



TRANE™

● Installation Maintenance

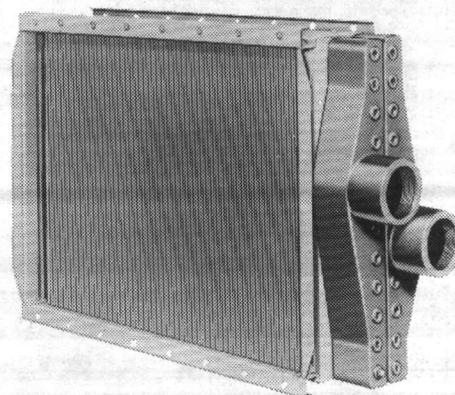
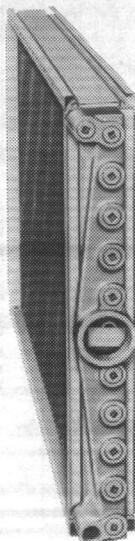
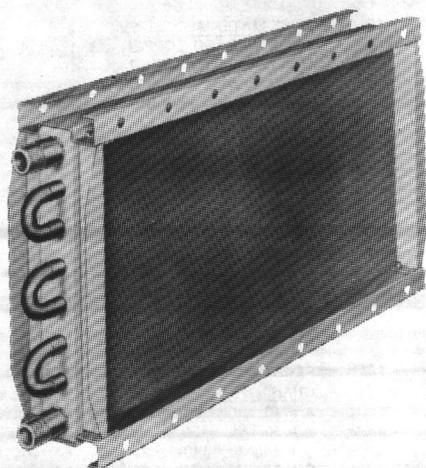
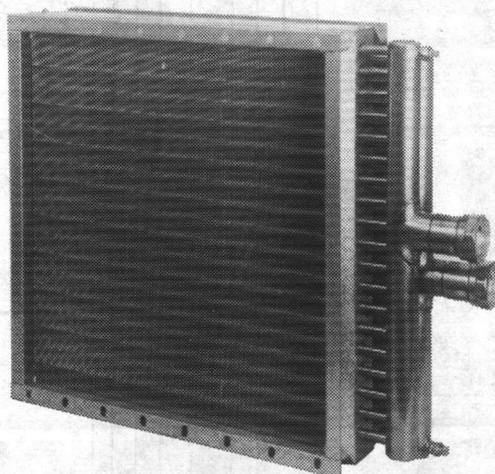
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Model	Coil
Literature Type	Installation/Maintenance
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File No.	SV-AH-COIL-COIL-IM-1A-185
Supersedes	COIL-IM-1 (1-81)

Ordering No. **COIL-IM-1A**

Since the Trane Company has a policy of continuous product improvement, it reserves the right to change specifications and design without notice. The installation and servicing of the equipment referred to in this booklet should be done by qualified, experienced technicians.

LITERATURE CHANGES: New Delta-Flo (DL and WL) hot water coils.

STEAM AND HOT WATER COILS



MODEL NUMBER DESCRIPTION

D W O A E E C 4 D A A L 4 A O A A A O O K

TRANE STANDARD HEATING AND COOLING COILS

COIL TYPE

WO = W
WA = W (ALT TUBES)
DO = D
KO = K
P2 = P2
P4 = P4
P8 = P8
DD = DD
NS = NS
NO = N
AO = A
AA = A (ALT TUBES)
TO = T
TT = TT
ST = ST
WC = WC
WD = WD
HA = H - SMALL HEADER SIZE
HB = H - LARGE HEADER SIZE
SS = SPECIAL

F1 = F1 - 5/16 DISTR. TUBES
F2 = F2 - 1/4 DISTR. TUBES
F3 = F1 ENT AIR SIDE - F2 LVG AIR SIDE
F4 = F2 ENT AIR SIDE - F1 LVG AIR SIDE

DL = DL
LL = LL
WL = WL

DEVELOPMENT SEQUENCE

COIL APPLICATION

A = UNIT - HEATING
B = UNIT - COOLING (NON-SPRAYED)
C = UNIT - COOLING (SPRAYED)
D = SHIPPING - HEATING
E = SHIPPING - COOLING (W/O DRAIN HOLES)
F = SHIPPING - COOLING (WITH DRAIN HOLES)
S = SPECIAL

FINNED WIDTH

A = 6 G = 30 S = SPECIAL
B = 9 H = 33
C = 12 J = 36
D = 15 K = 42
E = 18 L = 48
F = 24 M = 54

FINNED LENGTH

FIRST CHARACTER + SECOND CHARACTER = FINNED LENGTH

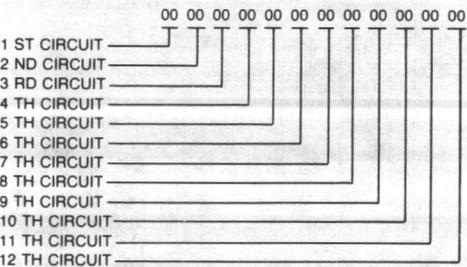
A = 0	K = 90	0
B = 10	L = 100	1
C = 20	M = 110	2
D = 30	N = 120	3
E = 40	P = 130	4
F = 50	R = 140	5
G = 60	T = 150	6
H = 70	U = 160	7
J = 80	S = SPECIAL	8
		9

ROWS

A = 1 F = 8
B = 2 G = 10
C = 3 H = 12
D = 4 S = SPECIAL
E = 6

DESIGN SEQUENCE

HEAT RECOVERY COIL
HEADER ARRANGEMENT (TO BE PUT ON 2ND CARD)
NUMBER OF HEADER TUBES FOR EACH CIRCUIT
LISTED IN SEQUENCE STARTING FROM TOP OF COIL.



TOTAL NUMBER OF HEADER TUBES AVAILABLE (TUBES FED)

ROWS	FINNED WIDTH
4 & 6	8 12 16 20 22 24 28 32
2 & 3	4 6 8 10 11 12 14 16
1	2 3 4 5 5 6 7 8

FIN TYPE

A = SIGMA-FLO D = DELTA FLOW
B = PRIMA-FLO S = SPECIAL

21ST PLANT LOCATION
C = CLARKSVILLE
K = LEXINGTON
L = LA CROSSE
U = SALT LAKE CITY

20TH STEAM TEST OR VERTICAL SPLIT REFRIGERANT COILS

NUMBER OF VERTICAL SPLIT LEAVING AIR SIDE REFRIGERANT CIRCUITS (TUBES FED)

	FINNED WIDTH
	12 18 24 30 33
A =	8 12 16 20 22
B =	4 6 8 10 11
C =	2 3 4 5 7
D =	1 2 2 4 3
E =	1 2

0 = NO STEAM TEST OR VERTICAL SPLIT
S = SPECIAL

19TH TURBULATORS OR REFRIGERANT CIRCUITS

T = W TURBULATORS
0 = W/O TURBULATORS

NUMBER OF STANDARD OR VERTICAL SPLIT ENTERING AIR SIDE REFRIGERANT CIRCUITS (TUBES FED)

	FINNED WIDTH
	12 18 24 30 33
A =	8 12 16 20 22
B =	4 6 8 10 11
C =	2 3 4 5 7
D =	1 2 2 4 3
E =	1 2

NUMBER OF HORIZONTAL SPLIT REFRIGERANT CIRCUITS (TUBES FED, TOP-90° SPLITS)

	FINNED WIDTH				
	12	18	24	30	33
F =	4-4	6-6	8-8	10-10	11-11
G =	2-2	3-3	4-4	5-5	5-6
H =	1-1	1-2	2-2	2-3	3-4
J =		1-1	1-1	2-2	1-2
K =				1-1	

S = SPECIAL

18TH AIR FLOW AND CONNECTION SIDE

AIR FLOW SUPPLY CONNECTION
DIRECTION CONNECTION
A = HORIZONTAL RIGHT
B = HORIZONTAL LEFT
C = VERTICAL UP RIGHT
D = VERTICAL UP LEFT
E = VERTICAL DOWN RIGHT
F = VERTICAL DOWN LEFT

17TH CASING OPTION

A = STANDARD
B = STAINLESS STEEL
S = SPECIAL

16TH TUBE MATERIAL

A = STANDARD COPPER
B = .024 WALL COPPER
C = .035 WALL RED BRASS
D = .049 WALL RED BRASS
S = SPECIAL

15TH FIN COATING

0 = NONE
B = PHENOLIC PLUS ZRC
P = PHENOLIC
Z = ZRC
S = SPECIAL

14TH FIN MATERIAL

A = ALUMINUM
C = COPPER
S = SPECIAL

12TH & 13TH FIRST CHARACTER + SECOND CHARACTER = FIN SPACING

A = 40	J = 120	0	6
B = 50	K = 130	1	7
C = 60	L = 140	2	8
D = 70	M = 150	3	9
E = 80	N = 160	4	
F = 90	P = 170	5	
G = 100	R = 180		
H = 110			

GENERAL

Trane steam and hot water coils are identified according to specific types (A, AA, W, WA, WC, WL, DL, T, TT, ST, N, NS), fins per foot, widths and lengths.

Inspect each coil for any in-transit damage. Claims for any shipping damage must be filed with the delivery carrier.

Steam and hot water coils are shipped assembled and packaged.

General data is given in Table 1 and Figures 1 to 9.

TABLE 1 - General Data

COIL TYPE	ROWS	END CONNECTION	FINNED WIDTH	FINNED LENGTH	FINS PER FOOT	TUBE MATERIAL	MAXIMUM STANDARD OPERATING PRESSURE (TUBE SIDE)	
							PSI	TEMP (F)
WA (Hot Water)	1	Opposite	6,9,12, 18,24,30, 33"	12 thru 144"	Aluminum 80-168 Copper 80-144	5/8" OD Copper(Std)	200	325
						Red Brass (0.035)	200	388
						Red Brass (0.049)	200	388
WA (Hot Water)	2	Same	12,18,24 30,33"	12 thru 144"	Aluminum 80-168 Copper 80-144	5/8" OD Copper (Std) Red Brass (0.035) (0.049)	200	220
WC (Hot Water)	1	Same	12,18,24, 30,33"	12 thru 144"	Aluminum 80-168 Copper 80-144	5/8" OD Copper(Std) Red Brass (0.035) Red Brass (0.049)	200	250
W (Hot Water)	1	Opposite	6,9, 12,18,24 30,33"	12 thru 144"	Aluminum 80-168 Copper 80-144	5/8" OD Copper (Std)	200	325
						Red Brass (0.035)	200	388
						Red Brass (0.049)	200	388
W (Hot Water)	2	Same	12,18,24, 30,33" 36,42,48"	12 thru 144"	Aluminum 80-168 Copper 80-144	5/8" OD Copper (Std) Red Brass (0.035) Red Brass (0.049)	200	220
WL DL (Hot Water)	2	Same	12,18,24, 30,33 36,42,48 54	12 Thru 168"	Aluminum 80-180	1/2" OD Copper Only	200	220
TT (Hot Water)	1	Same	12,18, 24,30"	12 thru 96"	Aluminum 80-168	5/8" OD Copper(Std)	225	325
						Red Brass (0.035)	300	275
	2	Same	9,12,18, 24,30,33"	12 thru 96"	Copper 80-144	Red Brass (0.035) Red Brass (0.049)	275 300 350	400 275 400
T ST (Hot Water or Steam)	1,2	Same	6,9,12, 15,18"	(T) 6 thru 72"	Aluminum 80-168 Copper 80-144	5/8" OD Copper(Std)	Steam 100 Water 225 Water 300	400 325 275
				(ST) 6 thru 42"		Red Brass (0.035)	Steam 200 Water 275 Water 300	420 400 275
						Red Brass (0.049)	Steam 200 Water 350	450 400
AA A (Steam)	1	Opposite	6,9,12, 18,24,30, 33"	12 thru 120"	Aluminum 80-168 Copper 80-144	5/8" OD Copper(Std)	100	400
						Red Brass (0.035)	200	400
						Red Brass (0.049)	200	400
N NS (Steam)	1	Opposite	12,18,24, 30,33"	12" thru 120"	Aluminum 42-132 Copper 42-132	1" OD Copper(Std)	100	400
		Same				Red Brass (0.035) Red Brass (0.049)	200 200	400 400

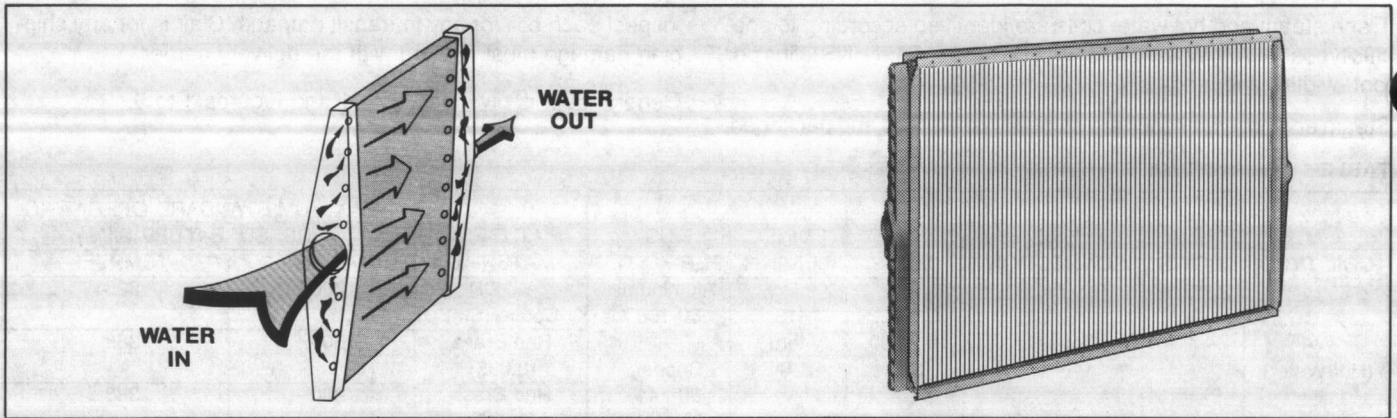


FIGURE 1 - Type W and WA Coil, 1-Row

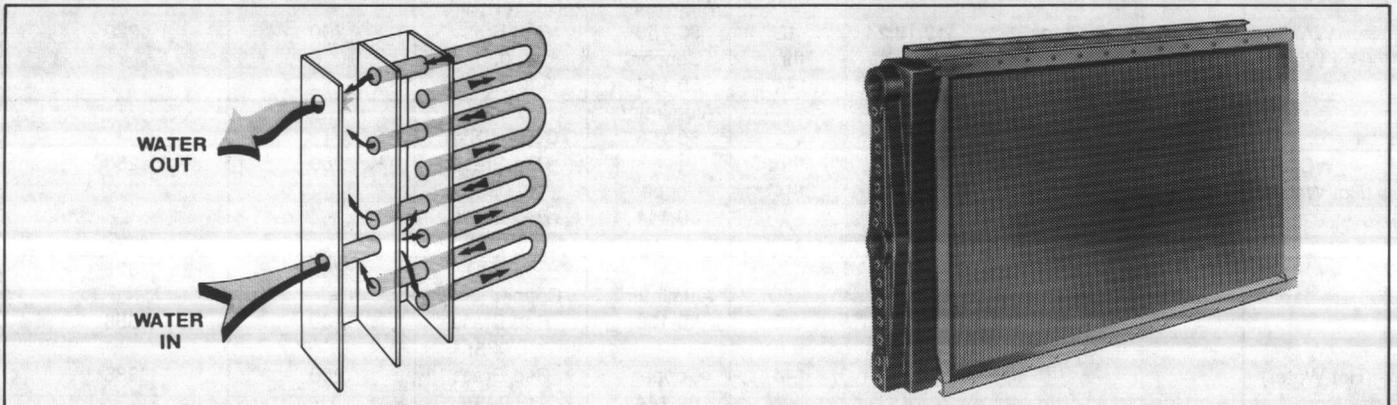


FIGURE 2 - Type WC Coil

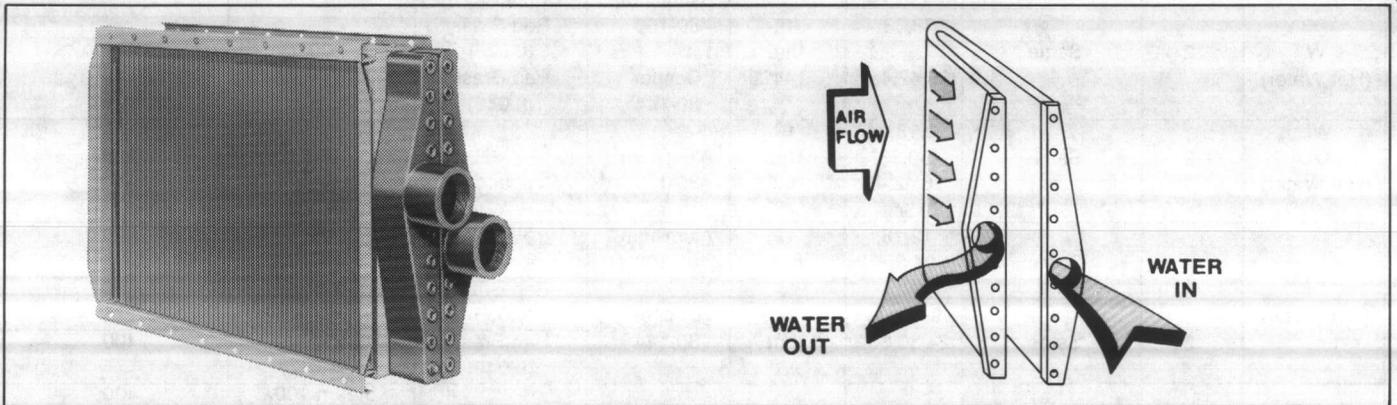


FIGURE 3 - Type W, WA, WL and DL Coils, 2-Row (Type W coil only is shown)

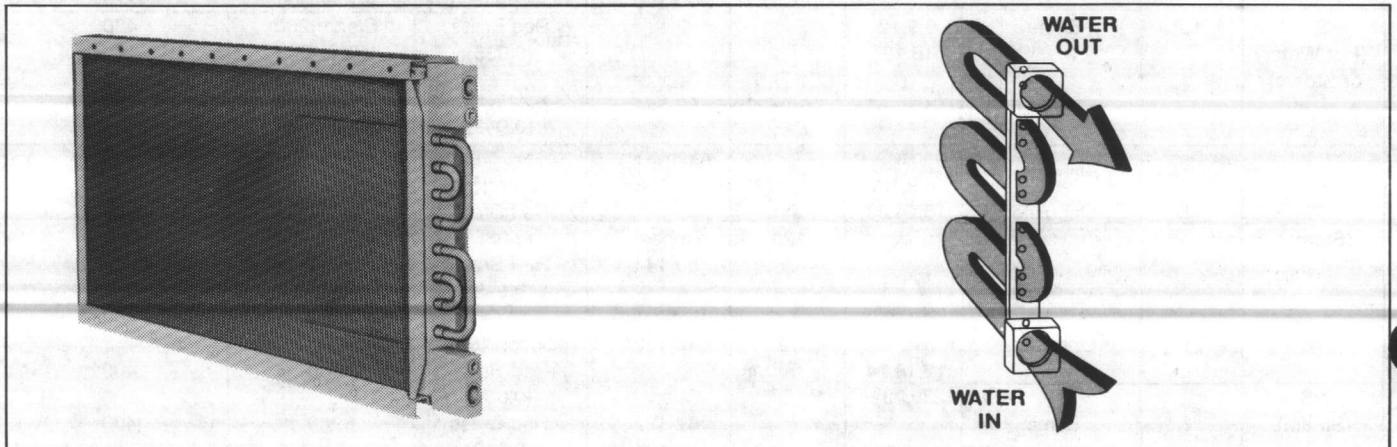


FIGURE 4 - Type TT Coil

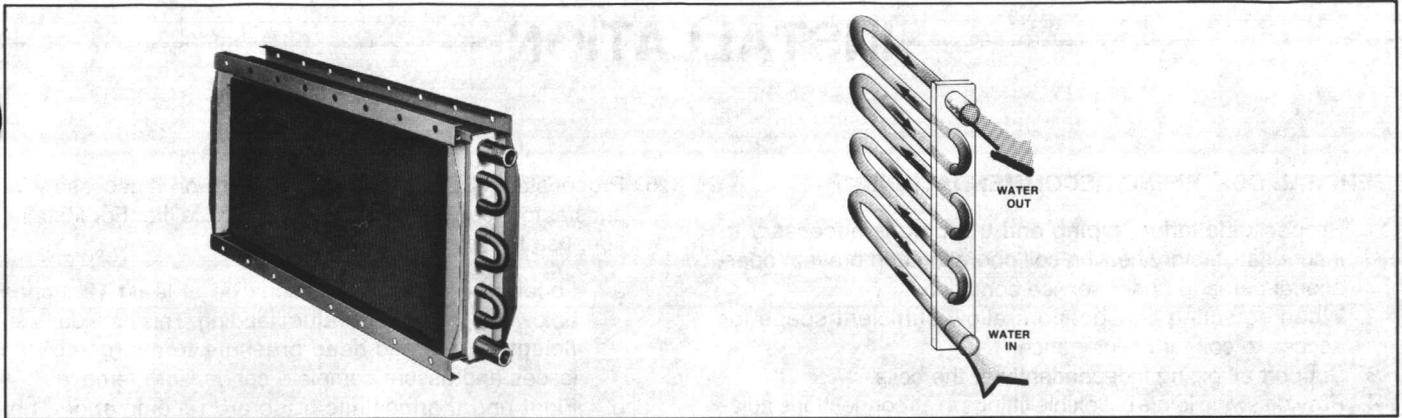


FIGURE 5 - Type T Coil

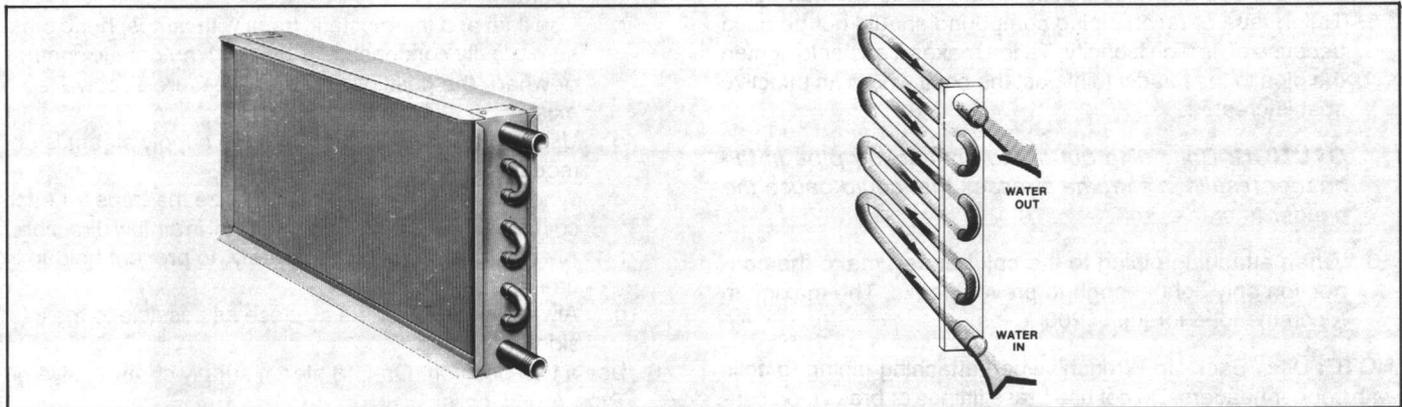


FIGURE 6 - Type ST Coil

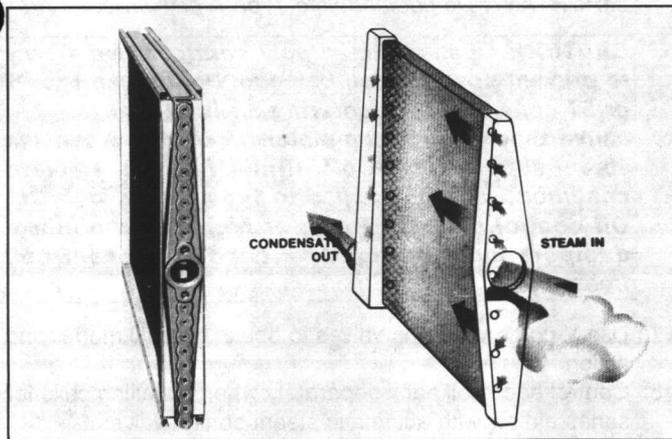


FIGURE 7 - Type A Coil

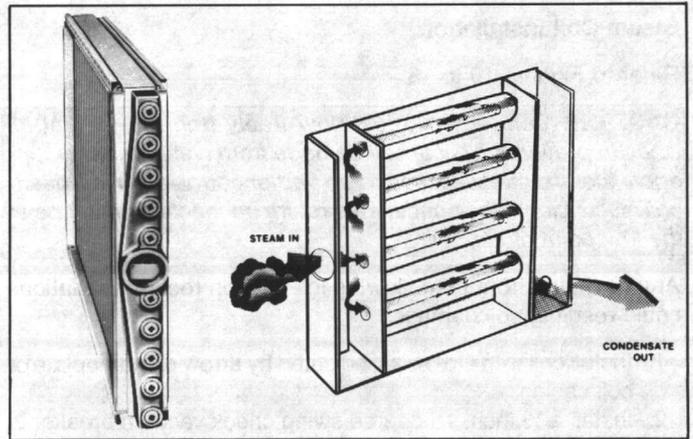


FIGURE 8 - Type N Coil

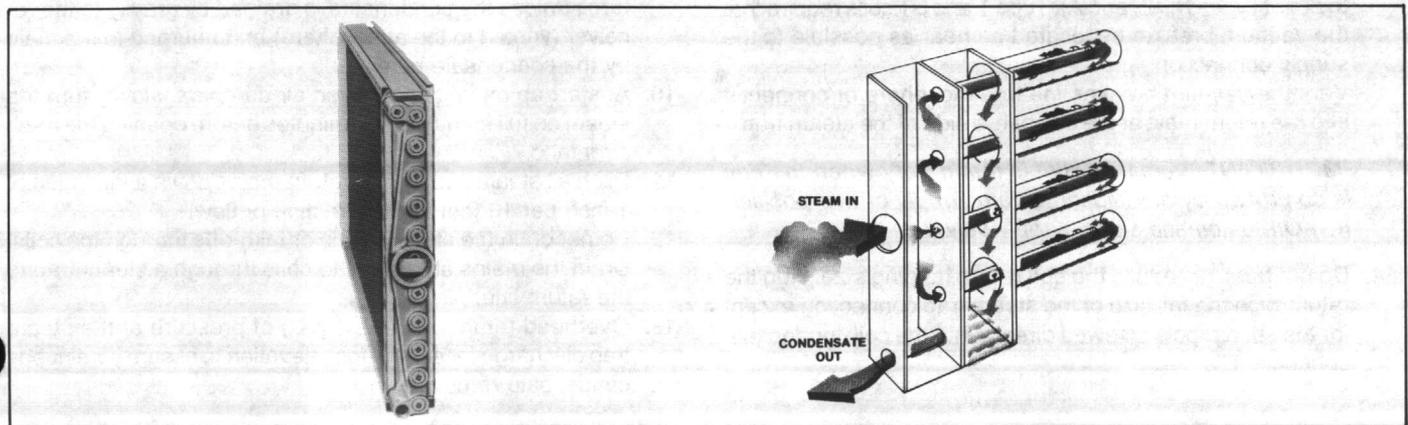


FIGURE 9 - Type NS Coil

INSTALLATION

GENERAL COIL PIPING RECOMMENDATIONS

1. Proper installation, piping and trapping is necessary to insure satisfactory heating coil operation and prevent operational damage under service conditions.
2. When selecting coil location, allow sufficient space for access to coil for maintenance.
3. Support all piping independently of the coils.
4. Provide swing joints or flexible fittings in all connections adjacent to coils to absorb thermal expansion and contraction strains. Rigid piping connections can cause coil damage.
5. Teflon tape or teflon piping compound should not be used because of its high lubricity. Teflon makes it easier to tighten the pipe to the header joint past the point where an effective seal is created.

CAUTION: *Bottoming out of the connecting pipe in the header results in extreme stresses that could cause the header to crack.*

6. When attaching piping to the coil header, make the connection only tight enough to prevent leaks. The maximum recommended torque is 200 ft.-lbs.

NOTE: Use "Back-Up Wrench" when attaching piping to coils with copper headers. Do not use brass fittings or brass pipe connectors. Brass distorts easily and causes connection leaks.

Steam Coil Installation

Refer to Figures 10 to 16.

CAUTION: *Condensate must flow freely from the coil at all times to prevent physical coil damage from water hammer, unequal thermal stresses, freeze-up and/or corrosion. In all steam coil installations, the condensate return connections must be at the low point of the coil.*

Any deviation from the following installation recommendations could result in coil damage.

1. Install coil with airflow as indicated by arrow on nameplate or coil casing.
2. Install a 1/2-inch, 15-degree swing check vacuum breaker in an unused condensate return tapping as close as possible to the coil (Types N, NS and A). Type T and ST coils require that the vacuum breaker be located as near as possible to the supply connection.
3. Vent the vacuum breaker line to atmosphere or connect it into the return main at the discharge side of the steam trap.

IMPORTANT: *Vacuum relief is mandatory when the coil is controlled by modulating steam supply or two-position (On-Off) automatic steam supply valve.*

4. Do not bush or reduce the coil return tapping size. Run the return pipe the full size of the steam trap connection except for the short nipple screwed directly into the coil condensate connection.

5. Proper steam trap selection and installation is necessary for satisfactory coil performance and service life. For installation, use the following steps:

- a. Locate the steam trap discharge at least 12 inches below the condensate return tapping. This provides sufficient hydrostatic head pressure to overcome trap losses and assure complete condensate removal.
- b. Float and thermostatic traps are recommended because of gravity drain and continuous discharge operation.
- c. Use float and thermostatic traps with atmospheric pressure gravity condensate return, with automatic controls or where the possibility of low pressure supply steam exists.
- d. Use bucket traps ONLY when the supply steam is unmodulated and 25 psig or higher.
- e. When installed in series airflow, size the traps for each coil using the capacity of the first coil in airflow direction.
- f. Always trap each coil separately, to prevent holdup in one or more coils.
- g. Always install strainers as close as possible to the inlet side of the trap.

6. Use a two-position (On-Off) steam supply control valve on Type A or T coils.

IMPORTANT: *Do not modulate Type A or T coils.*

CAUTION: *Open steam supply control valve slowly to prevent possible coil damage. Do not use Type T or ST coils when the entering air is 32 F or less because they are not completely drainable when the steam supply is shut off. Under freezing ambient conditions, steam supplied to Type A coils with On-Off control must be 5 psig or higher or the intake dampers must be tightly closed to prevent coil freeze-up.*

7. Use V-port modulating valves to obtain gradual modulating action.
8. Control each coil bank separately when installing coils for series airflow with automatic steam control valves.
9. Do not modulate systems with overhead or pressurized returns unless the condensate is drained by gravity to the receiver (vented to the atmosphere) and returned to the main by the condensate pump.
10. At start-up on units with fresh air dampers, slowly turn the steam on full for at least 10 minutes before opening the fresh air intake.
11. Pitch all steam supply and return mains down a minimum of 1-inch per 10 feet in the direction of flow.
12. Do not drain the steam mains or take-offs through the coils. Drain the mains ahead of the coils through a steam trap to the return line.
13. Overhead returns require 1 psig of pressure at the steam trap discharge for each 2-foot elevation to assure continuous condensate removal.

Codes for System Components:

- FT - Float and Thermostatic Steam Trap
- BT - Bucket Steam Trap
- GV - Gate Valve
- OV - Automatic Two-Position (On-Off) Control Valve
- TV - Automatic Three-Way Control Valve
- VB - Vacuum Breaker, 15 Degree Swing Check Valve
- CV - Check Valve
- ST - Strainer
- AV - Automatic or Manual Air Vent

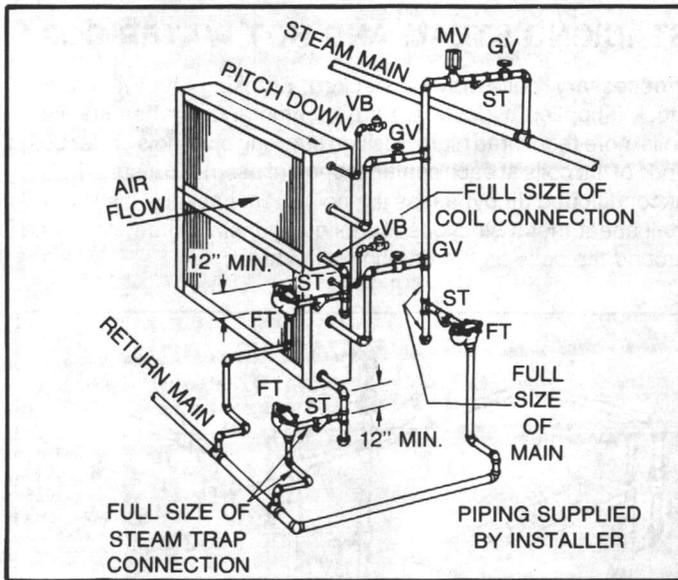


FIGURE 10 - Type NS Steam Coils, Horizontal Tubes for Horizontal Airflow

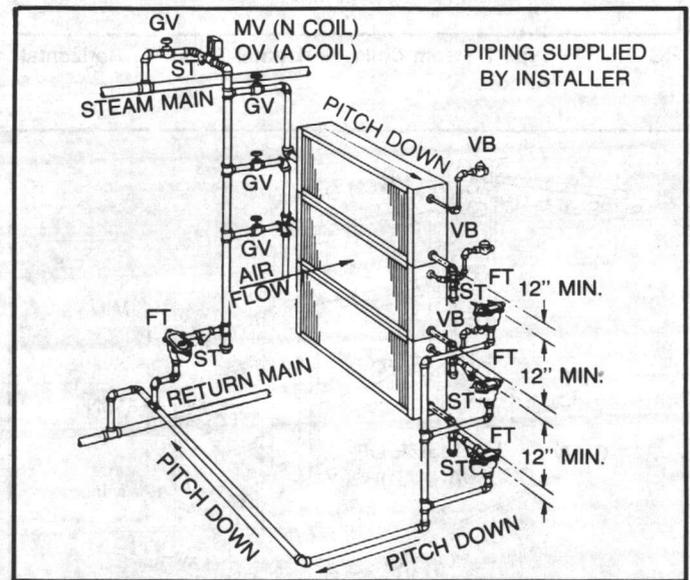


FIGURE 12 - Type A or N Steam Coils, Horizontal Tubes for Horizontal Airflow

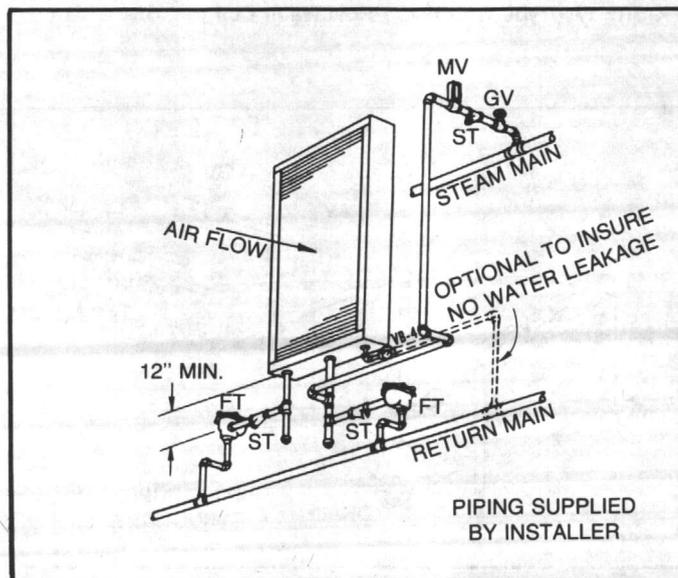


FIGURE 11 - Type NS Steam Coils, Vertical Tubes for Horizontal Airflow

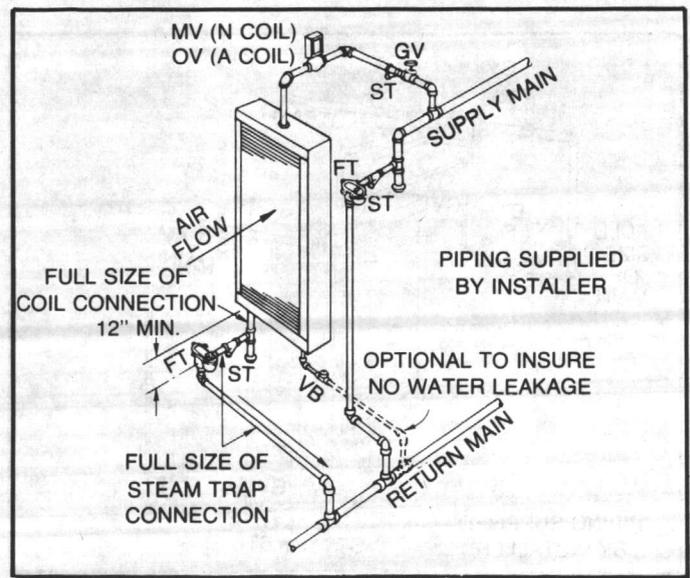


FIGURE 13 - Type 13 - Type A or N Steam Coils, Vertical Tubes for Horizontal Airflow

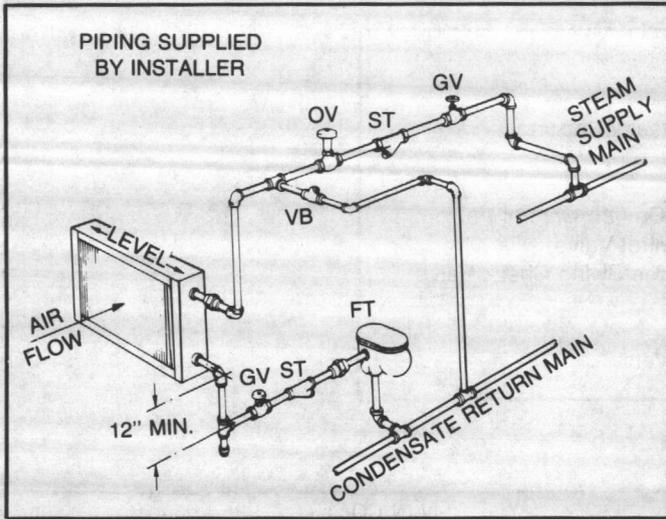


FIGURE 14 - Type T Steam Coils, Horizontal Tubes for Horizontal Airflow

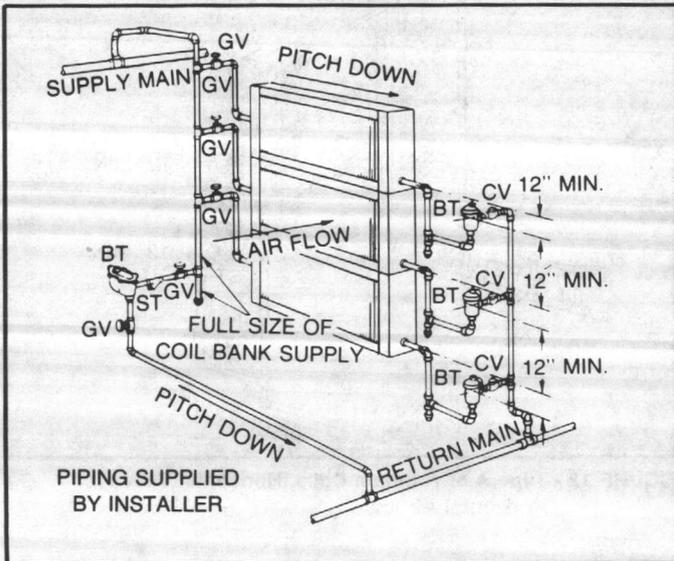


FIGURE 15 - Type A Steam Coils, High Pressure, Horizontal Tubes for Horizontal Airflow

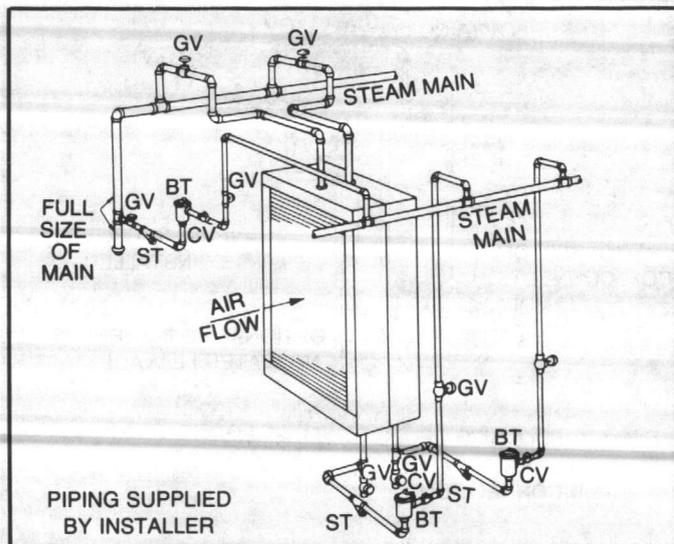


FIGURE 16 - Type A Steam Coils, High Pressure, Vertical Tubes for Horizontal Airflow

Hot Water Coil Installation

Refer to Figures 17 to 20.

1. Install coil with airflow as indicated by arrow on nameplate on coil casing.
2. Type W, WL, DL, LL, and WA hot water coils are self-venting only if the water velocity exceeds 1.5 fps. If it is below 1.5 fps, vent by one of the following methods.
 - a. Install an air vent in the top pipe plug tapping of the return header. See Figure 17.
 - b. When the return line rises and is above the top of the coil, vent from the top of the return header horizontally to the return piping. See Figure 20.
3. **IMPORTANT:** Do not throttle or modulate the water flow on coils that are exposed to freezing air.

STACKING STEAM AND HOT WATER COILS

If necessary, coils may be stacked. Stacking channels or bar stock (supplied by installer) are recommended when stacking coils more than three high. Position stacking channels under both ends of the coils at each center support (if used). To insure that no unconditioned air bypasses the coil when stacking, caulk or install sheet metal blockoffs (supplied by installer) between and around the coils on the entering air side.

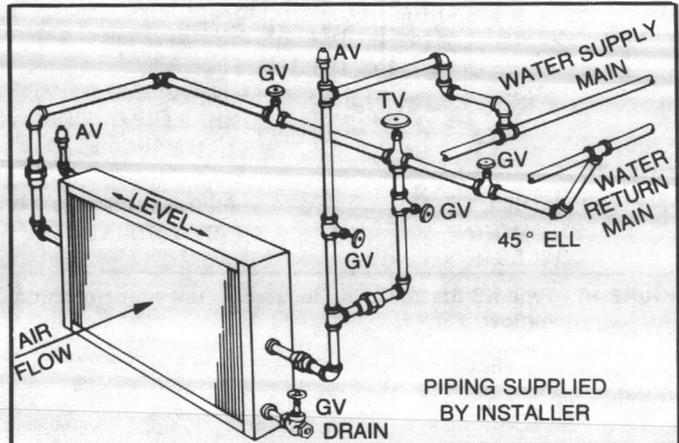


FIGURE 17 - Type W or WA, 1-Row Water Coil

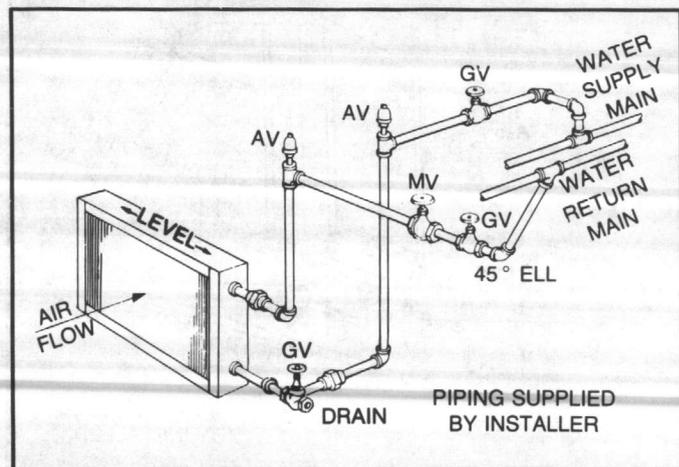


FIGURE 18 - Type T and ST Water Coil

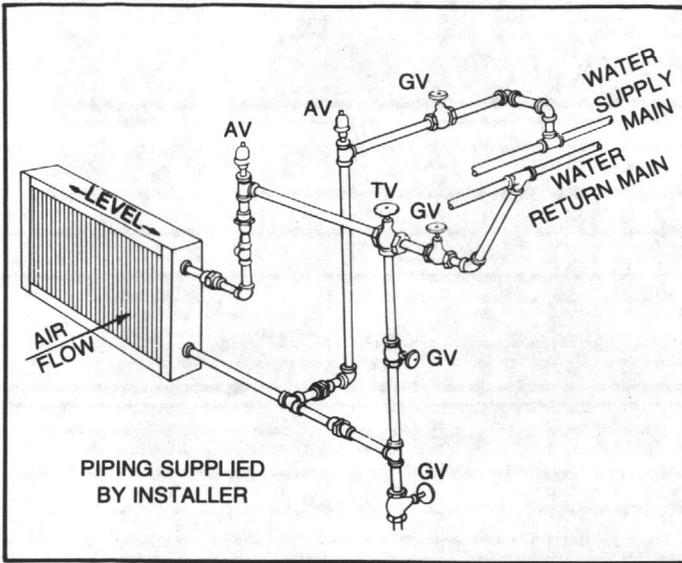


FIGURE 19 - Type WC Water Coil

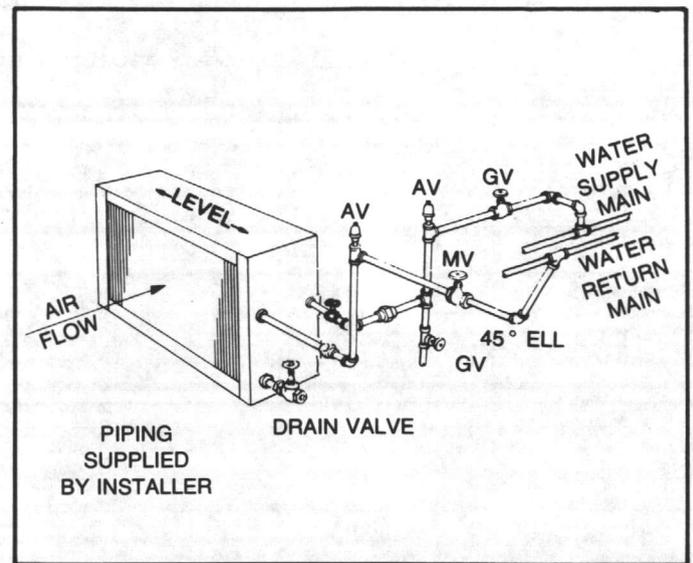


FIGURE 20 - Type W, WA, WL, and DL, Two-Row Water Coil

MAINTENANCE

Coils should be kept clean to maintain maximum performance. If fins become dirty, clean with steam and detergent, hot water spray and detergent, or one of the commercially available chemical coil cleaners.

WARNING: Follow directions provided with cleaners to avoid personal injury and/or coil damage.

Rinse coils thoroughly after cleaning.

FOR FURTHER INFORMATION ON THIS PRODUCT OR OTHER TRANE PRODUCTS, REFER TO THE "TRANE SERVICE LITERATURE CATALOG", ORDERING NUMBER IDX-IOM-1. THIS CATALOG CONTAINS LISTINGS AND PRICES FOR ALL SERVICE LITERATURE SOLD BY TRANE. THE CATALOG MAY BE ORDERED BY SENDING A \$15.00 CHECK TO: THE TRANE COMPANY, SERVICE LITERATURE SALES, 3600 PAMMEL CREEK ROAD, LA CROSSE, WI 54601.

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