Consolidated

a Baker Hughes business

1541-1543 Series Safety Valves

Overview

Baker Hughes's **Consolidated™** 1541 and 1543 Series safety valves are designed for steam and other compressible fluids. They are most commonly used in pharmaceutical, dyeing and process plants.

Features and Benefits

- Equipped with two adjusting rings to allow for sharp opening action and full lift at 3 percent overpressure.
- Low spindle bearing point between the spindle and disc for improved tightness.
- Self-aligning spring washer for reliability and long life.
- Precision wound spring, ± 5 percent tolerance on rate to ensure repeatability and maximum tightness. Manufactured and capacity-certified to ASME Code. Sections I (V Designator) and XIII (UV Designator).
- Valves tested on steam.
- Seats checked for tightness on steam.
- The adjustable lifting mechanism can be positioned in any location with 300 degrees of rotation to facilitate ease of installation.

Options

1543-3:	A duplicate of the Consolidated 1543 safety valve, but supplied with a 304 stainless base and disc.
1541-3:	A duplicate of the Consolidated 1541 safety valve, but supplied with a 304 stainless steel base and disc.
Bronze Bonnet:	When cast iron bonnets are not permitted, a bronze bonnet option is available.
Low Pressures:	For low pressures, a special low pressure design is provided to ensure maximum flow capacities against atmospheric pressure.
Spring:	When chrome alloy springs are not permitted, a 17-7PHSS spring is available.

Note:
The discharged fluid may escape to the atmosphere through the bonnet vent and drain hole; therefore, toxic or hazardous applications must be avoided.

Connections

Consolidated 1541 safety valve is supplied with inlet sizes of 0.75" (19.1 mm) to 2.5" (63.5mm). The 1543 safety valve sizes are supplied with inlet connections of 0.5" (12.7mm) to 2" (50.8 mm). All inlet connections are male NPT with standard hex head on surfaces for easy wrenching.

1541 Standard Inlet and Outlet Connections						
Orifice	Discharge Area		Inlet Size Male NPT		Outlet Size Female NPT	
	in^2	cm^2	in	mm	in	mm
D	0.110	0.710	0.75	19.1	0.75	19.1
E	0.196	1.265	1	25.4	1	25.4
F	0.307	1.981	1.25	31.8	1.25	31.8
G	0.503	3.245	1.5	38.1	1.5	38.1
H	0.785	5.065	2	50.8	2	50.8
J	1.287	8.303	2.5	63.5	2.5	63.5

1543 Standard Inlet and Outlet Connections						
Orifice	Discharge Area		Inlet Size Male NPT		Outlet Size Female NPT	
	in^2	cm^2	in	mm	in	mm
D	0.110	0.710	0.5	12.7	0.75	19.1
E	0.196	1.265	0.75	19.1	1	25.4
F	0.307	1.981	1	25.4	1.25	31.8
G	0.503	3.245	1.25	31.8	1.5	38.1
H	0.785	5.065	1.5	38.1	2	50.8
J	1.287	8.303	2	50.8	2.5	63.5

Pressure/Temperature Limits								
Valve Type	Media	Orifice	Temperature Range				Maximum Set Pressure	
			min.		max.			
			°F	°C	°F	°C	psig	barg
1541 / 1543	Steam	All	-20	-28.9	406	207.8	250	17.24
1541 / 1543	Air	All	-20	-28.9	406	207.8	300	20.68
1541-3 / 1543-3[1]	Steam	D	-20	-28.9	420	215.6	350	24.13
1541-3 / 1543-3	Steam	E - J	-20	-28.9	420	215.6	300	20.68
1541-3 / 1543-3	Air	All	-20	-28.9	420	215.6	350	24.13

1. Baker Hughes's current National Board Certification limits the 1541-3/1543-3 to 300 psig (20.68 barg) for code-stamped applications.

Inlet Sizes .5" (12.7 mm) through 2.5" (63.5 mm) threaded

Outlet Sizes 0.75" (19.1 mm) through 2.5" (63.5 mm) threaded

Orifice Sizes Six sizes: D through J

Pressure Range 5 psig (0.34 barg) to 350 psig (24.13 barg)

Temperature Range -20°F (-28.9°C) to 420°F (215.6°C)

Materials Cast iron bonnet with brass base and trim is standard. Available with bronze bonnet. Stainless steel base and disc are also optional.

Certification ASME B&PVC Section I (V) and XIII (UV)

Blowdown 4 percent

Back Pressure Limit 10 percent of Set Pressure

Baker Hughes