

# EST™ Type DES 3000

## One-Ton Dry Emergency Chlorine Gas Scrubber System

The EST™ Type DES 3000 is a one-ton dry emergency scrubber system engineered to treat accidental gas releases of chlorine from an over-filled portable tank in accordance with Uniform Fire Code worst-case release of hazardous gas through a fusible plug. Dry scrubbers are safe, user-friendly, low maintenance systems tested and proven for use in municipal and industrial applications where the potential exists for the accidental release of heavier-than-air hazardous gases.

The EST Type DES 3000 has a room exhaust rate of 3000 cubic feet per minute (CFM). The gaseous plug leak from a one-ton portable chlorine container could reach an initial 2380 CFM peak rate. The 3000 CFM scrubber exhaust rate assures a negative pressure on the room resulting in fugitive gas containment. A typical 10,000 cubic foot room will be reduced to an acceptable entrance level concentration in about 45 minutes after the leak has ended. The Type "STS" media is used when chlorine is the lone gas present.

The Type DES 3000 contaminant system consists of a fan and a vertical cylindrical FRP vessel containing a bed of chemically impregnated 1/8" diameter dry pellet Type "STS" media. The only moving part, the fan, produces a vacuum on the containment room and draws the gas-laden air from top to bottom through the media bed and out to atmosphere.

The media reacts with the gas and reduces the concentration at the scrubber discharge to within the guidelines as set forth by the prevailing codes. The new media is non-hazardous since the media substrate permanently bonds with the chemical impregnate. The used media is also non-hazardous since the media substrate permanently bonds with the unused chemical and the reaction process. In addition, dry chlorine scrubbers do not require liquid chemical leak containment or double wall vessel construction and operate at sub-zero temperatures without the use of heaters.

### Available upon request:

- CAD drawings
- Sample specifications
- Media MSDS sheets
- Performance test code certifications
- On-site room audits
- Custom designs



### Features and Benefits:

- No chemical maintenance
- New and used media is non-hazardous
- One moving part - blower
- No chemical pumps
- Chemical leak containment is not required
- No heaters required in cold climates
- Safe
- User-friendly
- Dependable operation
- Tested and certified
- Low cost of ownership



# EST™ Model DES3000-1F-STS-1 Ton, 3000 CFM Dry Chlorine Gas Scrubber System Scope Specification

## Media Reaction Tank Assembly, Dry-Type 942

- 96-inch diameter tank X 18 Ft. tall.
- FRP construction (Hetrion 922, DION 9200, or Derakane 411 premium vinyl ester resin corrosion barrier including Nexus Veil and an exterior layer with an MEKP cure, white opaque clear top coat with pigmented UV inhibitor)
- (2) two, 24-inch media access ports
- (5) five, side-mounted, 1-1/2-inch media sample ports
- Side-mounted drain, 1-1/2-inch
- (6) six, hold-down lugs
- 18-8 stainless steel flange hardware
- 18-inch circular flange gas inlet connection
- 18-inch circular flange gas outlet connection
- 27,000 pounds, Type “STS” chemically impregnated activated alumina media
- Differential pressure gauge w/ tubing, 0-25” W.C.
- Gross Weight - 36,000 LBS

## Exhaust Blower

- FRP construction
- New York Blower model FE 18
- 20 hp, 1822 rpm, TEFC, high efficiency motor
- Flex connector from scrubber outlet to blower inlet
- Weight - 675 LBS

## Exhaust Stack

- “No Loss” design
- FRP construction, flanged
- Weight - 450 LBS

## Control Panel

- FRP, NEMA 4X
- Main power disconnect w/transformer
- Relay controls
- Fan motor starter
- Operator selector switches/indicating lights, emergency stop
- Alarm/status contacts:
  - o Scrubber running
  - o Blower fault/system alarm
- Power requirements:
  - o 480 Vac, 3 phase, 60 Hz, 40 amps
- Weight - 85 LBS

## Performance Characteristics

The EST™ Type DES3000-1F-STS-1T Dry Emergency Scrubber is designed to handle an accidental leak of chlorine from a fusible plug in an overfilled one-ton portable chlorine container. The chlorine-laden gas will be drawn at the top of the tank, pass through the Type STS dry media where the chlorine will be adsorbed/absorbed by the media bed. The system will provide a 1-1/2” W.C. draft which will be available for duct losses. Removal of chlorine will be better than that required by the US Uniform Fire Code of 5 ppm maximum at the point of discharge. The scrubber will be able to neutralize the entire contents of an overfilled one-ton chlorine container meeting the latest requirements of the NFPA 1/UFC.

The chlorine leak from the fusible plug can reach a maximum rate of 2380 SCFM. The system has been designed for a capacity of 3000 CFM. This assures a negative pressure in the room for clean air flushing. The time to pull down the gas volume of the room to 1 ppm after the cessation of the chlorine release is approximately 45 minutes per 10,000 cubic feet of room volume.

Severn Trent Water Purification, Inc. has performed a certified test of the emergency gas scrubber system with a chlorine release while meeting the allowable NFPA 1/UFC chlorine discharge concentration limit. STWP guarantees that the proposed scrubber will meet the NFPA 1/UFC allowable discharge chlorine limit.

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575.0303.0 03/07