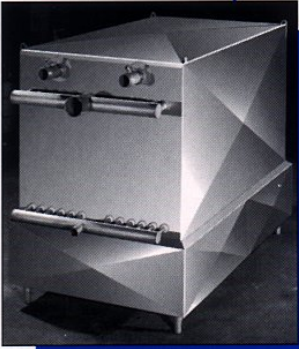
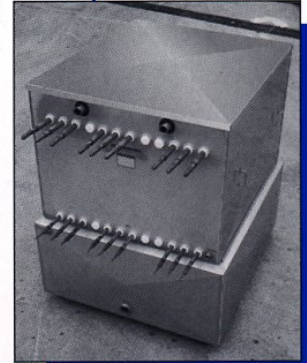
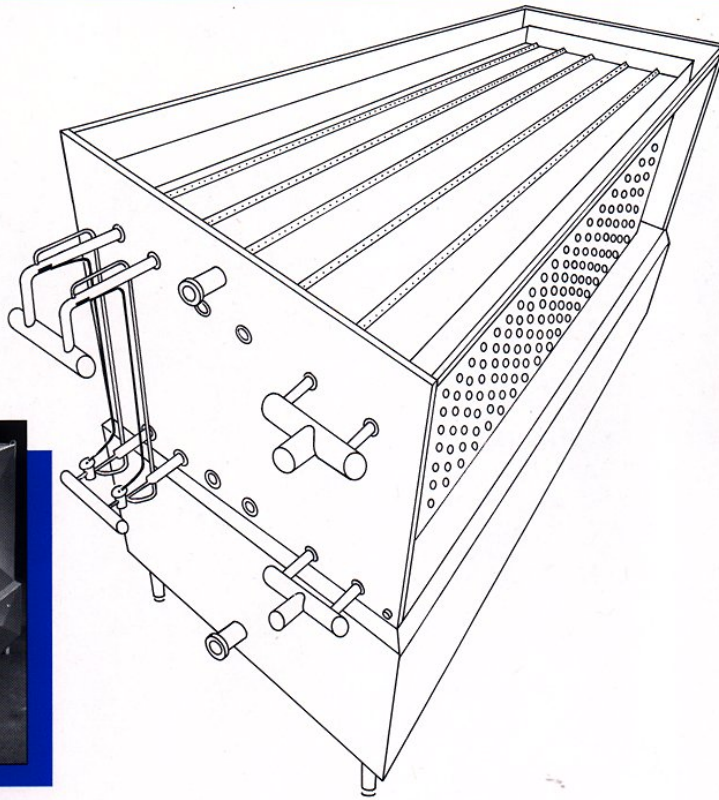


# MUELLER®

## Falling-Film Chiller



# Falling-Film Chiller

***A Chilling Solution!***

**Chills water as low as 34°F**

- Easy to clean and inspect with virtually no downtime for maintenance.
- Unit reduces chilling time, increases production, and brings a faster return on your investment.
- Mueller's® patented Temp-Plate® design eliminates potential chiller freeze-up.
- Accepts incoming fluid temperatures in excess of 80°F without the need of a secondary heat exchanger.

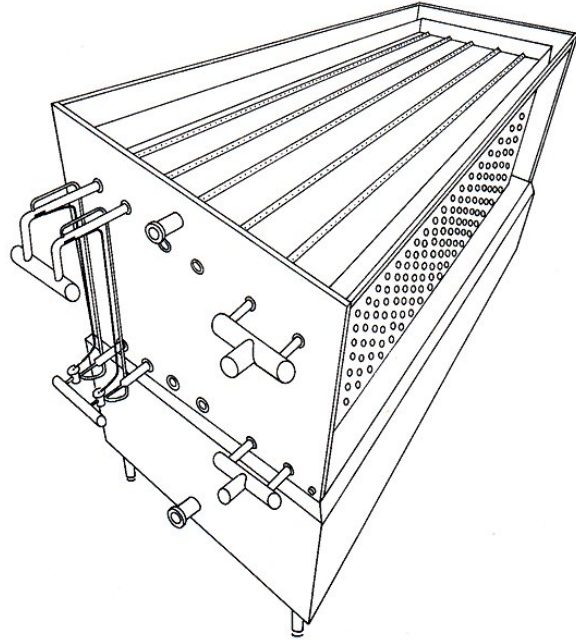
# THE CHILLING SOLUTION!

## To qualify as a food-grade chiller, the chiller must meet USDA and FDA requirements

The following are a few important issues to consider.

- An acceptable material for construction must be chosen.
- All product contact surfaces shall be visible for inspection.
- All product contact surfaces shall be smooth and free of pits, crevices, and scale.
- The product zone shall be free of recesses, open seams, and gaps.
- All internal corners or angles in the product zone shall have a smooth and continuous radius of  $\frac{1}{4}$ " or greater.
- Equipment shall be capable of draining all of the fluid it holds.
- Gaskets and o-rings must be made of approved food-grade material.

The falling film chiller was designed to meet all of these requirements and provide you with the *Chilling Solution* to all your chilling requirements.



## Cabinet

Cabinets are available in open and totally enclosed designs to meet specific chilling requirements. Standard units are built to accommodate: 8 - 3x5 plates 8, 16, 24, & 32 - 4x8 plates.

## Construction Features

Standard units are constructed of Type 304 stainless steel with a 2B finish. All welds are blasted with glass beads. Optional materials are available upon request including 316L and AL6XN, as well as others. Optional finishes include No. 4 food-grade finish and electropolished for ultra-high purity or corrosive applications, as well as others.

## Evaporator

The evaporator allows water to be chilled as low as 34 °F and other solutions to within one or two degrees of their freeze points with no freeze-up problems or chiller damage.

Multi-sized evaporators are available to meet specific load requirements (3x5 and 4x8). Evaporator plates are circuited to maintain proper oil return and ensure maximum refrigeration efficiency.

The system is suitable for use with R-22, R-404A, R-134A, and ammonia refrigerants as well as most new non-CFC refrigerant products in flooded, recirculated, or direct-expansion systems. Built to ASHRAE 15 standards, the system is rated at 250 psi at 200 °F. Optional ASME code-stamped evaporators are available.

## Fill Connection

Chillers are equipped with a threaded fill connection which allows for the use of electronic level controls. The fill connection is located on the water pan inlet.

## Optional Refrigeration Manifolding

Optional manifolding is available for all types of refrigerants. When direct-expansion refrigeration systems are used, manifolding includes the mounting of required expansion valves. Copper or stainless steel would be the ideal material to choose.

## Overflow Connections

All chillers are equipped with a female, threaded overflow connection which allows for simple piping of excess fluid.

## Tank Reservoir

Standard tank sizes are available from 200 to 1,400 gallons. The holding tank is insulated with a minimum of 2-inch insulation for elimination of heat loss and condensation buildup.

A sloped bottom allows for complete drainage of the holding tank. Adjustable legs enable the chiller to sit level on uneven surfaces for proper operation of the distribution pan and allow an even laminar-flow pattern over the evaporator plates for maximum cooling efficiency.

## Water Distribution Pan

The distribution pan has holes over each vertical evaporator plate to allow a thin, uniform solution to flow over both sides of each plate. The hole size and spacing are determined by the flow-rate requirements for each chilling application.

Pans are available in low, extra-low, and high flow. Minimum flow is 1.2 gpm per linear foot of plate with a maximum flow rate of 6.2 gpm per linear foot of plate.

## Features & Benefits

### Standard Option Concept

The falling film chiller product line was designed around the *Standard Options Concept* to enable us to improve quotation lead time and delivery time, and lower cost.

This concept has allowed us to pre-design the entire product line once, therefore eliminating the unnecessary cost of reengineering a custom product for each order.

By taking the time to evaluate the needs of all of our different customers, we were able to design all of the needed options. This also makes it unnecessary for our customers to pay for something on their chiller they do not need. These two advantages provide you with the lowest cost and the shortest leadtime in the industry.

### Cabinet Sizes

We currently build two chiller sizes, 3x5 and 4x8. The 3x5 chiller is available in an 8-plate cabinet. The 4x8 chiller is available in an 8-plate, 16-plate, 24-plate, and 32-plate cabinet. Each of these chillers has a tank that was properly sized to satisfy the requirements for the chiller.

We also offer a tankless chiller cabinet in the following sizes: 8 plate 3x5, 8 plate 4x8, 16 plate 4x8, and 24 plate 4x8.

### Cabinet Top Options

Each cabinet is available with a welded-in-place top, a solid removable top, and a top fitted with a hinged door over each distribution pan.

The above options allow for access (or not) to the top of the chiller depending upon your needs.

### Cabinet Expandability

Due to the advanced cabinet design of all of our chillers, adding additional plates up to the cabinet capacity is easy to do. So when you get ready to buy your next chiller, be sure you select a cabinet that allows for future expansion.

Then, when the expansion time comes, you will only have the cost of additional plates and distribution pans, not a second chiller which requires an expensive installation.

### Evaporator Features and Options

We offer 3x5 and 4x8 plate sizes. Each plate size is available for DX, recirculated, and flooded refrigerant controls for R-717, R-22, R-404A, and all other conventional refrigerants.

Due to the plate design, no special refrigerant controls are necessary nor are you forced to select flooded controls when DX would be less expensive and a better fit for your application (because of the plate design).

All plates are built to ASHRAE 15 standards rated at 250 psi at 200 °F. Optional ASME plates at the same rating are available.

### Evaporator Internal Plate Capacity

The **Mueller Temp-Plate**<sup>®</sup> patented design is the most efficient falling film chiller evaporator available today. Each evaporator is designed to use the smallest refrigerant charge possible and is circuited to ensure that the entire evaporator operates at the correct temperature. The internal volume for the 3x5 plate is .15 cu. ft. and for the 4x8 plate it is .42 cu. ft. These capacities are 8 to 10 times less than others

### Tank Connection Options

Each chiller is laid out with multiple locations for tank connections. This option allows you to



pick the location and any standard size connection for your chiller. There are five locations under each distribution pan, two in the front and three in the rear of the chiller. You can choose up to two connections at each end. You can select the connection size at each end from our list of standard connections located on the submittal drawing for each cabinet.

## **Refrigerant Controls**

We provide DX and flooded refrigerant controls for all refrigerants. For details on the individual components, review the *Falling Film Chiller Operations and Installation Manual*.

## **Water Level Control Option**

All **Mueller** falling film chillers are equipped with a ¼" connection to allow for the installation of an optional water level control. This control will allow you to set the upper and lower level anywhere you choose.

There are three optional control panels which allow you to set the level control. The three components needed to operate the level control are the pressure transducer, a 1" water solenoid valve, and one of the optional control panels described in the *Control Panel Options* section.

## **Control Panel Options**

We offer three standard and one custom control panel. The following is a brief description of each panel.

### *Bakery Control Panel*

This panel allows for the temperature control of up to two condensing units, the hot gas liquid-injection controls for each, the water level control, and up to three pumps for on, off, and safety. This unit is equipped with a four-line LCD display and full key pad.

### *Temperature Panel*

This panel allows you to set the temperature and level control for a chiller and control up to two condensing units, including the hot gas liquid-injection controls for each. This unit is equipped with LEDs and two push buttons for setting control set points.

### *Level Control Panel*

This board mounts in the 6"x 6" level control box and can be used to set the upper tank level to control the water fill valve.

### *Custom Control Panel*

This is a custom panel designed for your specific electrical needs and is ETL listed.

## **Refrigeration Units**

We offer a complete line of condensing units that have been designed to match the performance requirements of the falling film chiller.

These units are available in outdoor air cooled, water cooled, and remote air cooled (with outdoor) condensers. Each type of unit is available in horsepower sizes from 5 thru 120 hp. Some sizes may not be available in all types.

## **Specially Designed High Sides**

Custom high sides of all sizes and configurations are available upon request.

## **Quotation Lead Time**

For quotations on chillers with standard options, the normal lead time is 24 hours or less from the time we receive your request. Requests for quotes that include no standard options may take longer.

## **Order Lead Time**

The normal shipment lead time, after the receipt of an order, is four weeks. Some orders with special requirements may take up to two weeks longer.

## Options, Accessories, & Other Equipment

### Refrigerant Controls

Refrigerant controls for ammonia and other refrigerants including direct expansion, flooded, and recirculated, systems are available.

### Refrigerant Circuit Manifolds

Refrigerant circuit manifolds are available to simplify installation. Manifolds for DX systems include valves and external equalizers already mounted. Flooded and recirculated, manifolds are available in copper and stainless steel materials.

### Additional Equipment

Surge drums, receivers, hand valves, and other refrigerant accessories are available upon request

### Temperature Control Assemblies

Temperature control packages are available to control temperature, circulating pumps, and make-up water levels.

### Pumps

Circulating pumps are available in various flow ranges and materials to suit your needs.

### Condensing Units

Condensing units (semi-hermetic and scroll compressors) are available in air-cooled, remote air-cooled or water-cooled models



## Easy to clean and inspect with virtually no downtime for maintenance

The **Mueller 3x5** falling film chiller is designed with removable back and top covers for easy cleanability of the entire plate unit. Built for lower-capacity applications, the unit is equipped with a standard 200-gallon, self-contained storage tank.

Distribution pans are available with low, medium, and high flow rates, based on chilled water usage. Low flow rates range from 4 to 10 gpm, medium flow rates range from 8 to 15 gpm, and high flow rates range from 16 to 30 gpm (per evaporator).

### 3 x 5 Chiller Sizing Chart

Cabinet Size	No. of Plates Minimum/Maximum		Dimensions L x W x H (in)	Maximum Shipping Weight (lbs)	Tank Capacity (gallons)	Distribution Pan Connection Size
A	2	8	68½ x 39 x 78	1,520	200	3"

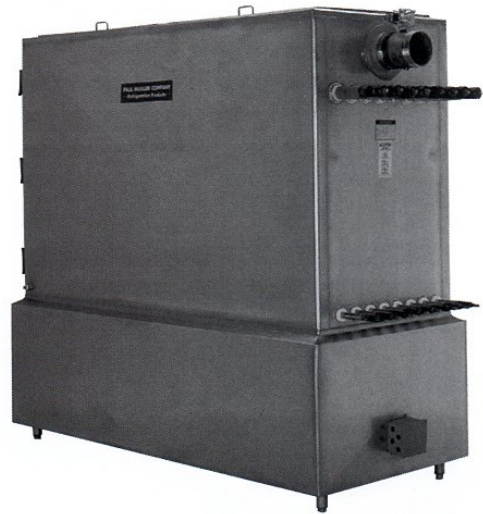
**Notes:**  
Refrigerant inlet connection size per plate is 1 1/8" tube and the outlet size is 1/2" tube.  
Maximum weight is based on the maximum number of plates that a chiller will hold being in the chiller.

# 4 x 8 CHILLERS

## Fully enclosed design eliminates product contamination

The **Mueller** 4x8 enclosed type falling film chiller is fully enclosed to ensure your product is free from particles. The unit is easily accessible through gasketed doors and is designed for large-capacity chilling applications.

Distribution pans are available in low, extra-low, and high flow rates. Extra-low flow rates range from 6 to 16 gpm, low flow rates range from 13 to 24 gpm, and high flow rates range from 25 to 48 gpm (per evaporator).



### 4 x 8 Chiller Sizing Chart

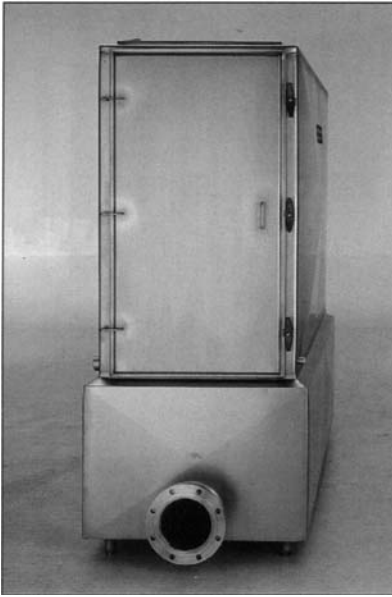
Cabinet Size	No. of Plates		Dimensions	Maximum Shipping	Tank Capacity	Distribution Pan
	Minimum	Maximum	L x W x H (in)	Weight (lbs)	(gallons)	Connection Size
J	2	8	104½ x 39 x 90¾	2,735	361	4" or 6"
K	2	16	104½ x 72½ x 90¾	5,220	706	4" or 6"
L	2	24	104½ x 106 x 90¾	7,705	1,052	4" or 6"
M	2	32	104½ x 139 x 90¾	10,190	1,397	4" or 6"

**Notes:**

Refrigerant inlet connection size per plate is 1 1/8" tube and the outlet size is 2" pipe.  
 Maximum weight is based on the maximum number of plates that a chiller will hold being in the chiller.  
 Low flow and extra-low flow distribution pans have a 4" connection and high flow pans have a 6" connection



# 4 x 8 CHILLERS



## Back View (left)

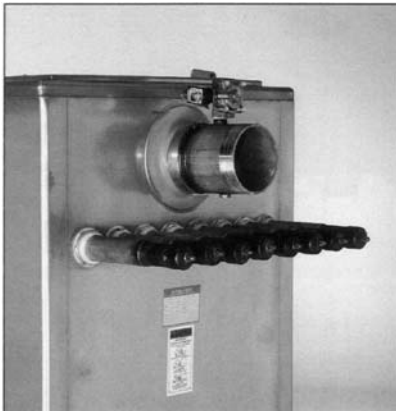
Gasketed door with latches make the chiller easily accessible for inspection and servicing.

Outlet connections are available in various sizes and piping configurations.



## Top View (right)

Optional top doors are available for accessibility to the distribution pan for needed cleaning.



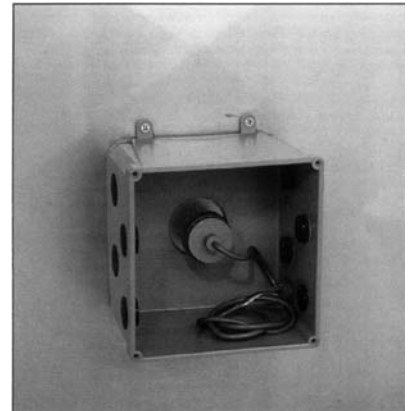
## Inlet Connection

Inlet connection is shown here with optional make-up water valve.



## Overflow Connection

Each chiller has an overflow connection to guard against over-filling the reservoir.



## Water Level Control

Optional water level sensor is available if needed.

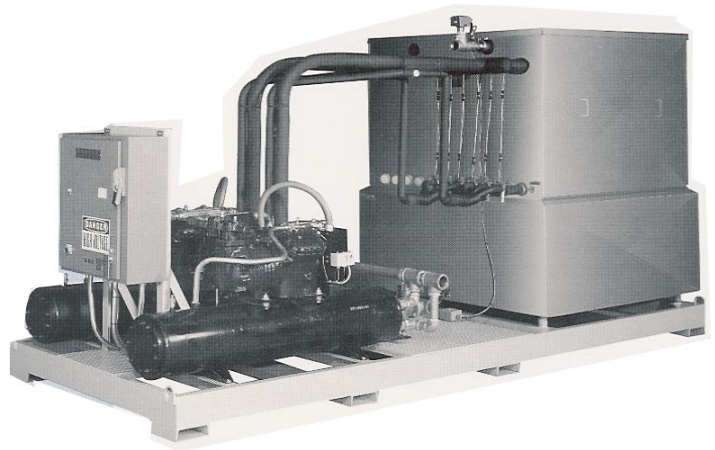
# SKID-MOUNTED CHILLERS

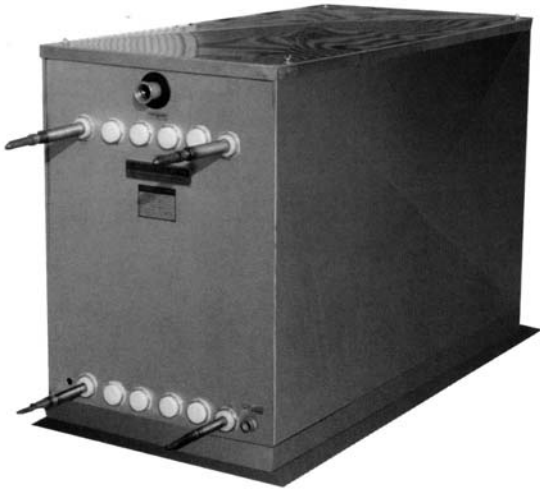
## Complete chiller system all in one package

Mueller's skid-mounted falling film chiller is designed to offer a total chiller package where a complete system is preferred. You may select 3x5 or 4x8 chillers for the package.

Next, you can select R-22 or ammonia for the refrigerant. High sides are available with water-cooled and remote, air-cooled condensers

Skids are designed for indoor installations only.





## Versatility to match your specific storage needs

Mueller's tankless chiller is designed for applications where it is necessary to place the chiller over the top of an existing tank.

The tankless units are available in both open – and enclosed-type cabinets.

Distribution pans are available in low, medium, and high flow.

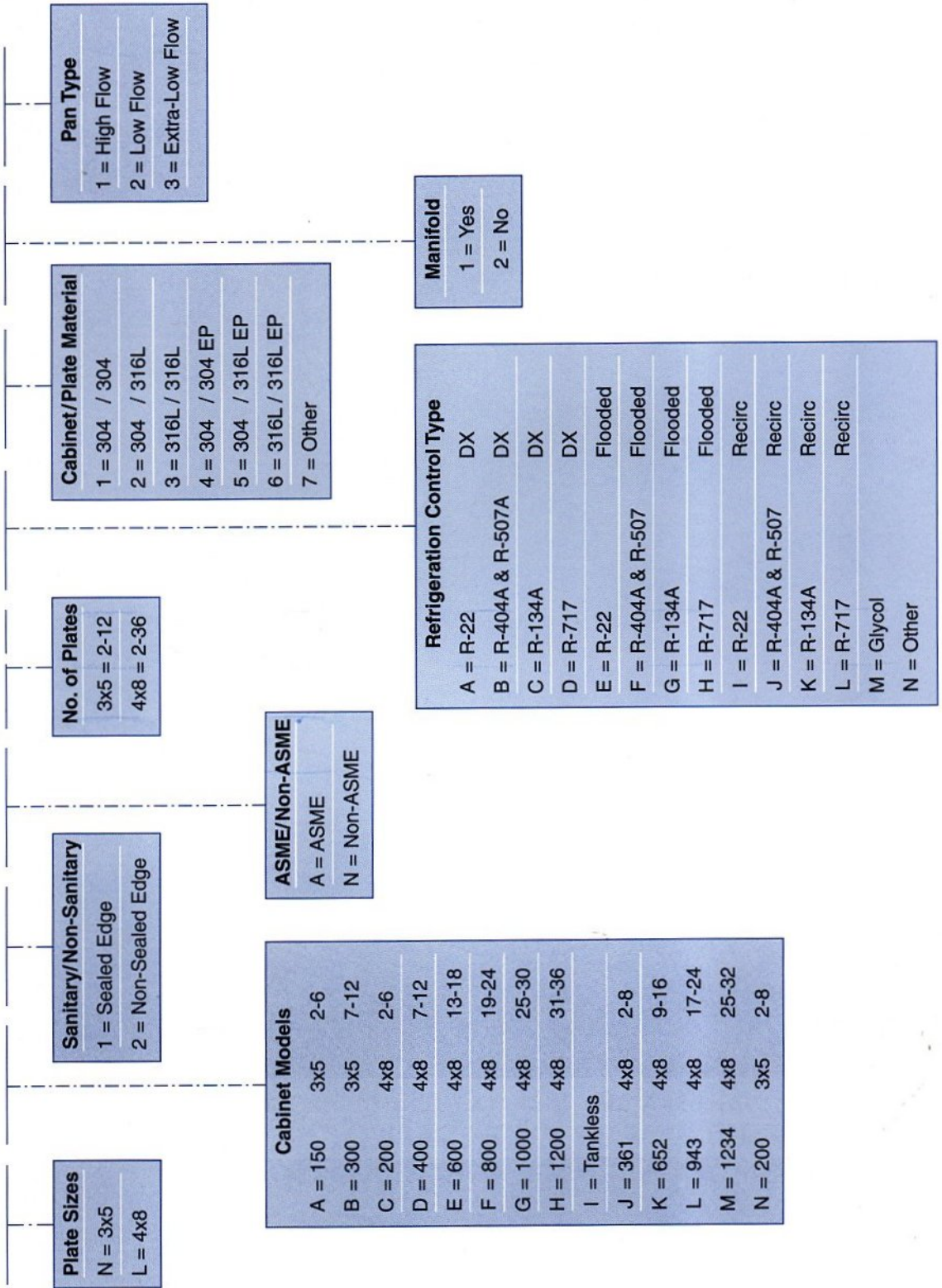
Units are available in both 3x5 and 4x8 evaporators from 6- to 18-plate cabinets.

### Tankless Chiller Sizing Chart

Cabinet Size	L x W x H (ins)	Weight with Plates (lbs)	Refrigeration Connection Size		Water Pan Connection Size
			Inlet*	Outlet	
8 - 3x5	70 x 43 x 48	790	1 1/8" tube	1 1/2" tube	2" or 3" MPT
8 - 4x8	108 x 43 x 62	1,550	1 1/8" tube	2" pipe	4" or 6" MPT
16 - 4x8	108 x 67 x 62	2,980	1 1/8" tube	2" pipe	(2) 4" or 6" MPT
24 - 4x8	108 x 104 x 62	4,220	1 1/8" tube	2" pipe	(3) 4" or 6" MPT

**Notes:**  
\*Inlet and outlet connection sizes are per plate connection sizes.

# Falling Film Chiller Model No. Breakdown



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