

# Type 31L-ST

## Compact Series



### FEATURES

- Lightweight, Compact
- Removes 99% of Liquid and Solid Entrainment Particles Larger Than 10 Microns
- Integral Trap
- High Efficiency Over Wide Flow Range
- No Required Maintenance
- Economical Choice for Most Applications
- Gas, Steam, or Air Applications

### OPTIONS

- Trap Heater

- Sizes 1" to 4"
- Horizontal Low Profile Design
- Centrifugal In-line Installation
- Threaded or Flanged
- Iron Construction

Eaton Type 31L-ST Gas/Liquid Separators automatically remove 99% of all liquid and solid entrainment particles 10 microns in size or larger from air, gas, and steam processes.

#### Low Profile Design

The Type 31L-ST is a horizontal, in-line separator. It is very compact and can be supported by the line in which it is installed. No cumbersome, expensive support stands are required.

The compact design of these separators takes up little more than the space of the pipeline—an important consideration in space-restricted applications.

#### Vortex Containment Plate

Moisture-laden gas enters the inlet of the separator, where it is deflected by a unique Cenpellar™ into a centrifugal motion. The entrained solids and moisture droplets are then separated out by a reduction in velocity where they fall into the separator's integral drain trap. The exclusive Eaton Vortex Containment Plate (VCP) ensures they cannot be re-entrained. The VCP is constructed with a series of carefully placed rings and plates that shield the separated liquid from the vortex action within the separator to prevent re-entrainment. The VCP

also helps direct the liquid to the drain trap while at the same time moving the clean, dry gas to the separator outlet. With Eaton's exclusive VCP, the need for expensive, delicate baffles used in ordinary separators is eliminated.

#### Integral Drain Trap

Eaton Type 31L-ST Separators come with standard integral drain traps. This design saves space, reduces installation costs, and eliminates the need to size and source a properly designed drain trap to work with the separator. The integral trap automatically ejects condensate at predetermined levels without loss of line

pressure. Internal trap parts are made of stainless steel and include a non-magnetic 18-8 stainless steel valve and seat. Removal of a flange releases the trap mechanism for inspection. A heater option, Type STH, is also available for applications below freezing. A 50 watt, 120 volt, self-limiting heating element keeps the reservoir fluid from freezing. The heater does not increase the line temperature and can be easily removed for inspection.

#### Engineering Specifications

All gas/liquid separators are constructed of cast iron with threaded or flanged connections.



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# Type 31L-ST Compact Gas/Liquid Separators

## Dimensions: Type 31L-ST Flanged (in/mm)

Pipe Size	A	B (ST)	B (STH)	C	D	E	Drain NPT	Weight (lb/kg) ST	Weight (lb/kg) STH
3	25 / 635	9 / 229	10.12 / 257	6.75 / 171	7.63 / 194	0.81 / 21	1/2	115 / 52	118 / 54
4	27.25 / 692	9.88 / 251	11 / 279	6.75 / 171	9.63 / 244	0.81 / 21	1/2	160 / 73	175 / 79

NOTE: 1/8" orifice is standard. Other sizes are available, consult Eaton.

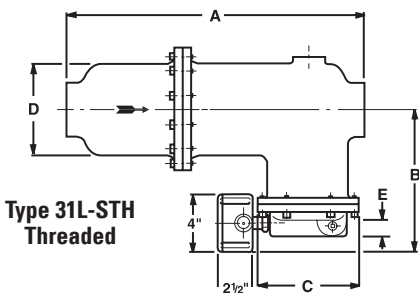
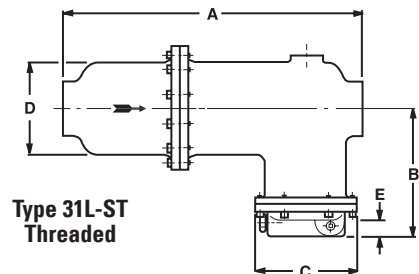
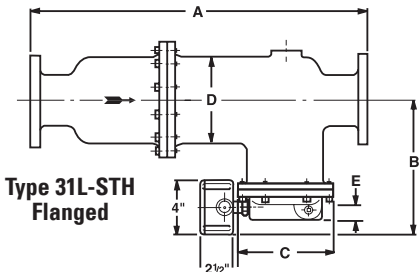
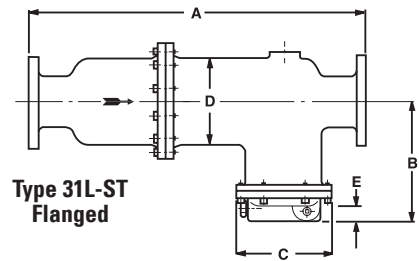
## Dimensions: Type 31L-ST Threaded (in/mm)

Pipe Size	A	B (ST)	B (STH)	C	D	E	Drain NPT	Weight (lb/kg) ST	Weight (lb/kg) STH
1	19 / 483	8 / 203	9.125 / 232	6.75 / 171	5.56 / 141	0.81 / 21	1/2	62 / 28.1	65 / 29.5
1-1/4	19 / 483	8 / 203	9.125 / 232	6.75 / 171	5.56 / 141	0.81 / 21	1/2	62 / 28.1	65 / 29.5
1-1/2	19 / 483	8 / 203	9.125 / 232	6.75 / 171	5.56 / 141	0.81 / 21	1/2	61 / 27.7	64 / 29
2	18 / 457	8 / 203	9.125 / 232	6.75 / 171	5.56 / 141	0.81 / 21	1/2	60 / 27.2	63 / 28.5
2-1/2	22.75 / 578	9 / 229	10.12 / 257	6.75 / 171	7.63 / 194	0.81 / 21	1/2	92 / 41.7	95 / 43
3	21 / 533	9 / 229	10.12 / 257	6.75 / 171	7.63 / 194	0.81 / 21	1/2	90 / 40.8	93 / 42.1

## Capacities: Maximum Air Flow Rating in SCFM

Pipe Size	25 psig	50 psig	100 psig	150 psig	200 psig	250 psig
1"	82	110	155	190	220	255
1-1/4"	130	175	245	300	345	400
1-1/2"	185	245	345	425	485	560
2"	330	445	620	770	870	1000
2-1/2"	500	680	945	1170	1350	1550
3"	750	1000	1400	1750	1950	2300
4"	1350	1750	2500	3050	-	-
Rated ΔP (psi)	0.88	0.99	1.19	1.40	1.60	1.85
Orifice* Dia.	1/8"   5/32"	1/8"   5/32"	1/8"	1/8"	1/8"	1/8"
Liquid Discharge (lb/hr)	265   790	427   1273	625	760	590	650

\* 5/64" orifice available for pressures up to 250 psig, but code stamp not available over 160 psig.



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