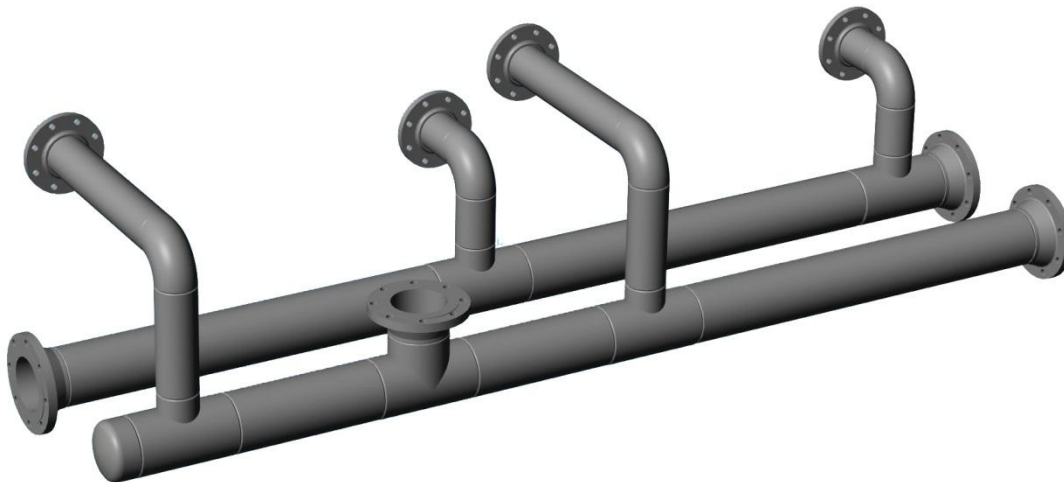

MODULAIR™ BY COLMAC COIL MANIFOLDS

54 Models
Capacities to 2,500 gpm



“The Heat Transfer Experts”

TABLE OF CONTENTS

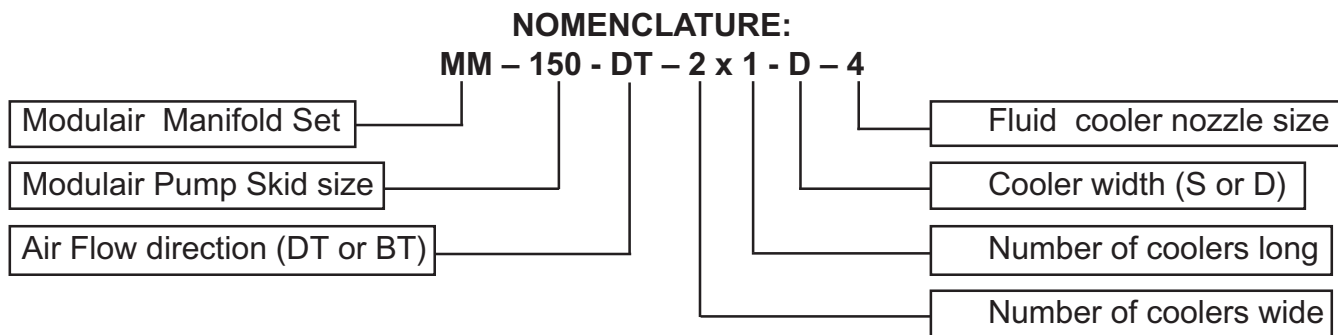
	<u>FIGURE</u>	<u>TABLE</u>	<u>PAGE</u>
Nomenclature and Installation Notes			2
Selection Procedure and Fluid Cooler Features			3
Plot Plan Dimensions		Table 1-4	4,5
MM 100 Manifold Plot Plans	Figure 1		6
MM 150 Manifold Plot Plans	Figure 2		7,8
MM 200 Manifold Plot Plans	Figure 3		9,10
MM 250 Manifold Plot Plans	Figure 4		11,12
Manifold Pressure Drop	Figure 5 & Figure 6		13

INSTALLATION NOTES:

These notes are intended as a general guide for installing the Modulair Manifolds. Detailed installation instructions are provided separately for the Fluid Coolers and Pump Skids. The manifolds are supplied in one piece ready for assembly and the connecting pipe elbows from the inlet manifold to the pump skid are field welded to allow for final alignment.

Install the fluid coolers first and adjust the position to match the manifold flanges adding shims if necessary if the footings are uneven. Install the inlet manifold supports and the outlet manifold brackets so both manifolds are fully supported. Install the flange bolts and gaskets and partially tighten until snug.

Install the manifold U bolts and tighten. Fit the connecting piping to the pump skid and adjust the skid position to provide the alignment required for welding. After welding tighten the manifold flange bolts and pressure test the system.



STANDARD FEATURES:

Colmac Modulair Manifolds provide pre-engineered piping between Modulair Fluid Coolers and Modulair Pump Skids for cooling of Water, Ethylene Glycol/ Water and Propylene Glycol /Water solutions in a variety of closed loop applications. The manifolds are designed to provide the pipe connections from the pump skid to the fluid coolers and from the fluid coolers to the outlet connection(s). Colmac Modulair Manifolds are available in a series of combinations to suit the full flow range of each pump skid size. The manifolds offer designs for one or two fluid coolers for the MOD 100 and 150 Pump Skids, two or three fluid coolers for the MOD 200 Pump Skid and three or four fluid coolers for the MOD 250 Pump Skid. Modulair Fluid Coolers may be arranged in a row (side by side) or end to end with the pump skid at the center, in left hand or right hand configurations. The multiple arrangements available provide maximum flexibility for the layout of the cooling system in any application.

FEATURES:

- Wide range of combinations and sizes to suit the full flow range of Modulair Pump Skids.
- Pre-engineered designs provide plot plans and footing locations for each arrangement.
- Welded carbon steel piping fabricated to ASME B31.1 with header manifolds to ASME VIII.
- Designed for 150 psig. @ 200 °F with carbon steel ANSI 150# RF flange connections.
- Piping cleaned and painted with primer and one coat of enamel. Ends covered for shipment.
- Cooler manifold headers factory pre-fabricated and shipped in one piece. Connections to pump skid are designated as field welds for final alignment.
- Isolating butterfly valves for the air cooler connections are available as an optional extra. Overall plot plan dimensions allow for the addition of valves.

SELECTION PROCEDURE:

The cooler and pump skid performance curves and selection procedures are shown in the Colmac bulletin 1800 and 1900. Select the number and size of fluid coolers and the pump skid model to provide the cooling load required. Next calculate the flow rate per cooler nozzle and select the nozzle size from Figure 18 of the Modulair Fluid Cooler bulletin. Choose the preferred fluid cooler arrangement from the plot plans shown in this bulletin for the pump skid selected. Note the terminology for two coolers is either 2 X 1 (two wide and one long) or 1 X 2 (one wide and two long) and for four coolers is either 4 X 1 (four wide and one long) or 2 X 2 (two wide and two long). Left hand or right hand combinations may be selected.

For example a Modulair system with two MOD-DT-8-D-L fluid coolers with a MOD 150 Pump Skid rated for 800 gpm would require either an MM-150-DT- 2 X 1–D-4 or an MM-150-DT-1 X 2 –D-4 manifold. Each double cooler has two nozzles so the 4” nozzle is selected for flow less than 230 gpm per nozzle. The overall plan and footing dimensions and the pump inlet and cooler outlet connections for the MM 150 manifolds are shown in Figure 2 and Table 2.

The plot plan footing dimensions and overall cooler dimensions can be read from the Figures and Tables provided for each pump skid size. To reduce the number of variable dimensions the footing locations for the cooler inlet manifold supports were omitted from this bulletin and are shown in the full size plot plan drawing available from Colmac for each manifold arrangement. The cooler outlet manifold is supported from the fluid cooler supports and does not require separate footings.

The manifold pressure drop for each manifold design is shown in Figure 5 and 6. The pressure drop at the design flow can be read directly from these charts. Add the manifold pressure head loss to the total system head loss when specifying the pump head required.

Table 1
MM-100 Plot Plan Dimensions
(See Figure 1)

NOMENCLATURE	HAND	FLUID COOLER		D	E	F	G	H	OUTLET FLANGE
		#1	#2						
MM-100-DT-1x1-S-4	L.H.	*	-	6.93	36.12	32.90	39.90	52.19	1 x 4"
	R.H.	-	*						
MM-100-BT-1x1-S-4	L.H.	*	-	6.93	36.12	59.00	39.90	52.19	1 x 4"
	R.H.	-	*						
MM-100-DT-1x1-S-6	L.H.	*	-	6.93	42.50	32.9	39.90	58.56	1 x 6"
	R.H.	-	*						
MM-100-BT-1x1-S-6	L.H.	*	-	6.93	42.50	59.00	39.90	58.56	1 x 6"
	R.H.	-	*						
MM-100-DT-1x2-S-4	N/A	*	*	7.75	36.31	32.90	39.90	52.38	2 x 4"
MM-100-BT-1x2-S-4	N/A	*	*	7.75	36.31	59.00	39.90	52.38	2 x 4"

NOTES:

- | | |
|---|-----------------------------------|
| 1. FOR 4-FAN COOLERS B=0 | 5. CONSULT COLMAC ENGINEERING FOR |
| 2. FOR 3-FAN COOLERS A=0 | OTHER ARRANGEMENTS |
| 3. FLUID COOLER ISOLATING VALVES ARE OPTIONAL | 6. PUMP INLET FLANGE IS 4" 150# |
| REDUCE F BY 2.00 FOR 4" & 2.12 FOR 6" | |
| FLANGE. | |
| 4. ALL FLANGES ARE ANSI 150# RF | |

Table 2
MM-150 Plot Plan Dimensions
(See Figure 2)

NOMENCLATURE	HAND	COOLER				D	E	F	G	H	OUTLET FLANGE
		#1	#2	#3	#4						
MM-150-DT-1x1-D-4	L.H.	*	-	-	-	0	53.68	24.53	3.00	69.75	1 x 6"
	R.H.	-	-	*	-						
MM-150-BT-1x1-D-4	L.H.	*	-	-	-	0	42.93	50.63	3.00	59.00	1 x 6"
	R.H.	-	-	*	-						
MM-150-DT-1x1-D-6	L.H.	*	-	-	-	10.56	55.18	22.53	4.00	71.25	1 x 8"
	R.H.	-	-	*	-						
MM-150-BT-1x1-D-6	L.H.	*	-	-	-	1.00	44.43	48.63	4.00	60.50	1 x 8"
	R.H.	-	-	*	-						
MM-150-DT-2x1-D-4	L.H.	*	*	-	-	0	53.68	24.53	3.00	69.75	1 x 6"
	R.H.	-	-	*	*						
MM-150-BT-2x1-D-4	L.H.	*	*	-	-	0	42.93	50.63	3.00	59.00	1 x 6"
	R.H.	-	-	*	*						
MM-150-DT-1x2-D-4	N/A	*	-	*	-	0	53.68	24.53	3.00	69.75	2 x 6"
MM-150-BT-1x2-D-4	N/A	*	-	*	-	0	42.93	50.63	3.00	59.00	2 x 6"

NOTES:

- | | |
|---|-----------------------------------|
| 1. FOR 8-FAN COOLERS B=0 | 5. CONSULT COLMAC ENGINEERING FOR |
| 2. FOR 6-FAN COOLERS A=0 | OTHER ARRANGEMENTS |
| 3. FLUID COOLER ISOLATING VALVES ARE OPTIONAL | 6. PUMP INLET FLANGE IS 6" 150# |
| REDUCE F BY 2.00 FOR 4" & 2.12 FOR 6" | |
| FLANGE. | |
| 4. ALL FLANGES ARE ANSI 150# RF | |

Table 3
MM-200 Plot Plan Dimensions
(See Figure 3)

NOMENCLATURE	HAND	COOLER						D	E	F	G	H	OUTL. FLG.
		#1	#2	#3	#4	#5	#6						
MM-200-DT-2x1-D-6	L.H.	*	*	-	-	-	-	0.00	59.43	22.53	3.00	83.50	1x8"
	R.H.	-	-	-	*	*	-						
MM-200-BT-2x1-D-6	L.H.	*	*	-	-	-	-	0.00	46.30	48.63	3.00	70.37	1x8"
	R.H.	-	-	-	*	*	-						
MM-200-DT-1x2-D-6	N/A	*	-	-	*	-	-	6.00	59.43	22.53	4.00	83.50	2x8"
MM-200-BT-1x2-D-6	N/A	*	-	-	*	-	-	0.00	46.30	48.63	4.00	70.37	2x8"
MM-200-DT-3x1-D-4	L.H.	*	*	*	-	-	-	0.00	45.18	68.53	4.00	69.25	1x8"
	R.H.	-	-	-	*	*	*						
MM-200-BT-3x1-D-4	L.H.	*	*	*	-	-	-	0.00	45.18	94.63	4.00	69.25	1x8"
	R.H.	-	-	-	*	*	*						
MM-200-DT-3x1-D-6	L.H.	*	*	*	-	-	-	0.00	46.30	67.53	4.00	70.37	1x8"
	R.H.	-	-	-	*	*	*						
MM-200-BT-3x1-D-6	L.H.	*	*	*	-	-	-	0.00	46.30	93.63	4.00	70.37	1x8"
	R.H.	-	-	-	*	*	*						

NOTES:

- | | |
|---|--|
| 1. FOR 8-FAN COOLERS B=0 | 5. CONSULT COLMAC ENGINEERING FOR OTHER ARRANGEMENTS |
| 2. FOR 6-FAN COOLERS A=0 | 6. PUMP INLET FLANGE IS 8" 150# |
| 3. FLUID COOLER ISOLATING VALVES ARE OPTIONAL.
REDUCE F BY 2.00 FOR 4" & 2.12 FOR 6" FLANGE. | |
| 4. ALL FLANGES ARE ANSI 150# RF | |

Table 4
MM-250 Plot Plan Dimensions
(See Figure 4)

NOMENCLATURE	HAND	FLUID COOLER								D	E	F	G	H	OUTL. FLG.
		#1	#2	#3	#4	#5	#6	#7	#8						
MM-250-DT-3x1-D-6	L.H.	*	*	*	-	-	-	-	-	0.00	48.05	66.53	4.00	72.12	1x10"
	R.H.	-	-	-	-	*	*	*	-						
MM-250-BT-3x1-D-6	L.H.	*	*	*	-	-	-	-	-	0.00	48.05	92.63	4.00	72.12	1x10"
	R.H.	-	-	-	-	*	*	*	-						
MM-250-DT-4x1-D-4	L.H.	*	*	*	*	-	-	-	-	0.00	47.06	67.40	4.00	71.13	1x10"
	R.H.	-	-	-	-	*	*	*	*						
MM-250-BT-4x1-D-4	L.H.	*	*	*	*	-	-	-	-	0.00	47.06	93.50	4.00	71.13	1x10"
	R.H.	-	-	-	-	*	*	*	*						
MM-250-DT-4x1-D-6	L.H.	*	*	*	*	-	-	-	-	0.00	48.05	66.53	4.00	72.12	1x10"
	R.H.	-	-	-	-	*	*	*	*						
MM-250-BT-4x1-D-6	L.H.	*	*	*	*	-	-	-	-	0.00	48.05	92.63	4.00	72.12	1x10"
	R.H.	-	-	-	-	*	*	*	*						
MM-250-DT-2x2-D-4	N/A	*	*	-	-	*	*	-	-	9.00	65.68	23.53	4.00	89.75	2x8"
MM-250-BT-2x2-D-4	N/A	*	*	-	-	*	*	-	-	0.00	51.06	49.63	4.00	75.13	2x8"
MM-250-DT-2x2-D-6	N/A	*	*	-	-	*	*	-	-	9.00	66.55	22.65	4.00	90.63	2x10"
MM-250-BT-2x2-D-6	N/A	*	*	-	-	*	*	-	-	0.00	51.93	48.75	4.00	76.01	2x10"

NOTES:

- | | |
|---|--|
| 1. FOR 8-FAN COOLERS B=0 | 4. ALL FLANGES ARE ANSI 150# RF |
| 2. FOR 6-FAN COOLERS A=0 | 5. CONSULT COLMAC ENGINEERING FOR OTHER ARRANGEMENTS |
| 3. FLUID COOLER ISOLATING VALVES ARE OPTIONAL.
REDUCE F BY 2.00 FOR 4" & 2.12 FOR 6" FLANGE. | 6. PUMP INLET FLANGE IS 10" 150# |

FIGURE 1
MM-100 PLOT PLAN DIMENSIONS
 (See Table 1)

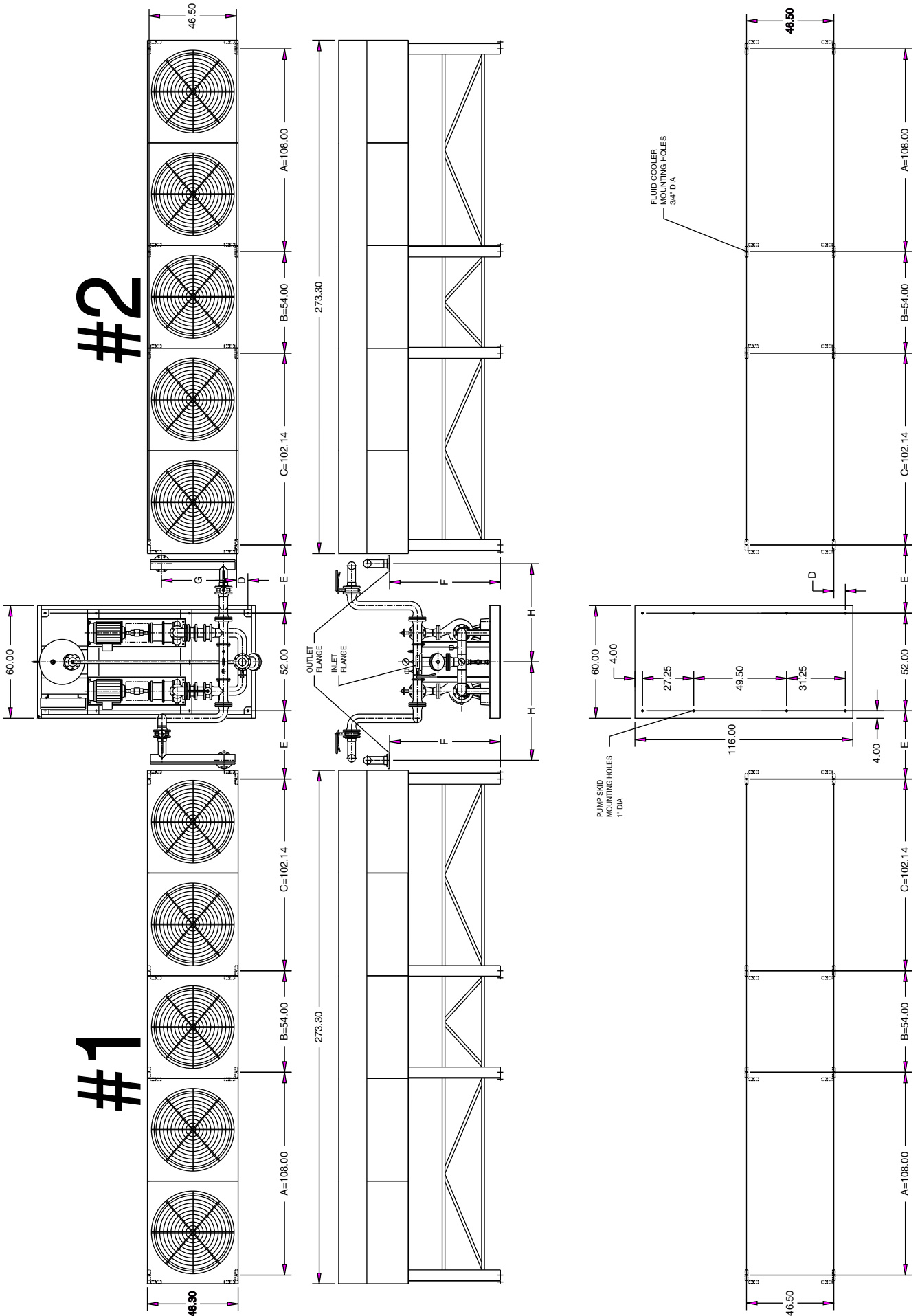


FIGURE 2
MM-150 PLOT PLAN DIMENSIONS
 (See Table 2)

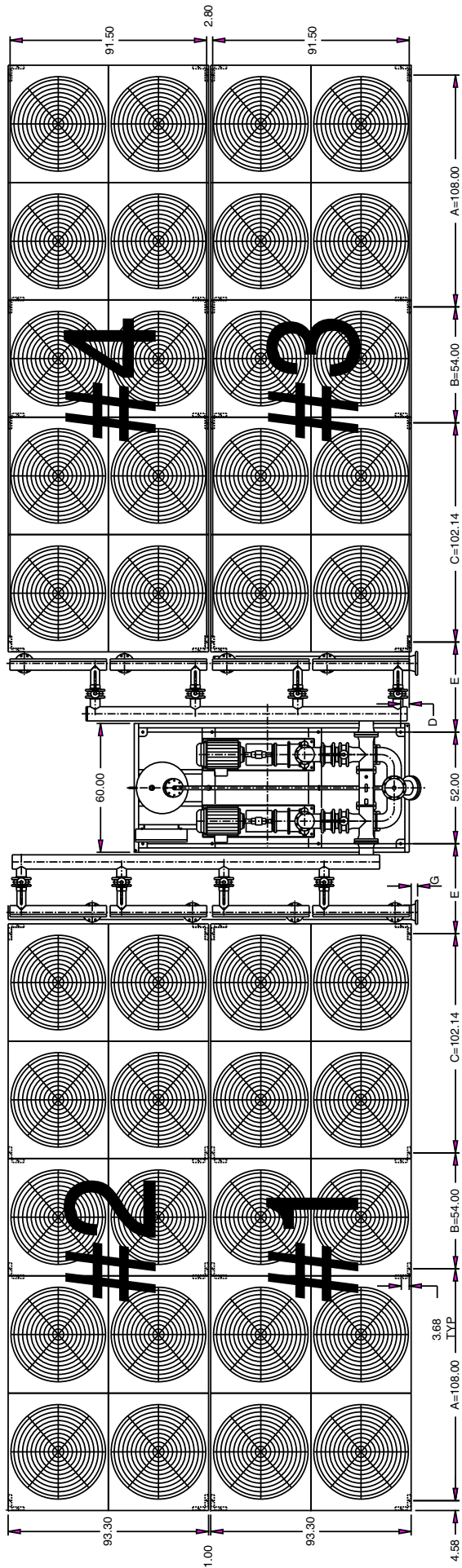


FIGURE 2 (CONTINUED)
MM-150 PLOT PLAN DIMENSIONS
 (See Table 2)

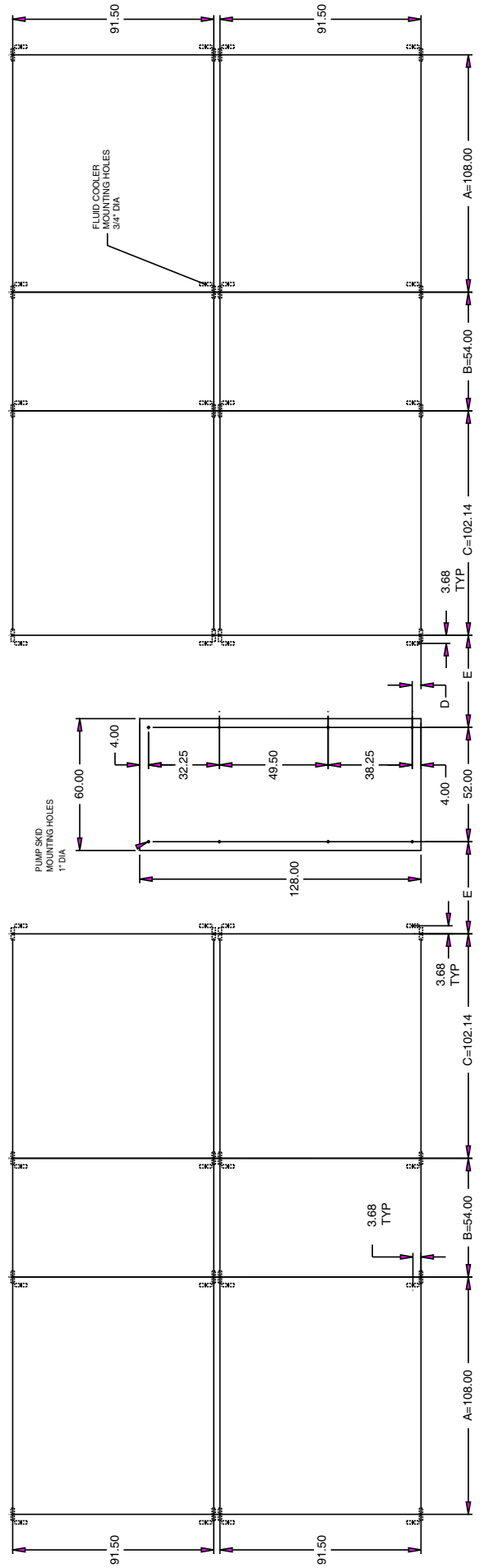
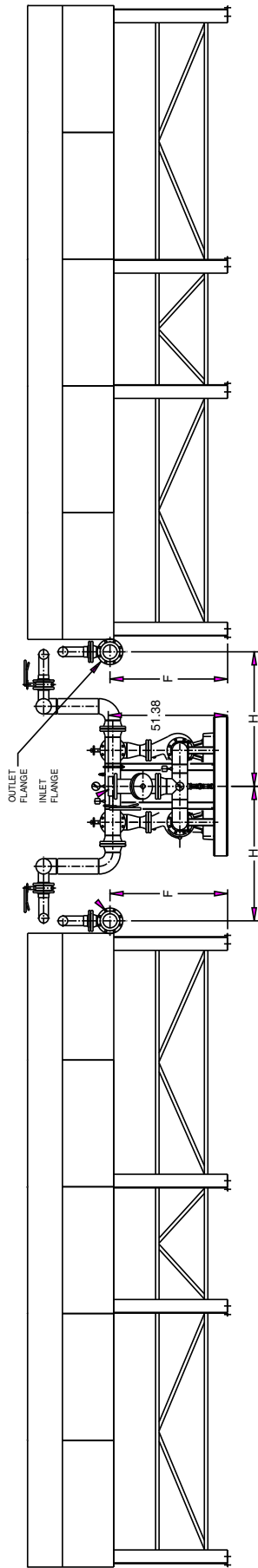


FIGURE 3
MM-200 PLOT PLAN DIMENSIONS
 (See Table 3)

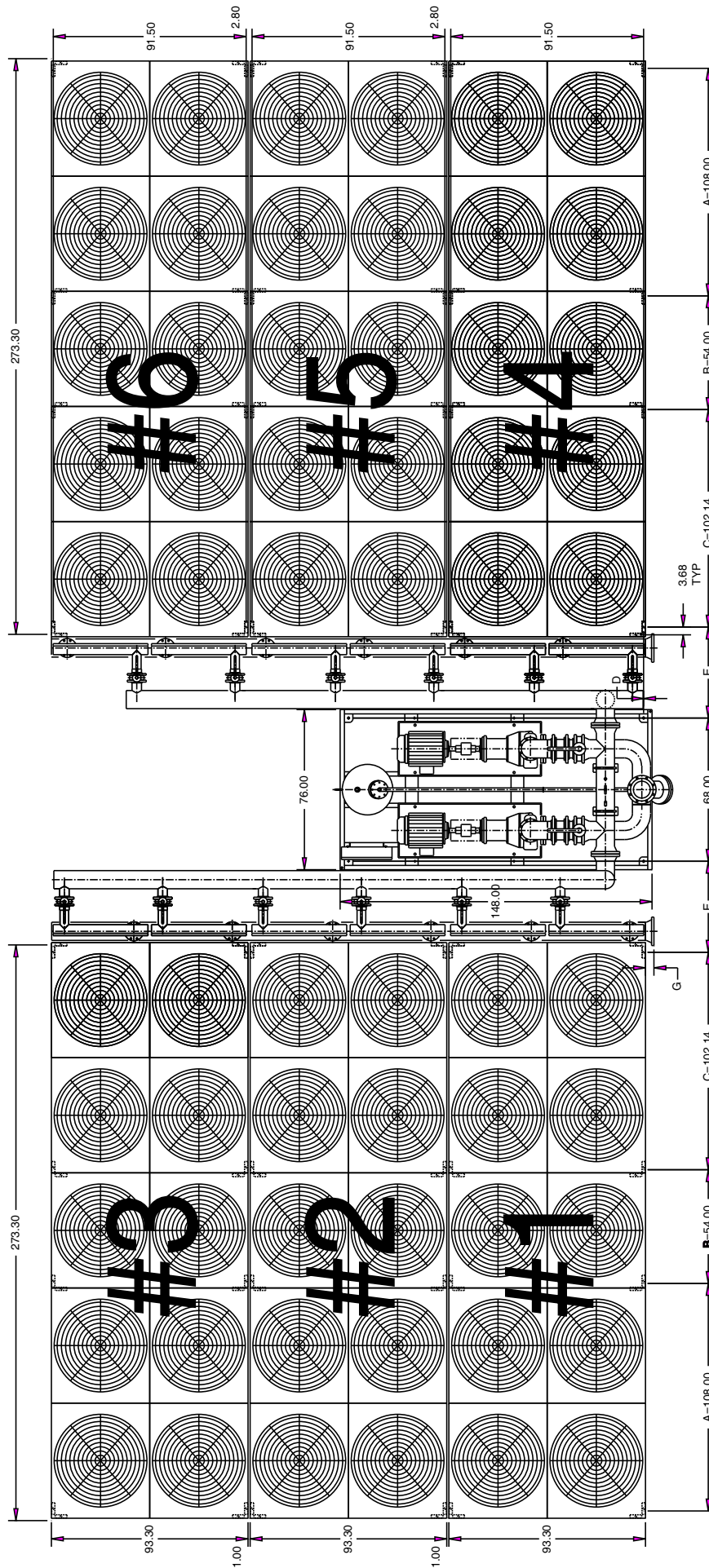


FIGURE 3 (CONTINUED)
MM-200 PLOT PLAN DIMENSIONS
 (See Table 3)

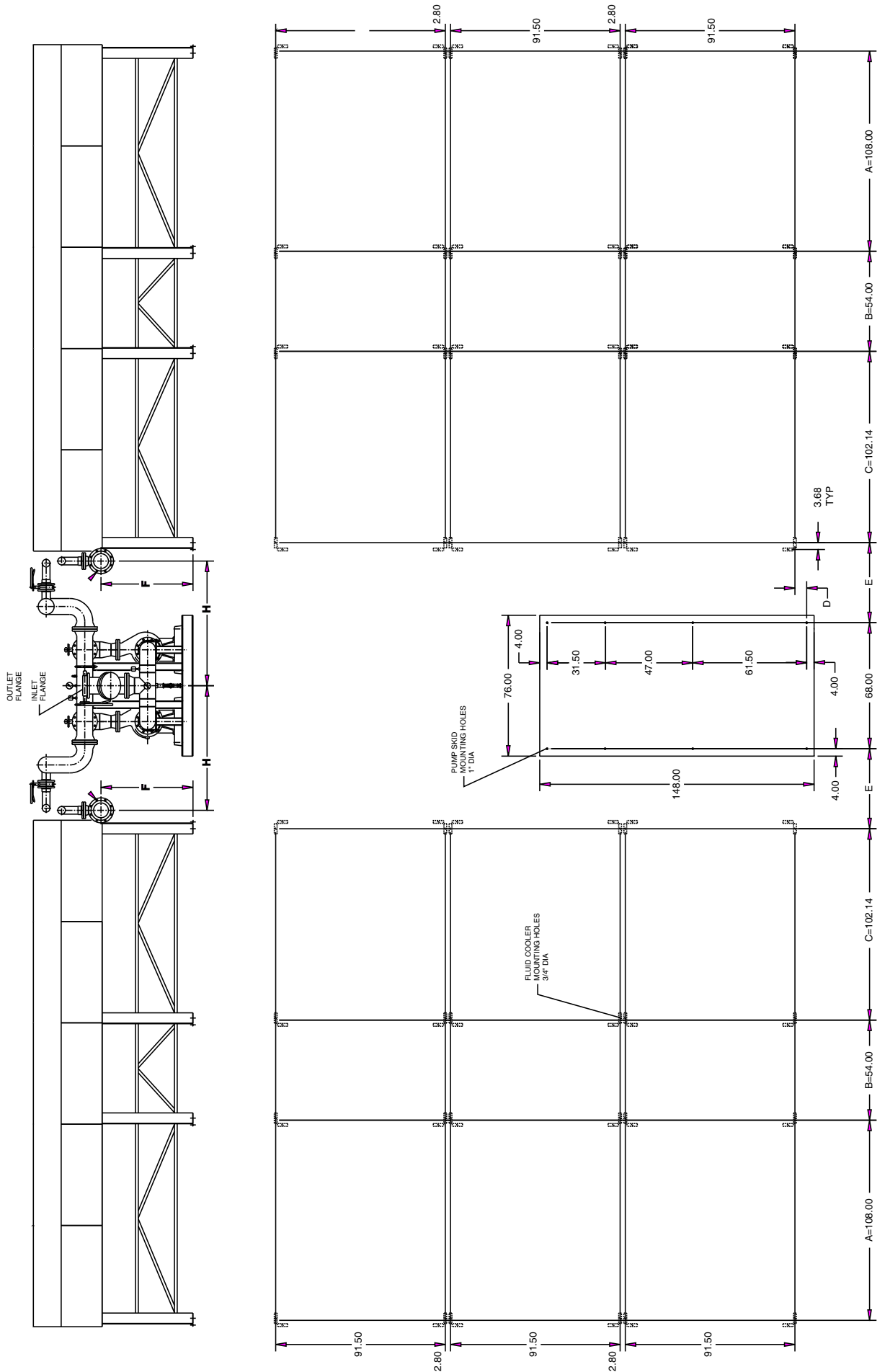


FIGURE 4
MM-250 PLOT PLAN DIMENSIONS
 (See Table 4)

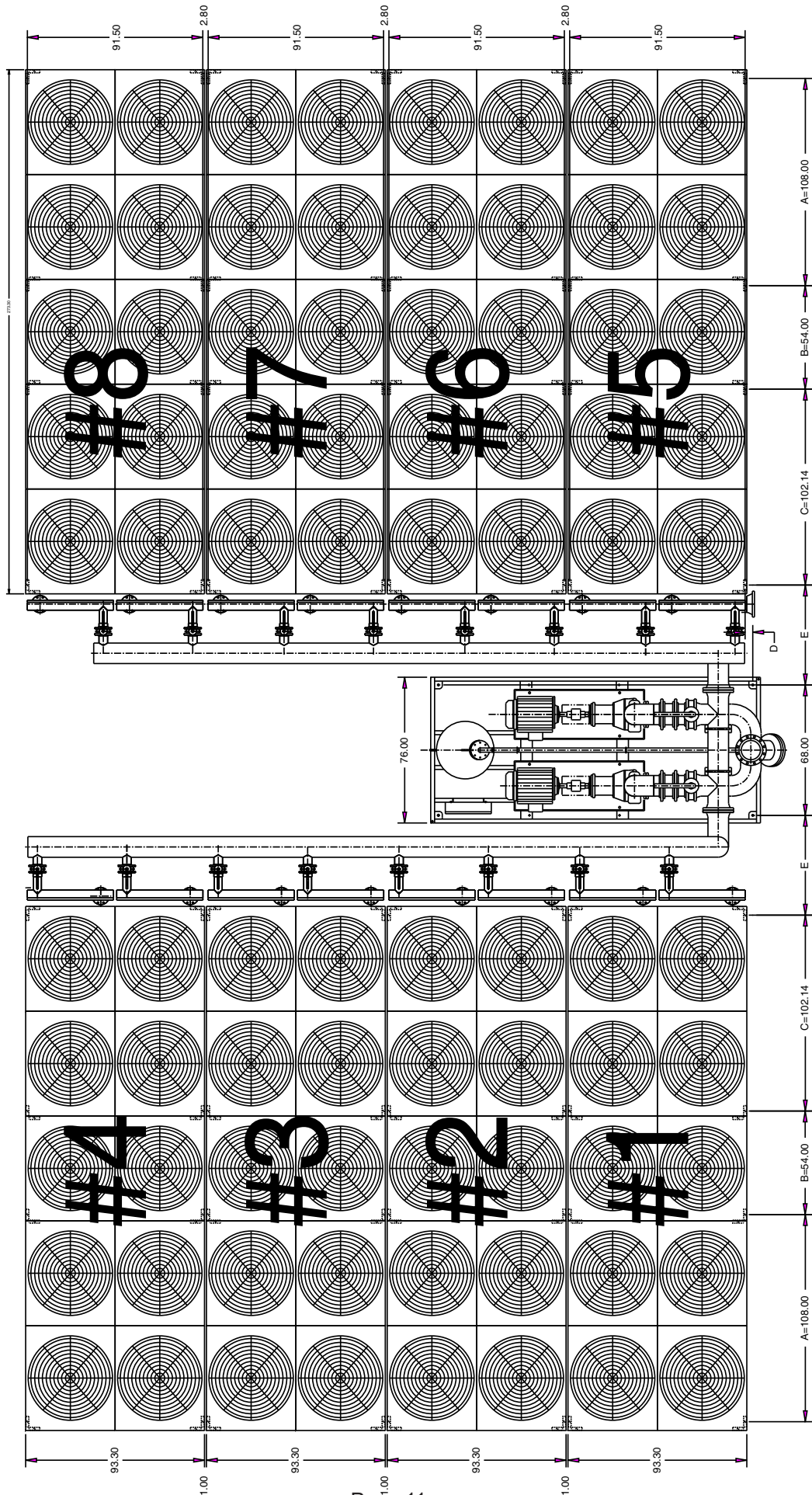


FIGURE 4 (CONTINUED)
MM-250 PLOT PLAN DIMENSIONS
 (See Table 4)

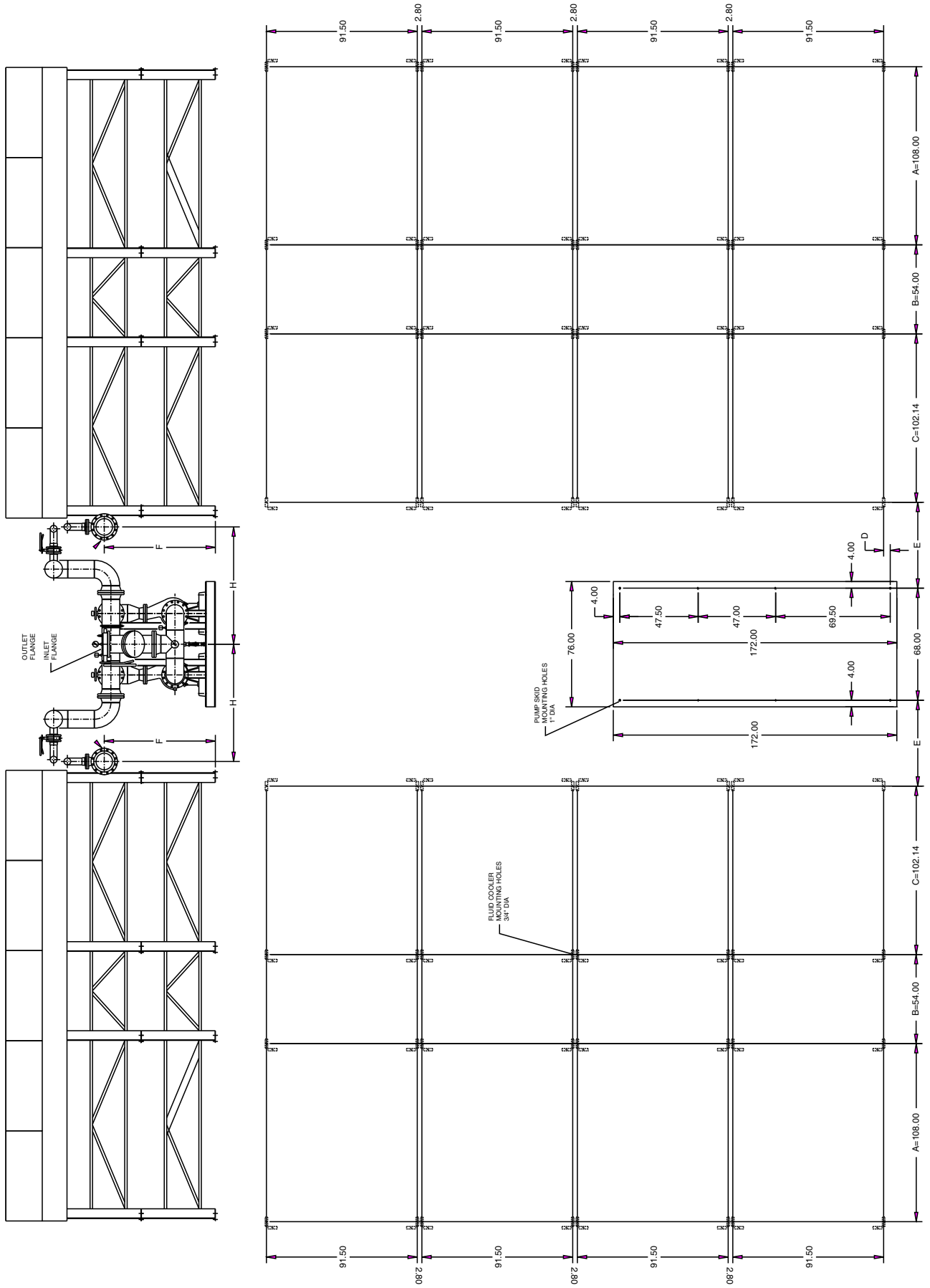


FIGURE 5
MANIFOLD PRESSURE DROP
MM 100 & MM150

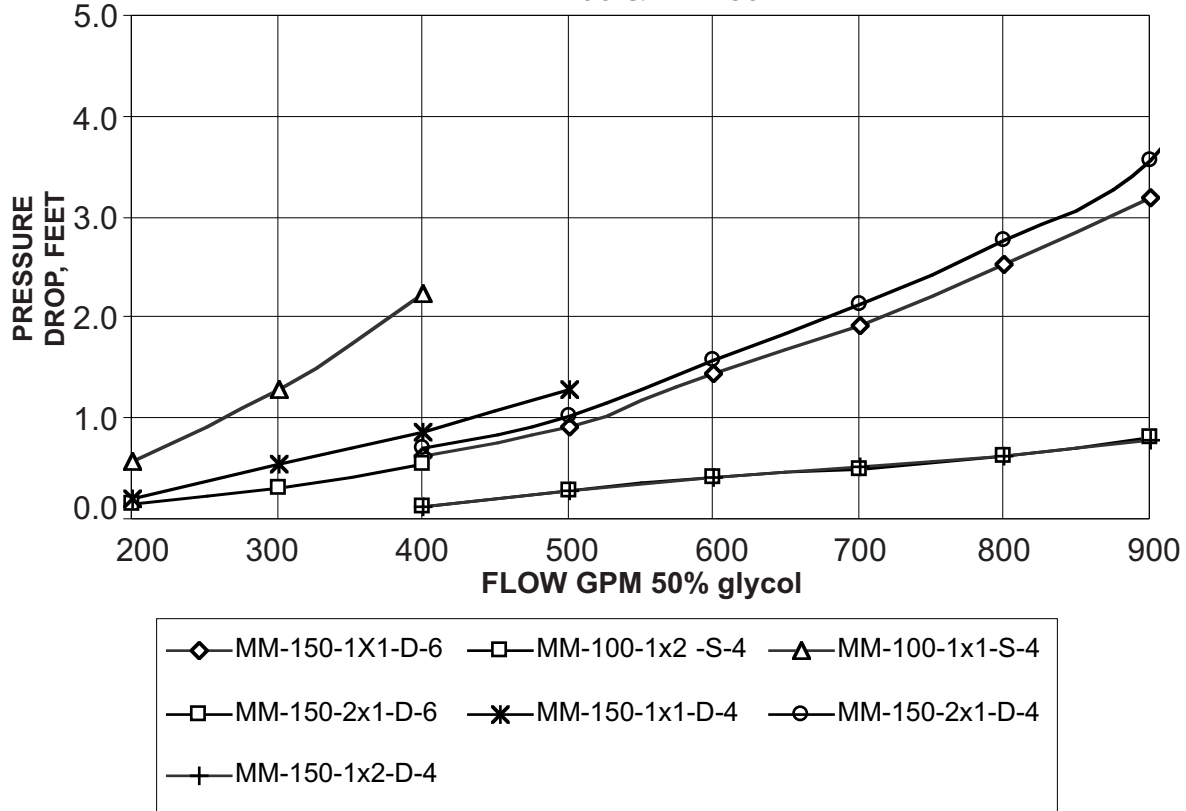
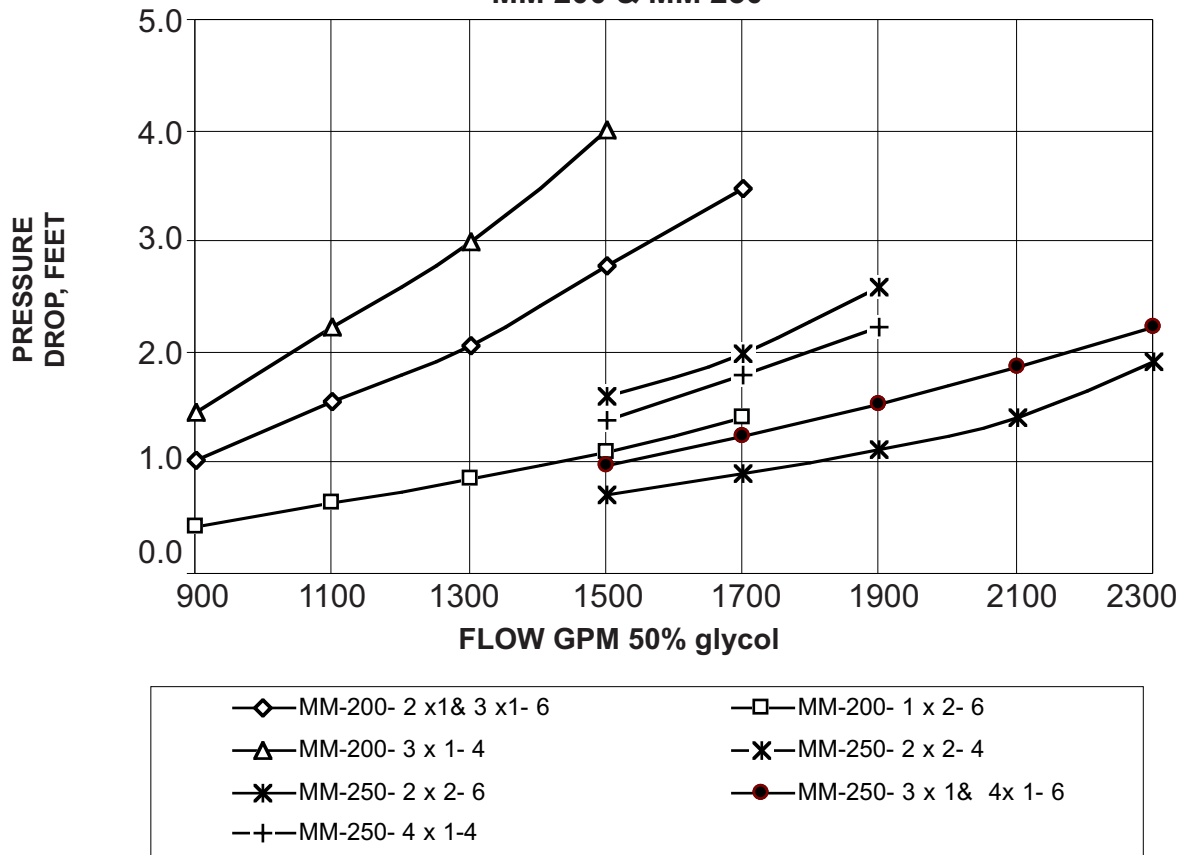


FIGURE 6
MANIFOLD PRESSURE DROP
MM 200 & MM 250





Other Quality Products From Colmac Coil



Heating and Cooling Coils



Heat Pipes for Heat Recovery



Dry Coolers for Glycol or Gas Cooling



Custom Evaporators & Baudelot Coolers



Air Cooled Condensers

CE(PED) Certification, ASME Sec. VIII, Canadian Registration Number, UL508, Canadian Standards Association



CRN



CSA

Visit www.colmaccoil.com for more information and resources:

- Product Information
- Product Literature
- Sales Rep Locator
- Sales Rep e-Library
- Product Videos

North American Headquarters

Colmac Coil Manufacturing, Inc.
370 N. Lincoln St. | P.O. Box 571
Colville, WA 99114 | USA
+1.509.684.2595 | +1.800.845.6778

Midwest US Manufacturing

Colmac Coil Midwest
350 Baltimore Dr. | Paxton, IL 60957 | USA

"The Heat Transfer Experts"