



Consolidated* Products

19000 Series Safety Relief Valve

19000 Series - Conventional Design

GE's Consolidated* 19000 Series valves are designed and manufactured in compliance with ASME B & PVC, Section VIII and Section III (Class I, II and III), and are CE compliant to the European Pressure Equipment Directive 97/23/EC.

Seat tightness, blowdown and capacity on all types of media meet industry needs for overpressure protection in chemical, petrochemical, refinery, power generation (nuclear and conventional) and other commercial applications.

Specifications

INLET SIZES	.5" (12.7 mm) through 2" (50.8 mm)
INLET RATINGS	ANSI Class 150 through 2500
OUTLET SIZES	1" (25.4 mm) through 2.5" (63.5 mm)
OUTLET RATINGS	ANSI Class 150 and 300
ORIFICE SIZES	Six sizes: 0.096 in ² to 0.567 in ² (0.619 cm ² to 3.658 cm ²)
TEMPERATURE RANGE	-450°F (-267.8°C) to 1100°F (593.3°C)
MATERIALS	316 stainless steel trim is standard.
CERTIFICATION	

ASME B & PVC, Section II - Material (Applicable as required by ASME B & PVC, Section III or VIII)

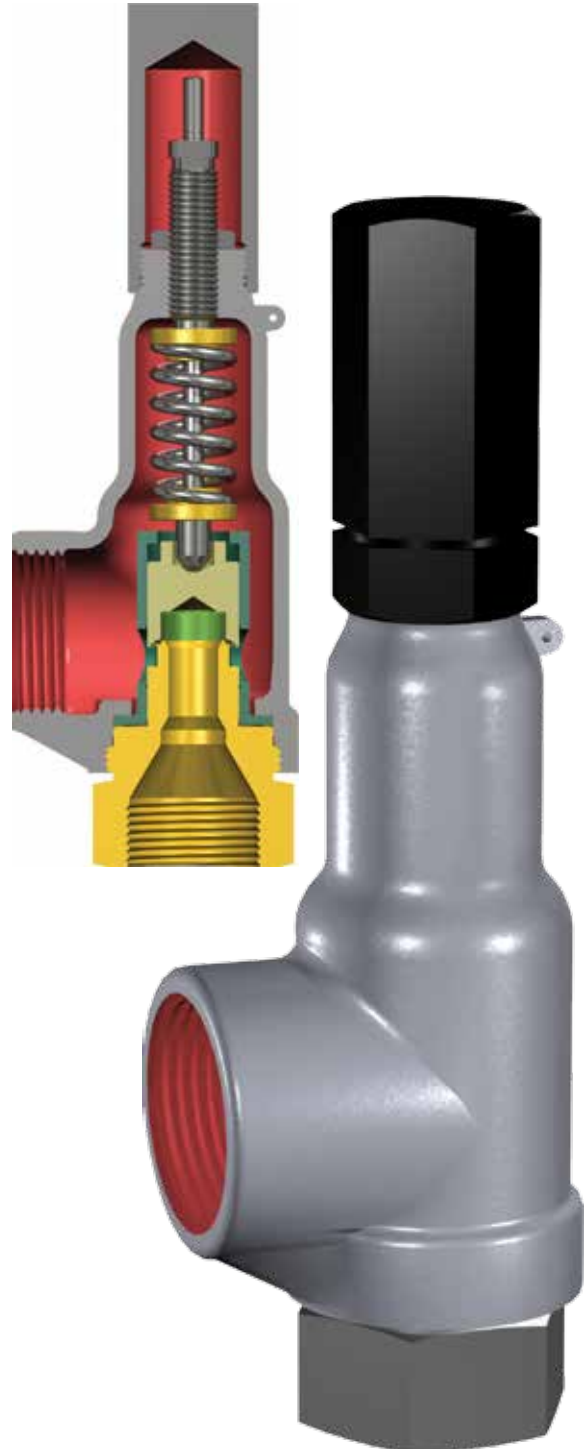
ASME B & PVC, Section III, class 2 and 3 (Gas, Vapor, and Liquid Service)

ASME B & PVC, Section VIII (Gas, Vapor, and Liquid Service)

ASME B16.34 and ASME B16.5

ISO 4126

NACE MR0103-2003 Standard Material Requirements



Consolidated* 19000 Series Safety Relief Valve Soft Seat Design (DA)

19000-DA



Tightness

GE's Consolidated O-ring seat valves are bubble tight at 97 percent of set pressures over 100 psig (6.89 barg).

Percent of set pressure (popping pressure) at which valve will be bubble tight on air.

Set Pressure		Percent of Set Pressure
psig	barg	
5 to 30	0.34 to 2.07	90 percent
31 to 50	2.14 to 3.45	92 percent
51 to 100	3.52 to 6.89	94 percent
101 to max. rating of valve	6.96 to max. rating of valve	97 percent

Consolidated O-ring seat seals provide positive seat tightness at service pressures closer to the set pressure than is possible with metal-to-metal seats. This assures continuous, trouble-free service and complete valve closure after numerous "pops."

Features

- Leak-tight seats
- Tight seats at high operating pressures
- Simple replacement of soft seat
- Large selection of soft seat materials
- Soft seats in standard O-ring sizes
- Proven seat design

Benefits

- Reduces potential loss of system pressure and process media
- Maximizes process efficiency and product output
- Reduces maintenance costs
- Suitable for varied process applications
- Replacement seats readily available
- Dependable performance

Applications

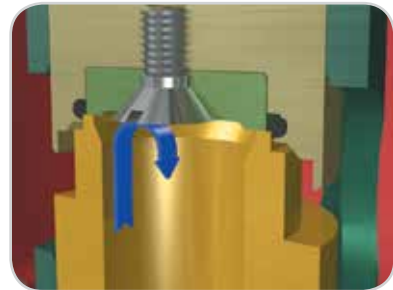
The O-ring design can be used for improved product performance in the same manner as that stated for GE's Consolidated* 1900 Flanged Series Valves.

Sour Gas (SG) or NACE applications

The 19000(DA) valve materials are standard except for the spring which will be Inconel X750.

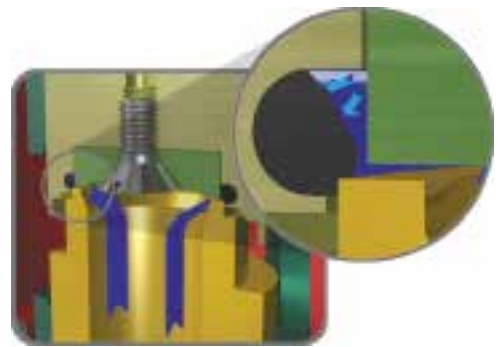
Valve in Closed Position

- 90 percent of set pressure
- Metal seat contains media
- No leakage - bubble tight



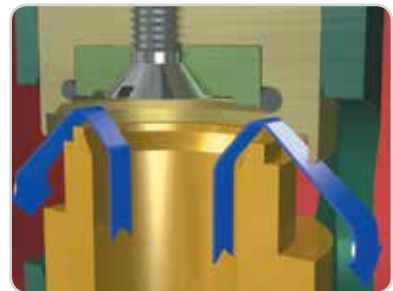
Valve at > 90 percent of set pressure

- Metal seats separate
- System pressure acts on the O-ring, and pressure forces the O-ring against the lip of the nozzle and curved recess of the disc holder. As the pressure within the valves rises to the set point, the O-ring is pressed tightly against the nozzle to maintain maximum sealing force until breakaway pressure is reached
- Bubble tight seat to 97 percent of set pressure



Valve Flowing

- Full lift
- Flowing rated capacity
- O-ring is protected from blowouts as the encapsulating retainer prevents the O-ring from being pulled from its seat by the high-velocity, low-pressure discharge inside the valve.



Valve Returns to Closed Position

- 90 percent of set pressure
- Metal seat contains media
- No leakage - bubble tight
- Seat tightness maintained at pressures above 90 percent after initial closure



GE's Consolidated* Products 19096MBP Series Valve Design

The Consolidated 19096MBP Series balanced-design safety relief valve provides back pressure compensation characteristics that meet the needs of various plant operating systems in today's industrial markets. This design is in compliance with ASME B & PVC, Section VIII requirements. The 19096MBP valve's versatile design can be used in both compressible and incompressible services.

Features and Benefits

Blowdown performance is typically less than 7 percent on compressible fluids and typically 15 percent for fixed blowdown on incompressible applications. This performance minimizes the loss of process fluids during an overpressure excursion and assists in the reduction of operating costs.

An O-ring seat design provides for leak-tight seals during normal system operation and after cycling during a pressure-relieving mode. Media loss due to seat leakage is eliminated, resulting in savings from the cost of lost product.

A simple, easily maintained design contributes to reduced maintenance costs and parts inventory.

Versatile Service Conditions

- Compressible and incompressible media
- Upper spring chamber not exposed to process media
- Corrosion-resistant stainless steel trim
- Special alloy construction available

Increased Operating Efficiency

- Soft seat design provides maximum seat tightness
- Reduced product loss due to leakage
- Consistent fixed blowdown

19096MBP Valve Performance Criteria

Specific Criteria	Valve Attribute
Typical blowdown as a percent of set pressure (At the low end of the spring range with the maximum allowed backpressure applied, the blowdown is shortest)	Liquid: 6 percent to 20 percent Gas: 3 percent to 16 percent
Allowable total backpressure (This is the sum of the variable and constant backpressure, superimposed and built-up)	Liquid: 70 percent of set pressure (Thermal relief applications may be supplied with backpressure up to 90 percent of set pressure) (Note 1) Gas: 50 percent of set pressure. (Note 1)
Temperature limits – Determined by o-ring material selection	Minimum : 60°F (-51°C) Maximum: 600°F (315°C)
Seat Tightness	Set pressure range 50 psig (3.45 barg) to 100 psig (6.8 barg): 94 percent Set pressure range 101 psig (6.9 barg) to maximum rating: 97 percent

19000MBP Valve General Features

Orifice	Pressure R		Standard Valve			Standard Connections					
			Size		Type	Inlet Size		Inlet Type	Outlet Size		Outlet Type
	psig	barg	in.	mm		in.	mm		in.	mm	
0.096 in ² (0.619 cm ²)	50 to 2000	3.45 to 137.90	.50	12.7	19096M-BP	.50	12.7	MNPT	1.00	25.4	FNPT
			.75	19.1	19096M-BP	.75	19.1	MNPT	1.00	25.4	FNPT
			.75	19.1	19096M-BP	.75	19.1	FNPT	1.00	25.4	FNPT
			1.00	25.4	19096M-BP	1.00	25.4	MNPT	1.00	25.4	FNPT

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