

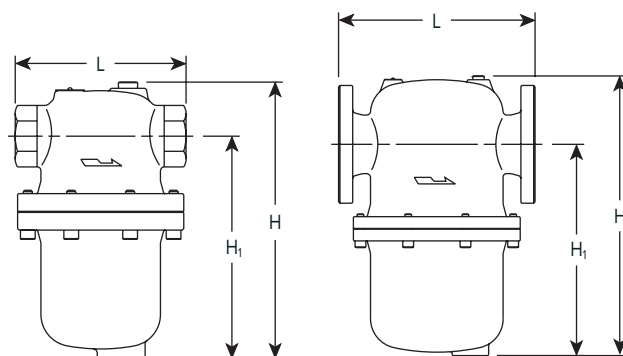


Armstrong® DS Series Drain Separators

Condensate in steam and air piping reduce thermal efficiency, cause water hammer, corrode equipment such as valves and pipes, and cause other problems.

Armstrong drain separators separate condensate efficiently by using the centrifugal force of steam or air created by introducing it into a specifically shaped path. Because of the simple structure of the drain separators, pressure loss is minimized, enabling clean, dry steam or air to be fed to equipment.

With correct sizing and proper drainage, the separators are designed to eliminate 98% of all entrained liquids and particles that are 10 microns and larger in size.



DS-1 / DS-3 / DS-4

DS-2 / DS-3 / DS-4

Features

- A cyclone structure maximizes liquid separation efficiency
- Pressure loss is extremely low
- No moving parts means no breakdowns

Operating Principle

When steam or air flow enters the drain separator, centrifugal force is generated in the fluid because of the device's internal structural design. The fluid drains along the wall because of the difference in specific gravity with steam or air, eventually striking the baffle. The baffle guides the fluid to the drain outlet and to the trap, which drains it. As a result, both small dirt particles and condensate are separated and removed from the system through the bottom drain.

For fully certified drawings refer to:

DS-1 / DS-2 CDY1102
DS-3 CD2126
DS-4 CD2127

DS Series Specifications					
Model	Application	Maximum Pressure psig (barg)	Maximum Temp. °F (°C)	Materials	
				Body	Nozzle
DS-1	Steam Air	NPT 300 (20)	430 (221)	Ductile Iron ASTM A536	Cast Iron ASTM A48
DS-2		150 lb. Flanged 185 (13)			
		300 lb. Flanged 300 (20)			
DS-3 DS-4		NPT 300 (20)	650 (343)	SS304 (DS-3)	Carbon Steel (DS-4)
		150 lb. Flanged 150 (10)	450 (232)		
			300 lb. Flanged 500 (34)	650 (343)	

DS Series Dimension and Weights																				
Model	Size		Face-to-Face “L”						H		H'		Drain		Weight					
			NPT		150#		300#								NPT		150#		300#	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg
DS-1	1/2	15	5-15/16	150	—	—	—	—	9-9/16	243	7-5/8	193	3/4	20	16	7.3	—	—	—	—
	3/4	20	5-15/16	150	—	—	—	—	9-9/16	243	7-5/8	193	3/4	20	16	7.3	—	—	—	—
	1	25	5-15/16	150	—	—	—	—	9-9/16	243	7-5/8	193	3/4	20	16	7.3	—	—	—	—
	1-1/4	32	7-1/2	190	—	—	—	—	11-1/8	243	8-3/8	213	1	25	28	12.7	—	—	—	—
	1-1/2	40	7-1/2	190	—	—	—	—	11-1/8	243	8-3/8	213	1	25	28	12.7	—	—	—	—
	2	50	8-5/8	219	—	—	—	—	13-15/32	243	10-1/4	260	1	25	45	20.5	—	—	—	—
DS-2	2-1/2	65	—	—	11-1/2	292	11-15/16	303	16-15/32	418	12-3/8	314	1	25	—	—	45	20.5	77	35
	3	80	—	—	13-1/2	343	14-1/64	356	19	484	14-1/2	361	1-1/4	32	—	—	77	35	99	45
	4	100	—	—	15-13/16	402	16-7/16	418	23-3/8	594	17-1/2	445	1-1/4	32	—	—	99	45	143	65
DS-3	1/2	15	5-1/2	140	9	229	9	229	16	356	9	229	1	25	28	12.7	30	13.6	32	14.5
	3/4	20	5-1/2	140	9	229	9	229	16	356	9	229	1	25	28	12.7	30	13.6	32	14.5
	1	25	6-3/8	162	10-1/2	267	10-1/2	267	16	356	10-1/2	267	1	25	30	13.6	33	15	35	15.9
	1-1/4	32	6-3/8	162	10-1/2	267	10-1/2	267	16	356	10-1/2	267	1	25	32	14.5	35	15.9	37	16.8
	1-1/2	40	7-5/8	194	11-1/2	292	11-1/2	292	19	483	12-1/2	318	1	25	46	20.9	50	22.7	56	25.4
	2	50	7-7/8	200	11-1/2	292	11-1/2	292	19	483	12-1/2	318	1	25	51	23.1	55	24.9	59	26.8
DS-4	2-1/2	65	—	—	16	406	16	406	22	559	15	381	1	25	—	—	100	45.4	110	49.9
	3	80	—	—	18	457	18	457	26	660	18	457	1	25	—	—	140	63.5	150	68
	4	100	—	—	20	508	20	508	31	787	22	559	1-1/2	40	—	—	195	88.4	220	99.8
	6	150	—	—	24	610	24	610	41	1041	30	762	1-1/2	40	—	—	350	159	380	172
	8	200	—	—	28	711	28	711	50	1270	37	940	2	50	—	—	475	215	610	278
	10	250	—	—	34	864	34	864	70	1778	55	1397	2	50	—	—	780	354	1180	535
	12	300	—	—	38	965	38	965	75	1905	58	1473	2-1/2	65	—	—	940	426	1510	685

DS Series Drain Separators

Capacities for Steam Service

DS-1/DS-2 Series Steam Capacities (lb/hr)									
Size	5 psig	10 psig	25 psig	50 psig	100 psig	150 psig	200 psig	250 psig	300 psig
1/2"	34	43	69	113	200	287	374	461	548
3/4"	60	75	121	198	351	503	656	809	962
1"	98	122	197	320	568	816	1 063	1 311	1 559
1-1/4"	169	212	340	555	983	1 412	1 840	2 269	2 698
1-1/2"	230	288	463	755	1 338	1 922	2 505	3 088	3 672
2"	379	475	763	1 244	2 206	3 167	4 129	5 090	6 052
2-1/2"	541	678	1 089	1 775	3 147	4 519	5 891	7 263	8 635
3"	835	1 046	1 682	2 741	4 860	6 978	9 096	11 215	13 333
4"	1 437	1 802	2 896	4 720	8 368	12 016	15 664	19 312	22 960

DS-1/DS-2 Series Steam Capacities (kg/hr)									
Size	0.34 barg	0.69 barg	1.7 barg	3.4 barg	6.9 barg	10.3 barg	13.8 barg	17.2 barg	20.7 barg
1/2"	16	20	31	51	91	130	170	209	249
3/4"	27	34	55	90	159	228	298	367	436
1"	44	55	89	145	258	370	482	595	707
1-1/4"	77	96	154	252	446	640	835	1 029	1 224
1-1/2"	104	131	210	342	607	872	1 136	1 401	1 665
2"	172	215	346	564	1 001	1 437	1 873	2 309	2 745
2-1/2"	245	307	494	805	1 428	2 050	2 672	3 294	3 917
3"	379	475	763	1 243	2 204	3 165	4 126	5 087	6 048
4"	652	817	1 314	2 141	3 796	5 450	7 105	8 760	10 414

DS-3/DS-4 Series Steam Capacities (lb/hr)									
Size	5 psig	10 psig	25 psig	50 psig	100 psig	150 psig	200 psig	250 psig	300 psig
1"	190	225	295	390	550	675	780	860	1 000
1-1/4"	320	345	460	620	860	1 050	1 125	1 140	1 160
1-1/2"	460	500	680	880	1 225	1 550	1 800	2 000	2 250
2"	790	910	1 050	1 550	2 200	2 700	3 150	3 700	4 000
2-1/2"	1 075	1 120	1 585	2 400	3 400	4 300	5 000	5 375	6 400
3"	1 950	2 300	2 950	3 750	5 250	6 600	7 600	9 000	10 000
4"	3 250	3 800	4 975	6 100	9 000	11 100	13 000	11 500	11 650
5"	4 975	5 850	7 650	9 250	11 400	11 700	12 000	23 000	25 000
6"	7 700	8 990	10 100	10 450	21 500	26 500	31 000	36 000	39 000
8"	10 750	11 450	12 000	23 750	34 000	43 000	51 000	58 000	66 000
10"	20 000	22 500	29 500	37 000	54 500	68 000	78 000	90 000	100 000
12"	29 500	34 000	44 000	54 000	81 000	100 000	105 000	112 000	114 000

DS-3/DS-4 Series Steam Capacities (kg/hr)									
Size	0.34 barg	0.69 barg	1.7 barg	3.4 barg	6.9 barg	10.3 barg	13.8 barg	17.2 barg	20.7 barg
1"	86	102	134	177	249	306	354	390	454
1-1/4"	145	156	209	281	390	476	510	517	526
1-1/2"	209	227	308	399	556	703	816	907	1 021
2"	358	413	476	703	998	1 225	1 429	1 678	1 814
2-1/2"	488	508	719	1 089	1 542	1 950	2 268	2 438	2 903
3"	885	1 043	1 338	1 701	2 381	2 994	3 447	4 082	4 536
4"	1 474	1 724	2 257	2 767	4 082	5 035	5 897	5 216	5 284
5"	2 257	2 654	3 470	4 196	5 171	5 307	5 443	10 433	11 340
6"	3 943	4 078	4 581	4 740	9 752	12 020	14 061	16 329	17 690
8"	4 876	5 194	5 443	10 773	15 422	19 504	23 133	26 308	29 937
10"	9 072	10 206	13 381	16 783	24 721	30 844	35 380	40 823	45 359
12"	13 381	15 422	19 958	24 494	36 741	45 359	47 627	50 802	51 710