



# PACKAGED VERTICAL TURBINE SYSTEMS



**PREFABRICATED  
& FACTORY  
TESTED**



**3rd PARTY  
CERTIFIED - UL/  
C-UL LISTED  
SYSTEMS**



**ASME SECTION 9  
WELDING**



**SINGLE SOURCE  
RESPONSIBILITY**



**ASME CODE  
BLADDER TANKS**



**UL LABELED  
POWER &  
CONTROL  
PANELS**



**STANDARDIZED  
& CUSTOM  
DESIGNS**



**NONELECTRIC  
OVER-TEMPERATURE  
PROTECTION**



# Cost-effective engineered vertical turbine systems for commercial, institutional, municipal, processes and industrial applications.

Packaged Vertical Turbine Systems You Can Count On....

## Standard Features

- 3rd Party UL/C-UL Labeled Systems
- ASME Section 9 Certified Welding
- UL Labeled Power & Control Panels
- Nonelectric Over-temperature Protection
- Pumps & Motors

- Vertical Can Turbine
- Vertical Lineshaft Turbine

## Headers

- Galvanized
- Type L Copper
- Stainless Steel

- ASME Code Bladder Tanks,
- FDA Approved Bladders

## Tank Mountings

- Remote
- Adjacent
- Skid Mounted

## Isolation Valves

- Butterfly
- Gate
- Full Port Ball

Factory Tested

Start-up & Field Training

## Options

- Custom Designs & Configurations
- Certified testing with x-y test reports
- AWWA Valves & Coatings
- Special Materials



## **TIGERFLOW**<sup>®</sup>

*Engineered Systems to the World*

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Fax: (214) 333-2742

E-mail: [sales@TIGERFLOW.COM](mailto:sales@TIGERFLOW.COM)

## **TIGERFLOW,** Your expert source for engineered systems...

### **TIGERFLOW** VERTICAL TURBINE SYSTEMS provide critical advantages for system owners, designers and



contractors. The complete **TIGERFLOW** system is factory built, tested and UL/C-UL third-party certified before shipment. That means the unit arrives on site meeting and/or exceeding all relevant industry standards, in addition to site performance specifications. Liability and performance risks are eliminated. System designers appreciate the time savings and **TIGERFLOW** expertise built into each project. Coordinated deliveries of third party certified systems make contractor performance penalties and delays inherent in site-built/site-certified systems a thing of the past.

Our promise to you...

Your **TIGERFLOW** factory engineered system will arrive ready to go and operate reliably to the required specifications, with the simplest of site installation.

## REPRESENTED BY:

**DATE:****PROJECT:****ENGINEER:****REP:**

**SPECIFICATION FOR  
VERTICAL TURBINE PUMP SYSTEM  
SIMPLEX, DUPLEX, TRIPLEX**

Furnish and install a **TIGERFLOW** Series VTP-5000, (Simplex) (Duplex) (Triplex) U.L./C-U.L. Listed Engineered packaged pump system. The system shall be rated for a system flow of \_\_\_\_ GPM at a system pressure of \_\_\_\_ PSIG including a suction pressure of \_\_\_\_ PSIG minimum, \_\_\_\_ PSIG maximum.

**PUMP(S) & MOTOR(S)**

Pump(s)

Pumps shall be vertical turbine pump(s) complete with: cast iron flanged discharge head, removable mechanical seal box with TYPE 21 mechanical seal and bronze sleeve, stainless steel motor shaft, stainless steel coupling, coupling guard, and bronze steady bushing. The bowl assembly shall consist of cast iron enameled bowls, bronze impellers, bronze bowl bearings and stainless steel pump shaft. Pump barrels shall be welded steel with corrosion inhibiting lining and cleanout connection.

NOTE: The mechanical seal shall be replaceable without removing the motor.

Pump No. 1 shall be **Model** \_\_\_\_\_, \_\_\_\_\_ **GPM** at \_\_\_\_\_ **TDH**, \_\_\_\_\_ **HP**

Pump No. 2 shall be **Model** \_\_\_\_\_, \_\_\_\_\_ **GPM** at \_\_\_\_\_ **TDH**, \_\_\_\_\_ **HP**

Pump No. 3 shall be **Model** \_\_\_\_\_, \_\_\_\_\_ **GPM** at \_\_\_\_\_ **TDH**, \_\_\_\_\_ **HP**

Motor(s)

Motor(s) shall be vertical hollow shaft, WP-1 enclosure, copper wound, NEMA design B with a 1.15 service factor complete with non-reverse ratchet.

\_\_\_\_ RPM \_\_\_\_ % Min. Eff., \_\_\_\_ % Power Factor, \_\_\_\_ Volt, \_\_\_\_ Phase, \_\_\_\_ Hertz.

**VALVES**

Isolation Valves: Individual pump suction and discharge valves shall be provided with (Lug Style Butterfly Valve(s) with Lever handle(s)) (Full Port Ball Valve(s)) (Non-rising Stem High Pressure Gate Valve(s))

Control Valves: Provide a combination pressure regulating and non-slam check valve on the discharge of each pump. Valve shall be complete with fused epoxy coating inside and out, stainless steel internals, stainless steel braided piloting and stainless steel cover bolting. (Provide a non-slam check valve on the discharge of each pump).

**OVER-TEMPERATURE PROTECTION**

Each pump shall be equipped with an individual combination type non-electric temperature probe and purge assembly.

**U.L. LISTED POWER AND CONTROL PANEL**

- (1)U.L. Listed, Nema 4R, Tiger's Eye Mark II Solid State, Power and Control Panel
  - (\*)U.L./C-U.L. 508 Label
  - (\*)Micro Controller:
    - FLASH Main Memory
    - EEPROM Memory For All User Set points
  - (\*)Panel Face Mounted 4-Line Operator Interface with 20 Button Touch Pad
  - Functions Included:
    - Pressure Sequencing with Read Out in PSI
    - Suction and Discharge Pressure Read Out in PSI
    - Individual Pump Run Indication
    - H-O-A Selectors
    - ETM's
    - Low Suction Alarm with TDR
    - Low System with TDR
    - High Suction Shutdown and TDR
    - High System Alarm with TDR
    - Automatic Alternation of Equal Sized Pumps
  - ( )Thru Door Disconnect(s) with Individual Motor Circuit Protection
  - ( )FVNR Magnetic Starters with 3-Leg Overload Protection
  - (\*) 12 Volt U.L./C-U.L., CE Approved Switching Power Supply. Unit Must Have Built-In Breaker Bar with Over Demand Protection
  - (\*) 120 Volt Fused Control Circuit Transformer
  - (1)Power on Light
  - (1)Individual Aux Alarm Contacts
  - (2)Panel Mounted stainless steel Pressure Transducers (1) Suction (1) Discharge

**LAG PUMP SEQUENCING**

Each lag pump shall be sequenced by: (Pressure sequencing with programmable minimum run timers and time delay relays) (Model 220 stainless steel insertion type paddle wheel flow sensor complete with digital flow indication in GPM through operator interface). NOTE: Pressure switches in lieu of pressure transducers will not be allowed.

**TANK LOCATION AND LEAD PUMP SEQUENCING**

The Hydro-Pneumatic tank shall be (skid mounted) (adjacent to system) with feed line between lead pump(s) PRV'(s) and check valve(s), (Remote mounted as shown per drawings) (No tank continuous run operation). Note: Adjacent mounting requires contractor field connection.

**HYDRO-PNEUMATIC TANK**

Provide a Section VIII, ASME CODE, National Board stamped, Hydro-Pneumatic tank. Tank shall be provided complete with a FDA approved replaceable bladder, bottom connection, air fill valve, and gauge. Tank shall be (Model TF132, 132 Gal., 125 PSI) (MODEL TF 185, 185 Gal., 200 PSI).

**FACTORY PREFABRICATION**

Provide each system as a complete package system on a structural steel mounting frame, piped, tubed, mounted and wired. Unit shall be factory primed and painted with machine grade finish coat. All welding shall be performed by ASME Section 9 certified welders.

Suction and discharge headers shall be: (Stainless steel) (Galvanized Steel), (Type "L" Copper).

Note: (1) System manufacturer shall isolate all ferrous from all non-ferrous materials.

**THIRD PARTY TESTING, OSHA REQUIREMENT**

The package shall be UL Listed as a system for its intended use, so meeting OSHA Federal Regulations 29 CFR 1910.303 and 399 as well as NFPA Pamphlet #70 (National Electric Code) Article 90-7, City of Los Angeles Approval Code, CMR248 Massachusetts State Plumbing Code Approval.

**FACTORY TEST**

The package shall be electrically and hydrostatically tested before shipment, in addition, each system shall be factory tested from 0-100% of flow and pressure. (Provide certified x-y test report.)

**STARTUP**

The factory authorized local representative shall provide (2) hours of startup and field training.

**WARRANTY**

Each **TIGERFLOW** system shall be warranted for a period of (18) months from date of shipment or (12) months from date of startup, whichever occurs first.

## **SUBMITTALS & INSURANCE CERTIFICATIONS**

Submittals shall be in accordance with requirements of general specifications. Submit 6 copies to the engineer for approval. All submittals must include the following:

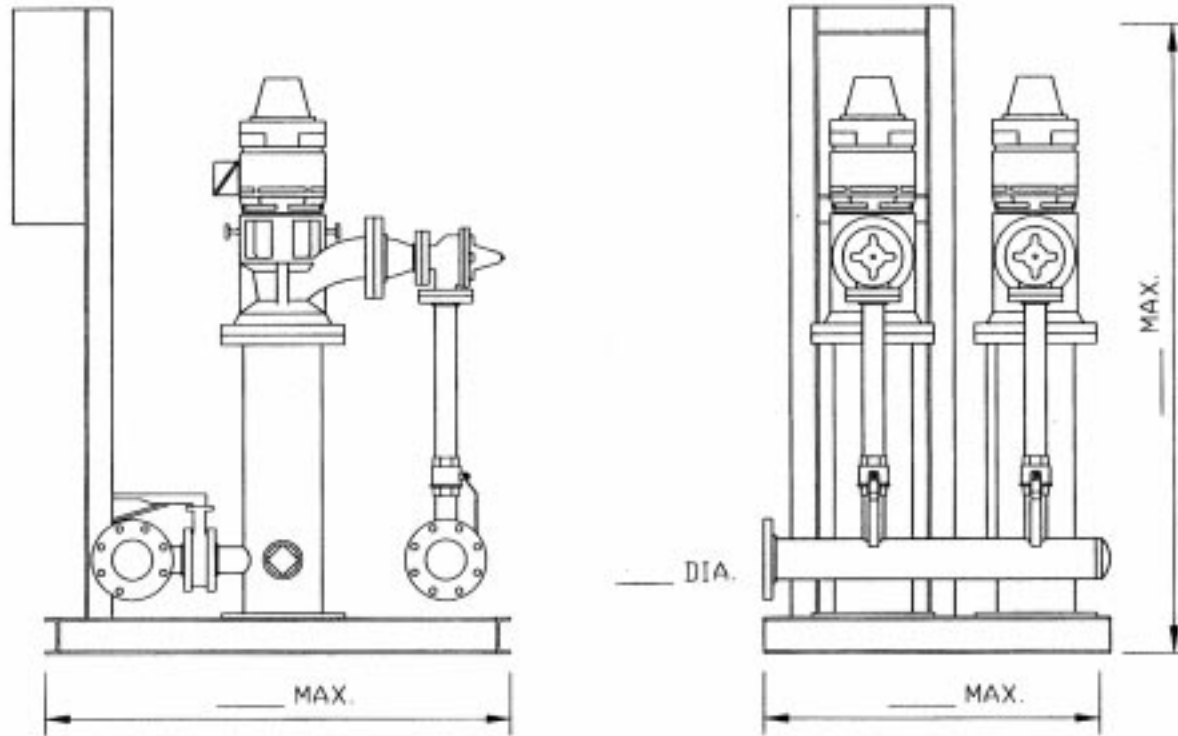
- Complete shop drawings and complete wiring diagrams. All drawings must be AUTOCADD Release 14; complete with full mechanical Desk Top 3-D drawings in both hardcopy and disk format. Complete operating and maintenance instructions.
- Furnish written certification of the manufacturers listing with Underwriters Laboratories as an approved manufacturer of control panels.
- Furnish written certification that the manufacturer is listed by UL/C-UL as an approved manufacturer of factory assembled pumping systems.
- A complete, easily readable functional description of the proposed equipment.
- Upon completion of the installation, the results of the field and acceptance tests as specified under this section of the specification shall be submitted to the engineer.
- Furnished written certification from the manufacturers representative of the proper installation of the station.
- Provide written certification that, a nationally recognized manufacturer of package pump systems, manufactures the pump system. A corporate officer must sign this certification.
- Operation and maintenance manuals:  
Submit complete operations and maintenance information for this specific equipment. The engineer shall review these manuals for completeness. They shall include complete parts list including manufacturers reference and ordering number, the local representative name, address and phone number, the model and serial number of the system.
- The manufacturers shall submit a certificate of product liability insurance for no less than one million dollars (\$1,000,000)

## **QUALITY ASSURANCE**

- All equipment under this section shall be furnished by a single supplier and shall be products that the manufacturer regularly engages in. The supplier shall have sole responsibility for proper functioning of the system and equipment supplied.
- Equipment shall be a manufacturer's standard product presently in commercial production.
- The manufacturer shall have in place a quality assurance program to assure the quality of the material furnished.

## **QUALIFICATIONS**

- The manufacturer shall have a minimum of ten years manufacturing and application experience.
- Upon request from the engineer, the pump station manufacturer shall demonstrate proof of financial responsibility with respect to performance and delivery date.
- Upon request from the engineer, the pump station manufacturer shall provide proof or evidence of facilities, equipment and skills required to produce the equipment specified herein.



**Notes:**

1. Dimensions are not for constructions purposes unless certified.
2. All dimensions are  $\pm 1/2"$ .
3. All dimensions are subject to change without notice.
4. Pipe supports not shown for clarity.
5. All welding done by ASME code section 9 certified welders.

TIGERFLOW Packaged Systems are third party U.L. labeled/C.U.L. labeled as a system to comply with OSHA federal regulations 29CFR1910.303, .399 and NEC #70 Article 90-7

MODEL #: \_\_\_\_\_

SYSTEM TYPE: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DESIGN FLOW: \_\_\_\_\_

DESIGN PRESSURE: \_\_\_\_\_



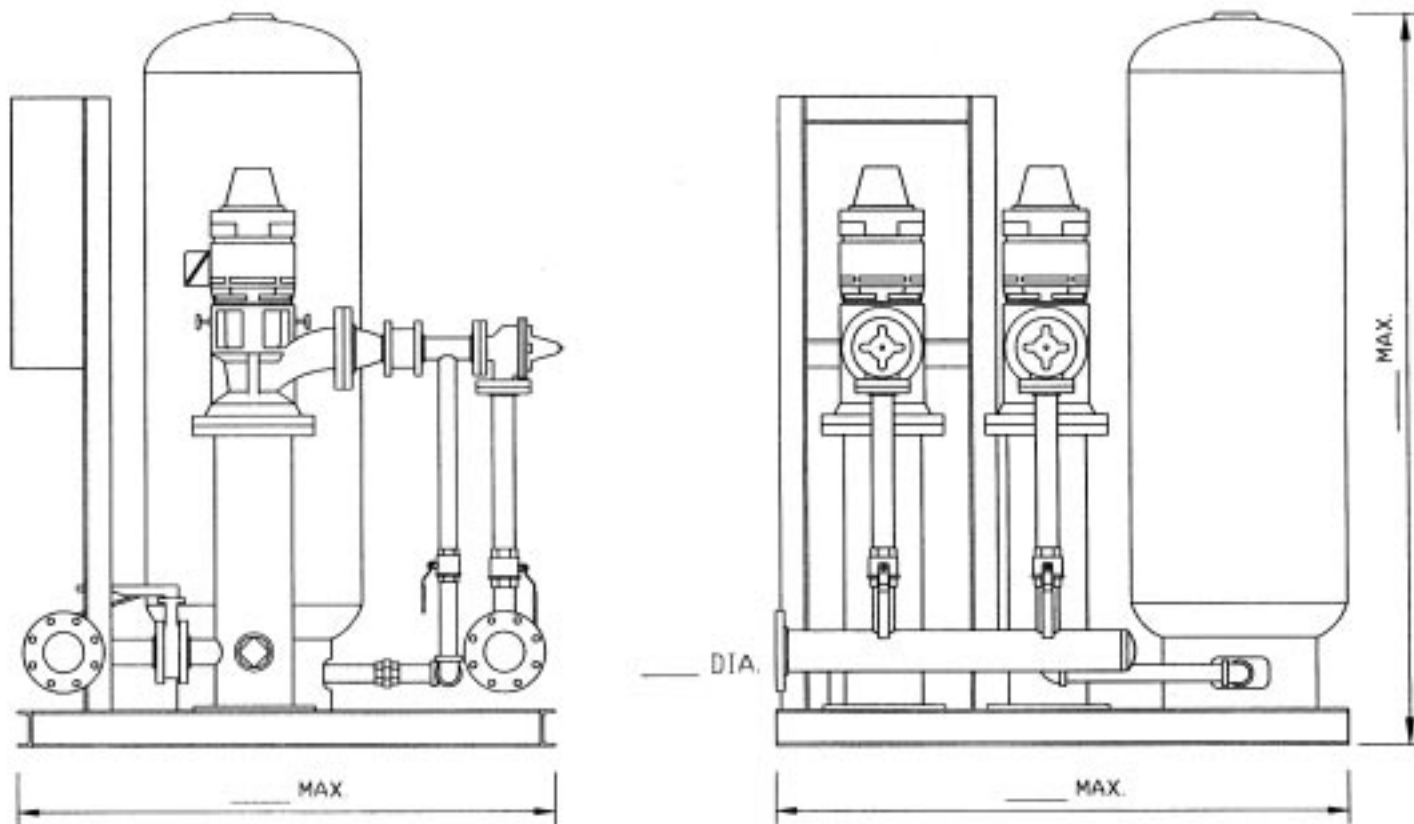
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SCALE: \_\_\_\_\_

APPROVED: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_

REVISION NO: \_\_\_\_\_



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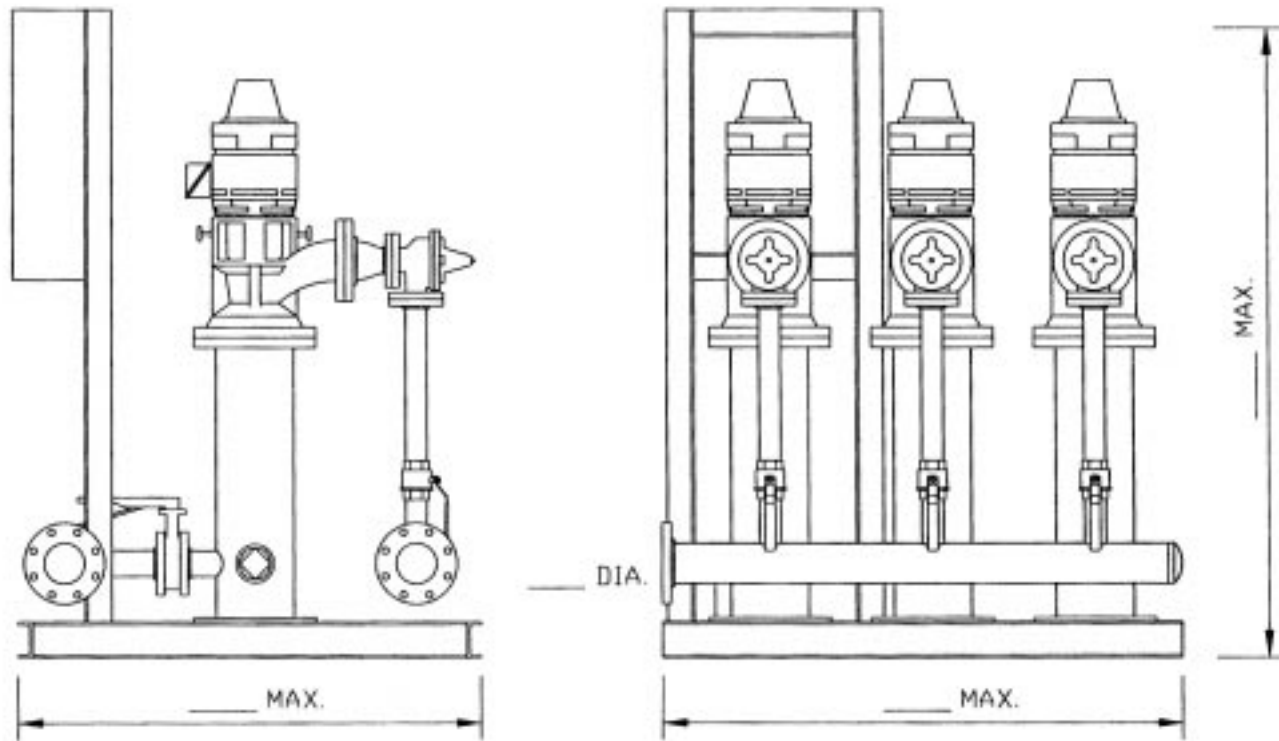
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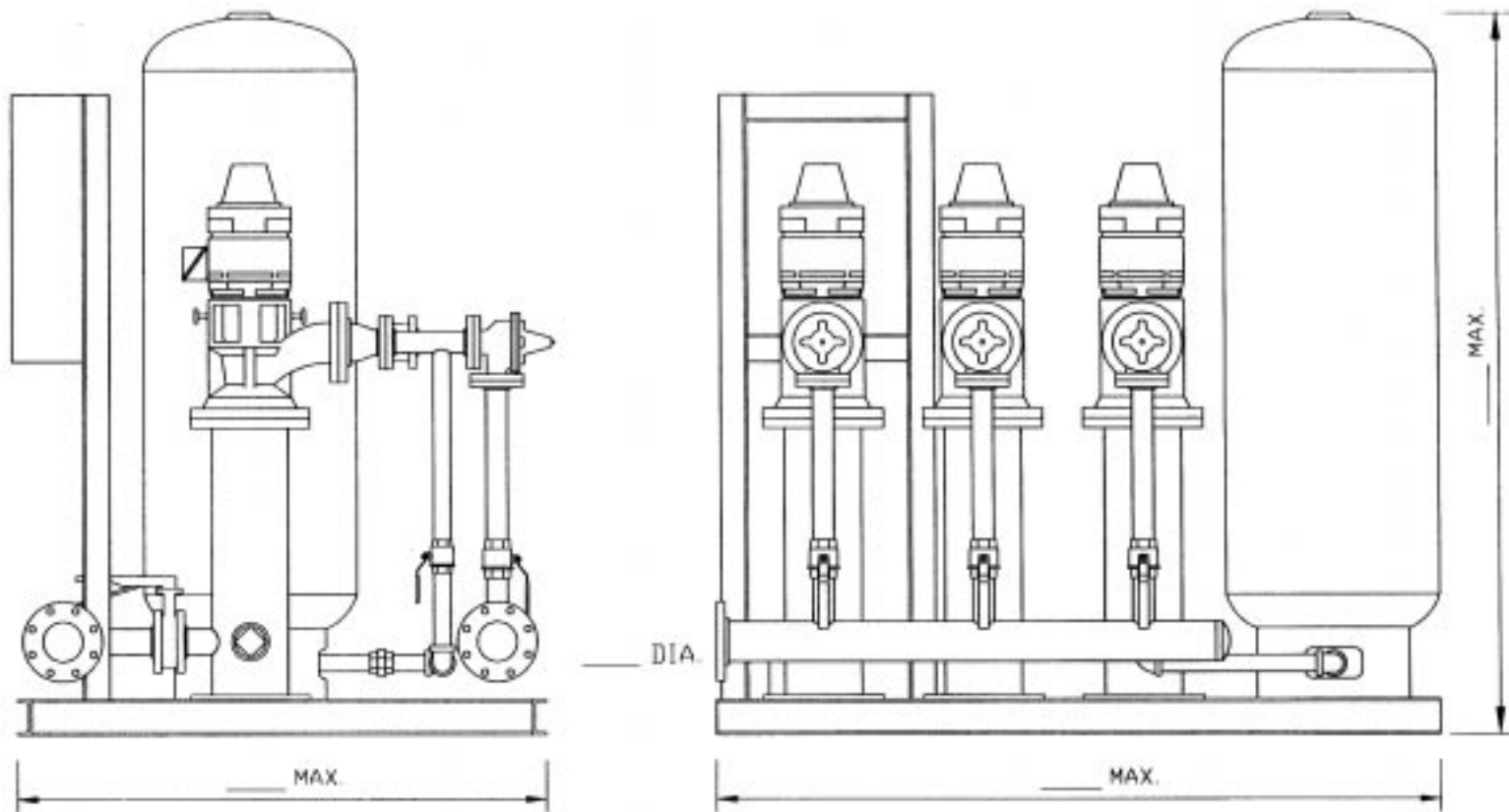
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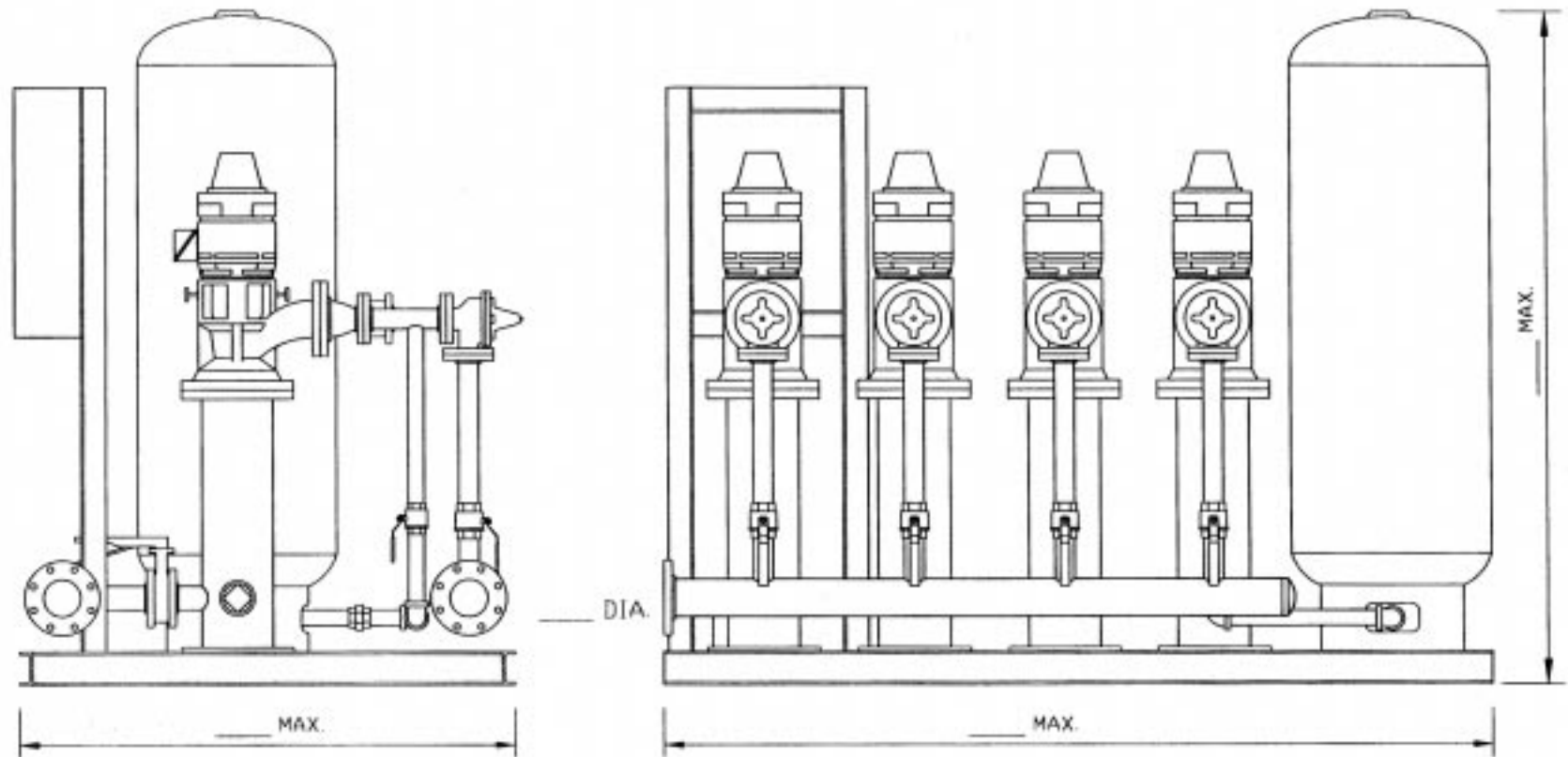
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