



Quick Reference Guide

Air Heating and Cooling Coils

For Comfort, Commercial, and Industrial Applications





Introduction

Trane makes a variety of heating and cooling water coils, steam coils, and refrigerant coils. Coil capacities, pressure drops and selection procedures are certified in accordance with AHRI Standard 410. Trane coils are available with six distinct fin configurations: 3/8-inch tube Omega-Flo™ H, 1/2-inch tube Delta-Flo™ E, 1/2-inch tube Delta-Flo™ H, 5/8-inch tube Prima-Flo™ E, 5/8-inch tube Prima-Flo™ H, and 1-inch tube Sigma-Flo™). H fins offer increased capacities and higher moisture carryover face velocity limits when compared to E fins. Infinitely variable fin spacing (IVS) is available on all coil fin surfaces so that heating and cooling loads can be matched more precisely than traditional “fixed” fin spacings, tailoring the coil to the specific application need.

Certifications

AHRI 410 Certified

The AHRI certification emblem is a mark of assurance that a product performs as the manufacturer claims. In order for a product line to carry an AHRI certification label, a manufacturer must submit a representative sample of the applicable product annually to an independent testing agency for validation of the performance claims. Only if the product performs as claimed will AHRI list the product line in one of the six-certification directories.

Specifying AHRI certified coils allows you to differentiate between manufacturers that subject their equipment to performance verification and those that claim they meet AHRI 410 standards.

Trane air heating and air cooling coils are either AHRI ACHC-certified or not certified by AHRI. All coils in this catalog are AHRI ACHC-certified except for those noted.

CRN

The Canadian Registration Number, or CRN, is given to companies that comply with Canada’s Technical Safety Standards Act concerning pressure vessel safety. In Trane air-handling systems, the CRN applies to coils classified as Category H fittings. Most government and industrial customers require the HVAC supplier to have a CRN. Trane has earned a CRN for all steam and water coils used in Performance air handlers.

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Revision History

Added R-32 refrigerant information.



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Coil Applications

Table 1. Water coils

Coil Type	Tube Dia (in)	Water (Hydronic) Coils									Circuit Type
		Cooling Rows	Heating ^(a) Rows	General purpose	Low press drop	High GPM, Low press drop	Low GPM	Cleanable tubes	Drainable each row	Drainable at header	
3W	3/8	2-8	1-8	•	—	—	—	—	—	•	Single row feed
3U	3/8	4,6,8	4,6,8	—	•	—	—	—	—	•	Double row feed
3F ^(b)	3/8	4-8	—	—	—	—	—	—	—	—	Full and fractional row feed
WL	1/2	2-8	2-8	•	—	—	—	—	—	—	Single row feed
WP	1/2	2-8	2-8	—	—	—	—	—	—	•	Half row feed
UW	1/2	2-8	2-8	•	—	—	—	—	—	—	Single row feed
UP	1/2	2-8	2-8	—	—	—	•	—	—	•	Half row feed
LL	1/2	4-8	4-8	—	•	—	—	—	—	•	Double row feed
UU	1/2	4,8	4,8	—	•	—	—	—	—	•	Double row feed
FD ^(c)	1/2	4,6	—	—	—	—	—	—	—	—	Full and fractional row feed
UA ^(d)	1/2	—	2	—	—	—	•	—	—	•	Full tube feed, alternate tube coil
H4 ^(e)	1/2	—	2,4,6	—	—	—	—	—	—	—	Full and fractional row feed
UF ^(c)	1/2	4-8	—	—	—	—	—	—	—	—	Full and fractional row feed
W	5/8	3-8	1-8	•	—	—	—	—	—	•	Single row feed
5W	5/8	2	1,2	•	—	—	—	—	—	•	Single row feed
WD	5/8	6-12	6,8	—	•	—	—	—	—	•	Double row feed
H ^(e)	5/8	—	1-6	—	—	—	—	—	—	—	Full and fractional row feed
5D	5/8	6,8,10	6,8	—	—	•	—	—	—	•	Double row feed
D1	5/8	3-12	3-8	•	—	—	—	—	•	—	Single row feed
D2	5/8	6-12	6,8	—	•	—	—	—	•	—	Double row feed
K	5/8	2-12	2-8	•	—	—	—	•	•	—	Single row feed
P2	5/8	2,4,6	2,4,6	—	—	—	•	—	—	•	2-tube feed
P4	5/8	2-8	2-8	—	—	—	•	—	—	•	4-tube feed
P8	5/8	4,8	4,8	—	—	—	•	—	—	•	8-tube feed
T, ST	5/8	—	1,2	—	—	—	•	—	—	—	1-tube feed

Table 1. Water coils (continued)

Coil Type	Tube Dia (in)	Water (Hydronic) Coils									Circuit Type
		Cooling Rows	Heating ^(a) Rows	General purpose	Low press drop	High GPM, Low press drop	Low GPM	Cleanable tubes	Drainable each row	Drainable at header	
TT	5/8	—	1,2	—	—	—	•	—	—	—	2-tube feed
F ^(e)	5/8 in	2-8	—	—	—	—	—	—	—	—	Full and fractional row feed

^(a) Heating coils can be offered in higher row number as a special.

^(b) 3F coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, or R-507A refrigerants.

^(c) UF and FD coils produced since 2001 are UL-listed for use with R-410A, R-454B or R-32 refrigerant. UF and FD coils produced prior to 2001 are not UL-listed for R-410A, R-454B, or R-32 refrigerant. UF and FD coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, or R-507A refrigerants. 3F coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, or R-507A refrigerants.

^(d) All coils are fully tubed except for WA, UA, and A coils which have alternate tube construction (half of fin holes have tubes, half of fin holes are empty).

^(e) H, H4, and F coils are not certified by AHRI.

Table 2. Refrigerants

Coil Type	Tube Dia (in)	Steam Coil Control Applications		Refrigerant ^(a)							
		Modulating	Non-Modulating	R-22	R-134a	R-410A	R-454B	R-32	R-404A	R-407C	R-507A
T, ST	5/8	—	•	—	—	—	—	—	—	—	—
NS	1	•	•	—	—	—	—	—	—	—	—
N	1	•	•	—	—	—	—	—	—	—	—
3F ^(b)	3/8	—	—	—	—	•	•	s	—	—	—
H4 ^(c)	1/2	—	—	•	•	•	•	—	•	•	•
UF, FD ^(d)	1/2	—	—	•	s	• ^(d)	• ^(d)	s	s	s	—
H ^(c)	5/8	—	—	•	•	—	—	—	—	—	—
F ^(c)	5/8	—	—	•	s	—	—	—	—	s	—

^(a) s = Special selection.

^(b) 3F coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, and R-507A refrigerants.

^(c) H, H4, and F coils are not certified by AHRI.

^(d) UF and FD coils produced since 2001 are UL-listed for use with R-410A, R-454B, and R-32 refrigerant. UF and FD coils produced prior to 2001 are not UL-listed for R-410A, R-454B, and R-32 refrigerant. UF and FD coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, and R-507A.

Heating and Cooling Water Coils

Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Application	
									Press PSI	Temp °F	Heat	Cool
3W			- Copper headers. 1-row, 2-row drainable at header. (b) Climate Changer air handlers only.	1, 2, 4, 6, 8	Refer to air handler catalogs ^(b)	Aluminum Omega-Flo™ H 84-168	Refer to air handler catalogs ^(b)	Copper 0.012 in. 0.020 in.	200	220	—	—
3U			- Copper headers. - Drainable at header. (b) Climate Changer air handlers only.	4, 6, 8	Refer to air handler catalogs ^(b)	Aluminum Omega-Flo™ H 84-168	Refer to air handler catalogs ^(b)	Copper 0.012 in. 0.020 in.	200	220	—	—
W			- Copper headers. - Drainable at header.	3 (same end supply/return)	12, 18, 24, 27, 28, 30, 33, 36, 42, 45, 48, 51, 54	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
W			- Copper header - Drainable at header.	4, 6, 8, 10, 12 ^(c)	12, 18, 19, 22, 24, 27, 28, 30, 31, 33, 34, 36, 37, 42, 43, 45, 48, 49, 51, 54, 55	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper ^(c) Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
WL			- Copper headers. 2-row drainable at header.	2, 4, 6, 8	12, 18, 24, 30, 33, 36, 42, 48, 54	Aluminum Delta-Flo™ E 72-180 or Delta-Flo™ H 84-168	12-168 inches	Copper 0.016 in. 0.025 in.	200	220	—	—

Table 3. Heating and cooling water coils

Table 3. Heating and cooling water coils (continued)

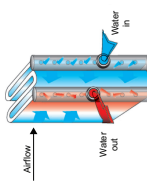
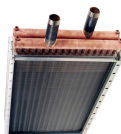
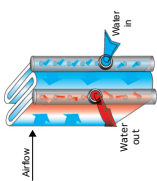
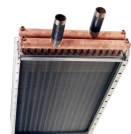
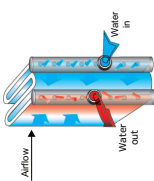
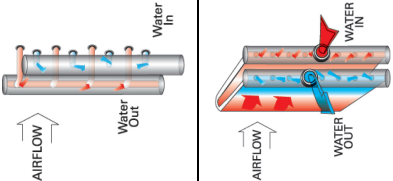
Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Tube dia (inch)	Application			
									Press PSI	Temp °F		Heat	Cool		
WP			- Copper headers. 2-row drainable at header. - Low water flow. ^(b)Climate Changer air handlers only.	2, 4, 6, 8	12, 18, 24, 30, 33, 36, 42, 48, 54	Aluminum Delta-Flo™ E 72-180 or Delta-Flo™ H 84-168	12-168 inches	Copper 0.016 in. 0.025 in.	200	220	1/2 in.	—	—		
UW			- Copper headers. ^(b)Climate Changer air handlers only.	2, 4, 6, 8	Refer to air handler catalogs ^(b)	Aluminum Delta-Flo™ E 72-168 or Delta-Flo™ H 84-168	Refer to air handler catalogs ^(b)	Copper 0.016 in. 0.025 in.	200	220	1/2 in.	—	—		
UP			- Copper headers. - Low water flow. ^(b)Climate Changer air handlers only.	2, 4, 6, 8	Refer to air handler catalogs ^(b)	Aluminum Delta-Flo™ E 72-168 or Delta-Flo™ H 84-168	Refer to air handler catalogs ^(b)	Copper 0.016 in. 0.025 in.	200	220	1/2 in.	—	—		
5W			- Copper headers. - Drainable at header. - Same end supply/return connection.	1	12, 18, 21, 24, 27, 30, 33, 36, 42, 45, 48, 51, 54	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-126 inches	Copper 0.020 in.	200	250	5/8 in.	One row heating only	—		
				2			12-168 inches	Copper 0.024 in. 0.035 in. Red Brass 0.049 in.	200	250	5/8 in.				
							12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	5/8 in.				

Table 3. Heating and cooling water coils (continued)

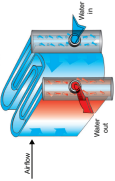
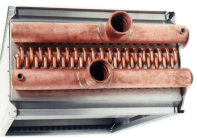
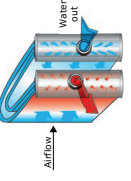
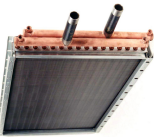
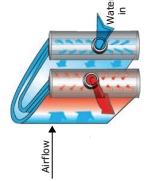
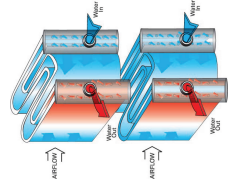
Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Application	
									Press PSI	Temp °F	Heat	Cool
WD			- Copper supply/ return headers. - Low water pressure drop. - Drainable at header.	6, 8, 10	18, 19, 22, 24, 27, 30, 31, 33, 34, 36, 37, 42, 49, 51, 54, 55	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
LL			- Copper headers. - Low water pressure drop. - Drainable at header.	4, 6, 8	18, 24, 30, 33, 36, 42, 48, 54	Aluminum Delta-Flo™ E 72-180 or Delta-Flo™ H 84-168	18-168 inches	Copper 0.016 in. 0.025 in.	200	220	—	—
UU			- Copper headers. - Low water pressure drop. - Drainable at header. - Climate Changer air handlers only.	4, 6, 8	Refer to air handler catalogs ^(b)	Aluminum Delta-Flo™ E 72-168 or Delta-Flo™ H 84-168	Refer to air handler catalogs ^(b)	Copper 0.016 in. 0.025 in.	200	220	—	—
5D			- Copper supply/ return headers. - Dual supply and return connections. - High GPM, low water pressure drop. - Drainable at header.	6, 8, 10	43, 45, 49, 51, 55	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—

Table 3. Heating and cooling water coils (continued)

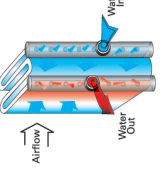
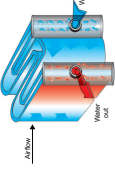
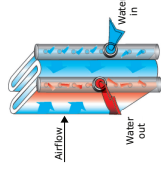
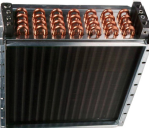
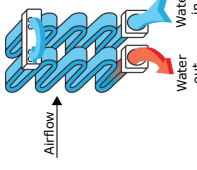
Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Application	
									Press PSI	Temp °F	Heat	Cool
D1			- Copper supply/ return headers. - Drainable at each row.	3,4,6, 8,10,12 ^(c)	12,18,19,2-2,24,27,30-31, 33,34,36,3-7, 42,43,45,4-8,49,51,54-,55	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper ^(c) Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
D2			- Copper supply/ return headers. - High GPM, low water pressure drop. - Drainable at each row.	6,8, 10,12 ^(c)	18,19,22,2-4, 27,30,31,3-3,34,36,37-42, 43,45,48,4-9,51,54,55	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper ^(c) Prima-Flo™ E or Prima-Flo™ H 96-168	18-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
K			- Copper supply/ return headers. - Removable cast iron intermediate header covers. - Drainable at each row - Mechanically cleanable.	2,4,6, 8,10,12 ^(c) (opposite ends supply and return)	12,18,24,3-0, 33,36,42,4-8,54	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper ^(c) Prima-Flo™ E or Prima-Flo™ H 96-168	12-168 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
P2			- Steel and cast iron headers. 2-tube feed. - Low water flow.	2,4,6	12,18,24,3-0	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-120 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—

Table 3. Heating and cooling water coils (continued)

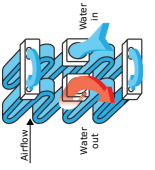
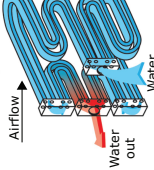
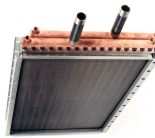
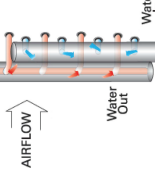
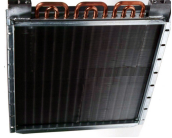
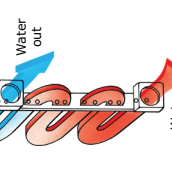
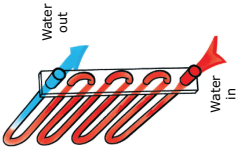
Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Application	
									Press PSI	Temp °F	Heat	Cool
P4			- Cast iron headers. 4-tube feed. - Low water flow.	2, 4, 6, 8	12, 18, 24, 30	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-120 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
P8			- Cast iron headers. 8-tube feed. - Low water flow	4, 8	18, 24, 30	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	18-120 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	200	220	—	—
UA			- Copper supply/ return headers. - Low GPM. - Drainable at header. - Same end connection.	2	Refer to air handler catalog ^(b)	Aluminum Delta-Flo™ E 72-168	Refer to air handler catalog ^(b)	Copper 0.016 in. 0.025 in.	200	220	—	—
TT			- Steel headers 2-tube feed. - Low GPM. - Normally used as duct coil.	1	12, 18, 24, 30	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-96 inches	Copper 0.020 in. 0.024 in.	225	325	—	—

Table 3. Heating and cooling water coils (continued)

Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Tube dia (Inch)		Application	
									Press PSI	Temp °F			Heat	Cool
T, ST			• Steel headers. • 1-tube feed. • Low GPM. • Normally used as duct coil. • ST coil has slip and drive flange.	1, 2	6, 9, 12, 15, 18	Aluminum Prima-Flo™ E or Prima-Flo™ H 80, 110, 150 Copper Prima-Flo™ E or Prima-Flo™ H 96, 108, 144	T: 6-72 inches ST: 6-42 inches	Copper 0.020 in. 0.024 in. Copper 0.035 in. Red Brass 0.049 in.	225	325	5/8 in.			
									225	325	5/8 in.		—	
									350	400	5/8 in.			

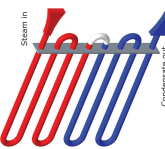
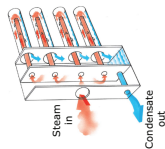
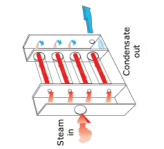
(a) Tube side. Pressure or temperature limits may be different under Canadian Registration Number (CRN) for some coils. Please contact your sales representative.

(b) Dedicated for use in Performance, M-Series, Modular, and T-Series Climate Changer air handlers only. See product catalogs for fin information.

(c) For 12-row coils larger than 33 inches, only aluminum fin option is available.

Steam Coils

Table 4. Steam coils

Coil	Coil Type	Coil Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Finned Material	Max. Std. Operating Conditions ^(a)		Application	
									Press PSI	Temp° F	Heat	Cool
T, ST			- Steel headers. 1-tube feed. - Non-modulating. - ST coil has slip and drive flange.	1, 2	6, 9, 12, 15, 18	Aluminum Prima-Flo™ E or Prima-Flo™ H 80, 110, 150 Copper Prima-Flo™ E or Prima-Flo™ H 96, 108, 144	T: 6-72 inches ST: 6-42 inches	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	100	400	—	—
									200	450	—	—
NS			- Cast iron headers. - Same end supply/return. - Steam distributing. - On/off or modulated steam applications.	1	12, 18, 24, 30, 33	Aluminum Sigma-Flo™ 42-132 Copper Sigma-Flo™ 42-132	12-144 inches	Copper 0.031 in. Red Brass 0.049 in.	100	400	—	—
									200	400	—	—
N			- Cast iron headers. - Opposite end supply/return. - Steam distributing. - On/off or modulated steam applications.	1 (opposite end supply and return)	12, 18, 24, 30, 33	Aluminum Sigma-Flo™ 42-132 Copper Sigma-Flo™ 42-132	12-144 inches	Copper 0.031 in. Red Brass 0.049 in.	100	400	—	—
									200	400	—	—

^(a) Tube side. Pressure or temperature limits may be different under CRN for some coils. Please contact your sales representative.

Refrigerant Coils

Table 5. Refrigerant coils

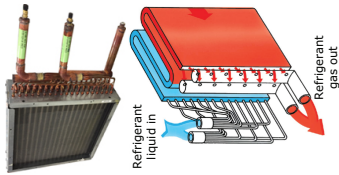
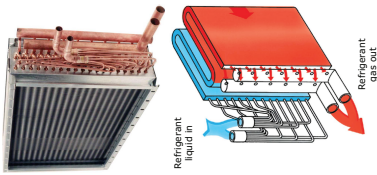
Coil	Coil Type and Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Tube dia	Refrigerant ^(b)					
								Press PSI	Temp °F							
3F^(c)		- Venturi type distributors - Full face, face split or intertwined circuiting. ^(d) Climate Changer air handlers only.	4, 6, 8	Refer to air handler catalogs ^(c)	Aluminum Omega-Flo H 84-168	Refer to air handler catalogs ^(c)	Copper 0.013 in. internally enhanced	650	—	3/8 in.	R-22	Y				
											R-134a	S				
											R-410A	Y				
											R-404A	S				
											R-507	—				
											R-407C	S				
UF^(e)		- Venturi type distributors. - Full face, face split or intertwined circuiting. ^(e) For use in Climate Changer air handlers only.	4, 6, 8	Refer to air handler catalogs ^(c)	Aluminum Delta-Flo E 72-168 Delta-Flo H 84-168	Refer to air handler catalogs ^(c)	Copper 0.016 in. smooth tubes 0.016 in. internally enhanced 0.025 in.	480	—	1/2 in.	R-22	Y				
											R-134a	S				
											R-410A	Y				
											R-404A	S				
											R-507	—				
											R-407C	S				

Table 5. Refrigerant coils (continued)

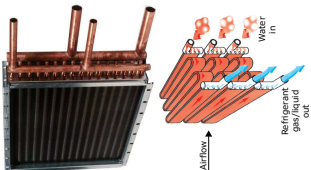
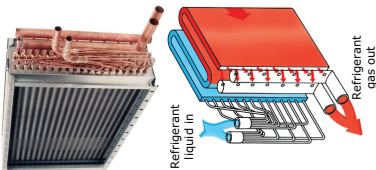
Coil	Coil Type and Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max.Std. Operating Conditions ^(a)			Refrigerant ^(b)					
								Press PSI	Temp °F	Tube dia						
H4^(f)		- Used for higher pressure refrigerant heat recovery applications. - Partial refrigerant condensing. - Available for up to six condensing circuits.	2, 4, 6	12, 18, 24, 30, 33, 36, 42, 48, 54	Aluminum Delta-Flo E 72-168 Delta-Flo H 84-168	12-168 inches	Copper 0.016 in. to 480 psi 0.025 in. to 650 psi	650	—	1/2 in.	Y	Y	Y	Y	Y	Y
FD^(e)		- Venturi type distributors. - Full face, face split or intertwined circuiting.	4, 6	18, 24, 30, 33, 36, 42, 48	Aluminum Delta-Flo E 72-168 Delta-Flo H 84-168	18-168 inches	Copper 0.016 in. smooth 0.025 in. smooth 0.016 in. internally enhanced tubes	480	—	1/2 in.	Y	S	Y	S	—	S

Table 5. Refrigerant coils (continued)

Coil	Coil Type and Drawing	Features	Rows	Finned Width	Fin Spacing per Foot	Finned Length	Tube Material	Max. Std. Operating Conditions ^(a)		Tube dia	Refrigerant ^(b)					
								Press PSI	Temp °F		R-22	R-134a	R-410A	R-404A	R-507	R-407C
H ^(f)		- Used for refrigerant heat recovery applications. - Partial refrigerant condensing. - Available for up to six condensing circuits.	1, 2, 3, 4, 6	12, 18, 24, 30, 33, 36, 42, 48, 54 (2 to 6 row only)	Aluminum Prima-Flo™ E or Prima-Flo™ H 72-168	24-168 inches	Copper 0.020 in.	300	—	5/8 in.	Y	Y	—	—	—	—
F ^(f)		- Venturi type distributors. - Full face or face split circuiting. - Some 3-row circuits have opposite end liquid and suction connections.	2, 3, 4, 6, 8	12, 18, 24, 30, 33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Sigma-Flo™ 96-168	12-168 inches	Copper 0.020 in. 0.024 in.	300	—	5/8 in.	Y	S	—	—	—	S

Note: All coils are fully tubed except for WA, UA, and A coils which have alternate tube construction (half of fin holes have tubes, half of fin holes are empty)

^(a) Tube side. Pressure or temperature limits may be different under CRN for some coils. Please contact your sales representative.

^(b) Y indicates coil available with this refrigerant. S = Special.

^(c) 3F coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, and R-507A refrigerants.

^(d) Coil is dedicated for use in Performance (CSSA), M-Series (MCCB), Modular (MCCA), and T-Series (TSCB) Climate Changer air handlers only. Refer to product catalogs for fin information. *Performance Climate Changer™ CSA Air Handlers Application and Performance Information Product Catalog (CLCH-PRC022*-EN)* (Performance), *M-Series Climate Changer™ Air Handlers Unit Sizes 3 to 120 Applied Central-Station Air Handlers (CLCH-PRC003*-EN)* (M-Series), *CLCH-CS-7A (Modular)*, *T-Series Climate Changer™ Air Handlers Unit Sizes 3-100 Catalog (CLCH-PRC012*-EN)* (T-Series) or call your local Trane sales engineer.

^(e) UF and FD coils produced since 2001 are UL-listed for use with R-410A, R-454B, and R-32 refrigerant. UF and FD coils produced prior to 2001 are not UL-listed for R-410A, R-454B, and R-32 refrigerant. UF and FD coils are not certified by AHRI with R-22, R-134a, R-404A, R-407C, R-454B, R-32, and R-507A refrigerants

^(f) Type H, H4, and F coils are not certified by AHRI.

Replacement and Special Coils

Table 6. Replacement and special coils

Coil	Coil Description	Rows	Finned Width (in.)	Fin Spacing per Foot	Finned Length (in.)	Tube Material	Tube dia
OW	Old style W coil (copper header) Pre-1981 W coil replacement	2,3,4, 6,8,10, 12	18,24, 30,33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
OD	Old style D coil replacement (copper header)	2,3,4, 6,8,10, 12	18,24, 30,33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
OK	Old style K coil replacement (copper header)	2,3,4, 6,8,10, 12	18,24, 30,33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
WC	5/8 inch two-pass same end connection	1	12,18,24, 30,33,36, 42,48	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
XW	Old style WA coil	2	18,24, 30,33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
NN (NSN)	One N coil header and one NS header (dual steam fed - special coil)	1	12,18,24, 30,33	Aluminum and Copper Sigma-Flo™ 42-132	12-144	Copper 0.031 in. Red Brass 0.049 in.	1 in.
5A	- Copper headers - Drainable headers. - Low GPM. - Alternate tube coil	2	12,18,24, 27,30,33, 36,42,51	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
D	- Copper supply/ return headers. - Cast iron intermediate headers. - Drainable at each	4,6,8, 10,12 3 (opposite end supply and return)	12,18, 24,30,	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
DD	- High GPM, low water pressure drop. - Cast iron supply / return headers. - Cast iron intermediate headers. - Drainable at each	4,8,12 6,10 (opposite end supply and return)	18,24,30,33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
A	- Cast iron headers. - Opposite end supply / return - Unmodulating steam type. - On/off steam. - applications	1 (opposite end supply and return)	6,9,12, 18,24,30, 33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.

Table 6. Replacement and special coils (continued)

Coil	Coil Description	Rows	Finned Width (in.)	Fin Spacing per Foot	Finned Length (in.)	Tube Material	Tube dia
WA	- Cast iron header - Drainable at header.	1 (opposite end supply and return)	6,9,12, 18,24,30, 33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
WS	- Cast iron header. - Supply/Return. - Intermediate - Drainable at header.	1	6,9,12, 18,24,30, 33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.
W-1R	- Cast iron headers. - Drainable at header.	1 (opposite end supply and return)	6,9,12, 18,24,30, 33	Aluminum Prima-Flo™ E or Prima-Flo™ H 80-168 Copper Prima-Flo™ E or Prima-Flo™ H 96-168	12-168	Copper 0.020 in. 0.024 in. 0.035 in. Red Brass 0.049 in.	5/8 in.

Note: Refer to COIL-EB-29 for more information. Type OW, OD, OK, WC, XW, NN(NSN), and 5A coils are not certified by AHRI.

Common Design Specials

- Victaulic connections available to replace steel, plug connections.
- Red brass connections available to replace steel, plug connections.
- Heat pump coils.
- Two-row or 8-row FD refrigerant coils.
- FD refrigerant coils with 12-inch or 54-inch finned width.
- Special coil connections lengths.
- Special coil connections locations.
- Special refrigerant applications.
- DX selections with different refrigerants.
- Centrifugal fans air-cooled condenser selection.
- Special circuited refrigerant coils: Modifications made to the coil circuiting to match uneven capacity circuits, four distributors.

Note: Design specials are not AHRI-certified.



Moisture Carryover Limits

These charts are to be used as guidelines for determining the face velocity limits on Trane cooling coils listed in this document in order to limit the possibility of water carryover. Coil applications with minimal latent load may have higher face velocity limits. Trane TOPSS selection program will validate water carryover limits based on actual conditions.

Figure 1. Moisture carryover face velocity limitations

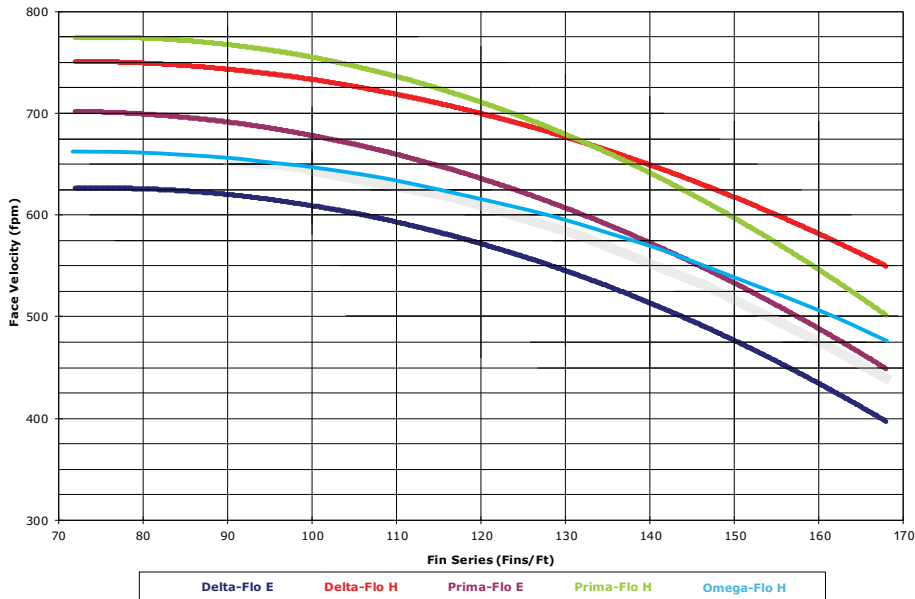
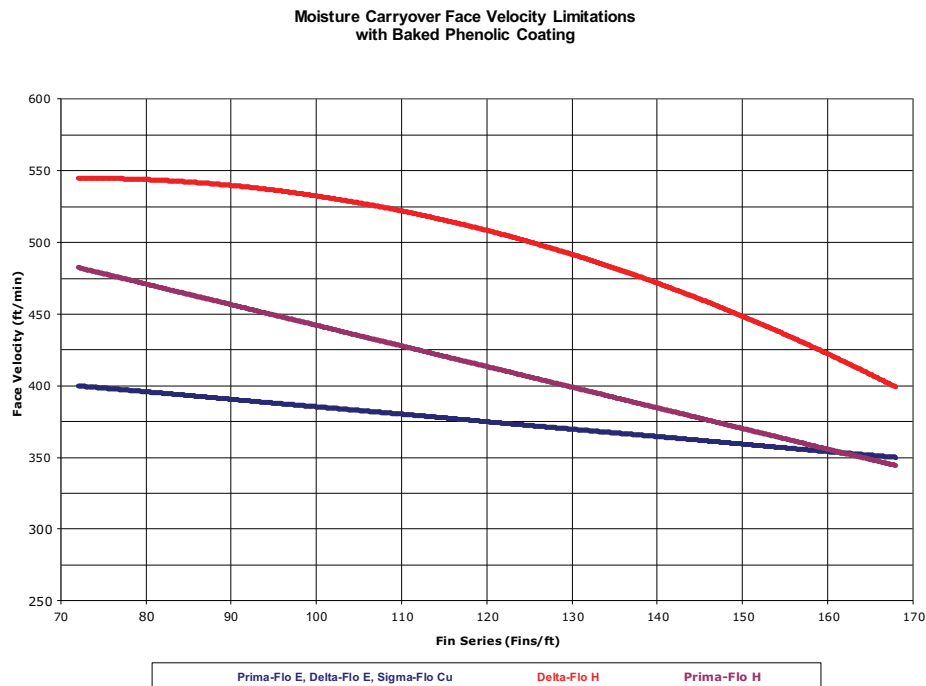


Figure 2. Moisture carryover face velocity limitations with CompleteCoat™ coating





Coil Performance

Table 7. Effects of construction, CFM, and GPM on coil performance

	Result assuming other parameters remain constant				
	Air pressure drop	Water pressure drop	Fluid velocity	Leaving dry bulb	
				Cooling	Heating
Increase surface area	Decreases	—	—	Decreases	Increases
Add rows to coil	Increases	—	—	Decreases	Increases
Add fins	Increases	—	—	Decreases	Increases
Change fin type (PE to PH or DE to DH)	Increases	—	—	Decreases	Increases
Change fin material (Al to Cu)	Increases	—	—	Decreases	Increases
Increase CFM	Increases	—	—	Increases	Decreases
Decrease serpentine	—	Increases	Increases	Decrease	Increases
Increase GPM	—	Increases	Increases	Decrease	Increases

Water Formulas

5/8-inch (0.020) tube water velocity (in feet per second) = $(1.07 \times \text{GPM}) / \text{number of tubes fed}$.

1/2-inch (0.016) tube water velocity (in feet per second) = $(1.68 \times \text{GPM}) / \text{number of tubes fed}$.

Steam Formulas

$\text{BTUH} = 1.08 \times \text{CFM} \times (\text{Leaving Air Temperature} - \text{Entering Air Temperature})$.

$(1.08 = 0.240 \times 60 \times 0.075)$.

0.240 = Specific heat of air at 70°F.

60 = Minutes/Hour.

0.075 = Density of standard air in Lbs/Ft³.

Temperature rise = $\text{BTUH} / (1.08 \times \text{CFM})$.

Pounds of Condensate/Hour = $\text{BTUH} / \text{Latent Heat of Steam}$.

Table 8. Properties of steam

Steam Pressure (psig)	Saturation Temperature (°F)	Latent Heat of Steam
2	219	965
5	227	960
10	239	952
15	250	945
20	259	939
25	267	933
30	274	928
40	287	919
50	298	911
60	307	904
70	316	897
80	324	891

Table 8. Properties of steam (continued)

Steam Pressure (psig)	Saturation Temperature (°F)	Latent Heat of Steam
90	331	885
100	338	880
125	353	868
150	366	857
175	377	847
200	388	838

Figure 3. Coil equations and parameters
Definitions and Letter Symbols

A	area (ft^2)
Btu	British thermal units
c_p	specific heat $\left(\frac{Btu}{lb \cdot ^\circ F}\right)$
gpm	gallons per minute
h_r	hour
h	enthalpy $\left(\frac{Btu}{lb}\right)$
lb	pound mass
$\dot{m}$	mass flow rate $\left(\frac{lb}{h_r}\right)$
$\dot{q}$	rate of heat transfer $\left(\frac{Btu}{h_r}\right)$
$scfm$	standard cubic feet per minute
t	temperature ($^\circ F$)
U	overall heat transfer coefficient $\left(\frac{Btu}{h_r \cdot ft^2 \cdot ^\circ F}\right)$
V	velocity $\left(\frac{ft}{min}\right)$
ρ	density $\left(\frac{lb}{ft^3}\right)$
Δ	difference between values
Subscripts	
a	air
i	entering
o	leaving
w	water

Fundamental Equations:

* - Assume Counter Flow and 100 percent water

$$\dot{m} = \rho AV$$

$$\dot{q} = \dot{m}(\Delta h)$$

$$\dot{q} = \dot{m}_a c_{p,a} (t_{a,o} - t_{a,i})$$

$$\dot{q} = \dot{m}_w c_{p,w} (t_{w,i} - t_{w,o})$$

$$\dot{q} = UA(LMTD)$$

$$\dot{q} = UA \frac{(t_{a,i} - t_{w,o}) - (t_{a,o} - t_{w,i})}{\ln \frac{t_{a,i} - t_{w,o}}{t_{a,o} - t_{w,i}}}$$

Air-Side (Sensible coil):

$$\dot{q} = \rho AV (c_{p,a}) (\Delta t_a)$$

$$\dot{q} = \left(.075 \frac{lb}{ft^3} \right) \left(\frac{ft^3}{min} \right) \left(.240 \frac{Btu}{lb \cdot ^\circ F} \right) (\Delta t_a) \left(\frac{60 min}{1 h_r} \right)$$

$$\dot{q} = 1.08 (scfm) (\Delta t_a)$$

Water-Side:

$$\dot{q} = \rho AV (c_{p,w}) (\Delta t_w)$$

$$\dot{q} = \left(62.4 \frac{lb}{ft^3} \right) \left(\frac{gal}{min} \right) \left(\frac{60 min}{1 h_r} \right) \left(\frac{1 ft^3}{7.48 gal} \right) \left(1 \frac{Btu}{lb \cdot ^\circ F} \right) (\Delta t_w)$$

$$\dot{q} = 500 (gpm) (\Delta t_w)$$

Air-Side (Total):

$$\dot{q} = \rho AV (\Delta h)$$

$$\dot{q} = \left(.075 \frac{lb}{ft^3} \right) \left(\frac{ft^3}{min} \right) \left(\Delta h \frac{Btu}{lb} \right) \left(\frac{60 min}{1 h_r} \right)$$

$$\dot{q} = 4.5 (scfm) (\Delta h)$$

Coil Fin Design

Table 9. Coil fin design summary

Coil Design	Coil Fin Name	Description
	Delta-Flo™ Fin	Trane 1/2-inch coils feature a staggered tube pattern and unique Delta-Flo fin design. Delta-Flo™ fins are available in either a Delta-Flo™ E fin or Delta-Flo™ H enhanced fin design. Both fins allow for low airside pressure drop with high capacity for lower gpm applications. Delta-Flo H fins offer increased capacities and higher moisture carryover limits when compared to the Delta-Flo™ E fin. Both Delta-Flo™ fins are available in 0.0055-inch thick aluminum. With staggered tubes and its unique fin configuration, Trane half-inch coils are some of the most efficient available in the industry. Delta-Flo™ E and Delta-Flo™ H are available in aluminum fins.
	Prima-Flo™ Fin	A 5/8-inch coil features a parallel tube pattern, with two fin designs options - Prima-Flo E and Prima-Flo H. The Prima-Flo E is ideal for systems where airside pressure drop is a concern. Reducing pressure drop through the coil results in lower fan brake horsepower and systems energy savings. Prima-Flo H is ideal for systems where moisture carryover may be a concern. Prima-Flo H offers increased capacity and higher moisture carryover limits, with a minimal increase in air pressure drop when compared to the Prima-Flo E fin. Prima-Flo E and Prima-Flo H are available in aluminum fins and copper fins.
	Sigma-Flo™ Fin	The Sigma-Flo coil is available in a 1-inch parallel tube pattern. The Sigma-Flo fin is designed to maximize heat transfer, while minimizing coil size. The 1-inch Sigma-Flo tube pattern for use with steam coils is available with aluminum or copper fins.
	Omega-Flo™ Fin	Trane 3/8-inch coils feature a staggered tube pattern and our highly efficient Omega-Flo H design. Omega-Flo H fins are built with an enhanced fin design that allows the coil to meet customer requirements with a smaller foot print. Omega-Flo H fins are available in 0.0075-inch thick aluminum. The thicker aluminum fin allows for longer lasting and more robust fin and tube pack.

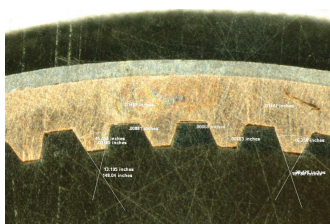
Infinitely Variable Fin Spacing

Infinite variable fin spacing (IVS) gives the designer many ways to select the right coil for a particular job. IVS fins are available for all coils with exceptions noted to allow coil selections to be tailored to application needs. This flexibility is important since coil heating or cooling loads can be matched more precisely than traditional “fixed” fin spacings. For example, a cooling coil utilizing a Delta-Flo™ E fin can be selected with fin spacings from 72 fins per foot, up to 168 fins per foot in one fin per foot increments.

In many cases IVS fins will allow designers to reduce the number of fins required to meet coil loads. Fewer fins can result in lower airside pressure drops and lower fan brake horsepower, saving valuable energy dollars. Using IVS and the five fin surface options, the designer has more flexibility than ever to design and select coils.

Internally Enhanced Tubes

Figure 4. Internally enhanced tubes



Trane has high performance internally-enhanced tube option for DX cooling coils available for use in Performance Climate Changer air handlers or for standalone applications. This option is available for all UF and FD direct-expansion (DX) coils, and is standard on 3F DX coils. Internally-enhanced tubes provide better coil performance which allows reduced fin density and fewer number of rows. It reduces the use of copper and provides a better cost position while maintaining the same coil performance. This new option offers many benefits:

- Lower air pressure drop due to the lower fin density and reduced number of rows. This benefit reduces the operating cost and also helps meet LEED requirements.

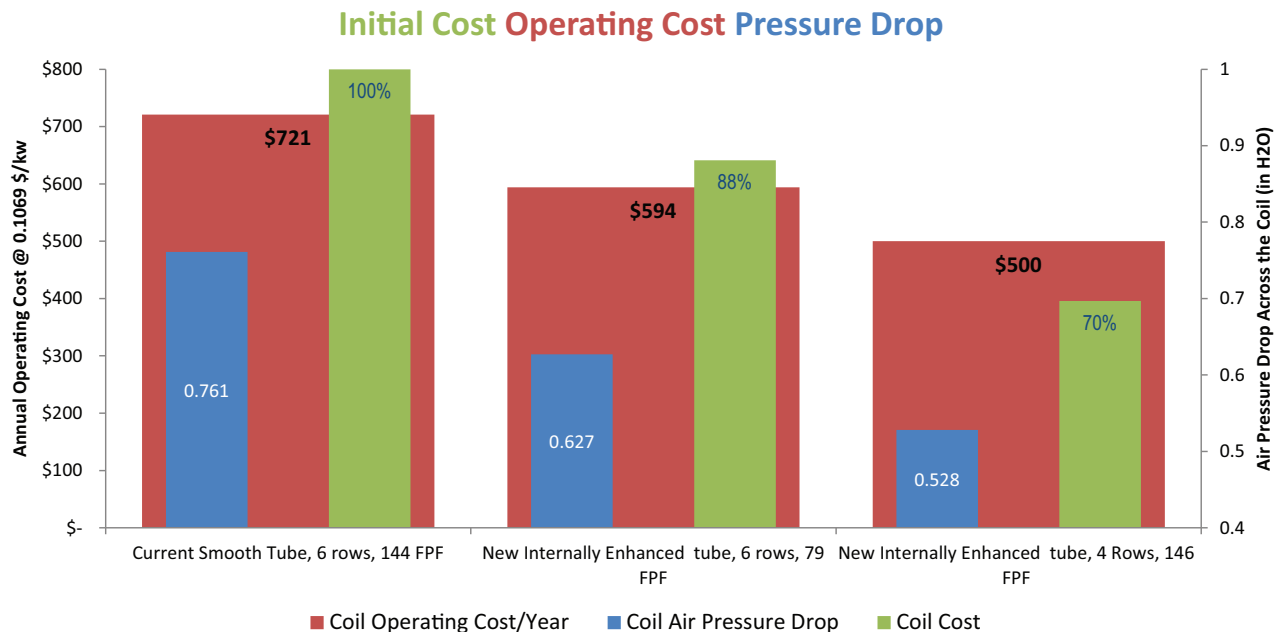
- Ease of maintenance. Fewer fins per foot and rows facilitate cleaning which maintains the coil performance and extends its life.
- Less risk of moisture carryover. Lower fin density reduces the risk of moisture carryover which can cause other damage to other components in the air handler unit.



Coil Performance

Figure 5, p. 22 shows the benefits of using internally enhanced tubes versus smooth tubes for air pressure drop and estimated operating cost. By reducing the rows from six to four rows, there is almost one forth inch H₂O savings in air pressure drop, which translates to \$221 savings per year.

Figure 5. Benefits of internally enhanced tubes vs. smooth tubes



- 17.5 TR example. Operating cost reflects fan operation only. Cost estimation varies depending on local energy rates.

Turbulators

Trane bronze spring turbulators are available for maximum water-side heat transfer. Trane spring turbulators are especially suited for large water temperature drop (Earthwise™) and low Reynolds Number (cold aqueous glycol solution) coil applications. Trane spring turbulators do not interfere with tube drainage.

CompleteCoat™ Coil Coating

Trane coils are available with CompleteCoat™ coating option. CompleteCoat™ coating is a tough epoxy coating that uniformly covers all heating and cooling coil surfaces, including the edges of the fins, coils, headers, and frame, with a 0.8 to 1.2 mil layer. This advanced material is flexible, avoiding the thermal cracking problems of phenolics, and avoids bridging problems encountered with application of earlier, more viscous coatings. CompleteCoat™ coils are not certified by AHRI.



The coil treated with CompleteCoat coating is resistant to a wide range of environmental and industrial contaminants (see). It is proven to stand up over 1,000-hour salt spray exposure test. Because of its uniform thin coating characteristic, the coil heat transfer capacity is reduced less than one percent. The keys to this new protective system are the advanced coating material

itself, and the fact that it is bonded to the entire completed coil using an electrochemical application method. All metal areas are uniformly coated. The coating performs in a wide range of temperatures from -50°F to +450°F.

Now you can consider Trane coils for an even wider range of applications. CompleteCoat coating opens the door to a range of marine and industrial uses that other coating options could not handle. With CompleteCoat coating, the former concerns of thermal breakdown, performance degradation, and incomplete coverage are eliminated. Ask your Trane sales engineer for additional information on the CompleteCoat coil protective system. If you have a concern about coil corrosion from most airborne contaminants, this is the right solution.

Chemical Resistance Chart

CompleteCoat™ coatings are resistant to a wide range of environmental and industrial contaminants as listed in the table below.

Table 10. Contaminants

Acetone	Diethanolamine	Lauryl Alcohol	Propylene Glycol
Acetic Acid 95%	Ethyl Acetate	Magnesium Chloride	Salicylic AcidSalt Water
Acetates (all)	Ethyl Alcohol	Magnesium Sulfate	Sodium Bisulfite
Amines (all)	Ethyl Ether	Maleic Acid	Sodium Chloride
Ammonia	Fatty Acid	Menthol	Sodium Hypochlorite 5%
Ammonium Hydroxide	Fluorine Gas	Methanol	Sodium Hydroxide 10%
Amino Acids	Formaldehyde 27%	Methylene Chloride	Sodium Hydroxide 25%
Benzene	Fructose	Methyl Ethyl Ketone	Sodium Sulfate
Borax	Gasoline	Methyl Isobutyl Ketone	Sorbitol
Boric Acid	Glucose	Mustard Gas	Stearic Acid
Butyl Alcohol	Glycol	Naphthol	Sucrose
Butyl Cellosolve	Glycol Ether	Nitric Acid 25%	Sulfuric Acid 25-85%
Butric Acid	Hydrochloric Acid 37%	Oleic Acid	Sulfates (all)
Calcium Chloride	Hydrofluoric Acid 30%	Oxalic Acid	Sulfides (all)
Calcium Hypochlorite	Hydrogen Peroxide 5%	Ozone	Sulfites (all)
Carbon Tetrachloride	Hydrogen Sulfide	Perchloric Acid	Starch
Cetyl Alcohol	Hydrazine	Phenol 85%	Toluene
Chlorides (all)	Hydroxylamine	Phosgene	Triethanolamine
Chlorine Gas	Iodine	Phenolphthalein	Urea
Chloroform	Isobutyl Alcohol	Phosphoric Acid	Vinegar
Chromic Acid 25%	Isopropyl Alcohol	Potassium Chloride	Xylene
Citric Acid	Kerosene	Potassium Hydroxide	—
Cresol	Lactic Acid	Propionic Acid	
Diesel Fuel	Lactose	Propyl Alcohol	



The AHRI Certified mark indicates Trane U.S. Inc. participation in the AHRI Certification program. For verification of individual certified products, go to ahridirectory.org.

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Trane has a policy of continuous product and product data improvements and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.