SERIES 660

SINGLE STAGE NON-CLOG VORTEX PUMPS

1.0 GENERAL

The contractor shall furnish (and install as shown on the plans) Aurora Model 663 vertical flexible-coupled type vortex pump. The pump shall be capable of delivering a capacity of US gpm when operating against a total dynamic head of ft. The pump shall also deliver a maximum of ? US gpm when operating against a head of ? ft. The minimum shut-off head acceptable will be 69.7 ft. The pump shall operate at a maximum speed of 1175 R.P.M. A unit operating at a lesser rotative speed will be considered, but in no event will a pump operating at more than the maximum speed specified be acceptable.

2.0 BASEPLATE

The pump shall be supported by a fabricated steel pedestal base. The pedestal shall have openings large enough to permit access to the suction line. An optional handhole of not less than 3" in diameter must be provided in the suction elbow on 3", 4" and 6" pumps. The pedestal must be of sufficient height so that the suction elbow will not touch the floor or foundation upon which it stands.

2.1 CASING

The pump casing shall be of the top centerline design and will be constructed of cast iron and shall be of sufficient thickness to withstand stresses and strains at full operating pressures. Casings shall be subject to a hydrostatic pressure test of 150 lbs. A rodding hole is to be provided in casing to facilitate casing and impeller cleanout. The casing design shall allow rear pullout.

2.2 IMPELLER

The impeller to be of cast iron shall be capable of passing a maximum sphere size of ? inches. The impeller shall be dynamically balanced before assembly into the pump and shall be securely fastened to the shaft be means of a steel key and impeller locknut.

2.3 SHAFT

The pump shaft shall be constructed of high grade carbon steel having a tapered impeller extension and accurately machined. The minimum shaft diameter acceptable between bearings will be 2-3/8". The pump shaft shall be protected from wear by a corrosion and wear resisting hardened stainless steel shaft sleeve having a 450 minimum Brinell hardness. An "O" ring type gasket must be provided between the impeller hub and the shaft sleeve to prevent pumped liquid from corroding the shaft.

2.4 BEARINGS

The bearing housing is to be of cast iron and shall be furnished with a set of regreasable bearings for both radial and thrust loads. A double row thrust bearing is to be provided to ensure maximum bearing life under extreme thrust loads. The bearings shall have an average life of 100,000 hours and shall be mounted in a machined, moisture and dust proof housing. The housing is to have a register fit and then bolted to the pump casing to insure proper alignment.

2.5 STUFFING BOX

An extra deep (split) packing box simplifying packing replacement and shaft sleeve inspection is to be provided and must be so arranged with a lantern ring for either grease lubrication or tapped connections for water sealing from an outside source. A 3/8" drain opening must be provided to facilitate removal of lubricating liquid.

2.6 MOTOR BRACKET

Vertical flexible coupled pumps shall be furnished with a fabricated steel motor bracket which is to be bolted to a separate pump adapter. The motor bracket must be machined with a register fit to insure proper alignment of motor shaft and pump shaft.

3.01 CONDITIONS OF SERVICE

The following conditions of service shall be strictly adhered to:

Number of Units ..... ?
Type of Drive .....? (variable or constant)
Discharge Size, minimum ..... 3 in
Suction Size, minimum ..... 3 in
Sphere Size, minimum ..... ? in
Design Capacity ..... US gpm
Design Head ..... ft
Efficiency at Design, minimum ..... %
Rotative Speed, maximum ..... 1175 RPM
Shut-off Head, minimum ..... 69.7 ft
Driver Horsepower, minimum ..... 22.5 hp
NPSHR at Design, maximum ..... ft
Secondary Capacity ..... ? US gpm(at maximum RPM)
Secondary Head ..... ? ft(at maximum RPM)

3.02 INSPECTION AND FACTORY TESTS

A. The Engineer shall have the right to inspect or witness test any material or equipment to be furnished, under this section, prior to their shipment from point of manufacture. The Engineer shall be notified at least ten (10) working days in advance of any testing in order to exercise or waive the right to witness any testing.

B. Each centrifugal wastewater pump furnished under these specifications shall be tested at the factory in accordance with the latest edition of the Hydraulic Institute Standards for both hydrostatic pressure and performance. Certified copies of all test reports shall be submitted to the Engineer for approval prior to shipment.

C. Each pump shall be tested at the full load speed of the respective driver for head, capacity, brake horsepower and efficiency from shut-off to 150% of design capacity. In addition, for variable speed units, one (1) pump of each service shall be tested at the minimum design conditions plus three (3) equally spaced speeds between the minimum and maximum conditions.

D. Tests on all motors shall be conducted in accordance with IEEE Standards. All test results shall be submitted to the Engineer for approval prior to shipment.

1. Each motor shall be given a short commercial test which includes the following:

a. No load running current
b. High potential
c. Winding resistance

3.03 INSTALLATION AND ACCEPTANCE TESTS

A. The pumping units shall be installed in accordance with the instructions of the manufacturer and as shown on the drawings by the Contractor.

B. Installation shall include furnishing the required oil and grease for initial operation. The grades of oil and grease shall be in accordance with the manufacturer's recommendations.

C. Furnish the services of an authorized factory representative to inspect the final installation, perform initial start-up and supervise the field acceptance tests of the equipment.

D. Field acceptance testing shall be conducted after the installation of all equipment has been completed and the equipment operated for an initial period to make all necessary adjustments and corrections. Each pumping unit shall be tested to determine satisfactory operation and compliance with these specifications in the presence of the Engineer or his representative. All expenses for conducting the field acceptance tests shall be borne by the Contractor.

NOTES: Teflon is a registered trademark of E.I. DuPont.

Additional information is available from any Aurora Pump authorized distributor.

Aurora Pump reserves the right to make revisions to its products and their specifications without notice.