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**SPECIFICATION FOR NSF 61 CLOSE-COUPLED
 END SUCTION WATER BOOSTER SYSTEM
 (Simplex, Duplex, Triplex, Quadraplex)**

Furnish and install a **TIGERFLOW** Series ES-3000-NSF-VFD(Simplex), (Duplex), (Triplex), (Quadraplex) Model # _____ U.L./C-U.L. Listed Engineered **Constant Speed** packaged water Booster 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) shall be **PACO**, series LC, Cast Iron, Bronze Fitted, Mechanical Seal End Suction centrifugal type each close-coupled to a ____ RPM, ____ Voltage, 3 Phase, 60 Hz, high efficiency motor.
 Pump No. 1, 2, 3 shall be **Model** _____, GPM at ____' TDH, ____ HP

VALVES

Isolation Valves: ____ "Individual pump suction and discharge valves shall be NSF/ANSI 61 approved Lug Style Butterfly Valve(s) with Lever handle(s). (Provide a ____ " Wafer style non-slam check valve NSF 61 approved on the discharge of each pump).

Control Valves: Provide ____" NSF/ANSI61 approved combination pressure regulating and non-slam check valve on the discharge of each pump. Valve shall be complete with an NSF 61 approved fused epoxy coating inside and out, stainless steel internals, stainless steel braided piloting and stainless steel cover bolting. Type L copper sensing lines, stainless steel high pressure pilots (1) ____"

OVER-TEMPERATURE PROTECTION

Each pump shall be equipped with an individual combination type non-electric temperature probe and purge assembly with PRV on Purge line

U.L. LISTED POWER AND CONTROL PANEL

- (1)U.L. Listed, Nema 4, **Tiger's Eye Mark II** Solid State, Power and Control Panel
- (*)U.L./C-U.L. 508 Label
- (*)Micro Controller: WITH PLC and HMI Technology
- 6" Blue Scale Touch Screen Operator Interface
- Individual H-O-A Pump Operation
- Individual Pump Run indicators
- Multi Level Security

7 Password protected field changeable areas

Operator Adjustable settings:

Tunable Variable Speed Pressure Sequencing with read out in PSI

Pump Start / Stop Pressures

Pump ON and OFF delay times

-Suction and Discharge Pressure Read Out in PSI

-Individual Pump Run Indication

-Low Suction Alarm with TDR

-Low System with TDR

-High Suction Shutdown and TDR

-High System Alarm with TDR

-Adjustable Alternation method of Pumps

Automatic on Lead Pump shutdown

Daily/ weekly/ Monthly

Manual alternation

Separate Alarm Silence and Reset Button

Event History Records of last 10 events

Pump starts / stops

Alarm conditions

Alarm acknowledgements

Alarm reset

Date and Time of each event

() Thru Door Disconnect(s) with Individual Motor Circuit Protection

() FVNR Magnetic Starters with 3 leg overload protection

(*) 24 Volt DC U.L./C-U.L., C.E. Approved Switching Power Supply Digital I/O maximum 256 I/O points

Alarm Horn and reset button

(1) Common Aux Alarm Contact

(2) Panel Mounted Stainless Steel Pressure Transducers [(1) Suction, (1) Discharge]

Optional Features Available:

Flow Sequencing (requires optional flow sensor)

Flow Totalization (requires Optional sensor)

Differential Pressure Pump Failure switch

Phase Monitor

Lightning Arrestor

Circuit Breakers

Motor Overload

NEMA 4X Stainless Steel Enclosure

NEMA 4X Fiberglass Enclosure

8, 10" Blue Scale Operator Interface

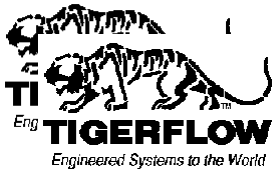
6, 8, 10" Color Operator Interface

Optional EMS Available with various protocols

LAG PUMP SEQUENCING

Each lag pump shall be sequenced by: (Pressure sequencing with programmable minimum run timers and time delay relays) Model 220B (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 (Remote mounted as shown per drawings)

HYDRO-PNEUMATIC TANK

Provide a Section VIII, ASME CODE, National Board stamped, Hydro-Pneumatic tank. Tank shall be provided complete with a NSF 61 approved replaceable bladder, bottom connection, air fill valve, drain valve, and gauge. Tank shall be: (MODEL TRG646, 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. System shall be (Vertical) construction.

Branches, Suction and discharge headers shall be: (304 Stainless Steel). **Grooved ends ___**

(_) System manufacturer shall isolate all ferrous from all non-ferrous materials.

THIRD PARTY TESTING, NSF, and OSHA REQUIREMENT

The package shall be **UL Listed as a system** for its intended use, a **NSF 61 approved system** per NSF 61 guidelines 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 2000; 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