Plasticair

BVS (PERCHLORIC ACID EXHAUST SYSTEM)

SPECIFICATIONS

1 GENERAL

1.1 WORK INCLUDED

a) Provide one (1) factory fabricated FRP induced venturi bypass perchloric acid fume exhaust system c/w 316 stainless steel ducting and wash system.

1.2 RELATED WORK

a) All sections, drawings plans and contract documents

1.3 REFERENCES

a) AMCA – 99 Standards Handbook.
b) AMCA 210 – Laboratory Methods of Testing Fans for Rating Purposes
c) AMCA 211 – Certified Ratings Procedure – Air Performance
d) AMCA 300 – Test Code for Sound Rating Air Moving Devices
e) AMCA 311 – Certified Sound Ratings Program for Air Moving Devices
f) AFMBA – Method of Evaluating Load Ratings of Bearings (SA-B3.1.1)
g) AMCA 204 – Balance Quality and Vibration Levels for Fans

h) NFPA 45
i) CRC Handbook of Laboratory, ACGIH
j) Industrial Ventilation, ACGIH
k) ANSI Z9.5, American National Standard, Laboratory Ventilation

1.4 QUALITY ASSURANCE

a) Performance Ratings: Conform to AMCA 211 and AMCA 311
b) Classification for Spark Resistant Construction. Conform to AMCA 99
c) Each fan shall be tested before shipping. Motors to be tested for amperage drawn and bearings to be within acceptable vibration limits.

1.5 SUBMITTALS

a) Submit product data on each BVS System such as fan curves, drawings, product catalog, and proof that the Vendor has been engaged in the Manufacturing of Perchloric Venturi Bypass Systems for a minimum of 5 years.

Acceptable Manufacturers: Plasticair Inc.

2 EQUIPMENT

2.1 GENERAL

a) Base Fan performance at standard conditions (density 0.075 lb/ft3)
b) Fans selected shall be capable of accommodating static pressure and air flow of scheduled values.
c) Each fan shall be driven in arrangement #10 according to drawings.
d) Alternate or equal bidders must not exceed BHP values listed on the fan schedule. Bidders requiring higher horse power will be rejected for wasting energy.
e) Alternate or equal bidders must not exceed sound level values listed on the fan schedule. Bidders with higher sound levels will be rejected.
f) Standard of acceptable material: Plasticair Inc.

2.2 VENTURI STACK

a) The By-pass Venturi Exhaust System is to be designed and constructed so that perchloric acid can be exhausted safely and in accordance with all local and federal building codes regarding perchloric acid ducting systems.
b) The only acceptable materials of construction exposed to the perchloric acid gas stream will be FRP, 316 ss or PVC.
c) Construction shall be smooth and without crevices.
d) Construction for entire assembly located outdoors to be FRP double wall, insulated, and piping complete with heat tracing cables.
e) Construction for the entire assembly indoors is to be single wall construction and materials as shown on plans.
f) Standard of acceptable material: Plasticair Inc.

2.3 FRP CONSTRUCTION

a) Parts are to be designed and constructed to resist vibration and corrosion attack.
b) The material of construction is to be vinyl ester resin (premium quality Derakane 510-C with a flame spread rating of 0-25) and reinforcing glass throughout.
c) The method of construction is to be hand lay-up.

d) The entire surface exposed to the corrosive gas stream will be complete with a resin-rich corrosion barrier consisting of C-veil and a smooth finish minimum of 90 mils thickness.
e) The exterior surface of the FRP will be a heavy UV stabilised gel coat finish.

2.4 Venturi Duct

a) The material of fabrication for the venturi duct is to be FRP.
b) PVC spray headers are situated to guarantee a wet inner surface throughout the by-pass system.
c) A rigid 90 degree FRP duct extension is fabricated into the inner duct just below the venturi section to accept the inducing draft from the steel blower.

2.5 Blower

a) The industrial blower is to be constructed of solid FRP.
b) The impeller shall not be pigmented in order to detect imperfections.
c) Fan stand to be constructed of welded and formed steel and coated with 4-5 mils of epoxy
d) Fan shall be arrangement #10 or #4 (per schedule) c/w belts, guards, vibration isolators, TEFC motor.
e) Outlet manual locking quadrant control damper.
f) Fan inlet shall be fitted with a 304 stainless steel bird screen.
g) Roof intake hood coated with 4-5 mils of epoxy and supplied with a bird screen and roof curb cap.
h) The fan shall bear the AMCA Air Performance Seal

2.6 Flushing wash rings

a) For FRP duct PVC spray nozzles will be fabricated directly into the system.
b) For 316 stainless steel duct, 316 stainless steel nozzles will be fabricated directly into the system.
c) Nozzles will be implemented as shown on drawings

2.7 Wash System Control Panel

a) A control panel is to be supplied by the fan manufacturer. Wash sequencing is to be controlled so that flooding does not occur.
b) Control panel will be PLC based and supplied in a NEMA 1 enclosure and will have a CSA Field sticker attached to the entire assembly.
c) The fan manufacturer is to provide a quantity of solenoids as described in the contract documents.
d) Control panel will be supplied loose for contractor field wiring. All local electrical codes must be adhered too.
e) Standard of acceptable manufacture: Plasticair Inc.

3 WARRANTY

a) The supplier shall warrant that all system components shall be free from defects in materials and workmanship for a period of 15 months from date shipped or 12 months from equipment start up, whichever occurs first. Extended warranty on induction stack shall be honored to 25 years from date of purchase.