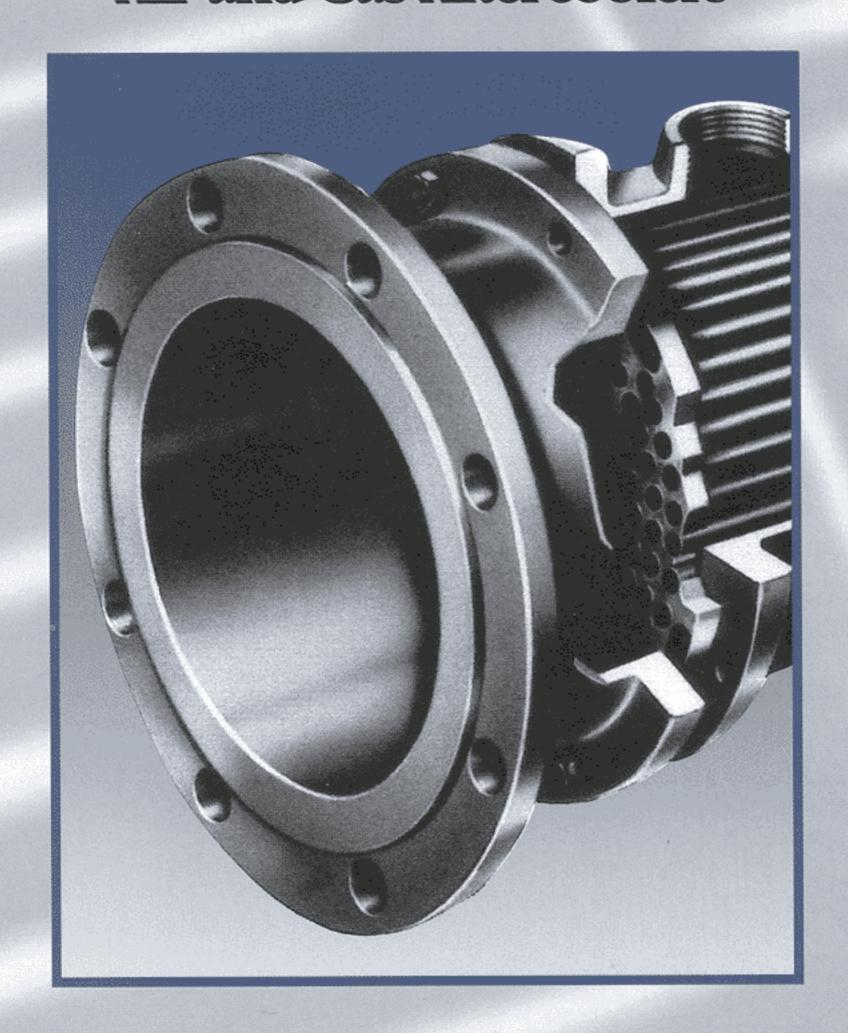
## Air and Gas Aftercoolers



Clean, cool air works better.

A300, A200, HCF and HCFQ air and gas aftercoolers.

ITT Standard



## Clean, dry air works better.

No matter how you're using compressed air, aftercooling will help you reduce maintenance time and equipment wear.

Under compression, air heats up. (1)
Hot compressed air carries large
quantities of vaporized water. For
instance, an industrial air compressor
operating at 90 psi, and delivering
100 cfm of air, without aftercooling,
can circulate four gallons of water
through an air system during an eighthour shift.

Aftercooling removes troublesome water. A good aftercooler (2) and moisture separator (3), properly installed just downstream of your compressor, will remove up to 95% of entrained water droplets above 10 microns in size.

A properly-sized air receiver with drain traps (4) removes most of the remaining water. It's imperative to use air as clean and dry as you can get it. Dry air reduces maintenance and rework, and extends the service life of expensive air equipment.

Make sure your piping system is designed to trap additional condensation as it develops further along the system. (5)

Using filter/regulator/lubricator units
(6) at the actual points of air use
removes most remaining water, and
particles to 5 microns in size.

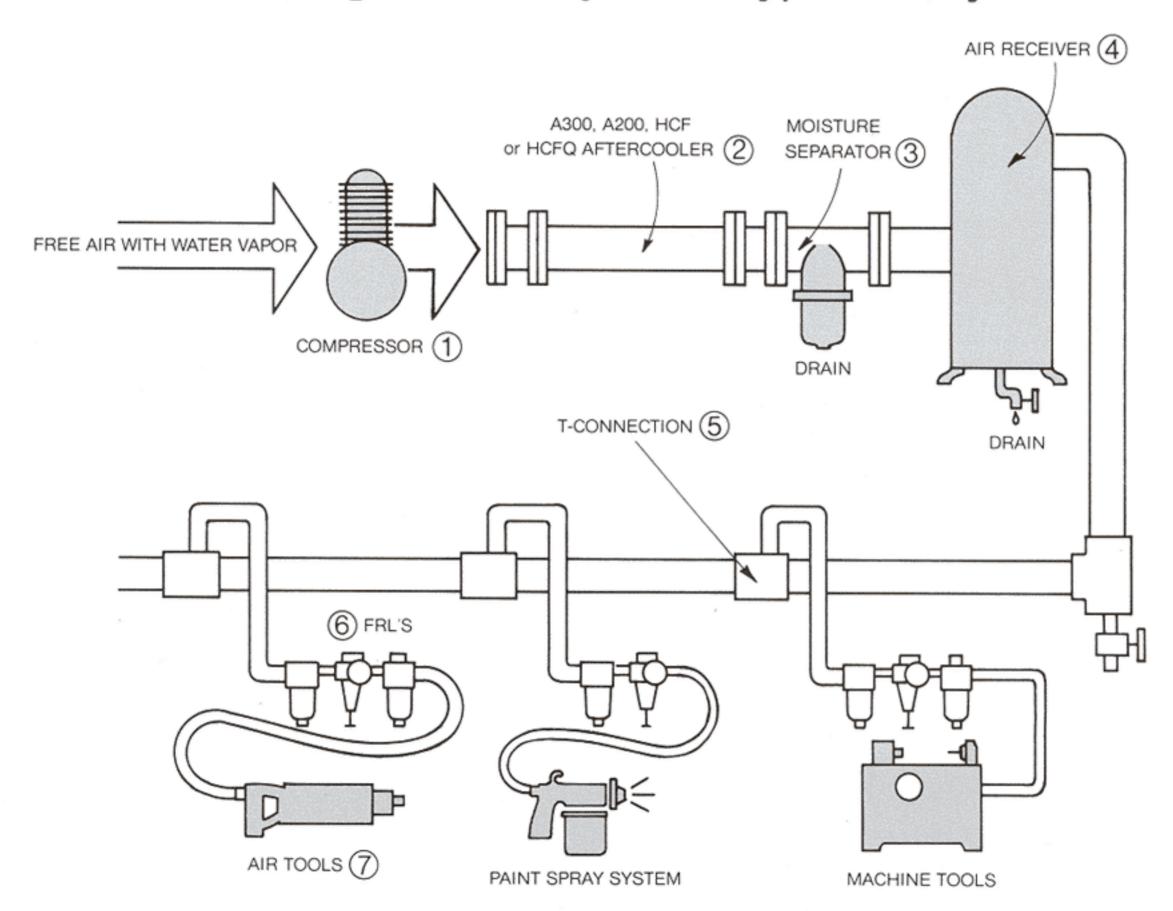
Without aftercooling, water vapor is suddenly released at the point of use (7), causing the vapor to change to liquid. This can ruin work, wash lubricant off operating tool parts, and may even freeze tool exhausts.

Aftercoolers save operating dollars.

The more the temperature of your compressed air can be reduced close to the compressor, the less water and oil vapor it can carry to the distribution system . . . causing expensive problems and maintenance headaches.

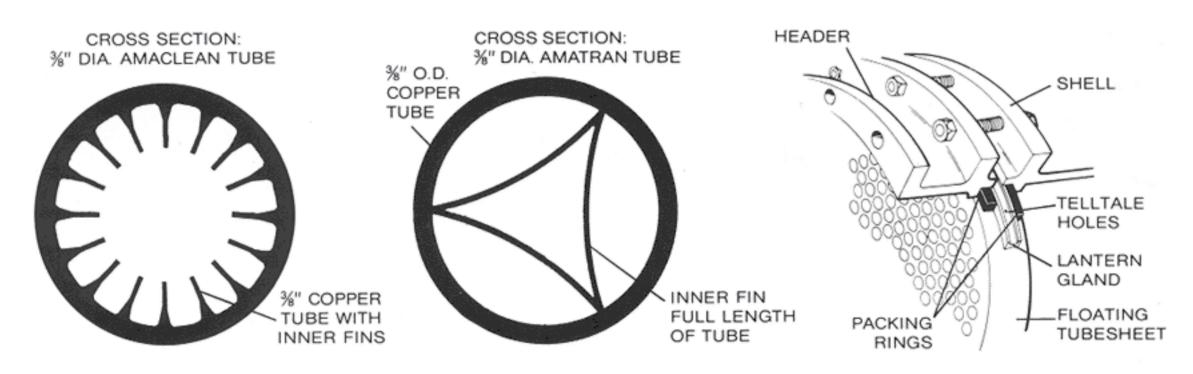
We have the aftercoolers you need, and this catalog will help you select them. For more information, call your ITT Standard distributor, representative or sales office.

### How aftercooling works for you in a typical air system.



Since product improvement is a continuing effort at ITT Standard, we reserve the right to make changes of any kind without notice. Copyright 1987 by ITT Corporation

	DIAMETERS	TUBE BUNDLE	TUBES	PAGE
A300°	2 thru 13-inch	Removable with packed floating heads (except 2-inch)	AMACLEAN® tubes*	4-5
A200°	2 thru 13-inch	Removable with packed floating heads (except 2-inch)	AMATRAN® inner-fin*	6-7
HCF°	2 thru 8-inch	Fixed tubesheet	Bare tubes (2-inch thru 4-inch) • AMACLEAN® tubes (5-inch thru 8-inch)	8-9
HCFQ*	2 & 3-inch	Fixed tubesheet	Bare tubes	10
A 100°	*When you need bare	tubes and can tolerate additional tube leng	gth specify the A 100. Call us for inf	ormation.



#### AMACLEAN®

Space-saving patented AMACLEAN tubes—with our exclusive fin geometry—give you much more heat transfer surface per unit of length than conventional tubes. And they're easy to clean, too.

#### **AMATRAN®**

Provides much more heat transfer surface per unit of length than you'll find in conventional bare-tube aftercoolers.

In aftercoolers with removable tube bundles, the lantern gland allows tube bundle to expand and contract, minimizing stress build-up and preventing intermixing of shell and tube fluids.

## A300 aftercoolers With exclusive AMACLEAN® tubes



ASME inspected and stamped where required

The unique ITT Standard A300 after-cooler with AMACLEAN tubes is one of the smallest, most efficient aftercoolers you can find to cool compressed air and gasses. Type A300 aftercoolers are well suited for applications with oil carry-over . . . because AMACLEAN tubes are easy to clean mechanically . . . thereby insuring efficient heat transfer.

The unusual heat transfer capabilities of AMACLEAN tubing permit your A300 aftercooler to do the job of conventional equipment much longer in length. This exclusive innovation uses increased internal tube surface to get maximum cooling in a tube only 3' 4" long. The result is a savings in space and original aftercooler installation cost.

A removable tube bundle, with packed floating head, offers easy maintenance and replacement. The packed floating head allows the tube bundle to expand within the shell. Tubes and tubesheets are corrosion-resistant; shell and air headers are steel (cast iron in some models). And all A300's have brass baffles, as standard equipment.

Type A300 aftercoolers are designed to use with compressors, operating at pressures up to 300 psi and for temperature approaches of 10° or 15°F, based on minimum cooling water flows.

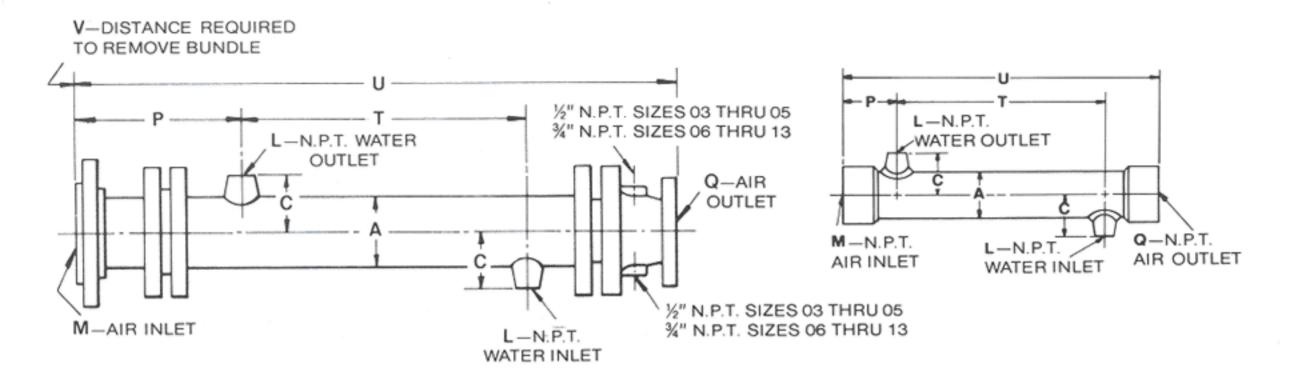
The unique features of the A300 aftercooler make it readily adaptable to applications using inert gasses other than air, and where temperature approach requirements vary.



*Capacities	in SCFM Air	Rotary (100° above ambient)						М		F	•		Q	
10° Approach†	15° Approach†	capacities in SCFM Air 10° Approach†	SIZE	A	С	L	N.P.T.	150# A.N.S. Flg. R.F.	300 # A.N.S. Flg. R.F.	150# Design	300# Design	N.P.T.	150# A.N.S. Flg. F.F.	300 # A.N.S. Flg. R.F.
150	200	210	02040	23/8	21/4	1/2	2	_	white	3¾	3¾	2		_
230	310	330	03040	3½	2%	3/4	3	_		5%	63/8	11/2	_	. 3
500	660	705	04040	41/2	3%	1	4	_	. –	61/8	7	21/2	_	4
850	1140	1215	05040	5%16	41/8	1	5		_	61/4	71/4	3	_	5
1010	1340	1440	06040	6%	43/4	1½	_	6	6	10%	131/4	3		6
2100	2800	3000	08040	85/8	5¾	1½	_	8	8	11%	141/8	_	5	8
3600	4780	5130	10040	10¾	7	2		10	10	12	151/8	-	6	10
5320	7080	_	12040	12¾	81/2	3	_	12	12	13%	16		8	12
6530	8700		13040	14	91/8	3	_	14	14	13%	161/8		8	14

#### Series 03000 Thru 13000

(3-inch thru 13-inch) with removable tube bundle



#### DESIGN PRESSURES AND TEMPERATURES

DESIGN	DESIGN I	PRESSURE	TEST PR	ST PRESSURE DESIGN TE		N TEMP.	DESIGN PRESSURE		TEST PE	RESSURE	DESIGN TEMP.	
SHELL SIDE	150 PSIG	1034 kPa	225 PSIG	1551 kPa	250°F.	121°C.	150 PSIG	1034 kPa	225 PSIG	1551 kPa	250°F.	121°C.
			**300 PSIG									

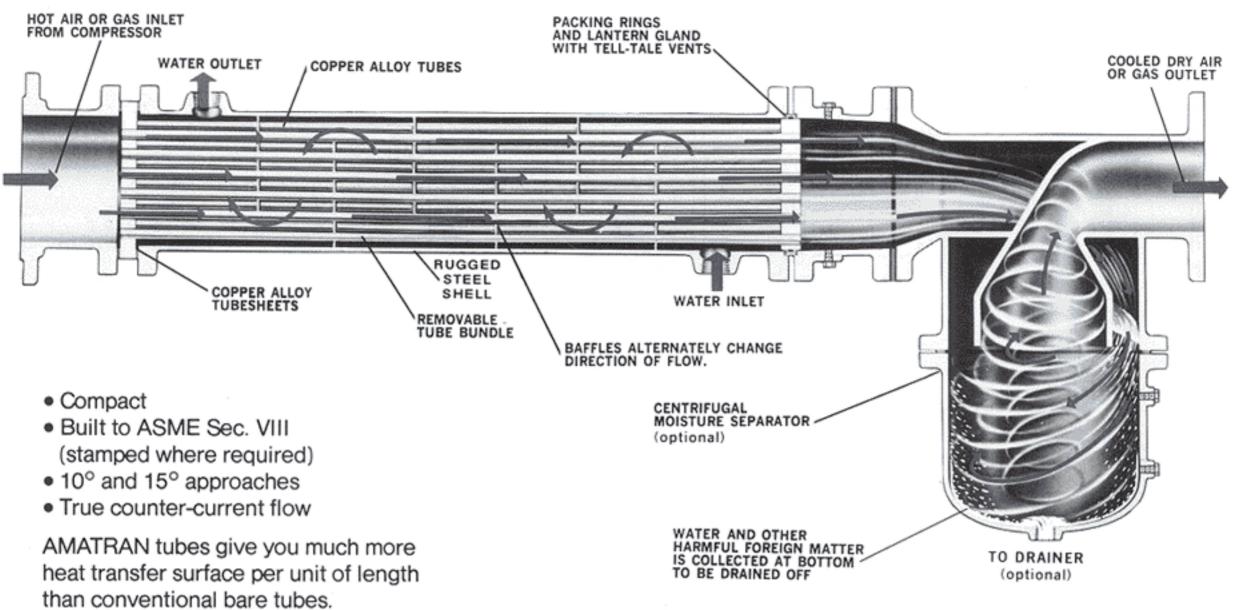
<sup>\*\*\*02</sup> Series - 225 PSIG, 1551 kPa

1	r	U		٧		Moisture Separator	Moisture Separator
150# Design	300# Design	150# Design	300# Design	150# Design	300# Design	Model 150 # Des.	Model 300# Des.
351/4	351/4	42¾	42¾	_	_	11/4T	1¼TW
30½	30½	431/4	48½	43	42	1½T	1½TW
30½	29	43%	48%	42	42	2½T	2TW
30½	29	44	491/8	42	42	3T	2½TW
30½	29	49%	55¾	38	36	3T	3TW
29	29	50	56%	37	35	5T	4-TW
29	26	51	571/8	37	35	6T	5-TW
26	26	511/8	571/8	37	35	8T	6-TW
26	26	521/4	571/4	37	35	8T	8-TW

- \* Capacities are based on maximum heat transfer and two-stage compression. For single stage applications reduce above capacities 10%. (Correction not applicable to tabulated rotary capacities.)
- † Approach temperature is the difference between the air temperature leaving the aftercooler and cooling water inlet temperature.
- All dimensions are in inches unless otherwise indicated. Catalog dimensions subject to variation. Use only certified drawings for construction purposes.
- The last 3 digits of the size numbers indicate tube length in inches, while the preceding digits denote shell diameter in inches. For example, Size No. 08040 indicates a 40-inch tube length and 8-inch shell diameter.
- Cooling water flow rate is based on 3 or more GPM per 100 SCFM capacity, but may vary depending on operating conditions.
- To convert SCFM air at 14.7 P.S.I.A. and 60° F to M³/Min. air at one atmosphere and 15.6° C, divide SCFM by 35.3.

## A 200° Aftercoolers with AMATRAN® tubes





#### and tubesheets, steel shells and air headers (cast iron in some models) and brass baffles...as standard equipment.

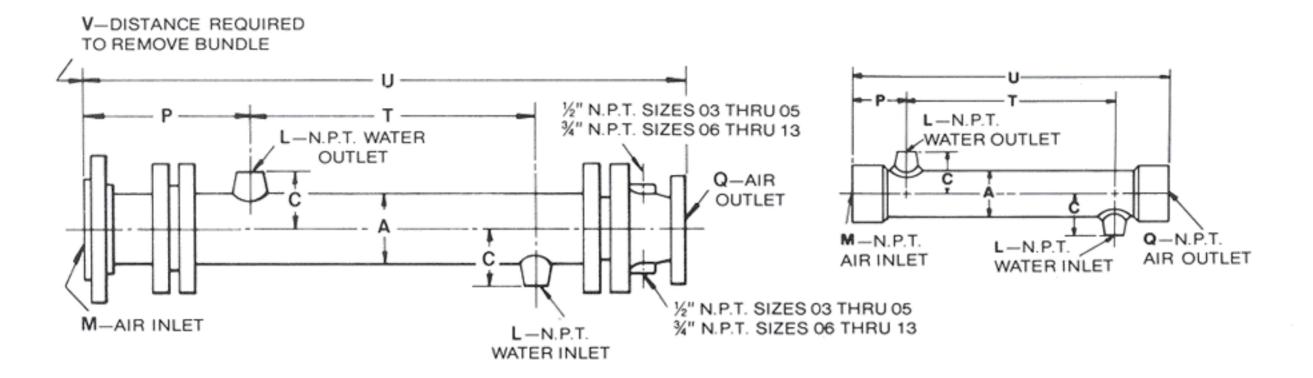
A200 aftercoolers have packed float-

ing heads, corrosion-resistant tubes

#### Ratings and Dimensions

°Capacities	in SCFM Air	Rotary (100° above ambient) capacities in						М		F	,	Q		
10° Approach†	15° Approach†	SCFM Air 10° Approach†	SIZE	A	С	L	N.P.T.	150# A.N.S. Flg. R.F.	300 # A.N.S. Flg. R.F.	150# Design	300# Design	N.P.T.	150# A.N.S. Flg. F.F.	300 # A.N.S. Flg. R.F.
150	200	210	02044	2%	21/4	1/2	2			3¾	3¾	2	_	_
230	310	330	03044	31/2	2%	3/4	3	****	_	5%	63/8	1½	-	3
500	660	705	04044	41/2	3%	1	4	_	-,	61/8	7	2½		4
850	1140	1215	05044	5%16	41/8	1	5	_		61/4	71/4	3	_	5
1010	1340	1440	06044	6%	4¾	1½	_	6	6	10%	131/4	3	_	6
2100	2800	3000	08044	85%	5¾	1½	_	8	8	11%	141/8	_	5	8
3600	4780	5130	10044	10¾	7	2	_	10	10	12	151/8	_	6	10
5320	7080	-	12044	12¾	81/2	3	_	12	12	13%	16	_	8	12
6530	8700	_	13044	14	91/8	3	_	14	14	13%	161/8	_	8	14

ALL DIMENSIONS ARE IN INCHES



#### DESIGN PRESSURES AND TEMPERATURES

DESIGN	DESIGN I	PRESSURE	TEST PR	TEST PRESSURE DESIGN TEMP.		N TEMP.	DESIGN I	PRESSURE	TEST PI	RESSURE	DESIGN	TEMP.
SHELL SIDE	150 PSIG	1034 kPa	225 PSIG	1551 kPa	250°F.	121°C.	150 PSIG	1034 kPa	225 PSIG	1551 kPa	250°F.	121°C.
TUBE SIDE	150 PSIG	1034 kPa	⇔300 PSIG	2068 kPa	400°F.	204°C.	300 PSIG	2068 kPa	450 PSIG	3103 kPa	350°F.	177°C.

**02	Series	-225	PSIG	1551	kPa
UL	301103	- 440	i oiu,	1001	141 0

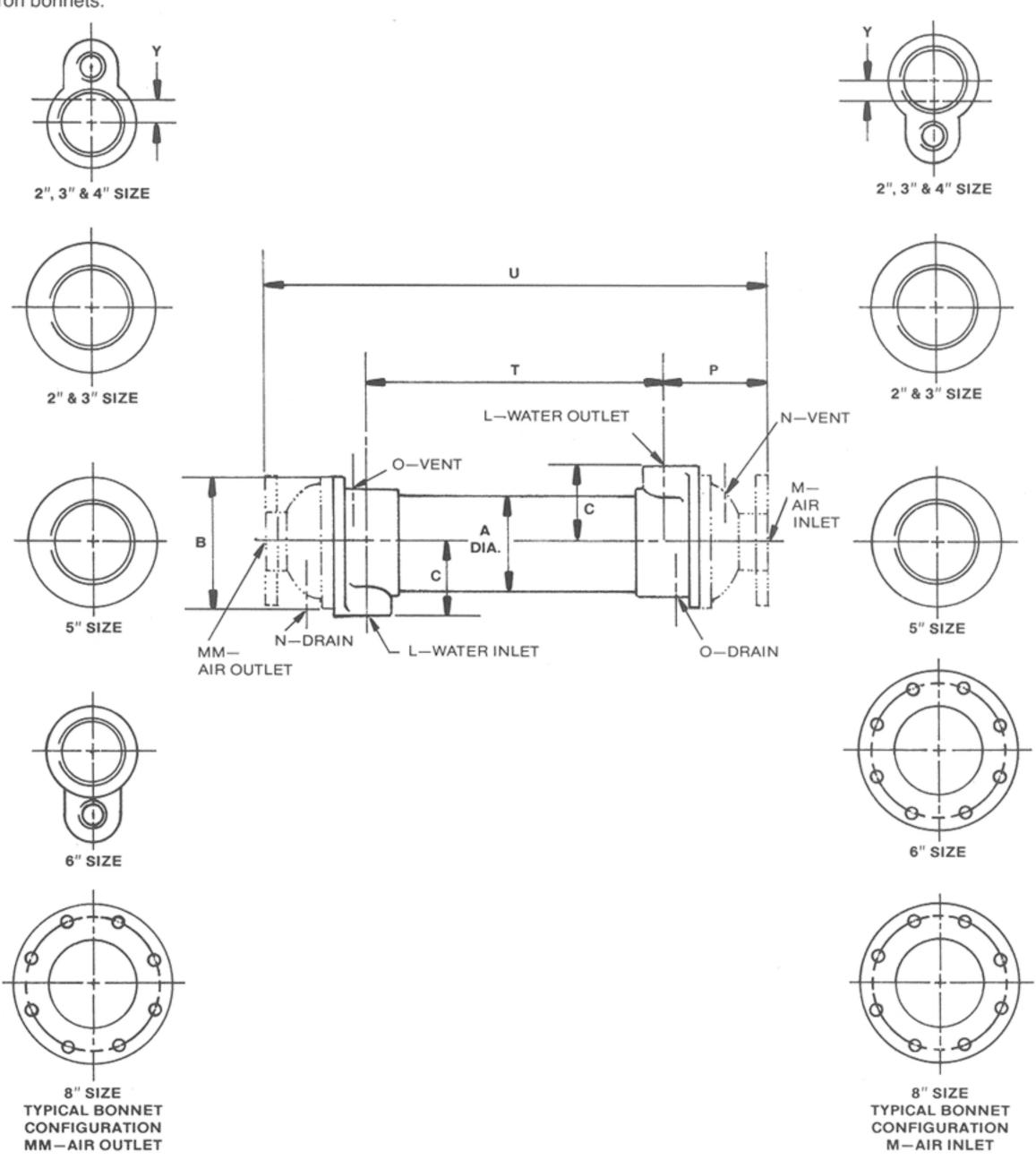
1	r	,	J	١	ı	Moisture Separator	Moisture Separator
150# Design	300# Design	150# Design	300# Design	150# Design	300# Design	Model 150 # Des.	Model 300# Des.
39¼	391/4	46¾	46¾	_	_	1¼T	1¼TW
34½	34½	471/4	52½	47	46	1½T	1½TW
34½	33	47%	52%	46	46	2½T	2TW
34½	33 .	48	531/8	46	46	3T	2½TW
34½	33	53%	59¾	42	40	3T	3TW
33	33	54	60%	41	39	5T	4-TW
33	30	55	611/8	41	39	6T	5-TW
30	30	551/8	611/8	41	39	8T	6-TW
30	30	.561/4	611/4	41	39	8T	8-TW

- \* Capacities are based on maximum heat transfer and two-stage compression. For single stage applications reduce above capacities 10%. (Correction not applicable to tabulated rotary capacities.)
- † Approach temperature is the difference between the air temperature leaving the aftercooler and cooling water inlet temperature.
- All dimensions are in inches unless otherwise indicated. Catalog dimensions subject to variation. Use only certified drawings for construction purposes.
- The last 3 digits of the size numbers indicate tube length in inches, while the preceding digits denote shell diameter in inches. For example, Size No. 08044 indicates a 44-inch tube length and 8-inch shell diameter.
- Cooling water flow rate is based on 3 or more GPM per 100 SCFM capacity, but may vary depending on operating conditions.
- To convert SCFM air at 14.7 P.S.I.A. and 60° F to M³/Min. air at one atmosphere and 15.6° C, divide SCFM by 35.3.

## HCF Aftercoolers.

Economy coolers with real quality.

ITT Standard HCF aftercoolers are rugged, long lasting fixed-tube-sheet units with SCFM ratings from 20 to 2800. 2" thru 4" models have seamless non-ferrous bare tubes; 5", 6" and 8" models have unique patented AMACLEAN tubes with optimum inner fin geometry. All have tough, ductile brass shells, brass baffles and castiron bonnets.



#### **Ratings and Dimensions**

°Capacities	in SCFM Air	Rotary (100° above ambient)						N	1	М	м							
15° Approach†	10° Approach†	capacities in SCFM Air 10° Approach†	SIZE	A	В	С	L	NPT	125# ANS F.F.	NPT	125# ANS F.F.	N	0	P	T	U	Y	Moisture Separator Model
42	20	36	02036	21/8	2¾ sq.	111/16	1	3/4	_	3/4		¾	_	2¾	34¼	39	3%	34 T
90	42	75	02042	21/8	2% sq.	111/16	1	3/4	-	3/4	-	3∕8	_	2%	40¼	45	3/8	34 T
140	80	130	02048	21/8	21½ sq.	1½	1/2	1½	_	1½	-	_	_	3%	46%	54%	_	1T
210	130	190	02054	21/8	21½ sq.	1½	1/2	1½	-	1½	-	_	_	3%	52%	60%	_	1¼T
280	160	265	03048	31/8	4¾ <sub>16</sub> dia.	2½6	1	11/2	_	1½	_	3/8	1/4	2%6	461/8	51¼	3/8	1½T
420	265	380	03054	31/8	4¾ <sub>16</sub> dia.	21/16	1	2	_	2	_	1/2	1/4	413/16	521/8	61¾	-	2T
540	315	510	04048	41/8	55/ <sub>16</sub> dia.	31/16	1½	2	_	2	-	3/8	1/4	3½	451/8	521/8	1/2	2T
810	510	735	04054	41/8	55⁄ <sub>16</sub> dia.	31/16	1½	21/2	-	21/2	_	1/2	1/4	4½	511/8	601/8	_	2½T
900	840	900	05040	51/8	6½ dia.	3%	1½	3	-	21/2	_	3/8	1/4	47/16	371/8	451/4	_	2½T
1120	_	1200	05040	51/8	6½ dia.	3%	1½	3	-	3	-	1/2	1/4	47/16	371/8	46	-	3T
1500	1220	1500	06040	61/8	9 dia.	41/4	2	-	4	3	-	1/2	1/4	5½	36½	461/4	-	3T
2800	2205	2800	08040	81/8	11 dia.	5%	3	-	6	-	4	1/2	1/4	7	35	49	_	4T

ALL DIMENSIONS ARE IN INCHES

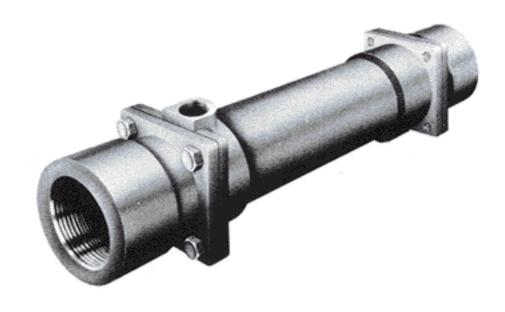
#### Design temperatures and pressures

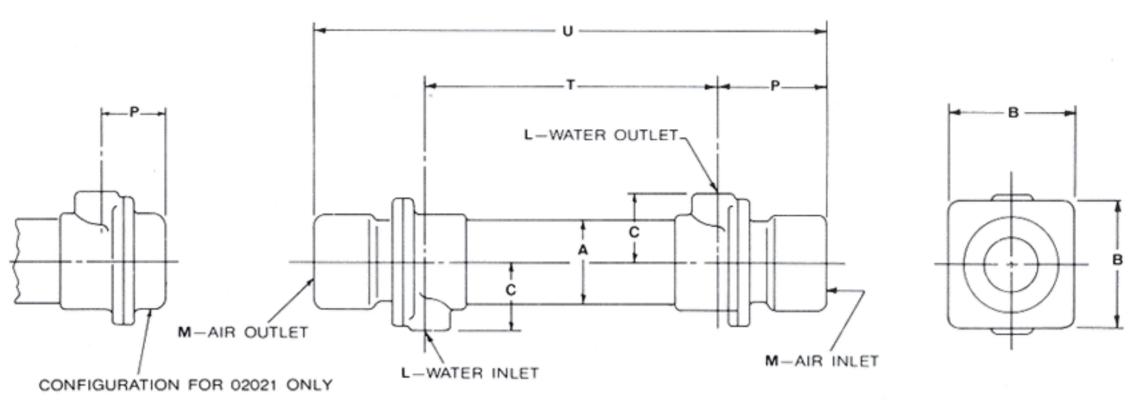
Design	Design Pressure		Test P	ressure	Design Temp.		
Shell Side	200 PSIG	1379 kPa	300 PSIG	2058 kPa	300°F	149°C	
Tube Side	150 PSIG	1034 kPa	225 PSIG	1551 kPa	300°F	149°C	

- \*Capacities are based on maximum heat transfer and two-stage compression. For single stage applications reduce capacities 10%. (Correction not applicable to tabulated rotary capacities.)
- † Approach temperature is the difference between the air temperature leaving the aftercooler and cooling water inlet temperature.
- All dimensions are in inches unless otherwise indicated. Catalog dimensions subject to variation. Use only certified drawings for construction purposes.
- 2. The last 3 digits of the size numbers indicate tube length in inches, while the preceding digits denote shell diameter in inches. For example, Size No. 08040 indicates a 40-inch tube length and 8-inch shell diameter.
- Cooling water flow rate is based on 3 or more GPM per 100 SCFM capacity, but may vary depending on operating conditions.
- 4. To convert SCFM air at 14.7 P.S.I.A. and 60°F. to M³/Min. air at one atmosphere and 15.6°C, divide SCFM by 35.3.

## HCFQ<sup>®</sup> Aftercoolers.

The ITT Standard HCFQ aftercooler has a tough, ductile brass shell, unique flanged brass baffles, seamless copper tubes and cast iron bonnets.





Capacities in SCFM air	Rotary (100° above ambient) capacities in SCFM air	SIZE	A	В	С	L N.P.T.	M N.P.T.	P	T	U	Moisture Separator Model
40	_	02021	21/8	211/16	1½	1/2	1	111/16	19%	23	1T
110	120	02030	21/8	211/16	1½	1/2	11/2	3%	28%	36%	1½T
170	230	02048	21/8	211/16	1½	1/2	11/2	31/8	46%	54%	1½T
190	_	02054	21/8	211/16	1½	1/2	11/2	3%	52%	60%	1½T
145	155	03022	31/8	43/16 (dia.)	27/16	1	2	413/16	201/8	29¾	2T
280	290	03036	31/8	4¾ <sub>16</sub> (dia.)	2½6	1	21/2	413/16	341/8	43¾	2½T

ALL DIMENSIONS ARE IN INCHES

#### **Design Pressures**

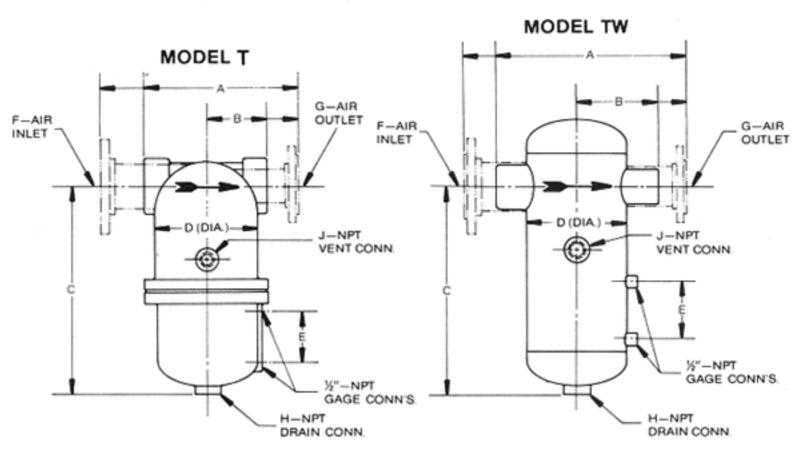
DESIGN	DESIGN P	RESSURE	TEST PR	RESSURE
Shell Side	200 PSIG	1379 kPa	300 PSIG	2068 kPa
Tube Side	250 PSIG	1724 kPa	375 PSIG	2585 kPa

- \* Capacities are based on maximum heat transfer and two-stage compression.
- All dimensions are in inches unless otherwise indicated. Catalog dimensions subject to variation. Use only certified drawings for construction purposes.
- The last 3 digits of the size number indicate tube length in inches, while the preceding digits denote shell diameter in inches. For example, Size No. 02021 indicates a 21-inch tube length and 2-inch shell diameter.
- Cooling water flow rate is based on 3 GPM per 100 SCFM capacity, but can vary depending on operating conditions.
- To convert SCFM air at 14.7 psia and 60° F to M³/min., air at one atmosphere and 15.6° C, divide SCFM by 35.3.
- 5. Bonnet and Tubesheet for 3-inch size not as depicted above.

## Centrifugal moisture separators.

Installing a moisture separator along with your ITT Standard aftercooler increases the efficiency of your air system, by removing moisture and all other entrainment from the air pipeline.

Compact and lightweight, the centrifugal moisture separator is easily installed and supported by the line. Moisture separators are ASME code constructed, and can be stamped if you require, where applicable.



#### 150 PSI Models

MODELS	DESIGN PRESS.		TEST PRESS.		DESIGN TEMP.	
	psig	kPa	psig	kPa	°F	°C
¾T thru 2T	250	1723	300	2068	250	121
2½T thru 5T incl.	150	1034	300	2068	450	232
6T & 8T	150	1034	225	1551	400	204
10TW thru 18TW incl.	150	1034	225	1551	400	204

#### 300 PSI Models

MODELS	DESIGN PRESS.		TEST PRESS.		DESIGN TEMP.	
	psig	kPa	psig	kPa	۰F	°C
1¼TW thru 8TW incl.	300	2068	450	3103	650	343

#### 150 PSI Models

Model	Α	В	С	D	Ε	F	G	Н	J
¾T	5.500	2.750	9.250	4.125	_	¾"NPT	¾"NPT	l	1/4
1T	6.000	3.000	9.250	5.250	_	1"NPT	1"NPT	l	1/4
1¼T	6.000	3.000	9.250	5.250		1¼"NPT	1¼"NPT	1	1/4
1½T	7.500	3.750	11.750	5.875	_	1½"NPT	1½"NPT	l	1/4
2T	8.125	4.062	13.000	6.625	_	2"NPT	2"NPT	1	1/4
2½T	9.375	4.688	14.500	7.750	4.750	2½"NPT	2½"NPT	1	1/4
3T	11.062	5.531	16.250	9.125	4.750	3"NPT	3"NPT	11/4	1/4
4T	15.875	7.938	19.500	11.250	5.750	4" ANS	4" ANS FF	11/4	3/6
5T	18.625	9.312	24.750	13.500	7.875	5" ANS	5" ANS FF	11/2	3/1
6T	24.000	12.000	30.000	16.000	7.875	6" ANS FF	6" ANS ANS	11/2	1/2
8T	28.000	14.000	37.000	18.000	7.875	8" ANS FF	8" ANS RF	2	1/2
10TW	35.000	17.000	55.000	24.000	7.875	16" ANS RF	10" ANS RF	2	1/2
12TW	39.000	19.000	58.000	28.000	7.875	18" ANS RF	12" ANS RF	21/2	1/
14TW	44.000	21.000	60.000	32.000	7.875	20" ANS RF	14" ANS 85	21/2	1/2
18TW	55.000	27.000	85.000	42.000	9.125	24" ANS	18" ANS	3	1/2

#### ALL DIMENSIONS ARE IN INCHES

#### 300 PSI Models

Model	A	В	C	D	Ε	F	G	Н	J
1¼TW	7.750	3.188	10.500	5.562	4.750	2"NPT	1¼"NPT	1	1/4
1½TW	14.500	3.812	12.500	6.625	4.750	3" ANS ANS	1½"NPT	1	1/2
2TW	15.000	3.812	12.500	6.625	4.750	4" ANS RF	2"NPT	1	1/2
2½TW	19.000	9.000	15.000	8.625	5.750	5" ANS RE	21/2" ANS	1	1/2
3TW	21.000	10.000	18.000	10.750	5.750	6" ANS RE	3" ANS RF	11/4	1/2
4TW	23.000	11.000	22.000	12.750	5.750	8" ANS RF	4" ANS RF	11/4	1/2
5TW	25.000	12.000	26.000	14.000	7.875	10" ans	5" ANS RF	1½	1/2
6TW	27.000	13.000	30.000	16.000	7.875	12" ANS	6" ANS RE	1½	1/2
8TW	29.000	14.000	37.000	18.000	7.875	14" ANS	8" ANS RF	2	1/2

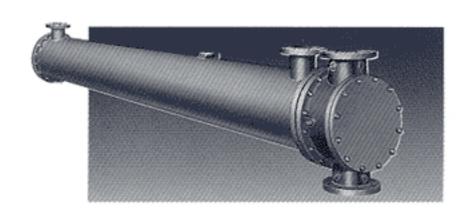
ITT **STANDARD** PRODUCTS.

Pre-engineered shell-and-tube heat exchangers for general heating and cooling.



DESIGNED TO MEET **VIRTUALLY EVERY HEAT** TRANSFER APPLICATION REQUIREMENT.

# Efficiency.



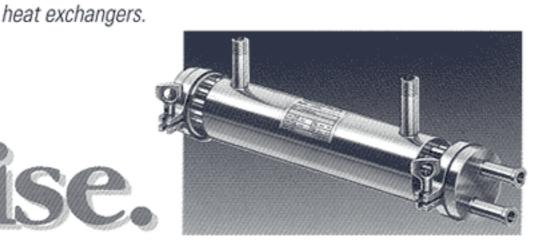
Brazepak™ compact,

Engineered/customized heat exchangers for process and other heating/cooling applications.



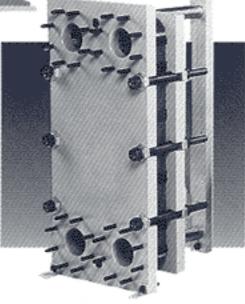
vacuum-brazed, general purpose heat exchangers. FanEx® air/oil,





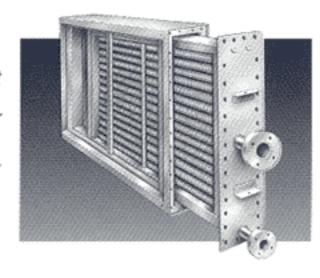
Pure-Flo™ heat exchangers.



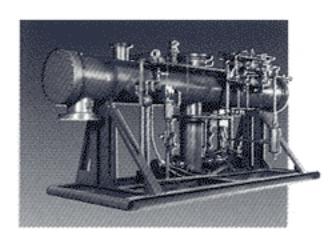


Heat transfer coils.

air/air, or air/water



Packaged steam condensers.







#### ITT Standard

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**800/447-7700** 

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