

TIPTON ENVIRONMENTAL INTERNATIONAL, INC.
PACKAGE AIR SYSTEMS
WASTEWATER TREATMENT SYSTEMS

Air Systems - For _____
Package Fiberglass Construction

1.0 GENERAL

- 1.1 The contractor shall furnish and install one packaged air system for supplying air for the wastewater treatment system, complete and ready for operation in accordance with the plans and specifications stated herein. The package air system shall be a TIPTON ENVIRONMENTAL Model TEII-____-R__ of the positive displacement design and prefabricated of a fiberglass enclosure construction as manufactured by Tipton Environmental International, Inc. of Milford, Ohio , USA. The package air system shall be known as the positive air displacement type powered by an electric motor. The unit shall be designed for producing a capacity of ___ scfm at a pressure of ___ psi. The system shall be complete with all necessary blower, motor, inlet filter, inlet silencer, discharge silencer , pressure relief valve, structure steel base and piping up to the blower discharge piping.
- 1.2 The package air system shall be factory prefabricated and assembled, so far as possible, taking into consideration shipping limitations. In addition the system blower internal piping shall be supplied from the air inlet filter to the discharge side of the air outlet muffler and ended at the appropriate joint. All steel or metal surfaces shall be factory painted as described below.
- 1.3 OTHER SERVICES AND EQUIPMENT
- 1.31 The field contractor shall perform the actual installation of the package air system. The following is a brief description of the field contractor's responsibilities:
- A. An adequate access to the blower site shall be provided to enable the equipment to be delivered into the site and off loaded.
 - B. Provide facilities and equipment for off loading and setting of the air system onto its foundation pad, which has been provided by the field contractor. Anchoring facilities to be positioned in the foundation pad as defined by the contract drawings.
 - C. Once the air system has been set into position, it shall be connect to the existing field piping any piping, valving, and install the muffler.

which may have been disconnected at the factory for shipping purposes.

- D. The package system shall be delivered to the project site with the majority of the component equipment installed in position. Due to shipping restrictions the ancillary equipment removed it will be the field contractor responsibility to assembly these items back into position.
- E. All site piping and electric utilities to the air system shall be tied-in to the system. The electrical power requirements to the motor junction box shall be ___ volt, ___ phase, 60 Hz. This electrical connection shall be by the field contractor. In addition the electrical contractor to run the wiring from the existing control panel to the blower motor unit.

2.0 SYSTEM DESIGN PARAMETERS

2.1 System Design Characteristics: The following are the design characteristics of the specified system:

- A. Maximum air flow _____ scfm
- B. Maximum pressure _____ psi
- C. Each motor rated ODP/TEFC
- D. Service Factor 1.15
- E. Ambient Temp. Rated for 60 degree centigrade ambient
- F. Elevation _____ feet
- G. Temperature 136 degrees F
- H. Maximum Blower Speed _____ RPM

3.0 FIBERGLASS SOUND REDUCTION HOOD CONSTRUCTION

3.1 A TEII-__ fiberglass hood will be supplied to cover the blower motor unit and to help reduce the noise level created by the air system. The fiberglass hood shall be constructed as a two piece unit which will open in the center and referred to as a clam shell type.

3.2 The fiberglass hood shall be lined with an acoustical curtain liner, attached to the hood, which will act as both noise absorbers for the dissipate noise and noise damping for the radiated noise. The noise block inside the hood shall be a barrier block to the direct path of the noise by reflecting it away from the side walls of the hood within the hood. The pattern formed on the foam/embossed barrier shall increase the effectiveness of its absorption of the noise.

3.3 All piping and valving shall be provided constructed of a minimum of schedule 40 steel pipe painted . The painting of this piping and valving to be as defined in the painting section below.

4.0 PAINTING AND CORROSION CONTROL

- 4.1 All metal surfaces to be painted shall be properly prepared in a workmanship like manner to obtain a smooth, clean, and dry surface. All rust, metal fragments, dust, weld slag, and mill scale as well as extraneous matter, shall be removed by means of cleaning by wire brushing or whatever means necessary.
- 4.2 All metal surfaces shall be painted with Sherwin-Williams gray enamel paint. All areas painted will receive two coats of paint.
- 4.3 All steel piping and valving shall be painted with Sherwin-Williams gray paint. All of this surfaces shall receive two coats of this paint.

5.0 FOUNDATION

- 5.0 A poured foundation pad shall be constructed conforming to the project specification for level and flatness as specified by the manufacture on the foundation pad drawings. Anchoring holes shall be provided in the legs of the blower base so the field contractor can attach the anchors mounted in the pad to these plate holes.

EQUIPMENT SECTION

6.0 INLET CONNECTION

- 6.1 The inlet connection of the air system is self contained. It consist of a canister air filter silencer, and the inter-connecting piping to the blower inlet. The blower inlet shall be ___ inch diameter of the treaded type. The inlet shall be located on the top of the blower unit with the discharge located on the bottom.

7.0 INLET CANISTER AIR FILTER SILENCER

- 7.0 The inlet canister air filter silencer shall be supplied at the air intake of the air system. The air system inlet air filter shall be of the cartridge paper type air filter combined as filter silencer. The inlet filter shall be of the Universal Silencer Company Model CCS-___ Series filter silencers as manufactured by Universal Silencer Company.

8.0 OUTLET MUFFLER

- 8.0 The outlet air muffler shall be supplied at the discharge of the air blower. The air system outlet muffler shall be of the chamber type design. It shall be of a heavy-duty, all welded unit constructed of carbon steel sheet and plate. It shall provide pulse control and silencing. The outlet muffler shall be manufactured by Universal Silencer, Inc. and shall be a Model URBV-___, ___ inch discharge

9.0 BLOWER

- 9.0 For supplying the air requirement of the air system a Model URAI-__ blower shall be furnished and installed by the field contractor at the location shown on the project drawings. The blower shall have the capacity of ___ SCFM at ___ psi operating pressure.
- 9.1 The blower shall be of the positive displacement type and shall be manufactured by Roots division of Dresser Industries, Inc., Connorsville, Indiana: or approved equal.
- 9.2 The blower shall be equipped with two figure eight impellers rotating in opposite directions. As the impeller lobes pass the blower inlet, they trap a quantity of air equal to exactly one-fourth the displacement of the blower. This entrapment occurs four times per revolution, moving the entrained air around the case to the blower outlet. The timing gears shall accurately position the impellers in relation to each other, maintaining the minute clearances so vital to the high volumetric efficiency of the rotary positive displacement blower.

10.0 BLOWER BASE

- 10.1 The blower shall be mounted on a steel base. The steel base shall be designed to support the complete blower and motor unit assembly. Bolt holes shall be provided at the base of each leg assembly for attaching the steel base to the anchor bolts in the foundation pad.
- 10.2 The blower base shall be mounted on vibration pad dampers. This will help reduce blower vibration and noise transmission.

11.0 BLOWER MOTOR

- 11.1 The blower motor shall be rated as follows:
- A) ODP/TEFC
 - B) Temperature rise B
 - C) Service factor 1.15
 - D) Rated for 60 degree centigrade ambient temperature
 - E) ___ Hp, ___ volt, ___ ph, 60 hz
- 11.2 The blower shall be connected to the motor by means of a "V" belt drive unit. The "V" belt drive unit shall be designed for easy adjustment. The "V" belt drive will enable speed adjustment of the blower unit in those applications where the air flow rate has to be adjusted. The motor will be furnished with an adjustable motor mounting base
- 11.3 The motor shall be designed to operate on a power supply of ___ volt, ___ phase, 60 Hz.

12.0 ACCESSORY PARTS

- 12.1 The following accessory parts shall be supplied by the manufacturer of the package air system as accessory parts, and shipped loose, for the operation of the system:
- A) Pressure Relief Valve Model PRV- _____
 - B) One pressure gauge Model G-1
 - C) Check Valve Model _____ inch Tech-no-check

13.0 OUTLET CONNECTION

- 13.1 The outlet connection of the package air system shall be _____ inch threaded type and shall be located as shown on the drawings.

14.0 FIELD ASSEMBLY

- 14.1 The shipment of the package air system shall be by the best means available for the project site involved. The equipment necessary to unload the system and set it on the foundation pad shall be furnished by the field contractor.
- 14.2 The air system shall be completely assembled unit and are shipped as a complete unit where shipping limitations permits. Portions of the equipment may have to be removed to meet the shipping limitations. The reassemble and installation shall be by the field contractor.