

## 94221 Emergency Vent & Manhole Cover (Pressure & Vacuum)

The Shand & Jurs 94221 Emergency Vent and Manhole Cover provides emergency relief of excessive internal pressure and vacuum beyond that provided by tank conservation vent requirements.

This weight loaded vent utilizes Expanda-Seal diaphragms which provide tight seals between pallets and seats. Special diaphragm materials are available for vents subjected to severe low temperatures or used on tanks storing heated stock. Corrosion resistant pressure/vacuum seat is standard.

The 94221 is available in 20" and 24" sizes to fit a standard API or ANSI flange. Special Flanges are available including EN1092-1.

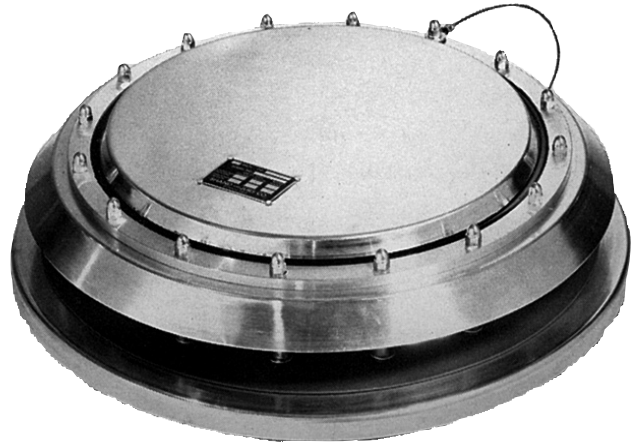
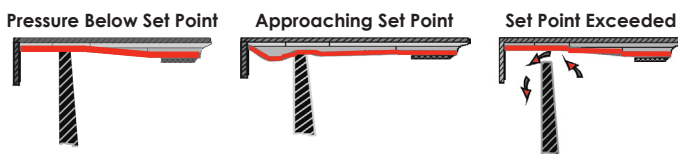
The pallet starts to lift when set pressure is approached. Flow efficiency rises rapidly to approximately 60% of a perfect orifice at 40% excess of the set pressure.

At a higher overpressure, the pallet completely clears the manhole and the efficiency approximates 75%. For a standard setting the capacity at 1.4 oz/in<sup>2</sup> (40% overpressure) is approximately 500,000 SCFH for the 20" size.

Pallet construction permits settings from 1.0 oz/in<sup>2</sup> for aluminum pallet & 1.3 oz/in<sup>2</sup> for S.S. pallet standard to 8 oz/in<sup>2</sup> maximum pressure. Vacuum settings are from 1.1 oz/in<sup>2</sup> standard to 4.0 oz/in<sup>2</sup> maximum. If specifying other than standard vacuum setting, it must be recognized that increased vacuum setting automatically increases the set point of pressure relief.

### Expanda-Seal

Shand & Jurs "Expanda-Seal" option is available on all pressure pallet assemblies. This feature significantly reduces leakage. The ballooning effect of the Teflon diaphragm effectively seals the valve.



### Features

- Design incorporates pressure and vacuum relief
- 20" and 24" roof manhole
- "Self-energizing" Expanda-Seal diaphragm assures a tight seal
- Reduced maintenance costs
- No unbolting of vent for gasket replacement or tank examination

## Specifications

### Type Vent:

Normal Service, Low Temperature Service and Low Base for Liquid Overflow

### Maximum Settings:

Pressure: 8 oz/in<sup>2</sup> (13.84" W.C.)  
Vacuum: 4.0 oz/in<sup>2</sup> (6.92" W.C.)

### Standard Settings:

Pressure: 1.0 oz/in<sup>2</sup> (1.73" W.C.) in Aluminum  
1.3 oz/in<sup>2</sup> (2.25" W.C.) in Stainless Steel  
Vacuum: 1.1 oz/in<sup>2</sup> (1.9" W.C.)

### Connection Size:

20" or 24" Flange

## Materials of Construction\*

### Base:

Normal Service or Low Base: Steel  
Low Temperature: Aluminum

### Pressure Seat:

Normal Service or Low Base: Stainless Steel  
Low Temperature: Aluminum

### Diaphragm Clamp Ring:

Normal Service or Low Base: Steel  
Low Temperature: Aluminum

### Vacuum Seat, Cover & Pallet:

Aluminum

### Pallet Guide & Pressure Pallet:

Aluminum

### Pressure & Vacuum Diaphragm:

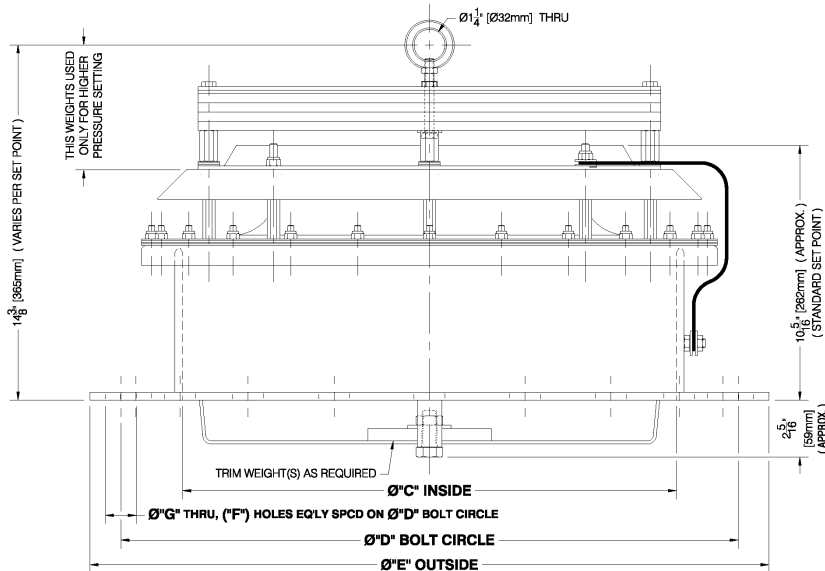
FEP Teflon

### Back-up Disk, Vacuum Diaphragm Gasket & Diaphragm Spacer:

N8090, Fiber/Nitrile

\*Optional: All Steel, Stainless Steel and Other Materials Available.

## Dimensions



| Vent Size | Connection Matching Size | "C" | "D"    | "E"    | "F" Holes | "G"   |
|-----------|--------------------------|-----|--------|--------|-----------|-------|
| 20"       | 20" ANSI 125/150 lb.     | 20  | 25     | 27 1/2 | 20        | 1 1/4 |
| 20"       | 24" ANSI 125/150 lb.     | 20  | 29 1/2 | 32     | 20        | 1 3/8 |
| 24"       | 24" ANSI 125/150 lb.     | 24  | 29 1/2 | 32     | 20        | 1 3/8 |
| 20"       | 20" API Roof Manhole     | 20  | 23 1/2 | 26     | 16        | 3/4   |
| 20"       | 24" API Roof Manhole     | 20  | 27 1/2 | 30     | 20        | 3/4   |
| 24"       | 24" API Roof Manhole     | 24  | 27 1/2 | 30     | 20        | 3/4   |

All designs subject to change. Certified dimensions and specifications available upon request.

## 94221 Ordering Guide

### Model Number Selection

The model number will consist of a base number **94221** followed by 6 digit numbers. These digits will represent 3 option tables.

**94221 - AB - CD - EF**

### Ordering Information

Specify:

1. Model 94221 Emergency Vent and Manhole Cover
2. Size Vent Required
3. Body Material & Style
4. Pressure Setting
5. Soft Goods
6. Pallet Material
7. CE for Ordinary EU Locations, specify Table C, Option 2 or 3
8. ATEX Certification for Group IIC, Group IIA, Specify Table C, Option 4 or 5



### Table AB-D - Base Size & Material / Pallet Material

| Option AB<br>API 650 | Option AB<br>ANSI FF | Size      | Material & Style              | Option D | Pallet Material     |
|----------------------|----------------------|-----------|-------------------------------|----------|---------------------|
| 01                   | 41                   | 20"       | Standard Base Steel           | 2        | Aluminum            |
| 01                   | 41                   | 20"       | Standard Base Steel           | 3        | 316 Stainless Steel |
| 02                   | 42                   | 20"       | Standard Base Aluminum        | 2        | Aluminum            |
| 02                   | 42                   | 20"       | Standard Base Aluminum        | 3        | 316 Stainless Steel |
| 03                   | 43                   | 20"       | Standard Base Stainless Steel | 2        | Aluminum            |
| 03                   | 43                   | 20"       | Standard Base Stainless Steel | 3        | 316 Stainless Steel |
| 05                   | 45                   | 20"       | Low Base Steel                | 2        | Aluminum            |
| 05                   | 45                   | 20"       | Low Base Steel                | 3        | 316 Stainless Steel |
| 06                   | 46                   | 20" X 24" | Standard Base Steel           | 2        | Aluminum            |
| 06                   | 46                   | 20" X 24" | Standard Base Steel           | 3        | 316 Stainless Steel |
| 07                   | 47                   | 20" X 24" | Standard Base Aluminum        | 2        | Aluminum            |
| 07                   | 47                   | 20" X 24" | Standard Base Aluminum        | 3        | 316 Stainless Steel |
| 08                   | 48                   | 20" X 24" | Standard Base Stainless Steel | 2        | Aluminum            |
| 08                   | 48                   | 20" X 24" | Standard Base Stainless Steel | 3        | 316 Stainless Steel |
| 10                   | 50                   | 20" X 24" | Low Base Steel                | 2        | Aluminum            |
| 10                   | 50                   | 20" X 24" | Low Base Steel                | 3        | 316 Stainless Steel |
| 21                   | 31                   | 24"       | Standard Base Steel           | 2        | Aluminum            |
| 21                   | 31                   | 24"       | Standard Base Steel           | 3        | 316 Stainless Steel |
| 22                   | 32                   | 24"       | Standard Base Aluminum        | 2        | Aluminum            |
| 22                   | 32                   | 24"       | Standard Base Aluminum        | 3        | 316 Stainless Steel |
| 23                   | 33                   | 24"       | Standard Base Stainless Steel | 2        | Aluminum            |
| 23                   | 33                   | 24"       | Standard Base Stainless Steel | 3        | 316 Stainless Steel |
| 24                   | 34                   | 24"       | Low Base Steel                | 2        | Aluminum            |
| 24                   | 34                   | 24"       | Low Base Steel                | 3        | 316 Stainless Steel |

**Table C - Soft Goods**

| Option C | Soft Goods                           |
|----------|--------------------------------------|
| 0        | FEP with N8090 Back Up Disc & Spacer |
| 1        | All FEP                              |
| 2        | CE with FEP / N8090                  |
| 3        | CE / All FEP                         |
| 4        | ATEX with FEP / N8090                |
| 5        | ATEX with All FEP                    |

**Table EF - Settings**

| Oz./In. <sup>2</sup> (Min.) | Option EF Lead | Option EF Stainless Steel |
|-----------------------------|----------------|---------------------------|
| Standard*                   | 01             | 21                        |
| 1.5                         | 02             | 22                        |
| 2                           | 03             | 23                        |
| 2.5                         | 04             | 24                        |
| 3                           | 05             | 25                        |
| 3.5                         | 06             | 26                        |
| 4                           | 07             | 27                        |
| 4.5                         | 08             | 28                        |
| 5                           | 09             | 29                        |
| 5.5                         | 10             | 30                        |
| 6                           | 11             | 31                        |
| 6.5                         | 12             | 32                        |
| 7                           | 13             | 33                        |
| 7.5                         | 14             | 34                        |
| 8                           | 15             | 35                        |

\* 1 oz/in<sup>2</sup> (Aluminum) 1.3 oz/in<sup>2</sup> (Stainless Steel)