

spirax/sarco®

APT

Selection and Sizing

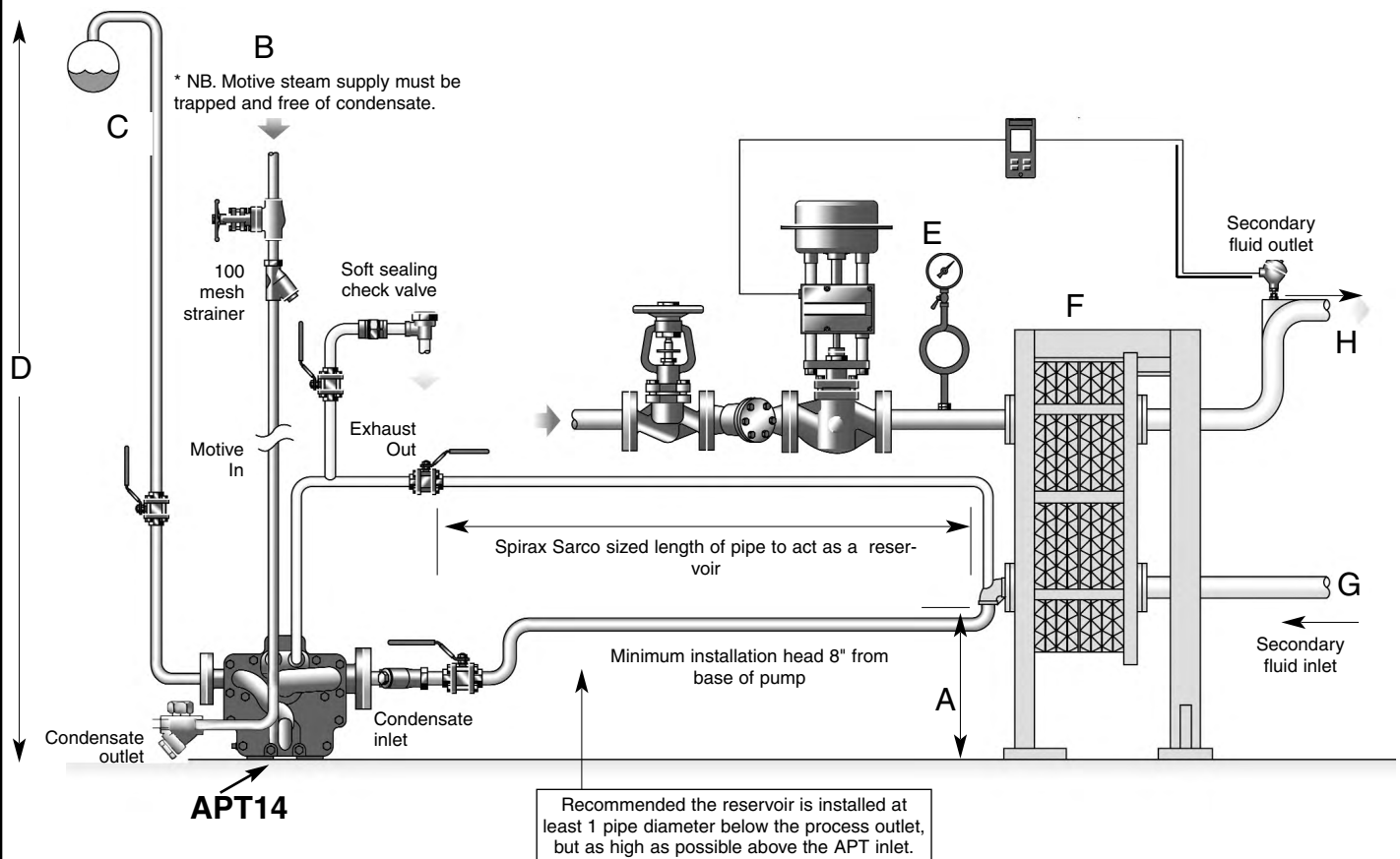
Spirax Sarco will ensure that the APT is accurately matched to your process and will provide you with a detailed sizing chart, tailored to your specific application.

Alternatively arrange a visit for your local Spirax Sarco representative who can provide detailed APT sizing information for all your specific needs.

Providing the information below is known, we can even provide you with confirmation over the telephone and fax you your specific chart.

To help us size the APT for your application simply provide us with the following information: -

Recommended Installation



- | | | |
|---|--|-------|
| A | Installation head available from the base of the pump to the centreline of the heat exchanger / process condensate outlet. | ft |
| B | Motive steam pressure available to power the pump trap. | psig |
| C | Pressure in the condensate return system. | psig |
| D | Height of condensate return from floor level. | ft |
| E | Heat exchanger full load operating pressure. | psig |
| F | Maximum steam load on the heat exchanger. | lb/hr |
| G | Minimum secondary fluid temperature. | °F |
| H | Maximum controlled temperature of secondary fluid. | °F |

APT Selection & Sizing

How to Select & Size

From the inlet pressure, back pressure and filling head conditions given below, select the APT size which meets the capacity requirement of the application.

For GPM, multiply the capacities below by 0.002.

For kg/h, multiply the capacities below by 0.454.

* Back pressure is the lift height (D) in feet x 0.433 plus psig in return line, (C), plus piping friction in psig.

Examples:

Steam Condensate load (F) 750 lb/h
 Steam pressure available for operating APT (B) 100 psig
 Vertical lift from APT to the return piping (D) 50 feet
 Pressure in the return piping (piping friction negligible) (C) 50 psig
 Filling head available from base of APT (A) 8 inches
 System pressure (E) 150 psig

Solution:

1. Calculate "C + D", the total lift or back pressure, against which the condensate must be pumped. = (50 x 0.433) + 50 = 72 psig
2. From capacity table, with 100 psig inlet pressure and 72 psig back pressure, choose a APT14 which has a capacity of 1,695 lb/h.

Note:

The capacity charts shown below are applicable for the specific conditions only. Any variance in system conditions A, B, C, D, or E will alter the capacities shown, and hence these figures can be used as a rough guide only. Your local Spirax Sarco representative will provide detailed APT sizing information for all conditions.

APT10-4.5		65 Psi Motive Steam (B)						
		0 Psi Back Pressure (C+D)		25 Psi Back Pressure (C+D)		58 Psi Back Pressure (C+D)		
Installation Head (A) inches	System Pressure (E) psig	Pumping Capacities lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	
39	65		2231		1974		1306	
30			2229		1970		1293	
20			1937		1937		1277	
16			1620		1620		1271	
12			1223		1223		1223	
8		607		607		607		
39	50		2088		1757	930		
30			2085		1751	901		
20			1937		1745	847		
16			1620		1620	809		
12			1223		1223	744		
8		607		607	542			
39	35		1909		1414	832		
30			1905		1403	806		
20			1900		1390	755		
16			1620		1385	719		
12			1223		1223	658		
8		607		607	471			
39	20		1164	1425		665		
30			1657	1342		643		
20			1649	1197		601		
16			1620	1104		572		
12			1223	957		521		
8		607	592		369			
39	0	1163		971		327		
30			1088		900		316	
20			961		780		297	
16			879		706		282	
12			754		594		258	
8			547	339		183		

APT14		200 Psi Motive Steam (B)				100 Psi Motive Steam (B)				30 Psi Motive Steam (B)							
		0 Psi Back Pressure (C+D)		30 Psi Back Pressure (C+D)		72 Psi Back Pressure (C+D)		0 Psi Back Pressure (C+D)		30 Psi Back Pressure (C+D)		72 Psi Back Pressure (C+D)		0 Psi Back Pressure (C+D)		30 Psi Back Pressure (C+D)	
Installation Head (A) inches	System Pressure (E) psig	Pumping Capacities lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacities lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h	Pumping Capacity lb/h	Trapping Capacity lb/h
39	200		10021		9561		8592		10021		9561		8592		10021		9561
30			8491		8491		8491		8491		8491		8491		8491		8491
20			6375		6374		6374		6374		6374		6374		6374		6374
16			5296		5296		5296		5296		5296		5296		5296		5296
12			3932		3932		3932		3932		3932		3932		3932		3932
8		1695		1695		1695		1695		1695		1695		1695		1695	
39	150		9120		8386		7135		9120		8386		7137		9120		8386
30			8491		8378		7126		8491		8378		7126		8491		8378
20			6375		6374		6374		6374		6374		6374		6374		6374
16			5296		5296		5296		5296		5296		5296		5296		5296
12			3932		3932		3932		3932		3932		3932		3932		3932
8		1695		1695		1695		1695		1695		1695		1695		1695	
39	75		7034		5820		3075		7034		5820	2694		7034		5820	
30			7022		5804		2844		7022		5804	2569		7022		5804	
20			6374		5786		2490		6374		5786	2345		6374		5786	
16			5296		5296		2272		5296		5296		2200		5296		5296
12			3932		3932		2165		3932		3932		2165		3932		3932
8		1695		1695		1695		1695		1695		1695		1695		1695	
39	30		5018	2419		2104		5018	2626		1974		5018		1553		
30			4998	2248		1955		4998	2475		1875		4998		1406		
20			4975	1695		1707		4975	2215		1700		4975		1205		
16			4966	1792		1557		4966	2050		1587		4966		1107		
12			3932	1534		1332		3932	1795		1408		3932		992		
8		1695	941		815		1695	1160		941		1695		850			
39	0		1553	1223		1066		1763	1425		1112	1915					
30			1406	1136		990		1657	1337		1050	1835					
20		1220		994	865		865		1478	1189		944	1692				
16		1119		908	790		790		1366	1097		877	1598				
12				992	780		678		1196	958		773	1445				
8			850	487		423			620		513	1026					