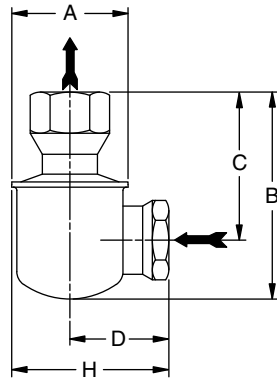


TTF-1
Straight-Thru



TTF-1R
Right Angle



Armstrong offers Thermostatic Air Vents for positive venting of air and other non-condensable gases from steam in chamber type heat transfer equipment. Typical applications include jacketed kettles, retorts, vulcanizers, jacketed sterilizers or other contained equipment where air could accumulate in remote areas of the steam chamber and reduce heat transfer capacity. These vents are balanced pressure air vents that respond to the pressure-temperature curve of steam. Air is automatically vented at slightly below steam temperature throughout the entire operating pressure range.

Features

- Suitable for pressures from 0 to 20 bar
- All 304-L stainless steel bodies – sealed, tamper-proof
- Balanced pressure thermostatic element vents air at slightly below steam temperature over the entire pressure range – no adjustments required
- Dependable, proven phosphor-bronze bellows caged in stainless steel with bronze valve and stainless steel seat
- Available in straight-thru or right-angle connections

Armstrong thermostatic air vents should be installed at the highest point on a steam chamber, with the air vent located above the chamber. This will minimize the possibility of any liquid carryover, and air can be vented at atmosphere without a drain line.

Table AV-406-1. TTF-1 List of Materials

Name of Part	Material
Body	304-L Stainless steel
Connections	304 Stainless steel
Balanced Pressure Thermostatic Air Vent	Stainless steel and bronze with Phosphor-bronze bellows, entire unit caged in stainless steel
Gasket	Copper clad non-asbestos

Optional: All stainless steel thermostatic air vent.

Table AV-406-2. TTF-1 Physical Data

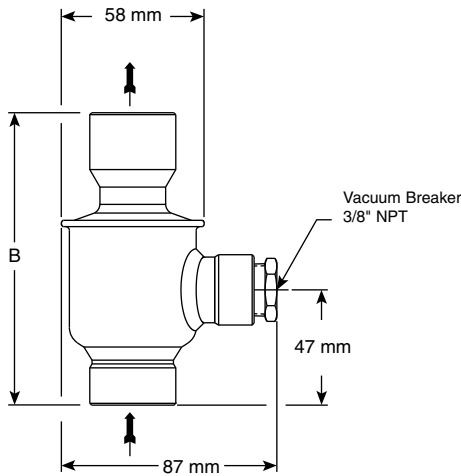
Model No.	Straight-thru Connections TTF-1		Right-Angle Connections TTF-1R	
	mm	mm	mm	mm
Pipe Connections	15	20	15	20
"A" Diameter	57	57	57	57
"B" Height	114	119	95	100
"C" \varnothing inlet to face of outlet	–	–	67	71
"D" \varnothing outlet to face of inlet	–	–	49	48
"H"	–	–	78	76
Weight in kg (screwed)	0,4	0,5	0,4	0,5
Maximum Allowable Pressure (Vessel Design)	20 bar @ 232°C			
Maximum Operating Pressure	20 bar			
Discharge Orifice Size	3/16"			

All models comply with the article 3.3 of the PED (97/23/EC).

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

Stainless Steel Thermostatic Air Vent/Vacuum Breaker

For Pressures to 10 bar...Capacities to 93 m³/h



The Armstrong TAVB is a combination thermostatic air vent/vacuum breaker that is ideally suited for steam-filled vessels with modulating controls. The TAVB will vent air and other non-condensables from vessels such as shell and tube heat exchangers, jacketed kettles and steam coils during their operation. It will also break the vacuum that forms during steam control modulation.

This balanced pressure air vent responds to the pressure-temperature curve of steam, and the soft-seated vacuum breaker responds to 0,0051 bar of vacuum.

Features

- Maximum allowable pressure: 20 bar
- Maximum allowable temperature: 185°C
- Maximum working pressure: 10 bar
- All stainless steel welded construction
- NPT connections

Armstrong thermostatic air vents should be installed at the highest point on a steam chamber, with the air vent located above the chamber. This will minimize the possibility of any liquid carryover, and air can be vented to atmosphere without a drain line.

Table AV-407-1. TAVB Physical Data (dimensions in mm)

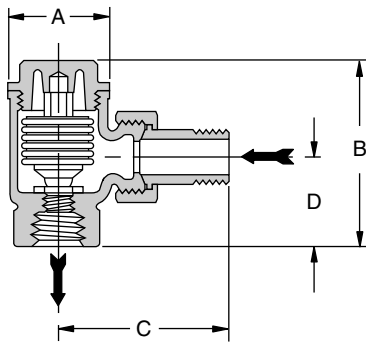
Model No.		TAVB-2	TAVB-3
Pipe Connections	Thermostatic Air Vent	15	20
	Vacuum Breaker	3/8"	3/8"
"A" (Diameter)		57	57
"B" (Height)		117	119
"C" (∅ Inlet to Face of Vacuum Breaker)		54	54
Weight lb (kg)		0,45	0,57
Maximum Allowable Pressure (Vessel Design)		20 bar @ 185°C	
Maximum Operating Pressure		10 bar	
Discharge Orifice Size		3/16"	

Table AV-407-2. TAVB List of Materials

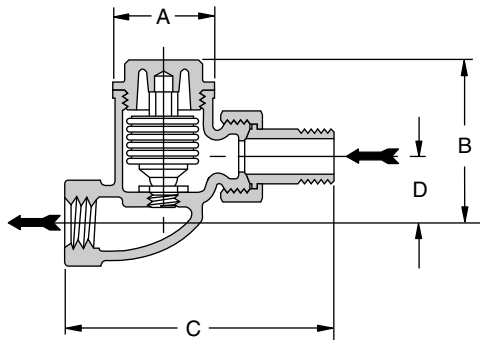
Name of Part	Material
Body	304L Stainless Steel
Connections	304 Stainless Steel
Balanced Pressure Thermostatic Air Vent	Stainless steel and bronze with phosphor-bronze bellows, entire unit caged in stainless steel
Gasket	Copper clad non-asbestos
Vacuum Breaker Body	303 Stainless Steel
Valve	Stainless Steel
Spring	302 Stainless Steel
"O" Ring	EPDM
Screen	Stainless Steel

All sizes comply with the article 3.3 of the PED (97/23/EC).

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.



TS-2 Air Vent Angle Type



TS-2 Air Vent Straight Type



Armstrong TS thermostatic air vent is offered in both angle and straight patterns. The TS-2 has a balanced pressure thermostatic element with a high quality multiple-convolution bellows. It's ideal for venting air from equipment such as steam radiators and convectors, small heat exchangers, and unit heaters. The TS-2 comes with a strong, cast bronze body and a stainless steel seat. The valve and seat are renewable in-line.

Materials

Cap:	Bronze, ASTM B62
Body:	Bronze, ASTM B62
Union Nipple:	Brass, ASTM B584
Valve:	Brass
Valve Seat:	Stainless steel
Element:	Phosphor-bronze bellows

Table AV-408-1. TS-2 Physical Data

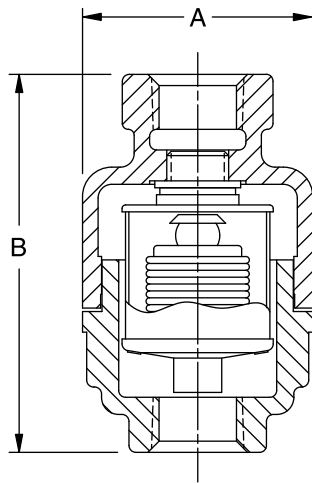
Model	TS-2			
	Angle		Straight	
Pattern	mm	mm	mm	mm
Pipe connections	15	20	15	20
"A" Diameter	41	41	41	41
"B" Height	75	76	68	73
"C"	65	73	102	114
"D"	35	41	28	33
Weight in kg (screwed)	0,68	0,79	0,68	0,91

All sizes comply with the article 3.3 of the PED (97/23/EC).

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

TV-2 Thermostatic Air Vent

For Pressures to 9 bar...Capacities to 78 m³/h



**TV-2
Thermostatic Air Vent**



Armstrong offers the Model TV-2 Balanced Pressure Thermostatic Air Vent for positive venting of air from chamber type heat transfer equipment with no loss of steam. Typical applications include jacketed kettles, retorts, vulcanizers, jacketed sterilizers or other contained equipment where air could accumulate at the top of the steam chamber and reduce heat transfer capacity.

The Model TV-2 is a balanced-pressure thermostatic air vent that responds to the pressure-temperature curve of steam at any pressure from light vacuum to maximum operating pressure. Air is automatically vented at slightly below steam temperature throughout the entire operating pressure range.

The thermostatic element is a charged multi-convolution phosphor bronze bellows caged in stainless steel. Valve and seat are also stainless steel designed to meet the most rigid cycling specifications known for this type of service.

Features

- Stainless steel hemispherical valve and seat
- Thermostatic element comprises a multi-convolution phosphor bronze bellows caged in stainless steel
- Thermostatic element is charged with water to provide positive opening of the valve at slightly below steam temperature and positive closing in the presence of steam throughout the operating pressure range
- ASTM B62 cast bronze body

Armstrong Model TV-2 Thermostatic Air Vents should be installed at the highest points of steam chambers with inlet connections to the vents higher than the highest points of the chambers. Thus installed there is a minimum hazard of any liquid carryover and air can be vented to atmosphere with no drain line necessary.

Table AV-409-1. TV-2 Physical Data

Pipe Connections	mm
	15
"A" (Diameter)	56
"B" (Height)	89
Weight in kg (screwed)	0,8
Maximum Operating Pressure	9 bar
Maximum Temperature	177°C

Table AV-409-2. TV-2 Materials

Name of Part	Material
Body & Cap	Cast bronze ASTM B62
Gasket	Compressed non-asbestos
Thermostatic Unit	
Bellows	Phosphor bronze
Cage and Cover	Stainless steel
Thermostatic Unit Gasket	Copper clad

All sizes comply with the article 3.3 of the PED (97/23/EC).

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.