Contents

DAT Specification

SYSTEM:

PREPARED FOR:

JOB NAME:

DATE:

SCOPE

The Air Turnover unit shall be Model DAT _____ and supplied by Temprite Industries.

The unit shall be factory fabricated, assembled, wired and tested prior to shipment in accordance with the specification and equipment schedule.

The unit will include all components herein and as shown on the drawings. Alternate equipment, equal in design, construction, performance and capacity to unit(s) specified, must be shown with price deduct/add, if any. Approval of alternate equipment will be subject to review of shop drawings.

The unit shall be ETL /CGA approved and capable of following performance:

Airflow Rate:	_____	Scfm (Acfm)
Base Dimensions, L x W	_____	Inches
Minimum Height, H	_____	Inches
Main Fan Motor Size:	Qty. ____ – ____	Hp
Induced Draft Fan Motor Size:	_____	Hp
Heat Output:	_____	Btuh
Heat Input:	_____	Btuh

CASING

The unit casing shall be constructed from 16 gauge galvanized steel formed into 2″ deep ‘C’ panels with a maximum width of 24″. Panels shall be fastened with zinc plated 1/4″ bolts and nuts on 6″ centers (sheetmetal screws and pop rivets are not acceptable) and be removable for servicing. Each section will have a 10 gauge formed structural base bolted together with 3/8″ bolts and nuts.

Units with structural steel frames must be cleaned, primed and finished with two coats of enamel paint on all mild steel surfaces prior to assembly of the casing. Panels must be removable and cannot be welded to the structural frame.

When split for shipment, the unit splits will be framed with 10 gauge formed channel with drilled notch holes at 6″ centers. Zinc plated 3/8″ bolts and nuts will be supplied for field assembly.

The entire unit shall be brushed or scraped to remove any dirt, dust or other foreign substances. The unit will be primed with a vinyl wash and finish coated with a heat resistant alkyd enamel.

Hinged access doors with zinc plated piano type hinges shall be supplied to allow physical entry to all sections requiring inspection and periodic maintenance. Access doors shall be complete with handles.

PROPELLER FAN SECTION

Propeller fans shall be AMCA rated for both air and sound performance. Each fan shall have a minimum of five fabricated steel blades. Propellers shall be securely attached to fan shafts, and statically and dynamically balanced at the factory.

Ground and polished steel fan shafts shall be mounted in permanently lubricated, sealed ball bearing pillow blocks. Bearings shall be selected for a minimum (L10) life in excess of 100,000 hours at maximum cataloged operating speeds. Drives shall be sized for a minimum of 150% of driven horsepower. Pulleys shall be of the fully machined cast iron type, keyed and securely attached to wheel and motor shafts. Motor sheaves shall be adjustable for system balancing.

Drive frame and panel assemblies shall be galvanized steel or painted steel. Drive frames shall be formed channels and fan panels shall have pre-punched mounting holes, formed flanges, and a deep formed inlet venturi.

FORWARD CURVED FAN SECTION

The fan section shall be upstream of the heat exchanger to ensure constant air volume at the specified discharge temperature. The fan(s) shall be centrifugal AMCA rated forward curved statically and dynamically balanced. The fan(s) shall be double width, double inlet with motor and drives in the air stream.

The fan is to be mounted on a heavy duty, turned and ground solid steel shaft designed with its maximum operating speed not exceeding 75% of its first critical speed. The bearings are to be of the pre-lubricated, self aligning type. Drives have a capacity 25% greater than the motor horsepower and have a minimum of two belts. Up to 7.5 HP, the motor sheaves shall be of the adjustable pitch type.

MOTORS

Motors shall be rated for fan duty, {ODP} {TEFC}, T-frame and _____ volt, _____ cycle, _____ phase. The fan motor shall be mounted on an adjustable base and wired in flexible conduit to the control panel.

The fan wheel, shaft, drives, and motor assembly shall be electrically balanced as a complete assembly in the factory.

INDIRECT GAS FIRED SECTION

The heat exchanger shall be rated at a minimum 80% efficiency at rated output. The flue gas travel shall be of four-pass design, with no internal baffles. The primary heat transfer surface and header shall be of 409 stainless steel; the secondary heat transfer surface shall be steel boiler tube (Option – 409 stainless steel). The heat exchanger design shall permit unrestricted lateral and peripheral expansion during the heating and cooling cycle. The surface temperature of the heat exchanger shall not exceed 75% of its scaling temperature when operating at rated capacity. A pressure relief door complete with an observation window to view the complete flame and pilot shall be provided.

An integrally mounted, heavy duty, radial blade induced draft fan c/w motor shall be provided. The induced draft fan shall be equipped with a manual damper complete with locking quadrant to ensure proper draft, rated efficiency and extended heat exchanger performance.

GAS BURNER

The burner shall fire natural gas (Option – propane) and be arranged for high/low operation (Option – full modulation with low fire start and a 4 to 1 turndown ratio). The factory wired and piped valve train shall be mounted on the unit and be complete with:

- an (low pressure) appliance regulator
- automatic main gas shut-off valve
- main manual test firing shut-off valve
- pilot manual shut-off valve
- pilot pressure regulator
- pilot automatic shut-off valve
- pilot manual test firing shut-off valve

LIGHT OIL BURNER

The burner shall be No. 2 fuel oil with a maximum viscosity of 40 SSU at 100°F and be arranged for high/low operation (on/off firing below 5 GPH). The oil burner shall be of the high pressure atomizing type with integral combustion air blower and motor, air diffuser ring, two-stage fuel pump and combustion air damper. The removable drawer assembly shall contain oil nozzles and ignition electrodes. An electronic programming relay with the photocell shall be used for flame supervision. The factory piped and wired valve train shall be mounted on the unit and come complete with:

- oil filter
- shut-off valve
- oil shut-off and pressure reducing valve
- heat dissipating coil
- solenoid valve(s)

ELECTRICAL CONTROLS

An NEMA 1 control panel complete with hinged access door shall be mounted on the unit and wired. All control components are to be labeled and individually wired to a numbered terminal strip to aid in servicing. All wiring shall be color coded and number tagged at each end to match the control diagram supplied. Full operating and maintenance instructions shall accompany each unit. All wiring between the controls and valves shall be run in flexible conduit. The control system shall include but not be limited to the following components required for automatic operation:

- main disconnect switch
- control circuit transformer
- fan motor starters, overloads and subcircuit fuses
- control circuit fuses
- control relays
- electronic flame relay complete with alarm contacts
- induced draft fan air proving differential switch
- high limit switch
- automatic/manual fan switch
- heavy duty ignition transformer

FILTERS FOR FORWARD CURVED FAN UNITS

Air filters shall be 2″ medium efficiency, pleated, disposable type. Filter media shall be of the non-woven cotton fabric and have an average efficiency of 25 - 30% on Ashrae Test Standard 52-76. Filters shall have a rated air velocity of 500 FPM and a final resistance of 0.9″ w.g. Filters shall be rated Class 2 by Underwriter's Laboratories and each product shall bear the U.L. label indicating class and issue number. Face velocity shall not exceed those shown on the schedule.

FILTERS FOR PROPELLER FAN UNITS

Air filters shall be 1″ washable media mounted in galvanized steel frames. Face velocity shall not exceed those shown on the schedule.

DAMPERS

The unit will be complete with a motorized damper(s) with a 16 gauge galvanized steel frame. Blades shall be rolled formed, triple V-groove 16 gauge galvanized steel, maximum 6″ wide. Axles shall be 1/2″ plated steel hex. Bearings shall be oilite bronze and linkage outside of the air stream. Blade edge seals shall be extruded dual vinyl. The damper and damper motor shall be mounted on the unit casing.

START UP

Start up to be performed by a factory trained technician and to include testing the controls and ensuring the proper operation of all the unit functions. Any wiring or piping connections required due to the unit being split in sections (including remote panels) is the responsibility of the installing contractor. Start up will not include air balancing.