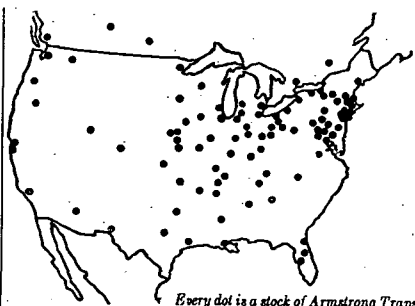


neers quite generally should recognize the dependability of Armstrong traps over long periods of time.

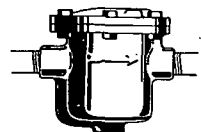
Easy Installation—Except in unusual cases, it is practical to install any standard Armstrong Trap with no support, other than the pipe line in which the trap is used.

Service Organization—Armstrong Traps are sold and serviced by 43 district representatives in the United States and Canada. Stocks of Armstrong Traps are carried in nearly one hundred leading cities and representatives are responsible for the satisfactory operation of all Armstrong Traps installed in their respective territories.



Every dot is a stock of Armstrong Traps

DETERMINING THE SIZE OF ARMSTRONG TRAP REQUIRED



This No. 100 Trap is connected like any valve

For unit heaters (when maximum condensate is known)—In most cases, the information regarding the amount of steam condensed by a unit heater is furnished by the manufacturer and it is a simple matter to select the trap by referring to the capacity table. Since the capacity table shows continuous discharge figures at the full pressure differential indicated, it follows that allowances must be made for intermittent trap operation as well as for

drop in pressure through the heater and through the trap. If adequate sized steam lines are used, the drop in pressure through the unit heater should not exceed 25 per cent of the initial pressure but at times the pressure in the heater itself and at the trap will be practically equal to the initial pressure. For this reason, any trap selected must have a discharge orifice for operation at the maximum pressure but sufficient capacity at the minimum differential pressure so that it will not be discharging more than one-half of the time. In other words, the continuous discharge capacity of the trap at 75 per cent of the maximum pressure should be at least twice the maximum amount of condensate that is expected from the heater. Another way of stating the same rule is that at the full pressure

General Service Cast-Iron Traps PRESSURES TO 300 LBS.

Trap Size	No. 100	No. 30	No. 31	No. 2	No. 25	No. 3	No. 4
Pipe connections	1/2"	1/2"	1/2"	1/2" or 3/4"	1"	1" or 1 1/4"	1 1/2" or 2"
List prices	\$7.00	\$9.25	\$15.00	\$20.75	\$29.00	\$38.00	\$55.00
Telegraph Code	Alder	Oak	Red	Ash	Hickory	Fir	Elm
Height of trap	3 1/2"	4 1/2"	6 1/4"	10"	12 1/2"	14"	16 3/4"
Diameter	3 1/2"	5 1/2"	5 1/2"	6 1/4"	7 1/2"	8 1/2"	10"
Weight	3 1/2 lbs.	5 1/2 lbs.	7 1/2 lbs.	18 lbs.	33 lbs.	45 lbs.	74 lbs.
Maximum pressure	125 lbs.	125 lbs.	150 lbs.	300 lbs.	300 lbs.	300 lbs.	300 lbs.
Capacity in pounds of water per hour at these pressures							
5	450	799	1043	1692	4172	6770	21097
10	550	1121	1465	2289	5862	9159	29638
15	600	979	1273	2753	7054	11013	35216
20	660	817	1041	3268	8056	13072	42654
25	370	698	926	2810	6796	11240	37739
30	385	768	1048	3074	7428	12297	41572
40	420	691	1120	2763	6130	11052	35550
50	450	424	1238	2336	4954	9344	30074
60	475	459	1337	2534	4181	7352	20672
70	500	343	1116	1956	3541	7825	17850
80	520	362	937	2065	3748	6082	18953
90	450	245	564	1586	2989	6345	15687
100	460	257	571	1605	3153	5257	16455
125	500	282	625	1817	2507	4514	14200
150	...	...	471	1210	1959	4840	10755
160	...	...	...	1245	2020	3811	11062
240	...	...	...	811	1865	3285	7474
300	...	...	...	614	1593	2579	6371

The capacity figures given above are continuous discharge figures at the differential indicated. The actual pressure at the trap inlet and back pressure in the return line should be used to obtain the pressure differential.

differential the trap should be able to handle at least two and a quarter times the maximum amount of condensate that will be expected from the heater under normal operating conditions.

When amount of condensate is not known—The amount of condensate from heating coils or other forms of direct radiation can be quickly determined by referring to table A showing the weight of steam condensed per hour per lineal foot of bare pipe or per square foot of heating surface. When the radiation is in greenhouses

or dry kilns, multiply the above figures by two and when used for drying wet material such as brick and pottery, multiply by three. If blowers circulate air over the radiation, the figures should be multiplied by five. This will give the amount of condensate that will be obtained after the radiation has been brought up to temperature, so before selecting a trap as outlined in the preceding section, allowances should be made for the extra amount of steam condensed in bringing the radiation up to temperature.

TABLE A
Condensate per Hour per Running Foot of Pipe

Gauge Pressure Pounds	Temperature Diff. Degrees F.	Pipe Sizes in Inches										Flat Surface or Larger Pipe Per Sq. Foot
		1	1 1/2	2	3	4	5	6	8	10	12	
5	153	0.16	0.21	0.25	0.3	0.45	0.54	0.64	0.82	1.01	1.19	0.34
50	223	0.28	0.38	0.45	0.63	0.79	0.97	1.14	1.47	1.80	2.13	0.62
100	263	0.36	0.41	0.59	0.84	1.05	1.28	1.51	1.94	2.39	2.82	0.82
150	291	0.43	0.59	0.71	1.00	1.26	1.54	1.82	2.35	2.89	3.40	0.99
200	313	0.50	0.68	0.81	1.16	1.45	1.74	2.09	2.69	3.30	3.91	1.14

Installation of Armstrong Traps

Whenever possible, Armstrong Traps should be installed below the radiation drained by the trap. This is of particular importance when traps are used on unit heaters. Small traps such as the Nos. 100, 30 and 31 are usually installed without a by-pass whereas the larger sizes generally are furnished with by-passes to facilitate the removal or examination of the traps. The by-pass should always be installed above the trap to prevent loss of prime in case the by-pass valve should develop a leak.

Individual Traps—Best results will be obtained by using a trap on each steam

heated unit. Even a slight difference in terminal pressure between two units will cause one to fill up with air or water unless individual traps are used.

Quick Vent Air Valves—Since Armstrong Traps automatically vent air, no quick relief air valves are absolutely necessary except in the case of

large heaters when immediate temperature rise is imperative. The air handling capacity of the Nos. 30 and 31 Armstrong Traps is further increased by means of a thermic spring designed to hold the valve away from the seat as long as the trap is cold. When steam reaches the trap, the thermic spring straightens out and allows the valve to seat in the normal manner. Thermic springs can be furnished in all other sizes at slight extra cost.

Whenever manufacturers recommend that their heaters be installed with a quick vent air valve, these recommendations

should be followed to the letter. However, once the heater has been brought up to temperature no more air will pass through the quick vent valve as air that comes to the heater along with the steam will pass out through the Armstrong Trap at temperatures too high to cause the air relief valve to function.

