

GE Energy

# Consolidated\* Pressure Relief Valves Condensed Catalog

## Pressure Relief Solutions

- Safety Relief Valves
- Safety Valves



imagination at work



A extensive range of safety relief valve and safety valve styles, sizes, options and configurations for multiple applications, environments and media

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# Consolidated Safety Relief Valve Products

*In compliance with:*

- *ASME Section VIII Process Application Standards*
- *ASME Section I Boiler Application Regulations*
- *Many other Global and Regional Standards*

Safety relief valves often serve as the point-of-protection against potentially dangerous circumstances, so it is important that they be dependable. GE Energy's Consolidated safety relief valves have maintained a reputation for excellence and reliability for more than a century.

The Consolidated product line has demonstrated a number innovative solutions, too. Safety relief valve innovations from the product line include the Thermodisc® temperature compensating disc and the first modular pilot-operated valve.

## **A full range of valves**

GE provides a full range of Consolidated safety relief valve styles, sizes, options and configurations for multiple industries, applications, environments, and media. From spring-actuated to pilot-operated, each pressure relief valve is configured to offer safer process flow control in harsh environments.

## **Applications:**

- Chemical and petrochemical
- Refinery
- Power generation
- Commercial
- MSR – Moisture Steam Re-heater
- Turbine gland steam seal
- Pegging steam/auxiliary steam
- De-aerators
- Feed-water heaters – tube side and shell side
- Pumps – recirculation line protection
- Fuel oil pumps
- Ammonia systems
- Scrubber systems
- Air compressor
- Miscellaneous pumps
- Trim supplied to match the fluid

## **Meeting evolving needs**

GE continues to pursue quality and pro-active approach through regular collaboration with our customers and by staying actively involved in the development of regulatory compliance standards. We configure, engineer, and manufacture safety relief valves that adhere to industry regulations and global and regional standards while helping meet our customers' evolving needs.



## Type 1900-UM Safety Relief Valve

The type 1900-UM valve is capable of flowing liquid, gas or steam with no adjustment required to switch between different media with the same set pressure.

**Inlet Sizes:** 1" through 12"

**Inlet Ratings:** ANSI Class 150 through 2500

**Outlet Sizes:** 2" through 16"

**Outlet Ratings:** ANSI Class 150 and 300

**Orifice Sizes:** D through W

**Set Pressure Range:** 4 psig to 6250 psig

**Temperature Range:** -450°F to 1500°F

**Materials:** Cast carbon steel body with stainless steel trim

**Certification:** ASME Section III and VIII, PED and SQL

### Options for Type 1900-UM Safety Relief Valve

#### 1900-30-UM

The type 1900-30-UM valve includes the addition of a balanced bellows that is necessary to compensate for the effects of variable back pressure. By isolating the upper structure and allowing the use of less expensive materials, the bellows is also a cost-effective solution in applications where the valve is exposed to highly viscous or corrosive fluids.

#### 1900-UM-DA Soft Seat

The type 1900-UM-DA soft seat contains an additional soft seal. This soft seat is the primary seal, and it allows the valve to remain leak free at 95 percent of set pressure over 100 psig (6.89 barg). A backup metal seat provides additional safety for fire-relief applications when soft goods can be destroyed by high temperature exposure. The Consolidated type 1900-UM soft seat is available for set pressures up to 6250 psig (430.92 barg). Some soft seats offered by other manufacturers are limited to 1500 psig.

#### 1900-UM-Cryodisc (CD)

The patented Cryodisc is an option designed specifically for cryogenic fluid applications. Its metal disc is engineered to deflect toward the nozzle, creating a tighter seal when exposed to isolated colder spots, help to reduce process fluid leakage. This technology helps customers such as those in LNG gas processing to curb plant emissions and lower maintenance costs.



# Consolidated Safety Relief Valve Products



## Type 1900 Safety Relief Valve

The highly adaptable type 1900 safety relief valve meets numerous application requirements.

<b>Inlet Sizes:</b>	1" through 12"
<b>Inlet Ratings:</b>	ANSI Class 150 through 2500
<b>Outlet Sizes:</b>	2" through 16"
<b>Outlet Ratings:</b>	ANSI Class 150 and 300
<b>Orifice Sizes:</b>	D through W
<b>Set Pressure Range:</b>	4 psig to 6250 psig
<b>Temperature Range:</b>	-450°F to 1500°F
<b>Materials:</b>	Cast carbon steel body with stainless steel trim
<b>Certification:</b>	ASME Section III and VIII, PED and SQL

### Options for Type 1900 Safety Relief Valve

#### 1900-30

The type 1900-30 valve includes the addition of a balanced bellows that is necessary to compensate for the effects of variable back pressure. By isolating the upper structure and allowing the use of less expensive materials, the bellows is also a cost-effective solution in applications where the valve is exposed to highly viscous or corrosive fluids.

#### 1900-DA

The type 1900-DA valve contains an additional O-ring seat seal. This soft seat is the primary seal and it allows the valve to remain leak free at 95 percent of set pressure over 100 psig (6.89 barg). A backup metal seat provides additional safety for fire-relief applications when O-rings can be destroyed by high temperature exposure.

The type 1900-DA O-ring seat is available for set pressures up to 6250 psig (430.92 barg). Some soft seats offered by other manufacturers are limited to 1500 psig.





## Type 19000 Safety Relief Valve

The type 19000 valve is ASME and PED certified. It meets and exceeds API seat tightness performance. The 19000 offers enhanced capacity and blowdown performance on many media types. In most cases, it does not require parts changes to accommodate different media.

**Inlet Sizes:** 1/2" to 2"

**Outlet Sizes:** 1" through 2 1/2"

**Orifice Sizes:** .019" through .567"

**Set Pressure Range:** 5 psig to 15000 psig

**Temperature Range:** -425°F to 1100°F

**Certification:** ASME Section III and VIII, PED and SQL

### Options for Type 19000 Safety Relief Valve

#### 19000-MS Standard Design

Metal-to-metal seat construction. Seat tightness compliant with API 527.

#### 19000-DA O-Ring Seat Option

Soft seat design offers bubble tight seats at up to 97 percent of valve set pressure for valves set at 101 psig (6.96 barg) and above. This option promotes higher, more efficient system operating pressures without significant seat leakage concerns.



## Type 1982 Safety Relief Valve

The type 1982 safety relief valve is a preferred choice for OEM and skid manufacturers requiring high-relief capacity from a small valve. The 1982 offers superior seat tightness and blowdown performance for most media applications.

**Inlet Sizes:** 1/2" through 2"

**Outlet Sizes:** 3/4" through 2 1/2"

**Orifice Sizes:** Four sizes – .121 sq. in. through 1.399 sq. in.

**Set Pressure Range:** 10 psig to 500 psig

**Temperature Range:** -20°F to 800°F

**Materials:** Carbon steel bonnet with stainless steel trim

**Certification:** ASME Section VIII



# Consolidated Safety Relief Valve Products



## Type 2900

### Pilot-Operated Safety Relief Valve

The type 2900 pilot-operated safety relief valve combines the advantages of two products into one— the 1900 safety relief valve and the 3900 POSRV. The 2900 POSRV can replace spring-loaded relief valves without requiring modified outlet piping.

<b>Inlet Sizes:</b>	1" through 12"
<b>Outlet Sizes:</b>	2" through 16"
<b>Orifice Sizes:</b>	Seventeen sizes – D through W
<b>Set Pressure Range:</b>	15 to 6250 psig
<b>Temperature Range:</b>	-40°F to 505°F
<b>Materials:</b>	Stainless steel pilot with carbon steel main valve and stainless steel trim
<b>Certification:</b>	ASME Section VIII, PED and SQL



## Type 3900

### Pilot-Operated Safety Relief Valve

The type 3900 pilot-operated safety relief valve is a non-flowing design available in a modulating or pop-action pilot. The 3900 POSRV is suitable for the overpressure protection of many pressurized systems and vessels in the chemical, petrochemical, paper mill, oil and gas production and transmission industries.

<b>Inlet Sizes:</b>	1" through 10"
<b>Outlet Sizes:</b>	2" through 10"
<b>Orifice Sizes:</b>	Fourteen sizes – D through T
<b>Set Pressure Range:</b>	15 to 6250 psig
<b>Temperature Range:</b>	-40°F to 505°F
<b>Materials:</b>	Stainless steel pilot with carbon steel main valve and stainless steel trim
<b>Certification:</b>	ASME Section VIII, PED and SQL





## Type 4900 Pilot-Operated Safety Relief Valve

The type 4900 pilot-operated safety relief valve is a tubeless valve for oil and gas production and the offshore industry.

**Inlet Sizes:** 1" to 8" flanged

**Outlet Sizes:** 2" through 10" flanged

**Orifice Sizes:** Fourteen sizes – D through T

**Set Pressure Range:** 15 psig to 7200 psig

**Temperature Range:** -40°F to 505°F

**Materials:** Stainless steel pilot with carbon steel main valve and stainless steel trim

**Certification:** ASME Section VIII, PED and SQL



# Consolidated Safety Valve Products

## *In Compliance with ASME Section I Code for Boiler Applications*

Since 1879, GE's Consolidated safety valves have been known for exceptional quality, performance and dependability. Because safety valves play an important role in keeping people and equipment safe, it is important that they be reliable in even the most demanding real-world applications. That's why GE works closely with our customers and regulatory organizations to configure, engineer, and manufacture safety valves that can help maintain safer operating conditions in a full range of environments.

### **Key valve features**

Our comprehensive portfolio of safety valves can help to run operations smoothly and cost effectively, particularly in steam service environments. Consolidated safety valves feature a unique pop-action release that can relieve steam over-pressurization if pressures upstream from the valve reach a set point .

What is more, GE's Consolidated safety valves comply with the ASME Section I code for boiler applications. They are built with many features that meet ASME requirements for steam-compressible fluids. For example, all models feature a lifting lever, required by the code for testing, instead of deadweight or weighted levers. Consolidated safety valves can also withstand set pressures up to 103 percent with a blowdown value of 4 percent, or 96 percent of set pressure drop before the valve re-seats.

### **A full range of valves**

With a range of styles, models, options and configurations, Consolidated safety valves work in many different boiler applications.

### **Applications:**

- Economizer
- Drum
- Superheater main steam line
- Power actuated relief valve
- Cold re-heater line
- Hot re-heater line
- Soot blowers in forced flow steam generators
- Organic fluid vapor generators
- High temp hot water generators
- Electric boilers
- Waste heat recovery boilers



## Type 1700 Maxiflow\* Safety Valve

The 1700 Maxiflow high-pressure safety valve is a premium product that is installed on a majority of power generating stations worldwide to help protect boilers from overpressure conditions.

<b>Inlet Sizes:</b>	1 1/2" through 6"
<b>Inlet Ratings:</b>	ANSI Class 600 through 4500
<b>Outlet Sizes:</b>	3" through 10" flanged
<b>Outlet Ratings:</b>	ANSI Class 150 and 300
<b>Orifice Sizes:</b>	Eleven sizes – 1 through RR
<b>Set Pressure Range:</b>	100 psig to 5360 psig
<b>Temperature Range:</b>	Up to 1120°F
<b>Materials:</b>	Alloy and carbon steel cast body with stainless steel trim
<b>Certification:</b>	ASME Section I and VIII, PED and SQL



## Type 2700 Safety Valve

The type 2700 safety valve is configured to meet the specific requirements of the cogeneration and waste-to-energy markets.

<b>Inlet Sizes:</b>	1 1/2" through 6"
<b>Inlet Ratings:</b>	ANSI Class 600, 900 and 1500
<b>Outlet Sizes:</b>	3" through 8"
<b>Outlet Ratings:</b>	ANSI Class 150 and 300
<b>Orifice Sizes:</b>	Seven sizes – 1 through Q
<b>Set Pressure Range:</b>	100 psig to 1600 psig
<b>Temperature Range:</b>	Up to 1050°F
<b>Materials:</b>	Alloy and carbon steel cast body with stainless steel trim
<b>Certification:</b>	ASME Section I and VIII, PED and SQL



# Consolidated Safety Valve Products



## Type 1811 Safety Valve

The type 1811 safety valve is a cost-effective, high-capacity, flanged-steel safety valve for steam service.

<b>Inlet Sizes:</b>	1 1/4" through 6"
<b>Inlet Ratings:</b>	ANSI Class 300 and 600
<b>Outlet Sizes:</b>	1 1/2" through 8"
<b>Outlet Ratings:</b>	ANSI Class 150
<b>Orifice Sizes:</b>	Ten sizes – F through Q
<b>Set Pressure Range:</b>	15 psig to 725 psig
<b>Temperature Range:</b>	Up to 1000°F
<b>Materials:</b>	Alloy and carbon steel cast body with stainless steel trim
<b>Certification:</b>	ASME Section I and VIII, PED and SQL



## Type 1511 Safety Valve

The type 1511 safety valve is configured for low pressure, steam heating boilers and steam generators as well as air service applications.

<b>Inlet Sizes:</b>	1 1/2" through 6"
<b>Inlet Ratings:</b>	ANSI Class 250
<b>Outlet Sizes:</b>	2 1/2" through 4"
<b>Outlet Ratings:</b>	ANSI Class 125
<b>Orifice Sizes:</b>	Eight sizes – H through Q
<b>Set Pressure Range:</b>	15 psig to 250 psig
<b>Temperature Range:</b>	-20°F to 420°F
<b>Materials:</b>	Cast iron body with brass trim
<b>Certification:</b>	ASME Section I and VIII, PED and SQL



### Type 1541-3, 1543-3 Safety Valve

The type 1541 and 1543 safety valves are configured for steam and other compressible fluids. Compression media is limited to non-toxic, non-flammable, non-corrosive service. These valves are most commonly used in pharmaceutical and process plants.

<b>Inlet Sizes:</b>	1/2" through 2 1/2"
<b>Outlet Sizes:</b>	3/4" through 2 1/2"
<b>Orifice Sizes:</b>	D, E, F, G, H and J
<b>Set Pressure Range:</b>	15 to 350 psig
<b>Temperature Range:</b>	-20°F to 420°F
<b>Materials:</b>	Cast iron bonnet with brass base and trim
<b>Certification:</b>	ASME Section I and VIII



### Type 2478 Safety Valve

The type 2478 pressure relief valve features an enclosed design for non-corrosive, thermal relief and liquid service applications.

<b>Inlet Sizes:</b>	1/2" through 2 1/2"
<b>Outlet Sizes:</b>	3/4" through 2 1/2"
<b>Orifice Sizes:</b>	D, E, F, G, H and J
<b>Set Pressure Range:</b>	15 to 300 psig
<b>Temperature Range:</b>	-325°F to 406°F
<b>Materials:</b>	Cast bronze bonnet, brass base and trim and PTFE soft seats
<b>Certification:</b>	Non-Coded



# Consolidated Safety Valve Products



## Type 1900/P Pilot-Operated Safety Relief Valve

The type 1900/P safety relief valve is designed to be highly adaptable to meet numerous application requirements.

<b>Inlet Sizes:</b>	1" through 8"
<b>Outlet Sizes:</b>	2" through 10"
<b>Orifice Sizes:</b>	D through T
<b>Set Pressure Range:</b>	80 to 6000 psig
<b>Temperature Range:</b>	90°F to 850°F
<b>Materials:</b>	Carbon steel body with stainless steel trim
<b>Certification:</b>	ASME B & PVC, Section I - Material (Steam Service) ASME B16.34 and ASME B16.5 API 520, 526 and 527 ISO 4126 NACE MR0103-2003 Standard Material Requirements



## Type 2900-40 Pilot-Operated Safety Relief Valve

The type 2900-40 pilot-operated safety relief valve offers exceptional performance and meets demanding ASME Section I Economizer and Boiler Applications.

<b>Inlet Sizes:</b>	1" through 6"
<b>Outlet Sizes:</b>	2" through 8"
<b>Orifice Sizes:</b>	D through Q
<b>Set Pressure Range:</b>	15 to 3750 psig
<b>Temperature Range:</b>	-20°F to 1200°F
<b>Materials:</b>	Carbon steel base and 316 stainless steel internal components; pilot valve 316 stainless steel
<b>Certification:</b>	ASME Section I



## Type 3500 Electromatic\* Ball Valve

The type 3500 electromatic ball valve offers automatic or manual overpressure protection for steam boiler systems, and can also be used to assist start-up and shut-down venting. The new enhanced design includes a superior coating and manufacturing process that enhances leak free performance, and improves reliability and increases valve life.

**Inlet Sizes:** 1 1/2", 2" and 2 1/2"

**Inlet Ratings:** ANSI Class 1500 and 4500

**Outlet Sizes:** 3" and 4"

**Outlet Ratings:** ANSI Class 300 and 900

**Set Pressure Range:** 50 psig to 4500 psig

**Temperature Range:** Up to 1150°F

**Materials:** Alloy steel body with Colmonoy® coated inconel alloy ball and seat assembly

**Certification:** ASME B & PVC Section I 'V' code stamp on once through boilers (full bore only) and non-code section I





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