THE CITY OF MOBILE
MOBILE, ALABAMA

PROJECT MANUAL
FOR

SERVICE CONTRACT SPLASHPAD MAINTENANCE AND REPAIRS MEDAL OF HONOR PARK

SC-036-21

City of Mobile, Alabama
Building Services Department
P. O. Box 1827
Mobile, AL 36633-1827
(251) 208-7454

August 11, 2021

Bid Date: August 25, 2021

INDEX TO DOCUMENTS

SECTION/DOCUMENT NAME ……NUMBER OF PAGES

BIDDING AND CONTRACT REQUIREMENTS

INVITATION TO BID	2
INSTRUCTIONS TO BIDDERS	6
BID FORM	8
STANDARD SERVICE CONTRACT AGREEMENT	10
CERTIFICATES:	
E-VERIFY	2
INSURANCE REQUIREMENTS	3
SUBCONTRACTING & MAJOR SUPPLIERS PLAN	5
GENERAL CONDITIONS	9

SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS	
SCOPE OF WORK	2
EXHIBIT A – MANUFACTURER'S SPECIFICATIONS	89

END OF SECTION

INVITATION TO BID

You are invited to submit a sealed bid for the following Service Contract:

PROJECT NAME: SPLASHPAD MAINTENANCE AND REPAIRS

PROJECT LOCATION: MEDAL OF HONOR PARK
1711 HILLCREST ROAD, MOBILE, AL 36695

PROJECT NUMBER: SC-036-21

All as described in the Specifications (Documents) prepared by the City of Mobile, Building Services Department.

1. BID DATE:

A. Sealed formal Proposals of a stipulated sum (fixed price) will be received and clocked in until **2:00 P.M., Wednesday, August 25, 2021,** in the office of the City Clerk, Government Plaza, 205 Government St., Mobile, Alabama, South Tower, Ninth Floor, Room 908.

B. All Bids not clocked in at the City Clerk's Office prior to the time specified, or Bids received after the specified time, will be automatically rejected and returned immediately, unopened.

C. The same will be publicly opened and read at 2:30 PM in the Atrium of Government Plaza.

2. BID DOCUMENTS AND SPECIFICATIONS:

A. The Project Manual, including all Bid Documents and Specifications, may be obtained from the City of Mobile, Department of Building Services, Government Plaza, 205 Government St., Mobile, Alabama, South Tower, fifth floor, or the City of Mobile's website: www.cityofmobile.org/bids. No deposit will be required.

3. BID SECURITY: (Required only if Total Bid is $15,000 or more)

A. A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, made payable to the City of Mobile or Bid Bond in the amount of 5% of the Bid Amount but in no event more than $10,000, is required to accompany bid.

B. Bid Bond shall be valid for a minimum of 60 days from the date of the Bid.

4. PRE-BID CONFERENCE

A. A pre-bid conference shall be held at the **Splashpad at Medal of Honor Park, 1711 Hillcrest Road, Mobile, AL 36695, Wednesday, August 18, 2021, at 9:00am**. A representative of the Bidder is encouraged to be present at the meeting since social distancing practices shall be observed, including wearing of masks by all participants. However, if no representative can be present, the Bidder shall contact the Service Contract Administrator at 251-208-7639, at least 24 hours prior to the meeting, in order to coordinate attendance of the meeting by conference call. Bidders are required to participate in the Pre-Bid Conference, visit the site prior to submitting a Bid and include all costs associated with the project in their Bids.

5. IRREGULARITIES AND REJECTION:

A. The City of Mobile reserves the right to waive irregularities in the Bid and in Bidding, and to reject any or all Bids.

END OF SECTION

INSTRUCTIONS TO BIDDERS

THE ATTENTION OF ALL BIDDERS IS CALLED TO THE FOLLOWING INSTRUCTIONS:

1. BIDDING DOCUMENTS:

A. Bidders may obtain complete sets of Bid Documents and Specifications (Project Manual) from the Department of Building Services as listed in the Invitation to Bid.

B. Bidders shall use the complete set of documents in preparing their bid. The City of Mobile assumes no responsibility for errors or misinterpretations resulting from use of an incomplete set of documents.

2. INTERPRETATION OF BID DOCUMENTS:

A. Bidders shall carefully study and compare the Bidding Documents and compare the Bidding Documents with each other, shall examine the site and local conditions and shall at once report to the Service Contract Administrator errors, inconsistencies or ambiguities discovered.

B. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Service Contract Administrator at least three (3) calendar days prior to the date for receipt of Bids.

C. Interpretations, corrections and changes to the Bidding Documents will be made by a formal, written Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely on them.

3. BIDDING PROCEDURES:

A. No Bid will be considered unless made out and submitted on the Bid Form as set forth herein.

B. All blanks on the Bid Form shall be legibly executed in a non-erasable medium. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

C. Interlineations, alterations and erasures must be initialed by the signer of the Bid.

D. All requested Unit Prices and Allowances shall be bid and the Schedule of Values completely filled in.

E. Addenda issued prior to the opening of Bids shall be acknowledged on the Bid Form and any adjustment in cost shall be included in the Contract Sum. Failure to acknowledge the Addenda on the Bid Form may cause bidder to be disqualified.

4. BID SECURITY:

A A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, made payable to the City of Mobile or Bid Bond in the amount of 5% of the Bid Amount but in no event more than $10,000, is required to accompany bid. By submitting a Bid Security, the Bidder pledges to enter into a Contract with the City of Mobile on the terms stated in the Bid, and will, if required, furnish bonds covering faithful performance of the Contract and required insurance certificate. Should the Bidder

refuse to enter into such Contract or fail to furnish such bonds or insurance, the amount of the Bid security shall be forfeited to the City as liquidated damages, not as a penalty.

B. Bid Bond shall be valid for a minimum of sixty (60) days from the date of Bid. The City reserves the right to retain the security of all Bidders until the successful Bidder enters into the Contract or until sixty (60) days after Bid opening, whichever is sooner.

C. Bonds must be issued by a Surety licensed to do business in the State of Alabama and must be signed or countersigned by a licensed resident agent of the State of Alabama. If the project cost is more than $50,000.00 the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

D. Power of Attorney is required for all Bonds.

5. EXAMINATION OF DOCUMENTS AND SITE OF THE WORK:

A. Before submitting a Bid, Bidders should carefully examine the Specifications, visit the site of the Work, fully inform themselves as to existing conditions and limitations, and include in the Bid a sum to cover the cost of all items included in the Contract and necessary to perform the Work. The submission of a Bid will be considered as conclusive evidence that the Bidder has made such examination.

6. SUBMISSION OF BIDS:

A. Bid, Bid Security and other supporting data as specified shall be submitted in a sealed, opaque envelope, approximately 9" x 12" or larger and shall be marked on the outside with the words, ***"Sealed Bid for* SPLASHPAD MAINTENANCE & REPAIRS AT MEDAL OF HONOR PARK"**, along with the Building Services Department's project number, the Bid Date, and Service Contractor's name, address, and City of Mobile license number.

B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date specified in the Invitation to Bid, or as modified by Addendum, will not be considered. Late Bids will be returned to the Bidder unopened.

C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

D. Oral, telephonic, facsimile or other electronically transmitted bids will not be considered.

7. MODIFICATION OR WITHDRAWAL OF BIDS:

A. A Bid may not be modified, withdrawn, or canceled by the Bidder for a period of sixty (60) days following the time and date designated for receipt of bids, and each Bidder so agrees in submitting a Bid.

8. CONSIDERATION AND AWARD OF BIDS:

A. At the discretion of the City, the properly identified Bids received on time will be publicly opened and will be read aloud.

B. The City shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete, or irregular is subject to rejection.

C. It is the intent of the City to award a Contract to the lowest responsible and responsive Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The City shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the City's judgment, is in the City's best interest.

D. The award shall be based on the lowest Total Base Bid as listed on the Bid Form.

9. PROOF OF COMPETENCY OF BIDDER:

A. Bidders are required to furnish evidence satisfactory to the City of Mobile that they have a minimum of Five (5) consecutive years of means and experience in splashpad maintenance and repairs to assure the completion of the Contract in a satisfactory manner.

10. SIGNING OF CONTRACT:

A. The Standard Contract Between City of Mobile and Service Contractor (sample included herein) shall serve as the Agreement between the City and Service Contractor.

B. The Bidder to whom the Contract is awarded shall, within ten (10) calendar days of receiving the Contract Forms, properly execute and deliver to the Service Contract Administrator, the following items, along with an electronically signed Agreement, **failure to do so within this timeframe may cause the City of Mobile to reject the award and proceed with the next highest quote:**

1. Certificate of Insurance, along with all required endorsements
2. Evidence of enrollment in the E-Verify program.
3. Enrollment in the City of Mobile's Vendor Registration Portal: https://www.cityofmobile.org/bids/vendor-portal-information/
4. Other documentation as required by the Contract Documents.

C. Failure or refusal to sign the Agreement or to provide the Bond, Certificates of Insurance in a form satisfactory to the City of Mobile, E-Verify verification, or other required documentation, shall subject the Bidder to immediate forfeiture of Bid Bond or Bid Check.

11. SOCIALLY AND ECONOMICALLY DISADVANTAGED EMPLOYMENT:

A. Service Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen (15%) percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities, see attached Subcontracting & Major Supplier Plan.

12. AMERICANS WITH DISABILITIES ACT (ADA):

A. Bidders shall comply with the provisions of the Americans with Disabilities Act (ADA) of 1990 which prohibits discrimination against individuals with disabilities.

13. USE OF DOMESTIC PRODUCTS:

A. Section 39-3-1, Alabama Code, 1975, provides that the Service Contractor agree, in the execution of this Contract, to use materials, supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if available at reasonable prices, and that breach of this Agreement by the Service Contractor shall result in the assessment of liquidated damages in an amount not less than $500.00 nor more than twenty (20) percent of gross amount of the Contract Price.

14. NON-RESIDENT (OUT OF STATE) SERVICE CONTRACTORS:

A. Preference to Resident Service Contractors: Section 39-3-5, Code of Alabama, 1975, provides that a non-resident (out of State) bidder domiciled in a state which grants a preference to local Service Contractors is to be awarded a public contract on the same basis as the non-resident bidder's state awards contracts to Alabama bidders. Alabama bidders are given a preference to the same extent that a non-resident bidder receives a preference in his home state. A non-resident bidder must include with any written bid documents a written opinion of an attorney licensed to practice in the non-resident bidder's state declaring what preferences, if any, exists in the non-resident's state.

B. Certificate of Authority: All non-resident (out of State) corporations must register with the Secretary of State and obtain a Certificate of Authority before doing business in the State of Alabama. Out of state Bidders should register and secure the required Certificate before submitting a Bid. The account number shall be included on the Bid Form.

15. LOCAL PREFERENCE AWARDS

A. The City of Mobile awards contracts to the lowest responsible bidders in competitive bidding processes prescribed by Alabama law. Section 41-16-50 of Alabama Code allows the City to establish competitive bid preferences for local businesses and certain other types of Alabama businesses. Here's how these preferences work:

1) The Competitive Bid Law applies to the expenditure of funds for labor, services, work, for the purchase of personal property with a value of $15,000 or more, and for the lease of personal property where the terms of the lease require payment of $15,000 or more.
2) State law authorizes local preferences for acquisitions under the Competitive Bid Law. Local preferences do not apply to contracts for improvements to public property under the Public Works Law.
3) Resident Responsible Bidders- The City may award a bid to a responsible bidder with a place of business within the City or its police jurisdiction if the bid is no more than 5% more than the lowest responsible bidder. The City may apply the 5% preference when the apparent lowest responsible bidder is located anywhere outside the City or its police jurisdiction.
4) Foreign Entities- A foreign entity is a business that does not have a place of business within the State.
5) Preference for Resident Responsible Bidders against Foreign Entities- The City may award a bid to a responsible bidder with a place of business within

the city or its police jurisdiction if the bid is not more than 10% more than the apparent lowest responsible bid submitted by a Foreign Entity.

6) Preference for Disadvantaged Businesses- The City may award a bid to a "qualifying" responsible bidder with a place of business anywhere in the State if the bid is not more than 10% more than the apparent lowest responsible bid from a Foreign Entity. For purposes of this preference, a "qualifying" responsible bidder is: (1)a woman-owned enterprise; (2) an enterprise of small business, as defined in Section 25-10-3; (3) a minority owned business enterprise; (4) a veteran-owned business enterprise; or (5) a disadvantaged-owned business enterprise.

B. Summary of Preferences:

Local business has a 5% price preference over a lowest bidder that has a place of business in Alabama but not local to the City. Local business has a 10% price preference over a lowest bidder that does not have a place of business anywhere in Alabama. A small, woman-owned; minority-owned; veteran-owned; or disadvantaged owned business, that has a place of business in Alabama, has a 10% preference over a lowest bidder that does not have a place of business in Alabama.

C. City Discretion:

The City has the sole discretion whether to apply these preferences to a particular bid award, and to determine whether a responsible bidder meets the preference categories described above.

D. "Place of Business":

The City considers a "place of business" to be a specific location actually occupied, either continually or on a regular basis, by the City or someone in the City's employment. It should be a place where the public can engage in commercial transactions, or regular, routine operations are conducted by employees in furtherance of the business enterprise. An occasional use or occupation of a place for business purposes is not sufficient to constitute a place of business. Mere unimproved pieces of property used simply for storage, or locations that serve purposes primarily other than that single entity's "place of business," such as an individual's home or residence, or an an agent's or attorney's office who may represent multiple parties out of that specific location, do not qualify as a "place of business" for these purposes.

"Owned" means 51% or greater active ownership by a person or persons of the designated preference category.

E. Questions to be answered by all vendors (regardless of whether intending to claim a preference):

1) Do you operate a place of business within the City of Mobile or the City's police jurisdiction? If so, please describe the nature and location of your business facility here, addressing the factors mentioned above.
2) If you do not have a place of business within the City or the City's police jurisdiction, do you operate a place of business within the State of Alabama? If so please describe.
3) Should the City consider your business: woman-owned, a small business, minority-

owned, veteran-owned, or disadvantaged-owned? If so, please provide any evidence for why the City should consider your business to be characterized in one or more of these categories. Please submit any current certifications you may have relating to these categories.

16. ALABAMA IMMIGRATION ACT

A. The State of Alabama Immigration Law (Act No. 2011-535 as amended by Act No. 2012- 491), requires that Service Contractors not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. In addition, Service Contractors are required to enroll in the federal E-Verify program and submit verification of enrollment to the City.

17. ANTI-BOYCOTT STATEMENT

A. Public contracts with entities engaging in certain boycott activities:
(a), Per State of Alabama Code, Section 41-16-5 (b), (Act No. 2016-312), subject to subsection (c), a governmental entity may not enter into a contract governed by Title 39 or Chapter 16, Title 41, with a business entity unless the contract includes a representation that the business entity is not currently engaged in, and an agreement that the business entity will not engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which this state can enjoy open trade.

B. (c) (1) This section does not apply if a business fails to meet the requirements of subsection (b) but offers to provide the goods or services for at least 20 percent less than the lowest certifying business entity.

C. This section does not apply to contracts with a total potential value of less than fifteen thousand dollars ($15,000).

D Nothing in this section requires a business entity or individual to do business with any other particular business entity or individual in order to enter into a contract with a governmental entity.

18. CITY OF MOBILE BUSINESS LICENSE

A. City of Mobile Business License is required and must be current at time of bidding.

19. CDC/NIH Covid-19 Guidelines are in effect. The Service Contractor shall adhere to current guidelines as directed by the City. All Service Contractor's personnel shall wear a face mask/face covering at all times while in a City of Mobile building, adhere to current social distancing guidelines, and note that temperature checks may be conducted.

END OF SECTION

BID FORM

The following Bid Format shall be used. Bids submitted on alternate forms may be rejected. Fill in all blank spaces with an appropriate entry. Bid Form must be signed by an officer of the company and notarized.

TO: City of Mobile, 205 Government St., P.O. Box l827, Mobile, AL, 36633-1827

REF: PROJECT NAME: SPLASHPAD MAINTENANCE AND REPAIRS

PROJECT LOCATION: MEDAL OF HONOR PARK
1711 HILLCREST ROAD, MOBILE, AL 36695

PROJECT NO.: SC-036-21

In compliance with the Bid Documents and having carefully and thoroughly examined said documents for the subject Work prepared by the City of Mobile, Building Services Department and dated August 11, 2021; and all Addenda (before submitting any bid it is the Bidder's responsibility to check with the Building Services Department for all Addenda or special instructions that may impact the Bid) thereto, receipt of which is hereby acknowledged, the premises and all conditions affecting the Work prior to making this Proposal, the Undersigned Bidder,

COMPANY NAME: _____

ADDRESS: _____

PHONE: _____ **EMAIL:** _____

CITY OF MOBILE BUSINESS LICENSE NUMBER: _____

CITY OF MOBILE VENDOR NUMBER: _____

SECRETARY OF STATE OF ALABAMA ACCOUNT NUMBER: _____
(Note: The Secretary of State Account Number shall be filled in only by non-resident bidders)

(Check one) [ ] (A Corporation)
[ ] (A Partnership)
[ ] (An Individual Doing Business)

hereby proposes to furnish all labor, materials, tools, insurance, equipment, and supplies, and to sustain all the expenses incurred in performing the Work on the above captioned Project in accordance with the terms of the Contract Documents, Scope of Work, and all applicable laws and regulations for the sum listed below.

The Work shall commence on the date of written Notice to Proceed, issued by the City. The term of the Contract shall extend for Ninety (90) calendar days from the date of the Notice to Proceed.

BASE BID – A specified in Scope of Work

Splashpad maintenance and repairs as described.

Bids shall include all applicable sales and use taxes and shall be provided in whole dollar amount with no cents.

Total Bid Amount:

_____

(Amount in Words)

_____ & 00/100 Dollars ($_____. 00)

(Amount in Numbers)

UNIT PRICES – for Additional Services as specified in the Scope of Work:

The City of Mobile reserves the rights to add, remove and modify services, as needed during the term of this Agreement.

Hourly Rates: For work performed outside the basic scope of services and not included in the total Bid:

A. Regular Time (8am to 5pm, Monday through Friday): $_____ per hour

B. Overtime (5pm to 8am, Monday through Friday, and Weekends): $_____ per hour

C. Overtime Holidays (Bidder's Holidays): $_____ per hour

Parts/Material: Service Contractor's direct cost plus Fifteen (15%) percent.

1. BID INCLUDES:
Addendum Number _____, Dated _____
Addendum Number _____, Dated _____
Addendum Number _____, Dated _____

2. BID SECURITY: The undersigned Bidder agrees that the attached Bid Security, payable to the City of Mobile, in the amount of 5 % of the bid amount, but in no event more than $10,000 as is the proper measure of liquidated damages which the City will sustain by the failure of the undersigned to execute the Contract and to furnish Surety Bonds (if required). Said Bid Security shall become the property of the City of Mobile as liquidated damages as specified in the Contract Documents.

3. NON-DISCRIMINATION: The undersigned Bidder certifies that he/she will comply with Federal, State and local laws concerning discrimination, including Chapter 14, Code of the City of Mobile, adopted December 10, 1991 and as amended December 18, 2018.

4. REFERENCES: Please list a minimum of three (3) professional references, contact information, type of work performed, and date(s) performed. You may add additional references on a separate sheet, if needed.

A. Reference #1:
Company Name: _____
Company Address: _____
Telephone: _____ Email: _____
Type of Work: _____
Date(s): _____

B. Reference #2:
Company Name: _____
Company Address: _____
Telephone: _____ Email: _____
Type of Work: _____
Date(s): _____

C. Reference #3:
Company Name: _____
Company Address: _____
Telephone: _____ Email: _____
Type of Work: _____
Date(s): _____

5. DOCUMENTS TO BE SUBMITTED AT TIME OF BID:

- Bid Form
- Bid Bond or Cashier's Check
- Secretary of State Authorization (Out of State Bidders Only)
- Subcontracting & Major Supplier Plan
- Proof of Competency of Bidder
- Any additional information, as required by Project Manual

CDC/NIH Covid-19 Guidelines are in effect. The Service Contractor shall adhere to current guidelines as directed by the City. All Service Contractor's personnel shall wear a face mask/face covering at all times while in a City of Mobile building, adhere to current social distancing guidelines, and note that temperature checks may be conducted.

5. SIGNATURE: If the undersigned Bidder is incorporated, the entire legal title of the company followed by "a corporation" should be used. If Bidder is an individual, then that individual's full legal name followed by doing business as (d/b/a) and name of firm, if any, should be used. If Bidder is a partnership, then full name of each partner should be listed followed by "d/b/a" and name of firm, if any. Ensure that name and exact arrangement thereof is the same on all forms submitted with this Bid. If a word is abbreviated in the official company name, such as "Co.", then use that abbreviation. If not abbreviated in the official name, spell out. Bidder agrees not to revoke or withdraw this Bid until sixty (60) calendar days following the time and date for receipt of bids. If notified in writing of the acceptance of this Bid within this time period, Bidder agrees to execute a Contract based on this Bid on the proscribed form within ten (10) calendar days of said notification.

COMPANY NAME:

_____

(Typed)

BY: _____

(Signature of Company Officer)

COMPANY OFFICER: _____

(Typed)

TITLE_____

(Typed)

DATE_____**, 20 ___**

Sworn to and subscribed before me this _____ day of 20 ____

_____

Notary Public

END OF SECTION

STANDARD SERVICE CONTRACT AGREEMENT BETWEEN CITY OF MOBILE AND SERVICE CONTRACTOR

This **AGREEMENT** made and entered into this _____day of _____, in the year 20____,

by and between **THE CITY OF MOBILE**, by its Mayor, duly authorized party of the first part, hereinafter called the "City",

And the **SERVICE CONTRACTOR**:

City of Mobile License Number: _____

City of Mobile Vendor Number: _____

SERVICE CONTRACT ADMINISTRATOR: Mr. Ozzie Elortegui
Building Services Department
City of Mobile, P.O. Box 1827
Mobile, AL 36633-1827
251-208-7639, ozzie@cityofmobile.org

for the following PROJECT:

PROJECT NAME: SPLASHPAD MAINTENANCE & REPAIRS

PROJECT LOCATION: MEDAL OF HONOR PARK
1711 HILLCREST ROAD
MOBILE, AL 36695

PROJECT NUMBER: SR-036-21

County of Mobile
City of Mobile, Alabama

WITNESSETH, that this Service Contractor and City, for the considerations stated herein, agree as follows:

ARTICLE 1. Statement of Work to be Performed:
1.1 The Service Contractor shall furnish all labor, material, tools, equipment and supplies and perform all work required to provide maintenance and repair services to the Splashpad at Medal of Honor Park, 1711 Hillcrest Road, Mobile, AL 36695 in strict accordance with the Contract Documents as listed in Article 6, all of which are made part hereof, as prepared by or under the direction of the Director of Real Estate & Asset Management.

ARTICLE 2. Term of Contract:
2.1 The work shall be commenced on the date of a written Notice to Proceed issued by the City. The Term of the Contract is for a period of Ninety (90) calendar days.

ARTICLE 3. Contract Sum:
3.1 The City shall pay the Service Contractor, subject to additions and deductions provided herein, in current funds, the sum as follows:

Total Contract Amount:

_____
(Amount in Words)

_____ & 00/100 Dollars ($_____ . 00)
(Amount in Numbers)

In case of any discrepancy, the amount in words shall govern this Bid.

3.2 Unit Prices:

The City of Mobile reserves the rights to add, remove and modify services, as needed during the term of this Agreement.

Hourly Rates: For work performed outside the basic scope of services and not included in the total Bid:

A. Regular Time (8am to 5pm, Monday through Friday): $_____ per hour

B. Overtime (5pm to 8am, Monday through Friday, and Weekends): $_____ per hour

C. Overtime Holidays (Bidder's Holidays): $_____ per hour

Parts/Material: Service Contractor's direct cost plus Fifteen (15%) percent.

ARTICLE 4. Payments:
4.1 The City shall pay the Service Contractor on account of the Contract as follows:

A. Payments shall be made on a <PAYMENT TERMS> basis, for completed work as specified.

B. Original invoices shall be delivered to the Service Contract Administrator for review and approval.

C. Payments shall be made in accordance with the accepted Schedule of Values listed in the Contract Documents.

ARTICLE 5. Termination of the Contract:
5.1 The City may terminate the Contract upon thirty (30) days written notice. The City shall pay the Service Contractor for work executed and for proven loss with respect to materials, equipment, tools and reasonable overhead.

5.2 The City shall not make payment to the Service Contractor for profit and damages, as the result of terminating the Contract.

ARTICLE 6. Contract Documents:

6.1 The contract documents consist of this Agreement, General Conditions of the Contract, and the Specifications (all of which are bound in the Project Manual), Addenda issued prior to the execution of the Contract, The Service Contractor's Proposal as accepted by the City, other documents listed in this Agreement, and Modifications issued after the execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. An enumeration of the Contract Documents, other than a Modification, appears below:

1. This Instrument (Agreement)	7 pages
2. Scope of Work, dated August 11, 2021	2 pages
3. Exhibit A – Manufacturer's Specifications	1 page
4. Subcontracting & Major Supplier Plan	5 pages
4. General Conditions	9 pages
6. E-Verify Documentation	2 pages
7. Certificates of Insurance with endorsements	__ pages

ARTICLE 7. Insurance:

7.1 Required coverage:

7.1.1 For the term of this Agreement, Service Contractor shall acquire and maintain in full force and effect the following liability and comprehensive insurance issued by a company licensed and qualified to do business in the State of Alabama, which such insurance shall name the City of Mobile as an additional insured, and shall attach to this contract as proof thereof a certificate of insurance issued by an agent licensed and qualified to do business in the State of Alabama:

A. Comprehensive Liability insurance (occurrence form) including coverage for premises, products and complete operations, and blanket contractual liability, specifically covering the obligations assumed by the Service Contractor.
   1. Bodily injury liability:
      $1,000,000 each person
      $1,000,000 each occurrence
   2. Property damage liability - $1,000,000 each occurrence.
   3. Or, in lieu of (1) and (2) above:
      Bodily injury and property damage combined –$1,000,000 per occurrence
   4. General Aggregate limit shall apply on a "Per Project" Basis.

B. Comprehensive – Automobile Liability Insurance to cover any auto, including all owned, non-owned, and hired vehicles.
   1. Bodily injury liability:
      $1,000,000 each person
      $1,000,000 each occurrence
   2. Property damage liability - $1,000,000 each occurrence.
   3. Or, in lieu of (1) and (2) above)
      Bodily injury and property damage combined – $1,000,000 per occurrence

C. Excess/Umbrella Liability insurance
1. $2,000,000 combined single limit of liability each occurrence for bodily injury and/or property damage.
2. Providing following form coverage for Employer's Liability, Comprehensive General Liability and Automotive Liability.

D. Workers' Compensation insurance - in the amounts required by all applicable laws, rules or regulations of the state of Alabama.

7.1.2 If the certificate of insurance referenced in this Agreement does not evidence insurance of owned vehicles, said certificate and this sentence shall evidence the Service Contractor's covenant that it does not own any vehicles and that it will not purchase or obtain any vehicles during the term of this Agreement. Said certificate shall require that said insurance coverage will not be altered or terminated unless City shall have been given written notice of such alteration or termination delivered to City not less than thirty (30) days before the effective date of such alteration or termination.

7.1.3 Waiver of Subrogation - all policies of insurance shall be endorsed to waive rights of subrogation in favor of City of Mobile.

7.1.4 Additional Insured - all policies of insurance, except those referenced under 7.1.1 D, shall be endorsed to name City of Mobile as an Additional Insured.

7.1.5 Primary Insurance - all policies of insurance, except those referenced under 7.1.1 D, shall be endorsed to provide that all such insurances are primary and non-contributing with any other insurance maintained by City of Mobile.

7.1.6 Certificates of Insurance - prior to execution of the Agreement, Service Contractor shall deliver to the City of Mobile certificates of insurance certifying the existence and limits of the insurance coverages, noting applicable endorsements, described above, and shall deliver same and renewals thereof to the City of Mobile. The certificates shall provide that such insurance shall not be subject to cancellation, non-renewal nor material change without Thirty (30) days or more (except 10 days for non-payment) prior written notice thereof to the City of Mobile.

7.2 General
7.2.1 A Surety authorized to do business in the State of Alabama shall execute and furnish all insurance. Insurance produced outside of the State of Alabama must be signed or countersigned by a Resident Agent of the State of Alabama, with resident agent's name, address and telephone number typed or printed on form.

ARTICLE 8. Miscellaneous Provisions
8.1 Breach of Contract: In the event of any breach or apparent breach by Service Contractor of any of its obligations under the terms of this Agreement, and in the further event that City shall engage the services of any attorney to protect or to enforce its rights with respect to said breach or apparent breach, then and in those events, Service Contractor agrees to pay and to reimburse any and all reasonable attorneys' fees and expenses which City may incur with respect to City's enforcement of this Agreement; regardless of whether said attorneys' fees and costs shall be incurred in connection with any litigation or in connection merely with advice and representation provided without litigation.

8.2 Indemnification. Service Contractor shall indemnify, defend and hold harmless City and its officers, elected officials, agents, representatives, and employees in respect of any and all claims, injuries, losses, diminution in value, damages, liabilities, whether or not currently due, and related expenses (including without limitation, settlement costs and any legal or other expenses for investigating or defending any actions or threatened actions) arising from or in connection with Service Contractor's performance under this agreement, including but not limited to, environmental laws, regulations, orders and decrees of whatever character or nature and damage or injury to persons or property.

8.3 Entire Agreement: This Agreement is the final expression of the agreement between the parties, and the complete and exclusive statement of the terms agreed upon, and shall supersede all prior negotiations, understandings or agreements. There are no representations, warranties, or stipulations, either oral or written, not contained herein.

8.4 Governing Law and Venue: This Agreement shall be governed by the laws of the State of Alabama, and the appropriate venue for any actions arising out of this Agreement shall be a court of proper jurisdiction in Mobile, Alabama.

8.5 Licenses, permits, etc.: Service Contractor shall obtain, at its own expense, all necessary professional licenses, permits, insurance, authorization and assurances necessary in order to abide by the terms of this Agreement.

8.6 No Agency Relationship Created: Service Contractor, in the performance of its operations and obligations hereunder, shall not be deemed to be an agent of the City but shall be deemed to be an independent Service Contractor in every respect and shall take all steps at its own expense, as City may from time to time request, to indicate that it is an independent contractor. City does not and will not assume any responsibility for the means by which or the manner in which the services by Service Contractor provided for herein are performed, but on the contrary, Service Contractor shall be wholly responsible therefore.

8.7 Anti-discrimination: Service Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, ***inter alia***, that all Service Contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent (15%) of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

8.8 Assertion of Rights: Failure by the City to assert a right or remedy shall not be construed as a waiver of that right or remedy.

8.9 State of Alabama Immigration Law: By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

8.10 Public contracts with entities engaging in certain boycott activities: By signing this contract, the Service Contractor further represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

8.11 CDC/NIH Covid-19 Guidelines are in effect. The Service Contractor shall adhere to current guidelines as directed by the City. All Service Contractor's personnel shall wear a face mask/face covering at all times while in a City of Mobile building, adhere to current social distancing guidelines, and note that temperature checks may be conducted.

Remainder of Page Left Intentionally Blank

ARTICLE 9. Signature:
IN WITNESS WHEREOF, the parties to these presents have hereunto set their hand and seal; the Mayor of the City of Mobile, acting under and by virtue of such office and with full authority, and the Service Contractor by such duly authorized officers or individuals as may be required by law.

CITY:	**SERVICE CONTRACTOR:**
City of Mobile	_____
_____	_____
Signature	Signature
William. S. Stimpson	_____
Mayor, City of Mobile	Printed Name and Corporate Title

ATTEST:

_____
City Clerk

STATE OF ALABAMA
COUNTY OF MOBILE
Before me, the undersigned a Notary Public in and for said County and State, personally appeared _____ as _____ of _____ and after being duly sworn, did depose and say that he, as such officer and with full authority, signed the above and foregoing voluntarily as the act of _____.
Sworn to and subscribed for me this ___ day of _____, 20___.

_____
NOTARY PUBLIC
My Commission Expires: _____

END OF SECTION

E-Verify

Company ID Number:

Approved by:

Employer	
Name (Please Type or Print)	Title
Signature	Date
Department of Homeland Security – Verification Division	
Name (Please Type or Print)	Title
Signature	Date

E-Verify

Company ID Number:

Information Required for the E-Verify Program	
Information relating to your Company:	
Company Name	
Company Facility Address	
Company Alternate Address	
County or Parish	
Employer Identification Number	
North American Industry Classification Systems Code	
Parent Company	
Number of Employees	
Number of Sites Verified for	

END OF SECTION

INSURANCE REQUIREMENTS

City of Mobile Insurance Requirements
Contractor

Insurance – For the duration of this agreement, the Contractor shall maintain the following minimum amounts for this project:

A. Workers' Compensation/Employer's Liability:

1. Workers' Compensation insurance in the amounts required by all applicable laws, rules or regulations of the state of Alabama.

2. Employer's Liability with limits of not less than:

Bodily Injury by Accident	$1,000,000 each accident
Bodily Injury by Disease	$1,000,000 policy limit
Bodily Injury by Disease	$1,000,000 each employee

B. Comprehensive General Liability Insurance:

1. Comprehensive General Liability (occurrence form) including coverage for products/completed operations, independent contractors, blanket contractual liability specifically covering the obligations assumed by Contractor.

2. Limit of Liability: $1,000,000 combined single limit of liability each occurrence bodily injury or property damage.

3. General Aggregate Limit shall apply on a "Per Project" Basis.

C. Automobile Liability Insurance:

1. Automobile Liability Insurance to cover any auto, including all owned, non-owned, and hired vehicles, with a $1,000,000 combined single limit of liability each accident for bodily injury and/or property damage.

D. Excess/Umbrella Liability Insurance

1. Providing following form coverage for Employer's Liability, Comprehensive General Liability, and Automobile Liability.

2. Limit of Liability: $2,000,000 combined single limit of liability each occurrence for bodily injury and/or property damage.

CERTIFICATE OF LIABILITY INSURANCE ENDORSEMENT PAGE

The policy endorsements listed below are required and must be listed in the "Description of Operations" box on the Certificate of Liability Insurance or listed **separately** on an attachment to the certificate of insurance (ACORD 101, Additional Remarks Schedule).

Waiver of Subrogation - All policies of insurance shall be endorsed to waive rights of subrogation in favor of City of Mobile.

Additional Insured - All policies of insurance, except those referenced under paragraph A, shall be endorsed to name City of Mobile as an Additional Insured

Primary Insurance - All policies of insurance, except those referenced under paragraph A, shall be endorsed to provide that all such insurances are primary and non-contributing with any other insurance maintained by City of Mobile.

Certificates of Insurance - General – Within ten (10) calendar days from date of issuance of Contract forms for execution, Consultant shall deliver to the City of Mobile, certificates of insurance (standard ACORD format) certifying the existence and limits of the insurance coverages along with separate policy endorsements as described above. Consultant shall also be responsible for delivering policy renewal certificates to the City of Mobile. A sample Certificate of Liability Insurance form, including the policy endorsement is attached for Consultant's reference.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:
	PHONE (A/C, No, Ext): FAX (A/C, No):
	E-MAIL ADDRESS:

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	X COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
	X Contractual Liability	X	X				MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 1,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 1,000,000
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS	X	X				BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	X UMBRELLA LIAB X OCCUR						EACH OCCURRENCE	$ 2,000,000
	EXCESS LIAB CLAIMS-MADE	X	X				AGGREGATE	$ 2,000,000
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	Y/N					X PER STATUTE OTH-ER	1,000,000
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)		N/A X				E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

SAMPLE

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PROJECT NAME: PROJECT NUMBER:

The City of Mobile is included as an Additional Insured in respect to General Liability, Automobile Liability and Umbrella Liability. All policies, except workers compensation, shall be Primary and Non-Contributory with any other insurance in force or which may be purchased by Additionally Insured, Waiver of Subrogation applies, in favor of City of Mobile with respect to General Liability, Automobile Liability, and Workers Compensation and Employer's Liability. 30-Days Notice of Cancellation, non-renewal or material change shall apply (except 10 days

CERTIFICATE HOLDER	CANCELLATION
City of Mobile Building Services Department P.O. Box 1827 Mobile, AL 36633-1827	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE

ACORD 25 (2016/03) The ACORD name and logo are registered marks of ACORD

END OF SECTION

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.
Via emai:Archnique.kidd@cityofmobile.org
251.208.7967
205 Government Street, 5th Floor

Bidders and Proposers – Please complete and submit these forms as required by your City of Mobile Bid or Proposal Specification.

If you are submitting a proposal in response to a Request for Qualifications, Request for Proposal, or other solicitation ("Solicitations") issued by the City of Mobile, the bid specification may require you to utilize disadvantaged business enterprise ("DBE") subcontractors and suppliers. If DBE participation is required, you must complete and submit these forms with your proposal. If required, failure to submit this form will render your bid non-responsive. NOTE: To satisfy participation requirements for a federally funded project, you must utilize DBEs certified through the Alabama Unified Certification Program.

If DBE participation is required, and you fail to satisfy the participation requirement, you must show that you made a good faith effort to include such participation; you will be required to submit DBE Compliance Form 2 and include additional information if needed. When so required, failure to address adequately the good faith effort factors on Form 2 will render your bid or proposal non-responsive. The "good faith effort" factors on Form 2 are not intended to be a mandatory, exhaustive, or exclusive.

You are encouraged to work with the City of Mobile Supplier Diversity Manager when preparing this form. Please consult with the City Supplier Diversity Manager for a list of eligible DBEs. The "good faith effort" factors on **Form 2** are not intended to be mandatory, exhaustive, or exclusive; they are a tool to help you, and the City of Mobile, determine whether you made efforts which, by their scope, intensity, and appropriateness to the objective, would reasonably be expected to fulfill the participation requirement.

About **"DBEs"**: Disadvantaged business enterprise or DBE means a for-profit small business concern (1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and (2) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

About **"Good Faith" Effort**: Good faith efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. The City of Mobile expects contractors holding large contracts to recruit and engage DBEs to be a part of their team.

Failure to submit this form, when so required by the bid or proposal specification, will render your bid non-responsive.

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.
Via emai:Archnique.kidd@cityofmobile.org
251.208.7967
205 Government Street, 5th Floor

FORM 1: Background and Plan

Section I. Information about your company

Company	
Address	
Telephone	
E-Mail	

RFP/RFQ Solicitation Number	
Project Description	
Is your company a DBE company?	Yes ☐ No ☐
Work force demographics	Male_____ Female_____Minority_____Non-minority_____SDVO _____ Total #of Employees _____

Subcontractor/Major Supplier Plan submitted by:

Printed Name: _____

Signature:_____Date: _____

Title: _____

The following employee will be designated as the **DBE Liaison** for all communication regarding DBE participation including documentation for DBE participation and maintenance of records of Good Faith Efforts for this contract award:

Name:_____Title: _____

Email:_____Phone:_____

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.
Via emai:Archnique.kidd@cityofmobile.org
251.208.7967
205 Government Street, 5th Floor

FORM 1: Background and Plan (Cont'd

Section II. Subcontractors/Major Vendors Supplier Plan submitted by:

Please Print Company_____Your Bid/Proposal Amount $_____ Date:

_____/_____/_____Description_____

Name of Bidder/Proposer: _____

I intend to use the following subcontractors: (Attach additional pages if necessary)

Subcontractor or Major Supplier	Phone	Scope of Work to be performed	$$ Value to be Performed	% Of Your Bid Amount	DBE?	Official Verification Only

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

Subcontracting and Major Supplier Plan

Form 2: Good Faith Effort Documentation

Name of Bidder: _____

Contact Person: _____ Phone _____ Email _____

Please complete this form if you are unable to identify DBE subcontractors or suppliers to reach 15% of the value of your bid.

YES (_)	NO (_)	Did you do these suggested areas for DBE recruitment and engagement
		PRE-BID MEETING(S): The bidder attended all pre-bid meetings scheduled by the City to inform DBEs of contracting and subcontracting opportunities.
		CMDBE/ALDOT DBE LIST(S): The bidder utilized the Office of Supplier Diversity's list or lists of certified through the Alabama Department of Transportation UCP DBE Listing
		SMALL CONTRACT(S): The bidder selected specific portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals (including breaking down contracts into smaller units to facilitate DBE participation). Consider support services, including insurance, accounting, temporary labor, and transportation, landscaping, and janitorial as potential areas for DBE use.
		FOLLOW-UP: The bidder followed-up initial indications of interest by DBEs by contacting those DBEs to determine with certainty if they remained interested in bidding.
		GOOD FAITH NEGOTIATIONS: The bidder negotiated in good faith with interested DBEs and did not reject DBEs as unqualified without sound business reasons based on a thorough investigation of their capabilities. Bidders are not expected to engage unqualified subcontractors or subcontractors whose pricing, after negotiation, remains excessive or unreasonable. (Please document qualification deficiencies or unreasonable pricing if it prevented your engagement of specific DBE subcontractors.)
		ADVERTISEMENT: The bidder advertised in general circulation and/or trade association publications concerning subcontracting opportunities and allowed DBEs reasonable time to respond.
		INTERNET ADVERTISING: The bidder advertised DBE and/or subcontracting opportunities in the newspaper or other internet portals that are accessible to DBEs and/or potential subcontractors.

OFFICE OF SUPPLIER DIVERSITY

CITY OF MOBILE

Subcontracting and Major Supplier Plan

		INFORMATION: The bidder provided interested DBEs with adequate information about the plans, specifications and requirements of the subcontract.
		WRITTEN NOTICE(S): The bidder/proposer took the necessary steps to provide written notice in a manner reasonably calculated to inform DBEs of subcontracting opportunities and allowed sufficient time for them to participate effectively.
		COMMUNITY RESOURCES: The bidder/proposer used the services of available community organizations, small and/or disadvantaged business assistance offices and other organizations that provided assistance in the recruitment and placement of DBE firms.

CONTRACT RECORDS:

The bidder/proposer has maintained the following records for each DBE that has bid on the subcontracting opportunity:

1. Name, address, email address and telephone number
2. A description of information provided by the bidder/proposer or subcontractor; and
3. A statement of whether an agreement was reached, and if not, why not, including any reasons for concluding that the DBE was unqualified to perform the job.

Section 2(B)

_____ There are not ways to break out 15% of the value of this contract for subcontractors / suppliers. Provide further detail in Section2(c) if the inability to break-out 15% of the value of the contract was the reason, or a reason, you could not meet the participation requirements.

_____ Could not find sufficient DBEs to provide subcontracting or supplier services.

_____ DBEs were available but did not have sufficient qualifications or experience to meet the needs of this contract.

Please indicate additional efforts you have taken to recruit and engage DBEs. _____

_____

_____

GENERAL CONDITIONS

1. GENERAL REQUIREMENTS:

A. The Contract Documents: The Contract Documents are enumerated in the Standard Contract Agreement Between the City of Mobile and the Service Contractor (hereinafter called the Agreement) and consist of the Bidding and Contract Requirements, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after the execution of the Contract. A Modification is a written amendment to the Contract signed by both parties.

B. The Contract: The Contract Documents form the Contract for Services. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification.

C. The Work: The term "Work" means the services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Service Contractor to fulfill the Service Contractor's obligations.

D. The Project Manual: The Project Manual is the comprehensive document containing the Bidding and Contract Requirements, the Specifications and other documents as listed.

E. The Bidding and Contract Requirements: The Bidding and Contract Requirements are that part of the Contract Documents consisting of the Invitation to Bid, Instructions to bidders, Service Contractor's Bid, Agreement, Bonds, and General Conditions and other requirements listed in the Agreement.

F. The Specifications: The Specifications are that part of the Contract Documents consisting of written requirements for Services including materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

G. Correlation and Intent of the Contract Documents: The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Service Contractor. The Contract Documents are complimentary, and what is required by one shall be as binding as if required by all; performance by the Service Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

2. THE CITY:

A. The "City" is the City of Mobile, as identified in the Agreement and is referred to throughout the Contract Documents as if singular in number. The City's designated representative is the Building Services Department, Service Contract Administrator.

3. THE SERVICE CONTRACTOR:

A. The Service Contractor is the person or entity identified as such in the Agreement and is referred throughout the Contract Documents as if singular in number. The Service Contractor shall be lawfully licensed in the City of Mobile and the State of Alabama as required. The Service Contractor shall designate in writing a representative who shall have express authority to bind the Service Contractor with respect to all matters under this Contract. The term "Service Contractor" means the Service Contractor or the Service Contractor's authorized representative.

B. The Service Contractor shall perform the Work in accordance with the Contract Documents.

C. Execution of the Contract by the Service Contractor is a representation that the Service Contractor has visited the site(s), become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

D. The Service Contractor shall be responsible to the City for acts and omissions of the Service Contractor's employees and their agents, and other persons or entities performing portions of the Work for, or on behalf of, the Service Contractor.

E. Unless otherwise provided in the Contract Documents, the Service Contractor shall provide and pay for labor, materials, equipment, tools, transportation, and other facilities and services necessary for proper execution and completion of the Work.

F. The Service Contractor's technicians or workmen shall be qualified and have had sufficient education, training and experience to perform all Work properly and satisfactorily as prescribed in the Contract Documents.

G. The Service Contractor shall pay all applicable sales, consumer, use and similar taxes for the Work provided by the Service Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

H. Unless otherwise provided in the Contract Documents, the Service Contractor shall secure and pay for all applicable permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

I. The Service Contractor shall perform the Work in accordance with the specified schedules as listed in the Contract Documents.

J. The Service Contractor shall confine operations at the site to areas permitted by the City of Mobile, facility director or building manager, and shall not unreasonably encumber the site with materials or equipment.

K. The Service Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Service Contractor shall remove all waste materials, rubbish, tools, equipment and surplus materials from and about the site. If the Service Contractor fails to clean up as provided in the Contract Documents, the City may do so and City shall be entitled to reimbursement from the Service Contractor.

L. The Service Contractor agrees to indemnify and hold the City, its elected officials, officers, agents, and employees, whole and harmless from all costs, liabilities and claims for damages of any kind (including interest and attorneys' fees) arising in any way out of the performance of this Agreement and/or the activities of Service Contractor, its principals, directors, agents, servants and employees in the performance of this Agreement, for which the City is alleged to be liable. In the event that the City, through no fault of its own, is made a party to any lawsuit or legal proceeding arising in any way from this Agreement or any activities conducted pursuant thereto, Service Contractor hereby agrees to pay all of City's costs of defense, including but not limited to all attorneys' fees, court costs, expert witness fees and other expenses, through trial and, if necessary, appeal. This section is not, as to third parties or to anyone, a waiver of any defense or immunity or statutory damages cap otherwise available to Service Contractor or City, and these defenses and matters may be raised in the City's behalf in any action or proceeding arising under this Agreement.

M. Additionally, the City of Mobile reserves the rights to have any of Service Contractor's employees removed, barred, and/or restricted from the facility and request the immediate replacement as needed during the term of this Agreement.

4. CHANGES IN THE WORK:

A. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by a written modification based upon agreement between the City and the Service Contractor.

B. Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Service Contractor shall proceed promptly, unless otherwise directed.

5. SCHEDULE:

A. **STARTING WORK**: The date of commencement of the Contract is the date established in a written Notice to Proceed. No Work shall commence and no materials shall be ordered before the Notice to Proceed has been issued.

B. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

6. PAYMENTS:

A. **CONTRACT SUM:** The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the City to the Service Contractor

for performance of the Work under the Contract Documents.

B. **SCHEDULE OF VALUES:** The Schedule of Values allocating the entire Contract Sum to the various portions of the Work, shall be used as a basis for reviewing the Service Contractor's Invoices for Payment.

C. **METHOD OF PAYMENT:** The City shall pay the Service Contractor on the account of the Contract as follows:

1) Payments shall be made on a monthly basis, for completed work as specified.
2) Invoices for completed Work shall be delivered to the Service Contract Administrator for review and approval upon completion of work as listed in the Scope of Work. Invoices shall list unit pricing in accordance with the approved Schedule of Values.
3) Payments shall be made in accordance with the accepted Schedule of Values listed in the Contract Documents.

7. SAFETY:

A. The Service Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

B. The Service Contractor shall comply with all Federal, State and Local law regarding safety including the requirements of the Occupational Safety and Health Act of 1970, Public Law #91-596, latest revision. Service Contractor shall take all other reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

1) employees on the Work and other persons who may be affected thereby;
2) the Work and materials and equipment to be incorporated therein;
3) other property at the site or adjacent thereto.

C. The Service Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing safety of persons or property or their protection from damage, injury or loss.

D. If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

E. The Service Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Service Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Service Contractor, the Service Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the City in writing.

F. In an emergency affecting safety of persons or property, the Service Contractor shall act, at the Service Contractor's discretion, to prevent threatened damage, injury or loss.

8. INSURANCE:

A. The Service Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Work is located such insurance as will protect the Service Contractor from claims set forth below which may arise out of or result from the Service Contractor's operations and completed operations under the Contract and for which the Service Contractor may be legally liable, whether such operations be by the Service Contractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1) Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed
2) Claims for damages because of bodily injury, occupational sickness or disease, or death of any person other than the Service Contractor's employees;
3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Service Contractor's employees;
4) Claims for damages insured by usual personal injury liability coverage;
5) Claims for damages, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
6) Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
7) Claims for bodily injury or property damage arising out of completed operations; and
8) Claims involving contractual liability insurance applicable to the Service Contractor's obligations.

B. The Service Contractor shall take out and maintain during the life of the Contract not less than the following minimum amounts of insurance.

1) Worker's Compensation and Employer's Liability:
   Statutory - amount and coverage as required by law of place in which the work is performed.

2) Comprehensive General Liability:
   The Service Contractor shall provide Broad Form (commonly termed Comprehensive) General Liability Insurance (including premises product-completed operations) for limits of liability not less than:

a) Bodily Injury	$1,000,000 each person $1,000,000 each occurrence
b) Property Damage	$1,000,000 each occurrence
c) Or Bodily Injury	$1,000,000 combined single limit and Property Damage

   Such comprehensive policy shall include the following:
   a) All liability of the Service Contractor, for the Service Contractor's Direct Operations.
   b) Completed Operations Coverage, thereby meaning any

loss which shall occur after the Contract has been completed, but which can be traced back to the Contract.

c) Contractual Liability, meaning thereby, any risk assumed by the Service Contractor under Hold Harmless Agreements or any other assumption of liability, but specifically item (6).

d) Broad Form Property Damage Coverage, including Completed Operations.

e) Personal Injury Liability, with employees exclusions removed.

f) The Service Contractor shall indemnify and save harmless the City against all loss, cost, or damage on account of injuries to persons or property occurring in the performance of the Contract, including all reasonable attorney's fees incurred by the City, on account thereof.

g) Care, custody, and control for property in the care, custody and control of the Service Contractor.

3) Comprehensive Automobile Liability:

The Service Contractor shall carry for himself and shall require that all owners of automobile or trucks rented or hired on the Contract carry until the Contract is completed, Comprehensive Automobile Liability Coverage for Bodily Injury and Property Damage in amounts not less than the minimum amounts as indicated. The Service Contractor shall also carry for himself insurance for all non-owned and hired automobile at the limits of liability as indicated below:

a) Bodily Injury	$1,000,000 each person $1,000,000 each occurrence
b) Property Damage	$1,000,000 each occurrence
c) Or Bodily Injury and Property Damage	$1,000,000 combined single limit

4) Excess/Umbrella Liability:

a) $2,000,000 combined single limit of liability each occurrence for bodily injury and/or property damage.

C. Certificates of insurance acceptable to the City shall be filed with the City at the time of signing of the Contract, and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section shall contain a provision that coverage afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the City.

Such certificates of insurance shall state that thirty (30) days advance written notice will be given in the event of cancellation or material change in the coverage.

D. Surety Qualifications: All insurance must be furnished by a Surety licensed to do business in the State of Alabama, must be signed or countersigned by a Licensed Resident Agent of the State of Alabama, and if bid price exceeds $50,000 have a minimum rating of A/Class VI as reported in the latest issue of Best's key Rating Guide Property-Casualty.

E. The insurance required by Section 2. shall be written for not less than limits of liability specified or required by law, whichever coverage is greater. Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until completion of the Contract.

F. The Service Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the City, as an additional insured for claims caused in whole or in part by the Service Contractor's negligent acts or omissions during the Service Contractor's operations; and (2) the City as an additional insured for claims caused in whole or in part by the Service Contractor's negligent acts or omissions during the Service Contractor's completed operations.

9. MISCELLANEOUS PROVISIONS:

A. The Contract shall be governed by the laws of the State of Alabama.

B. The City and Service Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

C. No assignment of the Contract shall be made without the written permission of Surety providing bonding and the City of Mobile.

D. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

E. No action or failure to act by the City or Service Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

F. Inspections and approvals of portions of the Work shall be made as required by the Contract Documents. The Service Contractor shall give the City timely notice of when and where Inspections are to be made so that the Service Contract Administrator or other City personnel may be present for such procedures.

G. Required inspection reports along with approvals shall, unless otherwise required by the Contract Documents, be delivered to the City with Invoices for Payment.

H. On all jobs with the City of Mobile, A City License is required. Bidders may obtain information on licensing by writing the City Revenue Department, Post Office Box 1827, Mobile, AL 36633-1827 or calling 208-7454. Successful Bidder must have City License at the time of Bidding.

I. Service Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, inter alia, that all Service Contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen (15%) percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

J. The Service Contractor shall secure and pay all required fees and permits and shall pay all taxes on materials, supplies, fixtures and equipment purchased by him (including the city of Mobile sales tax), and shall comply with all laws, regulations and codes applicable to the site on which the Work is to be performed.

K. All work performed shall be in conformance with the appropriate codes of the City of Mobile.

10. TERMINATION OR SUSPENSION OF THE CONTRACT:

A. The City may terminate the Contract for cause if the Service Contractor

1) fails to perform service in a satisfactory manner; or
2) repeatedly refuses or fails to supply properly skilled workers or proper equipment or materials; or
3) repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
4) otherwise is guilty of substantial breach of a provision of the Contract Documents.

B. When any of the above reasons exist, the City, upon determination that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the City and after giving the Service Contractor and the Service Contractor's surety, if any, seven (7) days' written notice, withhold payments and terminate the Contract.

C. The City may, at any time, terminate the Contract for the City's convenience and without cause upon thirty (30) days written notice.

D. In case of such termination for cause or for the City's convenience, the Service Contractor shall be entitled to receive payment for Work executed, and costs incurred. The City shall not make payment for profit or damages as a result of such termination.

11. CLAIMS AND DISPUTES

A. Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the City and Service Contractor

arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

B. Claims by either the City or Service Contractor must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant acting

with due diligence, reasonable should have first recognized the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Service Contractor and the other party.

C. In the event of a Claim against the Service Contractor, the City may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Service Contractor's default, the City may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

D. Claims, disputes, or other matters in controversy arising out of or related to the Contract shall be subject to litigation.

END OF SECTION

SCOPE OF WORK
SC-036-21
August 11, 2021

Scope of Services:
Work to be performed by the Service Contractor under this Agreement shall consist of furnishing all labor, materials, insurance, tools, equipment and supplies, and all associated travel time and expenses required to repair the splashpad at the Medal of Honor Park and in accordance with the terms of this Contract.

Basic Services:

- Daily Maintenance
  1. Inspect chemical containers and fill with the appropriate chemicals, as needed.
  2. Inspect recirculation pump for any damage and remove any debris, as needed.
  3. Inspect pressure gauge and backwash filter per manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.
  4. Remove any debris from the backwash filter per manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.
  5. Inspect volume gauge to verify proper cleaning levels, proceed with cleaning as required per manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.
  6. Remove any debris from the splashpad drain gates per manufacturer's specifications, as needed, see attached Exhibit A – Manufacturer's Specifications.
  7. Remove any debris from the splashpad area, as needed.

- Weekly Maintenance
  1. Inspect and verify that the water is flowing from the freshwater spout to tank and the shut off float is fully operational.
  2. Inspect all splashpad feature nozzles during operation and testing for any blockage. If a blockage is discovered, remove nozzle and flush any debris, see attached Exhibit A – Manufacturer's Specifications.

- Monthly Maintenance
  1. Inspect and verify motor amperage on both pump motors to confirm amperage is within manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.
  2. Close all ball valves on chemical controllers and clean per manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.

- Winterizing/Off-Season Shut Down
  1. Winterize and Shut Down the Splashpad to protect all equipment during the Off Season and to prevent freezing damage, per manufacturer's specifications, see attached Exhibit A – Manufacturer's Specifications.

  2. Secure and store all chemicals during the Off-Season in coordination with the City of Mobile.

3. Inspect the entire splashpad, pumping area, water features, drains, surrounding fences, and grounds for any damage, Service Contractor to provide a written description of any repairs to be completed before the opening of the splashpad in the Spring of 2021.

- Training
  1. During the course of this Agreement, the Service Contractor will provide a minimum of Eight (8) hours of training for at least Six (6) City of Mobile personnel on the Daily, Weekly, and Monthly Maintenance procedures per the manufacturer's specifications and the Winterizing/Off-Season Shut Down and Reopening Protocols, see attached Exhibit A – Manufacturer's Specifications.

Additional Services:
If, during the course of the work, an unforeseen condition arises, the Service Contractor will immediately provide the City's Project Manager with a written report to include detailed description and cost estimate for additional work required. No work may be performed without written approval by City.

END OF SECTION

Vak Pak Eco-Wash System

Your Vak Pak vacuum D.E. filter tank has come equipped with a Filter Tank Backwash (Eco-Wash) System. This system allows maintenance personnel the ability to remove the used D.E. powder from the filter grids along with all the dirt and grim built up over the filter cycle without dumping hundreds of gallons of water and chemicals into the waste stream saving the property money and helping protect the environment.

There are a few simple steps to properly backwash the filter tank. Following these steps closely will insure proper cleaning each time. **Be sure to read these steps thoroughly and familiarize yourself with the different valve operations before performing the backwash.**

Make certain the DE Separator tanks are ready for the backwash process. Ensure the separator bags are empty and ready to catch the used DE as well as the clamp is tight and the air relief valve on top of the separator tanks are opened to bleed off the initial air trapped in the waste/vacuum system lines.

1.) With the recirculation pump running in your standard filter mode. Close the Main Drain and Gutter lines by pushing valves "A" and "B" down to close. Notice this step is required to send the majority of the water in the filter tank back to the pool. Drawing the water level of the filter tank down to just above the filter grids.

2.) Power off the recirculation pump just before the water level in the tank reaches the top of the filter grids. The water level in the tank should be approximately 4" to 5" above the filter grids to ensure the entire filter grid assembly is cleaned during the backwash process.

3.) At the front of the vacuum pump, turn the valve on the suction end of the pump so the Tank Drain is open. Remove the lid from the front of the pump and fill the trap basket with water to ensure proper priming. (Clean any debris from the trap basket if needed) Place the lid back on the vacuum pump and tighten securely.

4.) Turn Valve **"X"** located after the separator tank assembly so the "Tank Wash" line is open.

5.) Power on the vacuum pump by flipping the toggle switch located above the pump to the on position. Verify the pump begins to catch prime.

- As the vacuum pump begins to prime, prepare to bleed the air out of the top of the separator tanks. Once water begins to weep from the separator tank air relief valves, snug the air relief nozzle closed.

6.) The filter tank has multiple inlet fittings located in the walls at the lower portion of the tank. The vacuum pump will begin to cycle the water through the tank drain line at the bottom of the filter tank and through the separator tank. This churning process will allow the used DE powder to release from the filter grids and cycle out of the filter tank.

7.) Allow the backwash cycle to run for an extended period of time or until the water in the collector tank begins to clear. This is a good time to check your chemical levels and perform any other necessary maintenance procedures on your pool.

8.) Power down the vacuum pump by switching the toggle switch to OFF.

9.) Open the air relief nozzle located on top of each separator tank and purge the pressure from the filter. Remove the catch-all bag from the separator tank sleeve and dispose of the used DE powder in a proper waste area.

- Due to some properties using higher volumes of DE powder for extended filter runs, or heavy bathing loads, it may be necessary to repeat steps 5-9. Perform steps 5-9 as many times as necessary until the water in the filter tank is clear and the separator tank bags have filtered all the debris.

10.) Now that the DE filter grids are cleaned of the used DE you can open the Main Drain and Gutter lines allowing the water level in the filter tank to rise to its static level maintained in the pool.

11.) With the static water level maintained in the filter tank, close the Main Drain and Gutter lines and begin your **Filter Pre-coat Process** outlined in this manual to add clean DE powder back to the DE filter grids.

IWF Winterizing Process:

Please follow these steps to winterize the Vak Pak Interactive Water Feature system. If hydrostatic uplift from high water table or flood conditions are possible, do not empty the tank as described below. Follow local procedures using food grade anti-freeze chemicals to winterize the tank. The recirculation pump may also be left in full operation with water remaining at full levels as an alternate solution to draining the tank when hydrostatic uplift conditions are prevalent. The feature system will still need to be drained with this option. Please contact Vak Pak at **(800)877-1824** if any of these instructions are not clear or if you have questions.

Vak Pak Remote Collector Tank:
Follow if high water table or hydrostatic uplift issues are not a concern:

1. Open the collector tank lid.
2. Close the 1" isolation ball valve located near the opening of the tank.
3. Go to the Vak Pak equipment cabinet and turn off the recirculation pump breaker. Open valve "J" Tank Drain on the suction side of the recirculation pump.
4. Rotate the multiport valve on the sand filter to "WASTE".
5. Turn on the recirculation pump and be sure it primes. You should see the water level in the collector tank begin to drop.
6. When the water has been evacuated from the tank or when the recirculation pump loses prime turn off the recirculation pump and rotate the sand filter multiport valve to "WINTERIZE".
7. Remove the Little Giant sump pump from the equipment cabinet, attach the 10' garden hose and lower it into the 12"x12" sump box in the bottom corner of the tank. Insert the free end of the garden hose into the 2" tank drain line. Be sure there are no kinks or severe bends in the hose so water will flow freely from the pump to the overflow line.
8. Plug the sump pump into a GFCI protected receptacle. If there is more than 4" of water in the sump box the pump should discharge it to the overflow line.
9. Remove the element manifold assembly by removing the stainless lag screws between the check valve and the element tee.
10. Using a short wooden pole (approx. 3' long) push inside the check valve with the pole to release any water in the pipe. Be prepared to get a little wet! After the pipe is evacuated of water do the same thing with the recirculation suction line check valve
11.

This should complete the collector tank winterizing process. Simply unplug the sump pump, remove it from the collection tank with the hose. Place the sump pump neatly back inside the Vak Pak equipment cabinet. Open the 1" fresh water fill isolation valve and water should begin to refill the tank.

Vak Pak Equipment Cabinet:

1. Be sure the recirculation and feature pump breakers have been tripped off before the following steps are completed.

2. Remove the lids from the recirculation pump and feature pump hair and lint traps. Remove any debris that has accumulated inside the basket. There is an O-ring located around the inside of the HL Trap lid. This should be placed in the basket of the trap for safe storage and to keep it from getting lost.
3. On the bottom side or front of each pump you will find a 1/4" plug. Turn this counter clockwise to remove and place these in the associated pump baskets with the o-ring. Some water may drain from the unplugged openings when the plugs are removed. This is fine, let it drain.
4. On the bottom side of the sand filter is a 1-1/2" drain cap. Remove and store in the recirculation. Pump HL trap basket with the other items for safe keeping. Water should begin to drain into the sump box and out through the floor drain. If water begins to back up inside the sump box, remove the grated cover and unblock the drain.
5. Open the air relief valve located on top of the feature pump and recirculation pump discharge lines. This will allow air to enter the piping as water exits. Leaving this valve closed will create a vacuum and water will not be able to drain properly.
6. A brass hose Bibb is located on the bottom side of the feature valve manifold. Open this valve and allow water to drain.
7. Open the manual throttling valves on every feature return line. be sure that each valve is open fully.
8. Remove the 1/4" drain plug located on the bottom of the "to heater" and "from heater" lines. These are located on the 2" pipe connection just outside the heater. Place these plugs in the HL trap basket for safe keeping.

This should complete the winterizing process for the Vak Pak equipment cabinet. Simply replace all of the stored plugs, caps and lids and close the air relief valves before spring startup.

Vak Pak Remote Drain box: (Optional component)

You will discover a remove drain pit located outside the Vak Pak equipment cabinet. It should be located directly between the feature manifold (inside the cabinet) and the splash pad. It should be a long narrow valve box with a grated cover. **(this is an optional component and may not be part of your system)**

1. open the cover or remove the grating.
2. There will be several PVC tees with 1" ball valves on each tee. Open these valves. You should see water draining from the valves and traveling to a floor drain in the bottom of the drain box. If the drain backs up, remove the small grated cover and unblock the drain. Replace the grated cover after blockage is removed.
3. Replace the cover or grating over the drain box.
4. It is recommended that each feature line at the splash pad have its nozzle removed and an air compressor be used to force any remaining water in the feature lines from the splash pad towards the drain box.
5. Consult the feature nozzle manufacturer as to whether the nozzles should remain in their sockets on the plush pad or if they should be removed and stored until spring. It they are to be removed it is recommended that a winterizing plug be placed in the nozzle socket to prevent debris from accumulating in the feature lines during the winter.

This should complete the winterizing process for their feature manifold drain box. Simply replace all feature nozzles and close all drain box valves before spring startup.

Ease of Application & Maintenance at a Price that's easy to Afford

Spray Deck offers endless design possibilities.

An increasingly popular alternative to covering concrete is to make the surface both decorative and functional. Spray Deck System transforms typical dreary concrete surfaces into dazzling designs in just a few short hours.

Spray Deck System combined with unique pattern-stamping templates can permanently imprint newly placed concrete with authentic textures to match architectural features or blend into the landscape. The finish can last the lifetime of the concrete and is durable, sanitary and easy to maintain.

Besides adding years of life to concrete, Spray Deck "Decorative Concrete Finish" is slip resistant and comfortable under the foot. The resulting floor finish is a combination of beauty and creativity that's durable and practical.

Beauty that stands the test every time.

Maintenance is easy on such a beautiful surface. All you need is a garden hose and a few common household cleaners to maintain a like-new appearance of Spray Deck. Indoor or outdoor, horizontal or vertical, single color or a patterned design, Spray Deck will revitalize and enhance concrete surfaces. Imagination is the only limiting factor when you choose the Spray Deck System for your surfacing needs. Spray Deck System is now available in two formulas.

One-Step SPRAY DECK
DECORATIVE CONCRETE FINISH

ONE-STEP
MIXING SYSTEM
JUST ADD WATER

SOUTHCRETE Color Guard Concrete Sealer is required over the Spray Deck Systems

SOUTHCRETE SPRAY DECK

TWO-STEP
MIXING SYSTEM
LIQUID RESIN & POWDER

SOUTHCRETE Color Guard Concrete Sealer is required over the Spray Deck Systems


Eggshell

Sea Shell


Ivory

Desert Sand


Kahlua Creme

Almond


Terra Cotta

Silver


Nickel

Gun Metal


White

Clear

Sample colors are as accurate as modern printing can produce. Sample designs of Spray Deck System templates are not included with system. Southcrete Color Guard is required over Spray Deck Systems.

Versatility

The Spray Deck System can be applied to almost any newly poured, worn or cracked concrete surface and is the perfect choice for sidewalks, driveways and garage floors, entrances, lobbies, showrooms, patios and swimming pool decks. Because of Spray Deck's versatility and affordability it is an ideal surface for many residential, commercial and industrial projects.

Advantages

Cost Effective, Durable, Comfortable, Smooth, Variety of Colors, Reduces Maintenance, Ease of Application, and 5 Year Limited Warranty.

Specifications

Complete one-part or two-part specifications are available for Spray Deck System installations. Contact your SGM Sales Representative for details.

Warranty

Spray Deck System is backed with a five (5) year, limited warranty. Spray Deck System is applied by qualified applicators. Dealers present a written warranty for up to five years.

COLOR GUARD

SOUTHCRETE Color Guard Concrete Sealer is a unique water-based penetrating stain / sealer, designed to be used over the Spray Deck System to preserve a long lasting, colorful finish. Choose from 12 beautiful colors including white and clear seal to enhance the overall appearance and resistance of your surface. Can be used on existing concrete surfaces.

SPRAY DECK

SOUTHCRETE Spray Deck is a two-part resinated deck system that includes liquid resin and powder that is spray or trowel applied over new or existing concrete surfaces. Available only in white, this product is designed for use on commercial and residential walkways and driveways, pool patios and similar decks to revitalize and enhance concrete surfaces.

SOUTHCRETE Color Guard Concrete Sealer is required over the Spray Deck Systems

RP/REV:08/11

SPRAY DECK

DECORATIVE CONCRETE SYSTEMS

SGM SWIMMING POOL, SPA & DECK FINISHES

1502 S.W. 2nd Place
Pompano Beach, FL 33069
1-800-641-9247
www.sgm.cc

A Custom Look

Limited Only By Your Imagination

One-Step SPRAY DECK

One-Step Spray Deck is a pre-blended decking system that incorporates dry resin technology eliminating the need for liquid additives. Simply add water and spray or trowel apply over new or existing concrete surfaces. Available in 12 colors, this product is slip resistant and comfortable under the foot, it is a perfect choice for pool and spa decks, walkways, entrances and driveways in residential and commercial applications.

SOUTHCRETE Color Guard Concrete Sealer is required over the Spray Deck Systems

Vak Pak, Inc.

Installation Procedures for Interactive Water Feature Recirculation and Filtration Equipment:

1) Site unloading Instructions:

Unloading the collection tank from the truck: DO NOT attach anything to the ½" eyebolts positioned around the perimeter of the tank. These are not designed for off loading. They are intended to secure the tank in the ground to the concrete footer. (See section on tank installation). Dual nylon lifting straps should be run under the tank body and both ends attached to a crane hook or spreader bar for lifting. Lower unit to the ground and remove the straps.

Unloading the equipment skid from the truck: DO NOT attach anything to the ½" eyebolts on the wooden protective cover of the skid. These are intended to lift the cover from the skid only. Attach nylon lifting straps through the steel pipe frame and under the fiberglass base of the skid and attach to a crane hook or spreader bar for lifting. Be careful not to place straps over P.V.C. couplings or pipes that protrude from the bottom of the fiberglass base as they may be broken or damaged during lifting. Lower the unit to the ground and remove the straps. Leave the wooden protective cover on the skid until time for installation. This will protect the equipment inside from being damaged during construction.

2) Excavation and Installation:

Collection tank: Excavate a pit that allows for a minimum of 3' around the perimeter of the tank. This allows working space for pipe connections. Dig the pit only as deep as needed to allow for setting the unit at designed grade level. Place several 2"x4" boards in the bottom of the pit to allow for leveling and to prevent skids from sinking into the ground. Locate the tank drain coupling in the bottom of the tank and plumb it over and up to grade using the same size pipe and fittings. **(See diagram 1)** Cover the end of the pipe with duct tape to prevent debris from falling in during installation. Cover all remaining tank couplings with tape. Lower the tank into the pit using the same system as was used to unload from the truck. Place the tank on the boards carefully. Have someone designated at grade to level the tank from the top rim. **(See diagram 2)** The floor is sloped to one corner and should not be used to level the tank. After level has been attained, attach the anchor cables as shown in the drawing diagram and pour a 3000psi mix of concrete into the bottom of the pit forming a footer that extends up 1" above the bottom of the tank. **(See diagram 3)** The anchor system may also be attached to the concrete after it dries if that is the preference of the contractor. **(See Diagram 4).**

Equipment Skid: Locate and identify all penetrations under the base or floor of the skid. Plumb pipe and fittings out from under the base, at least 12" from the edge, in the direction of the trench that will carry your plumbing to and from the collector and Waterplay pad. Mark each pipe with a black indelible marker for future identification. Tape each pipe end with duct tape to prevent dirt and debris from entering the lines. Measure the height of the steel frame from the ground to the base. Excavate a hole with at least 18" of space around the perimeter of the skid and at frame depth. Be sure to

trench out in the direction needed to run piping. This should allow for ample space for setting and leveling.
Set several 2"x4" boards in the hole to level the skid and to keep it from sinking into the ground. Carefully lower the skid into the hole using the same system that was used to unload it from the truck. Use the edge of the base or cabinet flange to level the unit. After all pipe connections and conduit has been completed and tested, backfill the hole with 3/8" pea gravel or an accepted equivalent. A poured concrete pad, at a minimum of 4" deep may be poured around the bottom footers of the frame before graveling if desired. Mulch or earth may be substituted at the discretion of the project engineer in place of some or all of the gravel and concrete.

Hydraulic connections:

Connecting the pipes from the Collection Tank to the Equipment Skid:

Always plumb the lines with the same size pipe as the manufacture stubs out from the equipment. The lines have been sized to accommodate the flow rates required for this system to operate properly. Letter markings have been printed on the collector tank that corresponds with letter markings under the base of the equipment unit for connection purposes. In other words, you should connect line "K" on the collector with line "K" on the base of the equipment unit. This is the filter suction pipe. The filter pump will draw its water from the collector through this line. Got the idea!
You may use Schedule 40 or schedule 80 P.V.C. pipe to make connections between units depending on the requirements of the local authority. Be careful not to insert long pieces of pipe into a coupling and then exert leverage on the end of the pipe. This may crack the coupling and require a fiberglass patch.
The letter markings that should be connected are as follows:
"J" – Filter Tank Drain
"K" - Filter Pump Suction
"L" – Filter Return
"S" – Feature Pump Suction (may be more than one)
"W" – Feature Pump Bypass

Connecting pipes from the Collector tank to other sources:

Letter markings have been printed on the Collector tank that must be connected as follows:
"A" – Main Drain Line. Between the Waterplay pad drains and the collector tank. (This line is a gravity flow drain line and must be plumbed with a minimum constant slope of no less than 1/8" per foot of travel. "Humps" or air gaps must not be allowed in this line as they will prevent water from traveling from the pad to the tank)
"I" – Fresh Water fill line – between the collector tank and the designated fresh water supply line. An approved backflow preventer may be required by the health department between the tank and the water main connection. If water pressure accedes 75 psi then a pressure reducing valve may be required to prevent excessive water hammer in the tank.
"O" – Tank Overflow line –between the collector and an approved storm drain or sewer line.

Connecting lines from equipment unit to other sources:

Letter markings have been printed on the equipment that must be connected as follows:

"G" – Pump to Waste Line – between the equipment unit and an approved drain to waste.
"T" – Feature Returns – between the equipment unit and each designated play pad feature. (There may be several lines which will be designated, by number, to correspond with the appropriate play pad feature.) Numbers will correspond with the sequencer manufacturers wiring diagram.

Backfilling Procedures:

Collector tanks:
After all piping connections have been completed and tested prepare the hole to backfill. Fill hole with 3/8" pea gravel and fill tank with fresh water at the same level as outer backfill level. This prevents the tank from "bowing" out due to excessive water pressure on the walls as it is being filled. It also prevents the tank from "bowing" in due to excessive outer pressure during backfill. The best general procedure is to throw a water hose into the tank, allow it to fill approximately 25% and then backfill to that point. Allow water to fill another 25% and then backfill to that level. Continue that procedure until backfill is complete and the tank is filled to about 3" below the 1" fresh water fill line (marked "I" on the drawing). Be careful not to rupture or over apply pressure to pipe and connections outside the tank during backfill. **Never fill the tank with water before backfilling as this may rupture or "rip" the corners of the tank due to excessive internal pressure.**

Equipment unit:
After all water pipe and electrical conduit connections have been completed and tested prepare the hole to backfill. Make sure that the cabinet is level. Backfill the excavated area with 3/8" pea gravel or an equivalent material approved by the project engineer. Preferably a product that will allow ground water to percolate through it without shifting. If the ground cover material around the unit is not the same as the backfill material, leave enough room to apply the desired finishing cover. Be careful not to rupture or over apply pressure to pipe and conduit connections during backfill. You may need to "stabilize" smaller pipes with blocks, lumber or some other material to hold the intended position while the gravel is applied.

Upon completion of construction, a startup and operational instruction meeting will be scheduled for the end user. 3 weeks notice is required. Meeting will take approximately 3 hours.

If you should have any questions before, during or after the installation of this product, please call **Vak Pak, Inc. at (800)877-1824**. Ask for an Interactive Water Feature Technician.

VAK PAK

"The Name in Quality Swimming Pool, Fountain and Water Feature Systems"

VAK PAK, INC.

LIMITED WARRANTY

LIMITED WARRANTY: Vak Pak, Inc ("Vak Pak") warranties to the original consumer purchaser of products manufactured by it that they are free from defects in materials or workmanship.

If, within TWELVE (12) months from the date of shipment, any such products shall prove to be defective, it shall be repaired or replaced at Vak Pak, Inc's option. Purchaser must pay all labor and shipping charges necessary to replace the product covered by this warranty. This warranty shall not apply to any product that has been subject to negligence, misapplication, improper installation or maintenance, or other circumstances beyond Vak Pak, Inc's control.

Equipment and accessories not manufactured by Vak Pak, Inc. will carry only warranty furnished by said manufacturer, and Vak Pak, Inc. will act as an agent for purchasers to obtain warranty from said manufactures but Vak Pak, Inc. will not warranty or be held liable for said products warranty.

Requests for service under this warranty shall be made by contacting the installing Vak Pak dealer as soon as possible after the discovery of any alleged defect. Vak Pak, Inc. will subsequently take corrective action as promptly as reasonably possible. No requests for service under this warranty will be accepted if received more than 30 days after the term of this warranty. This warranty sets forth Vak Pak, Inc's sole obligation and purchasers exclusive remedy for defective products.

Vak Pak, Inc. shall not be liable for any consequential, incidental or contingent damages whatsoever.

PLEASE NOTE: Chemicals should never be stored inside the Vak Pak. These fumes can be extremely dangerous. Damage to equipment due to caustic fumes may also void your warranty.

The foregoing warranties are exclusive and in lieu of all other express warranties. Implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, shall not extend beyond the duration of the applicable express warranties provided herein.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Material shipped outside the Continental U.S. are exempt from warranty status.

DATE OF SHIPMENT: _____

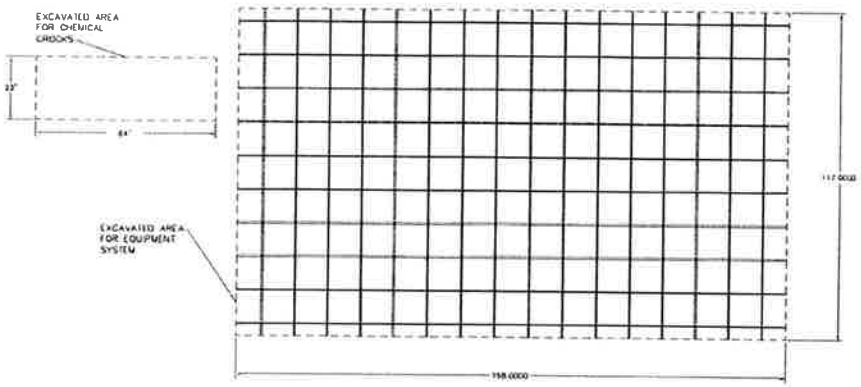
INSTALLED BY _____

JOB NAME _____ **SERIAL NUMBER** _____

1824 Phoenix Ave. Jacksonville, FL 32206 Tel (904) 353-4403 USA
Fax (904)358-2014 Toll Free: 800-877-1824 Web: www.vakpak.com

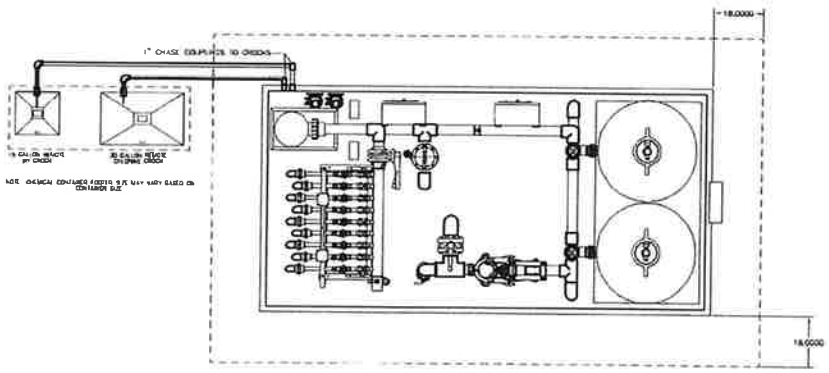
ABOVE GRADE EQUIPMENT INSTALLATION DETAILS

NOTE: DETAIL A DIMENSIONS WILL VARY BASED ON THE FOOTPRINT MEASUREMENTS OF THE VAK PAK EQUIPMENT CABINET. SIZE CONCRETE POUR TO BE 18" BEYOND ALL SIDES OF THE EQUIPMENT CABINET.

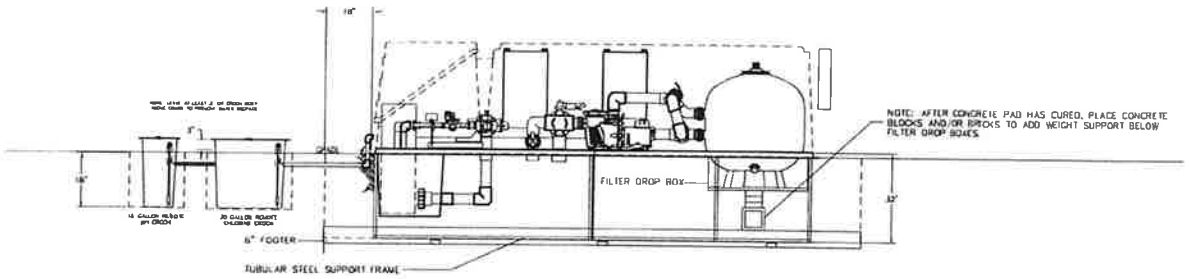


DETAIL A

EXCAVATE AN AREA 36" DEEP THAT EXTENDS 18" OUT FROM ALL SIDES OF THE EQUIPMENT UNIT. EXCAVATE AN AREA 17" DEEP FOR THE CHEMICAL CONTAINERS. BE SURE TO CONFIRM DEPTH REQUIREMENT WHICH SHOULD BE THE DISTANCE FROM THE BOTTOM OF THE STEEL SUPPORT FROM TO THE BOTTOM OF THE FIBERGLASS BASE. POUR A 6" THICK FOOTER IN THE BOTTOM OF THE EXCAVATED AREA USING #4 REINFORCMENT BAR ON 12" CENTERS. ALLOW TO STAND UNTIL IT CAN SUPPORT THE WEIGHT OF THE EQUIPMENT UNIT.



DETAIL B

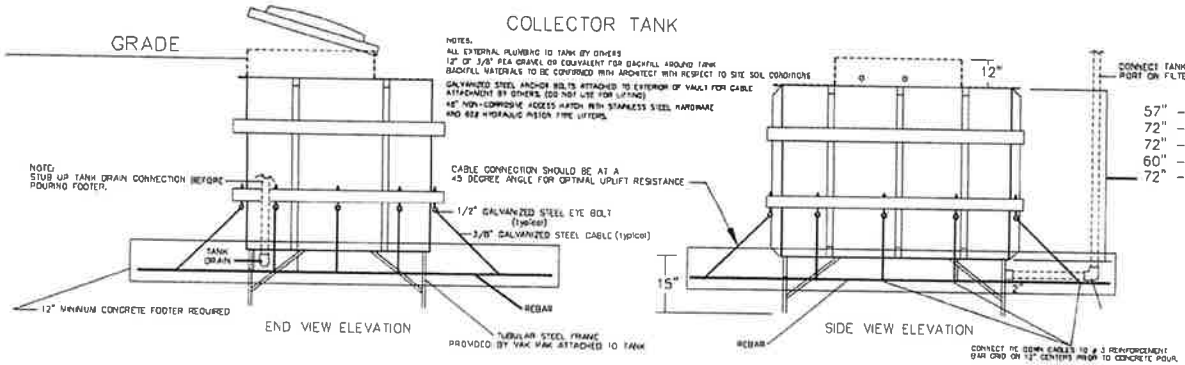


DETAIL C

LOWER THE EQUIPMENT UNIT DOWN ON TO THE CONCRETE FOOTER AS SHOWN IN DETAILS B AND C. PLUMB THE SYSTEM AS PER THE PLANS.

BACKFILL THE EXCAVATED AREA WITH SAND, PEA GRAVEL OR AN APPROVED EQUIVALENT MATERIAL. APPLY SUPPORTS TO HORIZONTAL PLUMBING LINES PRIOR TO BACKFILL TO PREVENT BREAKAGE. ALL PIPE AND FITTINGS SHOULD BE FREEZE PROTECTED DOWN TO THE RECOMMENDED FREEZE LINE

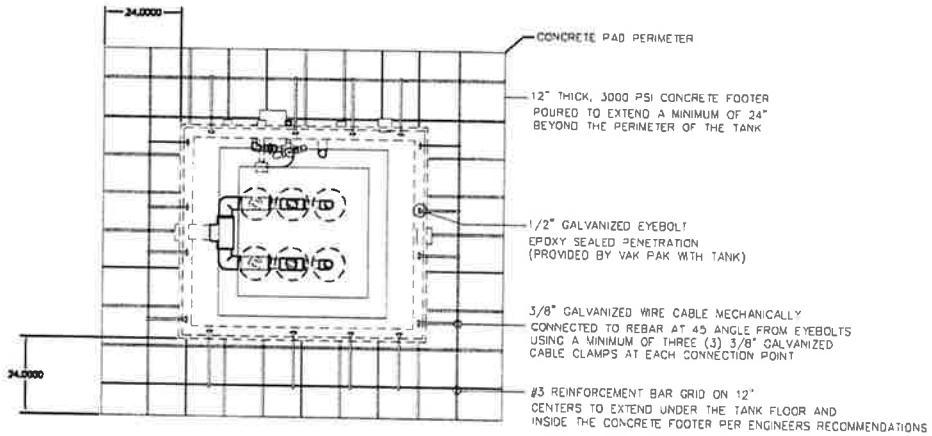
CONTACT VAK PAK, INC. EQUIPMENT INSTALLATION DEPARTMENT WITH ALL QUESTIONS (800)877-1824



COLLECTOR TANK
INSTALLATION DIAGRAM
(NOT TO SCALE)

NOTE: This detail is representative of the 1000 gallon tank. Concrete pad dimensions will change as tank deminsions change.

1350 GALLON TANK OUTSIDE DIMENSIONS - 72"X84"
2000 GALLON TANK OUTSIDE DIMENSIONS - 84"X108"
3000 GALLON TANK OUTSIDE DIMENSIONS - 108"X132"
4000 GALLON TANK OUTSIDE DIMENSIONS - 108"X156"



COLLECTOR TANK
INSTALLATION DIAGRAM
PLAN VIEW

VAK PAK MODEL CT400LP -CT4000LP
COLLECTOR TANK INSTALLATION DETAILS

NOTES:

1) PREPARE EXCAVATED HOLE. MAINTAIN ACCURATE ELEVATION MEASUREMENTS.
2) DIG THE HOLE DEEP ENOUGH TO ALLOW FOR A 12" MINIMUM CONCRETE PAD WITH A MINIMUM DIAMETER THAT ALLOWS FOR 3' OF EXCESSIVE WIDTH IN ALL DIRECTIONS FROM THE OUTSIDE WALLS OF THE TANK (AS DETAILED ABOVE)
3) POUR A MINIMUM 12" DEEP CONCRETE FLOOR WITH REINFORCEMENT BARS AS REQUIRED FOR 3000# COMPACTION. (THE TANK MAY BE SET IN THE EXCAVATED HOLE AND INTERLOCKED WITH THE REINFORCEMENT BARS PRIOR TO THE CONCRETE POUR IF APPROVED BY THE ENGINEER OF RECORD AND IF THE DECISION IS INFLUENCED BY LOCAL SOIL CONDITIONS. (AS DETAILED ABOVE). BE SURE CONCRETE SLURRY IS DISTRIBUTED IN SUCH A WAY AS TO ELIMINATE AIR POCKETS UNDER THE FLOOR OF THE TANK IF THE SECOND METHOD OF CONCRETE POUR IS CHOSEN.
4) AFTER THE CONCRETE HAS CURED, LOWER THE TANK ONTO THE CONCRETE PAD USING STRAPS THAT ARE RATED FOR AT LEAST DOUBLE THE WEIGHT LOAD. NEVER ALLOW WORKERS TO STAND BELOW THE TANK AS IT IS LOWERED INTO THE HOLE. ATTACH ROPES OR GUIDE CORDS TO THE EXTERNAL EYEBOLTS ON THE TANK AND PULL IT INTO POSITION FROM GRADE LEVEL.
4) MAINTAIN TANK LEVEL FROM THE ROOF LEVELING POINTS INDICATED ON THE DRAWING ABOVE. (THE INSIDE FLOOR OF THE TANK HAS A MANUFACTURED SLOPE TO ONE END AND SHOULD NOT BE USED AS A LEVELING POINT)
5) GALVANIZED STEEL EYEBOLTS ARE LOCATED AROUND THE PERIMETER OF THE TANK FOR CABLE ANCHORING TO THE CONCRETE PAD AS SHOWN ABOVE. DO NOT USE THE EYEBOLTS AS A METHOD OF LIFTING OR LOADING THE COLLECTOR TANK. ANCHOR BOLTS WITH GALVANIZED STEEL CABLE ARE RECOMMENDED TO BE INSTALLED AT A 45 DEGREE ANGLE FROM THE EYEBOLTS TO THE CONCRETE AS SHOWN ABOVE.
6) STUB UP THE TANK DRAIN CONNECTION IN THE BOTTOM OF THE TANK BEFORE POURING THE CONCRETE SLURRY IF THE SECOND METHOD OF CONCRETE APPLICATION IS SELECTED. AFTER ALL PLUMBING CONNECTIONS HAVE BEEN MADE BACKFILL THE EXCAVATION WITH AN APPROVED MEDIA FOR THE LOCAL SOIL CONDITIONS SUCH AS 57 STONE. TAKE PRECAUTIONS TO SUPPORT PIPE AND CONNECTIONS IN SUCH A MANNER THAT THEY ARE NOT DISTURBED OR DAMAGED DURING BACKFILLING PROCEDURES.
7) IT IS RECOMMENDED THAT THE TANK BE FILLED 25 % WITH FRESH WATER AND THEN EXTERNAL BACKFILL BE ADDED TO THE SAME LEVEL. CONTINUE ADDING WATER TO THE TANK AND BACKFILL ON THE OUTSIDE AT 25 % INCREMENTS UNTIL BACKFILL IS COMPLETE. THIS PREVENTS STRESS ON THE TANK WALLS FROM THE INSIDE, BY WATER, OR ON THE OUTSIDE, BY BACKFILL

COLLECTOR TANK OR SUBTERRANEAN VAULT INSTALLATION AND ANCHORING DETAILS

PROJECT NAME
CITY, STATE

MODEL # CT1000IWF
RECORD #
DWG # CT1000IWF

COMMERCIAL
FILTRATION/RECIRCULATION/DISPLAY SYSTEMS

VAK PAK inc.
P.O. Box 3764 - Jacksonville, Florida 32206 - (904) 353-4403

THIS SPACE RESERVED
FOR STATE APPROVAL STAMPS

VAK-PAK inc.
COMMERCIAL FILTRATION/RECIRCULATION/DISPLAY SYSTEMS
P.O. BOX 3264 - JACKSONVILLE, FLORIDA 32206 - (904) 353-4403

VACUUM CARTRIDGE ELEMENT MAINTENANCE PROCEEDURES

1) Open the lid to the splash pad filter tank. Stabilize yourself by holding the lip of the tank hatch and grasp the 1" PVC tee handle as shown on diagram #1.

2) Turn the handle counter-clockwise several rotations until the filter element is free from the element support.

3) Move the element to an appropriate location for cleaning with a standard garden hose and pressure nozzle. (Diagram #5)

4) Begin cleaning the element by washing the element folds from top to bottom. Rotate the element as needed to remove as much debris as possible from the filter pleats.

5) Replace the element on the element support in the tank and turn clock-wise 2 to 3 rotations. DO NOT rotate more than 3 turns to prevent the element from being over tightened. The threading is only intended to prevent the element from floating to the surface of the tank. Suction forces will hold the element down when the feature pump is operating.

6) Repeat these steps with each element.

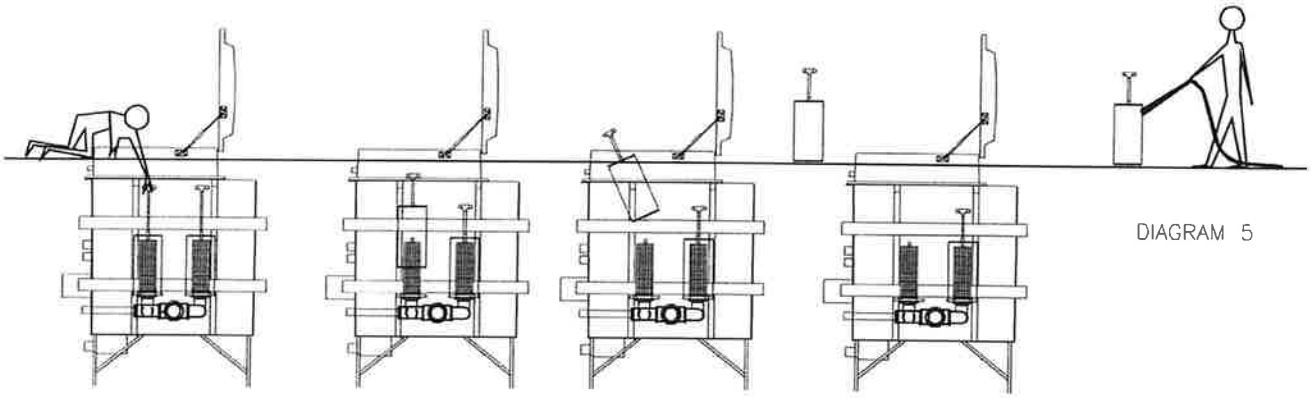


DIAGRAM 1 DIAGRAM 2 DIAGRAM 3 DIAGRAM 4 DIAGRAM 5

It is recommended that a second set of filter elements be obtained to allow for cleaning to be done more efficiently. This will also allow for a shorter shutdown cycle if cleaning needs to be done during park operating hours. Dirty elements can be removed within a few minutes and the second set can be installed. The system can not operate while elements are being cleaned.

Note: Never allow unauthorized persons in the area of the filter tank while the lid is unlocked or open. Always lock the lid when unattended.

Operational and Maintenance Instructions
With Multiport Valve

Model: CS-IWF-CB

Backwashing the sand filter:

1) Turn off the recirculation pump breaker in the external breaker panel. (Always turn pump off before rotating sand filter multiport valve)
2) Press down and rotate the multiport valve handle to line up in the backwash position. The handle is spring loaded and must be depressed before rotating. When the handle is lined up over "BACKWASH", release downward pressure on the handle until the handle groove drops into the notch.
3) Turn the recirculation pump breaker back on.
4) Confirm that water is running through the clear pipe viewing port on the waste line. Let the water run to waste until it clears or for approximately 1 to 2 minutes.
5) Turn off the recirculation pump breaker, press down and rotate the multiport valve handle to line up over the "FILTER" position on the valve. When the handle is lined up, release pressure on the handle until the handle groove drops into the notch.
6) Turn on the recirculation pump,
7) Make a note of the pressure gauge reading on the sand filter. When the gauge reaches 10 PSI higher than the clean reading repeat steps 1 - 6.

Cleaning the recirculation pump hair/lint trap:

1) Turn off the recirculation pump breaker,
2) Close the "K" filter suction valve and the "J" tank drain valve,
3) Remove the clear lid on the recirculation pump trap,
4) Lift out the basket strainer, clean and replace,
5) Fill the trap with water and replace the lid,
6) Open the "K" filter suction valve,
7) Make sure the multi-port valve is in filter mode and turn on the recirculation pump.

Cleaning the feature pump cartridge filters in the collector tank: (If applicable)

When the vacuum gauge on the suction side of the feature pump reaches a reading which is 10" greater than the clean filter reading it is time to clean the tank elements:

1) Turn off the feature pump, (the filter pump may continue running during this process.)
2) Open the collector tank lid and remove the DP150 vacuum cartridge filters by turning the handles counter-clockwise while exerting upward pressure until the elements can be lifted out of the tank.

3) Using a garden hose with standard pressure nozzle clean the debris from the paper elements by directing the spray at the top of the filter and working your way down. Turn the element in small, 3 to 4" rotations and spray from the top down until the element is clean.

4) Replace the elements in the tank by sliding the elements over the black element supports in the tank. Turn the element handle clock-wise two or three full turns but do not tighten.
5) Close the tank lid and turn on the feature pump breaker.
6) Record the vacuum gauge reading.

Chemical System Operation and Maintenance:

1) The chemical control system uses Sodium Hypochlorite (liquid chlorine, 12%) as a sanitizer and Muriatic acid for pH control. Separate chemical containers are provided for each chemical and care should be taken when storing and adding these chemicals to the containers.
2) Liquid Chlorine should be slowly poured into the container while wearing appropriate safety equipment as required according to MSDS sheets for this chemical. These forms should be available where you purchase this product. Fill the container to within 3" below the 1/2" suction tubing chase coupling located on the top side of the container (Diagram 3). Be sure that the 1/4" poly tube from the suction side of the Chlorine feed pump has been inserted into the chase coupling allowing for enough tubing to remain inside the container to touch the floor. Attach the black weighted suction strainer fitting to the end of the tube and lower it to the floor of the container. This will keep the end of the tube in the lowest area of the container to prevent loss of prime by the feed pump.
3) Follow the same steps when adding the pH chemical to the pH container. Take additional care when adding Muriatic acid to the pH container. Also take care to keep these two chemicals separated. Dangerous gas is created when acid and chlorine are mixed directly together. Never mix these chemicals prior to their addition to the return piping as required.
4) Chemical Controller probes should be removed and cleaned on a monthly basis. Use a clean cotton cloth and a spray cleaning agent such as "Fantastic". Spray the tip of each probe and wipe clean with the cloth. Thread the probe back into the flow cell, hand tight only. Remove the probe connection wire from the controller before removing the probe and connect the wire after the probe has been installed. The recirculation pump may remain on during probe cleaning if the small ball valves on each side of the flow cell are closed during the process. Remember to open those valves after the probes have been installed after cleaning. You may alternatively turn the recirculation pump off to clean the probes instead of closing the valves. Consult the chemical controller manual for instructions on how the change the chemical set points on the controller if needed. Controllers are typically set between 650 and 750 MV for ORP and at 7.5 for pH.
5) Consult the Control panel manufactures manual for operation instructions to make adjustments to the feature controls including changing park operating times.

Winterizing or Off Season Shutdown Procedures

1) See separate sheet for winterizing instructions.

Spring Startup:

1) Open the collector tank and inspect for and remove any debris that may have accumulated.
2) Open the red handled ball valve on the 1" fresh water fill.
3) If water does not begin to flow into the tank, check the water meter or any upstream valves to be sure they are open. Also check to be sure the Toro valve is open by turning the handle counter-clockwise two full turns.
4) If applicable, install the clean vacuum cartridge filter elements onto the black element supports inside the tank. Turn them clockwise no more than 3 turns. Do not tighten.
5) Remove the 1/4" plastic pump plugs from the hair lint strainer basket and apply a liberal amount of water based lubricant to the rings before threading them back into the bottom sides of the pump trap. Complete this on both pumps. Hand tight only.
6) After the collector tank has filled to the float device on the water fill system in the tank, fill each pump trap with water.
7) Apply water based lubricant to the rings on each pump trap lid before installing lids on each pump.
8) Install the 1" caps on the bottom drains of each sand filter.
9) If Winterizing plugs have been installed on splash pad feature lines, remove these according to the feature manufacturer's instructions and install feature nozzles.
10) Open the "K" Filter Suction valve on the trap side of the recirculation pump, close the "J" Tank Drain valve and turn the sand filter Multi-port valve to the filter position.
11) Install the chemical controller probes and connect to the proper electrical twist lock connections for ORP and pH. Open the 1/2" ball valves on each side of the chemical
12) controller flow cell. For the Pentair AK110 model, open both valves simultaneously until the chemical controllers "flow" green light comes on. Opening the valves all the way may cause a flow alarm.
13) Turn on the breaker for the recirculation pump and confirm that the pump primes. Confirm the flow rate is at the system designed GPM on the "E" return line flowmeter. Close the air relief valve on top of the sand filter when water begins to spray out. Hand tight only.
14) Confirm that the pressure gauge on the top of the sand filter is reading at clean filter pressure. If not, follow the instructions above for back washing the filter.
15) Turn on the Control panel and wait for the digital screen to complete the reboot sequence. If screen does not reboot contact the panel manufacturer for instructions. Check that panel breaker is on in external breaker panel.
16) Confirm that all feature valves are set to normal operating positions on the feature manifold.
17) Turn on the breaker for the Feature pump and/or the feature pump motor starter.
18) Walk to the activator on the splash pad and apply pressure. Water should begin to flow from the feature lines on the pad. Wait approximately 30 seconds for water to begin to flow. Be sure pump is primed.

19) Confirm that feature flow operation starts and stops according to the design timing sequence and that the activator restarts the sequence. Repeat this several times to verify proper operation.
20) Clean and refill chemical tanks with fresh chemicals.

ROUTINE MAINTENANCE PROCEDURES:

DAILY:

1) Inspect chemical containers for volume levels. If tank is less than half full, fill. Be sure to use proper chemicals.
2) Check recirculation pump hair lint trap for debris.
3) Check pressure gauge on sand filter to confirm it is well below required backwash pressure. If pressure is within 3 PSI of filter limit backwash sand filter as outline above.
4) Check vacuum gauge of feature pump suction to confirm that tank elements are within acceptable clean levels. If not proceed with cleaning as described above.
5) Remove debris from splash pad drain grates.
6) Use an air blower or garden hose with nozzle to blow leaves and other debris from splash pad area prior to pad operation. Blow debris away from drains.

Weekly:

1) Press down on the water fill control float to confirm that water flows from fresh water spout in tank. Release float to confirm that water stops flowing when float rises.
2) Inspect filter and o-ring points on pumps for leaks.
3) Inspect splash pad feature nozzles during operation for blockage. If found turn off feature pump breaker and remove nozzle. Turn on feature pump to flush debris from line for approximately 2 minutes. Turn off feature pump before re-installing nozzle.

Monthly:

1) Have a qualified technician check the motor amperage on both pump motors to confirm amperage levels are below motor plate full load amperage ratings. Full load rating is located on motor label under "FL".
2) Close the 1/2" ball valves on each side of the Chemical controller flow cell and remove the chemical probes carefully. Use a clean cotton cloth and a degreasing solution such as "409" of Fantastic to clean the probe tips. Rinse tips with fresh water and replace the probes. Open the 1/2" ball valves on each side of the flow cell to their proper positions.

Annually:

1) Drain the collector tank and remove all debris,
2) If applicable, turn off the feature pump and remove the vacuum cartridge elements from the collector tank. Mix a solution of Trisodium Phosphate and water and thoroughly clean the elements with a toilet bowl brush or similar to reach the inside of the elements. Allow the elements to soak for 12 hours in a degreasing solution then rinse thoroughly before installing into the collector tank.
3) Inspect and replace any pump trap o-rings if needed. Use water based lubricant before installing o-rings in place.
4) Replace the flexible Stenner chemical feed pump tubes. Consult the Stenner Manual located in the maintenance manual for proper removal and installation of these tubes.
5) Re-fill the collector tank with fresh water and place filter system in "filter" mode.

Electronic component manuals are available upon request. If Paper manuals are preferred, make a second copy to keep in a safe, dry place.

For questions regarding these or other related issues, please contact Vak Pak, Inc. At (800)877-1824 and ask for splash pad technical assistance.

IWF Winterizing Process:

Please follow these steps to winterize the Vak Pak Interactive Water Feature system. If hydrostatic uplift from high water table or flood conditions are possible, do not empty the tank as described below. Follow local procedures using food grade anti-freeze chemicals to winterize the tank. The recirculation pump may also be left in full operation with water remaining at full levels as an alternate solution to draining the tank when hydrostatic uplift conditions are prevalent. The feature system will still need to be drained with this option. Please contact Vak Pak at **(800)877-1824** if any of these instructions are not clear or if you have questions.

Vak Pak Remote Collector Tank:
Follow if high water table or hydrostatic uplift issues are not a concern:

1. Open the collector tank lid.
2. Close the 1" isolation ball valve located near the opening of the tank.
3. Go to the Vak Pak equipment cabinet and turn off the recirculation pump breaker. Open valve "J" Tank Drain on the suction side of the recirculation pump. (Fig.14)
4. Rotate the multiport valve on the sand filter to "WASTE".
5. Turn on the recirculation pump and be sure it primes. You should see the water level in the collector tank begin to drop.
6. When the water has been evacuated from the tank or when the recirculation pump loses prime turn off the recirculation pump and rotate the sand filter multiport valve to "WINTERIZE".
7. Remove the Little Giant sump pump from the equipment cabinet, attach the 10' garden hose and lower it into the 12"x12" sump box in the bottom corner of the tank. Insert the free end of the garden hose into the 2" tank drain line. Be sure there are no kinks or severe bends in the hose so water will flow freely from the pump to the overflow line.(fig.15)
8. Plug the sump pump into a GFCI protected receptacle. If there is more than 4" of water in the sump box the pump should discharge it to the overflow line.
9. Remove the element manifold assembly by removing the stainless lag screws between the check valve and the element tee. (Fig.16)
10. Using a short wooden pole (approx. 3' long) push inside the check valve with the pole to release any water in the pipe. Be prepared to get a little wet! After the pipe is evacuated of water do the same thing with the recirculation suction line check valve (fig.17)
11.

This should complete the collector tank winterizing process. Simply unplug the sump pump, remove it from the collection tank with the hose. Place the sump pump neatly back inside the Vak Pak equipment cabinet. Open the 1" fresh water fill isolation valve and water should begin to refill the tank.

Vak Pak Equipment Cabinet:

1. Be sure the recirculation and feature pump breakers have been tripped off before the following steps are completed.

2. Remove the lids from the recirculation pump and feature pump hair and lint traps. Remove any debris that has accumulated inside the basket.(fig.1) There is an O-ring located around the inside of the HL Trap lid. This should be placed in the basket of the trap for safe storage and to keep it from getting lost. (Fig.2)
3. On the bottom side or front of each pump you will find a 1/4" plug. Turn this counter clockwise to remove and place these in the associated pump baskets with the o-ring. Some water may drain from the unplugged openings when the plugs are removed. This is fine, let it drain. (Fig. 3-4)
4. On the bottom side of the sand filter is a 1-1/2" drain cap.(fig.5). Remove and store in the recirculation. Pump HL trap basket with the other items for safe keeping. Water should begin to drain into the sump box and out through the floor drain (fig.6). If water begins to back up inside the sump box, remove the grated cover and unblock the drain.
5. Open the air relief valve located on top of the feature pump and recirculation pump discharge lines. This will allow air to enter the piping as water exits. Leaving this valve closed will create a vacuum and water will not be able to drain properly (fig.7).
6. A brass hose Bibb is located on the bottom side of the feature valve manifold. Open this valve and allow water to drain.(fig.8)
7. Open the manual throttling valves on every feature return line. be sure that each valve is open fully(fig.9)
8. Remove the 1/4" drain plug located on the bottom of the "to heater" and "from heater" lines. These are located on the 2" pipe connection just outside the heater (fig.10). Place these plugs in the HL trap basket for safe keeping.

This should complete the winterizing process for the Vak Pak equipment cabinet. Simply replace all of the stored plugs, caps and lids and close the air relief valves before spring startup.

Vak Pak Remote Drain box:

You will discover a remove drain pit located outside the Vak Pak equipment cabinet. It should be located directly between the feature manifold (inside the cabinet) and the splash pad. It should be a long narrow valve box with a grated cover (fig.11).

1. open the cover or remove the grating.
2. There will be several PVC tees with 1" ball valves on each tee. Open these valves. You should see water draining from the valves and traveling to a floor drain in the bottom of the drain box (fig.12). If the drain backs up, remove the small grated cover and unblock the drain. Replace the grated cover after blockage is removed.
3. Replace the cover or grating over the drain box.
4. It is recommended that each feature line at the splash pad have its nozzle removed and an air compressor be used to force any remaining water in the feature lines from the splash pad towards the drain box. (Fig.13)
5. Consult the feature nozzle manufacturer as to whether the nozzles should remain in their sockets on the plush pad or if they should be removed and stored until spring. It they are to be removed it is recommended that a winterizing plug be placed in the nozzle socket to prevent debris from accumulating in the feature lines during the winter.

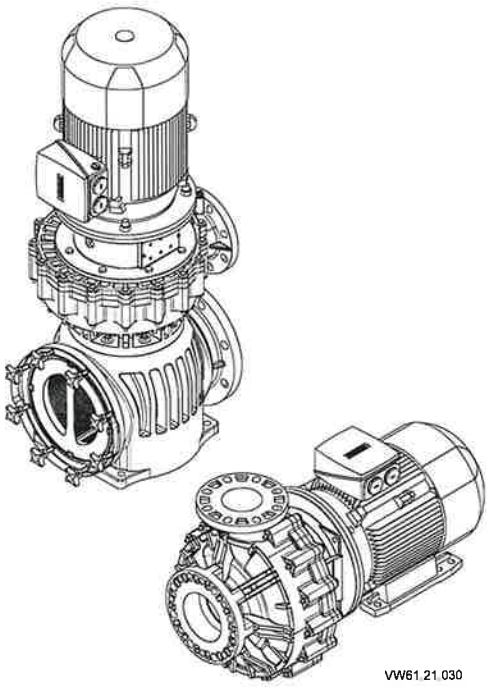
This should complete the winterizing process for their feature manifold drain box. Simply replace all feature nozzles and close all drain box valves before spring startup.

SPECK pumps

Operation manual

Normblock Multi
BADU® Block Multi

65/250, 100/250, & 125/250



VW61.21.030

CE

SPECK pumps

8125 Bayberry Rd
Jacksonville, FL. 32256 USA
Phone: 904-739-2626
Fax: 904-737-5261
info@speck-pumps.com
www.speck-pumps.com

This document and all attached documents are not subject to update service!
Subject to technical modifications!

Table of contents

1 About this document 7
1.1 Using this manual 7
1.2 Target group 7
1.3 Other applicable documents 7
1.3.1 Symbols and means of representation 7
2 Safety 9
2.1 Intended use 9
2.1.1 Possible misuse 9
2.2 Personnel qualification 9
2.3 Safety regulations 10
2.4 Protective equipment 10
2.5 Structural modifications and spare parts 10
2.6 Signs 10
2.7 Residual risk 10
2.7.1 Falling parts 10
2.7.2 Rotating parts 11
2.7.3 Stability 11
2.7.4 Electrical energy 11
2.7.5 Hot surfaces 11
2.7.6 Hazardous materials 11
2.7.7 Suction danger 11
2.8 Faults 12
2.9 Preventing material damage 12
2.9.1 Leakage and pipe breakage 12
2.9.2 Dry running 12
2.9.3 Cavitation 12
2.9.4 Overheating 13
2.9.5 Pressure surges 13
2.9.6 Blockages in the pump 13
2.9.7 Drainage 13
2.9.8 Risk of frost 13
2.9.9 Water temperature 13
2.9.10 Deformation of the pump 14
2.9.11 Safe use of the product 14

3 Description 15
3.1 Function 15
3.2 Designation 16
3.3 Name plate 16
3.4 Design 16
3.4.1 Normblock Multi 16
3.4.2 BADU Block Multi 16
4 Transport and intermediate storage 17
4.1 Transport 17
4.1.1 Transporting the pump without the motor 17
4.2 Lifting the pump 17
4.3 Storage 19
4.4 Returns 20
5 Installation 21
5.1 Installation site 21
5.1.1 Installation surface 21
5.1.2 There must be ground drainage 21
5.1.3 Ventilation and aeration 21
5.1.4 Structure-borne and airborne noise transmission 21
5.1.5 Reserve space 21
5.1.6 Fasteners 21
5.2 Pipes 22
5.2.1 Pipe sizing 22
5.2.2 Laying pipes 22
5.3 Installation 23
5.3.1 Installing the pump and connecting it to the pipework 23
5.4 Electrical connection 24
5.5 Check the direction of rotation 25
6 Commissioning/Decommissioning 26
6.1 Commissioning 26
6.1.1 Pre-requisites for commissioning 26
6.1.2 Filling pump/unit with pumped fluid and ventilating 26
6.1.3 Checking how easily the pump rotates 27
6.1.4 Switching the pump on 27
6.1.5 Switching the pump off 27

6.2 Decommissioning 28
6.2.1 Pump/unit remains assembled 28
6.2.2 Pump/unit is dissembled and stored 28
7 Faults 29
7.1 Overview 29
8 Maintenance 34
8.1 Maintenance during operation 34
8.2 Maintenance work 34
8.2.1 Cleaning the BADU Block Multi strainer basket 35
8.2.2 Cleaning the BADU Block Multi acrylic lid 35
8.3 Draining/Cleaning 36
8.4 Disassembling of the pump/unit 36
8.4.1 Preparation 36
8.4.2 Dismantling pump/unit 36
8.4.3 Dismantling the motor 37
8.4.4 Dismantling motor unit 37
8.4.5 Dismantling pump housing 37
8.4.6 Dismantling the impeller and mechanical seal 38
8.5 Assembling pump/unit 38
8.5.1 Pre-requisites 38
8.5.2 Assembling meachanical seal 39
8.5.3 Assembling impeller 39
8.5.4 Assembling motor unit 39
8.5.5 Assembling motor 40
8.6 Screw torque 41
8.7 Spare parts 42
8.8 Warranty 42
9 Disposal 43
10 Technical data 44
10.1 Dimensional drawing 44
10.2 Characteristics 52
10.3 Exploded drawing 54
11 Index 56

Glossary

Unit
Pump built into the system.

Pressure line
Pipe connected to the pressure discharge.

Motor unit
Pump without housing.

Item number
The item numbers contained in the text e.g. (210) can be found in the exploded drawing.

Pump
Machine with motor.

Suction line
Pipe connected to the suction discharge.

Declaration of clearance
A declaration of clearance is a statement from the customer confirming that the product has been drained correctly should it need to be returned to the manufacturer. This is to certify that wetted parts do not pose a danger to health or the environment.

1 About this document

1.1 Using this manual

This manual is a component of the pump/unit. The pump/unit was manufactured and tested according to the generally accepted rules of technology. However, if the pump/unit is used incorrectly, not serviced enough or tampered with, danger to life and limb or material damage could result.

➔ Read the manual carefully before use.

➔ Keep the manual during the service life of the product.

➔ Provide access to the manual for operating and service personnel at all times.

➔ Pass the manual on to any future owners or operators of the product.

1.2 Target group

This instruction manual is intended for qualified professionals.
See point 2.2 on page 9

1.3 Other applicable documents

- Packing list
- Supplier documentation

1.3.1 Symbols and means of representation

Warnings are used in this manual to warn you of personal injury.

➔ Always read and observe warnings.

⚠ DANGER

Danger for people.
Non-observance results in death or serious injury.

⚠ WARNING

Danger for people.
Non-observance can result in death or serious injury.

⚠ CAUTION

Danger for people.
Non-observance can result in light to moderate injury.

NOTICE

Notes to prevent material damage, for better understanding or to optimise the workflow.

Important information and technical notes are specially marked to explain correct operation.

Symbol	Meaning
➔	Instructions for a one-step action.
1. 2.	Directions for a multi-step action. ➔ Observe the order of the steps.

2 Safety

2.1 Intended use

The pump/unit is intended for the circulation of swimming pool water.

Observing the following information is vital for intended use:

- This manual
- Supplier documentation

The pump/unit may only be operated within the application limits and characteristics, as specified in this manual.

Any other use or use exceeding this is **not** an intended use and must first be authorised by the manufacturer/supplier.

2.1.1 Possible misuse

- Installing the pump/unit with stress on the pipes.
- Using the pump/unit beyond the operating limits specified in the pump data sheet, e.g. excessive system pressure or pressure surges in the unit.
- Opening and servicing of the pump/unit by unqualified personnel.
- Operating the pump/unit in a partly assembled state.
- Operating the pump/unit without pumped fluid.
- Incorrect installation of the pump/unit.

2.2 Personnel qualification

This unit can be used by persons with limited physical, sensory or mental capacity or by people with a lack of experience or knowledge, provided that they are supervised or have been instructed in the safe use of the unit and understand the resulting dangers.

➔ Ensure that the following work is only performed by trained professionals with the following qualifications:
  – For mechanical work, for example replacing ball bearings or mechanical seals: qualified mechanics.
  – For work on the electric system: electricians.

➔ Ensure that the following requirements are fulfilled:
  – Personnel who do not yet have the appropriate qualifications must receive the required training before being allowed to work on the system.
  – The personnels' responsibilities, for example working on the product, electric equipment or hydraulic systems, are set based on their qualifications and the job description.

- The personnel have read this manual and understand the necessary working steps.

2.3 Safety regulations

The operator of the system is responsible for the adherence to all relevant statutory regulations and guidelines.

➔ Observe the following regulations when using the pump/unit:

- This manual
- Warning and information signs on the product
- Other applicable documents
- The valid national regulations for accident prevention
- The internal occupational, operational and safety regulations of the operator

2.4 Protective equipment

Reaching into moving parts, e.g. coupling and/or impeller fan, can cause serious injury.

➔ Never operate the pump/unit without protective covers.

2.5 Structural modifications and spare parts

Alterations or modifications can affect operational safety.

➔ Never modify or alter the pump/unit without the manufacturer's permission.

➔ Only use original spare parts and accessories authorised by the manufacturer.

2.6 Signs

➔ Ensure that all the signs on the complete pump/unit remain legible.

2.7 Residual risk

2.7.1 Falling parts

The lifting hooks on the motor are designed for the weight of the motor. The lifting hooks can break if the complete pump unit is attached.

➔ Attach the pump unit consisting of motor, pump and filter housing (where necessary) on both the motor and the pump sides. See point 4.2 on page 17

➔ Only use hoisting and load-bearing equipment which is suitable and technically sound.

➔ Do not stand under suspended loads.

2.7.2 Rotating parts

There is a risk of shearing and crushing due to exposed rotating parts.

- ➔ Only perform servicing when the pump/unit is not in operation.
- ➔ Prior to servicing, ensure the pump/unit cannot be switched back on.
- ➔ Immediately after finishing servicing, reattach or reactivate all protective equipment.

2.7.3 Stability

- ➔ Ensure sufficient stability of the pump/unit. There is a danger of crushing due to tilting or falling over.

2.7.4 Electrical energy

There is an increased risk of electric shock when working on the electrical system due to the humid environment.

Electrical protective earth conductors which were not installed correctly can also result in electric shocks, for example due to oxidation or cable breakage.

- ➔ Observe VDE and utility company regulations.
- ➔ Build swimming pools and their protection according to DIN VDE 0100-702.
- ➔ Before working on the electrical system, take the following measures:
  - Disconnect system from the power supply.
  - Attach a warning sign: "Do not switch on! The system is being worked on."
  - Ensure that the system is free of voltage.
- ➔ Check the electrical system regularly to ensure it is in proper working condition.

2.7.5 Hot surfaces

The electric motor can reach temperatures of up to 70 °C. There is a risk of being burned.

- ➔ Do not touch the motor during operation.
- ➔ Allow the pump/unit to cool down before servicing it.

2.7.6 Hazardous materials

- ➔ Ensure that leaks of dangerous pumped fluids/gases are led away without endangering people or the environment.
- ➔ Decontaminate the pump completely during disassembly.

2.7.7 Suction danger

Ensure that the suction openings conform to current guidelines, standards and instructions.

2.8 Faults

- ➔ In case of a fault, immediately switch the pump off and remove it from operation.
- ➔ Have all faults repaired immediately.

Seized pump

If a pump seizes, and is switched on several times repeatedly, the motor can be damaged. Observe the following points:

- ➔ Do not switch the pump/unit on repeatedly.
- ➔ Turn the motor shaft by hand. See point 6.1.3 on page 27.
- ➔ Clean pump.

2.9 Preventing material damage

2.9.1 Leakage and pipe breakage

Vibrations and thermal expansion can cause pipes to break.

- ➔ Install the pump/unit in a manner which reduces structure-borne and airborne noise transmission. When doing so, observe relevant regulations.

If the pipe forces are exceeded, leaks can occur at the screwed connection or the pump itself.

- ➔ Do not use the pump as a fixed point for the pipe line.
- ➔ Connect pipes free of load and mount them elastically. Install compensators.
- ➔ If the pump leaks, the unit may not be operated and must be disconnected from the mains power supply.

2.9.2 Dry running

If run dry, mechanical seals and synthetic parts can be destroyed within only a few seconds.

- ➔ Do not allow the pump to run dry. This also applies to checking the rotation direction.
- ➔ Purge air from pump and suction line prior to start-up.

2.9.3 Cavitation

Pipes which are too long increase resistance. This results in risk of cavitation.

- ➔ Ensure that the suction line does not leak.
- ➔ Observe the maximum pipe length.
- ➔ Only switch the pump on when the valve on the delivery side is opened halfway.
- ➔ Open the valve on the suction side completely.

2.9.4 Overheating

The following factors can result in the pump overheating:

- Excessive pressure on the delivery side.
- Motor overload switch set incorrectly.
- Ambient temperature which is too high.

➔ Do not operate the pump with the valves closed, minimum flow rate 10 % of Q_{max}.

➔ For pumps with a three-phase motor and no motor protection, install an overload switch and set it correctly.

➔ Do not exceed the permitted ambient temperature of 40 °C.

2.9.5 Pressure surges

The pressure in the filter housing or pump housing (BADU Block) must not exceed 2.5 bar or 3.0 bar for the Normblock. Otherwise damage may occur to the acrylic glass lid or other pump parts.

➔ Install a non-return valve.

➔ The use of a frequency converter or a smooth start is recommended in order to rule out pressure surges on the unit side.

2.9.6 Blockages in the pump

Pieces of dirt in the suction line can clog and block the pump.

➔ Do not operate the pump without a strainer basket.

➔ Check how easily the pump rotates before starting it up and after longer idle or storage periods.

➔ Remove any impuritites from the suction line.

2.9.7 Drainage

An insufficient drain gap can damage the motor.

➔ Do not block or seal the drain gap between the pump housing and the motor.

➔ Never assemble the unit with the motor positioned underneath.

2.9.8 Risk of frost

➔ Drain the pump/unit and pipes at risk of freezing in plenty of time.

➔ Remove the pump/unit during periods of frost and store it in a dry room.

2.9.9 Water temperature

The water temperature must not exceed 40 °C.

2.9.10 Deformation of the pump

Deformation of the pump must be avoided.

- ➔ Adhere to the assembly torques stipulated for the screws.
- ➔ The pump must be set up completely on the foundation.

2.9.11 Safe use of the product

Safe use of the product is no longer guaranteed in the following instances:

- ➔ If the pipework is not in proper condition.
- ➔ If the pump seizes. See point 2.8 on page 12
- ➔ If protective devices are damaged or missing, e.g. protection against accidental contact.
- ➔ If there is stress on the pump/unit or pipes during installation.
- ➔ If the pump/unit is not installed correctly.
- ➔ If there is a technical fault.

3 Description

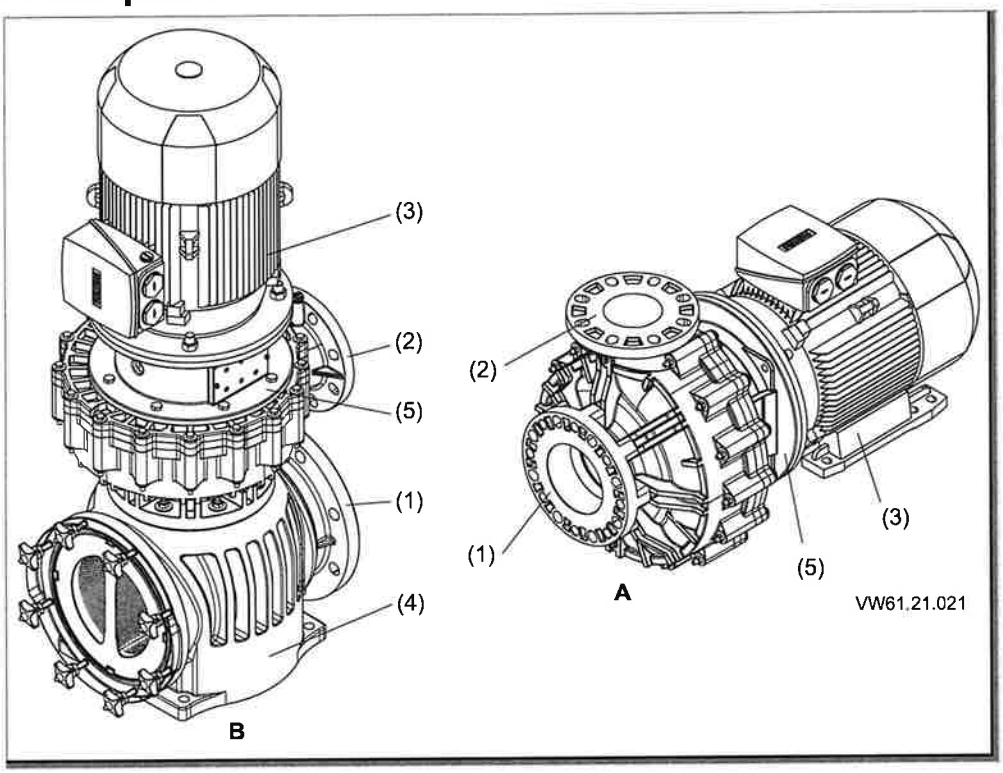


Fig. 1

A	Normblock Multi	**B**	BADU Block Multi
(1)	Suction discharge	**(2)**	Pressure discharge
(3)	Motor	**(4)**	Filter housing with strainer basket
(5)	Drive lantern		

3.1 Function

The pump draws the swimming pool water in via a shut-off valve in the suction line and suction discharge (1). A strainer basket is integrated in the filter housing (4) of the BADU Block Multi which filters out rough impurities. The water is pumped to the filter unit via the discharge outlet (2) and a shut-off valve in the pressure side. The drive shaft in the motor (3) is connected to the pump shaft. The motor (3) is connected to the pump with the drive lantern (5).

3.2 Designation

Example: Normblock Multi 100/250

Code	Description
Normblock Multi	Series
100	Nominal discharge nozzle diameter [mm]
250	Nominal impeller diameter [mm]

Example: BADU Block Multi 100/250

Code	Description
BADU Block Multi	Series
100	Nominal discharge nozzle diameter [mm]
250	Nominal impeller diameter [mm]

3.3 Name plate

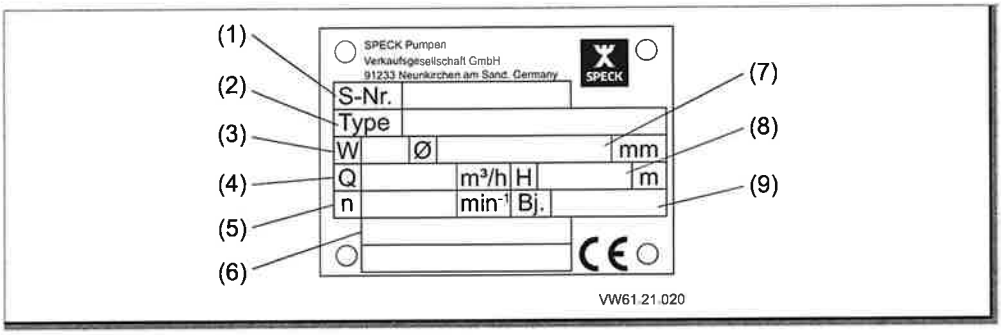


Fig. 2

(1)	Serial number	**(2)**	Series/construction size
(3)	Material version	**(4)**	Flow rate
(5)	Motor speed	**(6)**	Other
(7)	Impeller diameter	**(8)**	Dynamic head
(9)	Construction year		

3.4 Design

3.4.1 Normblock Multi

The Normblock Multi is a non-self-priming, single stage centrifugal pump, developed in a monoblock design.

A mechanical seal is used to seal the shaft.

3.4.2 BADU Block Multi

The BADU Block Multi is a non-self-priming, single stage centrifugal pump, developed in a vertical monoblock design. The pump and the pre-filter housing are joined together via the pump flange.

A mechanical seal is used to seal the shaft.

4 Transport and intermediate storage

4.1 Transport

➔ Check the delivery conditions.
  – Check the packaging for transport damage.
  – Determine damages and contact the manufacturer and the insurance company.

NOTICE

Damage to the mechanical seal due to improper transportation.

➔ Protect the pump shaft against displacement during transport with transport insurance.

4.1.1 Transporting the pump without the motor

The pump shaft (210) must be fixed.

➔ Dissemble the coupling protection (681) from the drive lantern.
➔ Loosen screws (901.3).
➔ Push the lock washers (931) into the shaft groove.
➔ Tighten screws (901.3).

4.2 Lifting the pump

⚠ DANGER

Goods being transported can fall and result in death or crushing of limbs!

The lifting hooks on the motor are designed for the weight of the motor. The lifting hooks can break if the complete pump unit is attached.

➔ Attach the hoisting equipment to both the motor and pump sides if hooks are provided.
➔ Use only hoisting and load-bearing equipment which is suitable, technically sound and can bear enough weight.
➔ Only transport the pump/unit in the correct position.
➔ Do not stand under suspended loads.
➔ The motor is the heaviest part of the pump.

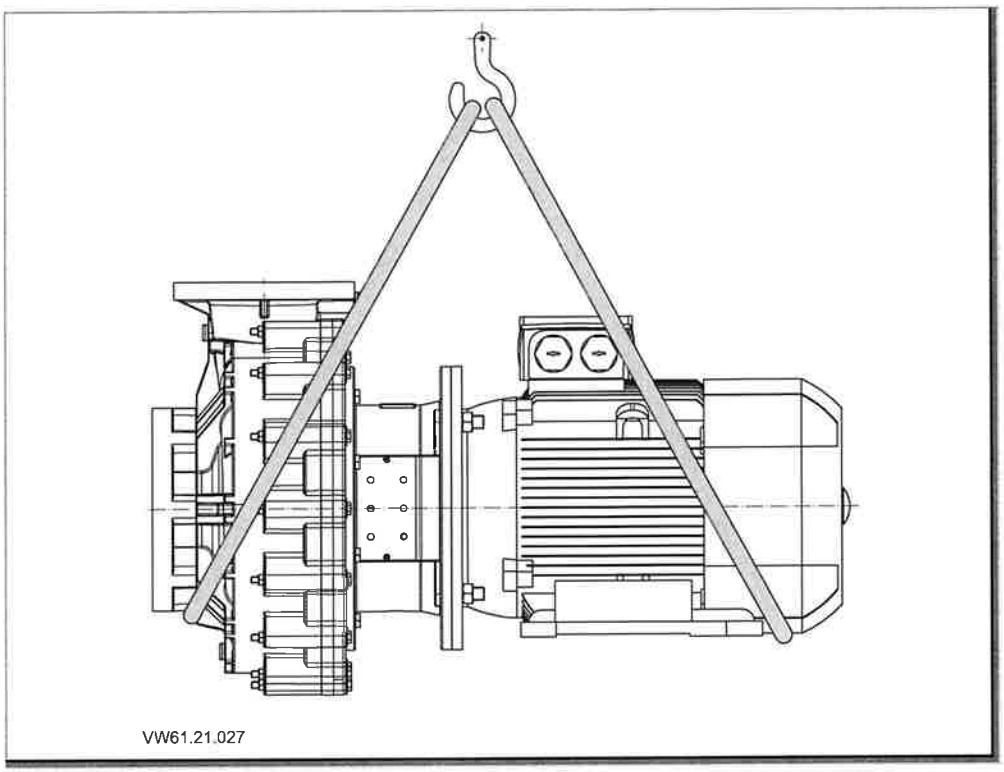


Fig. 3

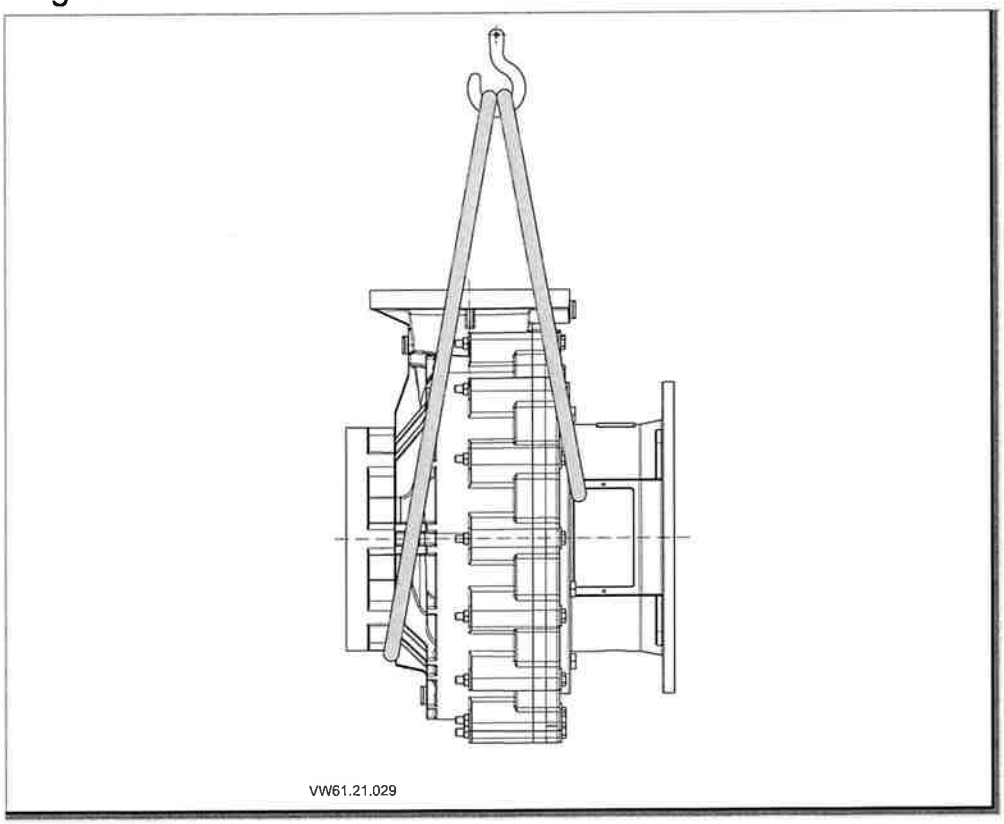


Fig. 4

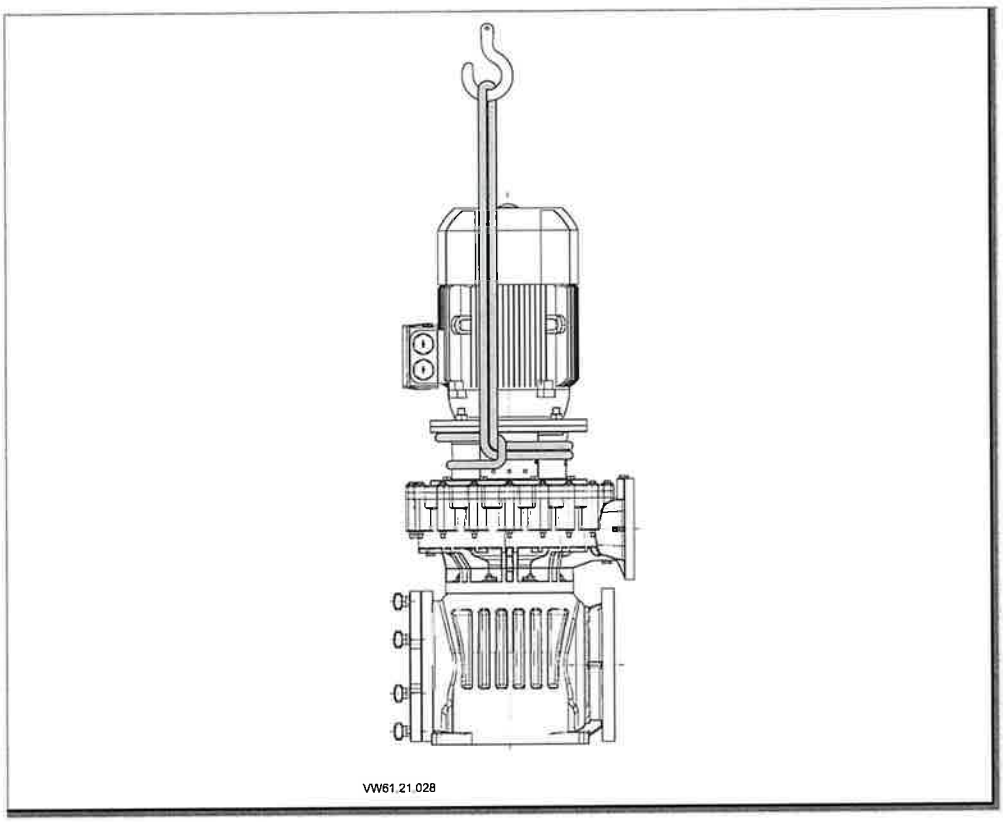


Fig. 5

4.3 Storage

NOTICE

Corrosion is possible due to storage in humid conditions with fluctuating temperatures!
Condensation can corrode windings and metal parts.

➔ Store the pump/unit in a dry environment at a temperature which is as constant as possible.

NOTICE

There is a risk of damage to the winding and entry of foreign matter due to open ports!

➔ Do not remove the port covers until the pipes are ready to be connected.

The shaft must be turned by hand once a week, for example via the motor fan or pump shaft.

New pumps/units are treated in the factory so that they are protected for 12 month when stored correctly.

For storage of units which have already been operated, See point 6.2.2 on page 28

4.4 Returns

- Drain the pump completely.
- Clean the pump and rinse it with clear water, especially with hazardous or risky pumped fluids.
- Complete the declaration of clearance and return it with the pump.

5 Installation

5.1 Installation site

5.1.1 Installation surface

➔ The installation surface must be level and horizontal in order to avoid damage.

➔ Observe weight indications!

5.1.2 There must be ground drainage

➔ Calculate the size of the ground drain according to the following criteria:
- Size of the swimming pool.
- Circulation flow rate.

5.1.3 Ventilation and aeration

➔ Ensure sufficient ventilation and aeration. The ventilation and aeration must ensure the following conditions:
- Prevention of condensation.
- Cooling of the pump motor and other system components, for example switch cabinets and control units.
- Limitation of the ambient temperature to maximum 40 °C.

5.1.4 Structure-borne and airborne noise transmission

➔ Observe regulations for structural noise protection, for example DIN 4109.

➔ Install the pump in a manner which reduces structure-borne and airborne noise transmission. Vibration-absorbing materials are suitable bases. Examples:
- Anti-vibration buffers (Normblock Multi)
- Cork lining
- Sufficiently hard foam

5.1.5 Reserve space

➔ Calculate the reserve space to allow the motor unit to be removed in the direction of the motor fan with the help of lifting equipment and the strainer basket to be removed from the front.

5.1.6 Fasteners

➔ Fasten pump using screws.

5.2 Pipes

5.2.1 Pipe sizing

Suction lines which are too long have significant disadvantages:

- Higher resistance which results in reduced suction performance and a higher risk of cavitation.

A minimum length of double the inner diameter of the suction flange must be planned for the calming section in front of the suction flange.

For longer pipes, losses due to pipe friction must be taken into account.

➔ The nominal diameter of the pipe must be planned according to the pump connections.

➔ Do not exceed maximum flow speeds.

- Suction line: 1.5 m/s
- Pressure line: 2.5 m/s

5.2.2 Laying pipes

➔ Keep the suction and pressure lines as short and straight as possible.

➔ Avoid sudden changes to the cross-section and direction.

➔ Lay the suction line below the water level.

➔ Lay the suction line as follows to prevent air pockets from forming:

- For intake mode: continuously falling.
- For suction operation mode: continuously rising.

➔ If clogging is possible, for example with straw or grass, install a filter in the intake or the suction line.

➔ Depending on the type of pump and system, install a non-return valve as necessary.

➔ Install a shut-off valve in both the suction and pressure lines.

➔ Avoid valves which close suddenly. Install a shock absorber or air vessel if necessary.

➔ Ensure that the suction line cannot leak.

➔ Adapters with large nominal diameters and approx. 8° extending angles should be used in order to avoid pressure loss.

➔ No stress or torque from the pipe system may affect the pump.

5.3 Installation

The pump should be installed below the water level (max. 3 m) in intake mode.

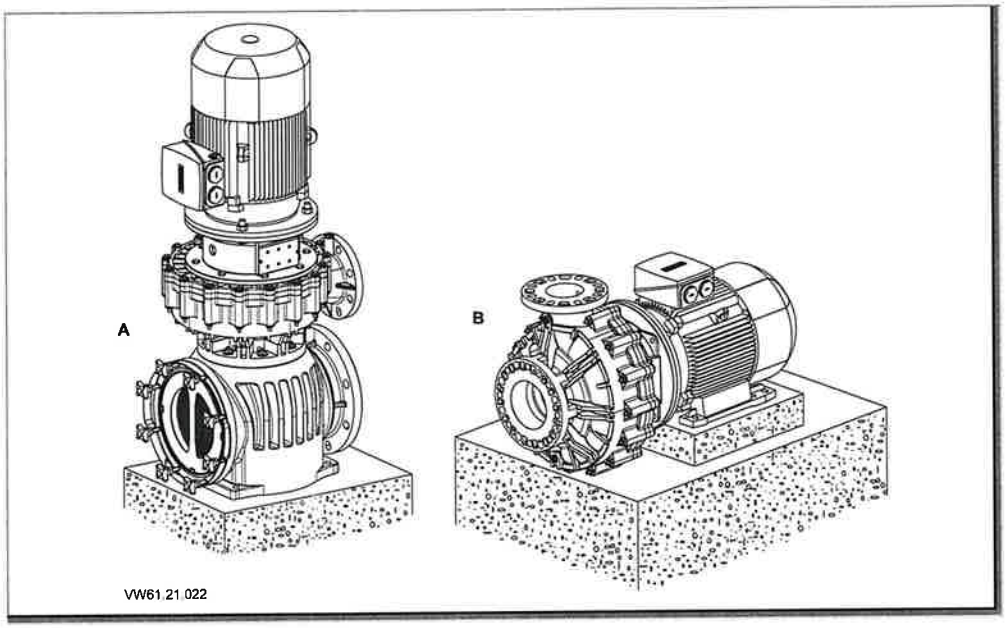


Fig. 6

A	BADU Block Multi	**B**	Normblock Multi

The BADU Block Multi filter housing must be set up completely on the foundation.

The Normblock Multi must be set up so that the pump housing stands freely and is not supported. An elevation on the foundation must therefore be built for the assembly of the motor feet.

5.3.1 Installing the pump and connecting it to the pipework

1. When installing the pump, align the pump with the discharge outlet using a spirit level.
2. Clean and rinse the pump, pipes and connections thoroughly.

NOTICE

The motor can be damaged due to insufficient drainage!

➔ Do not block or seal the drain gap between the pump housing and the motor.

NOTICE

If it is sealed incorrectly, the thread can be damaged and the sealing effect can be reduced!

➔ Use Teflon tape for assembly.

NOTICE

The pump can be damaged by unauthorised mechanical strains being placed on the pump!

➔ Take the pipe up directly before the pump and connect it free of tension.

3. Connect the pipe free of tension according to the VDMA standard sheet 24277. Use compensators.
4. Ensure that any leaks cannot cause consequential damage. Install a suitable retainer if necessary.

⚠ WARNING

Pumped fluid hazardous to health!

➔ Observe legal regulations regarding the disposal of media hazardous to health.

5.4 Electrical connection

⚠ WARNING

Risk of electric shock due to incorrect connections!

➔ Electrical connections must always be carried out by authorised specialists.

➔ Observe VDE and utility company regulations.

➔ Install pumps for swimming pools and their protection according to DIN VDE 0100-702.

➔ Install a disconnecting device with at least a 3 mm contact gap per pole to interrupt the power supply.

⚠ WARNING

Risk of electric shock due to voltage on the housing!

➔ An overload switch which is set correctly must be installed for pumps with three-phase motors without motor protection. In doing so, observe the values on the motor name plate.

➔ Protect power supply with a ground fault circuit interrupter, nominal residual current $I_{FN} \leq 30$ mA (higher current class if necessary when other devices are being run at the same time – always according to the local regulations).

➔ Only use suitable pipe types according to regional regulations.

- ➔ Adjust minimum diameter of the electrical pipes to accommodate the motor output and pipe length.
- ➔ If hazardous situations can occur, provide an emergency off switch according to DIN EN 809. The builder/operator must make a decision according to this standard.
- ➔ The use of a frequency converter or a smooth start is recommended in order to rule out pressure surges on the unit side.

5.5 Check the direction of rotation

NOTICE

- ➔ Ensure that the pump/unit is full of water.

NOTICE

The pump/unit is louder and pumps less when the direction of rotation is incorrect.

- ➔ Turn the motor on and immediately off again.
- ➔ Ensure that the motor turns in the direction of the arrow labeled on the fan hood. If the direction of rotation is incorrect, check the electrical connection and correct the direction of rotation.

6 Commissioning/Decommissioning

6.1 Commissioning

NOTICE

The pump/unit can be damaged if it runs dry!

➔ Ensure that the pump/unit is always full of water. This also applies to checking the rotation direction.

6.1.1 Pre-requisites for commissioning

- Electrical connection is available.
- Pump/unit is filled with pumped fluid.
- Lockwasher has been removed from the shaft groove. The hexagon screws are tightened.
- Pump/unit is ready for operation.
- Shaft can be turned by hand.

6.1.2 Filling pump/unit with pumped fluid and ventilating

NOTICE

➔ Shut-off valves may not be closed during the filling procedure.

1. Ventilate the pump and suction line and fill with the pumping liquid.
   - ➔ The Normblock Multi is self-ventilating. No handles necessary.
   - ➔ BADU Block Multi: a ball valve Rp 3/8 (701) is attached in order to be able to fully ventilate the mechanical seal chamber. The mechanical seal chamber must be ventilated using the ball valve before commissioning and everytime after cleaning the strainer basket.
   - ➔ Please observe the sticker on the vent tap.
2. Completely open the shut-off valves in the suction line.
3. Completely open any additional connections.

NOTICE

After filling the pump, it is possible that small amounts of air may remain in the pump/unit. These will automatically be filled with the pumping liquid after the motor has been turned on.

6.1.3 Checking how easily the pump rotates

After longer idle periods, the pump must be checked for how easily it rotates while it is switched off and free of tension.

➔ Turn the pump shaft in the drive lantern by hand.

- or -

➔ Remove the fan cover and turn the fan wheel manually in the motor rotation direction.

6.1.4 Switching the pump on

Pre-requisites:

- Pump/unit is filled with pumping liquid and ventilated.
  ➔ Please observe the sticker on the vent tap.
- Pipes for filling and ventilating are closed.
- Pipes are clean.

1. Open the valve on the intake side completely.
2. Close or slightly open the valve on the discharge side.
3. Switch the pump/unit on.
4. As soon as the full speed has been reached, open the valve on the discharge side completely and set the operating point.
5. Check the mechanical seal for leaking.

NOTICE

The pump/unit may be damaged by deviating temperatures, sounds, leakages or vibrations.

➔ Switch the pump/unit off and repair the cause.

NOTICE

Starting the unit with open pressure lines may cause the motor to overload.

➔ Make note of the motor's power reserve.

➔ Use the soft start (operation with frequency converter).

➔ Use speed regulation.

6.1.5 Switching the pump off

1. Close the shut-off valve in the pressure line.
2. Switch the motor off.

For longer idle periods:

1. Close the shut-off valve in the suction line.
2. Close additional connections.

Risk of frost:

1. Drain the pump and pipes.
2. Store the pump and pipes at risk of freezing in a dry place with no risk of frost.

6.2 Decommissioning

➔ For pre-requisites for shutting down the pump "Switching the pump off" on page 27

NOTICE

For idle periods exceeding one year, elastomer components must be renewed.

6.2.1 Pump/unit remains assembled

➔ Switch the pump/unit on regularly – monthly to quarterly – during long idle periods. Switch the pump back off again after approx. 5 minutes.

This will avoid deposits forming in the pump/unit and piping system.

NOTICE

The pump/unit can be damaged if it runs dry!

➔ Ensure that the pump/unit is always full of water.

6.2.2 Pump/unit is dissembled and stored

➔ Drain pump/unit. See point 8.3 on page 36

➔ Clean and dry pump/unit.

➔ Store pump/unit. See point 4.3 on page 19

7 Faults

NOTICE

It is normal for a few drops of water to escape from the mechanical seal from time to time. This is especially true during the break-in period.
Depending on the water quality and number of operating hours, the mechanical seal can begin to leak.

➔ If water leaks constantly, have the mechanical seal replaced by a qualified technician.

7.1 Overview

Fault: Motor overload

Possible cause	Solutions
Dynamic head lower than that indicated in the order.	➔ Set operating point exactly. ➔ For constant overload turn the impeller - (further enquiry required).
Higher density of the pumping liquid than that indicated in the order.	➔ Contact manufacturer.
Too high a speed.	➔ Reduce speed - (further enquiry required).
Running on two phases.	➔ Renew faulty fuse. ➔ Check the electrical connections using the operating manual.
Transport fuse not removed from the shaft groove.	➔ Remove the transport fuse from the shaft groove.

Fault: Too high a pump pressure

Possible cause	Solution
Too high a speed.	➔ Reduce speed - (further enquiry required).

Fault: Too low a flow rate in the pump

Possible cause	Solution
Pump is handling against too high a discharge head.	➔ Set operating point again. ➔ Check unit for impurities.
Pump and pipes not completely ventilated or filled.	➔ Ventilate pump. ➔ Fill pump.
Pump/pump parts blocked due to impurities.	➔ Clean.
Building up of air sacks in the piping.	➔ Modify piping or insert a ventilation valve.
Suction height too large/Unit's NPSH (intake) too low.	➔ Correct the fluid level. ➔ Install pump lower. ➔ Completely open shut-off valve in the intake line. ➔ If the resistance is too large, modify the intake line. ➔ Check suction basket/suction opening. ➔ Observe the permitted pressure reduction speed.
Drawing in air in the mechanical seal.	➔ Replace mechanical seal.
Incorrect direction of rotation (3~).	➔ Check the electrical connection to the motor and switching device.
Too low a speed.	➔ Increase the voltage/frequency on the frequency converter within the permitted range.
Wear of components.	➔ Replace components.
Running on two phases.	➔ Renew faulty fuse. ➔ Check the electrical connections using the operating manual.

Fault: Increased bearing temperature

Possible cause	Solution
Pump strained or vibrations in the pipes.	➔ Check pipe connections and pump fasteners, if necessary reduce the pipe bracket spacing. ➔ Fasten pipes using vibration reducing materials.
Increased axial thrust – (further enquiry required).	➔ Clean relief bore in impeller.
Flow rate too low.	➔ Increase minimum flow rate.

Fault: Unauthorised increase in pump temperature

Possible cause	Solution
Pump and pipes not completely ventilated or filled.	➔ Ventilate pump. ➔ Fill pump.
Suction height too large/Unit's NPSH (intake) too low.	➔ Correct the fluid level. ➔ Install pump lower. ➔ Completely open shut-off valve in the intake. ➔ If the resistance is too large, modify the intake line. ➔ Check suction basket/suction opening. ➔ Observe the permitted pressure reduction speed.
Flow rate too low.	➔ Increase minimum flow rate.

Fault: Pump leaks

Possible cause	Solution
Screw connection or seal faulty.	➔ Renew seal between volute casing and housing lid. ➔ Tighten screw connections.

Fault: Shaft seal leaks too much

Possible cause	Solution
Mechanical seal is worn or damaged.	➔ Replace mechanical seal.
Damage during disassembly.	➔ Replace mechanical seal.
Pump is loud.	➔ Improve suction conditions. ➔ Adjust pump unit. ➔ Increase the pressure on the suction discharge.
Pump strained or vibrations in the pipes.	➔ Check pipe connections and pump fasteners, if necessary reduce the pipe bracket spacing. ➔ Fasten pipes using vibration reducing materials.
Pump shaft slipped.	➔ Fix pump shaft. See point 8.5.5 on page 40

Fault: Pump is loud

Possible cause	Solution
Pump and pipes not completely ventilated or filled.	➔ Ventilate pump. ➔ Fill pump.
Suction height too large/Unit's NPSH (intake) too low.	➔ Correct the fluid level. ➔ Install pump lower. ➔ Completely open shut-off valve in the intake. ➔ If the resistance is too large, modify the intake line. ➔ Check suction basket/suction opening. ➔ Observe the permitted pressure reduction speed.
Wear of components.	➔ Replace components.
Dynamic head lower than that indicated in the order.	➔ Set operating point exactly. ➔ For constant overload turn the impeller (further enquiry required).
Pump strained or vibrations in the pipes.	➔ Check pipe connections and pump fasteners, if necessary reduce the pipe bracket spacing. ➔ Fasten pipes using vibration reducing materials.
Imbalanced rotor.	➔ Clean pump and pump parts.
Pump and/or motor bearings are damaged.	➔ Replace bearing.
Flow rate too low.	➔ Increase minimum flow rate.

8 Maintenance

8.1 Maintenance during operation

- ➔ Pay attention to calm and vibration-free operation.
- ➔ Check the mechanical seal for possible leaks.
- ➔ Check the static seals for possible leaks.
- ➔ Check running noises in the bearing. Risk of wear.
- ➔ Check the function of additional connections.
- ➔ Guarantee operational readiness of reserve pumps. Operate them once a week.

8.2 Maintenance work

NOTICE

- ➔ Before maintenance work, close all shut-off valves and drain all pipes.

When?	What?
Regularly	➔ Clean strainer basket. ➔ Check screw connections. ➔ Check components for deformations.
If there is a chance of frost	➔ Drain pump and pipes sensitive to frost in good time.

- ➔ After completing all maintenance work, perform all necessary measures for start-up. See point 6.1 on page 26

8.2.1 Cleaning the BADU Block Multi strainer basket

1. Switch pump off.
2. Close shut-off valves.
3. Drain the pre-filter housing (124) using the drain screw (903.3).
4. Unscrew star handle (925).
5. Remove lid (160).
6. Remove strainer basket (143).
7. Hose strainer basket (143) down with water.
8. Return strainer basket (143).

NOTICE

High concentration water treatment products can damage the pump!

➔ Do not place water treatment products, particularly in tablet form, into the strainer basket.

NOTICE

Tightening the lid too tight will make it difficult to re-open the lid.

➔ Only apply normal manual force.

9. Replace and tighten the lid (160).
10. Open the shut-off valves.
11. Fill and ventilate the pump/unit. See point 6.1.2 on page 26

8.2.2 Cleaning the BADU Block Multi acrylic lid

NOTICE

Damage to the acrylic glass surface may cause stress cracks in the lid.

➔ Do not use aggressive or corrosive cleaning agents or solvents.

➔ Do not use sharp tools e.g. knives scrapers, steel wool or sponges with a rough side.

➔ Clean the acrylic glass lid with lukewarm water, household washing up liquid and a soft cloth.

8.3 Draining/Cleaning

- **Normblock Multi**: Loosen the drain plug (903) on the pump housing and drain and dispose of the pumped liquid properly.
- **BADU Block Multi**: Loosen the drain plug (903.3) on the pre-filter housing and drain and dispose of the pumped liquid properly.

  Clean or rinse the pump/unit with clear water.

8.4 Disassembling of the pump/unit

⚠ DANGER

Danger of injury due to insufficient safeguarding.

➔ Turn the pump/unit off correctly.

➔ Close shut-off valves and additional connections.

➔ Drain the pump.

NOTICE

Disassembling various components from the shaft can be difficult following longer operation times.

➔ Either use suitable extractor devices or commercial rust disolvers.

8.4.1 Preparation

1. Switch the pump off and secure it from being switched on again.
2. Reduce the pressure in the pipe system by opening a consumer.
3. Dismantle additional connections.

8.4.2 Dismantling pump/unit

NOTICE

Depending on the installation conditions, the pump and motor size are the deciding factors as to whether the pump unit should be completely dismantled or just the motor unit.

1. Loosen the piping from the suction and pressure lines.
2. Loosen the motor feet (Normblock Multi) or pre-filter housing (BADU Block Multi) screws from the foundation.
3. Remove the complete pump/unit from the piping.

8.4.3 Dismantling the motor

⚠ WARNING

Risk of crushing due to the motor tilting.

➔ Hang the motor on the lifting hooks or secure it from lifting.

1. Loosen the fastening from the motor feet to the foundation if necessary.
2. Loosen the screws (914) on the coupling protection (681).
3. Remove the coupling protection (681) from the drive lantern (341).
4. Loosen the hexagon screws (901.3).
5. Push the lock washer (931) into the grooves on the motor shaft.
6. Tighten the hexagon screws (901.3).
7. Loosen the hexagon socket screws (914.1).
8. Loosen the nuts (920.5) on the motor flange.
9. Lift off the motor (800).

8.4.4 Dismantling motor unit

1. Hang or support the motor unit to protect it from tipping over.
2. Loosen the hexagon screws (901) and nuts (920) between the pump housing (101) and gland housing (106).
3. Disconnect the hose from the vent line (701) (BADU Block Multi).
4. Remove the complete motor unit from the pump housing (101).
5. Place the motor unit on a clean and level surface.

8.4.5 Dismantling pump housing

1. Loosen the hexagon screws (901) and nuts (920) between the pump housing (101) and gland housing (161).
2. Lift off the pump housing (101).

8.4.6 Dismantling the impeller and mechanical seal

NOTICE

Normblock Multi: When dismantling the impeller and the mechanical seal we recommend taking the whole pump out of the piping system and dismantling the pump housing.
BADU Block Multi: When dismantling the impeller and the mechanical seal we recommend taking the whole pump out of the pre-filter housing or taking the whole motor unit out of the pump housing.

1. Loosen the coupling protection (681) from the drive lantern (341).
2. Hold the pump shaft (210) at the opening. See "Fig. 8" on page 40
3. Loosen the impeller nut (922) with the inserted o-ring (412.4).
4. Remove the impeller (230). Place the impeller on a clean and level surface.
5. Remove the shaft key (940) from the shaft key nut.
6. Remove the rotating insert in the mechanical seal (433) from the impeller hub.
7. Loosen hexagon screws (901).
8. Loosen the gland housing (161) from the lantern (341).
9. Remove the counter ring in the mechanical seal (433) from the gland housing (161).

8.5 Assembling pump/unit

8.5.1 Pre-requisites

➔ Assemble using the exploded drawing attached.
➔ Check O-rings, renew if necessary.
➔ Tighten screws according to the torque indicated. See point 8.6 on page 41
➔ Clean dismantled components and check them for wear. Replace with original spare parts if necessary.
➔ Sealing surfaces are clean and free of grease.

8.5.2 Assembling meachanical seal

NOTICE

Observe the following points:

- Clean and careful working methods.
- Only remove protection against contact on sliding surfaces directly before assembly.
- Use water as an assembly agent.
- Never use oil or grease as an assembly agent.

1. Clean the counter ring in the gland housing (161).
2. Insert the counter ring carefully. Beware of applying pressure evenly.
3. Assemble the gland housing (161) on the drive lantern (341).
4. Assemble the rotating insert in the mechanical seal (433) on the impeller hub.

8.5.3 Assembling impeller

1. Insert shaft key (940) into shaft key nut.
2. Push the impeller (230) onto the shaft (210).
3. Hold the pump shaft at the opening. See "Fig. 8" on page 40
4. Fasten the impeller nut (922), with the inserted O-ring (412.4). Observe the torque! See point 8.6 on page 41

8.5.4 Assembling motor unit

1. If necessary hang or support the motor unit to protect it from tipping over.
2. Attach a new O-ring (412) to the gland housing (161) if necessary.
3. Push the motor unit into the volute casing (101).
4. Tighten the hexagon nut (920) on the volute casing.
5. Connect the hose to the vent line (701) (BADU Block Multi).

8.5.5 Assembling motor

➔ The motor and pump shafts must not be greasy!

1. Plug the motor shaft end into the shaft (210). The motor shaft key nut and the slit in the shaft (210) have to be congruent and lay opposite the slit in the supporter ring (515). See "Fig. 7" on page 40
2. Tighten the hexagon socket screw (914.1).
3. Loosen the hexagon screw (901.3).
4. Pull both lockwashers (931) completely out of the shaft nut. See "Fig. 8" on page 40
5. Tighten the hexagon screw (901.3).
6. Attach and tighten the nuts (920.5).

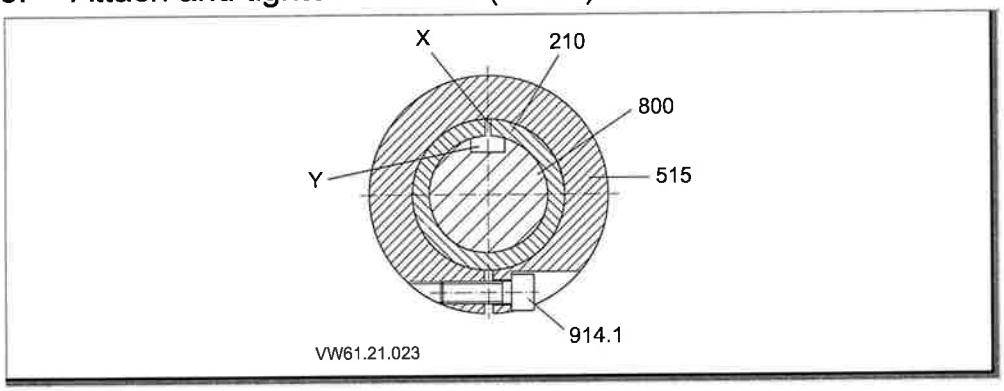


Fig. 7

X	Slit in the shaft	515	Support ring
Y	Motor shaft key nut	800	Motor
210	Pump shaft	914.1	Hexagon socket screw

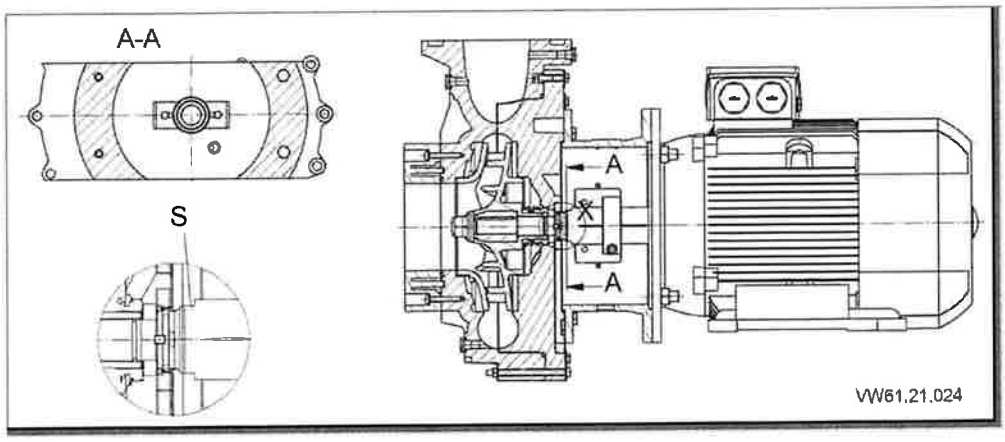


Fig. 8

S	Opening SW 34 (BG 100, BG 112) Opening SW 46 (BG 132, BG 160, BG 180)

8.6 Screw torque

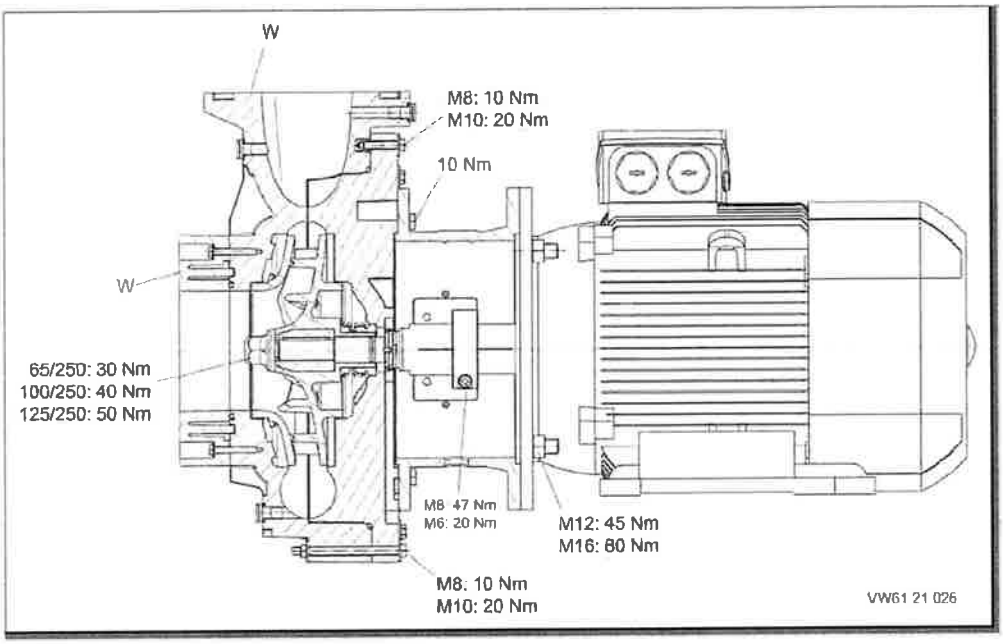


Fig. 9

W	Torque at the flange connection: 15 Nm

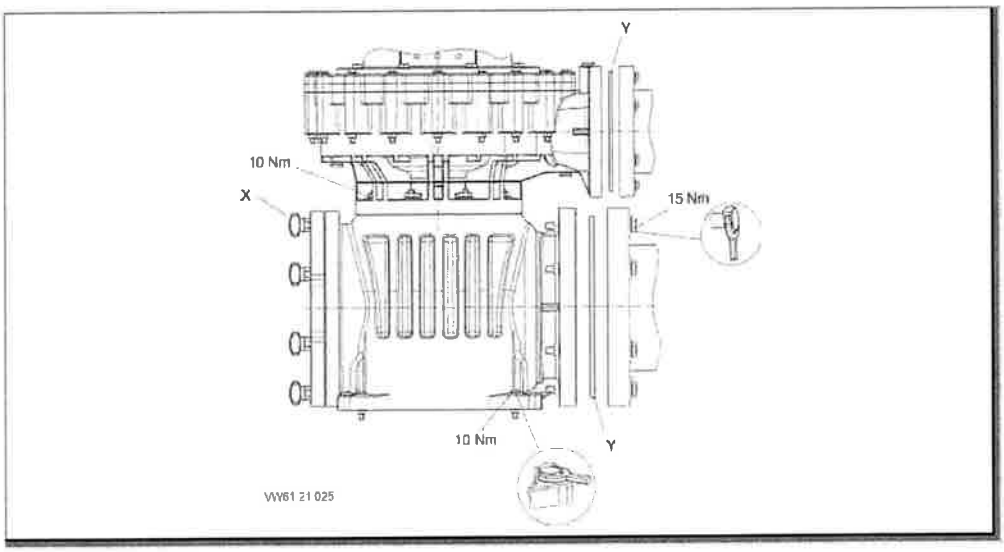


Fig. 10

X	Only fasten handtight
Y	Rubber seal 60° Shore A

8.7 Spare parts

The following specifications are required for spare part orders:

- Serial number
- Range
- Construction size
- Construction year

The specifications can be found on the pump name plate.

Further data:

- Parts-description
- Position number
- Quantity
- Delivery address
- Shipping method

The description and position number can be found on the exploded drawing or spare parts list. See point 10.3 on page 54

8.8 Warranty

The warranty includes the devices delivered and all components. However natural wear and tear (DIN 3151/DIN-EN 13306) on all turning and dynamically loaded components, including electronic components under tension, is not covered under the warranty.

Failure to comply with the safety instructions may void the warranty.

9 Disposal

- ➔ Collect harmful media and dispose of it according to the regulations.
- ➔ At the end of its service life, the pump/unit or individual components must be disposed of correctly. Disposal in the household waste is not permitted!
- ➔ Dispose of the packaging materials in the household waste in accordance with the local regulations.

10 Technical data

10.1 Dimensional drawing

Normblock Multi

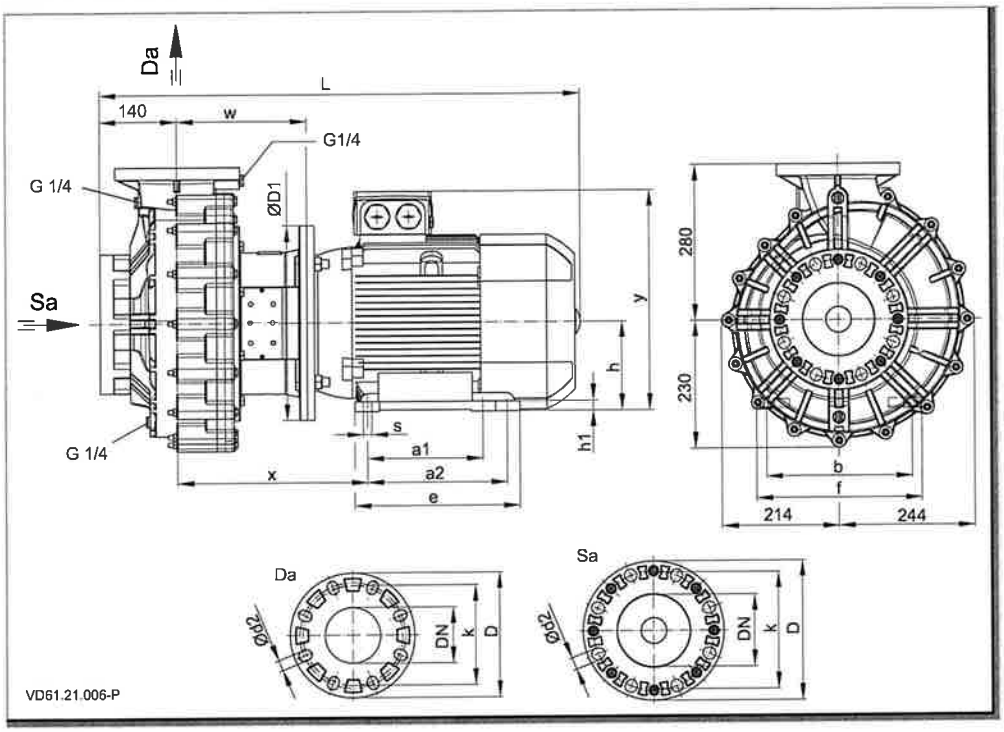


Fig. 11

Normblock Multi 65/250

	BG 100 L 3,0 kW	BG 112 M 4,0 kW	BG 132 S 5,5 kW	BG 132 M 7,5 kW
a1	140	140	140	178
b	160	190	216	216
e	176	176	180	218
f	196	226	256	256
h	100	112	132	132
h1	12	12	15	15
r	208	208	208	208
s	12	12	12	12
t	250	250	250	250
u	209	209	209	209
v	100	100	100	100
w	183.5	183.5	203.5	203.5
x	246.5	253.5	292.5	292. 5
y	265	288	334	334
z	208	208	208	208
D1	Ø 250	Ø 250	Ø 300	Ø 300
L	654	637,5	738,5	738,5
Weight [kg]	51	55	72	94

Flanges compatible with

		EN 1092-2 (PN16)	ASME
Sa	DN	Ø 80	Ø 80 (3“)
	D	Ø 200	Ø 200
	k	Ø 160	Ø 152.4
	d2	Ø 19	Ø 19

		EN 1092-2 (PN16)	ASME
Da	DN	Ø 65	Ø 65 (2 ½“)
	D	Ø 185	Ø 185
	k	Ø 145	Ø 139.7
	d2	Ø 19	Ø 19

Normblock Multi 100/250

	BG 132 S 5,5 kW	BG 132 M 7,5 kW	BG 160 M 11,0 kW
a1	140	178	210
b	216	216	254
e	180	218	256
f	256	256	300
h	132	132	160
h1	15	15	18
r	244	244	244
s	12	12	15
t	280	280	280
u	230	230	230
v	140	140	140
w	201.5	201.5	231.5
x	290.5	290.5	339.5
y	334	334	396.5
z	214	214	214
D1	Ø 300	Ø 300	Ø 350
L	777	777	866
Weight [kg]	102	102	129

Flanges compatible with

		EN 1092-2 (PN16)	ASME
Sa	DN	Ø 125	Ø 125 (5“)
	D	Ø 250	Ø 250
	k	Ø 210	Ø 215.9
	d2	Ø 19	Ø 22

		EN 1092-2 (PN16)	ASME
Da	DN	Ø 100	Ø 100 (4“)
	D	Ø 225	Ø 225
	k	Ø 180	Ø 190.5
	d2	Ø 19	Ø 19

Normblock Multi 125/250

	BG 160 M 11,0 kW	BG 160 L 15,0 kW	BG 180 M 18,5 kW	BG 180 L 22,0 kW
a1	210	254	241/279	241/279
b	254	254	279	279
e	256	300	328	328
f	300	300	339	339
h	160	160	180	180
h1	18	18	20	20
r	308.4	308.4	308.4	308.4
s	15	15	15	15
t	355	355	355	355
u	286.1	286.1	286.1	286.1
v	140	140	140	140
w	259.5	259.5	259.5	259.5
x	367.5	367.5	380.5	380.5
y	396.5	396.5	466	466
z	262.5	262.5	262.5	262.5
D1	Ø 350	Ø 350	Ø 350	Ø 350
L	893.5	953.5	957.5	987.5
Weight [kg]	148	165	230	235

Flanges compatible with

		EN 1092-2 (PN16)	ASME
Sa	DN	Ø 150	Ø 150 (6“)
	D	Ø 285	Ø 285
	k	Ø 240	Ø 241.3
	d2	Ø 22.4	Ø 22.4

		EN 1092-2 (PN16)	ASME
Da	DN	Ø 125	Ø 125 (5“)
	D	Ø 254	Ø 250
	k	Ø 210	Ø 215.9
	d2	Ø 19	Ø 22.4

BADU Block Multi

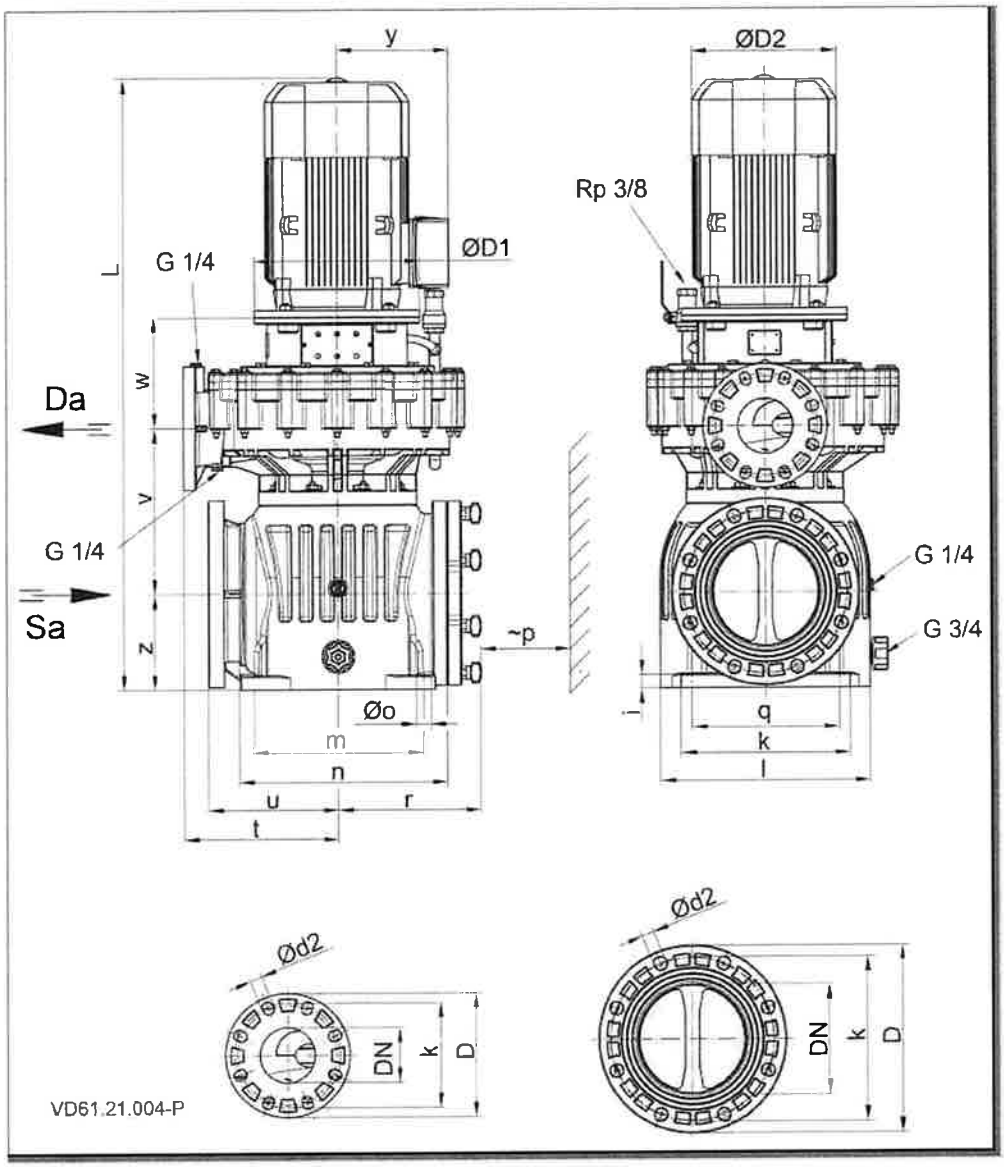


Fig. 12

BADU Block Multi 65/250

	BG 100 L 3,0 kW	BG 112 M 4,0 kW	BG 132 S 5,5 kW	BG 132 M 7,5 kW
i	18	18	18	18
k	240	240	240	240
l	304	304	304	304
m	240	240	240	240
n	278	278	278	278
o	Ø 14	Ø 14	Ø 14	Ø 14
p	400	400	400	400
q	214	214	214	214
r	223	223	223	223
t	250	250	250	250
u	203	203	203	203
v	227	227	227	227
w	183,5	183,5	203,5	203,5
y	165	176	202	202
z	128	128	128	128
L	909	892,5	993,5	993,5
D1	Ø 250	Ø 250	Ø 300	Ø 300
D2	Ø 198	Ø 222	Ø 262	Ø 262
Weight [kg]	65	69	87	109

Flanges compatible with

		EN 1092-2 (PN16)	ASME
Sa	DN	Ø 125	Ø 125 (5“)
	D	Ø 250	Ø 250
	k	Ø 210	Ø 215.9
	d2	Ø 19	Ø 19

		EN 1092-2 (PN16)	ASME
Da	DN	Ø 65	Ø 65 (2 ½“)
	D	Ø 185	Ø 185
	k	Ø 145	Ø 139.7
	d2	Ø 19	Ø 19

BADU Block Multi 100/250

	BG 132 S 5,5 kW	BG 132 M 7,5 kW	BG 160 M 11,0 kW
i	25	25	25
k	306	306	306
l	380	380	380
m	300	300	300
n	352	352	352
o	Ø 19	Ø 19	Ø 19
p	400	400	400
q	265	265	265
r	259	259	259
t	280	280	280
u	235	235	235
v	3012	302	302
w	201.5	201.5	231.5
y	202	202	235.5
z	175	175	175
L	1114	1114	1203
D1	Ø 300	Ø 300	Ø 350
D2	Ø 262	Ø 262	Ø 314
Weight [kg]	105	127	154

Flanges compatible with

		EN 1092-2 (PN10)	ASME
Sa	DN	Ø 200	Ø 200 (8“)
	D	Ø 340	Ø 340
	k	Ø 295	Ø 298.5
	d2	Ø 23	Ø 22.5

		EN 1092-2 (PN16)	ASME
Da	DN	Ø 100	Ø 100 (4“)
	D	Ø 225	Ø 225
	k	Ø 180	Ø 190.5
	d2	Ø 19	Ø 19

BADU Block Multi 125/250

	BG 160 M 11,0 kW	BG 160 L 15,0 kW	BG 180 M 18,5 kW	BG 180 L 22,0 kW
i	25	25	25	25
k	306	306	306	306
l	380	380	380	380
m	300	300	300	300
n	352	352	352	352
o	Ø 18.5	Ø 18.5	Ø 18.5	Ø 18.5
p	400	400	400	400
q	265	265	265	265
r	259	259	259	259
t	355	355	355	355
u	235	235	235	235
v	302	302	302	302
w	259.5	259.5	259.5	259.5
y	236.5	236.5	286	286
z	175	175	175	175
L	1230.5	1290.5	1294.5	1324.5
D1	Ø 350	Ø 350	Ø 350	Ø 350
D2	Ø 314	Ø 314	Ø 356	Ø 356
Weight [kg]	173	190	255	260

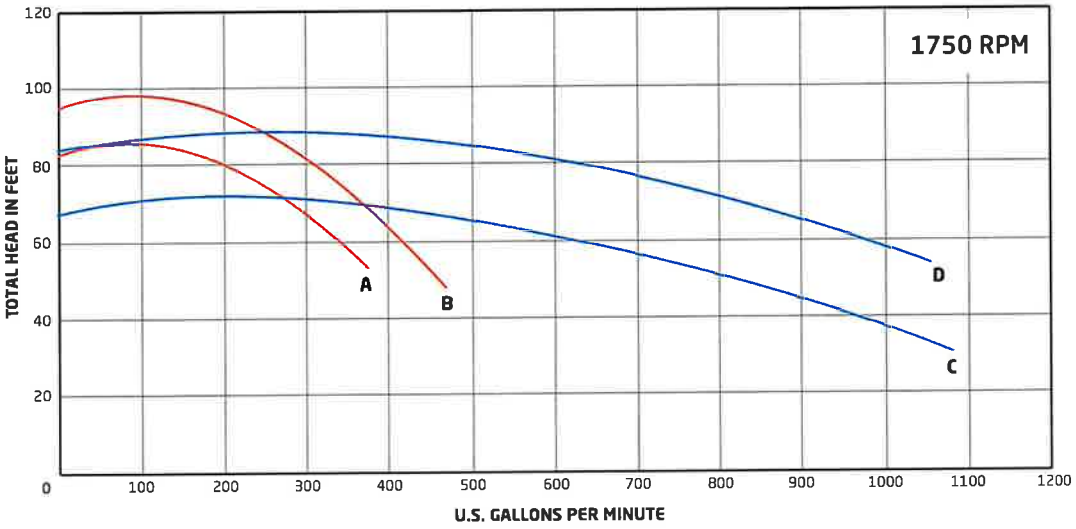
Flanges compatible with

		EN 1092-2 (PN16)	ASME
Sa	DN	Ø 200	Ø 200 (8“)
	D	Ø 340	Ø 340
	k	Ø 295	Ø 298.5
	d2	Ø 22.5	Ø 22.5

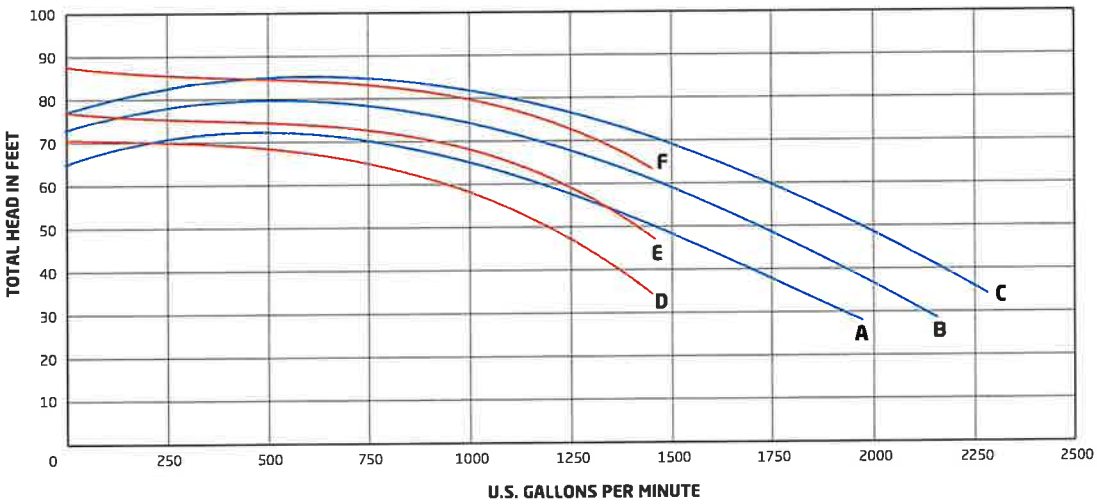
		EN 1092-2 (PN16)	ASME
Da	DN	Ø 125	Ø 125 (5“)
	D	Ø 254	Ø 254
	k	Ø 210	Ø 215.9
	d2	Ø 19	Ø 22.4

10.2 Performance Curves

BADU Block Multi



A. 65/250 (Ø 225mm) - 7.5 HP S.F. 1.25
B. 65/250 (Ø 240mm) - 10.0 HP S.F. 1.25
C. 100/250 (Ø 220mm) - 15.0 HP S.F. 1.25
D. 100/250 (Ø 240mm) - 20.0 HP S.F. 1.25

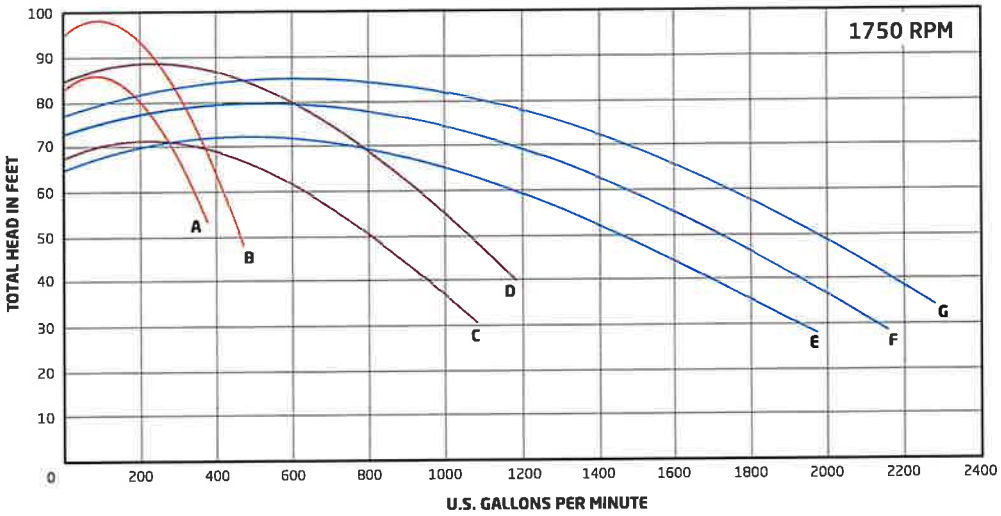


BADU Block Multi 125/250
(Vertical Pump w/ ceramic coated cast iron strainer housing - 10" suction port)
A. 125/250 (Ø 235mm) - 20 HP S.F. 1.25
B. 125/250 (Ø 245mm) - 25 HP S.F. 1.15
C. 125/250 (Ø 255mm) - 30 HP S.F. 1.15

BADU Block Multi 125/250
(Vertical Pump w/ plastic strainer housing - 8" suction port)
D. 125/250 (Ø 235mm) - 20 HP S.F. 1.25
E. 125/250 (Ø 245mm) - 25 HP S.F. 1.15
F. 125/250 (Ø 255mm) - 30 HP S.F. 1.15

Fig. 13

Normblock Multi Series

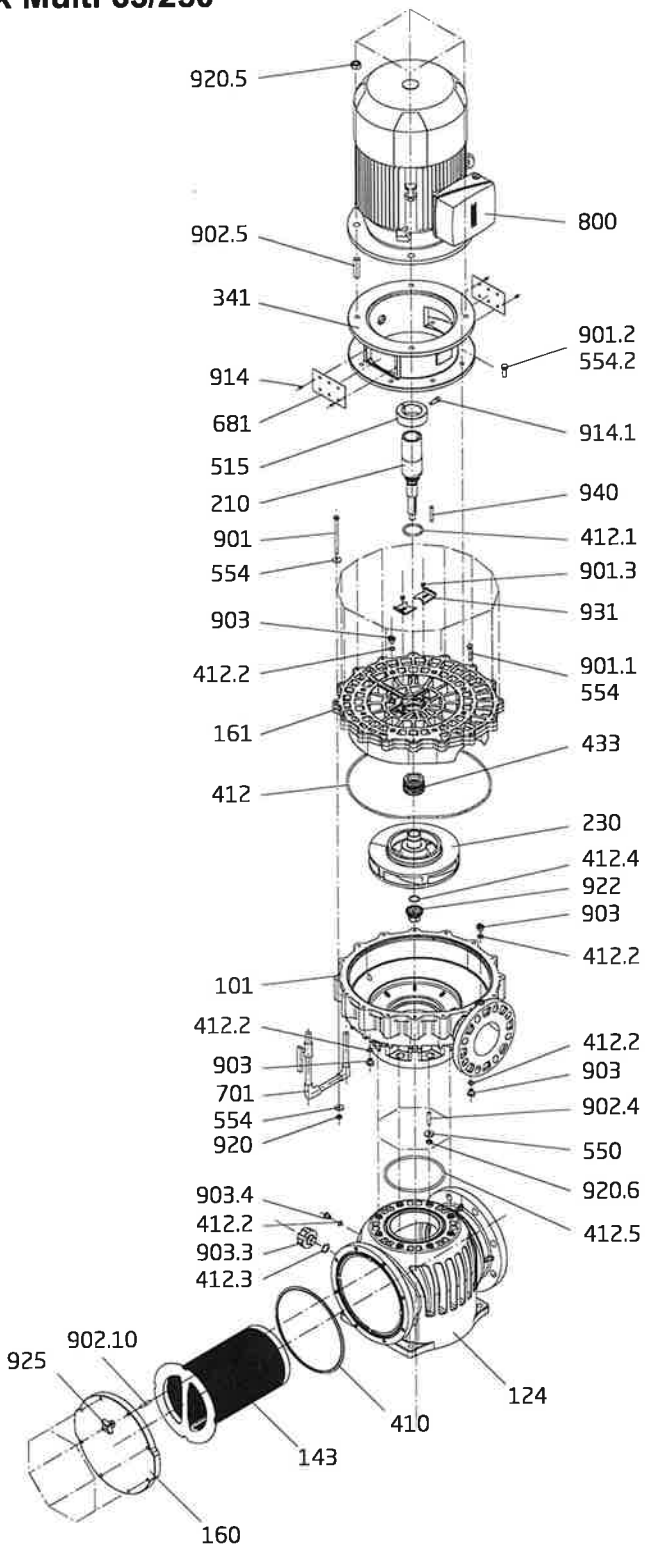


A. Normblock Multi 65/250 (Ø 225mm) - 7.5 HP S.F. 1.25
B. Normblock Multi 65/250 (Ø 240mm) - 10.0 HP S.F. 1.25
C. Normblock Multi 100/250 (Ø 220mm) - 15.0 HP S.F. 1.25
D. Normblock Multi 100/250 (Ø 240mm) - 20.0 HP S.F. 1.25
E. Normblock Multi 125/250 (Ø 235mm) - 20.0 HP S.F. 1.25
F. Normblock Multi 125/250 (Ø 245mm) - 25.0 HP S.F. 1.15
G. Normblock Multi 125/250 (Ø 255mm) - 30.0 HP S.F. 1.15

Fig. 14

10.3 Exploded View

BADU Block Multi 65/250



BADU Block Multi 65/250

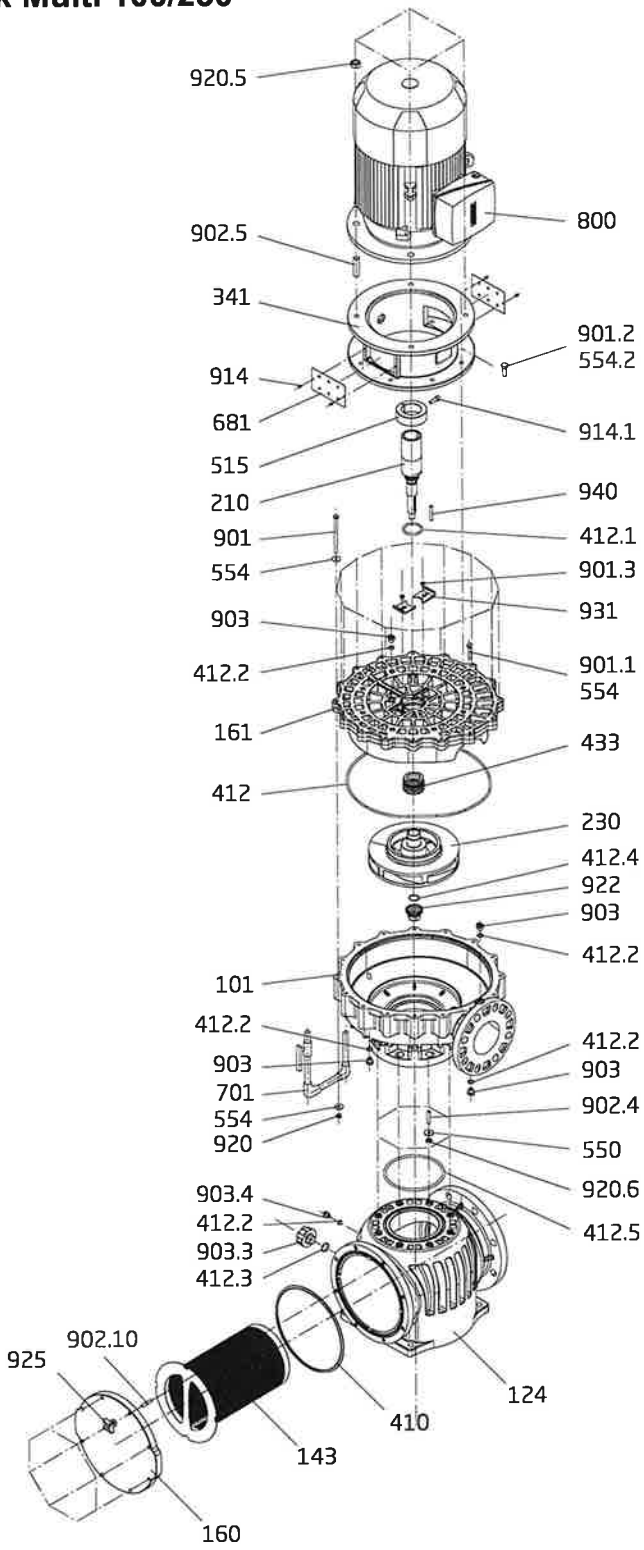
Order #	Drawing Number	Qty Required	Description	
7201110111	101	1	CASING CPL	
1913291269	124	1	PLASTIC STRAINER TANK CPL	
1900214301	143	1	STRAINER BASKET - STAINLESS STEEL	
7201214300	143	1	STRAINER BASKET - PLASTIC	
1900216602	160	1	LID	
7201116100	161	1	SEAL HOUSING	
7201421042	210	1	PUMP SHAFT CPL	
7201123000	230	1	IMPELLER (65/250 - 7.5 HP)	225mm
7201123000A	230	1	IMPELLER (65/250 - 10.0 HP)	240mm
7201434140	341	1	MOTOR LANTERN CPL BG 132	
1913214109	410	1	GASKET NBR	
7201141201	412	1	O-RING - 355 x 5mm NBR	
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR	
2923241231	412.3	1	O-RING - 24 x 3.5mm NBR	
2711040109	412.4	1	O-RING - 31.5 X 2.5mm	
2920341210	412.5	1	O-RING - 123.19 x 5.33mm NBR	
7201143300	433	1	MECHANICAL SEAL (32mm) CPL - CARBON/SiC+EPDM	
7201143302	433	1	MECHANICAL SEAL (32mm) CPL - SiC/SiC+EPDM	
7201451500	515	1	SUPPORT RING BG 132	
5879021100	507	8	WASHER - 10.5 x 30mm SS	
5871250800	554	27	WASHER - 8.4mm SS	
5871251000	554.2	8	WASHER - 10.5mm SS	
7201268103	681	2	PLATE WITH SPECK LOGO BG 132	
7201270001	701	1	AIR BLEED/CIRCULATION LINE - STAINLESS STEEL	
7201270003	701	1	AIR BLEED/CIRCULATION LINE - PLASTIC	
5879310920	901	13-15	SCREW - M8 x 120mm HEX HEAD SS	
5879310865	901.1	1	SCREW - M8 x 65mm HEX HEAD SS	
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS	
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS	
5879390835	902.1	8	STUD BOLT - M8 x 35 SS	
5879391225	902.5	4	STUD BOLT - M12 x 25 SS	
2922091600	903.3	4	DRAIN PLUG (3/4") - RED	
2923591201	903.4	1	DRAIN PLUG (1/4") - BLACK	
7201141240	NOT SHOWN	1	O-RING - 22 x 2mm, NBR	
5879120406	914	4	BOLT - HEX M4 x 6 SS	
5819120826	914.1	1	SCREW - M8x 25mm	
5879340800	920	13-15	NUT M8 SS	
5879341200	920.5	4	NUT M12 SS	
5879341000	920.6	8	NUT - M10 SS	
7201192200	922	1	IMPELLER NUT WITH INSERT	
2921891500	925	8	HANDLE M8 - BLACK	
7201293100	931	2	LOCKWASHER	
5878850664	940	1	KEY 6 x 6 x 40	

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
518ET3EAL072017	518ET3EAL072017	65/250	7.5	1.25	208-230/460	AL132S
718ET3EAL072017	718ET3EAL072017	65/250	10.0	1.25	208-230/460	AL132M

10.3 Exploded View

BADU Block Multi 100/250



BADU Block Multi 100/250

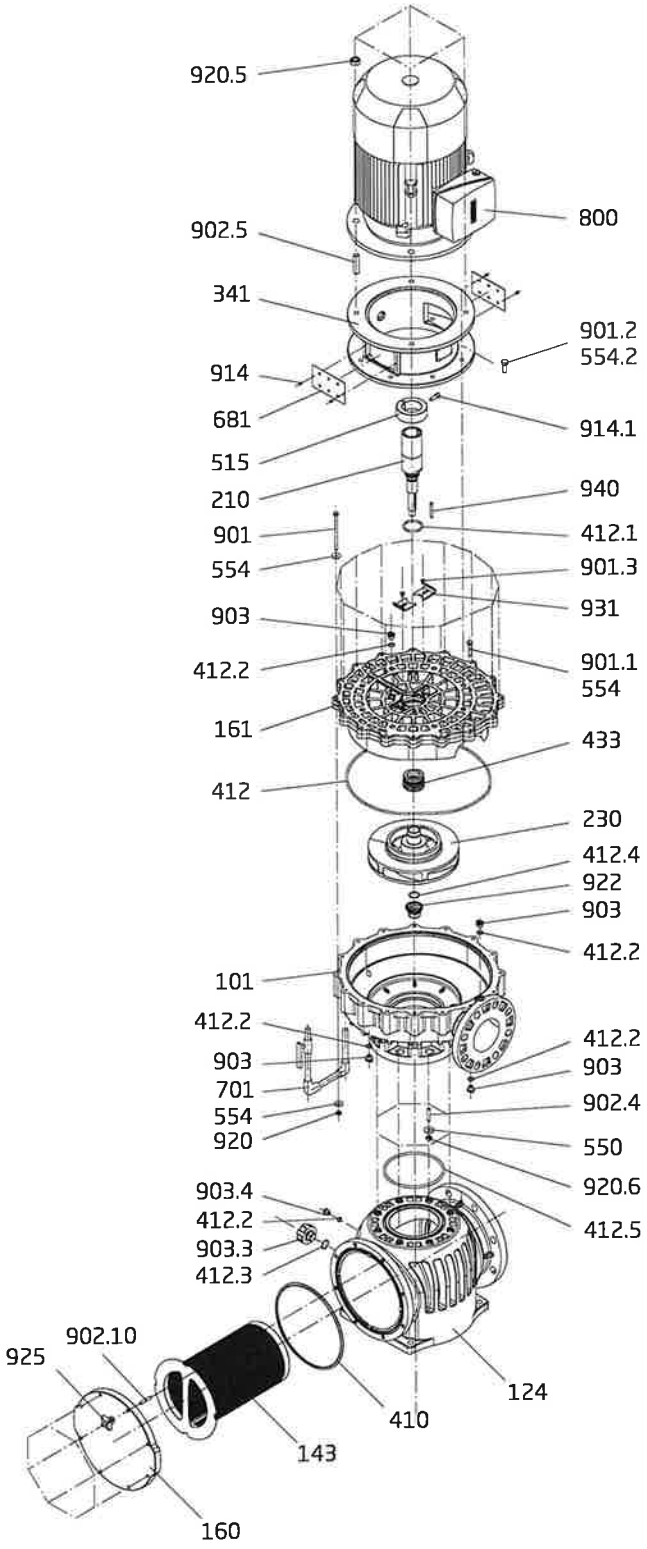
Order #	Drawing Number	Qty Required	Description
7201210106	101	1	CASING CPL
1913391269	124	1	PLASTIC STRAINER TANK CPL
1900214301	143	1	STRAINER BASKET - STAINLESS STEEL
7201214300	143	1	STRAINER BASKET - PLASTIC
1900216602	160	1	LID
7201216101	161	1	SEAL HOUSING
7201421041	210	1	PUMP SHAFT CPL
7201223000	230	1	IMPELLER (15.0 HP) 220mm
7201223000A	230	1	IMPELLER (20.0 HP) 240mm
7201434141	341	1	MOTOR LANTERN CPL BG 132
1913214109	410	1	GASKET NBR
7201241201	412	1	O-RING - 375 x 5mm NBR
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR
7201241200	412.4	1	O-RING - 37.5 x 2.65mm NBR
1913314342	433	1	MECHANICAL SEAL (38mm) CPL - CARBON/SiC+EPDM
1913314339	433	1	MECHANICAL SEAL (38mm) CPL - SiC/SiC+EPDM
7201451500	515	1	SUPPORT RING BG 132
5879021080	554	31	WASHER - 8.4mm SS
5871251000	554.2	8	WASHER - 10.5mm SS
7201268103	681	2	PLATE WITH SPECK LOGO BG 132
7201270001	701	1	AIR BLEED/CIRCULATION LINE - STAINLESS STEEL
7201270003	701	1	AIR BLEED/CIRCULATION LINE - PLASTIC
5879310920	901	13-15	SCREW - M8 x 120mm HEX HEAD SS
5879310840	901.1	1	SCREW - M8 x 40mm HEX HEAD SS
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS
5879391035	902.4	8	STUD BOLT - M10 x 35 SS
5879391640	902.5	4	STUD BOLT - M16 x 40 SS
2923591201	903.4	1	DRAIN PLUG (1/4") - BLACK
5879120406	914	4	BOLT - HEX M4 x 6 SS
5879340800	920	13-15	NUT M8 SS
5879341600	920.5	4	NUT M16 SS
7201292200	922	1	IMPELLER NUT WITH INSERT
7201293100	931	2	LOCKWASHER
5878850671	940	1	KEY 6 x 6 x 50
5878850879	940	1	KEY 8 x 7 x 63

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
1118ET3E072017	1118ET3E072017	100/250	15.0	1.25	208-230/460	160M
1518ET3X110317	1518ET3X110317	100/250 & 125/250	20.0	1.25	208-230/460	160L

10.3 Exploded View

BADU Block Multi 125/250



BADU Block Multi 125/250

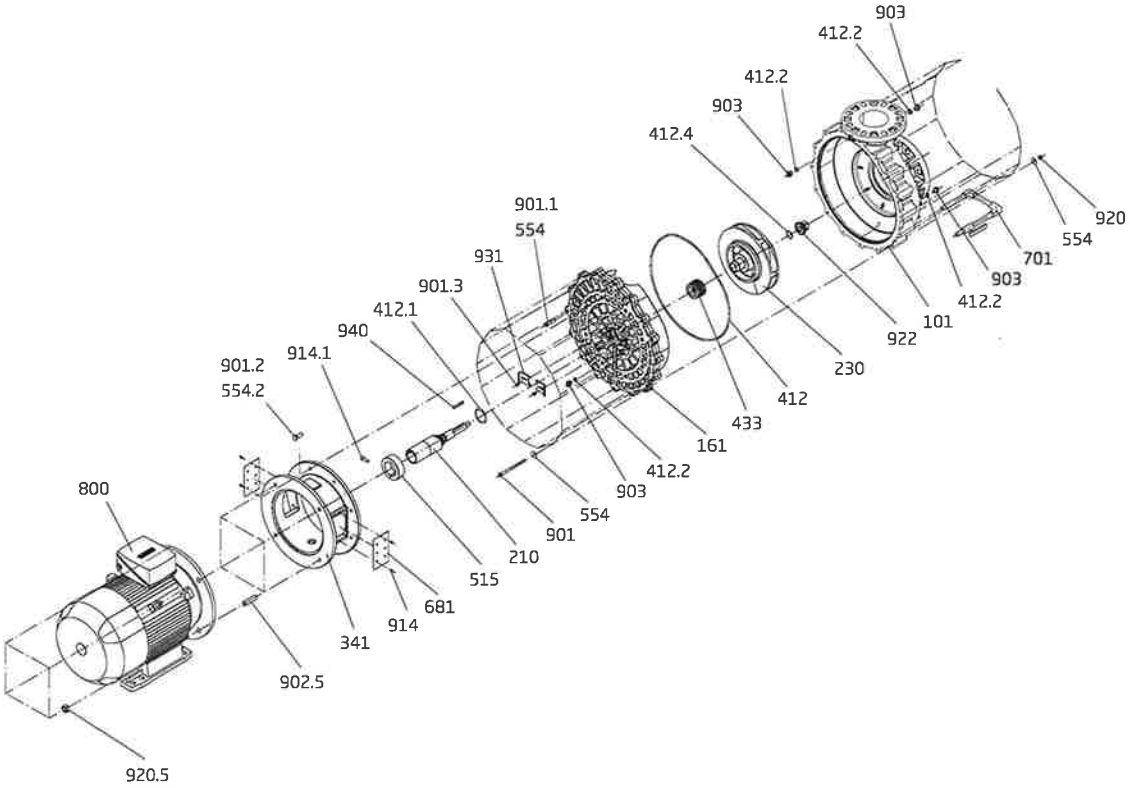
Order #	Drawing Number	Qty Required	Description
7201310106	101	1	CASING CPL
1913391269	124	1	PLASTIC STRAINER TANK CPL
1913421259	NOT SHOWN	1	CAST IRON STRAINER TANK CPL w/ CERAMIC COATING
1900214301	143	1	STRAINER BASKET - STAINLESS STEEL
7201214300	143	1	STRAINER BASKET - PLASTIC
1900216602	160	1	LID
7201347102	161	1	SEAL HOUSING
7201321040	210	1	PUMP SHAFT CPL
7201321041	210	1	PUMP SHAFT CPL
7201323000/235	230	1	IMPELLER (20.0 HP) 235mm
7201323000/245	230	1	IMPELLER (25.0 HP) 245mm
7201323000/255	230	1	IMPELLER (30.0 HP) 255mm
7201434141	341	1	MOTOR LANTERN CPL BG 132
1913214109	410	1	GASKET NBR
7201341000	412	1	GASKET - SEAL HOUSING 440 x 6mm NBR
7201341240	412.1	1	O-RING - 30 x 2mm NBR
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR
2620001015	NOT SHOWN	1	O-RING - 117 x 4mm NBR
7201343300	433	1	MECHANICAL SEAL (45mm) CPL - CARBON/SiC+EPDM
7201343302	433	1	MECHANICAL SEAL (45mm) CPL - SiC/SiC+EPDM
7201451500	515	1	SUPPORT RING BG 132
5879021100	554	36	WASHER - 10.5 x 30mm SS
5871251000	554.2	8	WASHER - 10.5mm SS
7201268103	681	2	PLATE WITH SPECK LOGO BG 132
7201270001	701	1	AIR BLEED/CIRCULATION LINE - STAINLESS STEEL
7201270005	701	1	AIR BLEED/CIRCULATION LINE - PLASTIC
5879311150	901	17	SCREW - M10 x 150mm HEX HEAD SS
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS
5879391035	902.4	8	STUD BOLT - M10 x 35 SS
5879391640	902.5	4	STUD BOLT - M16 x 40 SS
2923591201	903.4	1	DRAIN PLUG (1/4") - BLACK
7201141240	NOT SHOWN	1	O-RING - 22 x 2mm, NBR
5879120406	914	4	BOLT - HEX M4 x 6 SS
5879341000	920	17	NUT M10 SS
5879341600	920.5	4	NUT M16 SS
7201293100	931	2	LOCKWASHER
7201347100	NOT SHOWN	1	SEAL HOUSING INSERT

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
1518ET3X110317	1518ET3X110317	100/250 & 125/250	20.0	1.25	208-230/460	160L
2518ET3E070518	2518ET3E070518	125/250	25.0	1.15	208-230/460	180M
3018ET3E070518	3018ET3E070518	125/250	30.0	1.15	208-230/460	180L

10.3 Exploded View

Normblock Multi 65/250



Normblock Multi 65/250

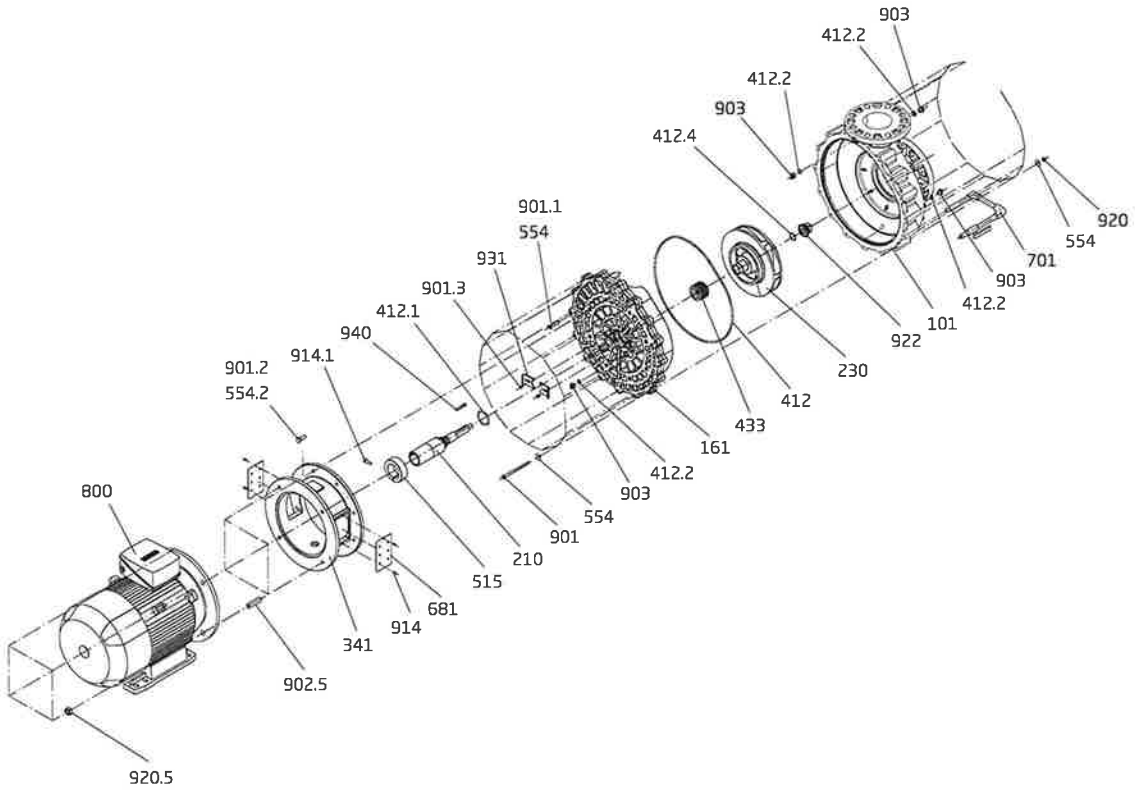
Order #	Drawing Number	Qty Required	Description
7201110111	101	1	CASING CPL
7201116100	161	1	SEAL HOUSING
7201421042	210	1	PUMP SHAFT CPL
7201123000	230	1	IMPELLER (7.5 HP) 225mm
7201123000A	230	1	IMPELLER (10.0 HP) 240mm
7201434140	341	1	MOTOR LANTERN CPL BG 132
7201141201	412	1	O-RING - 355 x 5mm NBR
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR
2711040109	412.4	1	O-RING - 31.5 X 2.5mm
7201143300	433	1	MECHANICAL SEAL (32mm) CPL - CARBON/SiC+EPDM
7201143302	433	1	MECHANICAL SEAL (32mm) CPL - SiC/SiC+EPDM
7201451500	515	1	SUPPORT RING BG 132
5871250800	554	27	WASHER - 8.4mm SS
5871251000	554.2	8	WASHER - 10.5mm SS
7201268103	681	2	PLATE WITH SPECK LOGO BG 132
5879310920	901	13-15	SCREW - M8 x 120mm HEX HEAD SS
5879310865	901.1	1	SCREW - M8 x 65mm HEX HEAD SS
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS
5879391225	902.5	4	STUD BOLT - M12 x 25 SS
2923591201	903	4	DRAIN PLUG - BLACK 1/4"
7201141240	NOT SHOWN	1	O-RING - 22 x 2mm, NBR
5879120406	914	4	BOLT - HEX M4 x 6 SS
5819120826	914.1	1	SCREW - M8x 25mm
5879340800	920	13-15	NUT M8 SS
5879341200	920.5	4	NUT M12 SS
7021192200	922	1	IMPELLER NUT WITH INSERT
5878850664	940	1	KEY 6 x 6 x 40
7363409031	NOT SHOWN	1	STRAINER TANK & HARDWARE - OPTIONAL

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
518ET3EAL072017	518ET3EAL072017	65/250	7.5	1.25	208-230/460	AL132S
718ET3EAL072017	718ET3EAL072017	65/250	10.0	1.25	208-230/460	AL132M

10.3 Exploded View

Normblock Multi 100/250



Normblock Multi 100/250

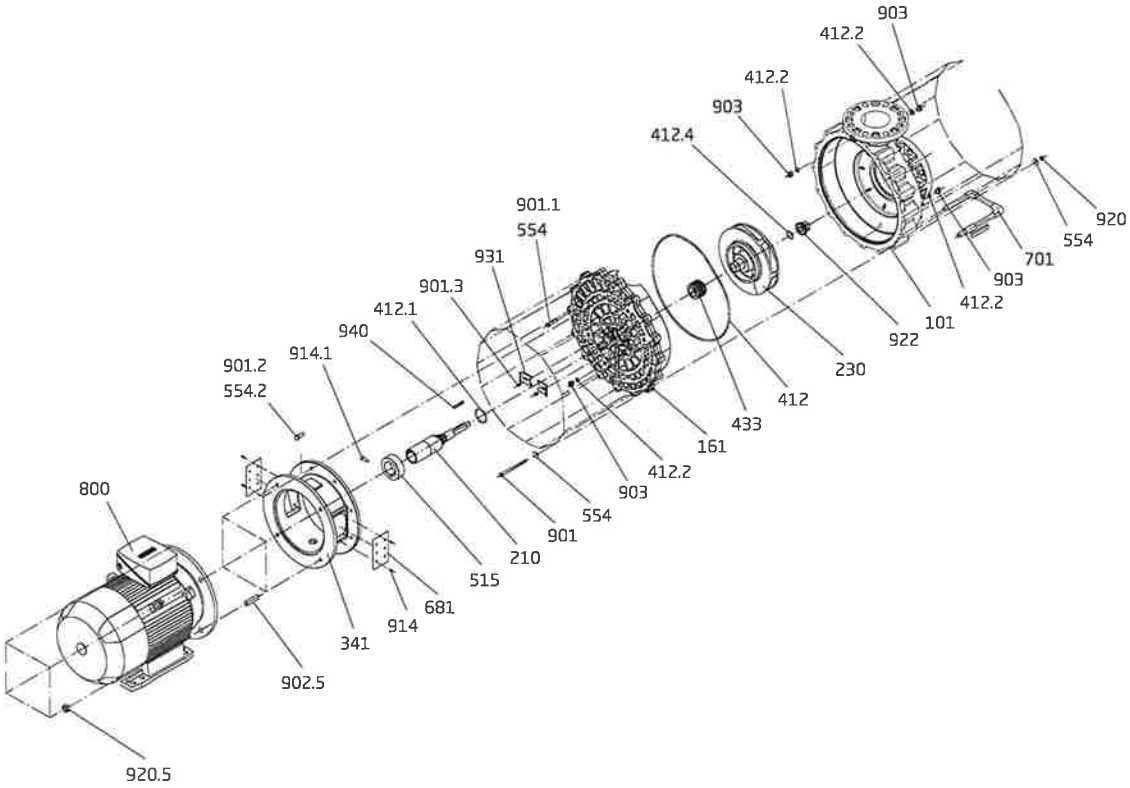
Order #	Drawing Number	Qty Required	Description	
7201210106	101	1	CASING CPL	
7201216101	161	1	SEAL HOUSING	
7201421041	210	1	PUMP SHAFT CPL	
7201223000	230	1	IMPELLER (100/250 - 15.0 HP)	220mm
7201223000A	230	1	IMPELLER (100/250 - 20.0 HP)	240mm
7201434141	341	1	MOTOR LANTERN CPL BG 132	
7201241201	412	1	O-RING - 375 x 5mm NBR	
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR	
7201241200	412.4	1	O-RING - 37.5 x 2.65mm NBR	
1913314342	433	1	MECHANICAL SEAL (38mm) CPL - CARBON/SiC+EPDM	
1913314339	433	1	MECHANICAL SEAL (38mm) CPL - SiC/SiC+EPDM	
7201451500	515	1	SUPPORT RING BG 132	
5879021080	554	31	WASHER - 8.4mm SS	
5871251000	554.2	8	WASHER - 10.5mm SS	
7201268103	681	2	PLATE WITH SPECK LOGO BG 132	
5879310920	901	13-15	SCREW - M8 x 120mm HEX HEAD SS	
5879310840	901.1	1	SCREW - M8 x 40mm HEX HEAD SS	
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS	
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS	
5879391640	902.5	4	STUD BOLT - M16 x 40 SS	
2923591201	903	4	DRAIN PLUG - BLACK 1/4"	
5879120406	914	4	BOLT - HEX M4 x 6 SS	
5879340800	920	13-15	NUT M8 SS	
5879341600	920.5	4	NUT M16 SS	
7201292200	922	1	IMPELLER NUT WITH INSERT	
5878850671	940	1	KEY 6 x 6 x 50	
5878850879	940	1	KEY 8 x 7 x 63	
7319B05008	NOT SHOWN	1	STRAINER TANK & HARDWARE - OPTIONAL	

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
1118ET3E072017	1118ET3E072017	100/250	15.0	1.25	208-230/460	160M
1518ET3X110317	1518ET3X110317	100/250 & 125/250	20.0	1.25	208-230/460	160L

10.3 Exploded View

Normblock Multi 100/250



Normblock Multi 125/250

Order #	Drawing Number	Qty Required	Description
7201310106	101	1	CASING CPL
7201347102	161	1	SEAL HOUSING
7201321040	210	1	PUMP SHAFT CPL
7201321041	210	1	PUMP SHAFT CPL
7201323000/235	230	1	IMPELLER (20.0 HP) 235mm
7201323000/245	230	1	IMPELLER (25.0 HP) 245mm
7201323000/255	230	1	IMPELLER (30.0 HP) 255mm
7201434141	341	1	MOTOR LANTERN CPL BG 132
7201341000	NOT SHOWN	1	GASKET - SEAL HOUSING 440 x 6mm NBR
7201341240	412.1	1	O-RING - 30 x 2mm NBR
2923541220	412.2	4	O-RING - 12 x 2.5mm NBR
2620001015	NOT SHOWN	1	O-RING - 117 x 4mm NBR
7201343300	433	1	MECHANICAL SEAL (45mm) CPL - CARBON/SiC+EPDM
7201343302	433	1	MECHANICAL SEAL (45mm) CPL - SiC/SiC+EPDM
7201451500	515	1	SUPPORT RING BG 132
5879021100	554	36	WASHER - 10.5 x 30mm SS
5871251000	554.2	8	WASHER - 10.5mm SS
7201268103	681	2	PLATE WITH SPECK LOGO BG 132
5879311150	901	17	SCREW - M10 x 150mm HEX HEAD SS
5879331030	901.2	8	SCREW - M10 x 30mm HEX HEAD SS
5879330610	901.3	2	SCREW - M6 x 10mm HEX HEAD SS
5879391640	902.5	4	STUD BOLT - M16 x 40 SS
2923591201	903	4	DRAIN PLUG - BLACK 1/4"
5879120406	914	4	BOLT - HEX M4 x 6 SS
5879341000	920	17	NUT M10 SS
5879341600	920.5	4	NUT M16 SS
7201347100	NOT SHOWN	1	SEAL HOUSING INSERT

REPLACEMENT MOTORS

Order #	MFR #	Model	HP	S.F.	Volts	Frame
THREE SPEED						
1518ET3X110317	1518ET3X110317	100/250 & 125/250	20.0	1.25	208-230/460	160L
2518ET3E070518	2518ET3E070518	125/250	25.0	1.15	208-230/460	180M
3018ET3E070518	3018ET3E070518	125/250	30.0	1.15	208-230/460	180L

11 Index

C

Commissioning 28

D

Decommissioning 28
Disposal 45

E

Electrical connection 26

F

Faults 12, 31
Frost 14

I

Installation 23, 25
Intended use 9

M

Maintenance 36
Mechanical seal 31
misuse 9

O

Other applicable documents 7

P

pipe 12, 24, 25

S

Spare parts 10
Storage 21

T

Technical data 46
Transport 19

W

Warranty 44