IntelliBoost Specification

PART I. GENERAL

1.01 Summary

Furnish and install a prefabricated IntelliBoost model 7710 water pressure booster system as designed and manufactured by Pentair.

1.02 References

A. American National Standards Institute (ANSI)
B. American Standard for Testing Materials (ASTM)
C. National Electric Code (NEC)
D. Underwriters Laboratory (UL) - Electrical Assemblies - UL 508
F. ULQCZJ7, CN Listed Booster System
E. NSF 61 G and 372 Certified
G. ISO9001 certified facility
H. ETL third party listed booster assembly

1.03 System Description

The system shall be capable of automatically providing a minimum system pressure of _____
psig while at a flow rate from 0 to _____ GPM with a suction pressure of _____ psig minimum,
_____ psig maximum. Incoming power shall be _ phase/_ cycle/ ____volts. Major components of
this IntelliBoost system shall include vertical multistage pumps, split case, end suction, or vertical turbine manufactured by same company as booster system. ODP/TEFC premium efficiency motors, isolation valves, user selectable pressure and/or flow sequencing, and NEMA 4 -5.7" Color Touch Screen control panel.

1.04 Submittals

A. Prior to Fabrication

Submit electronic PDF documents to the Engineer for approval, including the following:

1. Certification that the manufacturer is a ULQCZJ7, CN
2. Piping layout with location and all standard measurements taken
3. Functional description of the proposed equipment
4. Sequence of operation
5. Marked cut sheets of all equipment supplied
6. Electrical schematic showing internal and external wiring connections
7. Pump performance curves plotting flow, head, efficiency, and NPSH required
8. Screen shots with descriptions for end user interface

B. Check Valves

Provide lead free check valves on the discharge branch of each pump.

C. Isolation Valves

Provide isolation valves on suction and discharge branch of each pump

E. Power

Furnish a power to each VFD and control panel per latest NEC and local codes.

F. Single Point Disconnect (optional)

Enclosure and base pan shall be Nema 1,12,4,or 4X . It shall house all main disconnect with external operating handle and include control power transformer and other necessary controls.

All of the electrical components shall be factory wired and tested by the pump system manufacturer in accordance with the provisions of the National Electrical Code. All control wires shall be individually numbered and each component shall be labeled accordingly. All internal wiring shall be copper stranded, A.W.G. with a minimum insulation of 90o C. Pump manufacturer shall certify the complete power and control assembly with the UL mark for Industrial Control panels.

G. Pressure Transducers and gauges

Provide 4-20 mA transducers and liquid filled pressure gauges shall be provide on suction and discharge manifolds

H. HMI touch screen Controller

1. Provide a UL listed 5.7" color touch screen controller to control all pump starts and stops and indicate alarm and or fault conditions.
2. Enclosure dimension 16"h x 12"w x 8"d
3. The controller shall have the following features:
    a. Selectable pump sequencing on same controller
    b. Input voltage = 100-240 VAC 50/60 Hz
    c. Non-volatile internal memory to prevent program loss due to power failure
    d. Power Off/On Switch
    e. Auto Detect – specialized internal software to automatically and continually determine the optimal start and stop speed of each pump to ensure lowest possible kW and water usage. Feature will eliminate pump cycling automatically
    f. Auto Commission- specialized internal software to automatically calibrate the booster to meet the buildings demand profile, obey customer selected operating conditions. Software will also determine no flow without use of separate sensor. Feature will eliminate specialized start-up personal and ensure booster is operating at best efficiency to meet customers set points
    g. External Fault and Alarm inputs, (4) - User selectable
    h. Relay Outputs (6 amp, form 'C') fault and alarm, (4) - User selectable
    i. Complete preventative maintenance notification based upon life expectancy of pump, motor, VFD, PLC and transducers
    j. Control power light, pulsating audiovisual alarm system
    k. Complete VFD access on controller HMI to allow operator to run pumps in manual at desired frequency
    l. User selectable reaction to specific alarm
        a. Transducer failure or loss of signal = shutdown or mantain a selectable max speed for all pumps
        b. Alarms can be set to shut down after a determined amount of faults within "X" hrs
    m. Help buttons available on touchscreen to provide the customer additional Support

I- Optional Flow Meter
Flow Sensor or meter can be field or factory installed and simply added to the touch screen controls without special software

J -Communication

K. Optional Ethernet Interface
Internal Webserver and Communication with External RJ45 to allow end users to view all alarms and setting through a standard internet connection without special software. Allows end user to determine an IP address to view any screen from a standard internet connection
K. Optional SD card
Allows end users to save as programmed settings or factory will provide to the field for simple loading of factory defaults by the operator
L. Modbus TCP/Ethernet
33 readable and 3 writeable fields allow connection to existing SCADA or BMS systems
L. Optional - Instrumentation and relief
Temperature relief valve shall be mounted in the pump casing for fast accurate response.
L. Optional Individual Pump gauges - 4½" liquid filled pressure gauges for on suction and discharge each pump

1.05 Warranty
12 months after startup or 18 months after shipment - Exchange of defective unit (complete touchscreen controller or VFD) with new or factory refurbished unit