumed to have to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

All vehicles and equipment submitted in the bid must MEET OR EXCEED the OWNER'S specifications and MUST meet all applicable ISO, NFPA, or other state industry standards.

Charges or terms for delivery of apparatus must be clearly stated on the bid form. Apparatus must be able to be delivered within the terms stated in the "*Time of Completion and Liquidated Damages*", under its own power, and will be subjected to tests to determine its performance and reliability as a condition of sale.

BIDDER discounts and terms, if any, must be clearly stated in the submitted bid.

BID FOR UNIT PRICE CONTRACTS

Place _____

Date _____

Project No. _____

Proposal of _____ (hereinafter called "Bidder")¹
a corporation, organized and existing under the laws of the State of _____,
partnership, or an individual doing business as _____.
To the _____ (hereinafter called "Owner")

The Bidder, in compliance with your invitation for bids for the purchase of a

, having examined the specifications with related documents, and being familiar with all
of the conditions related to the proposed project including the availability of materials
and labor, hereby proposes to deliver all equipment in compliance with the
specifications, within the time set forth therein, and at the prices stated below. These
prices are to cover all expenses incurred in performing the work required under the
contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be
specified in written "Notice to Proceed" or Purchase Order from the Owner and to fully
complete the project within _____ consecutive calendar days thereafter as stipulated
in the specifications. Bidder further agrees to pay as liquidated damages the sum of
\$_____ for each consecutive calendar day in excess of the agreed upon time period
of completion and delivery.

¹ _____
Insert corporation, partnership or individual as applicable.

Bidder acknowledges receipt of the following addendum:

Bidder agrees to perform all the work described in the specifications and shown on the plans, for the following unit prices:

<u>ITEM NO.</u>	<u>EST. QTY.</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u> <u>(Each)</u>	<u>Total</u>
1	_____	_____	_____ Dollars & Cents	_____ Dollars & Cents
			(\$ _____)	(\$ _____)
2	_____	_____	_____ Dollars & Cents	_____ Dollars & Cents
			(\$ _____)	(\$ _____)
3	_____	_____	_____ Dollars & Cents	_____ Dollars & Cents
			(\$ _____)	(\$ _____)
			TOTAL OF BID	\$ _____

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will supersede.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 days after the scheduled closing time for receiving bids.

Respectfully submitted:

By: _____
(Signature)

(Name & Title)

(Business Address, State, & Zip Code)

BID FOR LUMP SUM CONTRACTS

Place _____

Date _____

Project No. _____

Proposal of _____ (hereinafter called "Bidder") (a
 _____ corporation/a partnership/an individual doing
 _____ (State) STRIKE OUT INAPPLICABLE TERMS
 business as _____)
 To the _____ (hereinafter called
 "Owner")

The Bidder, in compliance with your invitation for bids for the purchase of a

 having examined the specifications with related documents, and being familiar with all of
 the conditions related to the proposed project including the availability of materials and
 labor, hereby proposes to deliver all equipment in compliance with the specifications,
 within the time set forth therein, and at the prices stated below. These prices are to cover
 all expenses incurred in performing the work required under the contract documents, of
 which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be
 specified in written "Notice to Proceed" or Purchase Order from the Owner and to fully
 complete the project within _____ consecutive calendar days thereafter as stipulated
 in the specifications. Bidder further agrees to pay as liquidated damages the sum of
 \$_____ for each consecutive calendar day in excess of the agreed upon time period
 of completion and delivery.

Bidder acknowledges receipt of the following addendum:

BASE PROPOSAL: Bidder agrees to perform all the work described in the specifications
 and shown on the plans for the (\$_____) (Amount shall be shown in both words and
 figures. In case of discrepancy, the amount shown in words will supersede.)

ALTERNATE PROPOSALS

Alternate No. 1: _____

Deduct the sum of _____ (\$ _____)

Alternate No. 2: _____

Deduct the sum of _____ (\$ _____)

Alternate No. 3: _____

Deduct the sum of _____ (\$ _____)

Alternate No. 4: _____

Deduct the sum of _____ (\$ _____)

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Respectfully submitted:

By: _____
(Signature)

(Name & Title)

(Business Address, State, & Zip Code)

ACKNOWLEDGEMENT REGARDING BIDDER SAM REGISTRATION

Pursuant to 2 CFR Parts 183 and 215 and the requirement of the U.S. Department of Housing and Urban Development (HUD), contractors procured directly by grantees, sub-grantees, and/or sub-recipients of HUD funds, including CDBG are required to have an active registration in the System of Award Management (SAM). This document shall be completed and submitted as part of the bid proposal.

1. By submitting this proposal, the prospective bidder certifies that it has an active registration in SAM that is not set to expire within the next 90 days.
2. By submitting this proposal, the prospective bidder certifies neither it, its principals nor affiliates, is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
3. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that an erroneous certification was rendered, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies.
4. Further, the prospective bidder shall provide immediate written notice to the person to which this proposal is submitted if at any time the Participant learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. By submitting this proposal, it is agreed that should the proposed covered transaction be entered into, the prospective bidder will not knowingly enter into any lower-tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the agency with which this transaction originated.
6. It is further agreed that by submitting this proposal, the prospective bidder will include Certification of Subcontractor Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion without modification, in all lower-tier covered transactions and in all solicitations for lower-tier covered transactions.

Provide the following information as detailed in the prospective bidder’s SAM registration:

Entity Name: _____

Address: _____

City: _____ State: _____ Zip: _____

SAM Entity ID: _____ Expiration Date: _____

Active Exclusions: Yes No

**IRAN DIVESTMENT
ACT**

In compliance with the Iran Divestment Act (State of Tennessee 2016, Public Chapter No. 817), which became effective on July 1, 2016, certification is required of all bidders on contracts over \$1,000.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party hereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.

I affirm, under the penalties of perjury, this statement to be true and correct.

_____ Date

_____ Signature of Bidder

_____ Company

A bid shall not be considered for award nor shall award be made where the foregoing certification has been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. The **City/County of _____** may award a bid to a bidder who cannot make the certification, on case-by-case basis, if:

1. The investment activities in Iran were made before July 1, 2016, the investment activities in Iran have not been expanded or reviewed on or after July 1, 2016, and the person has adopted, publicized, and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
2. The **City/County of _____** makes a determination that the goods or services are necessary for the **City/County of _____** to perform its functions and that, absent such an exemption, the political subdivision will be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

CERTIFICATION OF NON-BOYCOTT OF ISRAEL

The Bidder certifies that it is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars (\$250,000) or to contractors with less than ten (10) employees.

According to the law, a boycott of Israel means engaging in refusals to deal, terminating business activities, or other commercial actions that are intended to limit commercial relations with Israel, or companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or persons or entities doing business in Israel, when such actions are taken:

- 1) In compliance with, or adherence to, calls for a boycott of Israel, or
- 2) In a manner that discriminates on the basis of nationality, national origin, religion, or other unreasonable basis, and is not based on a valid business reason. Tenn. Code Ann. § 12-4-119.

I certify this statement to be true and correct.

Bidder Name Printed

Date

Signature of Bidder

Company

- 1. Method of award for equipment/materials bids will be based on each line item.**
- 2. All equipment/material items will be 'or owner approved equivalent'.**

PS 1

NP 3127 SH 3~ Adaptive 247

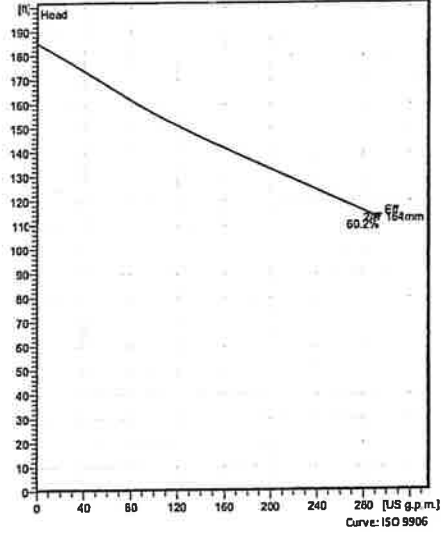
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft³/s



Configuration

Motor number N3127.920 21-11-ZAS-W IE3 12hp	Installation type P - Semi permanent, Wet
Impeller diameter 164 mm	Discharge diameter 3 inch

Configuration

Pump information

Impeller diameter
164 mm

Discharge diameter
3 inch

Inlet diameter
100 mm

Maximum operating speed
3600 rpm

Number of blades
2

Material

Impeller
Hard-Iron™

Stator housing material
Grey cast iron

Max. fluid temperature
40 °C

Project Xylect-20285854
Block

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Created on 3/15/2023 **Last update** 3/15/2023

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Technical specification



Motor - General

Motor number N3127.920 21-11-2AS-W IE3 12hp	Phases 3~	Rated speed 3600 rpm	Rated power 12 hp
ATEX approved No	Number of poles 2	Rated current 14 A	Stator variant 60
Frequency 60 Hz	Rated voltage 460 V	Insulation class H	Type of Duty S1
Version code 920			

Motor - Technical

Power factor - 1/1 Load 0.91	Motor efficiency - 1/1 Load 91.4 %	Total moment of inertia 0.517 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.90	Motor efficiency - 3/4 Load 91.2 %	Starting current, direct starting 120 A	
Power factor - 1/2 Load 0.86	Motor efficiency - 1/2 Load 89.3 %	Starting current, star-delta 40 A	

Project Xylect-20285854
Block

Created by Tim Nedrow
Created on 3/15/2023 Last update 3/15/2023

NP 3127 SH 3~ Adaptive 247

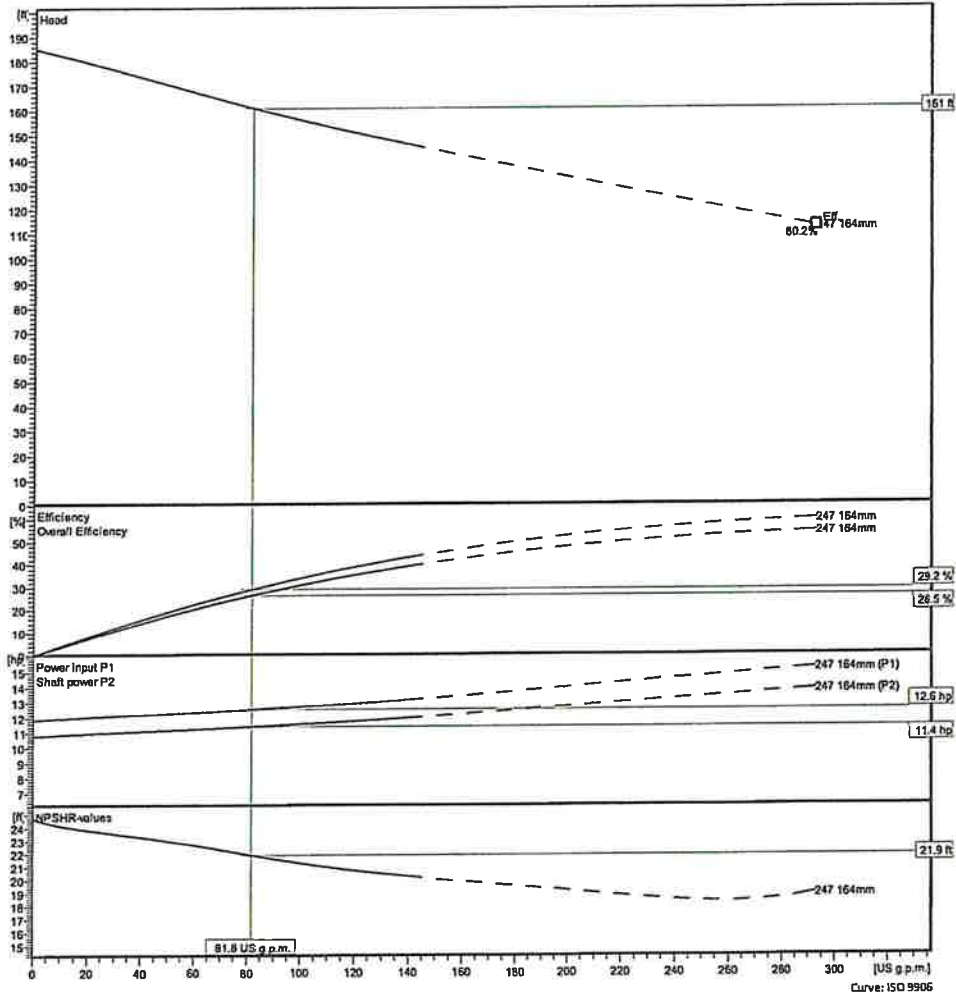
Performance curve



Duty point

Flow: 81.8 US g.p.m. Head: 161 ft

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Xylect-20285854

Tim Nedrow

Created on 3/15/2023 Last update

3/15/2023

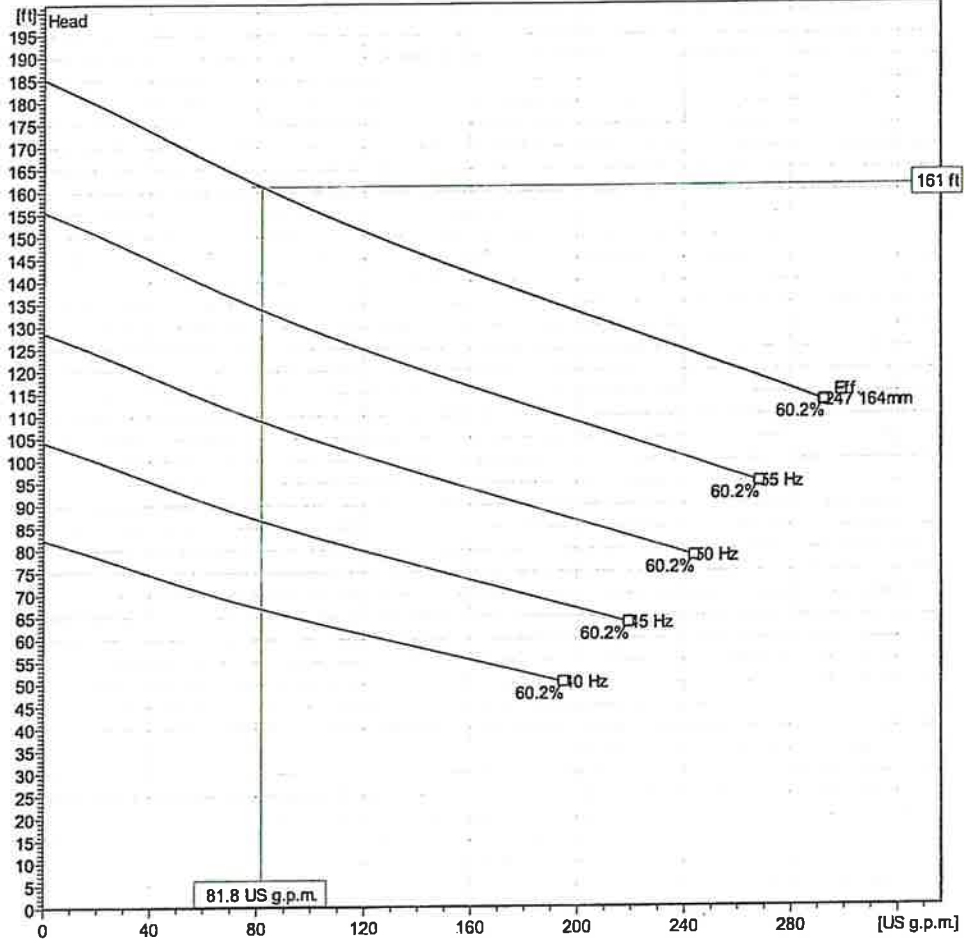
NP 3127 SH 3~ Adaptive 247

Duty Analysis



a xylem brand

Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Spec. Energy kWh/US MG	NPSHr ft
	US g.p.m.	ft	hp	US g.p.m.	ft	hp			
1	81.8	161	11.4	81.8	161	11.4	29.2 %	1910	21.9

Project: Xylect-20285854
Block: Xylect-20285854

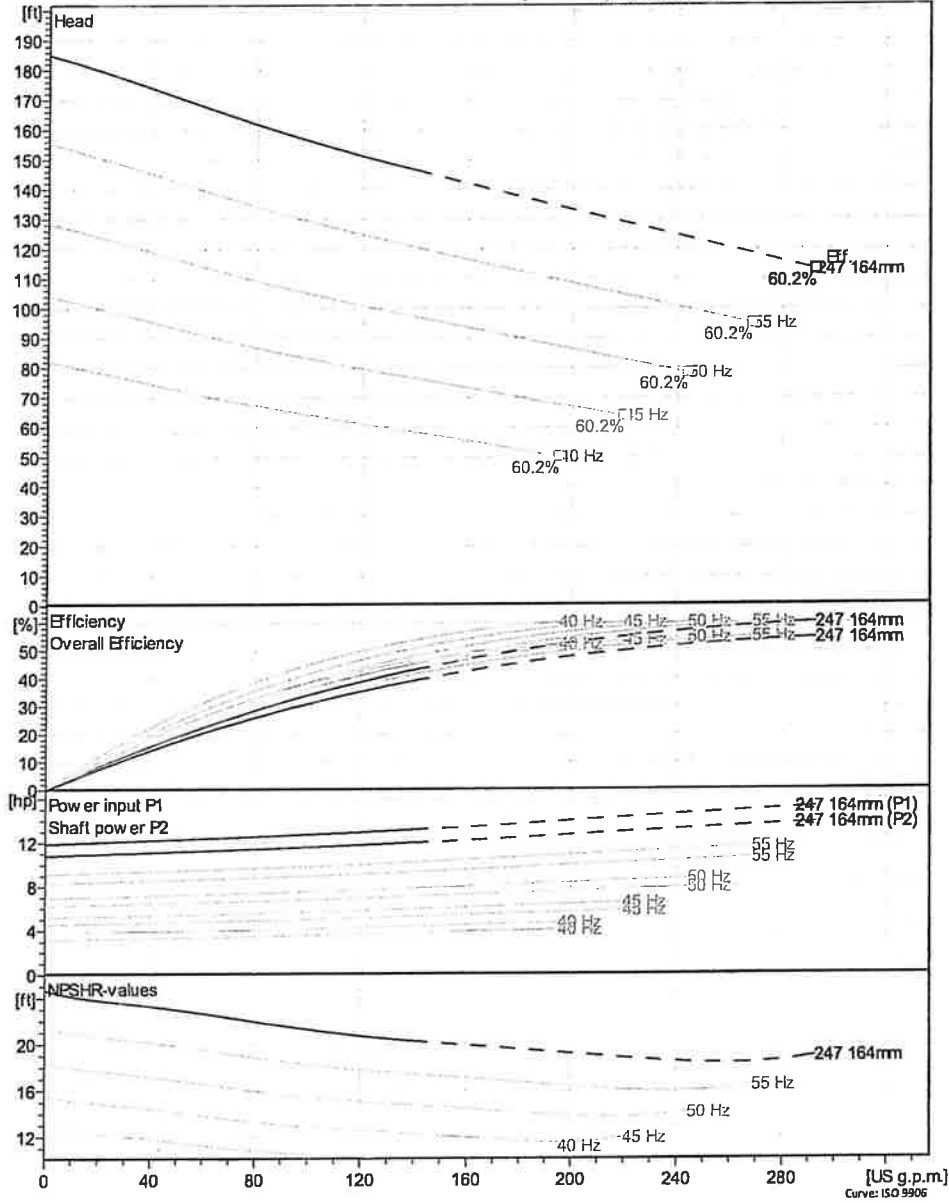
Created by: Tim Nedrow
Created on: 3/15/2023
Last update: 3/15/2023

NP 3127 SH 3~ Adaptive 247

VFD Curve



Curves according to: Water, pure, 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Project Xylect-20285854
Block

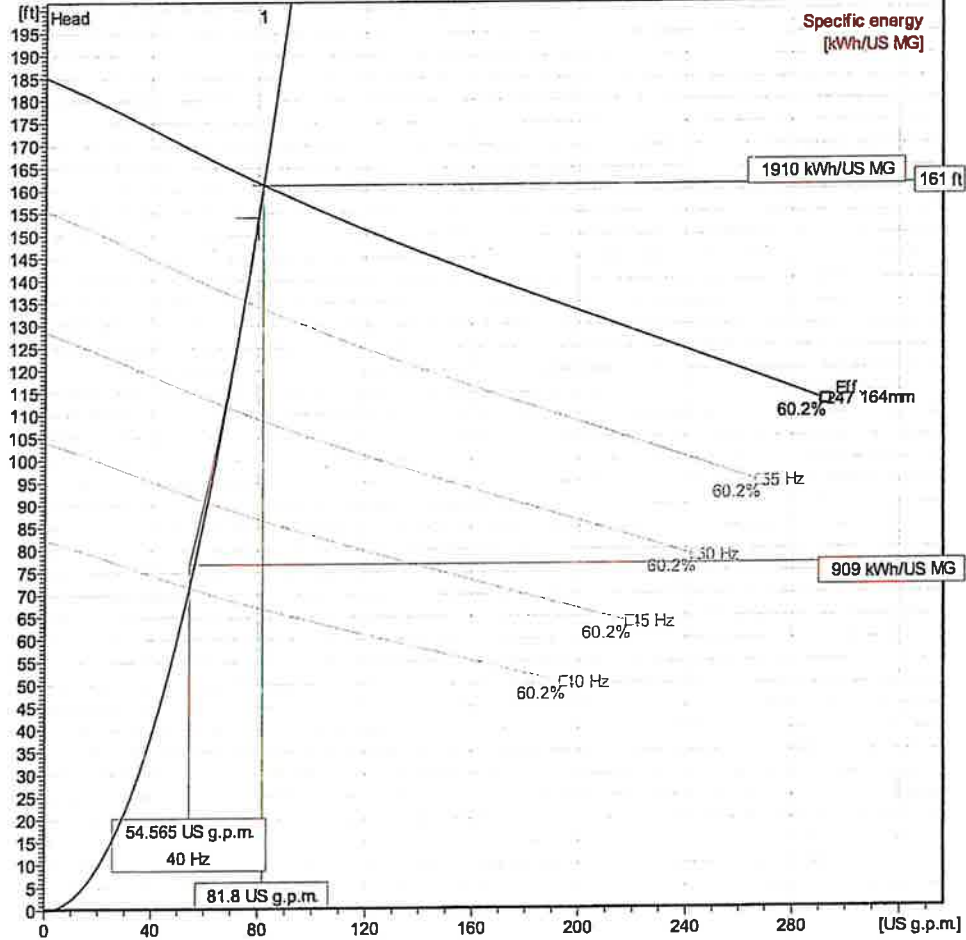
Created by Tim Nedrow
Created on 3/15/2023 Last update 3/15/2023

NP 3127 SH 3~ Adaptive 247

VFD Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Specific energy	NPSHr
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	
1	40 Hz	54.6	71.6	3.39	54.6	71.6	3.39	29.2 %	909	11.4

Project: Xylect-20285854
Block:

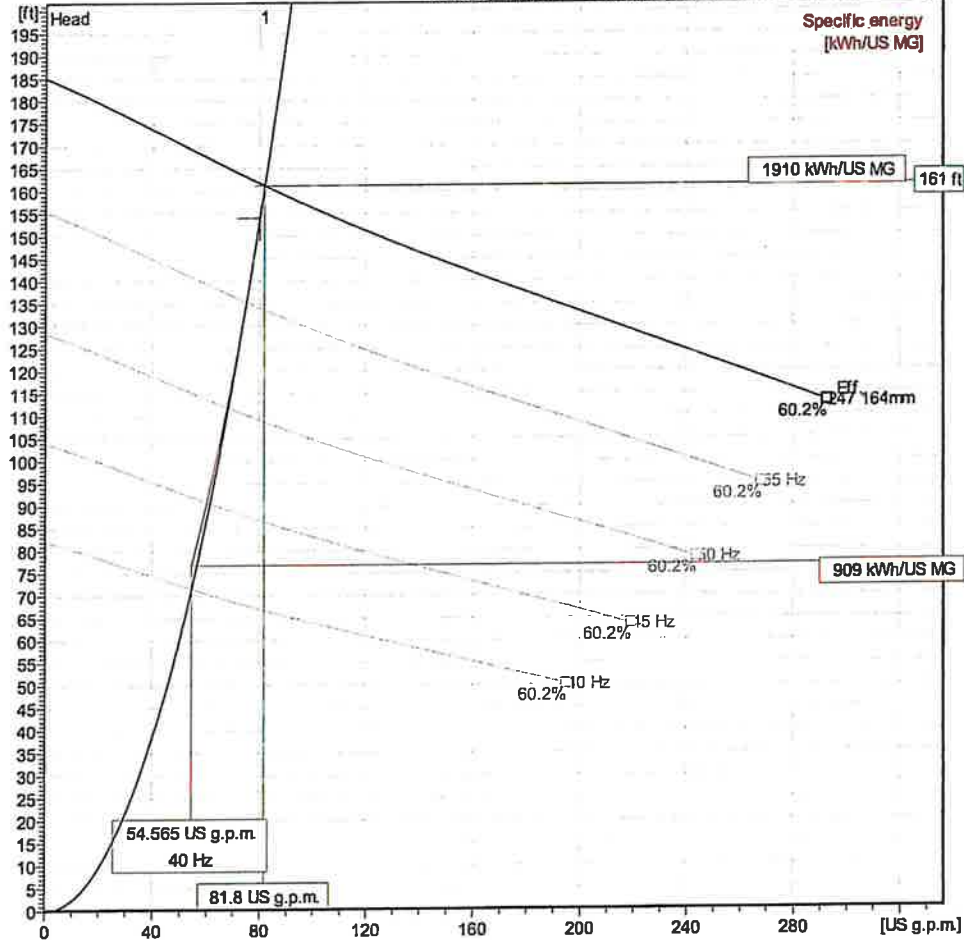
Created by: Tim Nedrow
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Last update: 3/15/2023

NP 3127 SH 3~ Adaptive 247

VFD Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating Characteristics

Pumps / Systems	Frequency	Flow		Head		Shaft power		Hydr. eff.	Specific energy	NPSHr
		US g.p.m.	ft	ft	ft	hp	US g.p.m.			
1	60 Hz	81.8	161	11.4	81.8	161	11.4	29.2 %	1910	21.9
1	55 Hz	75	135	8.81	75	135	8.81	29.2 %	1600	19.1
1	50 Hz	68.2	112	6.62	68.2	112	6.62	29.2 %	1340	16.4
1	45 Hz	61.4	90.7	4.83	61.4	90.7	4.83	29.2 %	1110	13.8

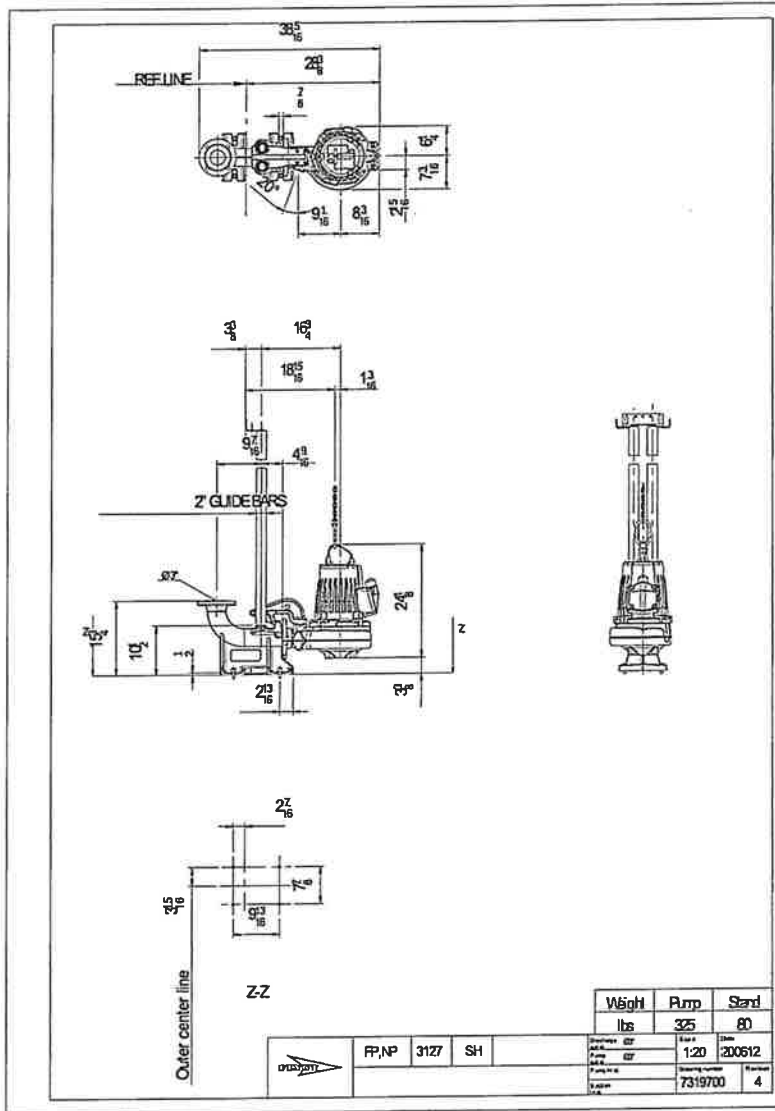
Project: Xylect-20285854
Block:

Created by: Tim Nedrow
Created on: 3/15/2023

Last update: 3/15/2023

NP 3127 SH 3~ Adaptive 247

Dimensional drawing



Project Xylect-20285854

Created by Tim Nedrow
Created on 3/15/2023 Last update

3/15/2023

AS 2A

NP 3153 SH 3~ 275

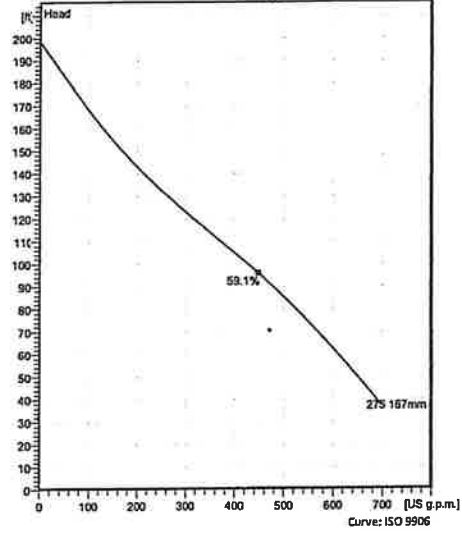
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Configuration

Motor number N3153.860 21-18-2KE-W IE3 17hp	Installation type P - Semi permanent, Wet
Impeller diameter 167 mm	Discharge diameter 3 Inch

Configuration

Pump information

Impeller diameter
167 mm

Discharge diameter
3 Inch

Inlet diameter
150 mm

Maximum operating speed
3510 rpm

Number of blades
2

Max. fluid temperature
40 °C

Material

Impeller
Stainless steel

Project Xylect-20263600
Block

Created by Tim Nedrow
Created on 3/10/2023 **Last update** 3/10/2023

NP 3153 SH 3~ 275

Technical specification



Motor - General

Motor number N3153.860 21-18-2KE-W IE3 17hp	Phases 3~	Rated speed 3510 rpm	Rated power 17 hp
ATEX approved No	Number of poles 2	Rated current 18 A	Stator variant 4
Frequency 60 Hz	Rated voltage 460 V	Insulation class H	Type of Duty 1
Version code 860			

Motor - Technical

Power factor - 1/1 Load 0.94	Motor efficiency - 1/1 Load 92.6 %	Total moment of inertia 0.729 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.92	Motor efficiency - 3/4 Load 93.8 %	Starting current, direct starting 145 A	
Power factor - 1/2 Load 0.87	Motor efficiency - 1/2 Load 94.5 %	Starting current, star-delta 48.4 A	

Project Xylect-20263600
Block

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Created on 3/10/2023 **Last update** 3/10/2023

NP 3153 SH 3~ 275

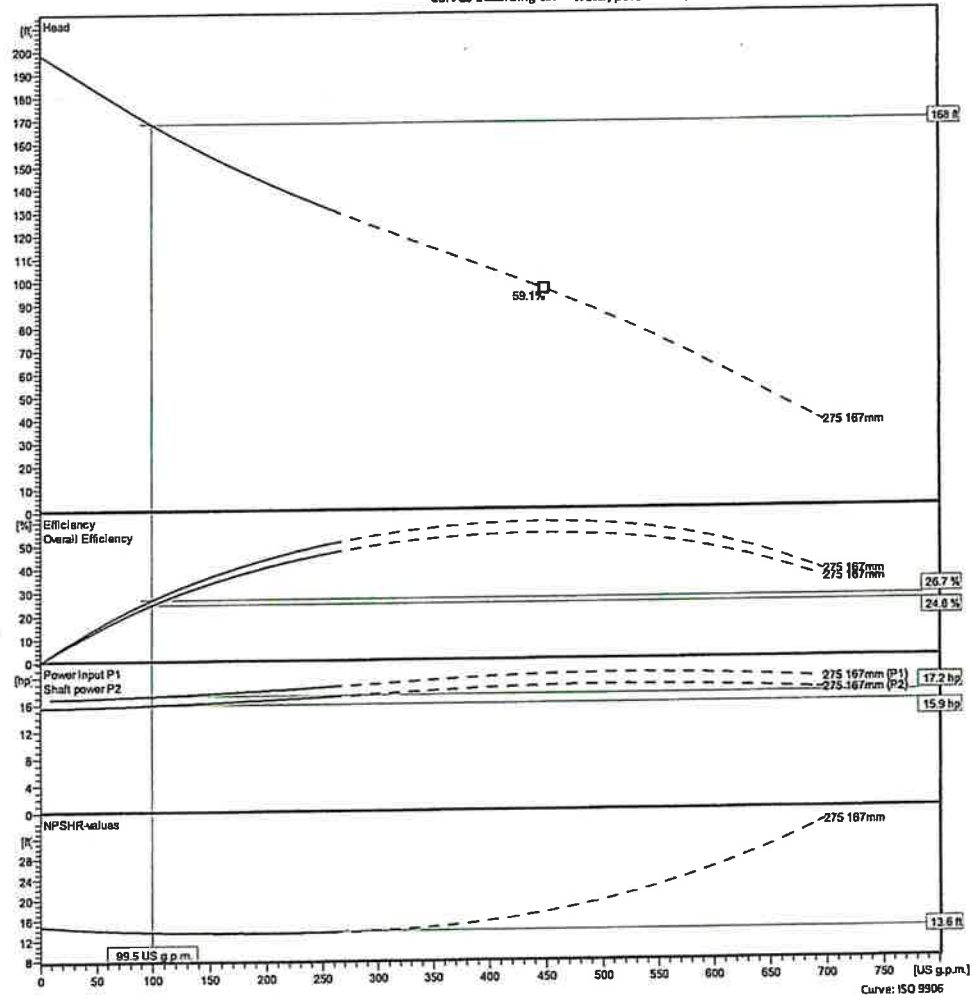
Performance curve



Duty point

Flow: 99.5 US g.p.m. Head: 168 ft

Curves according to: Water, pure / Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Xylect-20253600

Tim Nedrow

Created on 3/10/2023 Last update 3/10/2023

Curve: ISO 9906

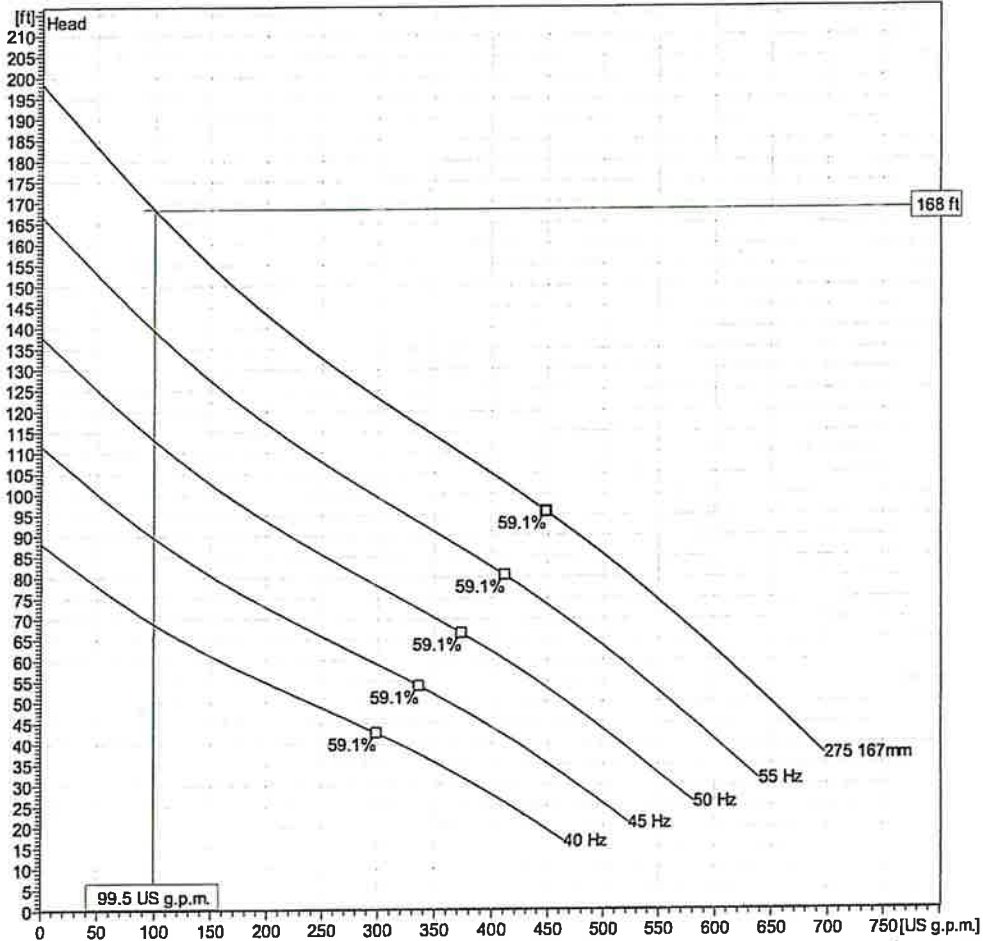
NP 3153 SH 3~ 275

Duty Analysis



a xylem brand

Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5R²/s



Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Spec. Energy	NPSHr
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft
1	99.5	168	15.9	99.5	168	15.9	26.7 %	21.50	13.6

Project
Block Xylect-20263600

Created by Tim Nedrow
Created on 3/10/2023

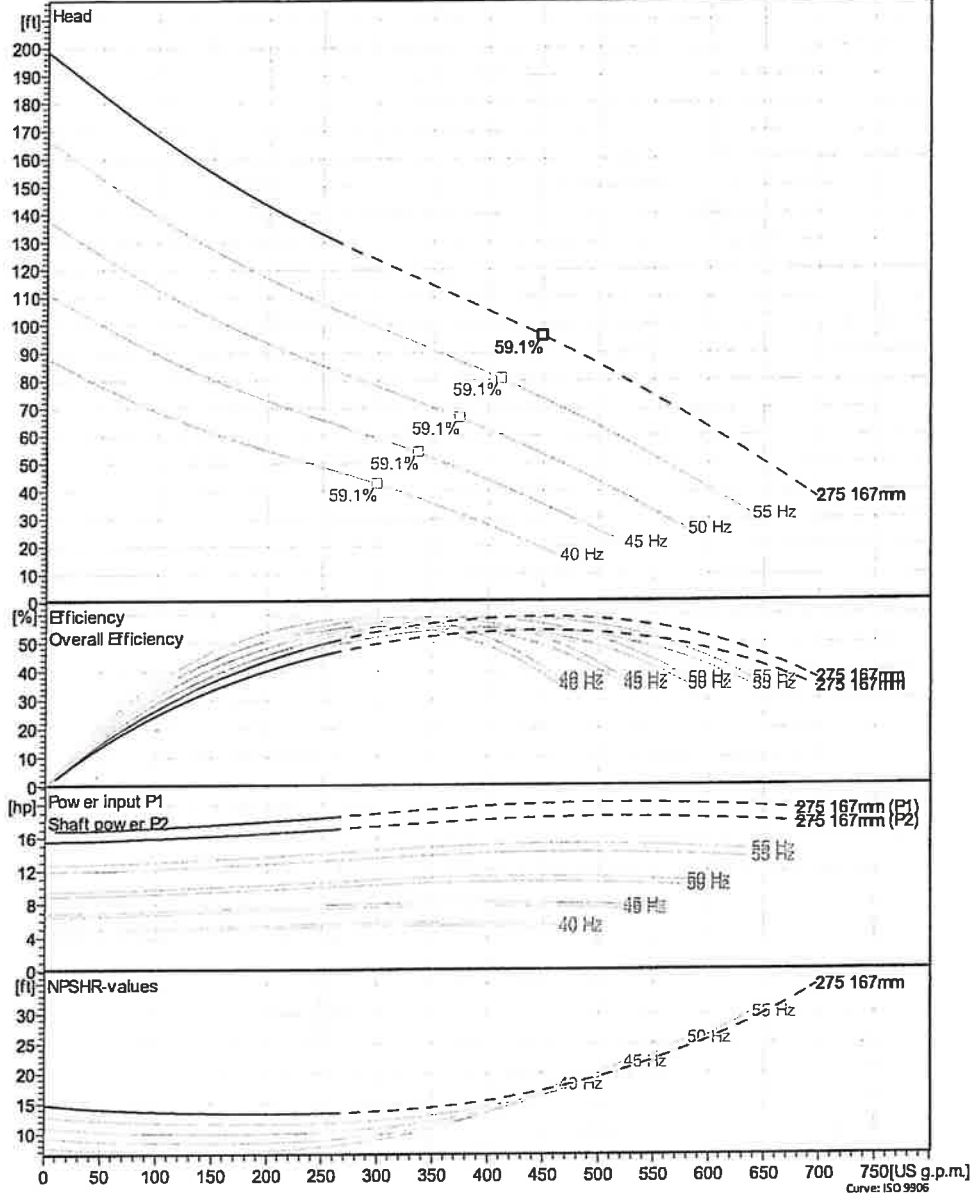
Last update 3/10/2023

NP 3153 SH 3~ 275

VFD Curve



Curves according to: Water, pure, 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Project Xylect-20263600
Block

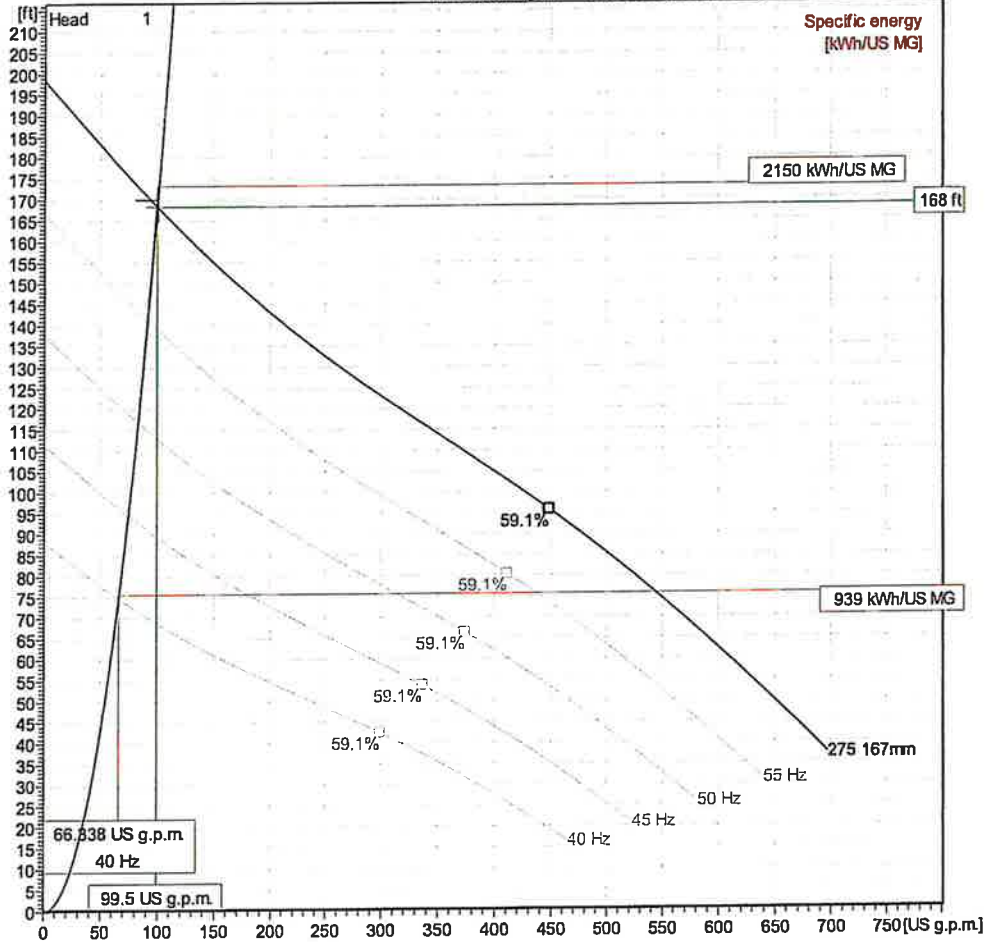
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Created on 3/10/2023 Last update 3/10/2023

NP 3153 SH 3~ 275

VFD Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHr
		US g.p.m.	ft	hp	US g.p.m.	ft	hp			
1	40 Hz	66.3	74.8	4.7	66.3	74.8	4.7	26.7 %	939	7.11

Project: Xylect-20263600
Block:

Created by: Tim Nedrow
Created on: 3/10/2023

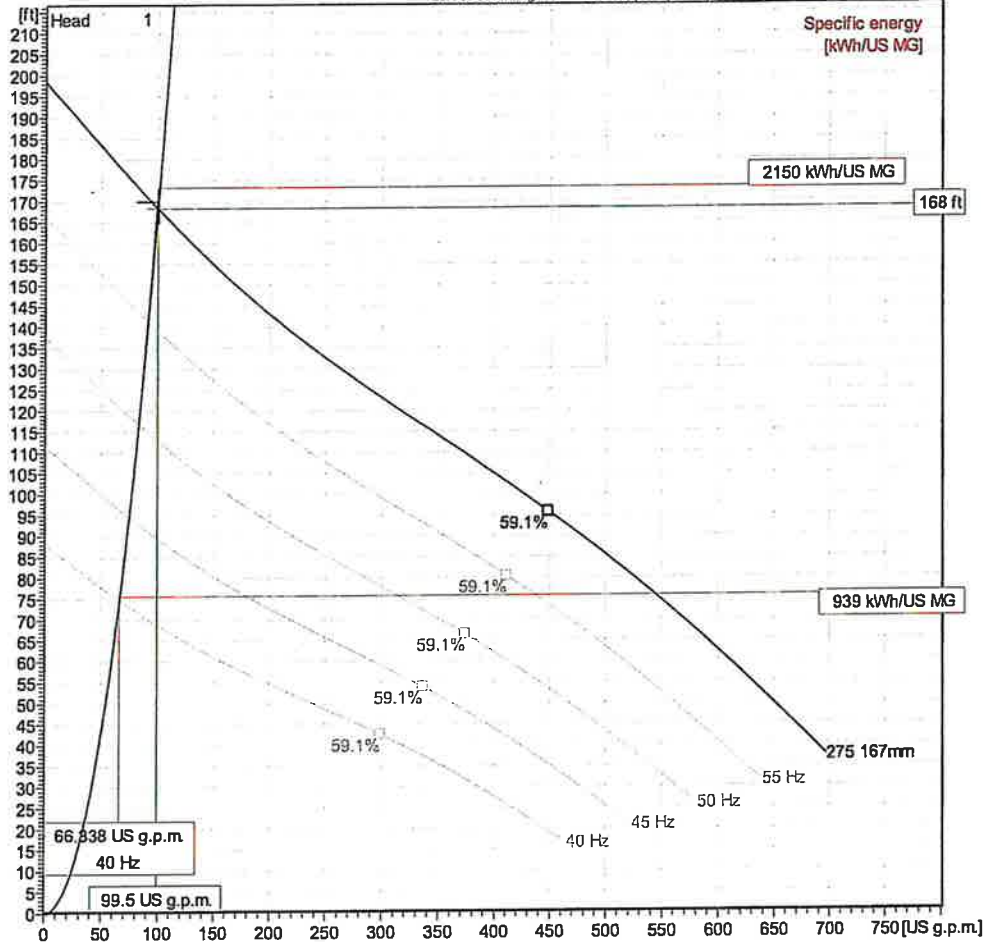
Last update: 3/10/2023

NP 3153 SH 3~ 275

VFD Analysis



Curves according to: Water, pure (100%) ; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating Characteristics

Pumps / Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Specific energy	NPSH _{req}
		US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	
1	60 Hz	99.5	168	15.9	99.5	168	15.9	26.7 %	2150	13.6
1	55 Hz	91.2	141	12.2	91.2	141	12.2	26.7 %	1770	11.8
1	50 Hz	82.9	117	9.19	82.9	117	9.19	26.7 %	1460	10.2
1	45 Hz	74.6	94.7	6.7	74.6	94.7	6.7	26.7 %	1180	8.59

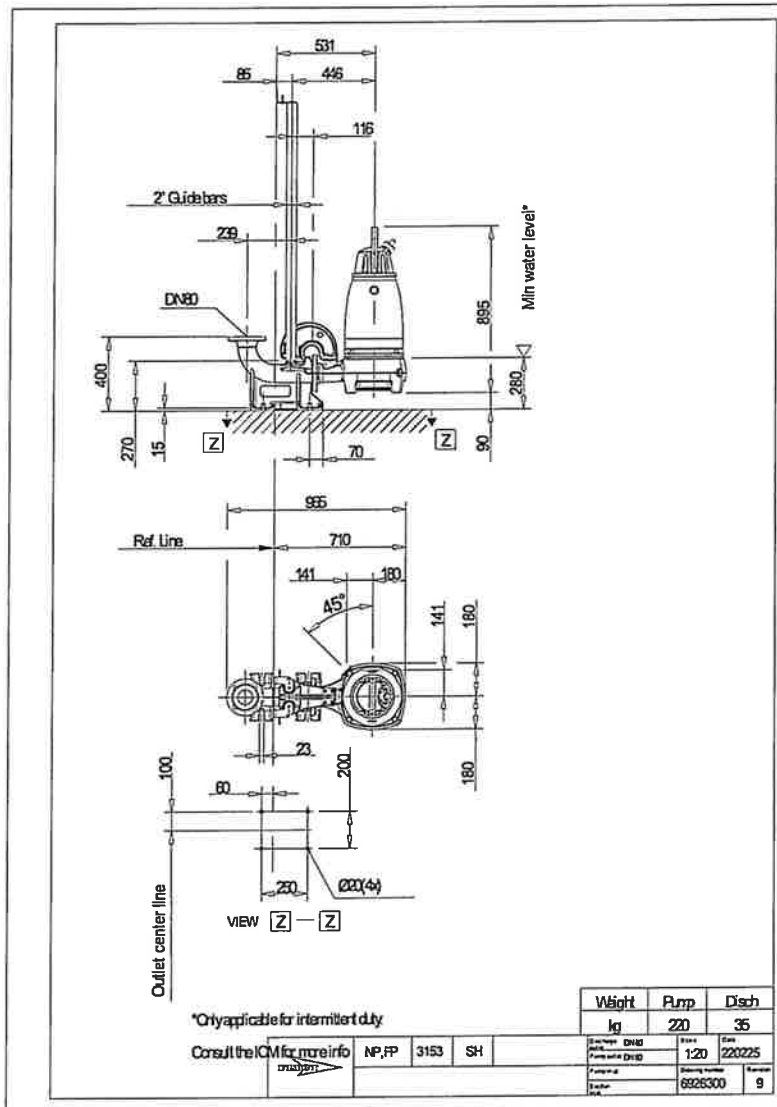
Project: Xylect-20263600
Block:

Created by: Tim Nedrow
Created on: 3/10/2023

Last update: 3/10/2023

NP 3153 SH 3~ 275

Dimensional drawing



Project Xylect-20263600
Block

Created by Tim Nedrow
Created on 3/10/2023 Last update

3/10/2023

PS 2B

NT 3153 SH 3~ 275

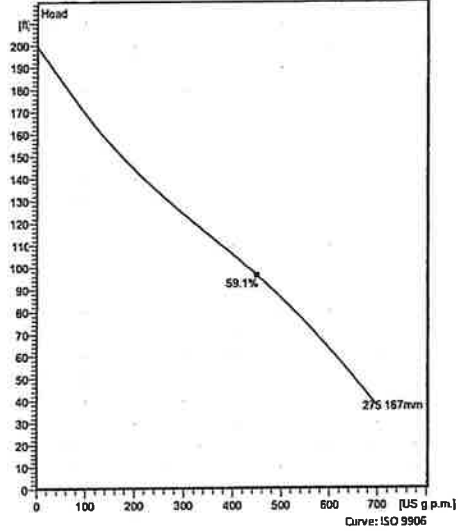
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft³/s



Configuration

Motor number N3153.185 21-1B-28B-D 23hp	Installation type T - Vertical Permanent, Dry
Impeller diameter 167 mm	Discharge diameter 3 inch

Configuration

Pump information

Impeller diameter
167 mm

Discharge diameter
3 inch

Inlet diameter
150 mm

Maximum operating speed
3510 rpm

Number of blades
2

Material

Impeller
Hard-Iron™

Max. fluid temperature
40 °C

Project Xylect-20314844
Block

Created by Tim Nedrow
Created on 3/20/2023 **Last update** 3/20/2023

NT 3153 SH 3~ 275

Technical specification



Motor - General

Motor number N3153.185 21-18-288-D 23hp	Phases 3~	Rated speed 3510 rpm	Rated power 23 hp
ATEX approved No	Number of poles 2	Rated current 26 A	Stator variant 4
Frequency 60 Hz	Rated voltage 460 V	Insulation class H	Type of Duty 1
Version code 185			

Motor - Technical

Power factor - 1/1 Load 0.91	Motor efficiency - 1/1 Load 91.0 %	Total moment of inertia 0.729 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.87	Motor efficiency - 3/4 Load 91.5 %	Starting current, direct starting 207 A	
Power factor - 1/2 Load 0.79	Motor efficiency - 1/2 Load 91.5 %	Starting current, star-delta 69 A	

Project Xylect-20314844
Block

Created by Tim Nedrow
Created on 3/20/2023 Last update 3/20/2023

NT 3153 SH 3~ 275

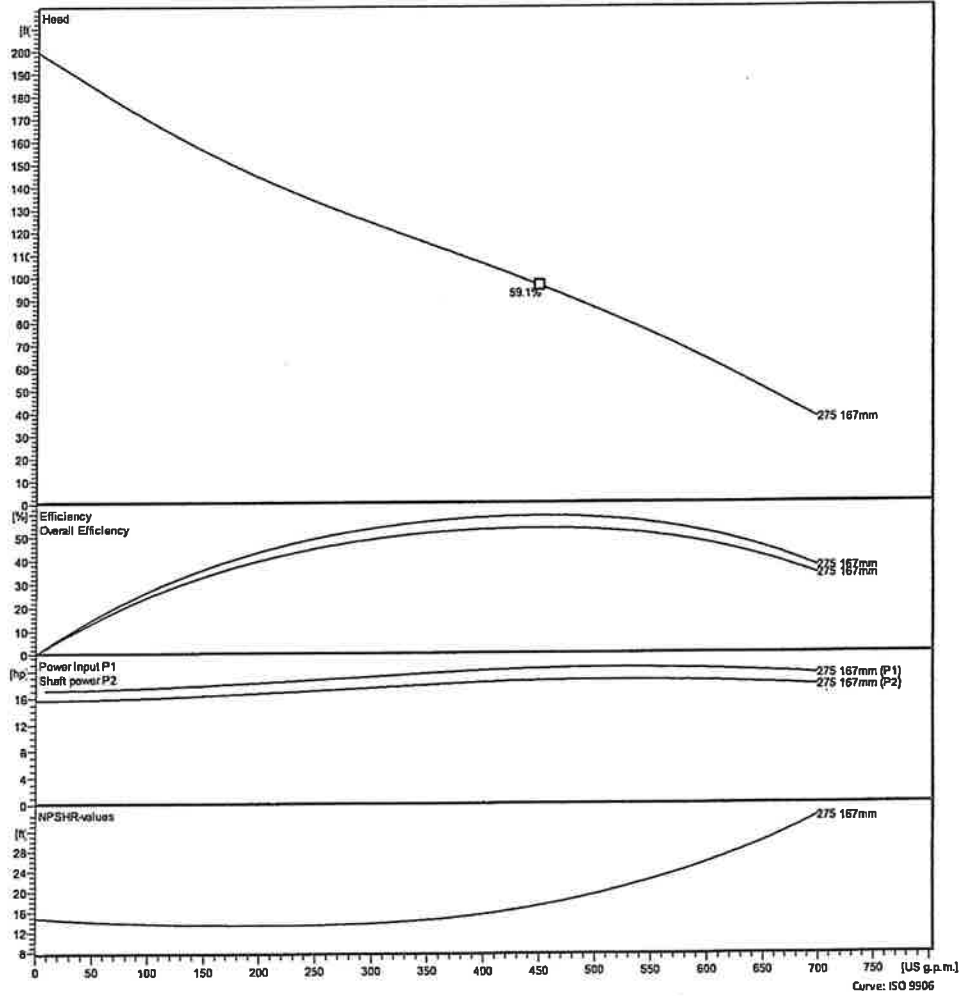
Performance curve



Duty point

Flow Head

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Xylect-20314844

Tim Nedrow

Created on 3/20/2023 Last update

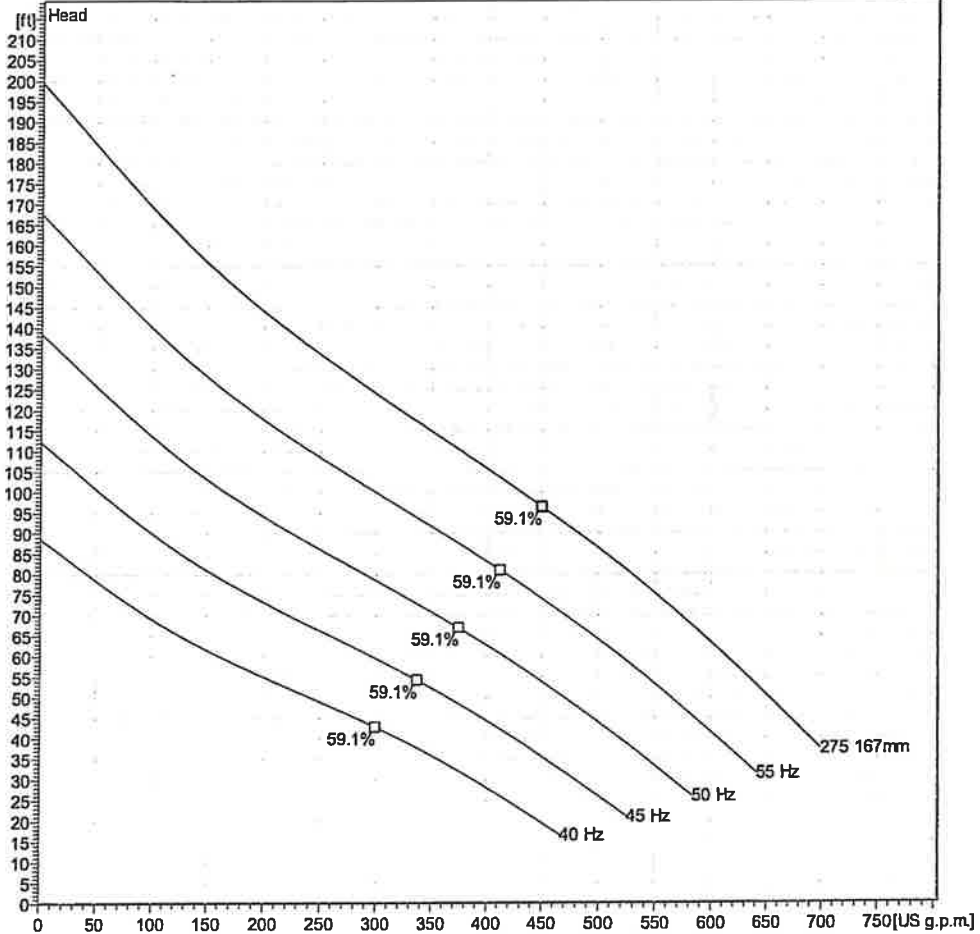
3/20/2023

NT 3153 SH 3~ 275

Duty Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating characteristics

Pumps / Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Spec. Energy	NPSHr
	US g.p.m.	ft	hp	US g.p.m.	ft	hp		kWh/US MG	ft

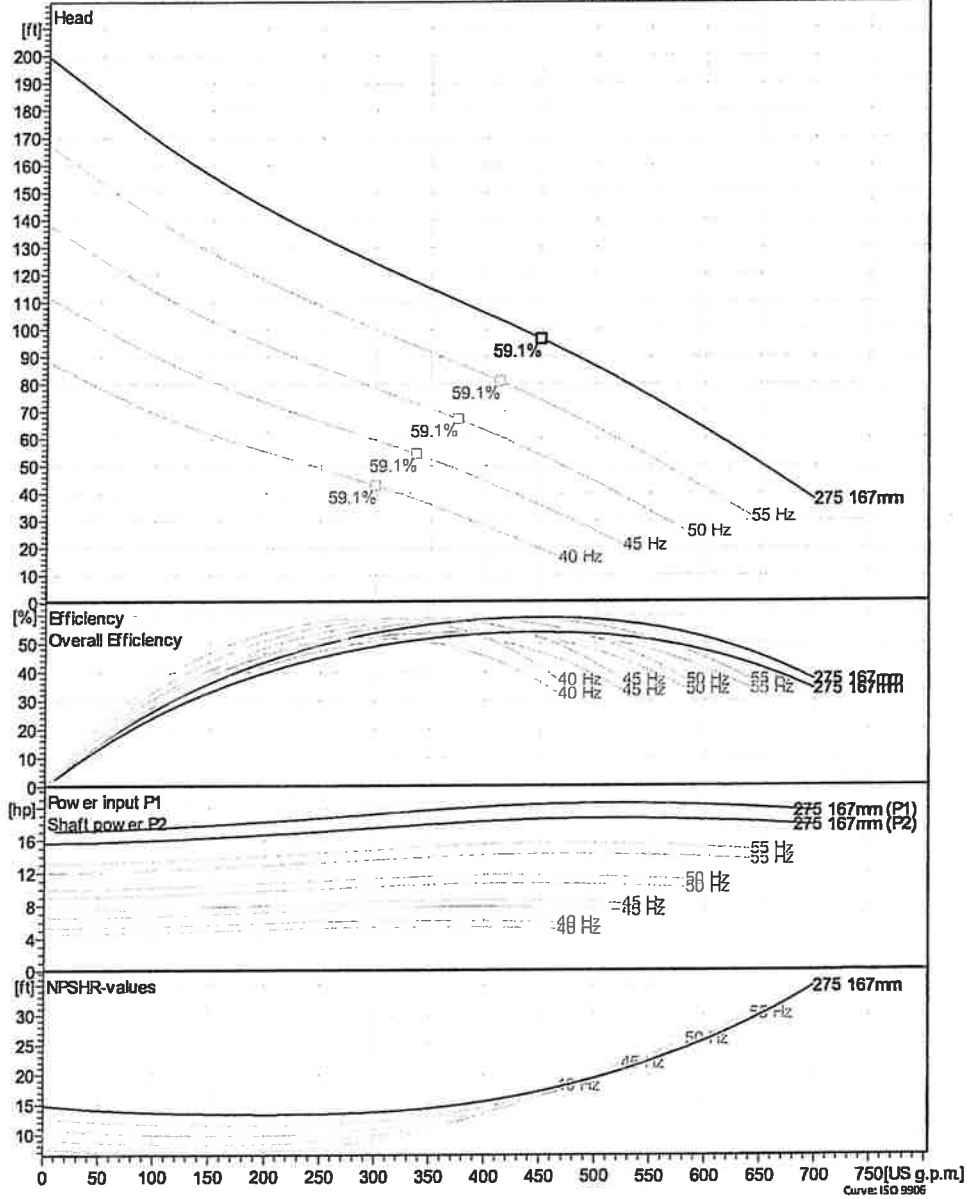
Project		Created by	Tim Nedrow		
Block	Xylect-20314844	Created on	3/20/2023	Last update	3/20/2023

NT 3153 SH 3~ 275

VFD Curve



Curves according to: Water, pure, 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Project: Xylect-20314844
Block:

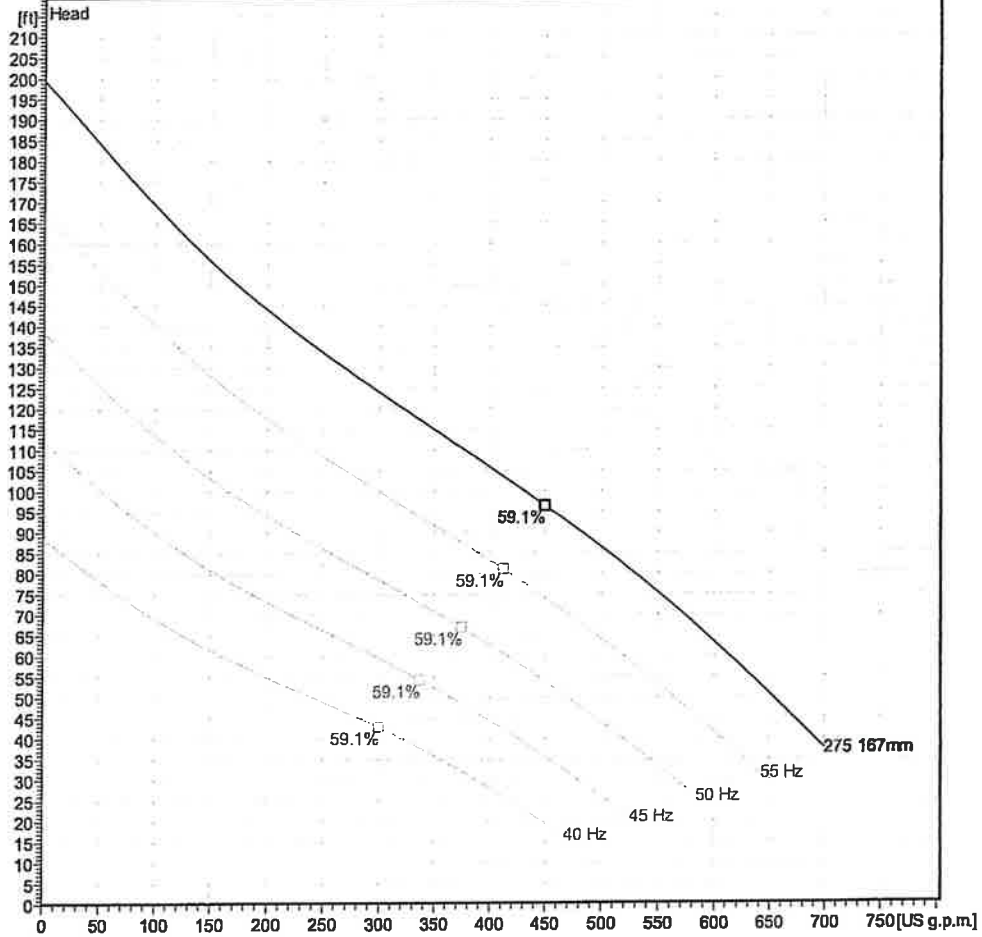
Created by: Tim Nedrow
Created on: 3/20/2023 Last update: 3/20/2023

NT 3153 SH 3~ 275

VFD Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating Characteristics

Pumps / Systems	Frequency	Flow US g.p.m.	Head ft	Shaft power hp	Flow US g.p.m.	Head ft	Shaft power hp	Hydr.eff.	Specific energy kWh/US MG	NPSHr ft
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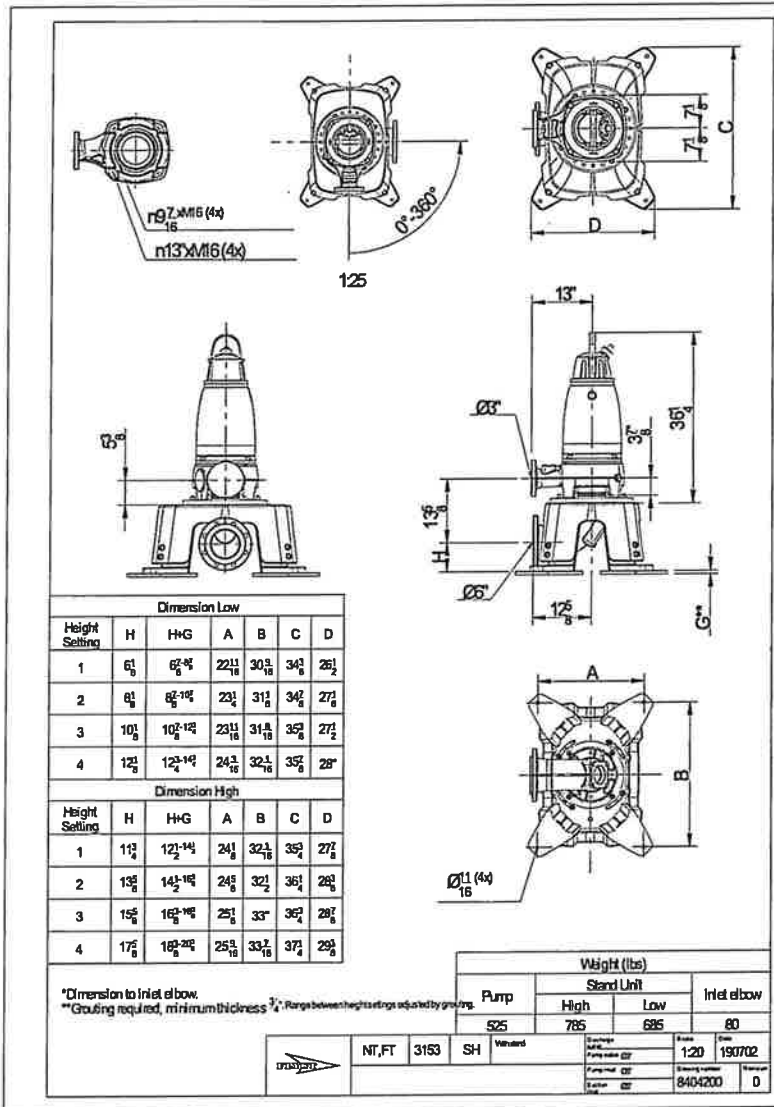
Project: Xylect-20314844
Block:

Created by: Tim Nedrow
Created on: 3/20/2023

Last update: 3/20/2023

NT 3153 SH 3~ 275

Dimensional drawing



Project: Xylect-20314844
Block:

Created by: Tim Nedrow
Created on: 3/20/2023 Last update:

3/20/2023

NP 3127 SH 3~ Adaptive 248

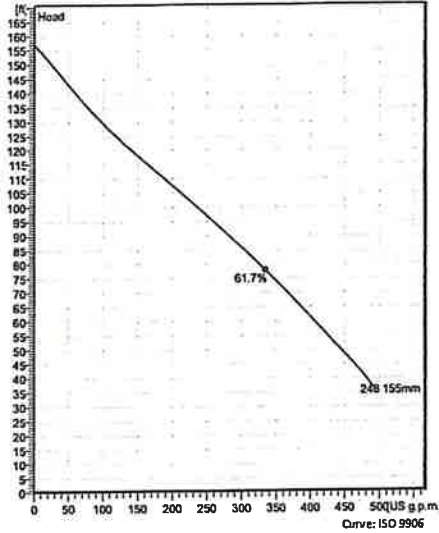
Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Configuration

Motor number N3127.060 21-11-2AL-W 11hp	Installation type P - Semi permanent, Wet
Impeller diameter 155 mm	Discharge diameter 3 Inch

Configuration

Pump information

Impeller diameter
155 mm

Discharge diameter
3 Inch

Inlet diameter
80 mm

Maximum operating speed
3495 rpm

Number of blades
2

Material

Impeller
Hard-Iron™

Stator housing material
Grey cast iron

Max. fluid temperature
40 °C

Project Xylect-20285854
Block

Created by Tim Nedrow
Created on 3/15/2023 **Last update** 3/15/2023

AS.3

NP 3127 SH 3~ Adaptive 248

Technical specification



Motor - General

Motor number N3127.060 21-11-ZAL-W 11hp	Phases 3~	Rated speed 3495 rpm	Rated power 11 hp
ATEX approved No	Number of poles 2	Rated current 13 A	Stator variant 12
Frequency 60 Hz	Rated voltage 460 V	Insulation class H	Type of Duty 1
Version code 060			

Motor - Technical

Power factor - 1/1 Load 0.92	Motor efficiency - 1/1 Load 87.6 %	Total moment of Inertia 0.451 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.90	Motor efficiency - 3/4 Load 88.4 %	Starting current, direct starting 110 A	
Power factor - 1/2 Load 0.85	Motor efficiency - 1/2 Load 87.7 %	Starting current, star-delta 36.7 A	

Project Xylect-20285854
Block

Created by Tim Nedrow
Created on 3/15/2023 Last update 3/15/2023

NP 3127 SH 3~ Adaptive 248

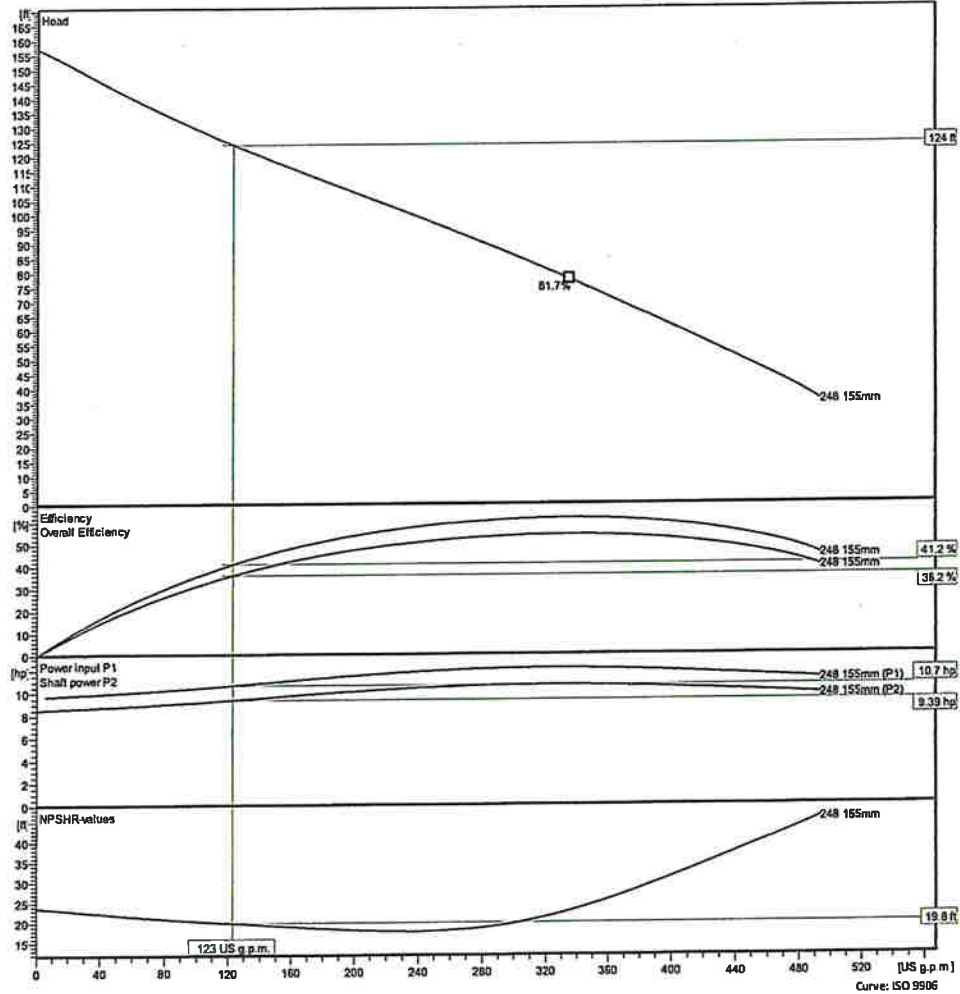
Performance curve



Duty point

Flow: 123 US g.p.m. Head: 124 ft

Curves according to: Water, pure Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft³/s



Xylet-2028584

Tim Nedrow

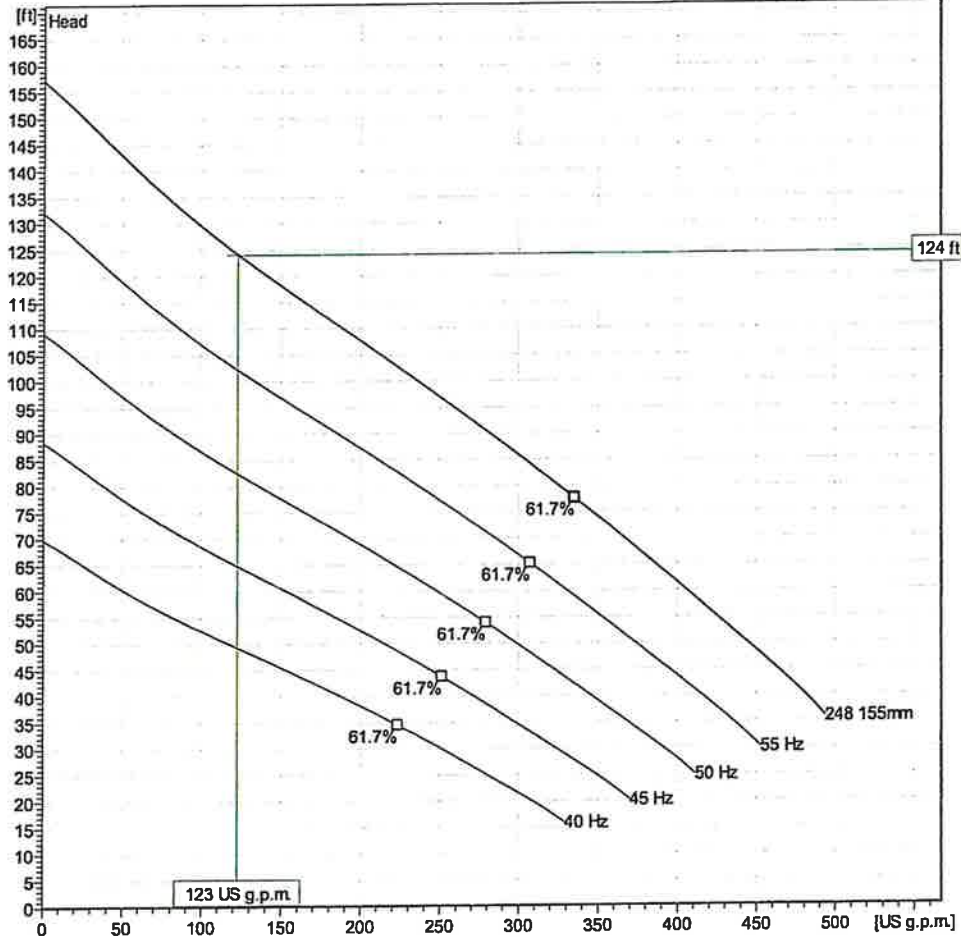
Created on 3/15/2023 Last update 3/15/2023

NP 3127 SH 3~ Adaptive 248

Duty Analysis



Curves according to: Water, pure [100%]; 39.2°F; 62.42lb/ft³; 1.6891E-5ft²/s



Operating characteristics

Pumps / Systems	Flow US g.p.m.	Head ft	Shaft power hp	Flow US g.p.m.	Head ft	Shaft power hp	Hydr.eff.	Spec. Energy kWh/US MG	NPSHr ft
1	123	124	9.39	123	124	9.39	41.2 %	1080	19.8

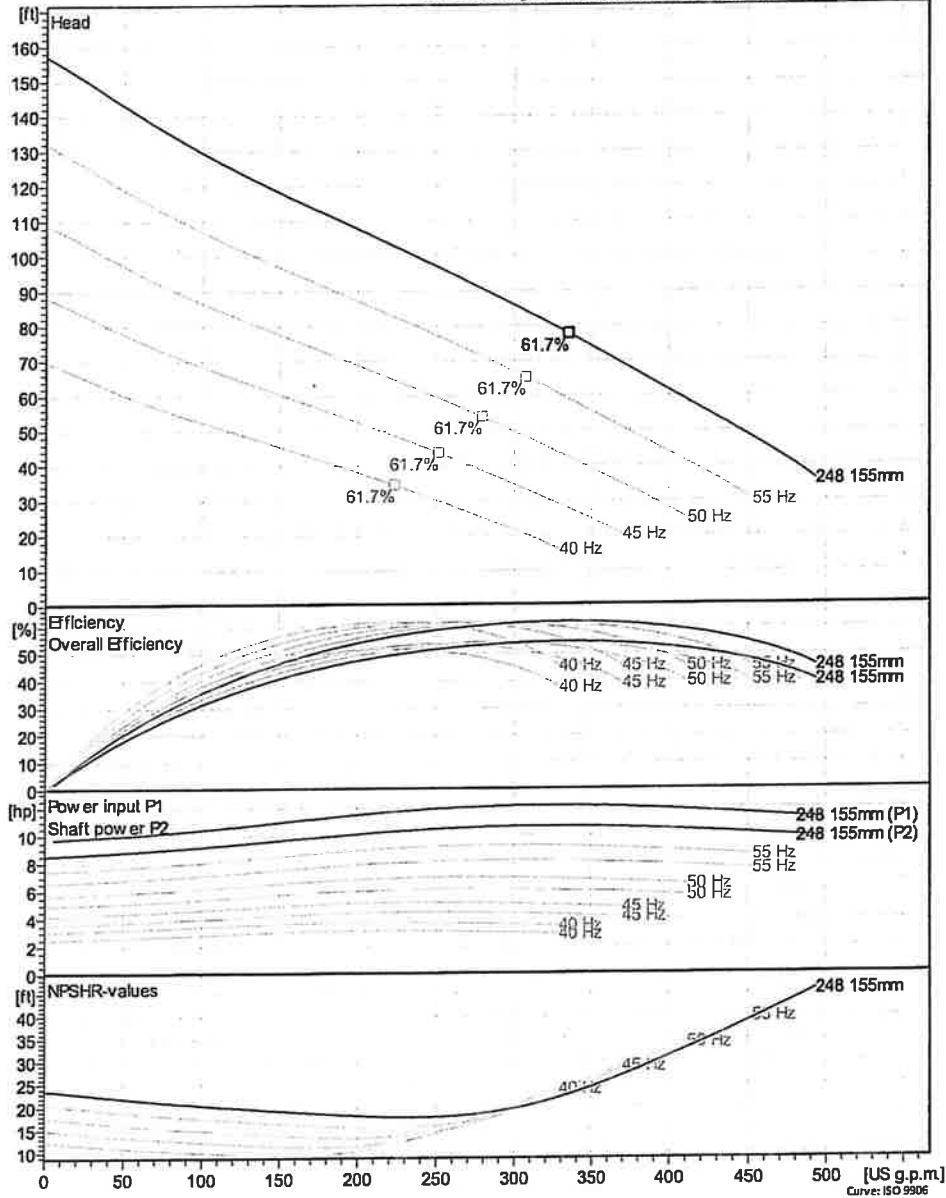
Project Block Xylet-20285854 Created by Tim Nedrow Created on 3/15/2023 Last update 3/15/2023

NP 3127 SH 3~ Adaptive 248

VFD Curve



Curves according to: Water, pure, 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Project Xylect-20285854
Block

Created by Tim Nedrow
Created on 3/15/2023 Last update 3/15/2023

PUMP STATION RAPID RELEASE CONTROL SYSTEMS

SCOPE:

A control system shall be supplied by the pump manufacture containing all the mechanical and electrical equipment necessary to provide for the operation of the submersible pump or pumps as depicted on the drawings. This specification is general and is intended for selection of the options that are required for the application.

ENCLOSURE:

The control panel enclosure shall be rated: (select one)

- Nema 12/3R painted steel
- Nema 4 painted steel
- Nema 4X stainless steel

The enclosure door shall be gasketed with a rubber composition material around the perimeter and shall be installed with a retainer to assure a positive weatherproof seal. The door shall open a minimum of 180 degrees. A padlock hasp shall be provided.

A polished inner door shall be mounted on a continuous aluminum aircraft type hinge and shall contain cutouts for the protrusion of the circuit breakers and provide protection of the personnel from internal live voltages. All control switches, pilot indicators, elapsed time meters and other operational devices shall be mounted on the external surface of the dead front. The dead front door shall open a minimum of 150 degrees to allow for access to the equipment for maintenance. A $\frac{3}{4}$ " break shall be formed around the perimeter of the dead front to provide rigidity.

A back plate shall be manufactured from 12 gauge sheet steel and be finished with a primer coat and two {2} coats of baked-on white enamel. All hardware shall be mounted using stainless steel machine thread screws. Sheet metal screws shall not be acceptable. All installed devices will be permanently identified with engraved legends.

POWER DISTRIBUTION:

The panel power distribution shall include all necessary components and be wired with stranded copper conductors rated at 90 degrees "C". Conductor terminations shall be as recommended by the device manufacture.

The power system shall contain incoming power terminals, motor circuit breakers and control circuit breaker. All circuit breakers shall be heavy duty thermal magnetic or motor circuit protector similar and equal to Square "D" type "FAL". Each breaker shall be sized to adequately meet the operating conditions of the load and have a minimum interrupting capacity of 10,000 amps at 230v and 18,000 at 460v. Breakers shall be indicating type, providing an "on-off-tripped" positions of the handle. They shall be quick make-quick break on manual and automatic operation and have inverse time characteristics. Breakers shall be designed so that tripping of one pole automatically trips all poles.

Motor starters shall be open frame, across the line, NEMA rated with individual overload protection in each phase. Motor starter contacts and coil shall be replaceable from the front of the starter without removal of the starter from its mounted position. Overload heaters shall be block type, utilizing melting alloy spindles, sized for the full load amperage of the load. Adjustable overloads, definite purpose contactors, fractional size starters and horsepower rated contactors or relays shall not be used.

A lightning-transit protector shall be provided. The device shall be a solid state device with a response time of less than 5 nano-seconds with a withstanding surge capacity of 6500

PUMP STATION RAPID RELEASE CONTROL SYSTEMS

amperes. Units shall be instant recovery, long life and have no holdover currents.

The following components will be supplied as standard equipment.

- 1 12 pin plug in phase/voltage monitor shall be supplied with two double pole double throw contacts.
- 2 Nema 4 rated Hand Off Auto or spring loaded Hand Auto switches for bypass control depending on the control selections.
- 3 Run/ failure lights as required.
- 4 Elapse time meters
- 5 Alternation with lead /lag selector/ test switch/indicators
- 6 50 watt condensation heater and thermostat.
- 7 Control wiring to be 18 AWG copper-tinned rated at 105 degrees C.
- 8 Each wire shall be numbered corresponding to the wiring diagram.
- 9 Single phase capacitor banks will be provided when required.

CONTROL OPTIONS

24vac FLOAT REGULATOR SYSTEM:

A 24vac control system shall be provided for the float control system. The system shall provide for the automatic and manual control and alternation of the pumps to maintain a pumped down condition of the wet well. Levels shall be sensed by float regulators adjusted to the levels as shown on the plans. Each pump shall be controlled by a float regulator and when tilted shall turn the pump on. The pump (s) shall remain "on" until a common "off" level is reached. At the conclusion of each pump cycle, an alternator shall switch the pumps on the next cycle to equalize run time on the pumps. In the event the "off" float regulator fails, the system shall sense the failure and switch the "off" level to the second float regulator. The system shall provide indication for the regulators and indicate a failure of the "off" float regulator. Controls contingent on the "off" float regulator supplying control power to the other regulators is not acceptable.

PUMP STATION RAPID RELEASE CONTROL SYSTEMS

PUMP PROTECTION FEATURES

Mini-Cas –A solid state device that provides a signal to the pump moisture and thermal measuring devices. The relay, in conjunction with the monitoring device shall measure the moisture and thermal characteristics of the motor and provide an indication of an out of tolerance relay will operate from a 24vac power source and shall provide a signal current of 7.0 < 30 MA to the control device.

HIGH LEVEL ALARM FEATURES

This option included (A) as listed above as well as an alarm horn, silence button and relay. The alarm horn shall provide a signal of not less than 90db at 10 feet. The alarm horn will be mounted on the side of the enclosure with a weatherproof box.

MISCELLANEOUS

A final as built drawings encapsulated in mylar shall be attached to the inside of the front door. A list of all legends shall be included.

All control panels shall be listed by a nationally recognized testing laboratory [NRTL] and apply

PUMP STATION RAPID RELEASE CONTROL SYSTEMS

the certification necessary to indicate the NRTL approval.

All intrinsically safe controls shall be certified under UL Hazardous location with UL913 devices acceptable for use in class I,II,III, division I locations in addition to the NRTL recognition.

All equipment shall be guaranteed for a period of three (3) years from the date of shipment. The guarantee is effective against all defects in workmanship and / or defective components. The warranty is limited to the replacement or repair of the defective equipment.

EXTERNAL SENSORS

MECHANICAL FLOAT REGULATOR

Normally used with control option "A or C".

40' -3 wire 19awg PVC cable

Polypropylene case

Max. AMP 16a at 250v

Temp. rating 32F to 140F

Operating points 37degrees rising and 17 degrees falling

Maximum angular displacement 60%