

Automatic Differential Condensate Controllers

For pressures to 250 psig...capacities to 20,000 lbs/hr

Armstrong designed the automatic differential condensate controllers (DC) for applications where condensate must be lifted from a drain point or gravity drainage applications where increased velocity will aid drainage. Lifting from the drain point (syphon drainage) causes a reduction in pressure which flashes a portion of the condensate into steam. Unable to differentiate

between flash steam and live steam, ordinary steam traps close and impede drainage.

Increased velocity with gravity drainage will aid in drawing the condensate and air to the DC. This increased velocity is caused by an internal by-pass, controlled by a manual metering valve, so the condensate controller will automatically vent

the by-pass or secondary steam. This is then directed to the condensate return line or collected for use in other heat exchangers.

Capacity considerations vary greatly with the application, but for most installations, a single DC will provide sufficient capacity.

Capacities

Table 22-1. Series 20 and 80 Differential Condensate Controllers

Differential Pressure, psi	Orifice Size	Model 21-DC 81-DC	Orifice Size	Model 22-DC 82-DC	Orifice Size	Model 23-DC 83-DC	Orifice Size	Model 24-DC 84-DC	Orifice Size	Model 25-DC	Orifice Size	Model 26-DC
1/4	↑	191	↑	350	↑	950	↑	1,400	↑	2,050	↑	4,050
1/2	↑	300	↑	570	↑	1,410	↑	2,160	↑	3,100	↑	6,240
3/4	↑	395	↑	740	↑	1,618	↑	2,600	↑	3,740	↑	7,510
1	↑	450	↑	850	↑	1,880	↑	2,900	↑	4,160	↑	8,400
2	↑	590	↑	1,140	↑	2,300	↑	3,700	↑	5,400	↑	10,700
3	↑	680	↑	1,320	↑	2,600	↑	4,150	↑	6,200	↑	12,000
4	↑	750	↑	1,480	↑	2,780	↑	4,500	↑	6,800	↑	13,000
5	↑	830	↑	1,600	↑	2,900	↑	4,800	↑	7,600	↑	14,500
10	↑	950	↑	1,900	↑	3,500	↑	5,800	↑	9,000	↑	17,300
15	1/4"	1,060	5/16"	2,100	1/2"	3,900	5/8"	6,500	3/4"	10,000	1 1/16"	19,200
20	↑	880	↑	1,800	↑	3,500	↑	6,000	↑	8,500	↑	18,500
25	↑	950	↑	1,900	↑	3,800	↑	6,500	↑	9,200	↑	20,000
30	3/16"	1,000	1/4"	2,050	3/8"	4,000	1/2"	6,800	9/16"	9,800	↑	18,000
40	↑	770	↑	1,700	↑	3,800	↑	5,800	↑	8,300	↑	20,000
50	↑	840	↑	1,900	↑	4,100	↑	6,300	↑	9,000	↑	18,200
60	↑	900	↑	2,000	5/16"	4,400	3/8"	6,800	7/16"	9,500	↑	19,800
70	5/32"	950	3/16"	2,200	↑	3,800	↑	6,000	↑	9,200	↑	18,300
80	↑	800	↑	1,650	9/32"	4,000	1 1/32"	6,400	↑	9,700	↑	19,000
100	↑	860	↑	1,800	↑	3,600	↑	6,200	3/8"	10,400	↑	18,000
125	1/8"	950	5/32"	2,000	1/4"	3,900	5/16"	6,700	↑	10,900	↑	20,000
130	↑	780	↑	1,410	↑	3,300	↑	5,500	1 1/32"	11,000	↑	17,900
150	↑	810	↑	1,500	↑	3,500	↑	5,700	↑	9,500	↑	18,500
180	↑	850	↑	1,560	7/32"	3,700	9/32"	6,000	5/16"	10,000	7/16"	20,000
200	7/64"	860	1/8"	1,600	↑	3,200	↑	5,300	↑	9,200	↑	17,500
225	↑	730	↑	1,280	↑	3,400	↑	5,500	9/32"	9,800	↑	18,500
250	#38	760	7/64"	1,300	3/16"	3,500	1/4"	5,700	1/4"	7,000	3/8"	19,000

Capacities given are continuous discharge capacities in pounds of hot condensate per hour at pressure differential indicated.

List of Materials

Table 22-2. Series 20 and 80 Differential Condensate Controllers

Model No.	Series 20-DC & Series 80-DC
Cap and Body	Cast Iron, ASTM A 48 Class 30
Gasket	Compressed Non-asbestos
Bolting	SAE, Grade 2*
Condensate Valve & Seat	Stainless Steel
Condensate Operating Mechanism	Stainless Steel, Cast Iron Bucket Weight on No. 84, 24, 25 and 26

*No. 81-DC SAE, Grade 5



Table 23-1. Series 20 and 80 Differential Condensate Controllers

Model No.	21-DC	22-DC	23-DC	24-DC	25-DC	26-DC	81-DC	82-DC	83-DC	84-DC
Inlet & Outlet Connections	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	3/4"	3/4"	1"	1 1/4"
Secondary Steam Conn. (in)	3/8	1/2	1/2	3/4	1	1	3/8	1/2	1/2	3/4
"A" (Diameter) (in)	4 1/4	5 1/4	6 3/8	7 1/2	8 1/2	10 3/16	3 3/4	5 5/8	7	8
"B" (Height) (in)	9 3/4	12 1/4	15 1/2	18	20 1/4	23 1/2	8	10 5/8	13	15
"C" (in)	7 3/4	9 1/2	12 3/4	15	16 3/4	19 3/4	5	6 1/2	7 3/4	9
"L" (in)	14 7/8	18 1/8	21 3/4	23 7/8	26 3/4	31	13 1/4	16 5/8	19	21
Weight (lbs)	7	14	24	38	53	86	7 1/2	17 1/2	30 1/2	47
Maximum Allowable Pressure (Vessel Design)	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F	250 psig @ 450°F
Maximum Operating Pressure (psi)	250	250	250	250	250	250	250	250	250	250

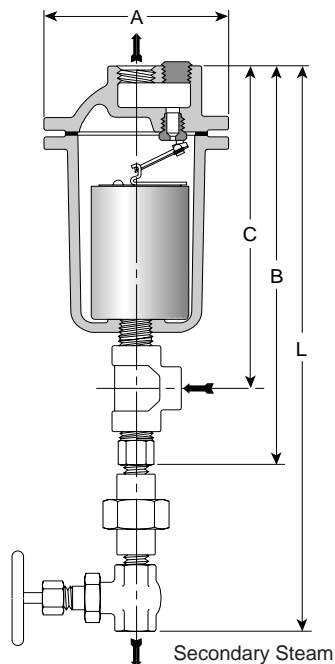


Figure 23-1.
Series 20-DC Traps

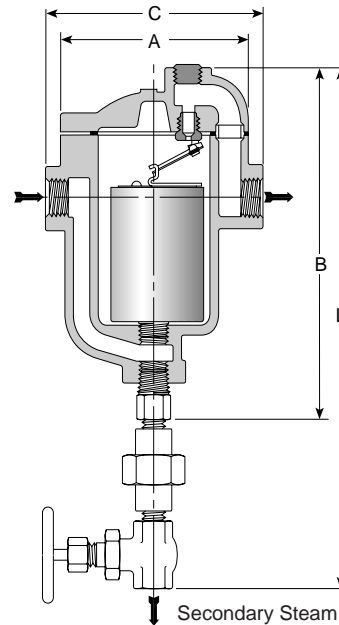


Figure 23-2.
Series 80-DC Traps

All dimensions and weights are approximate. Use certified print for exact dimensions.