



AUSTRAL - POWERFLO  
SOLUTIONS

**POWERFLO**  
**BRONZE**  
**SAFETY & RELIEF**  
**VALVES**



**Manufactured to**  
**AS 1271**

# APS

## Safety Relief Valves - to AS1271 - Class 'A'

Austral-Powerflo Solutions (APS) has earned an Australia-wide reputation for engineering excellence. Our manufacturing facility is devoted to the manufacture of safety and relief valves, to the requirements of AS1271 and AS3653 for use on Boilers and Unfired Pressure Vessels.

### Safety and Relief Valves for Steam, Gas, Vapour & Liquid Service

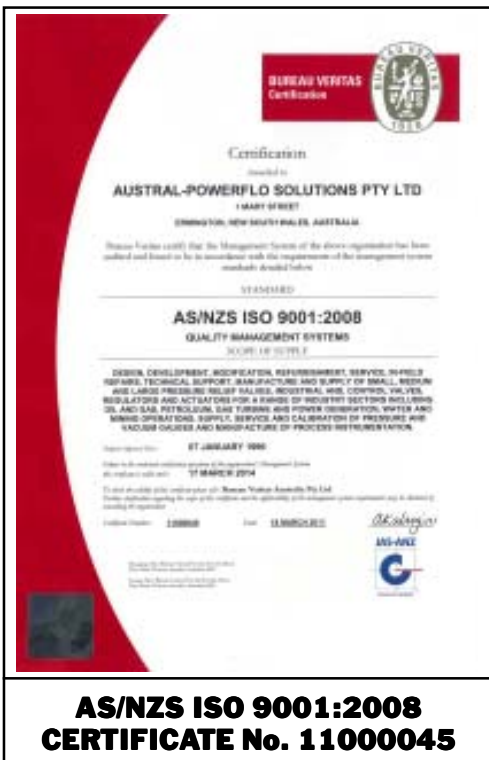
Protection of personnel and equipment is the paramount concern in the selection of safety relief valves for plant operating systems. Only the most reliable safety valves should be considered for such a crucial role. POWERFLO valves have consistently been recognized as leaders in the pressure relief valve field since their introduction over 100 years ago.

Our leadership in design, manufacture and product services is founded on our reputation for unrelenting dedication to product innovation and improvement. A continuous program for keeping abreast of constantly changing requirements of the valve market and a concentrated research and development effort assure strong support for customer needs.

APS personnel are technically trained and available to provide guidance in sizing and selection of the appropriate valves for specific applications.



**Type 1543-3 Series  
Conventional**



### ASME Code

POWERFLO Safety Valves have been flow tested in accordance with ASME Code rules to establish rated capacities. Capacities specified in this catalogue have been certified by the National Board of Boiler and Pressure Vessel Inspectors and are listed in the National Board publication "Pressure Relieving Device Certifications".

### Quality

Each valve is manufactured in accordance with established design criteria and is tested for functional performance, thereby ensuring that it will provide long and reliable service.

Our comprehensive range of safety relief valves, representing over 100 years of valve manufacturing experience, are manufactured, tested and inspected under the controls established by a Bureau Veritas Certification approved quality management system that conforms with ISO 9001:2008. Bureau Veritas Certification under Certificate No. 11000045.

# RELIEF VALVE & CONTROL VALVE TESTING

## How Do You Know Your Repairer is Competent?

You may not realise that there is much more to achieving safety than just sending your safety and relief valves to any repairer.

Austral-Powerflo's High Capacity Test Rig is designed to simulate conditions close to those occurring in the process. Other methods of setting and testing relief valves, such as nitrogen bottles or air compressor and receiver, do not achieve the same level of accuracy and repeatability. These methods do not simulate a pop action with full lift and, in many cases, only achieve the point of simmer, and may damage



**AUSTRAL-POWERFLO's High Capacity Test Rig is your best guarantee that relief valves will relieve at set point and reseal correctly, without leakage.**

your valve. **Leaking** valves mean **energy losses** and **pollution**, increasing your maintenance of ancillary equipment, reducing up-time, which *costs you money!*

The following Table shows results of an evaluation of various commonly used test methods. What method does your repairer use?

OBJECTIVE	TEST METHOD			
	APS's High Capacity Test Rig	Nitrogen Bottle	Hand Pump	Hesitation Gauge / Bubble Jar
Accurate set pressure	✓	✗	✗	✗
Accurate closing pressure	✓	✗	✗	✗
Accurate lift measurement	✓	✗	Not Possible	Not Possible
Detect defects & malfunction	✓	✗	✗	Not Possible
Avoid seat damage	✓	✗	✓	✓
Simulate actual operation	✓	✗	✗	✗

*Using incorrect setting methods means your Safety valves may not relieve at the correct pressure!*

## Safety Relief Valves

# POWERFLO Safety-Relief Valves - for

# Bronze Screwed Valves



**1479 Series**



**1551 Series**



**S1541-3 Series**

<b>Codes</b>	AS1271 Class A	AS1271 Class A	AS1271 Class A
<b>Inlet Sizes</b>	15 and 20mm BSP/NPT	15 and 20mm BSP/NPT	20 to 65mm BSP/NPT
<b>Outlet Sizes</b>	25BSP/NPT	25mm BSP/NPT	20 to 65mm BSP/NPT
<b>Temperature Range</b>	-28°C to 230°C	-28°C to 230°C	-28°C to 230°C
<b>Set Pressure Range</b>	70 kPag to 2050 kPag	70 kPag to 2050 kPag	35 kPag to 2400 kPag
<b>Orifice Sizes</b>	15NB      20NB	15NB      20NB	Six Sizes: D through J
<b>Orifice Area</b>	126.7mm <sup>2</sup> 181.8mm <sup>2</sup>	126.7mm <sup>2</sup> 181.8mm <sup>2</sup>	71 through 830mm <sup>2</sup>
<b>Standard Materials:</b>			
<b>Base/Seat</b>	Forged Brass	Forged Brass	316SS
<b>Bonnet</b>	Bronze	Bronze	Bronze
<b>Disc</b>	Forged Brass	Forged Brass	316SS
<b>Spindle</b>	High Tensile Brass	High Tensile Brass	316SS
<b>Spring</b>	SS	SS	Carbon or SS
<b>Options:</b>	<p>“SPL” - Screwed Cap for Liquid Service only No Adjusting Ring fitted</p> <p>Note: Use Type 1551-SPL valve for Vapour and Gas Service where screwed cap is required.</p>	<p>”SPL” - Screwed Cap for Vapour and Gas Service, includes Adjusting Ring “CP” - Chrome Plating of valve</p>	<p>“SPL” - Screwed Cap for for Vapour and Gas service, includes Adjusting Ring Optional 1541 Available with Bronze base and seat, limited to 2050 kPag set pressure</p>
<b>Service:</b>	Liquids, Water, Oil	Steam, Air, Gas	Liquids, Water, Oil, Steam, Air and Gas
<b>Features:</b>	<p>Wing Guided Disc Available only in Brass Large Capacity Lifting Lever for Hot Water Service, above 60°C.</p>	<p>Wing Guided Disc Available only in Brass</p>	<p>Flat Disc Design with full guiding, suitable for broad range of applications. Medium capacity, full lift valve, having positive sealing, sharp clean opening and ease of adjustment.</p>

# Gas, Vapour and Liquid Service



**S1543-3 Series**



**F1541-3 Series**



**F1543-3 Series**

## Bronze Flanged Valves

 <p><b>S1543-3 Series</b></p>	<h2 style="writing-mode: vertical-rl; transform: rotate(180deg);">Bronze Flanged Valves</h2>	 <p><b>F1541-3 Series</b></p>	 <p><b>F1543-3 Series</b></p>
<p>AS1271 Class A</p>		<p>AS1271 Class A</p>	<p>AS1271 Class A</p>
<p>15 to 50mm BSP/NPT</p>		<p>20 to 65mm</p>	<p>15 to 50mm</p>
<p>20 to 65mm BSP/NPT</p>		<p>20 to 65mm</p>	<p>20 to 65mm</p>
<p>-28°C to 230°C</p>		<p>-28°C to 230°C</p>	<p>-28°C to 230°C</p>
<p>35 kPag to 2400 kPag</p>		<p>35 kPag to 2400 kPag</p>	<p>35 kPag to 2400 kPag</p>
<p>Six Sizes: D through J 71 through 830mm<sup>2</sup></p>		<p>Six Sizes: D through J 71 through 830mm<sup>2</sup></p>	<p>Six Sizes: D through J 71 through 830mm<sup>2</sup></p>
<p>316SS Bronze 316SS 316SS Carbon or SS</p>	<p>Standard Materials: Base Seat     316SS Bonnet        Bronze Disc            316SS Spindle        316SS Spring         Carbon or SS</p>	<p>316SS Bronze 316SS 316SS Carbon or SS</p>	
<p>“SPL” - Screwed Cap for Vapour and Gas service, includes Adjusting Ring. Optional 1543 available with Bronze Base and Seat, limited to 2050 kPag set pressure “CP” - Chrome-plating of valve Soft seat insert in bronze disc only</p>	<p>Options: Flanges to AS2129 Flanges to ANSI 150RF                   ANSI 300RF “SPL” - Screwed Cap for Vapour and Gas service, includes Adjusting Ring. Optional 1541 available with Bronze base and seat, limited to 2050 kPag set pressure</p>	<p>Options: Flanges to AS2129 Flanges to ANSI 150RF                   ANSI 300RF “SPL” - Screwed Cap for Vapour and Gas service, includes Adjusting Ring. Optional 1543 available with Bronze Base and Seat, limited to 2050 kPag set pressure “CP” - Chrome-plating of valve Soft seat insert in bronze disc only</p>	
<p>Liquids, Water, Oil, Steam, Air and Gas</p>	<p>Liquids, Water, Oil, Steam, Air and Gas</p>	<p>Liquids, Water, Oil, Steam, Air and Gas</p>	
<p>Flat Disc Design with full guiding, suitable for broad range of applications. High capacity, full lift valve, having positive sealing, sharp clean opening and ease of adjustment.</p>	<p>Flat Disc Design with full guiding, suitable for broad range of applications. Medium capacity, full lift valve, having positive sealing, sharp clean opening and ease of adjustment.</p>	<p>Flat Disc Design with full guiding, suitable for broad range of applications. High capacity, full lift valve, having positive sealing, sharp clean opening and ease of adjustment.</p>	

# **POWERFLO Safety and Relief Valves**

## **Complies with AS1271-2003**

Designed specifically for air, steam, gas and liquid service, POWERFLO Valves will meet all the varied needs of Industry today. POWERFLO Valves are engineered and manufactured to meet the most exacting requirements of industry for positive and dependable operation.

Users of POWERFLO Safety Relief Valves benefit by the accumulated experience of more than 100 years of development, engineering, manufacturing and field experience in safety and relief valve design for the protection of all types of pressure vessels and systems.

The purpose of a safety valve or relief valve is protection of personnel, plant and production. To perform this basic function, a safety relief valve must be designed to open automatically at a predetermined set pressure, must be sized to provide full pressure relief of the pressure system on which it is installed, must provide positive closing and tightness after operation. The POWERFLO Safety Valve will provide this basic function.

POWERFLO Safety Valves are engineered to make use of the characteristics of air, steam or gases which have a powerful expansion force when liberated. This force, and kinetic energy of the media flowing from the valve orifice, is fully utilised to give the definite pop action associated with POWERFLO Safety Valves.

The full advantages of these two factors, coupled with the carefully developed contours of the POWERFLO Safety Valve huddle chamber, increase the valve lift and therefore increase the capacity of the valve. Different media, with varying specific gravities can cause the valve to perform in different ways. To allow for this, the POWERFLO 1541/1543 Safety Valve is designed with two performance adjusting rings. The upper adjusting ring controls the blowdown by redirecting the flow stream through 180° through a secondary orifice, the size of which is adjusted to achieve maximum valve lift.

### **Fig. 1479 and 1551 Medium Capacity for air, steam, gas or liquid**

This is a medium capacity low priced valve meeting the AS1271 requirements, providing the optimum product to meet the severest demands.

Important features of the valve are its positive sealing, sharp, clean opening and ease of adjustment.

The POWERFLO 1479 and 1551 Bronze Safety and Safety Relief Valves are offered in 15 and 20mm sizes for steam, air or liquid service in a variety of combinations for pressures up to 2050kPa. They are available with screwed bases, with brass base and disc as standard.

### **Fig. 1541-3 - Medium Capacity for air, steam and gas**

The POWERFLO 1541 Bronze Safety Relief Valve is a medium capacity full lift valve meeting AS1271 requirements and providing the optimum product to meet the severest demands. Important features of the POWERFLO 1541 valve are its positive sealing, sharp, clean opening and ease of adjustment.

The POWERFLO 1541-3 Bronze Safety Valves with stainless trim are offered in a complete range of sizes from 20mm to 65mm. Their maximum operating pressure for steam is 2050kPa and for air is 2400kPa. They are available with screwed bases, with stainless steel base and disc as standard, or with optional bronze trim.

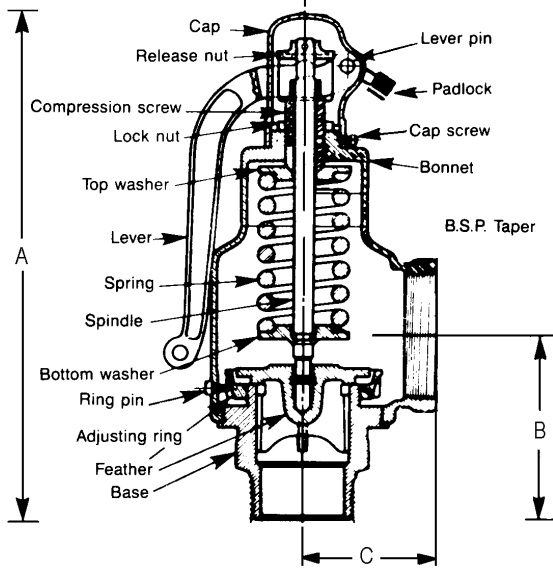
### **Fig. 1543-3 - High capacity for air, steam and gas**

The POWERFLO 1543 valve is a high capacity full lift valve meeting AS1271 requirements and providing the optimum product to meet the severest demands.

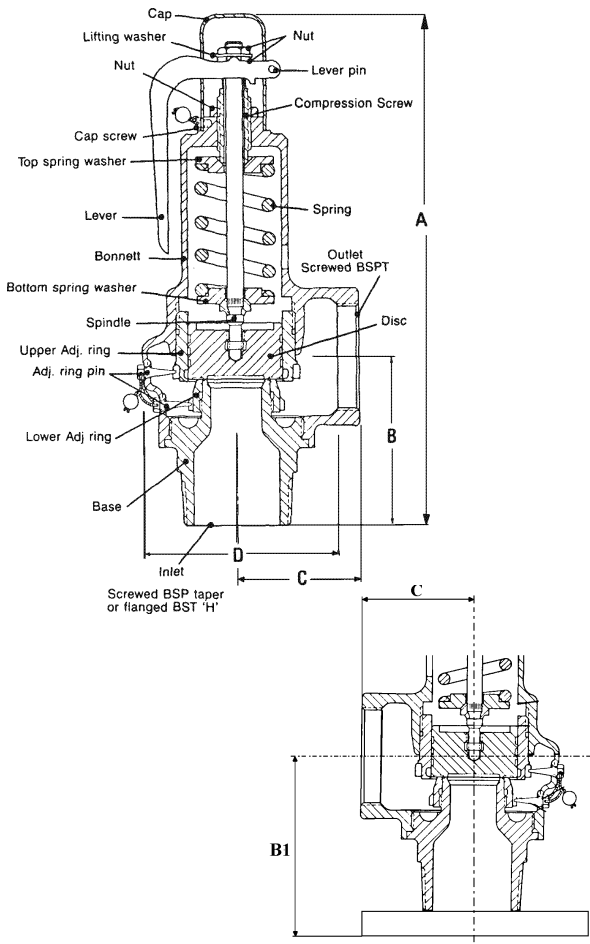
Important features of the POWERFLO 1543-3 valve are its positive sealing, sharp, clean opening and ease of adjustment.

POWERFLO 1543-3 bronze safety valves are offered in a complete range of sizes from 15 to 50mm. Their maximum operating pressure for steam and liquid is 2050kPa and for air is 2400kPa. They are available with screwed bases, with stainless steel base and disc as standard, or with optional bronze trim.

**Fig. 1551 and 1479**



**Fig. 1541 and 1543**



**DIMENSIONS MM**

**TYPE 1551 and 1479**

Inlet Size	15	20
Outlet Size	25	25
Orifice Area (mm <sup>2</sup> )	127	182

A	150	150
B	67	67
C	40	40

**TYPE 1541**

Inlet Size mm	20	25	32	40	50	65
Outlet Size mm	20	25	32	40	50	65
Orifice Area mm <sup>2</sup>	71	126	198	324	506	830

**Screwed Inlet**

Net Mass	1kg	1kg	2kg	3.5kg	4.5kg	7.5kg
Dismantling height	210	216	270	300	340	380
A	169	177	222	246	284	326
B	57	62	70	78	90	102
C	36	40	50	57	67	86
D	57	63	76	88	111	130

**Flanged Inlet**

C	36	40	50	57	67	86	
AS2129	B1	57.5	60	69.5	79	90.5	103
ANSI150	B1	57.5	63.5	69.5	79	92	105
ANSI300	B1	57.5	63.5	72.5	82.5	93.5	108
D	57	63	76	88	111	130	

**TYPE 1543 - HIGH Capacity**

Inlet Size mm	15	20	25	32	40	50
Outlet Size mm	20	25	32	40	50	65
Orifice Area mm <sup>2</sup>	71	126	198	324	506	830

**Screwed Inlet**

Net Mass	1kg	1kg	2kg	3.5kg	4.5kg	7.5kg
Dismantling height	210	216	270	300	340	380
A	169	177	222	246	284	326
B	57	62	70	78	90	102
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**Flanged Inlet**

C	36	40	50	57	67	86	
AS2129	B1	57.5	60	69.5	79	90.5	103
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ANSI300	B1	57.5	63.5	72.5	82.5	93.5	108
D	57	63	76	88	111	130	

**Materials**

Fig. No.	Base & Seat	Disc	Spindle	Spring
1551	Dezincd Brass		High	SS
1479	Dezincd Brass		Tensile	SS
1551 spl	Dezincd Brass		Brass	SS
1479 spl	Dezincd Brass			SS
1541-3	316SS	316SS	316SS	SS
1543-3	316SS	316SS	316SS	SS
<b>Optional</b>				
1541	Bronze	Bronze	316SS	SS
1543	Bronze	Bronze	316SS	SS

Note: Type 1479 excludes lower adjusting ring.

**Service**

Air Gas	Liquids Water, Oil	Steam	Max Pressure kPa			Max Temp
			Air, Gas	Liquids	Steam	
✓		✓			2050	230°C
	✓			2050		230°C
✓		✓			2050	230°C
	✓			2050		230°C
✓		✓	2400		2050	230°C
✓		✓	2400		2050	230°C
✓		✓	2050		1700	230°C
✓		✓	2050		1700	230°C

# POWERFLO

## FIG. 1541 and 1543 SAFETY VALVE

**CAPACITY IN KILOGRAMS PER HOUR OF SATURATED STEAM  
BASED ON 3% OVERPRESSURE AND 90% OF AVERAGE CAPACITY  
CALCULATED IN ACCORDANCE WITH AS1271-2003 AND AS3653-1993  
FOR USE ON FIRED STEAM BOILERS AND HOT WATER BOILERS, ETC.**

Model	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541
Inlet Size (mm)	15	20	20	25	25	32	32	40	40	50	50	65
Set Pressure kPa	D Orifice 71mm <sup>2</sup>		E Orifice 126mm <sup>2</sup>		F Orifice 198mm <sup>2</sup>		G Orifice 325mm <sup>2</sup>		H Orifice 506mm <sup>2</sup>		J Orifice 830mm <sup>2</sup>	
35	49.06		87.42		136.93		224.35		350.13		574.03	
70	60.50		107.81		168.86		276.67		431.78		707.91	
100	70.31		125.28		196.24		321.52		501.78		822.66	
150	86.66		154.41		241.86		396.27		618.43		1013.91	
200	103.01		183.54		287.48		471.01		735.09		1205.17	
260	122.62		218.49		342.22		560.71		875.07		1434.67	
300	135.70		241.79		378.72		620.51		968.40		1587.68	
350	152.04		270.91		424.34		695.26		1085.05		1778.93	
400	168.39		300.04		469.96		770.01		1201.71		1970.19	
414	172.97		308.20		482.74		790.93		1234.37		2023.74	
450	184.65		329.01		515.35		844.36		1317.75		2160.44	
500	201.49		359.02		562.34		921.36		1437.91		2357.44	
550	218.33		389.02		609.33		998.35		1558.07		2554.44	
600	235.17		419.02		656.32		1075.34		1678.23		2751.44	
650	252.00		449.02		703.32		1152.34		1798.39		2948.44	
690	265.47		473.02		740.91		1213.93		1894.51		3106.04	
750	285.68		509.02		797.30		1306.32		2038.71		3342.44	
800	302.52		539.02		844.29		1383.32		2158.86		3539.44	
850	319.35		569.02		891.28		1460.31		2279.02		3736.44	
900	336.19		599.03		938.28		1537.30		2399.18		3933.44	
950	353.03		629.03		985.27		1614.30		2519.34		4130.44	
1000	369.87		659.03		1032.26		1691.29		2639.50		4327.44	
1034	381.32		679.43		1064.21		1743.64		2721.21		4461.40	
1100	403.54		719.03		1126.24		1845.28		2879.82		4721.44	
1200	437.22		779.03		1220.23		1999.26		3120.14		5115.44	
1300	470.89		839.04		1314.21		2153.25		3360.46		5509.44	
1400	504.57		899.04		1408.20		2307.24		3600.78		5903.44	
1500	538.24		959.04		1502.18		2461.22		3841.10		6297.44	
1600	571.92		1019.04		1596.17		2615.21		4081.41		6691.44	
1700	605.59		1079.05		1690.15		2769.20		4321.73		7085.44	
1750	622.43		1109.05		1737.14		2846.19		4441.89		7282.44	
1800	639.27		1139.05		1784.13		2923.18		4562.05		7479.44	
1900	672.94		1199.05		1878.12		3077.17		4802.37		7873.44	
2000	706.62		1259.05		1972.10		3231.16		5042.69		8267.44	
2050	723.45		1289.05		2019.09		3308.15		5162.85		8464.44	

**NOTES:**

1. The outlet line must be short as possible and its weight fully supported.
2. A back pressure limitation of 276 kPag applies.
3. The built-up back pressure shall not exceed 10% of the set pressure.
4. Valves are not suitable for corrosive, flammable or toxic service.
5. Capacities at set pressures below 414kPag are based on 14kPag overpressure.
6. The maximum pressure for the bronze 1541 and 1543 is 1700 kPag. The figures in italics are for 1541-3 and 1543-3 with SST base and disc, which is limited to 2050 kPag on steam service.



# POWERFLO

## FIG. 1541 and 1543 SAFETY VALVE

**CAPACITY IN KILOGRAMS PER HOUR OF SATURATED STEAM  
BASED ON 10% OVERPRESSURE AND 90% OF AVERAGE CAPACITY  
CALCULATED IN ACCORDANCE WITH AS1271-2003 AND AS3653-1993**

Model	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541
Inlet Size (mm)	15	20	20	25	25	32	32	40	40	50	50	65
Set Pressure kPa	D Orifice 71mm <sup>2</sup>		E Orifice 126mm <sup>2</sup>		F Orifice 198mm <sup>2</sup>		G Orifice 325mm <sup>2</sup>		H Orifice 506mm <sup>2</sup>		J Orifice 830mm <sup>2</sup>	
35	51.31		91.43		143.21		234.65		366.20		600.38	
70	62.76		111.82		175.15		286.97		447.86		734.26	
100	72.57		129.30		202.52		331.82		517.85		849.02	
150	88.91		158.42		248.14		406.57		634.51		1040.27	
200	105.26		187.55		293.77		481.32		751.16		1231.52	
207	107.55		191.63		300.15		491.78		767.49		1258.30	
300	141.00		251.24		393.52		644.76		1006.24		1649.72	
350	158.98		283.28		443.70		726.98		1134.56		1860.10	
400	176.96		315.31		493.89		809.20		1262.88		2070.48	
414	182.00		324.29		507.94		832.22		1298.81		2129.38	
450	194.94		347.35		544.07		891.42		1391.20		2280.86	
500	212.93		379.39		594.26		973.65		1519.52		2491.24	
550	230.91		411.43		644.44		1055.87		1647.84		2701.62	
600	248.89		443.47		694.62		1138.09		1776.16		2912.00	
650	266.87		475.51		744.81		1220.31		1904.48		3122.38	
700	284.85		507.55		794.99		1302.54		2032.80		3332.76	
750	302.83		539.59		845.17		1384.76		2161.12		3543.14	
800	320.81		571.63		895.36		1466.98		2289.44		3753.52	
850	338.79		603.66		945.54		1549.21		2417.76		3963.90	
900	356.77		635.70		995.72		1631.43		2546.08		4174.28	
950	374.76		667.74		1045.91		1713.65		2674.40		4384.66	
1000	392.74		699.78		1096.09		1795.87		2802.72		4595.04	
1050	410.72		731.82		1146.28		1878.10		2931.04		4805.41	
1100	428.70		763.86		1196.46		1960.32		3059.36		5015.79	
1200	464.66		827.94		1296.83		2124.76		3316.00		5436.55	
1300	500.62		892.01		1397.19		2289.21		3572.64		5857.31	
1400	536.59		956.09		1497.56		2453.65		3829.28		6278.07	
1500	572.55		1020.17		1597.93		2618.10		4085.92		6698.83	
1600	608.51		1084.25		1698.30		2782.54		4342.56		7119.59	
1700	644.47		1148.32		1798.66		2946.99		4599.20		7540.35	
<i>1750</i>	<i>662.45</i>		<i>1180.36</i>		<i>1848.85</i>		<i>3029.21</i>		<i>4727.52</i>		<i>7750.73</i>	
<i>1800</i>	<i>680.44</i>		<i>1212.40</i>		<i>1899.03</i>		<i>3111.43</i>		<i>4855.85</i>		<i>7961.11</i>	
<i>1900</i>	<i>716.40</i>		<i>1276.48</i>		<i>1999.40</i>		<i>3275.88</i>		<i>5112.49</i>		<i>8381.87</i>	
<i>2000</i>	<i>752.36</i>		<i>1340.56</i>		<i>2099.77</i>		<i>3440.32</i>		<i>5369.13</i>		<i>8802.63</i>	
<i>2050</i>	<i>770.34</i>		<i>1372.60</i>		<i>2149.95</i>		<i>3522.55</i>		<i>5497.45</i>		<i>9013.01</i>	

**NOTES:**

1. The outlet line must be short as possible and its weight fully supported.
2. A back pressure limitation of 276 kPag applies.
3. The built-up back pressure shall not exceed 10% of the set pressure.
4. Valves are not suitable for corrosive, flammable or toxic service.
5. Capacities at set pressures below 207 kPag are based on 20.7 kPag overpressure.
6. The maximum pressure for the bronze 1541 and 1543 is 1700 kPag. The figures in italics are for 1541-3 and 1543-3 with SST base and disc, which is limited to 2050 kPag on steam service.

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## FIG. 1541 and 1543 SAFETY VALVE

**CAPACITY IN LITRES PER SECOND OF FREE AIR @ 15 Deg C  
BASED ON 10% OVERPRESSURE AND 90% OF AVERAGE CAPACITY  
CALCULATED IN ACCORDANCE WITH AS1271-2003**

Model	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541
Inlet Size (mm)	15	20	20	25	25	32	32	40	40	50	50	65
Set Pressure kPa	D Orifice 71mm <sup>2</sup>		E Orifice 126mm <sup>2</sup>		F Orifice 198mm <sup>2</sup>		G Orifice 325mm <sup>2</sup>		H Orifice 506mm <sup>2</sup>		J Orifice 830mm <sup>2</sup>	
35	19.02		33.90		53.09		86.99		135.76		222.57	
70	23.27		41.45		64.93		106.39		166.03		272.20	
100	26.90		47.93		75.08		123.01		191.98		314.75	
150	32.96		58.73		91.99		150.72		235.23		385.65	
200	39.02		69.53		108.91		178.44		278.47		456.55	
207	39.87		71.04		111.27		182.32		284.53		466.48	
260	46.94		83.64		131.00		214.64		334.98		549.20	
300	52.27		93.14		145.89		239.03		373.04		611.59	
350	58.94		105.02		164.49		269.51		420.61		689.59	
400	65.60		116.90		183.10		299.99		468.18		767.58	
450	72.27		128.77		201.70		330.48		515.75		845.57	
500	78.94		140.65		220.31		360.96		563.33		923.57	
550	85.60		152.53		238.91		391.44		610.90		1001.56	
600	92.27		164.41		257.52		421.92		658.47		1079.56	
650	98.94		176.29		276.12		452.41		706.04		1157.55	
690	104.27		185.79		291.00		476.79		744.10		1219.94	
700	105.60		188.16		294.73		482.89		753.61		1235.54	
750	112.27		200.04		313.33		513.37		801.19		1313.54	
800	118.93		211.92		331.93		543.85		848.76		1391.53	
850	125.60		223.80		350.54		574.34		896.33		1469.53	
900	132.27		235.67		369.14		604.82		943.90		1547.52	
950	138.93		247.55		387.75		635.30		991.47		1625.51	
1000	145.60		259.43		406.35		665.79		1039.05		1703.51	
1034	150.13		267.51		419.00		686.51		1071.40		1756.54	
1100	158.93		283.19		443.56		726.75		1134.19		1859.50	
1200	172.26		306.94		480.77		787.72		1229.34		2015.48	
1300	185.60		330.70		517.98		848.68		1324.48		2171.47	
1400	198.93		354.45		555.19		909.65		1419.62		2327.46	
1500	212.26		378.21		592.40		970.61		1514.77		2483.45	
1600	225.59		401.96		629.61		1031.58		1609.91		2639.44	
1700	238.92		425.72		666.82		1092.54		1705.06		2795.42	
1750	245.59		437.60		685.42		1123.02		1752.63		2873.42	
1800	252.26		449.48		704.03		1153.51		1800.20		2951.41	
1900	265.59		473.23		741.24		1214.47		1895.35		3107.40	
2000	278.92		496.99		778.45		1275.44		1990.49		3263.39	
2050	285.59		508.87		797.05		1305.92		2038.06		3341.38	
<i>2100</i>	<i>292.25</i>		<i>520.74</i>		<i>815.65</i>		<i>1336.40</i>		<i>2085.63</i>		<i>3419.38</i>	
<i>2200</i>	<i>305.59</i>		<i>544.50</i>		<i>852.86</i>		<i>1397.37</i>		<i>2180.78</i>		<i>3575.37</i>	
<i>2300</i>	<i>318.92</i>		<i>568.25</i>		<i>890.07</i>		<i>1458.33</i>		<i>2275.92</i>		<i>3731.35</i>	
<i>2400</i>	<i>332.25</i>		<i>592.01</i>		<i>927.28</i>		<i>1519.30</i>		<i>2371.07</i>		<i>3887.34</i>	

### NOTES:

1. The outlet line must be short as possible and its weight fully supported.
2. A back pressure limitation of 276 kPag applies.
3. The built-up back pressure shall not exceed 10% of the set pressure.
4. Valves are not suitable for corrosive, flammable or toxic service.
5. Capacities at set pressures below 207 kPag are based on 20.7 kPag overpressure.
6. The maximum pressure for the bronze 1541 and 1543 is 2050 kPag. The figures in italics are for 1541-3 and 1543-3 with SST base and disc, which is limited to 2400 kPag on gas service.

# **POWERFLO**

## **1541-SPL, 1541-3-SPL, 1543-SPL, 1543-3-SPL**

### **LIQUID RELIEF VALVE**

**CAPACITY IN LITRES PER MINUTE WATER @ 25% OVERPRESSURE  
CALCULATED IN ACCORDANCE WITH AS1271-2003**

Model	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541	1543	1541
Inlet Size (mm)	15	20	20	25	25	32	32	40	40	50	50	65
Set Pressure kPa	D Orifice 71mm <sup>2</sup>		E Orifice 126mm <sup>2</sup>		F Orifice 198mm <sup>2</sup>		G Orifice 325mm <sup>2</sup>		H Orifice 506mm <sup>2</sup>		J Orifice 830mm <sup>2</sup>	
35	22.93		40.70		63.95		104.97		163.44		268.09	
70	32.43		57.56		90.44		148.46		231.13		379.13	
100	38.76		68.79		108.10		177.44		276.26		453.15	
150	47.48		84.25		132.40		217.32		338.35		554.99	
200	54.82		97.29		152.88		250.94		390.69		640.85	
250	61.29		108.77		170.92		280.55		436.80		716.49	
300	67.14		119.15		187.24		307.33		478.49		784.88	
350	72.52		128.70		202.24		331.96		516.83		847.77	
400	77.53		137.58		216.20		354.88		552.52		906.30	
450	82.23		145.93		229.32		376.40		586.03		961.28	
500	86.68		153.82		241.72		396.76		617.73		1013.27	
550	90.91		161.33		253.52		416.13		647.88		1062.73	
600	94.95		168.50		264.79		434.63		676.69		1109.99	
650	98.83		175.38		275.60		452.38		704.32		1155.31	
700	102.56		182.00		286.01		469.46		730.91		1198.92	
750	106.16		188.39		296.05		485.93		756.56		1241.00	
800	109.64		194.57		305.76		501.87		781.37		1281.70	
850	113.01		200.56		315.17		517.32		805.42		1321.15	
900	116.29		206.37		324.30		532.31		828.77		1359.45	
950	119.48		212.03		333.19		546.90		851.48		1396.70	
1000	122.58		217.54		341.84		561.11		873.60		1432.99	
1100	128.56		228.16		358.53		588.50		916.24		1502.93	
1200	134.28		238.30		374.47		614.66		956.98		1569.76	
1300	139.76		248.03		389.76		639.76		996.06		1633.85	
1400	145.04		257.39		404.48		663.91		1033.66		1695.53	
1500	150.13		266.43		418.67		687.22		1069.94		1755.04	
1600	155.05		275.17		432.40		709.75		1105.03		1812.60	
1700	159.83		283.63		445.71		731.60		1139.04		1868.38	
1800	164.46		291.86		458.63		752.81		1172.06		1922.55	
1900	168.97		299.85		471.20		773.44		1204.18		1975.23	
2000	173.36		307.64		483.44		793.53		1235.46		2026.55	
2070	176.36		312.98		491.83		807.29		1256.90		2061.71	

1. Valves are not designed for closed discharge systems. The outlet line must be short as possible, open to atmosphere and its weight fully supported.
2. A back pressure rating of 270 kPag applies only to built-up back pressure conditions, which shall not exceed 10% of the set pressure.
3. A lifting lever will be required on hot water applications where operating temperature exceeds 60 degrees Celsius, so the 'SPL' suffix should not be nominated.
4. Valves are not suitable for corrosive, flammable or toxic service.
5. For values of set pressure below 300 kPa, the blowdown shall be a minimum of 60 kPa.
6. Nameplate will continue with "L" being stamped in the capacity box.

# POWERFLO

## 1479 and 1551 SAFETY & RELIEF VALVES

**IN ACCORDANCE WITH AS1271 FOR USE ON UNFIRED PRESSURE VESSELS,  
ETC.**

Set Pressure kPag	Fig. 1551		Fig. 1551		Fig. 1479	
	Steam (Kg/Hr)		Air (l/Sec)		Water (l/Min)	
	126.7mm <sup>2</sup>	181.8mm <sup>2</sup>	126.7mm <sup>2</sup>	181.8mm <sup>2</sup>	126.7mm <sup>2</sup>	181.8mm <sup>2</sup>
	15NB	20NB	15NB	20NB	15NB	20NB
35	52	75	19	28	39.64	56.89
105	75	108	28	40	68.67	98.53
170	97	139	36	52	87.37	125.37
205	109	156	40	58	95.95	137.67
240	121	174	45	65	103.81	148.96
275	134	193	50	71	111.13	159.45
345	160	230	59	85	124.47	178.6
415	186	266	69	99	136.51	195.88
485	211	303	78	112	147.58	211.76
585	248	356	92	132	162.08	232.57
655	273	392	101	145	171.5	246.09
690	286	411	106	152	176.03	252.58
725	299	429	111	159	180.44	258.9
760	312	447	116	167	184.74	265.08
825	336	482	124	179	192.48	276.18
860	348	500	129	185	196.52	281.98
895	361	518	134	192	200.48	287.66
1000	400	573	148	213	211.91	304.07
1035	412	592	153	219	215.59	309.34
1105	438	629	162	233	222.76	319.63
1210	476	684	177	253	233.1	334.47
1275	500	718	185	266	239.28	343.34
1345	526	755	195	280	245.76	352.64
1380	539	773	200	287	248.94	357.2
1450	564	810	209	300	255.17	366.15
1515	588	844	218	313	260.83	374.26
1585	614	881	227	326	266.79	382.81
1655	639	917	237	340	272.62	391.17
1725	665	954	246	354	278.32	399.36
1795	690	991	256	367	283.91	407.38
1860	714	1025	265	380	289.01	414.69
1930	740	1062	274	394	294.4	422.42
2000	765	1099	284	407	299.69	430.02
2050	784	1125	291	417	303.41	435.36

**NOTES:**

1. Kilograms per hour saturated steam at 10% overpressure, 90% of average capacity.
2. Capacity at set pressure below 206 kPa are based on 21 kPa overpressure.
3. Litres per second of free air at (15°C) and 10% overpressure, 90% of average capacity.
4. Litres per minute of water at (20°C) and 25% overpressure.

# POWERFLO

## 1551 SAFETY VALVES

IN ACCORDANCE WITH AS1271 AND AS3653 FOR USE ON  
FIRED STEAM BOILERS, ETC.

Set Pressure kPag	Fig. 1551	
	Steam (Kg/Hr)	
	126.7mm <sup>2</sup>	181.8mm <sup>2</sup>
	15NB	20NB
35	50	72
105	73	105
170	95	136
205	106	153
240	118	170
275	130	186
345	153	220
415	176	252
485	200	287
585	234	336
655	258	370
690	270	388
725	282	405
760	294	422
825	316	454
860	328	471
895	340	488
1000	376	540
1035	388	557
1105	412	592
1210	448	643
1275	470	675
1345	494	710
1380	506	727
1450	530	761
1515	553	793
1585	577	828
1655	601	862
1725	625	897
1795	649	931
1860	671	963
1930	695	997
2000	719	1032
2050	736	1056

### BACK PRESSURE DEFINITION

Back pressure is that pressure found in the valve body casing and in the exhaust piping from the valve. It is downstream from the valve nozzle and disc seat and may affect valve performance and capacity. Types of back pressure include:

Super-imposed – it exists in the valve body casing and exhaust piping prior to the valve opening. It consists of three types:

- Atmospheric – normal atmospheric pressure is present and has no effect on the set pressure or performance of a valve set above 100 kPag.
- Constant – pressure (higher than atmospheric) that exists in the body casing and exhaust piping, but which does not change with time.
- Variable – pressure that exists in the body casing and exhaust piping, but which is variable in nature and changes with time.

Built-up – pressure on the exhaust side of the valve that results from flow through the valve, after the valve has opened.

#### NOTES:

1. Kilograms per hour saturated steam at 3% overpressure, 90% of average capacity.
2. Capacity at set pressure below 415 kPa are based on 14 kPa overpressure.

# We support what we sell!

Austral-Powerflo Solutions offers a complete portfolio of pressure relief, control, ball, butterfly, gate, globe and check valves, and pressure and temperature instrumentation - our product lines provide world-class market-leading technology. The industries we service include power generation, boiler manufacturing, petroleum oil & gas, chemical, food & beverage, waste gas and water. Austral-Powerflo provides focused effort to support our Australia-wide customers throughout a product's life-cycle. The backbone of this support system is Austral-Powerflo's technically competent Salesforce, our Sales/Support Offices and our manufacturing/service operations, backed-up by our technical resources.


As a leading provider of Industrial Valve and Instrumentation solutions, Austral-Powerflo offers world-class aftermarket services. The aftermarket service program is designed to provide consistent and reliable repair services, technical training, field support, spare parts supply and management, complete equipment replacement, and comprehensive diagnostic services.

Austral-Powerflo is committed to providing our customers with quality service throughout the products life cycle, and ensuring that critical facets of their plant operation are supported. Austral-Powerflo's aftermarket service support is accessible 24 hours a day and seven days a week all year round.

Austral-Powerflo fully understands that quick response in obtaining replacement parts and overhaul services is a critical factor in maintaining a smooth operating plant. As a result, Austral-Powerflo has placed extremely high importance on this customer need within our aftermarket program.

## ACCREDITED SUPPORT

Austral-Powerflo provides factory-certified support for our products through our Valve Repair and Testing (accredited by BVQI to ISO9001) and *FICO* Instrumentation Manufacture, Repair and Testing facilities. Your assurance of our competence is Austral-Powerflo's NATA accreditation for Pressure Gauge Calibration, as well as our **Consolidated**® Green Tag Center (GTC®) and **Masoneilan MARC** trained and accredited field service technicians. All of these resources provide OEM experience, knowledge and technology to support your maintenance and repair needs, including hands-on training and on-site support.

Our Masoneilan  accredited Control Valve Test Procedures cover leak testing up to Class VI Shut-Off, test and calibration of actuators and instrumentation.

All Valves are fully stroked to ensure correct operation.



## INTEGRATED MAINTENANCE PROGRAMS

Austral-Powerflo also provides integrated programs to help manage the support of your installed equipment. These programs are location specific and include plant surveys, data management, scheduling and planning of maintenance, repairs, and overhauls.

# NOTES



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