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**14**

Motor Driven

**VERTICAL**

Contractor shall furnish and install a quantity of \_\_\_\_\_ Fairbanks Nijhuis \_\_\_\_\_ stage, \_\_\_\_\_ Model (Underwriters Laboratories Listed) (Underwriters Laboratories of Canada Listed) (Factory Mutual Approved) water lubricated vertical turbine fire pump(s). Each unit shall include a bowl assembly, strainer, column and shaft, surface discharge head, vertical hollow shaft electrical motor, automatic air release valve, discharge pressure gauge, and automatic motor controller.

**CONDITIONS OF SERVICE**

The pump(s) shall be rated for \_\_\_\_\_ GPM at \_\_\_\_\_ PSI at the discharge head centerline. The maximum lift below (distance from the discharge head centerline to the minimum low water level) will not exceed \_\_\_\_\_ feet. The distance from the top of the pump mounting pad to the bottom of the sump or reservoir shall be \_\_\_\_\_ feet. The unit(s) will be installed at \_\_\_\_\_ feet elevation above sea level with a maximum ambient temperature of \_\_\_\_\_ degrees F.

**PUMP CONSTRUCTION**

**DISCHARGE HEAD**

The discharge head shall be Class 30 cast iron with a separate cast iron foundation plate, and shall be furnished with a grease lubricated packing box and ANSI (125 lb.) (250 lb.) standard discharge flange. To prevent damage to the shaft when installing or removing the motor, a separate motor shaft shall be furnished and shall be connected to the headshaft at a point above the packing box with a threaded coupling. The headshaft shall be furnished with a stainless steel sleeve where it passes through the packing box. The discharge head shall be provided with a \_\_\_\_\_" NPT tap for packing box drainage. The discharge head shall be hydrostatically tested 1-1/2 times the maximum working pressure but in no case less than 250 PSI

**COLUMN PIPE**

Pump column pipe shall be furnished in sections not exceeding 10 feet in length with straight threads and sleeve type couplings. Pipe weights shall be not less than specified in NFPA #20.

**LINESHAFT**

Open, water lubricated construction shall be used where the distance from the discharge head to the static water level does not exceed 50 feet. Lineshaft shall be furnished in sections not exceeding 10 feet in length. Lineshaft shall be SAE 1045 steel of adequate size to transmit the horsepower and thrust required and shall have renewable shaft sleeves. The lineshaft shall run in neoprene bearings housed in bronze bearing retainers.

**BOWL ASSEMBLY**

The pump bowls shall be Class 30 cast iron with bronze bowl wearing rings, bronze enclosed impellers and steel impeller lock collets. The pump shaft shall be 416 stainless steel supported by bronze bowl bearings. The bowl assembly shall be hydrostatically tested to 1-1/2 times the maximum working pressure but in no case less than 250 PSI. The bowl assembly shall be performance tested and certified performance curves supplied.

**STRAINER**

A bronze basket strainer with a free area of at least 4 times the suction area and with openings to restrict the passage of a 1/2" sphere shall also be supplied.

**ELECTRIC MOTOR**

Electric motor(s) shall be of the weather protected Type 1, vertical hollow shaft design with non-reverse ratchet and 1.15 service factor, \_\_\_\_\_ RMP, and wound for \_\_\_\_\_ phase, \_\_\_\_\_ hertz, \_\_\_\_\_ volts. Motor(s) shall be of the (across-the-line) (part-winding) (wye-delta) (primary resistor) (auto-transformer) (soft start) type starting and sizing so as not to exceed the permissible loading limits of NFPA #20 (or Factory Mutual Loss Prevention Data Sheet 3-7N) at any point on the pump performance curve. Motor(s) shall be provided with thrust bearings having an average life of 5 years continuous operation and capable of sustaining the maximum pump downthrust. Maximum motor horsepower shall not exceed \_\_\_\_\_ HP.

Motor Driven

**CONTROLLER**

The electric motor controller shall be arranged to start the fire pump motor automatically on loss of system pressure with (automatic stop) (manual stop). (For sprinkler or standpipe systems where an automatically controlled pumping unit constitutes the sole supply, the controller shall be wired for manual shutdown. Manual shutdown shall also be provided where required by the authority jurisdiction.) It shall be supplied with a circuit breaker rated not less than \_\_\_\_\_ AIC at \_\_\_\_\_ phase, \_\_\_\_\_ hertz, \_\_\_\_\_ volts.

The magnetic starting contactor shall be of the (choose one):

- |   |  |
|---|--|
| 1. Across-the-line type.                    | 5. Wye-Delta open transition reduced voltage type.   |
| 2. Primary resistor reduced voltage type.   | 6. Wye-Delta closed transition reduced voltage type. |
| 3. Primary reactor reduced voltage type.    | 7. Auto transformer reduced voltage type.            |
| 4. Part winding reduced voltage start type. | 8. Solid state soft start reduced voltage type.      |

**ACCESSORIES**

Furnish each pump with the following fittings or accessories:

1. 3-1/2" dial discharge pressure gauge.
2. Minimum 1-1/2" automatic air and vacuum release valve.
3. Pressure recorder as required by Factory Mutual and NFPA #20, common to all pumps.
4. Hose valve manifold with a set of 2-1/2" hose valves, caps and chains, or flowmeter common to all pumps.
5. Water level testing device common to all pumps.

**STANDARDS**

All equipment furnished and the complete installation shall be in accordance with NFPA #20 and/or (UL448) (ULC 448) (Factory Mutual Approved Standard #1312). Pump(s) and controller(s) shall bear the (UL) (ULC) (FM) mark.

Typical Specifications  
**Vertical Turbine**  
**Fire Pump**  
 Engine Driven

**GENERAL**

Capacity shall be \_\_\_\_\_ GPM at \_\_\_\_\_ PSI at \_\_\_\_\_ feet. The pump shall be (U.S. Lab or L ed) (U.S. Lab or F Canada L ed) (Fac M a A ed) as specified in the contract documents. Each pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**CONDITION OF SERVICE**

The pump shall be tested at \_\_\_\_\_ GPM at \_\_\_\_\_ PSI at \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**PUMP CONNECTION  
 DISCHARGE HEAD**

The discharge head shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**COLLECTOR PIPE**

The collector pipe shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**LINE HEAD**

The line head shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**BOILER EMBL**

The boiler emblem shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**RAINER**

The rainer shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

**GEAR**

The gear shall be \_\_\_\_\_ feet. The pump shall be tested in accordance with the applicable standards, and the test results shall be reported to the owner. The pump shall be tested in accordance with the applicable standards.

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Typical Specifications  
**Vertical Turbine  
Fire Pump  
Engine Driven**

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**ENGINE**

Dee e e() a be e a \_\_\_\_\_ M de \_\_\_\_\_ a ed \_\_\_\_\_ HP a \_\_\_\_\_ RPM a 300 fee ab e ea e e a d 77 de ee Fa d a be  
(U de e Lab a e L ed) (Fac M a A ed). Eac e e a be ded eec ca e e e a d a c a a e a . Te fac  
ed ea e c a e c ee e e ed a e , a e e a e , a e e ed c a e , a d a b a e a be a ed be ee e  
d c a e e a d a d ee e ea e c a e b e a c ac . Eac e e a be f ed ead-ac d a ba e e , ba e ac a d  
cabe , a fe be e a c ec a d d a e e ce . F eac e e a ac e ae eae .

**FLE IBLE HAF**

A fe be af , e e ad ea fa e , a be f ed c ec ee e e ea . Te af a be ad e ae ed a e a  
ba e e e a ee e eed a bea fe f 2500 . Te af a be eced b a af ad .

**CON ROLLER**

T e de e e ec e e a be a a ed a e fe a a ca f e e e (a a c ) ( a a ) . (F -  
e ad e e e e a a a ca c ed c e e e , ec e a be ed f a a d . Ma a  
d a a be ded ee e ed b ea dc .) A a a c ee e e a a be a da d . Te c e a be f ed  
ab - ba e c a e ca a be fe e ba e e f af d c a ed c d af c a ed c d e - f (24) .

**F EL EM**

F a ab e d fe a a ca ac e a e a e e e 5% e fe a a d 5% ef . F e a  
a d ca fe ee a e . P de fe be fe ec ec a ee e ad fe ec ec a e fe a . (F e e be ded b e  
a c ac .)

**ACCE ORIE**

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Technical Data  
**Vertical Turbine**  
**Fire Pump**

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250 - 300 GPM 10M												
NUMBER OF STAGES	4	5	6	7	8	9	10	11	12	13	14	15
o n												
o t oot												
o												
o t t r												
n t t r												
n t oot												
. C r												
. r												
Co n n												
Co n t oot												
Co n n n												

Technical Data  
**Vertical Turbine  
 Fire Pump**

750 GPM 12M								
NUMBER OF STAGES	3	4	5	6	7	8	9	10
o n								
o t oot								
o								
o t tr								
n t tr								
n t oot								
r								
Co n n								





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# Technical Data



Technical Data  
**Vertical Turbine  
Fire Pump**

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Technical Data  
**Vertical Turbine  
Fire Pump**

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3000 GPM 19A
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1000000

1000000

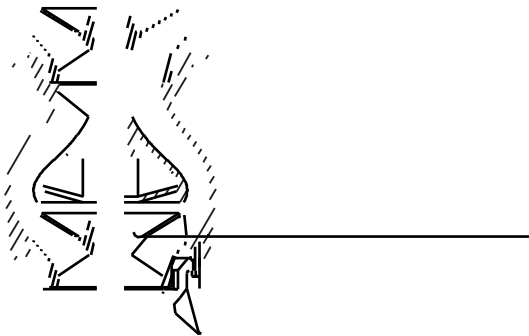
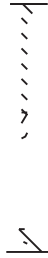
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**Vertical Turbine  
Fire Pump**

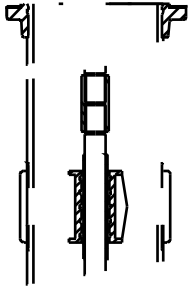
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Typical Specifications  
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Date **April 1, 2006**

