Digester Gas Safety Equipment
Waste Gas Burners/Flares • Anaerobic Digester Cover Equipment • Digester Gas Stream Equipment

Serving Municipal Sewage Treatment Plants, Landfills, Breweries, Dairies and Food-Processing Plants

BIOGAS
SHAND & JURS
an L&J Technologies company
Typical Digester Cover Equipment System

A. 94020 Pressure & Vacuum Conservation Vent with 94306/94309 Flame Arrester and 97190 3-Way Safety Selector Valve
B. 95021 Gauging Hatch
C. evo 2600 Radar Gauge
D. 94225 Emergency Vent & Manhole Cover (Pressure & Vacuum)
E. 95220 Clamping Manhole Cover
F. 97187 View Port Inspection Cover
G. 92021/92500 Cover Position Indicator with MCG 2000MAX Transmitter

This diagram is for general guidance only and does not represent a specific design.

Digester Cover Equipment

**S&J 94020**
Pressure/Vacuum Relief Vent
- Sizes 2", 3", 4", 6", 8", 10" and 12"
- Standard Aluminum or SS Materials
- Open or Closed Options Available
- Pallet Reaction Lip for Smooth Lift & Re-seating
- Vertical Lift Pallets Assure Reliable Operation and Maximum Flow
- Innovative "Expand-a-SEAL™"
- Optional: CE & ATEX Approved, "All Weather," Proximity Switch

**S&J 94306/94406**
Vertical Flame Arrester
- Sizes 2", 3", 4", 6", 8", 10" and 12"
- Standard Aluminum or SS Materials
- Serves as a Barrier Between External Flame and Internal Vapors
- Protects Digesters Containing Flammable Gases
- Easy Inspection and Maintenance due to Simple Removal of Tube Bank
- FM Approved
- ATEX / ISO 16852 Approved

**S&J 94309**
Flame Arrester (Plate Element)
- Sizes 2", 3", 4", 6", 8", 10" and 12"
- Standard Aluminum or SS Materials
- Easy to Access Element/Frame
- Inspect in Place
- Vertical or Horizontal Configuration
- FM Approval Available
See safety note (ii)

**S&J 94407**
Horizontal Flame Arrester
- Sizes 2", 3", 4", 6", 8", 10" and 12"
- Standard Aluminum or SS Materials
- Inhibits Flame Propagation in Gas Piping Systems
- Protects Digesters Containing Flammable Gases
- Offset Design Prevents Condensate from Accumulating
- Easy Inspection & Maintenance due to Simple Removal of Tube Bank
- Standard Sensor Ports
- Temperature monitor device to be installed on unprotected side of Tube Bank
* ATEX / ISO 16852 Approved

**S&J 97190**
3-Way Safety Selector Valve
- Sizes 2", 3", 4", 6", 8" and 10"
- Permits Switchover Function
- High Flow Capacity with Minimal Pressure Drop
- Positive Shut-off of Isolated Branch
- Low Torque Operation During Switchover
- Provided with Red Position Indicator and Lockout Position

**S&J 97570/97571**
Combination Conservation Vent and Flame Arrester
- Sizes 2", 3", 4", 6", 8", 10" and 12"
- Standard Aluminum or SS Materials
- Serves as a Barrier Between External Flame and Internal Gases
- Provides Protection Against Flame Propagation
- Open or Closed Vent Configurations
- Available with 94309 Flame Arrester (97571)
**Digester Cover Equipment**

**S&J 92021/92500**  
Cover Position Indicator  
- Standard Aluminum Materials, Other Materials Available  
- Gauges for Floating or Spirally Guided Covers  
- Optional: Switches for Alarm and Transmitter for Remote Monitoring

**S&J 94210**  
Emergency Vent & Manhole Cover  
- 10", 16", 20", 24", 30", & 36" Base  
- Materials of Construction Include Aluminum, Steel & 316SS  
- Designed for Emergency Pressure Relief  
- Designed to Fit ANSI/API Flange (Other Flanges Available)  
- Easy Installation and Handling for Inspection  
- Optional: Limit Switches

**MCG 2000MAX Transmitter**  
- Magnetic Absolute Xmitter  
- Digital or 4-20 mA Output  
- Coupled to Most Mechanical Gauges  
- Easy Maintenance & Calibration  
- Lightning and Surge Protection  
- Not Affected by Power Loss  
- Optional: Wireless / Battery Powered

**S&J 94225**  
Emergency Pressure & Vacuum Vent/Manhole Cover  
- Sizes 16", 18", 20", 24" ANSI/API  
- Materials of Construction Include Aluminum, Steel and 316SS  
- Design Incorporates Pressure and Adjustable Vacuum Relief  
- Hinged Cover Provides Precise Sealing and Safety  
- No Unbolting of Vent for Seal Replacement or Tank Examination

**S&J 95021**  
Gauge Hatch  
- Sizes 4", 6", 8", 10" and 12"  
- Standard Aluminum, Steel, 316SS and Bronze  
- Easy Access  
- Teflon Diaphragm Ensures Safe Tight Seal  
- “Quik-Clamp” Option Allows for Hands-Free Operation

**S&J 95210**  
Clamping Manhole Cover  
- Materials of Construction Include Aluminum, Steel and 316SS  
- Steel, Stainless Steel, Brass or Bronze Clamps  
- Easy Access to Tanks for Maintenance and Inspection  
- Threaded Clamping Handle Provides Gas-Tight & Watertight Seal

**S&J 95220**  
Clamping Manhole Cover  
- 42", 48", 54" and 60" ANSI Sizes  
- Easy Access to Digester for Maintenance and Inspection  
- Lightweight Dome  
- Gas-Tight and Watertight Seal  
- Self-Locking Pedal  
- Maximum Working Pressure of 1 PSIG  
- Materials of Construction Include Aluminum, Base & Cover with Brass, Bronze or Stainless Steel Clamps  
- Optional: API, DIN and Other Connection Types

**S&J 97187**  
View Port Inspection Cover  
- Sizes 8", 10", 12", 16", 20" & 24" ANSI API, Puddle Flange Connection  
- Easy Viewing of Vessel Contents  
- Gas Tight  
- Light Weight, Hinged Cover for Glass Protection  
- Stainless Steel, Aluminum, or Carbon Steel Construction  
- Maximum Working Pressure 1 PSIG  
- Optional: Illumination and Sprayer

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**Expanda-Seal™**  
To reduce emissions, Shand & Jurs designed and patented a high performance valve sealing technology called Expanda-Seal™, which has reduced emissions and odors in every process environment imaginable. Expanda-Seal™ ensures less than 0.5 SCFH air at 95% of the set point. This innovative design actually uses the internal vessel pressure to create a tighter seal the closer the pressure gets to the set point. The end result is a tight seal that greatly helps reduce emissions.
Digester Gas Stream Equipment

Typical Digester to Boiler Gas System

A. 97180 Foam Separator
B. 97120 Sediment Trap
C. 97100 Manual Drip Trap
D. 97400 Well-Type Manometer
E. 97127 Gas Purifier
F. 97177 Double Port Pressure Regulator or 97150
G. 97220 Check Valve
H. 97140 Flame Trap Assembly
I. 97100E Electric Actuated Drip Trap

This diagram is for general guidance only and does not represent a specific design.

Digester Gas Stream Equipment

S&J 97120 Sediment Trap
- Inlet Sizes 2", 3", 4", 6", 8", 10", 12", 14" & 16"
- Steel and Stainless Steel Materials
- Removes Sediment and Condensate
- Large Capacity
- Easy Cleanout
- Low Pressure Drop Design
- Optional: Sight Glass & Cooling Coil

S&J 97125 Condensate Accumulator
- 13 or 125 Gallon Capacities
- Efficiently Stores and Evacuates Condensate Through Internal Drip Leg
- Large Storage Capacity
- Optional: Alarm Switches, Sight Glass and Solenoid

S&J 97127 Gas Purifier
- Efficient Removal of H₂S
- Designed for Low Pressure Biogas Applications
- Handles Finite Range of Operating Conditions
- 8" and 12" Diameters
- Fiberglass Tank Provides Optimum Corrosion Protection
- Manual or Continuous Regeneration Configuration

S&J 97140/97141 Flame Trap Assembly
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- Aluminum and 316SS
- Positive Emergency Shutoff
- Inhibits Flame Propagation
- 255°F Fusible Link
- Horizontal or Vertical Mounting
- Optional: Proximity Switch
- Combines 97130 Thermal Valve w/ 94407 or 94309 Flame Arrester
  See safety note (i)
### Digester Gas Stream Equipment

**S&J 97177 Double Port Pressure Regulator**
- Sizes 2", 3", 4", 6", & 8"
- Upstream or Downstream Control
- Balanced Double Port/Plug Design
- Large Diaphragm for Increased Sensitivity
- Externally Adjustable Set Point with Visual Indicator
- Fewer Moving Parts for Longer Service Life
- No External Power Source Required

**S&J 97180 Foam Separator**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- Continuous Wash Spray System
- Removes Foam and Particles
- Large Reservoir with Baffle
- Steel, 304 SS, 316/316L SS Construction
- Optional: Visual Drain Flow Indicator, Water Solenoid Valves, and Alarms for High and Low Water Level

**S&J 97220 Back Pressure Check Valve**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- Eliminates Reverse Flow
- Replaceable Pallet/Seat
- Maximum Flow with Minimum Pressure Drop
- Flanged or Threaded Connections

**S&J 97400 Well-Type Manometer**
- Sizes 12", 20", 24" or 30"
- Aluminum or SS Materials
- Pressure or Vacuum Measurement
- Measures Differential or Point Pressure Readings
- Indoor or Outdoor Use
- Easily Bank Mounted
- Optional: Float Check Valve, Vented Petcock and Isolation Valve
- Optional Mounting Panel

### Digester Gas Stream Equipment - Drip Traps & Panels

**S&J 97100 - Manual Drip Trap**
- Positive Gas Shut-off While Draining
- Operated Manually
- 5 PSI or 25 PSI
- 3 or 6 Quart Capacities
- Internal Parts and Hardware Stainless Steel - Standard
- Optional: Air inlet and Insulation Jackets

**S&J 97100E - Electric Actuated Drip Trap**
- Positive Gas Shut-off While Draining
- Automatic Operation with an Electronic Timer
- 5 PSI or 25 PSI
- 3 or 6 Quart Capacities
- Optional: Air Inlet, Insulation Jackets and Local Control Panel

**S&J 97101 - High Pressure Manual Drip Trap**
- Positive Gas Shut-off While Draining
- 100 PSIG Standard
- 4 Quart or 6 Quart Capacity
- Locking Lever
- Double Seal Ball Plug Valves
- Carbon Steel or Stainless Steel Construction

**S&J 97110 - Automatic Drip Trap**
- Positive Gas Shut-off While Draining
- Automatic Unattended Removal of Condensate
- 5 PSI or 25 PSI
- 2 Quart or 4 Quart Capacity
- Float Operated
- Inlet Size 1"
S&J 97101E - Electric Actuated Drip Trap
- Carbon Steel or Stainless Steel Construction
- 4 Quart or 6 Quart Capacity
- Positive Gas Shut-Off While Draining
- Double-Seal Ball Plug Valves
- 100 PSIG Standard
- Programmable Timer (Internal or in LCP)
- Optional Local Control Panel (LCP): NEMA 4X Fiberglass, NEMA 4X 304/316 Stainless Steel, or NEMA 7 Aluminum

S&J 97100P/97101P - Local Control Panel
The 97100P/97101P Local Control Panel can control up to 8-97100E/97101E units maximum. Selectors include Auto/Local Mode and Local Fill/Drain. Indicators show when the drip trap is filling or draining. Optional fail indicator and status / fail dry contacts. The Local Control Panel is available for manual control only or with automatic timers. Typical enclosures are Nema 4X Fiberglass, 304 Stainless Steel, 316 Stainless Steel or Nema 7 Aluminum.

Insulation Jackets
Shand & Jurs insulation jackets provide heat retention for equipment in cold weather environments. Construction of the insulating jacket is silicone impregnated woven glass cloth lining with 1” thick fiber glass material. The jacket is easy to install and remove in the field. Insulation jackets are available for most equipment.

Waste Gas Flares & Burners - Accessories

Typical Waste Gas Burner Diagram
This diagram is for general guidance only and does not represent a specific design.

A. 97400 Well-Type Manometer
B. 97160 Pressure Relief and Flame Trap Assembly
C. 97100E Electric Actuated Drip Trap
D. 97100 Manual Drip Trap
E. 97200 Flame Check
F. 97301 Waste Gas Burner
G. 97301 Control Panel with Ground Level Pilot
Waste Gas Flares & Burners - Accessories

**S&J 97150 Single Port Regulator**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- Internal/External Sense Tap
- Large Diaphragm Operated/Spring Loaded for Sensitivity
- Maintain Upstream Pressure
- Simplified Cleaning and Maintenance
- Optional: 3-Way Solenoid

**S&J 97160/97161 Pressure Relief/Flame Trap Assembly**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- Internal/External Sense Tap
- Positive Emergency Shut-off
- Maintain Upstream Pressure
- 255°F Fusible Link
- Optional: 3-Way Solenoid
- Combines 97150 Pressure Regulator with 94407 or 94309 Flame Arrester

**S&J 97300 Waste Gas Burner**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- High Performance Stoichiometric Pilot
- No Flame Front Burn-out of Pilot Gas During Ignition
- Burns High Flow, Low BTU “Wet” Methane
- No Venturi Maintenance
- State-of-the-Art Digital Control
- Fully Automated Continuous or Intermittent Pilot
- Provides Alarm Outputs

**S&J 97310 Enclosed Waste Gas Burner**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- No Visible Flame
- Controlled Combustion Environment with Natural Draft Design
- High Destruction Removal Efficiency
- High Turn Down Ratios
- Convenient Sampling Ports
- Operates with Low Input Pressures
- Advanced Automatic Ignition System

**S&J 97301 Waste Gas Burner**
- Sizes 2", 3", 4", 6", 8", 10" & 12"
- High Performance Stoichiometric Pilot
- Burns High Flow, Low BTU “Wet” Methane
- Stainless Steel Flame Area
- Superior Pilot Wind Protection
- Solid State Controls
- Fully Automated Continuous or Intermittent Pilot
- Ground Level Venturi Pilot Ignition
- Provides Alarm Outputs

**S&J 97311 Enclosed Waste Gas Burner**
- Sizes 3", 4", 6", 8", 10" & 12"
- No Visible Flame
- Controlled Combustion Environment with Natural Draft Design
- High Destruction Removal Efficiency
- High Turn Down Ratios
- Ground Level Inspiring Venturi Pilot/Ignition Lines
- Operates with Low Input Pressures
- Advanced Ground Level Automatic Ignition System

**S&J 973XXT Series Touch Screen Control Panel**
Designed with the system operator in mind, the new touch screen control panel offers easy, more precise control. The touch screen control panel is designed for complete automatic operation of the entire Flare System and can monitor the flare’s temperature, the pilot, spark, etc. S&J’s system gives the operator much more flexibility in controlling the system with more parameters easily configured via the touch screen. The Control Panel can also be connected to a local PLC.

Shand & Jurs Biogas' latest touch screen control panel option is now available as the 97300T, 97310T, 97310T and 97311T Burners and Flares.
L&J Technologies offers a complete line of products that provide solutions for hundreds of industrial and commercial applications. Visit us online at www.ljtechnologies.com

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Liquid Level Gauging with Temperature Inventory Management

Liquid Level Switches

Point/Multi-Point Level Controls & Continuous Level Sensors

Tank Vents, Flame and Detonation Arresters, Fittings & FRP Equipment

Digester Gas Equipment Waste Gas Burners

Mold Level & Strip Guiding Measurement & Control Systems for Metals/Steel Industries

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