Anderson Greenwood, Crosby & Varec Pressure Relief Valves
The premier option for pressure relief valves, providing advanced, reliable and efficient overpressure protection.
PRESSURE RELIEF VALVES
OVERVIEW

THE WORLD’S MOST
COMPREHENSIVE PRODUCT LINE,
WITH THE LARGEST AND MOST
SOPHISTICATED FACILITIES FOR
STEAM, AIR, GAS AND LIQUID.

GLOBAL PERFORMANCE
Emerson is an industry leader in
pressure relief valve technology. A
single point provider, we offer an
extensive product line for reliable
performance with lower valve
life-cycle costs. Our unmatched
engineering and technical expertise
provides you with the pressure
management products, application
solutions and services that will
positively impact your business.

TEST FACILITIES
Our Texas and Massachusetts
combined testing and development
facilities have been the catalyst in
continuing our 135 years of product
development and industry leadership.

The engineering teams of Anderson
Greenwood, Crosby and Varec have
designed testing equipment and
procedures that assure optimum
valve performance under all service
conditions. These facilities are used
for experimentation, testing and
emissions on relief devices. Our
Texas facility also features cryogenic
testing capabilities down to -320°F
[-196°C]. A recent upgrade to our
Texas facility included a 11,000
gallon liquid nitrogen storage tank,
high pressure gas vessels, full liquid
testing capabilities and a large test
laboratory. It has also been approved
by ASME as a test facility to conduct
certified flow testing.

CONTENTS
Direct Spring Pressure 4 - 6
Relief Valves
Safety Valves 7 - 8
High Pilot Operated 8 - 10
Pressure Relief Valves
Low Pilot Operated 11 - 12
Pressure Relief Valves
Tank Protection 12 - 15
Flame Arrestment 15 - 16
Blanketing Systems 17
Tank Accessories 17 - 18
Specialty Valves 18 - 19
Certifications 20
Nuclear Products 20
Sizing Software and 21
Service
Selection Matrix 22 - 23
ANDERSON GREENWOOD SERIES 60 PRESSURE RELIEF VALVE
Types 61 and 63B designed for low and medium set pressure gas, vapor and liquid or gas thermal relief applications. Brass construction.

TECHNICAL DATA
Sizes:
½” x 1” to ¾” x 1”
Orifices:
0.077 to 0.150 in² [0.497 to 0.968 cm²]
Connections:
NPT
Temperature Range:
-320 to 400°F [-196 to +205°C]
Set Pressures:
30 to 531 psig [2.07 to 36.6 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00544

ANDERSON GREENWOOD SERIES 80 PRESSURE RELIEF VALVE
Types 81, 83 and 86 soft seat design for premium seat tightness provides repeatable leak-tight performance before and after each relief cycle. Full lift design with external adjustable blowdown and replaceable soft seats and seals. Allows higher operating pressure. Gas, vapor and steam service.

TECHNICAL DATA
Sizes:
½” x ¾” to 2” x 3”
Orifices:
0.049 to 1.287 in² [0.316 to 8.303 cm²]
Connections:
NPT, Flanged
Temperature Range:
-423 to +550°F [-253 to +288°C]
Set Pressures:
20 to 10,000 psig [1.40 to 689.5 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00544

ANDERSON GREENWOOD SERIES 80 PRESSURE RELIEF VALVE (LIQUID)
Type 81P soft seat design for liquid service to ensure stability with no chatter. The trim is fully back pressure balanced without the use of a bellows. Replaceable soft seats and seals.

TECHNICAL DATA
Sizes:
½” x ¾” to 2” x 3”
Orifices:
0.049 to 1.287 in² [0.316 to 8.303 cm²]
Connections:
NPT, Flanged
Temperature Range:
-65 to +400°F [-54 to +205°C]
Set Pressures:
50 to 6000 psig [3.45 to 413.7 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00544

DIRECT SPRING OPERATED
CROSBY STYLES JOS-E AND JBS-E PRESSURE RELIEF VALVES
Conventional and Balanced Bellows
Spring loaded pressure relief valves
built in accordance with API Standards
526 and 527 for air, gas, steam and
vapor. Styles JLT-JOS-E and JLT-JBS-
E for liquid service and two phase
applications.

TECHNICAL DATA
Sizes: 1” x 2” to 12” x 16”
Orifices: 0.110 to 60.75 in² [0.710 to 391.96 cm²]
Inlet Ratings: ANSI Class 150 to 2500
Temperature Range: -450 to +1000°F [-268 to +538°C]
Set Pressures: 5 to 6000 psig [0.34 to 413 barg]
Code: ASME VIII [15 psig and above]
Request data sheet: VCTDS-00597

CROSBY STYLE JB-TD (“OVER T”) PRESSURE RELIEF VALVE
Large orifice pressure relief valve
product line is an extension of API
Standard 526 designs for air, gas,
steam and vapor applications.
The broad JB-TD product offering
represents an alternative to multiple,
smaller orifice relief valves.

TECHNICAL DATA
Sizes: 10” x 14” to 20” x 24”
Orifices: 42.19 to 185.0 in² [272.19 to 1193.55 cm²]
Inlet Ratings: ANSI Class 300
Temperature Range: -20 to +450°F [-29 to +232°C]
Set Pressures: 25 to 300 psig [1.72 to 20.69 barg]
Code: ASME VIII
Request data sheet: VCTDS-00290

CROSBY SERIES 900 OMNI-TRIM® PRESSURE RELIEF VALVE
Single trim design, fixed blowdown
design for medium flow of air, gas,
steam, vapor, liquid and two phase
applications. Full nozzle design.
Available with metal or O-ring seat
construction.

TECHNICAL DATA
Sizes: ½” x 1” to 2” x 2”
Orifices: 0.074 to 0.503 in² [0.477 to 3.25 cm²]
Connections: NPT, Flanged, Socket Weld
Temperature Range: -450 to +750°F [-268 to +399°C]
Set Pressures: 5 to 5000 psig [0.34 to 344.83 barg]
Code: ASME VIII [15 psig and above]
Request data sheet: VCTDS-00594
CROSBY SERIES 800 PRESSURE RELIEF VALVE
Adjustable blowdown design for medium flow of air, gas, vapor and steam applications. External precise blowdown adjustment provides shorter blowdown than the Series 900. Full nozzle design. Available with metal or o-ring seat.

TECHNICAL DATA
Sizes:
¾” x 1” to 2” x 2”
Orifices:
0.110 to 0.503 in² [0.71 to 3.25 cm²]
Connections:
NPT, Flanged, Socket Weld
Temperature Range:
-450 to +750°F [-268 to +399°C]
Set Pressures:
15 to 1500 psig [1.03 to 103.42 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00594

CROSBY SERIES 82 PRESSURE RELIEF VALVE
Designed to provide premium performance in the natural gas market. The Series 82 has a rugged construction designed specifically for high pressure multi stage natural gas compressors. The Series 82 valve is designed to provide superior seating performance using a Viton® o-ring seat. The 2-piece body design with replaceable seat and seals reduce downtime and maintenance costs over the life of the valve.

TECHNICAL DATA
Sizes:
¾” x 1” to 1” x 1”
Orifices:
0.074 and 0.110 in² [0.477 and 0.71 cm²]
Connections:
NPT, Flanged
Temperature Range:
-20 to +400°F [-28 to +204°C]
Set Pressures:
50 to 1500 psig [3.45 to 103.44 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00594

CROSBY SERIES BP OMNI-TRIM® PRESSURE RELIEF VALVE
Balanced piston, single trim design for gas, vapor and liquid applications involving variable back pressure. Full nozzle design with O-ring seat as standard.

TECHNICAL DATA
Sizes:
¾” x 1” and 1” x 1”
Orifices:
D 0.127 in² [0.819 cm²]
E 0.221 in² [1.423 cm²]
Connections:
NPT x FNPT
Temperature Range:
-15°F to 400°F [-26°C to 204°C]
Set Pressures:
15 to 1500 psig [1.03 to 103 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00806
CROSBY STYLE HE ISOFLEX® SAFETY VALVE (STEAM)
High capacity safety valve for drum service, saturated steam applications. Two ring control and back pressure-assist close design are standard. ISOFLEX® seat design provides seat tightness up to 95% of set pressure.

TECHNICAL DATA
Sizes:
2½” x 6” to 4” x 8”
Orifices:
1.840 to 7.070 in² [11.87 to 45.61 cm²]
Connections:
ANSI Flanged or Butt Weld Inlet and ANSI Flanged Outlet
Maximum Temperature:
Saturated steam
Maximum Set Pressure:
3000 psig [207 barg]
Code:
ASME I

Request data sheet: VCTDS-00595

CROSBY STYLE HSJ SAFETY VALVE (STEAM)
Full nozzle safety valve for saturated and superheated steam service. Two ring control. Style HSJ-DOW with closed bonnet and screwed cap for Dowtherm service.

TECHNICAL DATA
Sizes:
1½” x 2” to 6” x 8”
Orifices:
0.307 to 11.045 in² [1.98 to 71.25 cm²]
Inlet Ratings:
ANSI Class 150 to 2500
Maximum Temperature:
1000°F [538°C]
Maximum Set Pressure:
2700 psig [186.2 barg]
Code:
ASME I and VIII

Request data sheet: VCTDS-00595

CROSBY STYLE HCI ISOFLEX® SAFETY VALVE (STEAM)
High capacity safety valve for saturated and superheated steam service. Two ring control and optional restricted lift feature. ISOFLEX® seat design provides seat tightness up to 95% of set pressure.

TECHNICAL DATA
Sizes:
1½” x 3” to 6” x 10”
Orifices:
0.994 to 19.29 in² [6.41 to 124.45 cm²]
Inlet Ratings:
ANSI Flanged or Butt Weld Inlet and ANSI Flanged Outlet
Maximum Temperature:
1100°F [593°C]
Maximum Set Pressure:
3000 psig [207 barg]
Code:
ASME I and VIII

Request data sheet: VCTDS-00595
ANDERSON GREENWOOD SERIES 200 PRESSURE RELIEF VALVE
Non-flowing, pop action pilot operated design principally intended for gas, vapor and many mixed phase applications. Suitable for severe service where dirt, hydrates and high moisture levels occur in the fluid media.

TECHNICAL DATA
Sizes: 1" x 2" to 10" x 14"
Orifices: 0.110 to 63.50 in² (0.710 to 409.7 cm²)
Inlet Ratings: ANSI Class 150 to 2500
Temperature Range: -423°F to +600°F (-253°C to +315°C)
Set Pressures: 25 to over 6170 psig (172.0 to over 425.52 barg)
Code: ASME VIII

CROSBY STYLE HSL SAFETY VALVE (STEAM)
A full nozzle reaction type safety valve designed for saturated and superheated steam service. Two choices of inlet flange ratings and a simplicity of design to facilitate ease of maintenance.

TECHNICAL DATA
Sizes: 1¼" to 6" [Dn 32 to 150] flanged
Pressure rating: Up to 725 psig [50 barg]
Temperature rating: Up to 1000°F [538°C]
Inlet ratings: ASME Classes 300 and 600
Outlet rating: ASME Class 150

Request data sheet: VCTDS-00595

ANDERSON GREENWOOD SERIES 400 PRESSURE RELIEF VALVE
Non-flowing, modulating action pilot operated design suitable for gas, liquid and many mixed phase applications, including dirty and/or wet applications. Modulating action eliminates destructive effects of "liquid hammer." Lifts proportionally according to demand.

TECHNICAL DATA
Sizes: 1" x 2" to 10" x 14"
Orifices: 0.110 to 63.50 in² (0.710 to 409.7 cm²)
Inlet Ratings: ANSI Class 150 to 600
Temperature Range: -65 to +600°F (-54 to +315°C)
Set Pressures: 15 to 1480 psig (1.03 to 102.0 barg)
Code: ASME VIII

Request data sheet: VCTDS-00543
OVERVIEW

HIGH PRESSURE PILOT OPERATED

ANDERSON GREENWOOD

SERIES 400 ISO-DOME PRESSURE RELIEF VALVE
Iso-Dome accessory for the Series 400 pilot provides protection of critical pilot internals from highly viscous process media.

TECHNICAL DATA
Sizes: 1” x 2” to 10” x 14”
Orifices: 0.110 to 63.50 in² [0.710 to 409.7 cm²]
Inlet Ratings: ANSI Class 150 to 900
Temperature Range: -65 to +600°F [-54 to +260°C]
Set Pressures: 15 to 1480 psig [1.03 to 102.0 barg]
Code: ASME VIII

ANDERSON GREENWOOD SERIES 500 PRESSURE RELIEF VALVE
Unique, modulating action pilot operated relief valve with soft seats having the ability to handle hot water, steam, hot hydrocarbon vapors or liquids, using inert plastic soft goods.

TECHNICAL DATA
Sizes: 1½” x 2” to 10” x 14”
Orifices: 0.110 to 63.50 in² [0.710 to 409.7 cm²]
Inlet Ratings: ANSI Class 150 to 600
Temperature Range: -65 to +515°F [-54 to +268°C]
Set Pressures: 15 to 720 psig [1.03 to 49.6 barg]
Code: ASME VIII

ANDERSON GREENWOOD TYPE 727 PRESSURE RELIEF VALVE
Pop action pilot safety valve with metal seated pilot valve and main valve extends the use of pilot technology to 1000°F [538°C]. Suitable for steam or gas service.

TECHNICAL DATA
Sizes: 2” x 3” to 8” x 10”
Orifices: 0.503 to 26.0 in² [3.245 to 167.7 cm²]
Inlet Ratings: ANSI Class 150 to 600
Temperature Range: Up to 1000°F [538°C]
Code: ASME VIII

Request data sheet: VCTDS-00543
Request data sheet: VCTDS-00543
Request data sheet: VCTDS-00543
ANDERSON GREENWOOD SERIES 800
PRESSURE RELIEF VALVE
High set pressure capability, non-flowing, modulating pilot operated pressure relief valve design for pressures up to 6170 psig [425.52 barg]. Suitable for gas, liquid or mixed phase lading fluids, including dirty and/or wet services.

TECHNICAL DATA
Sizes:
1” x 2” to 4” x 6”
Orifices:
0.110 to 9.489 in² [0.710 to 61.21 cm²]
Inlet Ratings:
ANSI Class 900 to 2500
Temperature Range:
-65 to +600°F [-54 to +315°C]
Set Pressures:
1481 to 6170 psig [102.13 to 425.52 barg]
Code:
ASME VIII

Request data sheet: VCTDS-00543

ANDERSON GREENWOOD SERIES 5200
PRESSURE RELIEF VALVE
Developed specifically to serve economizer applications requiring pressure relief under the stringent requirements of ASME Section. This unique and challenging application requires premium performance on a valve that must have ASME Section I certified capacities for both steam and water. A modulating pilot operated pressure relief valve is the ideal solution to this difficult application.

TECHNICAL DATA
Sizes:
1½” x 2” to 4” x 6”
Orifices:
F 0.307 in² (1.98 cm²) thru P 6.38 in² (41.16 cm²)
Inlet Ratings:
ANSI Class 150 to 2500
Temperature Range:
Up to 1000°F [+538°C]
Set Pressures:
15 to 6250 psig [1.03 to 431 barg]
Code:
ASME I and VIII

Request data sheet: VCTDS-00803

ANDERSON GREENWOOD SERIES LCP
PRESSURE RELIEF VALVE
Full bore, non-flowing pilot design for gas and vapor service. Integral field test connection and back flow preventer are standard accessories in a compact assembly.

TECHNICAL DATA
Sizes:
1” x 2” to 3” x 4”
Orifices:
0.785 to 7.069 in² [5.065 to 45.6 cm²]
Inlet Ratings:
ANSI Class 150 to 900
Temperature Range:
-20 to +400°F [-29 to +205°C]
Set Pressure Range:
25 to 2200 psig [1.72 to 151.72 barg]

Request data sheet: VCTDS-00254
LOW PRESSURE PILOT OPERATED

ANDERSON GREENWOOD TYPE 9300 PRESSURE AND VACUUM RELIEF VALVE
The Type 9300 design is a full body valve to pipe away the discharge if necessary and is balanced against back pressure. This design can be used in the pilot operated pressure relief mode and also provide pilot operated vacuum relief.

TECHNICAL DATA
Sizes:
2” x 3” to 12” x 16”
Orifices:
3.35 to 113.0 in² [21.61 to 729.03 cm²]
Temperature Range:
-320 to +200°F [-196 to +93°C]
Pressure Range:
4” wc to 50 psig [10 mbarg to 3.45 barg]
Vacuum Range:
-1 oz [-4.3 mbarg] full open weight loaded
Code:
ASME VIII [15 psig and above]

Request data sheet: VCTDS-00551

ANDERSON GREENWOOD TYPE 9200 PRESSURE AND VACUUM VENT
The Type 9200 design can be used in the pilot operated pressure relief mode and also provide weight loaded or pilot operated vacuum relief. The 9200 vents directly to atmosphere and has no provision to pipe away the discharge.

TECHNICAL DATA
Sizes:
2” x 3” to 12” x 16”
Orifices:
3.35 to 113.0 in² [21.61 to 729.03 cm²]
Temperature Range:
-320 to +200°F [-196 to +93°C]
Pressure Range:
4” wc to 5 psig [-5.0 mbarg to 0.345 barg]
Vacuum Range:
-1 oz [-4.3 mbarg] full open weight loaded
Code:
ASME VIII [15 psig and above]

Request data sheet: VCTDS-00551

ANDERSON GREENWOOD TYPE 93 PRESSURE RELIEF VALVE
Introduced in 1968, this pilot operated pressure relief valve is designed with elastomer seats and seals for gas piping and chemical tank applications.

TECHNICAL DATA
Sizes:
2” x 3” to 12” x 16”
Orifices:
2.29 to 84.0 in² [14.77 to 541.93 cm²]
Temperature Range:
-260 to +300°F [-162 to +149°C]
Set Pressures:
3” wc to 50 psig [7.5 mbarg to 3.45 barg]
Code:
ASME VIII [15 psig and above]

Request data sheet: VCTDS-00551
ANDERSON GREENWOOD
SERIES MLCP
PRESSURE RELIEF VALVE
Modulating Large Capacity Pilot Valve designed for gas and vapor service. Internally sensed pilot operated pressure relief valve in a simple, high performance, cost effective design.

TECHNICAL DATA
Sizes: 2” x 3” to 6” x 8”
Orifices: 3.14 to 28.27 in² [20.26 to 182.41 cm²]
Inlet Ratings: ANSI Class 150
Temperature Range: -20 to +400°F [-29 to +204°C]
Set Pressure Range: 3 to 14.99 psig [0.207 to 1.03 barg]

Request data sheet: VCTDS-00257

VAREC 2010B/2020B SERIES
WEIGHT LOADED PRESSURE AND VACUUM RELIEF VALVE
Protects tanks from damage or deformation, minimizes emissions to the environment, as well as loss of product due to evaporation. Designed for use on atmospheric and low pressure storage tanks. Vent to atmosphere or pipe away models.

TECHNICAL DATA
Sizes: 2010B/2011B 2” to 12”
2020B/2021B 2” x 3” to 12” x 14”
Connections: ANSI Class 125 Flat Face Drilling (Aluminum), ANSI Class 150 Raised or Flat Face Drilling (Carbon Steel and Stainless Steel)
Temperature Range: -65 to +350°F [-54 to +177°C]
Pressure/Vacuum Setting Range: 0.3 oz/in² to 2 psig [1.29 mbarg to 0.14 barg]

Request data sheet: VCTDS-00318

VAREC 3500B/3600B/3650B SERIES
WEIGHT LOADED VACUUM RELIEF VALVE
Designed to protect liquid storage vessels, vapor recovery systems and process systems from excessive vacuum. Designs available for tank top mounting, side mounting as well as for “in-line” applications.

TECHNICAL DATA
Sizes: 3500B/3600B 2” to 12”
3650B 2” x 3” to 12” x 14”
Connections: ANSI Class 125 Flat Face Drilling (Aluminum)
ANSI Class 150 Raised or Flat Face Drilling (Carbon Steel and Stainless Steel)
Temperature Range: -65 to +350°F [-54 to +177°C]
Vacuum Setting Range: 0.3 oz/in² to 2 psig [1.29 mbarg to 0.14 barg]

Request data sheet: VCTDS-00300
OVERVIEW

TANK PROTECTION

VAREC 7100B SERIES
WEIGHT LOADED PRESSURE RELIEF VENT
Pressure relief valve designed to protect atmospheric and low pressure storage tanks from being overpressurized. Air cushion seating design keeps the valve tightly sealed until the pressure inside the tank approaches the valve setting. Vent to atmosphere design.

TECHNICAL DATA
Sizes: 2" to 12"
Connections: ANSI Class 125 Flat Face Drilling (Aluminum), ANSI Class 150 Raised or Flat Face Drilling (Carbon Steel and Stainless Steel)
Temperature Range: -65 to +350°F [-54 to +177°C]
Pressure Setting Range: 0.3 oz/in² to 2 psig [1.29 mbarg to 0.14 barg]

Request data sheet: VCTDS-00301

VAREC 2440/2450 SERIES
SPRING LOADED PRESSURE AND VACUUM RELIEF VALVE
Designed for use on liquid storage tanks, vessels and vapor recovery systems where excess pressure or vacuum may cause damage or permanent deformation and leakage of product must be minimized. Vent to atmosphere or pipe away models.

TECHNICAL DATA
Sizes: 2440 2” to 12”
2450 2” x 2” to 12” x 12”
Connections: ANSI Class 125 Flat Face Drilling (Aluminum)
ANSI Class 150 Raised Face Drilling (Carbon Steel and Stainless Steel)
Pressure Setting Range: 1 to 50 psig [0.07 to 3.5 barg]
Vacuum Setting Range: 0.7 to 14 oz/in² [3.0 to 60 mbarg]

Request data sheet: VCTDS-00314

VAREC 4110A/3610/3660 SERIES
SPRING LOADED VACUUM RELIEF VALVE
Designed to protect tanks and vessels from damage or deformation caused by changes in process pressure and vacuum conditions. Withstand the pressure of the stored product under normal operating conditions. Designs available for tank top mounting, side mounting and “in-line” applications.

TECHNICAL DATA
Sizes: 4110A/3610 2” to 12”
3660 2” x 2” to 12” x 12”
Connections: ANSI Class 125 Flat Face Drilling (Aluminum), ANSI Class 150 Raised Face Drilling (Carbon Steel and Stainless Steel)
Relief Settings: Up to 50 psig (3.5 barg)

Request data sheet: VCTDS-00316
VAREC 711 SERIES
SPRING LOADED PRESSURE RELIEF VENT
Protects low and medium pressure storage tanks, gas headers, process vessels and waste gas collection systems from being overpressured.

TECHNICAL DATA
Sizes: 2” to 12”
Connections: ANSI Class 125 Flat Face Drilling (Aluminum)
ANSI Class 150 Raised Face Drilling (Carbon Steel and Stainless Steel)
Temperature Range: -65 to +350°F [-54 to +177°C]
Pressure Setting Range: 0.5 to 50 psig [0.035 to 3.5 barg]

Request data sheet: VCTDS-00302

ANDERSON GREENWOOD TYPE 96A WEIGHT LOADED VACUUM BREAKER
The 96A is a weight-loaded vacuum breaker designed to complement the pressure relief products, especially when seeing high positive operating pressures.

TECHNICAL DATA
Sizes: 4”, 6”, 8”, 12”
Vacuum Setting: ½ oz/in² [2.2 mbarg] (standard)
1½ oz/in² [6.6 mbarg] (optional)
Maximum Allowable Positive Pressure: Up to 85 psig [5.86 barg]

Request data sheet: VCTDS-00551

VAREC 7000 SERIES
MUSHROOM (FREE) VENT
Free vent relieves to atmosphere and commonly used to protect atmospheric tanks containing non-volatile liquids. Designed to minimize back pressure and to bolt directly to a standard flange on the tank top. May also be mounted on a flame arrester.

TECHNICAL DATA
Sizes: 2” to 12”
Maximum Differential Pressure: 1 psi [0.07 barg]
Connections: Bolts to standard ANSI Class 125 Flat Face flange

Request data sheet: VCTDS-00307
**VAREC 221 SERIES EMERGENCY PRESSURE RELIEF MANWAY COVER**

Provides emergency venting of low pressure storage tanks and vessels when exposed to abnormal internal pressure or vacuum beyond capability of the breather vent. Also allows quick and easy access for tank inspection and maintenance.

**TECHNICAL DATA**

- **Sizes:** 18", 20", 24"
- **Connections:** Drilled to API 650 dimensions, Flat Face flange standard. Drilled to ANSI Class 150 dimensions, Flat Face flange optional.
- **Pressure Setting Range:** 0.5 to 6 oz/in² [2.15 to 25.86 mbarg]
- **Vacuum Setting Range:** 0.5 to 1 oz/in² [2.15 to 4.31 mbarg]

Request data sheet: VCTDS-00310

**VAREC 4210A SERIES EMERGENCY PRESSURE VENT AND MANWAY COVER**

Designed to provide emergency venting of low pressure storage tanks and vessels. Protects the tank from rupture. Vacuum relief option provides additional vacuum protection.

**TECHNICAL DATA**

- **Sizes:** 18", 20", 24"
- **Connections:** Drilled to ANSI Class 150 dimensions, Flat Face flange. Drilled to API 650 dimensions, Flat Face flange.
- **Pressure Setting Range:** 2" wc to 2 psig [5 mbarg to 0.14 barg]
- **Vacuum Setting Range:** -1.4" to -20" wc [-3.5 to -49 mm wc]

Request data sheet: VCTDS-00308

**VAREC 5400A SERIES FLAME ARRESTER**

Group “D”, end-of-line flame arrester is designed to prevent propagation of flame from external sources into a storage vessel.

**TECHNICAL DATA**

- **Sizes:** 2" to 12" (Vertical Installation)
- **Connections:** ANSI Class 125 Flat Face flange drilling (Aluminum), ANSI Class 150 Raised Face flange drilling (Carbon Steel and Stainless Steel)
- **Pressure Rating:** Leak proof to 10 psig [0.69 barg]
- **Maximum Pressure Differential:** 1 psi [0.07 barg]
- **Approvals:** FM (Factory Mutual): all sizes, all materials. UL (Underwriters Laboratories) listed in all Aluminum construction in 2", 3", 4". Refer to product data sheet for additional information.

Request data sheet: VCTDS-00309
Group “D” end-of-line flame arresters used in gas piping systems and petroleum storage tank roofs to prevent the propagation of a flame into the system. Extendable bank design for ease of maintenance.

**TECHNICAL DATA**

**Sizes:**
2” to 12”

**Connections:**
- ANSI Class 125 Flat Face flange Drilling (Aluminum)
- ANSI Class 150 Raised Face flange Drilling (Carbon Steel and Stainless Steel)

**Pressure Rating:**
Leak proof to 10 psig [0.69 barg]

**Maximum Pressure Differential:**
1 psi [0.07 barg]

**Approvals:**
- 5000 Series UL (Underwriters Laboratories) listed in all Aluminum construction in 2”, 3”, 4”, 6” and 10” sizes. (Vertical Installation)
- 5010 Series UL listed in all Aluminum construction as above in 2”, 3” and 4” sizes. (Horizontal Installation) Refer to product request data sheet: for additional information.

Request data sheet: VCTDS-00315

**VAREC 5000/5010 SERIES FLAME ARRESTER**

**VAREC 5810B/5820B RELIEF VALVE WITH FLAME ARRESTER**
A combination of the 2010B/2020B Series Pressure and Vacuum Relief Valve and the 5000 Series Flame Arrester. This unit combines the high flow capacity of the Relief Valve with the easy-to-maintain extensible bank Flame Arrester for maximum protection and reliable operation.

Request data sheet: VCTDS-00192

**VAREC 5910B/5920B SERIES RELIEF VALVE WITH FLAME ARRESTER**
A combination of the 2010B/2020B Series Pressure and Vacuum Relief Valve and the 5400A Series Flame Arrester. This unit combines the high flow capacity of the Relief Valve with the easy-to-maintain Flame Arrester for maximum protection and reliable operation.

Request data sheet: VCTDS-00161
**ANDERSON GREENWOOD**

**TANK BLANKETING REGULATORS**
Tank Blanketing provides an inert gas blanket over the liquid in a liquid storage tank. The Trans-Zero Regulator is a pilot operated, dome-loaded diaphragm type regulator capable of reducing blanketing gas in a single step providing bubble-tight shut-off and low maintenance costs.

**TECHNICAL DATA**

**Connections:**
- ½", 1", 2" threaded (NPT) and flanged ANSI 150, 300, 600
**Temperature Range:**
- -20 to +300°F [-29 to +149°C]
**Maximum Inlet Pressure:**
- 200 psig [14 barg]
**Blanket Pressure Range:**
- 0.5" wc to 6 psig [12.7 mm wc to 0.4 barg]

Request data sheet: VCTDS-01042

---

**VAREC 180 SERIES**

**DOUBLE PORT PRESSURE REGULATOR**
Provides upstream and downstream control for use on vapor recovery systems where sensitive control at low pressures is required. "Double port" design achieves a sensitivity of less than five percent.

**TECHNICAL DATA**

**Sizes:**
- 1" to 8"

**Connections:**
- 1": NPT threaded
- 2" to 8": Drilled to ASA 125 Flat Face (Aluminum), Drilled to ANSI Class 150 Raised Face (Carbon Steel)

**Pressure Sensing Line:**
- 180/181 2" NPT 186/187 1" NPT

**Pressure Setting Range:**
- -0.4 to 20" wc [1 to 50 mbarg]

Request data sheet: VCTDS-00303

---

**VAREC 42 SERIES**

**SAMPLING AND GAUGING HATCH COVER**
Designed to provide quick access to tanks for product gauging, temperature measurement and sampling.

**TECHNICAL DATA**

**Sizes:**
- 4", 6", 8", 10"

**Connections:**
- ANSI Class 125 Flat Face flange Drilling [Aluminum], Welded Connection (Available on standard carbon steel base only)

**Working Pressure:**
- Up to 3 psig [0.207 barg]

Request data sheet: VCTDS-00313
VAREC 4310 SERIES
SAMPLING AND GAUGING HATCH COVER
Installed on tank roofs or roof flanges to provide quick access for product gauging, temperature measurement or sampling.

TECHNICAL DATA
Sizes:
4”, 8”
Connections:
ANSI Class 125 Flat Face flange Drilling
Working Pressure:
Up to 3 psig [0.207 barg]

Request data sheet: VCTDS-00311

VAREC 220 SERIES
ROOF MANWAY COVER
Designed for use on tanks where quick and easy personnel access is desired.

TECHNICAL DATA
Sizes:
18", 20", 24", 30", 36”
Materials:
Cast Iron, Aluminum, Carbon Steel or 316 Stainless Steel base
Working Pressure: Up to 1 psig [0.07 barg]

Request data sheet: VCTDS-00310

ANDERSON GREENWOOD TYPE RCRV
RESERVE CAPACITY RELIEF VALVE
Designed to provide overpressure protection on low pressure, low temperature storage tanks when a large volume of vapor is generated by unusual conditions. O-ring seat provides bubble-tight performance to 95% of set pressure. Full open at set pressure – no overpressure required to achieve rated capacity.

TECHNICAL DATA
Sizes:
24” and 36”
Flange Mounting:
24” = 150# Class/ANSI 16.5,
36” = 25# Class/ANSI 16.1
Set Pressure Range:
24”: 1.5 to 5.0 psig [103 to 345 mbarg].
36”: 1.5 to 3.0 psig [103 to 207 mbarg]

Request data sheet: VCTDS-01046

ANDERSON GREENWOOD TYPE ITV
INTERNAL TANK VALVE
Liquid storage - LNG, LPG, NH3, LOX, etc. The Internal Tank Valve is a fail-safe isolation valve for bottom and side withdrawal tanks.

Request data sheet: VCTDS-01047
ANDERSON GREENWOOD SSV
SAFETY SEPARATOR VALVE
Developed to provide a safe and efficient method of switching from an active pressure relief valve to a standby pressure relief valve. The SSV has less than 3% pressure drop to the active API 526 PRV inlet in accordance with ASME Code Section VIII and API RP 520, Part II. Tandem Safety Selector Valve systems are available which allow positive and simultaneous switching of both inlet and outlet SSVs while maintaining overpressure protection at all times.

TECHNICAL DATA
Sizes: 1” to 10”
Pressure Class: ANSI Class 150 to 2500
Maximum Temperature: 800°F [426°C]

Request data sheet: VCTDS-00241

“BLK” BLOCKBODY
PRESSURE RELIEF VALVES
Originally designed for offshore applications where set pressure requirements exceeded industry standards. Available in most Crosby and Anderson Greenwood Direct Spring Operated and Pilot Operated Pressure Relief Valve designs, the BlockBody will provide cost-effective alternatives to multiple high pressure smaller orifice relief valves. The standard forged body construction allows an extensive array of available metallurgy options.

TECHNICAL DATA
Sizes: ½” x ¾” to 8” x 10”
Set Pressures: To 10,000 psig [689 barg]
Contact your PVC sales representative for more information

CROSBY STYLE PVR
PRESSURE/VACUUM RELIEF VALVE
Designed for the food & beverage and pharmaceutical industries, the PVR relieves excess air or gas pressure, relieves excess liquid pressure in the absence of air or gas blanketing and prevents formation of a vacuum that could cause the vessel to buckle due to external pressure.

TECHNICAL DATA
Sizes: 3” and 4”
Inlet Connections: Lug Union Nut, ANSI flanged, Tri-clamp
Set Pressures: 14.5 to 125 psig [1 to 8.62 barg]
Vacuum Relief (typical): 2” wc [5 mbarg]
Temperature Range: -15 to +400°F [-5 to +204°C]
Code: ASME VIII [15 psig and above]

Request data sheet: VCTDS-00330
PRESSURE RELIEF VALVES (NUCLEAR)

Emerson designs and manufactures pressure relief valves specifically to meet the exacting requirements of nuclear power plant applications built to ASME Code Section III. Our product portfolio includes Style HB-BP balanced design pressure relief valves used in pressurized water reactors throughout the world as well as Style HB-BP-DF dual function safety valves to meet special overpressure safety requirements of boiling water reactor primary loops. Style HA is intended for service on pressurized water reactors as the main steam safety valve. Other designs include styles JMB-WR, J0, JB, JWR-J0, JWR-JB, JMAK and JRAK-BS for balance of plant applications.

TESTING AND VERIFICATION DEVICES

SPVD – SET PRESSURE VERIFICATION DEVICE

A system for in-site testing, classified as a “calibrated assist device” per ASME Performance Test Code (PTC 25). Totally automatic – computer driven system for testing safety valves. Available in portable or permanently mounted models.

VPI – VALVE POSITION INDICATOR

Provides direct, continuous, remote indication of valve spindle position. Permits safe monitoring of pressure relief valves located in hostile environments. Transducer is qualified - Class 1E Standard system handles up to 20 Linear Variable Differential Transducers (LVDT) sensors. Qualified to IEEE-344 for in-containment service.

LISA – LIFT INDICATING SWITCH ASSEMBLY

A valve position indicating device with a movable permanent magnet attached to the valve spindle. Fixed "reed" type switches are permanently encased in epoxy in the switch housing. Two sets of switches provide redundancy, with each set consisting of three switches indicating valve closed, mid and fully-open positions. Qualified to IEEE-344.

CERTIFICATIONS

- ASME Code Section I (V)
- ASME Code Section VIII (UV)
- Association of American Railroads
- Canadian Registration
- European Community (EC) Directive 94/9/EC
- Factory Mutual
- GGTN - GOSGORTEKHNADZOR of RUSSIA
- GOST (Russia)
- National Board of Boiler & Pressure Vessel Inspectors
- People’s Republic of China
- Pressure Equipment Directive 97/23/EC
- Type Approvals
  - ABS
  - Bureau Veritas (BV)
  - Det Norske Veritas (DNV)
  - Nippon Kaiji Kyokai (NKK)
- Underwriters Laboratory
- EN ISO-4126
EMERSON PRV²SIZE
PRESSURE RELIEF DEVICE SIZING AND SELECTION SOFTWARE

Emerson PRV²SIZE incorporates over 135 years of experience and engineering expertise for an extensive array of Anderson Greenwood, Crosby, and Varec pressure relief devices and related products in one software package. With Emerson PRV²SIZE customers and engineers can address numerous applications in a single sizing and selection platform without the need to use two or more sizing programs.

EMERSON PRV²SIZE FEATURES:
• Improved user interface
  – Sizing calculations can be saved at any point
  – Multiple tags can be opened at one time
• Capability of sorting data using a variety of parameters
• Fully configured product selection
• Industry standard sizing methodologies
• Drop-down boxes allow instantaneous change of sizing methodology from API to ASME and vice versa
• Addition of 2:1 elliptical head tanks for fire sizing applications
• Catalog integration from existing product literature PDF’s
• Detailed product specifications including cross sectional drawings with dimensions and weights
  – U.S. Customary System and Metric units
• Improved tools to export and import device tag numbers with the ability to mail files directly from the software program
• Combination device, reaction force and noise level calculations
• Addition of flow curves for pressure and vacuum relief valves
• Individual capsule summaries of each product including an image of the selected product

Another unique feature of Emerson PRV²SIZE is its capability to provide sizing and selection for tank protection and tank blanketing products in a single software program. This includes pad and de-pad valves, tank blanketing regulators, pressure/vacuum vents and low pressure pilot operated relief valves.

SERVICE CAPABILITIES

Delivering factory-trained teams of mobile technicians 24/7/365, our fleet of fully stocked service vehicles allows us to work anywhere you need us - from the field to our own state-of-the-art production facilities. Our pickup and delivery services assist you with your service and repair needs with minimal downtime. With a fleet of service vehicles and a trained team of expert technicians, Emerson provides a wide range of aftermarket services at customer locations. Some of the products or activities addressed onsite include:

• Boiler Safety Valves
  (protecting the Drum, Superheater, and Reheater)
• Boiler Level Gauges
  (Direct Reading)
• Pressure Relief Valves
• Control Valves
• Pump Protection Valves
• Specialty Gate, Globe, and Check Valves
• Wellheads
• Actuators and Controls
• Commissioning
• Nuclear Power Plant Services
## SELECTION MATRIX

<table>
<thead>
<tr>
<th></th>
<th>ASME Section VIII Gas/Vapor</th>
<th>ASME Section VIII Liquid</th>
<th>ASME Section VIII Steam</th>
<th>ASME Section I Steam</th>
<th>Adjustable Blowdown</th>
<th>Fixed Blowdown</th>
<th>Metal Seats</th>
<th>Soft Seats</th>
<th>Pressure Relief</th>
<th>Vacuum Relief</th>
<th>Snap/Pop Action</th>
<th>Modulating Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional and Balanced Bellows API 526 Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JOS-E</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JBS-E</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JOS-H-E</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JLT-JOS-E</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JLT-JBS-E</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Portable/Threaded and Flanged Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 80</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Series 800</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Series 900 OMNI-TRIM®</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Series BP OMNI-TRIM®</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Series 82</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Safety Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style HCI</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style HE</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style HSJ</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style HSL</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Pressure Pilot Operated Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 200</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 400</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 500</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 700</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 800</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 5200</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low Pressure Pilot Operated Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 90</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Series 9000</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood 96A (Vacuum Breaker)</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Large Orifice Relief Valves</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosby Style JB-TD</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SELECTION MATRIX

<table>
<thead>
<tr>
<th>Pressure/Vacuum Relief Valves</th>
<th>Weight Loaded Pressure Relief</th>
<th>Spring Loaded Pressure Relief</th>
<th>Spring Loaded Pressure &amp; Vacuum Relief</th>
<th>Weight Loaded Pressure Relief</th>
<th>Spring Loaded Pressure Relief</th>
<th>Low Temperature Storage</th>
<th>Fire Arrester Vertical Installation</th>
<th>Flame Arrester Horizontal Installation</th>
<th>Emergency Vacuum Relief Manway Cover</th>
<th>Emergency Pressure Relief Manway Cover</th>
<th>Flame Arrester Vertical Installation</th>
<th>Flame Arrester Horizontal Installation</th>
<th>Roof Manway Cover</th>
<th>Sampling &amp; Gauging Hatch Cover</th>
<th>Upstream Control Regulator</th>
<th>Downstream Control Regulator</th>
<th>Direct Spring Style Pilot Operated</th>
<th>Y Style Pilot Operated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varec 2010B/2020B Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 3500B/3600B/3650B Series</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 7100B Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 2440/2450 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 4110A/3610/3660 Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 711 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 7000 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Vents</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 221P Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 221PV Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 4210A Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood RCRV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flame Arresters</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 5400A Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 5000 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 3010 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination Relief Valve with Flame Arrester</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 5810B/5820B Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 5910B/5920B Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank Accessories</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 220 Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 42 Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec 4310 Series</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tank and Equipment Blanketing Systems</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec Series 180/186</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varec Series 181/187</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Type BV-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Type RA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson Greenwood Type Y1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Pressure relief valves, providing advanced, reliable and efficient overpressure protection.