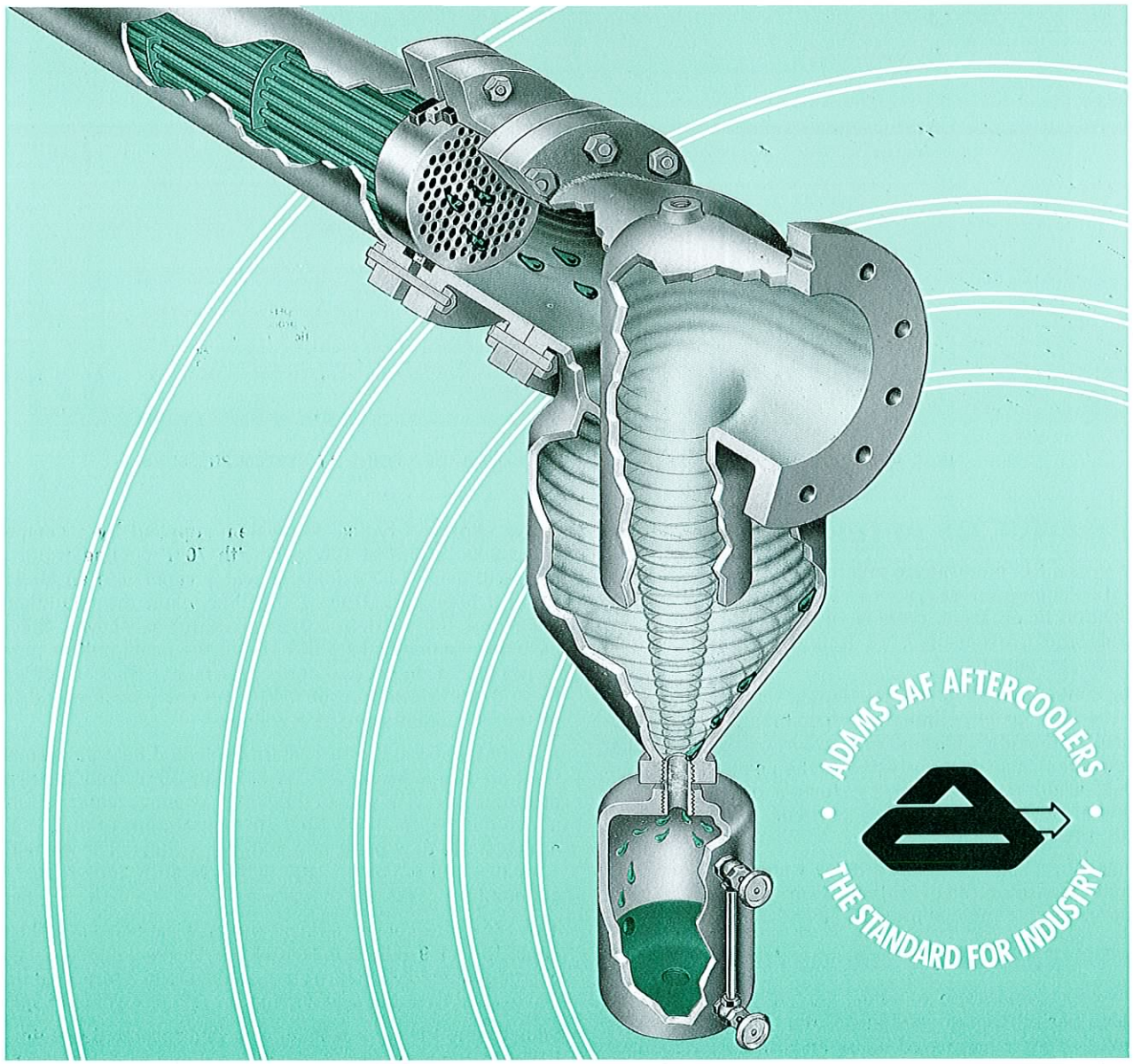
BULLETIN 717A

ADAMS

PIPELINE AFTERCOOLERS AND CYCLONE SEPARATORS



THE MOST EFFICIENT AND ECONOMICAL WAY TO REMOVE MOISTURE AND OTHER CONTAMINANTS FROM YOUR COMPRESSED AIR SYSTEM

R.P. ADAMS SUBSIDIARY OF SERVICE FILTRATION CORP. • P.O. BOX 963 • BUFFALO, NEW YORK 14240
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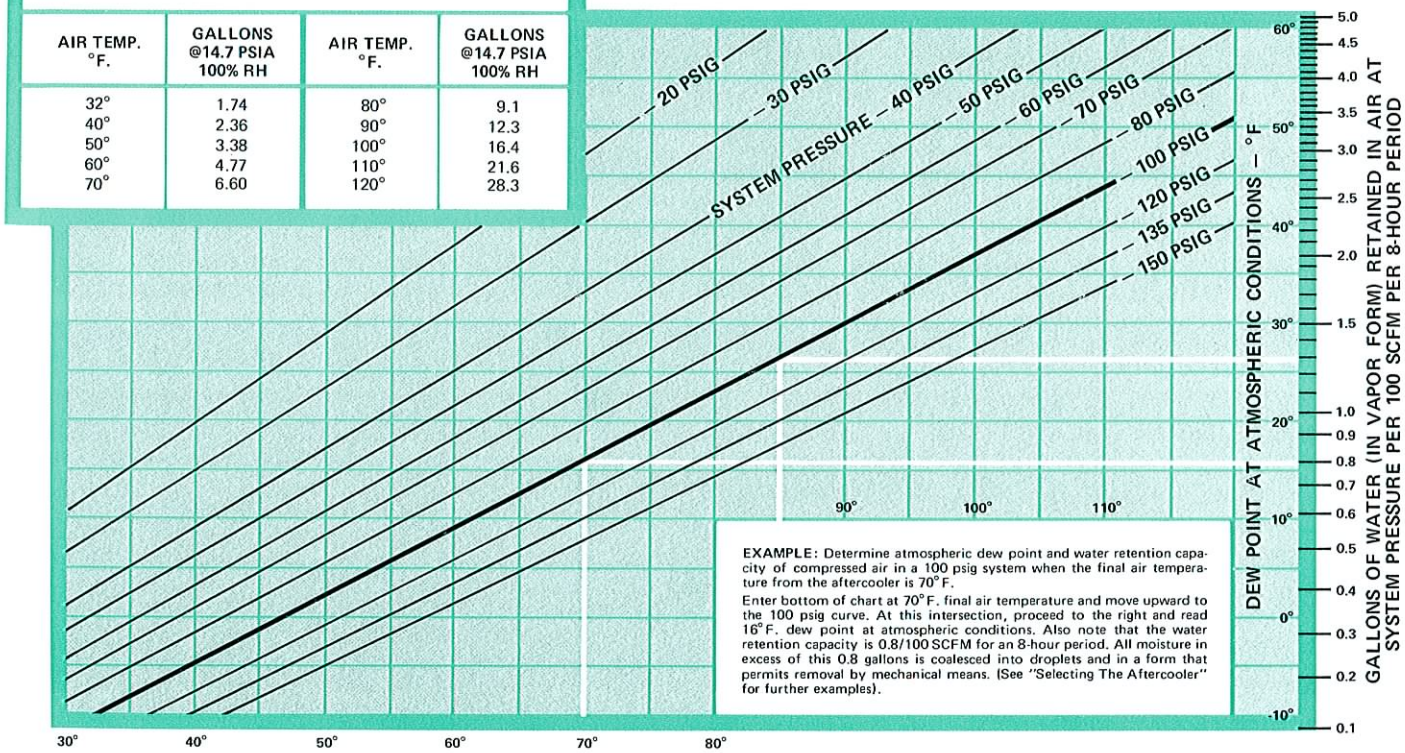
ADAMS PIPELINE AFTERCOOLERS

VAPOR CHART Gallons of water (in vapor form) contained in 100 cubic feet per minute of saturated free air per 8-hour period.

AIR TEMP. °F.	GALLONS @14.7 PSIA 100% RH	AIR TEMP. °F.	GALLONS @14.7 PSIA 100% RH
32°	1.74	80°	9.1
40°	2.36	90°	12.3
50°	3.38	100°	16.4
60°	4.77	110°	21.6
70°	6.60	120°	28.3



IMPORTANCE OF AFTERCOOLING

Moisture present in atmosphere creates many problems when carried into compressed air systems. If not removed, it washes out lubrication in air tools, creates rust and scale and fouls air controls and instruments . . . it is most unwelcome in paint sprayer air supplies.

Moisture, contaminated in its free state, washes the air of many of the man made pollutants by combining with carbon dioxide, sulfur dioxide, chlorine, etc. to form weak acids that are quite concentrated and corrosive in the compressed state. In addition, a lubricated compressor further pollutes the system with hot oil vapors and mist, portions of which break down into unwanted forms.

The Adams Aftercooler condenses these water/oil vapors and the cyclone separator removes them from the system, thus drying and purifying the compressed air.

EFFECTIVENESS OF AN AFTERCOOLER

Cooling water temperature dictates the effectiveness of an aftercooler's performance regardless of the compressor intake conditions. Cooling compressed air in an aftercooler reduces its capacity to hold water and oil vapor. The lower the air temperature, the lower its vapor holding capacity. As the temperature drops, the water vapor particles condense and coalesce into droplets and attract any oil which may be present. Only then can the water/oil droplets be effectively removed from the air stream with an Adams Cyclone Separator.

SELECTING THE AFTERCOOLER

The amount of moisture carried into a compressed air system from the atmosphere and the quantity that will be condensed using an Adams Aftercooler may be determined from the above charts. A typical air system supplied by a compressor rated 3000 SCFM at 100 psig with 70°F cooling water available will carry 12.3 gallons of water vapor into an air system in an 8 hour period per 100 SCFM when the conditions are 90°F and 100% RH (relative humidity) as shown. Since the assumed system is 3000 SCFM and the basic unit of the chart is 100 SCFM, the actual carry over is 30 x 12.3 or 369 gallons in an 8 hour period. At 50% RH, the carry over would be 1/2 of the 369 gallons or 184.5 gallons.

If a 15°F approach aftercooler is selected for this system, the final air temperature will be 85°F or 15°F cold temperature difference (CTD) above the 70°F cooling water. From the above curves, the 85°F final air temperature produces a 26°F atmospheric dew point in a 100 psig system. The air will hold 1.3 gallons of vapor per 100 SCFM in an 8 hour period or 39 gallons in a 3000 SCFM system.

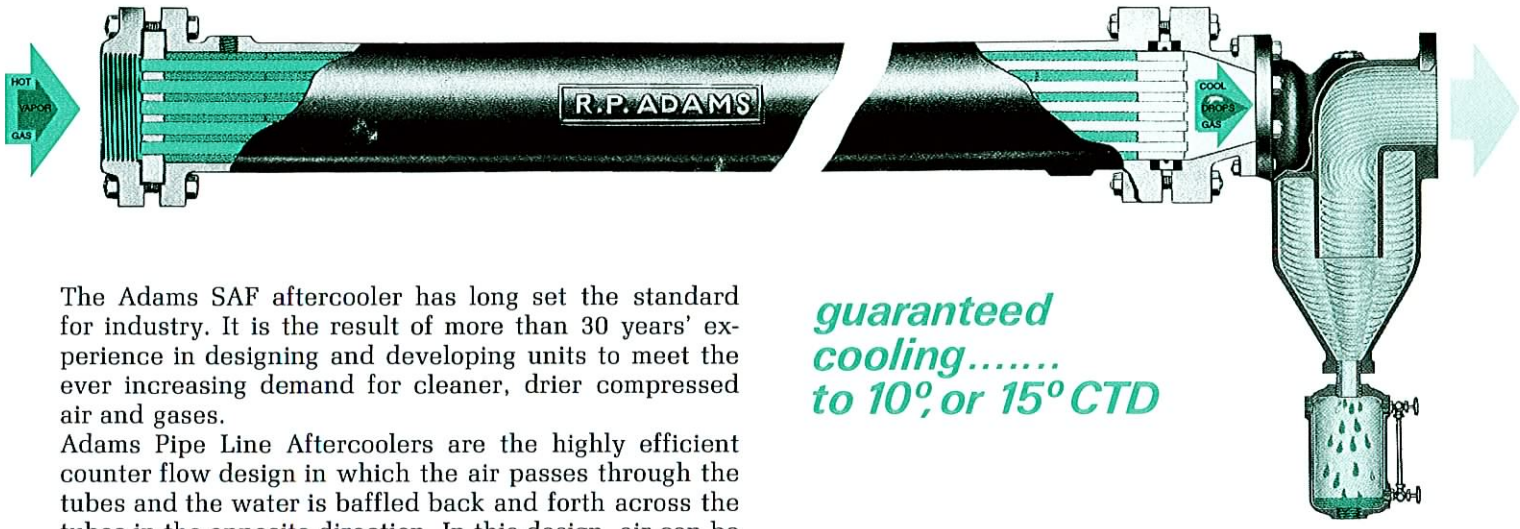
The 15°F aftercooler reduced the air's capacity to hold water vapor from 369 gallons to 39 gallons. The remaining 330 gallons of contaminated water are condensed and in a form that permits its removal from the system with an Adams Cyclone Separator.

Selecting a 10° approach Adams Aftercooler/Separator combination removes an additional 6 gallons in the same 8 hour period and reduces the atmospheric dewpoint of the same air to 22°F.

If even better air quality is required, investigate the 2°F. Aftercoolers shown on page 4 of this bulletin. By using the same water source in a 2° approach Adams Aftercooler, the atmospheric dewpoint of the air in the example above can be reduced to 17.5°F.

If chilled water at 35°F is available, enjoy —5° dewpoint air referred to atmosphere without the operating problems associated with dryers.

ADAMS 10 OR 15 DEGREE PIPELINE AFTERCOOLERS



The Adams SAF aftercooler has long set the standard for industry. It is the result of more than 30 years' experience in designing and developing units to meet the ever increasing demand for cleaner, drier compressed air and gases.

Adams Pipe Line Aftercoolers are the highly efficient counter flow design in which the air passes through the tubes and the water is baffled back and forth across the tubes in the opposite direction. In this design, air can be made to more nearly approach cooling water temperature than in any other, thus assuring drier discharge air. They are available in sizes to handle up to 50,000 cubic feet of air per minute at pressures to 1000 pounds.

Regardless of size, however, all Adams aftercoolers offer the same quality performance features that have made them the favorite.

- Admiralty metal condenser tubes expanded in heavy duty tube sheets. Close fitting non-metallic baffles eliminate tube damage from air pulsation or vibration.
- Full floating rear tube sheets permit bundle expansion without stress on tube joints.
- Atmospheric vent rings isolate air and water chambers. Large rectangular packing rings trouble free.
- 5/8" OD-18 gauge tubes give uniform performance even after normal accumulation of carbonized oil reduces inside bore.

guaranteed cooling..... to 10°, or 15° CTD

- Minimum pressure loss through large 5/8" OD-18 gauge tubes.
- Either vertical or horizontal installation to suit requirements.
- Mass production, guarantees quality control, low cost and stock delivery.

The selection of an aftercooler and separator to remove oil vapor and water vapor from your compressed air supply is an important consideration. More condensation of these objectionable vapors will result if you select a size to more nearly approach the temperature of your available cooling water. It is for this important reason that we list for your study, the performance in capacity for 15° and 10° terminal cooling. If your problem is more critical, we list on Page 4, the performance when cooling the air to within 2° of the cooling water.

SIZE	CAPACITY STANDARD CUBIC FEET AIR PER MINUTE																SIZE OF SEPARATOR
	80 - 150#						50#		40#		30#		20#		10#		
	250°F		350°F		180°F		325°F		290°F		270°F		225°F		180°F		
	15°	10°	15°	10°	15°	10°	15°	10°	15°	10°	15°	10°	15°	10°	10°	5°	
SAF-6 †	78	78	78	78	78	78	78	78	51	51	49	49	42	42	24	24	1½
SAF-9 †	182	182	182	170	182	182	182	182	116	116	115	115	100	100	58	58	2
SAF-12	251	173	200	137	252	182	215	146	168	146	144	135	160	135	97	64	3
SAF-16 †	312	312	312	256	312	312	312	269	230	230	196	196	170	170	97	97	3
SAF-20	430	332	355	243	430	365	387	260	285	260	247	247	275	275	170	125	4
SAF-32	615	430	495	350	684	456	490	350	430	300	398	350	415	350	270	155	5
SAF-46	970	715	770	550	992	969	835	565	700	500	650	600	620	600	380	270	5
SAF-61	1060	775	795	560	1260	1030	860	593	760	640	760	700	800	735	495	495	6
SAF-72	1390	960	1110	800	1510	1150	1100	780	900	730	895	760	960	870	585	585	6
SAF-105	2350	1620	1740	1210	2380	2130	1880	1300	1530	1200	1500	1250	1500	1500	950	950	6
SAF-146	2650	1880	2260	1580	3060	2420	2230	1560	2100	1475	1830	1560	1850	1650	1220	1140	6
SAF-194	3590	2410	2870	2020	3960	3050	3000	2090	2830	1975	2280	1900	2300	2050	1550	1430	8
SAF-258	5240	3580	4060	2800	5440	4980	4000	2890	3780	2850	3280	2960	3330	3330	1950	1950	8
SAF-294	5950	4100	4420	3090	6120	5740	4790	3300	4500	3300	3750	3270	3600	3600	2100	2100	8
SAF-355	6950	4850	5200	3680	7490	6700	5660	3900	5600	4100	5200	3960	4600	4400	2700	2700	10
SAF-472	9300	6200	6250	4480	9900	7850	7400	5100	6500	5100	6600	4700	5700	5300	3360	3360	10
SAF-623	12500	8750	9400	6560	13000	12000	10200	7000	9500	7400	8400	7380	7900	7900	4500	4500	12
SAF-808	16400	10800	11400	8050	16700	14300	13300	9000	12000	9000	10850	9000	9300	9300	5400	5400	12
SAF-983	20100	13100	12900	9130	20100	15800	15900	10800	13000	10250	13100	10000	11100	10800	6400	6400	14
SAF-1158	24200	18300	20400	14100	24200	24200	22300	15000	18200	14000	15800	15000	12200	12200	7200	7200	14
SAF-1650	34600	24300	25800	18300	34700	32100	28300	19500	25800	19000	22400	20500	16600	16600	10000	10000	16
SAF-2320	51100	38000	40900	28500	51200	49800	44300	30500	35700	30000	31000	28000	23000	23000	13700	13700	18

† SAF-6, SAF-9 & SAF-16 use ½" OD-20 gauge tubes.

ADAMS 2 DEGREE PIPELINE AFTERCOOLERS

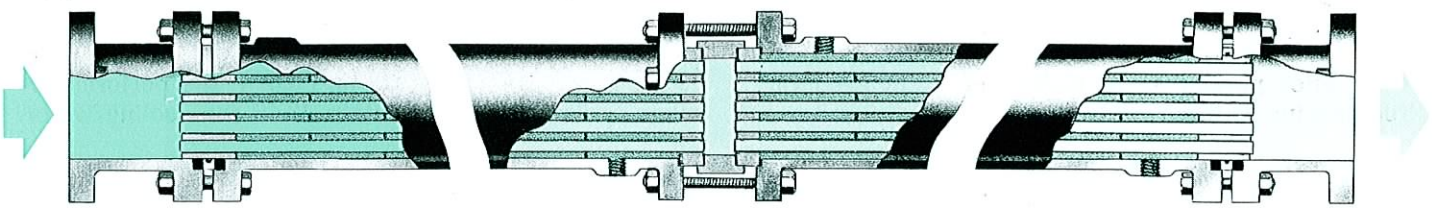
SINGLE SHELL - ONE WATER SOURCE

The effectiveness of moisture removal using 10° and 15°F. approach aftercoolers is fully described on Page 2, However, a 2°F. approach aftercooler condenses more moisture for removal. Single shell aftercoolers are limited to only one water source, either plant service water or possibly chilled water.

The 70°F. cooling water in the Page 2 example would produce a 72°F. final air temperature using a 2° aftercooler. The curve on Page 2 indicates a 17.5°F. dew point referred to atmospheric conditions and the air has a 0.85 gallon water retention capacity per 100 SCFM per 8-hour period. The hypothetical 3000 SCFM system will now hold only 25.5 gallons of water per 8-hour day (30 x 0.85).

Using a 2° approach an additional 13.5 gallons of water every 8 hours or 40-1/2 gallons/day continuous operation are condensed out of the system compared with a 15° approach aftercooler. This margin could well eliminate the apparent need for an expensive refrigerant or dessicant type dryer.

SIZE	CAPACITY STD. CU. FT. AIR PER MINUTE				SIZE OF SEPARATOR
	80 - 150#			50#	
	250°F	180°F	350°F	325°F	
SAF-6-2 SAF-9-2 SAF-12-2 SAF-16-2	THESE SIZES NOT AVAILABLE IN SINGLE SHELL				
SAF-20-35	300	345	300	300	4
SAF-32-55	425	435	400	375	5
SAF-46-78	725	915	725	675	5
SAF-61-103	815	925	750	700	6
SAF-72-122	1050	1100	950	900	6
SAF-105-177	1650	1990	1630	1530	6
SAF-146-247	2050	2300	1900	1780	6
SAF-194-318	2550	2875	2350	2200	8
SAF-258-440	3780	4800	3750	3530	8
SAF-294-495	4450	5450	4300	4050	8
SAF-355-607	5350	6350	5000	4730	10
SAF-472-860	6400	7380	6000	5650	10
SAF-623-1050	9025	11400	9000	8450	12
SAF-808-1350	11500	13400	10800	10300	12
SAF-983-1640	11900	14800	12100	11500	14
SAF-1158-1960	18000	24500	19300	18500	14
SAF-1650-2810	APPLY TO BUFFALO				16
SAF-2320-4000	APPLY TO BUFFALO				18



TWIN SHELL - ONE WATER SOURCE

A twin shell unit can achieve the same results as above and be able to handle up to 30%more air in the same shell size as can be noted from the chart to the right. In addition, piping versatility is improved as can be noted on the outline configurations shown on page 8.

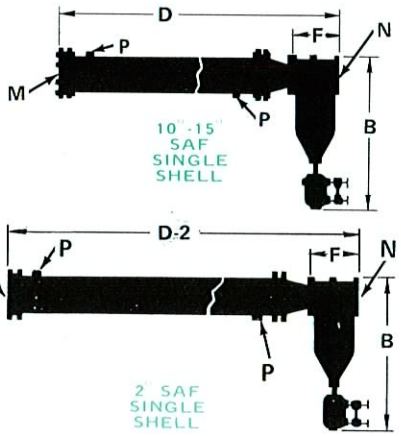
TWIN SHELL - DUAL WATER SOURCE

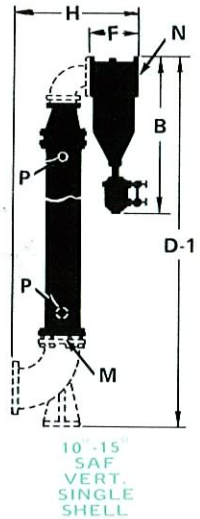
When a dual water supply is available for a twin shell aftercooler, the quality of the compressed air can be further improved by using plant cooling water in the first shell and a modest supply of refrigerated water or brine solution in the second shell. Then the final air temperature will approach within 5°F. of the refrigerated water temperature at rated air flow.

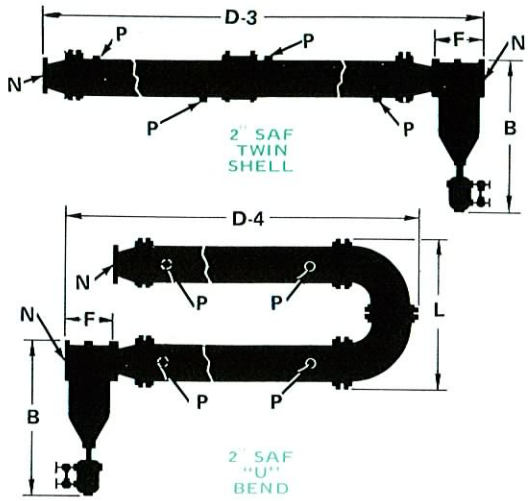
For example . . . a supply of refrigerated water at 35°F. in the second shell would produce a final air temperature of 40°F. and a dew point of −5°F. at atmospheric conditions in a 100 psig system. The major portion of the cooling load would already have been handled in the first shell with plant cooling water. This would probably eliminate the need for an expensive dryer.

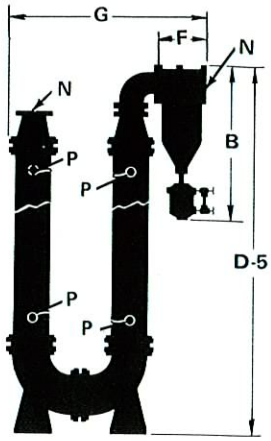
SCFM ratings for dual water supply twin shell aftercoolers (5°F. approach) are the same as the tabulated ratings for 2°F. single water source twin shell aftercoolers.

SIZE	CAPACITY STD. CU. FT. AIR PER MINUTE				SIZE OF SEPARATOR
	80 - 150#			50#	
	250°F	180°F	350°F	325°F	
SAF-6-2	78	78	78	60	1½
SAF-9-2	165	182	165	124	2
SAF-12-2	245	248	245	188	3
SAF-16-2	300	312	300	215	3
SAF-20-2	420	426	420	321	4
SAF-32-2	600	675	535	520	5
SAF-46-2	945	958	945	725	5
SAF-61-2	1140	1240	1030	936	6
SAF-72-2	1470	1490	1330	1130	6
SAF-105-2	2310	2340	2270	1770	6
SAF-146-2	2850	3020	2570	2280	6
SAF-194-2	3400	3750	3050	2950	8
SAF-258-2	5290	5360	5050	4040	8
SAF-294-2	5950	6040	5700	4550	8
SAF-355-2	7280	7380	6600	5570	10
SAF-472-2	8600	9400	7730	7360	10
SAF-623-2	12600	12800	11800	9660	12
SAF-808-2	15400	16500	13600	12415	12
SAF-983-2	17000	18600	15000	14960	14
SAF-1158-2	23600	23900	23600	18000	14
SAF-1650-2	33700	34200	30500	25800	16
SAF-2320-2	49805	50500	49805	38100	18



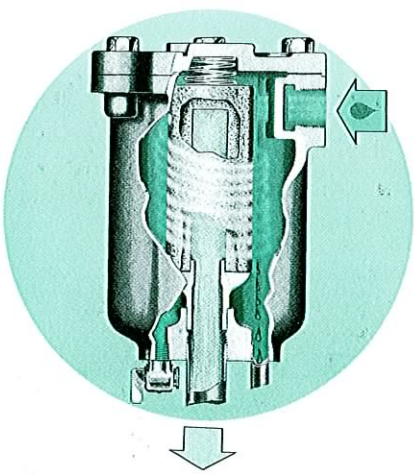






		10°-15° SAF SINGLE SHELL	10°-15° SAF VERT. SINGLE SHELL	2° SAF SINGLE SHELL	2° SAF TWIN SHELL	2° SAF "U" BEND	2° SAF VERT. TWIN BEND					CONNECTION SIZE		
												AIR		WATER
SIZE	B	D	D-1	D-2	D-3	D-4	D-5	F	G	H	L	M	N	P
SAF-6	21-1/2	11'10	N.A.	N.A.	22'8	12'2	N.A.	5-3/4	-	-	11-1/2	1-1/2 NPT	1-1/2 NPT	1/2 NPT
SAF-9	25-3/4	11'11	N.A.	N.A.	22'8-3/4	12'3-1/2	N.A.	6-1/2	-	-	13	2 NPT	2 NPT	1/2 NPT
SAF-12	28-3/8	12'1-1/2	N.A.	N.A.	23'2-3/4	12'7	N.A.	8	-	-	15-3/4	3 NPT	3 NPT	3/4 NPT
SAF-16	28-3/8	12'1-1/2	N.A.	N.A.	23'2-3/4	12'7	N.A.	8	-	-	15-3/4	3 NPT	3 NPT	3/4 NPT
SAF-20	33-1/2	12'2-3/4	13'2-1/4	19'5-3/4	23'4-3/4	13'0-1/4	13'2-1/4	10-1/4	34-1/4	23-1/4	22	4 NPT	4 Flg	1 NPT
SAF-32	34	12'4-5/8	13'5-1/4	19'8	23'7	13'3-3/4	13'5-1/4	12-3/8	39-7/8	27-3/8	25	5 NPT	5 Flg	1 NPT
SAF-46	34	12'4-5/8	13'5-1/4	19'8	23'7	13'3-3/4	13'5-1/4	12-3/8	39-7/8	27-3/8	25	5 NPT	5 Flg	1-1/4 NPT
SAF-61	36	12'4-3/4	13'7-1/4	19'7-3/4	23'5-3/4	13'4-1/4	13'4-3/4	14-1/4	45-1/2	30-1/4	28-1/2	6 Flg	6 Flg	1-1/4 NPT
SAF-72	36	12'7	13'7-1/2	19'10	23'9-1/4	13'6-3/4	13'7-5/8	14-1/4	43-3/4	30-1/4	27	6 Flg	6 Flg	1-1/2 NPT
SAF-105	36	12'8-1/8	14'3	19'11	24'0-1/4	13'9-3/4	14'0	14-1/4	52-1/2	34-3/4	36-1/2	8 Flg	6 Flg	2 NPT
SAF-146	36	12'7-5/8	13'10-7/8	19'10-11/16	23'11	13'11-1/16	13'10-7/8	14-1/4	53	34-3/4	37-3/8	8 Flg	6 Flg	2 NPT
SAF-194	43-3/4	12'11-3/4	14'9-7/8	20'2-3/4	24'3-1/2	14'7-1/4	14'6-1/4	17-5/8	64	42	44-5/8	10 Flg	8 Flg	2 NPT
SAF-258	43-3/4	12'11-1/2	15'2	20'2-1/2	24'3-1/4	14'11-1/8	14'10-1/4	17-5/8	71	45-1/8	52-5/8	12 Flg	8 Flg	3 NPT
SAF-294	43-3/4	12'11-1/2	15'2	20'2-1/2	24'3-1/4	14'11-1/8	14'10-1/4	17-5/8	71	45-1/8	52-5/8	12 Flg	8 Flg	3 NPT
SAF-355	58-3/4	13'7	16'3-1/4	20'10	24'11-1/4	15'10-1/4	16'0	25	87	57-1/2	60	14 Flg	10 Flg	3 NPT
SAF-472	58-3/4	13'8	16'8	20'10-3/4	25'0-1/4	16'2-3/4	16'3-1/2	25	94	60-1/2	68	16 Flg	10 Flg	3 NPT
SAF-623	68-1/2	14'0-3/4	17'6-5/8	21'3-3/4	25'5-1/2	17'0	17'2	30	107	69-1/2	76	18 Flg	12 Flg	4 Flg
SAF-808	68-1/2	14'10	18'7-5/8	22'1	26'11-1/2	18'0-3/4	18'3	30	114	72-1/2	84	20 Flg	12 Flg	4 Flg
SAF-983	81	15'3-1/4	19'1-5/8	22'6	26'11-1/2	18'9-3/4	18'9	35	128	82-1/2	92	22 Flg	14 Flg	4 Flg
SAF-1158	81	15'3-1/2	19'6-1/8	22'6-1/4	27'4-1/2	19'1-3/4	19'1	35	135	85-1/2	100	24 Flg	14 Flg	6 Flg
SAF-1650	93-7/8	16'10	22'6-3/4	24'1	29'1	21'7-3/4	22'0-1/4	46	178-3/8	116	125	30 Flg	16 Flg	6 Flg
SAF-2320	102	17'11-1/4	25'0	25'2-1/4	31'1-3/4	23'8-3/4	24'4-1/2	52	208	134	149	36 Flg	18 Flg	8 Flg

Dimensions in inches unless otherwise specified



FOR THE ULTIMATE IN PROTECTION: USE ADAMS PORO-STONE FILTERS!

Adams Poro-Stone air filters, installed in your air line, prevent moisture, oil, and pipe line scale from reaching and fouling pneumatic tools and instruments.

Air entering the filter is directed in a tangential flow around the filter housing. Centrifugal separation causes foreign particles to drop out in vertical slots and drain to the bottom cavity.

The air is then finely diffused through the millions of tiny passages in the Poro-Stone filter element, where the most minute particles are removed. Because Poro-Stone is inert and non-absorbent, it is permanent. The element can easily be removed, cleaned in a solvent, and returned to service without breaking piping connections.

For over thirty-five years Adams air filters have given unmatched protection to delicate air tools and instruments. Today, more than 100,000 are increasing production efficiency and decreasing maintenance costs in plants all over the world. Get peak performance from your air equipment. Protect it with an Adams Poro-Stone air filter.

USE OF THE ADAMS TR-AC FOR REMOVAL OF OBJECTIONABLE OIL VAPORS

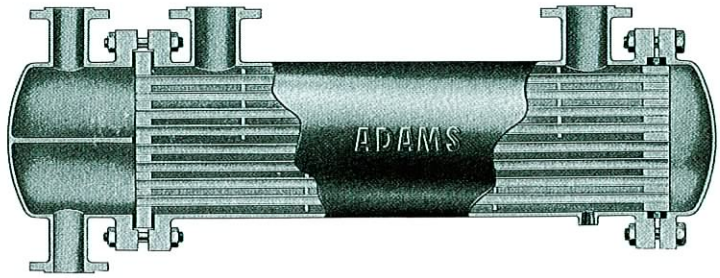
The Adams TR-AC oil vapor adsorber offers a low cost solution for removal of objectionable oil vapor and undesirable odors generally present in compressed air. Diffusion through the activated carbon in the cleanable canister completely removes oil vapor and mist. The removable canister facilitates replacement of the activated carbon.

ADAMS SHELL AND TUBE HEAT EXCHANGERS

There are Adams shell and tube heat exchangers for other heating and cooling requirements with liquid flows above 100 gpm and/or gas flows up to 50,000 SCFM.

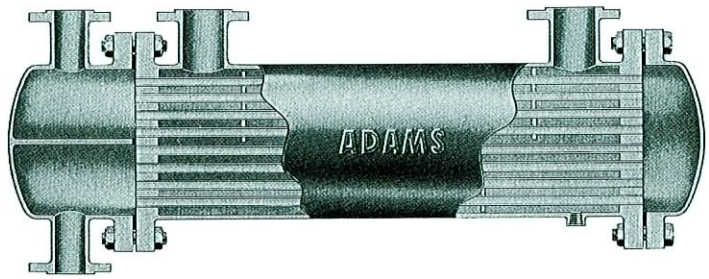
ADAMS MODEL AR

Use the AR where a floating tube sheet is desired to withstand wide temperature fluctuation, i.e. water-to-water coolers or heaters.



ADAMS MODEL AF

Use the AF where the shell fluid is clean, and harmful effects may be encountered should the two fluids mix, i.e. lube oil cooler using clean water coolant in the shell. 150# to 600# Designs, 350°F. max. Temperature.



ADAMS MODEL AU

Use the AU to reduce the possibility of mixing the two fluids and where high temperature fluctuations are encountered, i.e. steam heaters for fuel oil, alcohol, etc. with steam-in-the-shell. 150# to 600# Designs, 350°F. max. Temperature.

ADAMS ECONOMAT® (PATENTED)

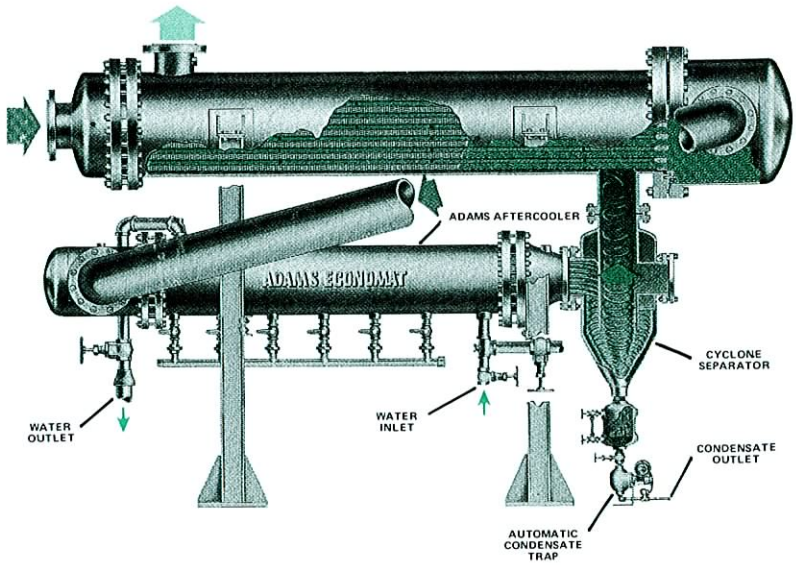
Use the Economat in place of an aftercooler when hot dry compressed air can be employed. The heat compression is reused in an air-to-air heat exchanger and up to 1/3 of the input energy is recovered. This is an Adams patented device. 150# and 300# Designs 350°F. max. Temperature.

HOT, OIL CONTAMINATED, VAPOR LADEN, COMPRESSED AIR DIRECT FROM COMPRESSORS

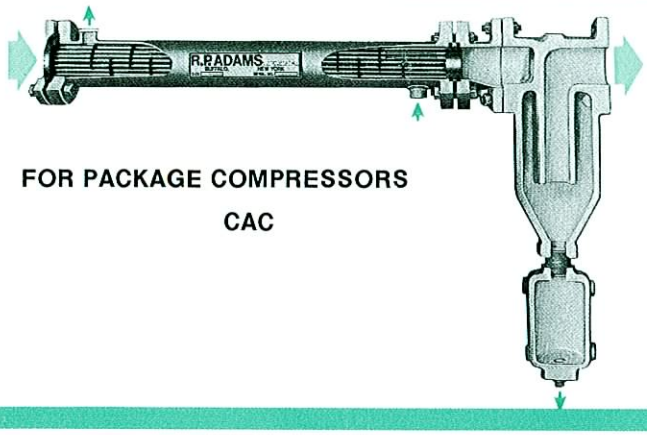
COOL, DRY, OIL FREE, COMPRESSED AIR FROM AFTERCOOLER

REHEATED DRY, OIL FREE, COMPRESSED AIR

REMOVED WATER AND OIL VAPOR AS CONDENSATE FROM AFTERCOOLER



OTHER ADAMS AFTERCOOLERS AVAILABLE



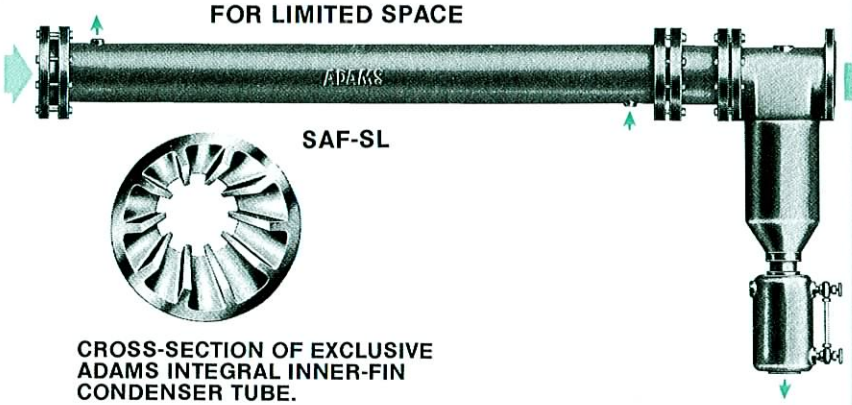
FOR PACKAGE COMPRESSORS

CAC

ADAMS MODEL CAC

This compact aftercooler is designed to accommodate minimum space applications and be maintained in a thermally efficient condition. The tube side can be readily cleaned and the removable bundle permits easy cleaning of the shell side. The tubes are 42 inches long, 3/8 inches OD, 24 gauge copper with 6 low longitudinal integral inner fins. The shell length varies from 45 inches to 49 inches. Capacities up to 1000 scfm. Available only in 150# series built to Adams standard construction.

FOR LIMITED SPACE



SAF-SL

CROSS-SECTION OF EXCLUSIVE ADAMS INTEGRAL INNER-FIN CONDENSER TUBE.

ADAMS MODEL SAF-SL

The design is exactly the same as the time proven SAF aftercooler except that extended surface inner fin copper tubes are used. The tubes are 5/8 inch OD, 20 gauge BWG and 6 feet long with 10 low, longitudinal integral inner fins. The additional inner surface provides the same air in the tube heat transfer capability as the standard SAF with only 56% of the tube bundle length. The SAF-SL is approximately 4'-9" shorter than the SAF. The SAF-SL can be furnished for published capacities 150# and 300# series; except sizes 6, 9 and 16 are not available.

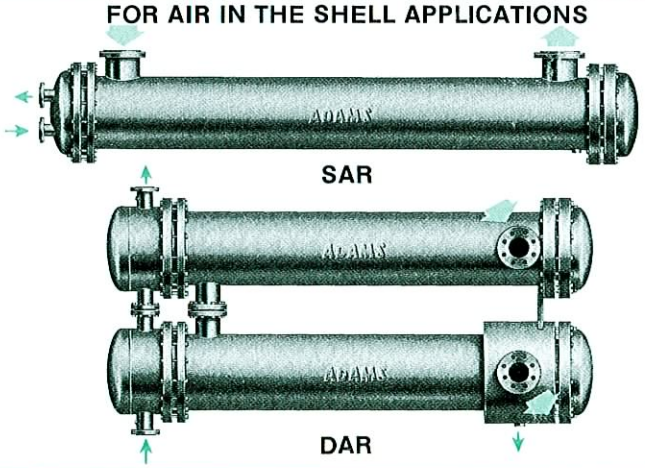
ADAMS MODELS SAF-HD, SAF-400, SAF-600, SAF-900

SAF-HD for 300 lb. service. SAF-400, SAF-600 and SAF-900 for 400 lb. to 900 lb. service. Capacities — 70 scfm and larger. The SAF-HD and SAF-400 series use the same type of construction as the standard SAF-150 lb. series. The SAF-600 and 900 series use outside packed floating head construction as shown here.

FOR HIGH PRESSURE SERVICE

SAF-600 & 900 SERIES

FOR AIR IN THE SHELL APPLICATIONS



SAR

DAR

ADAMS MODEL SAR/DAR

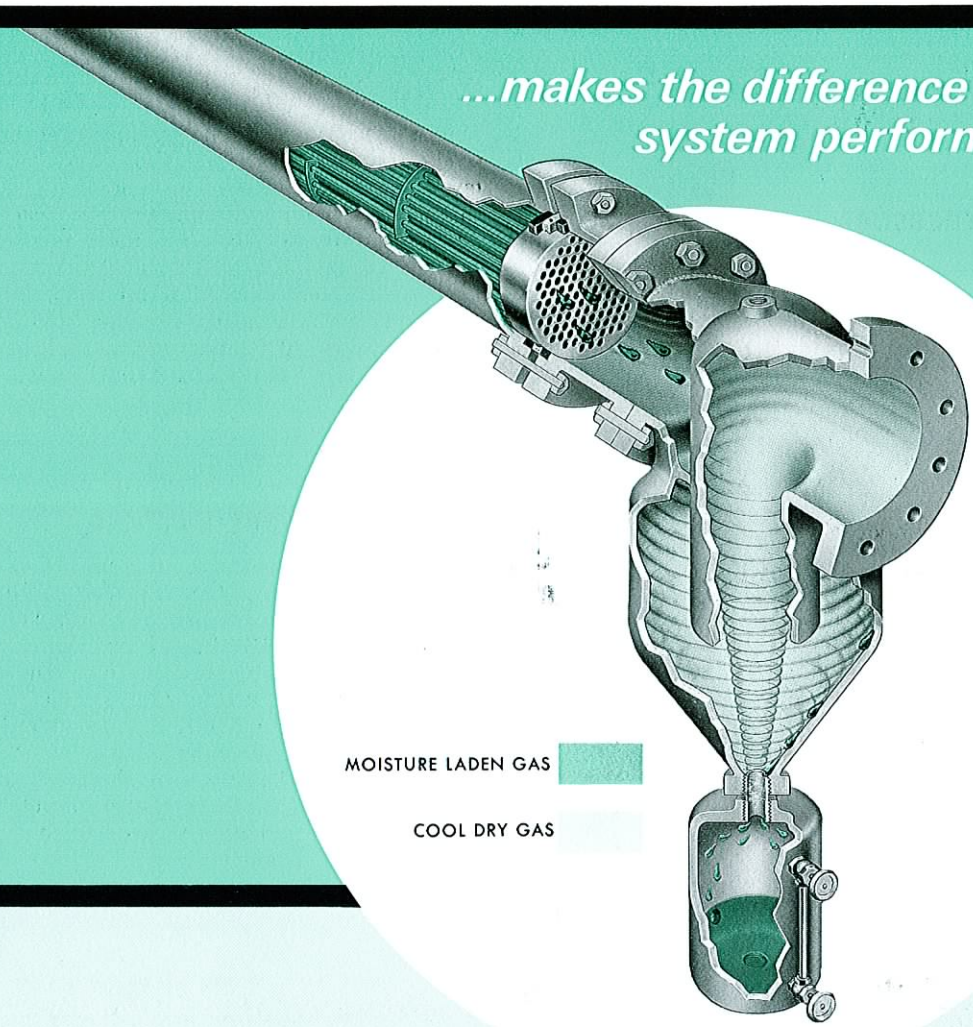
Adams SAR single shell and DAR double shell aftercoolers are used for cooling compressed air and other gases when only high fouling and/or corrosive liquid coolants are available.

For cleaning the tube side (liquid coolant side), channel ends can be provided to permit free access to the tube for manual cleaning without disturbing the air or coolant piping.

Shell sizes range from 6" to 36" in diameter with heat transfer surfaces from 52 sq. ft. to 2200 sq. ft.

ADAMS CYCLONE SEPARATOR

...makes the difference in system performance



It is common practice for separator manufacturers to use the same size separator for a wide range of capacities. To do this effectively, however, the separator must feature an automatic adjustment to various loads.

The Adams Cyclone Separator, with its cone bottom, applies the same principle used in dust collection and sawdust separation to achieve peak performance. It is this cone shape that forms the important inner vortex, without which maximum efficiency over a range of loads cannot be attained. Here, in the inner vortex, the cyclone creates the almost constant separating factor to remove condensed moisture and oil. Here is how it works:

As the air enters the separator housing, it is forced in a tangential downward movement around the inner wall. Centrifugal separation takes place entirely dependent on entering velocity. The air then moves into the cone shape of the separator where the ever narrowing diameters cause an increase in the number of revolutions. As separation is entirely dependent on, and in direct proportion to change in direction, efficiency is increased as the air nears the inverted apex of the cone.

At the apex, the natural phenomena of the cyclone cause the air to press upward in a tight spiral. It is in this phase that the self-adjusting vortex develops constant separating performance. The diameter of this inner vortex is in direct proportion to the volume of air. At one-half load, where only one-half the velocity exists, the diameter is only one-half that of full load. Therefore, the inner vortex revolves with approximately the same number of revolutions as it does at full load. This self-adjusting diameter of the vortex, with its constant rate of rotation, produces the same separating performance over all loads.

Get the most from your aftercooler — team it with a Cyclone Separator by Adams.