Chester-Jensen Co., Inc.

INSTANT CHILLER

The all stainless steel designed chilled water unit that provides 33°F water without freeze-up for ingredient or circulation services

Catalog Section H

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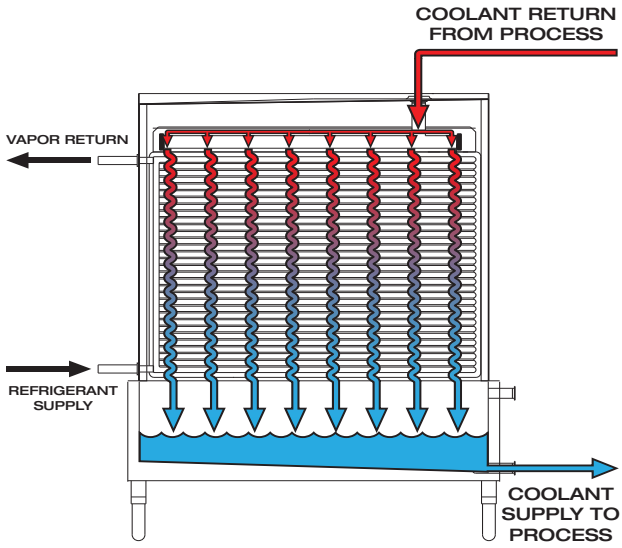


Chilling water instantly and continuously to 33ºF presents no problem to the user of a Chester-Jensen Chiller. Other liquids, brine, glycol solutions, etc., having comparable characteristics may also be chilled to within one or two degrees of their respective freezing points. This exceedingly narrow spread between the temperature of a chilled liquid and its freezing point is some six or seven degrees less than is ordinarily realized without danger of freeze-up with other types of equipment. Chilling can also be adjusted to higher end temperatures if desired.

The Chiller is designed to continuously perform the above duties over periods ranging from hours to weeks or months as may be required and is built from stainless steel in two major types.

Chilling is accomplished while the liquid flows by gravity in a thin film over both sides of one or more corrugated cooling sections which are hollow except for separating strips. Practically any required number of these sections may be employed depending upon temperature drop and capacity required. Sections are arranged in parallel and each is fed from a common overhead distributing trough. Chilled liquid is received in the collecting tank below from which it is pumped or can flow by gravity as desired.

The refrigerant is circulated inside the cooling sections under conditions which enable the most rapid escape of developing gas. This principle of Short Gas Flow assures a uniformly low temperature over the entire surface of each cooling section and adds to the economy of operation.

The services in which the two types of Chester-Jensen Chillers are used are as varied as there are problems to be met. Units of Open Type have lift-off side and front covers and will satisfy most requirements for chilling ingredient water, beverages, juices, syrups, etc., where cooling sections and other parts may require regular inspection and cleaning. Units of Closed Type have lift-off top covers only and will economically solve almost any problem of chilling circulating water, brine, glycol solutions, etc. They may also be employed to chill ingredient water of other products via a plate heat exchanger. This is especially economical in various processing operations where a heat exchanger requiring chilled circulating water is used and cold ingredient water is also required.

Unit Construction and Short Gas Flow

In the illustration to the left you are looking down into the opened top of a large Chester-Jensen Instant Chiller. A portion of the stainless steel distributing trough above the corrugated cooling sections is shown in phantom for easier visualization.

Look closely and you will see that the flat bottom of the trough has a double row of holes above each section. Each trough is drilled with holes sized and spaced to evenly distribute liquid over both sides of each cooling section at the required rate of flow. Chilled liquid falls into the collecting tank at the bottom of the unit.

At the right of the illustration is the large, common suction header connected to each individual cooling section. A similar header at the bottom of the unit feeds liquid refrigerant into the sections. Evaporating gas along with the recirculating refrigerant can move directly from any point within the section to the top suction connection due to the internal section construction. This direct, rapid movement (or **Short Gas Flow**) assures low pressure drop and permits use of higher efficiencies.

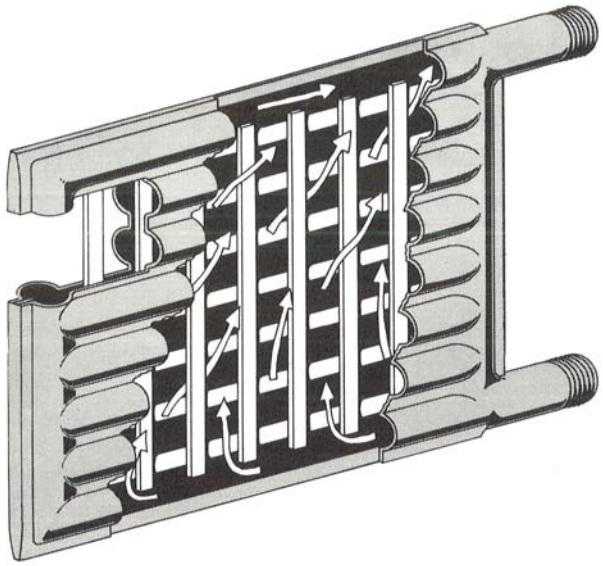
The pictured Chiller is a Closed Type and has sixteen 32-corrugation x 60” cooling sections and provision for four more. Even with the high amount of sections provided in this unit gas travel is no greater and suction pressure is no lower than that for a single individual evaporator section. The arrangement of the distributing trough, cooling sections and headers are the same for all types of C-J Chillers.

Pictured on the left is the top view of a four-section Closed Type Chiller with the covers and distributing trough removed. The trough fits under the feed pipe shown in the picture. The cross piece permits dividing top covers into two sections and opening it enables feeding the unit from the top, by gravity if desired. The distributing trough for four sections is shown to the right. Note the holes which evenly distribute liquid over both sides of each section.

Why short gas flow?

In any type of refrigerating equipment using a liquid refrigerant, gas develops as the temperature of the circulated refrigerant rises. This gas of itself has no refrigerating value and to the contrary, seriously retards the cooling effect of the still active liquid portion of the refrigerant. Therefore prompt removal of the gas is greatly to be desired.

That is the accomplished purpose of the Short Gas Flow principle upon which the design of the Chester-Jensen Chiller is based. Briefly, Short Gas Flow enables the escape of gas from liquid refrigerant by a route of its own choosing. Naturally, this route is the shortest distance, which may be measured in inches rather than feet as with other types of equipment.



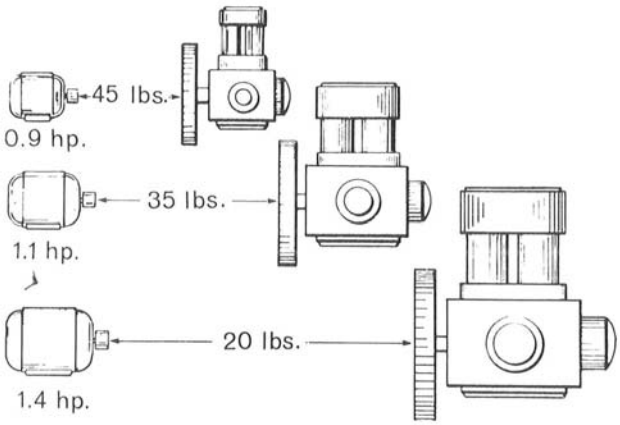
Here's how...

Higher Suction Pressure

- **Reduces Compressor Load**
- **Saves Power Per Ton of Refrigeration**

Short Gas Flow plus relatively short flow of liquid refrigerant means that the pressure drop through the cooling sections is very small, thus suction pressure at the compressor can be higher as compared to other types of equipment. This reduces load on the compressor to produce a given tonnage of refrigeration.

The illustration to the right shows relative horsepower and the size of the compressor required to produce a ton of refrigeration at various suction pressures --- why Short Gas Flow saves power or increases tonnage.



Space Saving

An additional benefit of the Short Gas Flow design of the Chester-Jensen Chiller is the amount of valuable floor space that can be saved. A standard unit having 12 cooling sections of 32 corrugation x 60" size is 64 3/8" wide, 69 3/8" long and 89 1/2" high. Such a unit can chill water with 26°F full flooded ammonia from 75°F to 33°F as the rate of approximately 8200 gallons per hour. (If chilling 45°F water the capacity would be doubled.)

Open Type

for sanitary and other water or product cooling services.

Open Type Instant Chillers might well be referred to as of all purpose design. They are well adapted to almost every liquid chilling service from circulating water and used for ingredient purposes as well as for juices and beverages of many kinds.

Open Type Units, despite their designation, are engineered to be fully enclosed during operation and need to be opened only when cleaning is necessary. Most cleaning can be accomplished by the circulation method and minimum labor is required.

The rear end of the unit is permanently enclosed. Both sides and front of the unit are enclosed with relatively light stainless steel lift-off covers which are easily removed. The distributing trough is removable with the top enclosure in place. Cooling sections are spaced four inches apart, permitting brushing if required.

Three Types of Finish Meet Specific Needs

All C-J Open Type Chillers are constructed entirely of stainless steel, with the exception of the manifolds, which are painted steel.

Three types of finish are available: (B) 2B welds wire brushed; (BG) 2B with welds ground smooth; (S) No. 4 polish. This enables selection of the model best suited and most economical for its intended service. Choice of finish will usually depend upon the extent to which sanitation is involved, if at all.

These differing finishes and the size and number of cooling sections along with the affected dimensions are the only changes which occur in the design or construction of the units and apply to cooling sections and other parts alike.

Constant Efficiency Per Cooling Section

All units are equipped with patented Short Gas Flow cooling sections with ASME certification*. Each section does its proportionate share of the work of the entire unit, regardless of whether one or a dozen or more of such sections are employed.

Standard cooling sections have either 21 or 32 one-inch corrugations and an effective length of 60”. Cooling sections are rigidly mounted above the collecting tank.

*250 PSIG at 200ºF

Frames, Collecting Tank and Float Control

The sturdy, welded stainless steel frames are designed to carry the entire weight of the unit itself and the liquid passing through it on adjustable stainless steel legs. This allows for precise leveling on uneven floors to maintain an even flow of liquid over the cooling sections.

Standard units are built with frames to accommodate either 1 to 4, 5 to 8, or 9 to 12 cooling sections having 21 or 32 corrugations each as required. Larger or smaller units can be furnished on special order. In any case it is recommended that frames holding more cooling sections than are immediately needed be specified to enable future expansion of the units at low cost.

The three types of finish previously mentioned apply to frames, covers and all other parts of the unit including cooling sections.

Collecting tanks of all Open Type Units have two inches of insulation on the sides and bottom and an inner lining of stainless steel. Collecting tanks of other than standard size can be furnished on special order.

Collecting tanks of all units are also equipped with a float which operates a valve to enable make up. Optionally, this float and valve may control flow of liquid to the distributing trough.

Closed Type

for chilling circulating water, brine, glycol solutions and similar services.

Closed Type Instant Chillers are intended to be used almost exclusively in services involving the chilling of circulating cooling water, brine, glycol solutions, etc. While such services are often considered as being wholly apart from the chilling of liquid food products, beverages, etc., this is far from being true.

As an example, using 34°F water from the Chiller as the coolant in a C-J Plate Heat Exchanger, practically any pourable liquid can be cooled to within three or four degrees of the temperature of the cooling water itself. This is still about three or four degrees lower than the basic water temperature obtainable with other types of instant and continuous water chilling equipment.

Standard Sizes

Closed Type Chillers consist basically of a single cabinet mounted on adjustable legs with removable top covers. The interior of the cabinet is designed to support the distributing trough at the top and the cooling sections below it. The lower part of the cabinet serves as the collecting tank for the chilled water flowing off of the sections.

These cabinets are built in six standard sizes to accommodate 1 to 4, 5 to 8, or 9 to 12 cooling sections having 21 or 32 corrugations with 60” effective length. Units to accommodate a greater number of sections may be built to order.

When it is possible that a unit of larger size may ultimately be necessary, it is economical to specify a size capable of accommodating more cooling sections than are immediately required.

Three Standard Types

All sizes of cabinets are available in three different sub-types designed to meet specific requirements as follows:

Type A Cabinet is 12-gauge 2B stainless steel, all welded, uninsulated.

Type C Cabinet has 16-gauge, 2B finish stainless steel outer jacket with a 2” insulation on the sides and bottom, an inside lining of 16-gauge stainless steel, 2B finish.

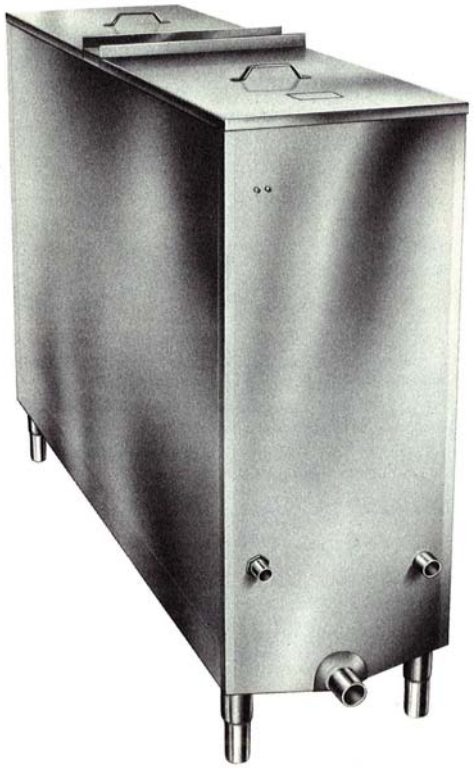
Type D Cabinet is the same as Type C except the outside is sheathed with stainless steel with a No. 4 polish.

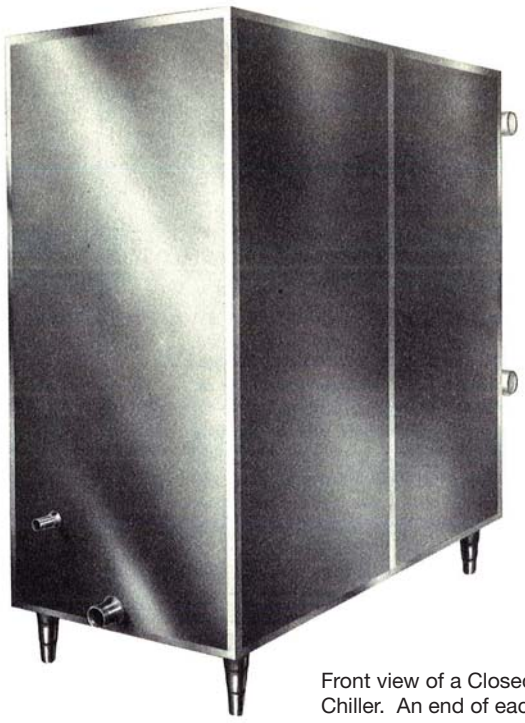
These differences in cabinet construction and the size and number of the cooling sections along with the affected dimensions are the only changes which occur in the design or construction of the Closed Chiller.

Constant Efficiency

All units are equipped with patented Short Gas Flow cooling sections with ASME* certification, fabricated of 304 stainless steel, 2B finished with welds wire brushed. Each section does its proportionate share of the work of the entire unit, regardless of whether one or a dozen or more of such sections are employed.

Standard cooling sections have either 21 or 32 one-inch corrugations and an effective length of 60”.





Front view of a Closed Type Chiller. An end of each refrigeration manifold is visible at the rear.

*250 PSIG at 200°F

Need help?

The accompanying tables make it easy to determine the proper size of the Chilled Water Unit required to continuously chill water or a comparable liquid to the desired end temperature. For more information or solutions to specific problems that cannot be addressed with the material provided here please contact our main office and allow our engineers to assist you.

The tables show gallons per hour of throughput and tons of refrigeration required per cooling section over a wide range of temperatures and capacities. One table refers to a single section having 21 corrugations; the other to a single section having 32 corrugations - both sections being of 60" effective lengths.

Standard outer finish of the stainless steel cooling sections is 2B wire brushed. Welds are ground flush plus 2B or No. 4 finish is optional at an extra cost.

Refrigerants

All capacity and tonnage ratings are based on the use of 26°F, 28°F or 30°F full-flooded or liquid recirculated (4:1) ammonia at temperatures listed. R-22 may be considered as having the same values as ammonia at the various capacities and temperatures shown on these tables.

Selecting Section Size

Cooling sections having 60" effective length and either 21 or 32 corrugations will perform as listed on these tables, however, it is generally more economical to select 32 sections for services in which liquid is to be cooled over a wide capacity range while those having 21 corrugations are more suited for a narrow temperature range.

Units for Special Services

The same design principles responsible for these highly efficient water cooling rates are also applied extensively to the chilling of brine solutions, glycols, alcohol and other liquids. Capacities and other engineering data is available upon request.

* Note: 32 corrugation sections are interchangeable with former 36 corrugation sections.

ASME - Cooler sections are certified for 250 PSIG at 200°F.

Capacities per 21-Corrugation, 28 sq. ft. Cooling Section

Cooling from Temp. (°F)	Number of Corrugations	Cool Water with 26°F Full Flooded Ammonia to: 33°F Gallons per Hr.	33°F Tons Refrig.	34°F Gallons per Hr.	34°F Tons Refrig.	36°F Gallons per Hr.	36°F Tons Refrig.	40°F Gallons per Hr.	40°F Tons Refrig.
36	21	2000	4.17	2000	2.78				
38	21	1657	5.75	2000	5.56	2000	2.78		
40	21	1286	6.25	1618	6.74	2000	5.56		
45	21	891	7.43	1047	8.00	1436	8.98	2000	6.94
50	21	723	8.54	827	9.20	1055	10.26	1768	12.28
55	21	628	9.59	704	10.27	865	11.42	1313	13.67
60	21	564	10.58	628	11.34	754	12.57	1080	15.00
65	21	518	11.51	574	12.35	678	13.66	864	15.00
70	21	484	12.44	532	13.29	622	14.68	720	15.00
75	21	458	13.37	500	14.24	554	15.00	617	15.00
80	21	436	14.23	470	15.00	491	15.00	540	15.00
85	21	415	15.00	424	15.00	441	15.00	480	15.00
90	21	379	15.00	387	15.00	400	15.00	432	15.00
95	21	348	15.00	354	15.00	366	15.00	393	15.00
Temp.	Corr.	Cool Water with 28°F Full Flooded Ammonia to:							
36	21	1832	3.82	2000	2.78				
38	21	1236	4.30	1738	4.83	2000	2.78		
40	21	981	4.77	1277	5.32	2000	5.56		
45	21	701	5.84	859	6.56	1210	7.56	2000	6.94
50	21	576	6.80	685	7.61	894	8.69	1550	10.78
55	21	511	7.81	594	8.66	745	9.83	1159	12.07
60	21	464	8.71	531	9.59	654	10.90	958	13.31
65	21	429	9.54	490	10.55	591	11.71	834	14.49
70	21	404	10.38	455	11.39	547	12.92	720	15.00
75	21	384	11.21	432	12.31	512	13.86	617	15.00
80	21	367	11.98	412	13.18	487	14.87	540	15.00
85	21	353	12.76	394	13.98	441	15.00	480	15.00
90	21	342	13.53	382	14.85	400	15.00	432	15.00
95	21	332	14.31	354	15.00	366	15.00	393	15.00
Temp.	Corr.	Cool Water with 30°F Full Flooded Ammonia to:							
36	21	1151	2.40	2000	2.78				
38	21	819	2.84	1188	3.30	2000	2.78		
40	21	665	3.23	895	3.73	1738	4.83		
45	21	495	4.13	623	4.76	970	6.06	2000	6.94
50	21	420	4.96	511	5.68	738	7.18	1330	9.23
55	21	380	5.80	452	6.60	624	8.23	1003	10.45
60	21	348	6.52	410	7.40	553	9.22	840	11.67
65	21	326	7.25	381	8.20	504	10.15	735	12.76
70	21	310	7.97	358	8.95	469	11.08	665	13.85
75	21	296	8.64	341	9.70	449	12.16	612	14.88
80	21	284	9.25	327	10.44	429	13.10	540	15.00
85	21	275	9.92	316	11.19	411	13.99	480	15.00
90	21	268	10.59	307	11.93	393	14.74	432	15.00
95	21	259	11.15	298	12.62	366	15.00	393	15.00

Maximum flow rate per 21 corrugation section is 2000 gph. Allowable refrigeration is 15 tons R.

Capacities per 32-Corrugation, 42.75 sq. ft. Cooling Section

Cooling from Temp. (°F)	Number of Corrugations	Cool Water with 26°F Full Flooded Ammonia to: 33°F Gallons per Hr.	33°F Tons Refrig.	34°F Gallons per Hr.	34°F Tons Refrig.	36°F Gallons per Hr.	36°F Tons Refrig.	40°F Gallons per Hr.	40°F Tons Refrig.
36	32	3000	6.25	3000	4.17				
38	32	2485	8.63	3000	8.33	3000	4.17		
40	32	1929	9.38	2427	10.11	3000	8.33		
45	32	1337	11.15	1571	12.00	2154	13.47	3000	10.42
50	32	1085	12.81	1241	13.80	1583	15.39	2652	18.42
55	32	942	14.39	1056	15.41	1298	17.13	1920	20.00
60	32	846	15.87	942	17.01	1131	18.86	1440	20.00
65	32	777	17.27	861	18.53	993	20.00	1152	20.00
70	32	726	18.66	798	19.94	847	20.00	960	20.00
75	32	687	20.00	702	20.00	739	20.00	823	20.00
80	32	613	20.00	626	20.00	655	20.00	720	20.00
85	32	554	20.00	565	20.00	588	20.00	640	20.00
90	32	505	20.00	514	20.00	533	20.00	576	20.00
95	32	465	20.00	472	20.00	488	20.00	524	20.00
Temp.	Corr.	Cool Water with 28°F Full Flooded Ammonia to:							
36	32	2748	5.73	3000	4.17				
38	32	1854	6.45	2607	7.25	3000	4.17		
40	32	1472	7.16	1916	7.98	3000	8.33		
45	32	1052	8.76	1289	9.84	1815	11.34	3000	10.42
50	32	864	10.20	1028	11.42	1341	13.04	2325	16.17
55	32	767	11.72	891	12.99	1118	14.75	1739	18.11
60	32	696	13.07	797	14.39	981	16.35	1437	19.97
65	32	644	14.31	735	15.83	887	17.87	1152	20.00
70	32	606	15.57	683	17.09	821	19.38	960	20.00
75	32	576	16.82	648	18.47	738	20.00	823	20.00
80	32	551	17.97	618	19.77	654	20.00	720	20.00
85	32	530	19.14	565	20.00	588	20.00	640	20.00
90	32	505	20.00	514	20.00	533	20.00	576	20.00
95	32	465	20.00	472	20.00	488	20.00	524	20.00
Temp.	Corr.	Cool Water with 30°F Full Flooded Ammonia to:							
36	32	1727	3.60	3000	4.17				
38	32	1229	4.26	1782	4.95	3000	4.17		
40	32	998	4.85	1343	5.60	2607	7.25		
45	32	743	6.20	935	7.14	1455	9.09	3000	10.42
50	32	630	7.44	767	8.52	1107	10.77	1995	13.85
55	32	570	8.70	678	9.90	936	12.35	1505	15.68
60	32	522	9.78	615	11.10	830	13.83	1260	17.51
65	32	489	10.88	572	12.30	756	15.23	1103	19.14
70	32	465	11.96	537	13.43	704	16.62	960	20.00
75	32	444	12.96	512	14.55	674	18.24	823	20.00
80	32	426	13.88	491	15.66	644	19.65	720	20.00
85	32	412	14.88	474	16.79	588	20.00	640	20.00
90	32	402	15.89	461	17.90	533	20.00	576	20.00
95	32	389	16.73	447	18.93	488	20.00	524	20.00

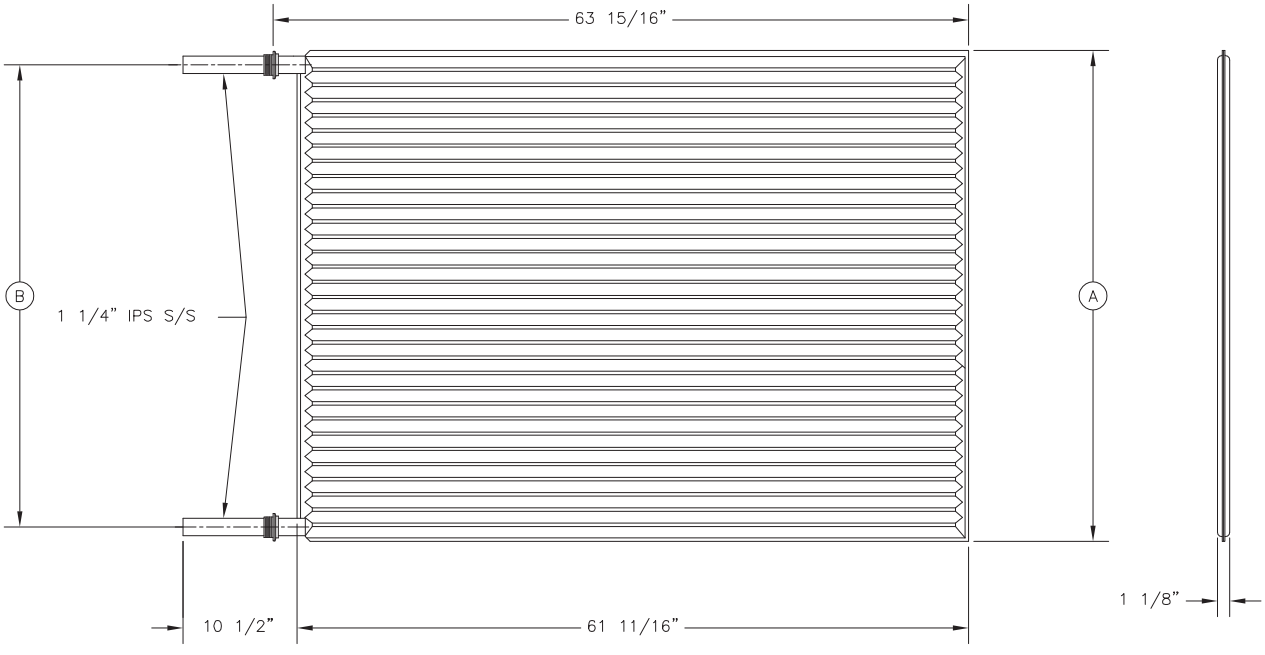
Maximum flow rate per 32 corrugation section is 3000 gph. Allowable refrigeration is 20 tons R.

SHORT GAS FLOW COOLING SECTIONS

NUMBER OF CORRUGATIONS	DIMENSIONS		INTERNAL VOLUME
	A	B	
32	45 1/8"	42 1/2"	6.75 GALLON (US)
21	29 13/16"	27 3/16"	4.50 GALLON (US)

Dimension drawing below and table show size and fluid capacity of these sections.

A.S.M.E. certification 250 PSIG at 200°F



Instant Chiller Specifications

Standard Open Type B
(Unpolished)

Cooling Sections - 18-gauge 304 stainless steel, 2B finish; welds wire brushed; short gas flow, 21 or 32 corrugation ASME certified.*

Distributing Trough - Stainless steel, 2B finish; drilled for design flow rate and number of sections.

Collecting Trough - Stainless steel; inside and outside jacket, all welds ground smooth and blast finished; 2" insulation sides and bottom; underneath bottom is stainless steel with stainless steel adjustable legs.

Upper Cabinet - Stainless steel, 2B finish, uninsulated; fixed rear panel and top; removable side and front covers.

Manifolds - Steel, painted; top suction and bottom liquid refrigerant manifolds welded to cooling sections; horizontal P.E. connections.

Float Control - Standard units equipped with 3/4" make-up float valve.

Options

Type BG - General specifications same as Type B except all welds are ground smooth.

Type S (Polished) - General specifications same as Type B except that all stainless steel is No. 4 polish and all welds are ground and polished.

Float Control - 3/4" or larger valve can be arranged for flow control to top trough instead of make-up if desired.

Distributor - Stainless steel header to control flow in top trough, required where the flow exceeds 20 GPM.

Standard Closed Type A
(Uninsulated-Unpolished)

Cooling Sections - 18-gauge 304 stainless steel, 2B finish; welds wire brushed; 21 or 32 corrugations. ASME certified.*

Distributing Trough - Stainless steel, 2B finish; drilled for design flow rate and number of sections.

Cabinet-Collecting Trough - 12-gauge stainless steel. uninsulated, all welds ground smooth and blast finished; removable top covers; stainless steel adjustable legs.

Manifolds - Steel, painted; top suction and bottom liquid refrigerant manifolds welded to cooling sections; horizontal P.E. connections.

Float Control - Standard units equipped with 3/4" make-up float valve.

Options

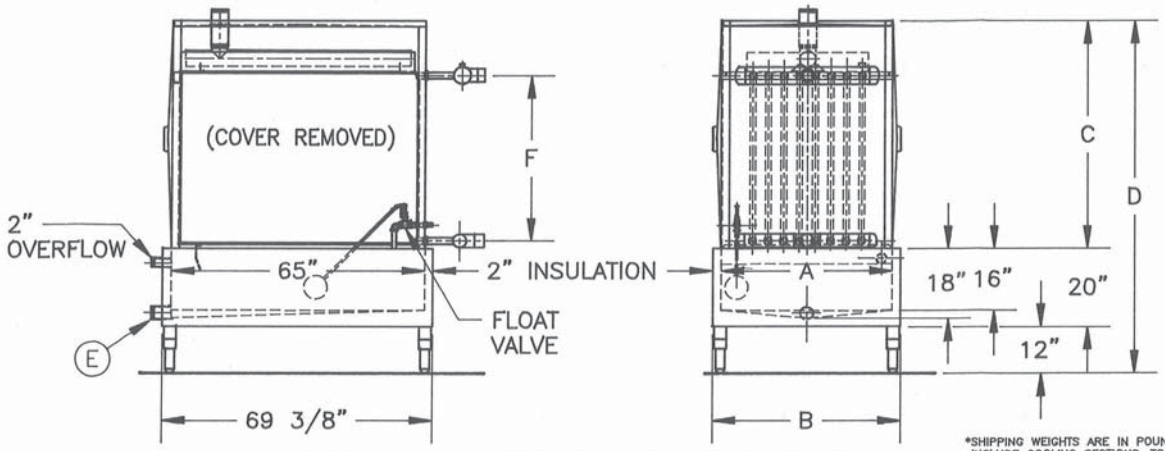
Type C (Insulated, Stainless Steel Jacket) - General specifications are the same as Type A except that the cabinet-collecting tank has 2" of insulation on the sides and bottom. Lining and outside jacket 16 gauge stainless steel, 2B finish. Bottom underneath is stainless steel.

Type D (Insulated, Polished Stainless Steel Jacket) - General specifications are the same as Type C except that the outer sheathing is stainless steel, No. 4 polish. Bottom underneath is stainless steel.

Float Control - 3/4" or larger valve can be arranged for flow control to top trough instead of make-up if desired.

Distributor - Stainless steel header to control flow in top trough, required where the flow exceeds 20 GPM.

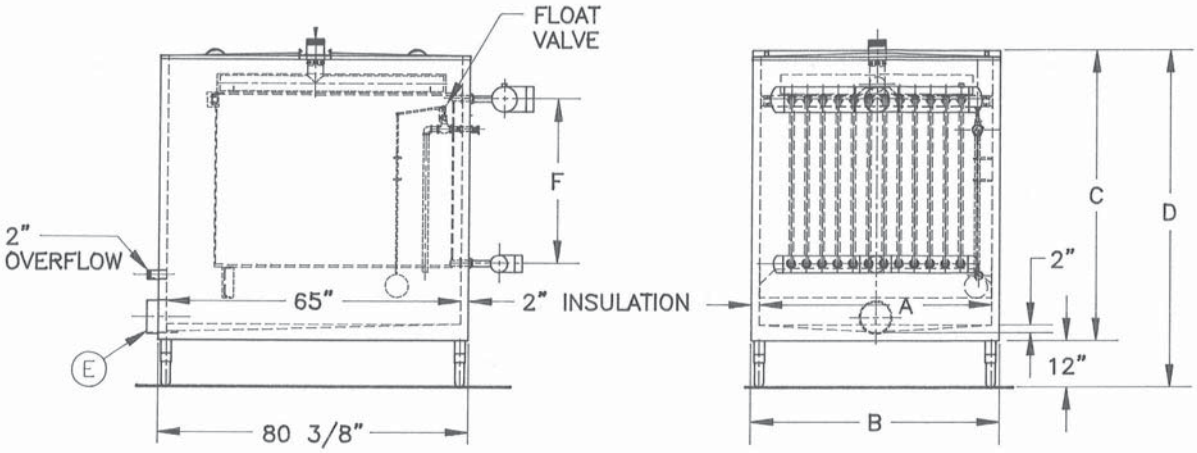
*ASME Certification 250 PSIG at 200°F



*SHIPPING WEIGHTS ARE IN POUNDS AND DO NOT INCLUDE COOLING SECTIONS. TO OBTAIN TOTAL SHIPPING WEIGHT ADD 100 POUNDS FOR EACH 21 CORRUGATION SECTION OR 150 POUNDS FOR EACH 32 CORRUGATION SECTION.

STANDARD DIMENSIONS AND WEIGHTS FOR OPEN TYPE CHILLED WATER UNITS

NUMBER OF SECTIONS	NUMBER OF CORRUGATIONS	A	B	C	D	E	F	TANK CAPACITY GALLONS	SHIPPING WEIGHT
4	21	28	32 3/8	44 1/2	76 1/2	2	27 3/16	100	1380*
8	21	44	48 3/8	44 1/2	76 1/2	2 1/2	27 3/16	160	1760*
12	21	60	64 3/8	44 1/2	76 1/2	3	27 3/16	220	2200*
16	21	76	80 3/8	44 1/2	76 1/2	4	27 3/16	280	3580*
4	32	28	32 3/8	57 1/2	89 1/2	2	42 1/2	100	1500*
8	32	44	48 3/8	57 1/2	89 1/2	2 1/2	42 1/2	160	1890*
12	32	60	64 3/8	57 1/2	89 1/2	3	42 1/2	220	2345*
16	32	76	80 3/8	57 1/2	89 1/2	4	42 1/2	280	3845*
20	32	92	96 3/8	57 1/2	89 1/2	6	42 1/2	340	4345*
24	32	108	112 3/8	57 1/2	89 1/2	6	42 1/2	400	4645*
28	32	124	128 3/8	57 1/2	89 1/2	8	42 1/2	460	4895*
32	32	140	144 3/8	57 1/2	89 1/2	10	42 1/2	520	5080*
36	32	156	160 3/8	57 1/2	89 1/2	10	42 1/2	580	5265*



* SHIPPING WEIGHTS SHOWN ARE FOR INSULATED TYPES (TYPES C AND D) MINUS COOLING SEDTIONS. FOR UNINSULATED TYPES (TYPE A) DEDUCT 1/3 OF WEIGHT SHOWN. TO OBTAIN TOTAL SHIPPING WEIGHT ADD FOR ALL TYPES 100 LBS. FOR EACH 21 CORRUGATION SECTION OR 150 LBS. FOR EACH 32 CORRUGATION SECTION

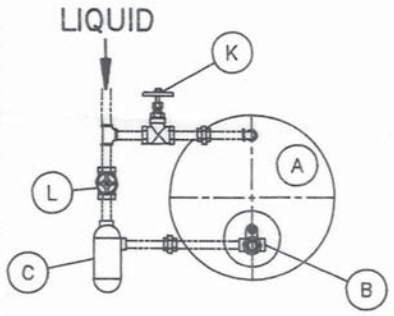
STANDARD DIMENSIONS AND WEIGHTS FOR CLOSED TYPE CHILLED WATER UNITS

NUMBER OF SECTIONS	NUMBER OF CORRUGATIONS	A	B	C	D	E	F	TANK CAPACITY GALLONS	SHIPPING WEIGHT
4	21	28	32 3/8	59 1/4	71 1/4	2	27 3/16	110	1770*
8	21	44	48 3/8	59 1/4	71 1/4	2 1/2	27 3/16	170	2155*
12	21	60	64 3/8	59 1/4	71 1/4	3	27 3/16	235	2630*
4	32	28	32 3/8	73 5/8	85 5/8	2	42 1/2	110	1990*
8	32	44	48 3/8	73 5/8	85 5/8	2 1/2	42 1/2	170	2400*
12	32	60	64 3/8	73 5/8	85 5/8	3	42 1/2	235	2910*

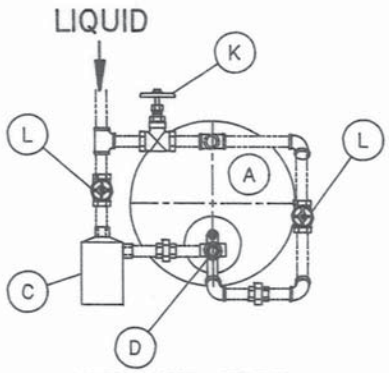
Flooded-Gravity Feed Ammonia Controls

Chillers may be supplied with standard factory selected, capacity specific controls as described on this and the following page. Other options are available. Please consult the factory.

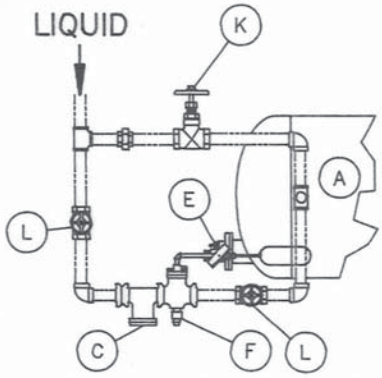
PHILLIPS STYLE LIQUID FEED AND LEVEL CONTROLS



DIRECT FEED
UP TO
25 T R



REMOTE FEED
25 – 50 T R



PILOT OPERATED FEED
OVER 50 T R

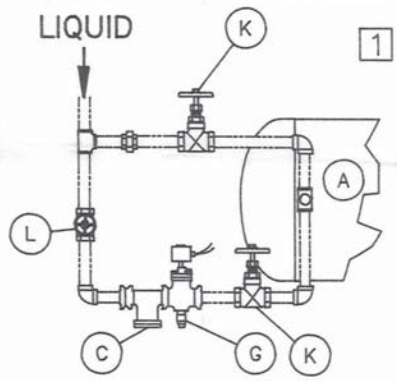
LEGEND

A. SURGE DRUM
B. DIRECT FEED FLOAT VALVE
C. FILTER/STRAINER
D. REMOTE FEED FLOAT VALVE
E. PILOT FLOAT VALVE
F. PILOT FEED VALVE
G. SOLENOID VALVE
H. FLOAT SWITCH
J. LEVEL COLUMN W/SIGHT GLASS
I. HANSEN VARI– LEVEL PROBE [3]
K. HAND EXPANSION VALVE
L. GLOBE VALVE
M. ANGLE VALVE

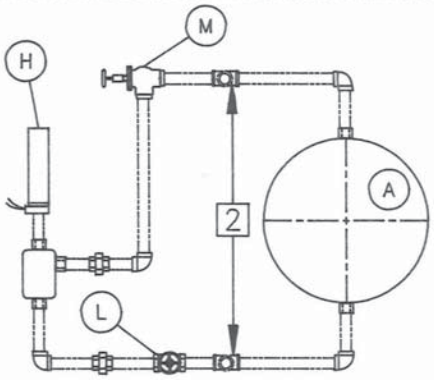
NOTES

[1]–USED WITH FLOAT SWITCH & VARI– LEVEL CONTROL
[2]–CONNECTIONS FOR DUAL FLOAT SWITCHES
[3]–CONTROL UNIT REMOTE MOUNTED

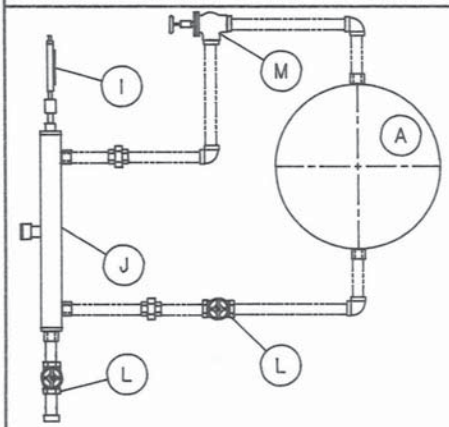
SOLENOID STYLE LIQUID FEED AND LEVEL CONTROLS



SOLENOID LIQUID FEED



FLOAT SWITCH LEVEL CONTROL

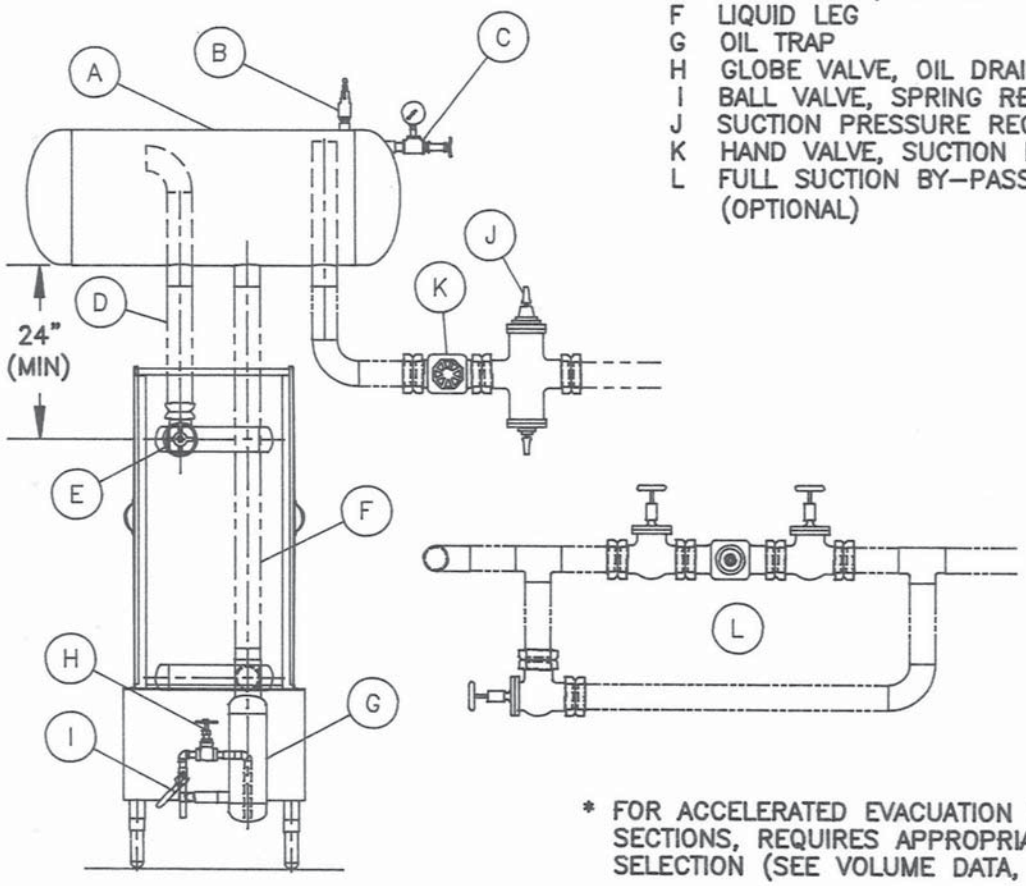


HANSEN VARI– LEVEL CONTROL

Flooded-Gravity Feed Ammonia Controls (cont.)

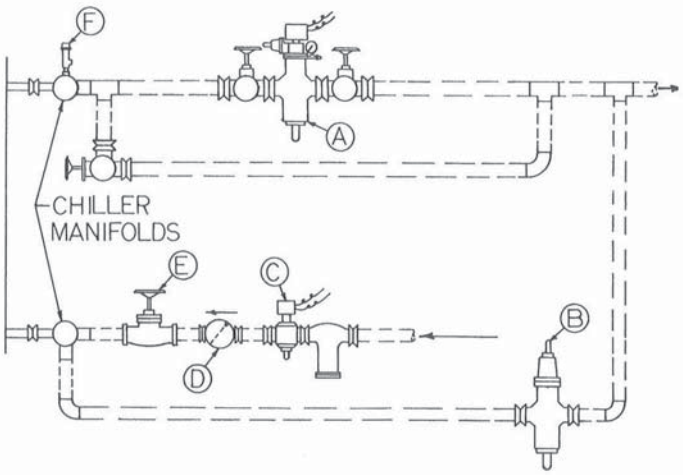
LEGEND

A SURGE DRUM, ASME 250 PSIG
B RELIEF VALVE(S), 250 PSIG
C GAUGE & GAUGE VALVE
D GAS RETURN LINE
E HAND VALVE, GAS RETURN (OPTIONAL) *
F LIQUID LEG
G OIL TRAP
H GLOBE VALVE, OIL DRAIN
I BALL VALVE, SPRING RETURN, OIL DRAIN
J SUCTION PRESSURE REGULATOR
K HAND VALVE, SUCTION LINE
L FULL SUCTION BY–PASS ASSEMBLY (OPTIONAL)



* FOR ACCELERATED EVACUATION OF EVAPORATOR SECTIONS, REQUIRES APPROPRIATE SURGE DRUM SELECTION (SEE VOLUME DATA, PAGE 11)

Recirculated-Ammonia Controls



Control Includes: Combination suction pressure regulator stop valve with pressure gauge; relief (defrost) valve; liquid solenoid valve with strainer; check valve; hand expansion valve; manifold relief valve; full suction by-pass.

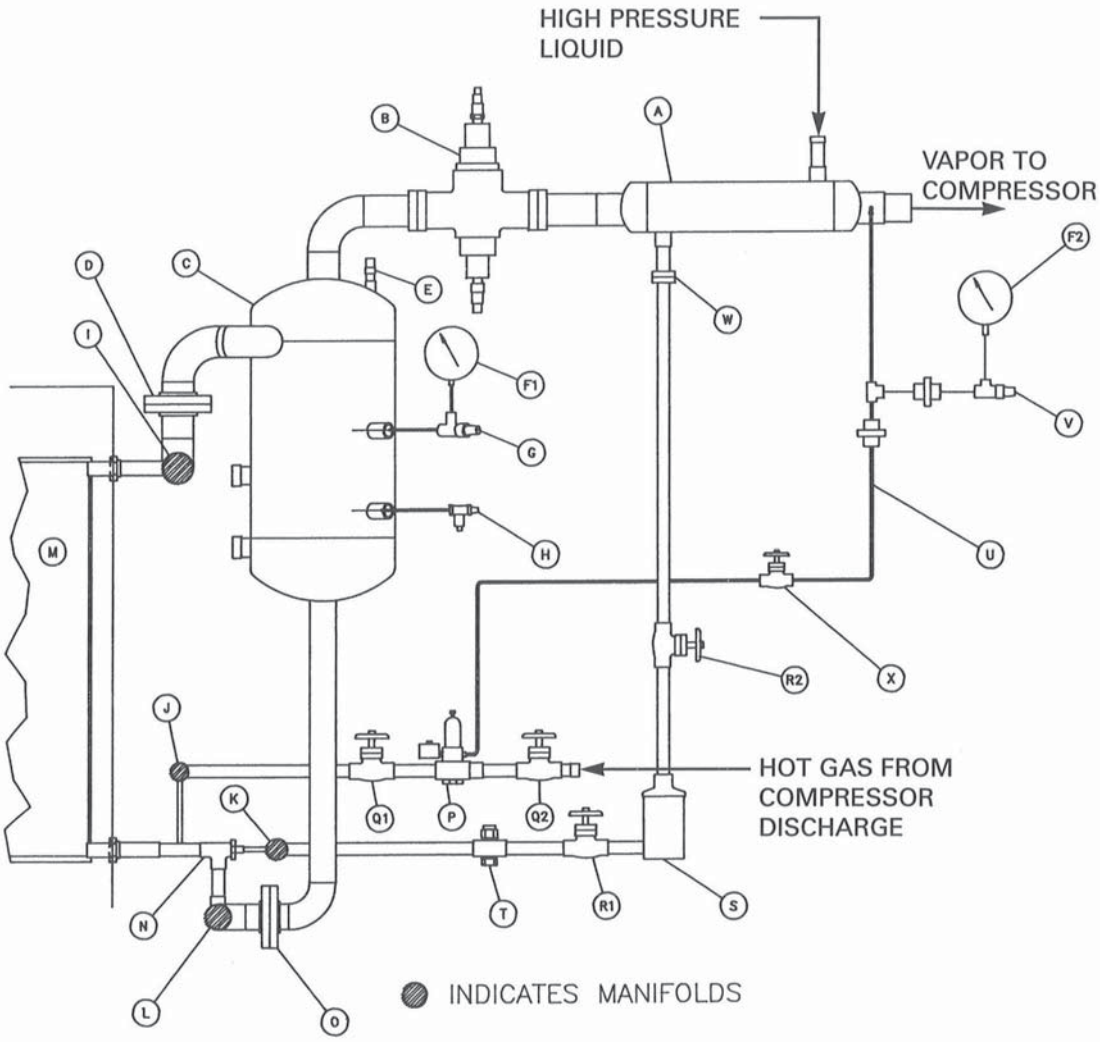
Recirculation Rate is recommended at 3:1, i.e circulation (liquid feed) at 4:1.

LEGEND

A Comb. BPR/Stop valve
B Relief (defrost) valve
C Solenoid valve
D Check valve
E Hand expansion valve
F Relief valve

Flooded Freon Controls

The factory pre-assembled controls shown below are designed for a fixed or “critical” refrigerant charge. Modified control systems are available to accommodate multiple evaporator installations or those using condenser back-flooding head pressure controls. System components may be purchased loose for field assembly.

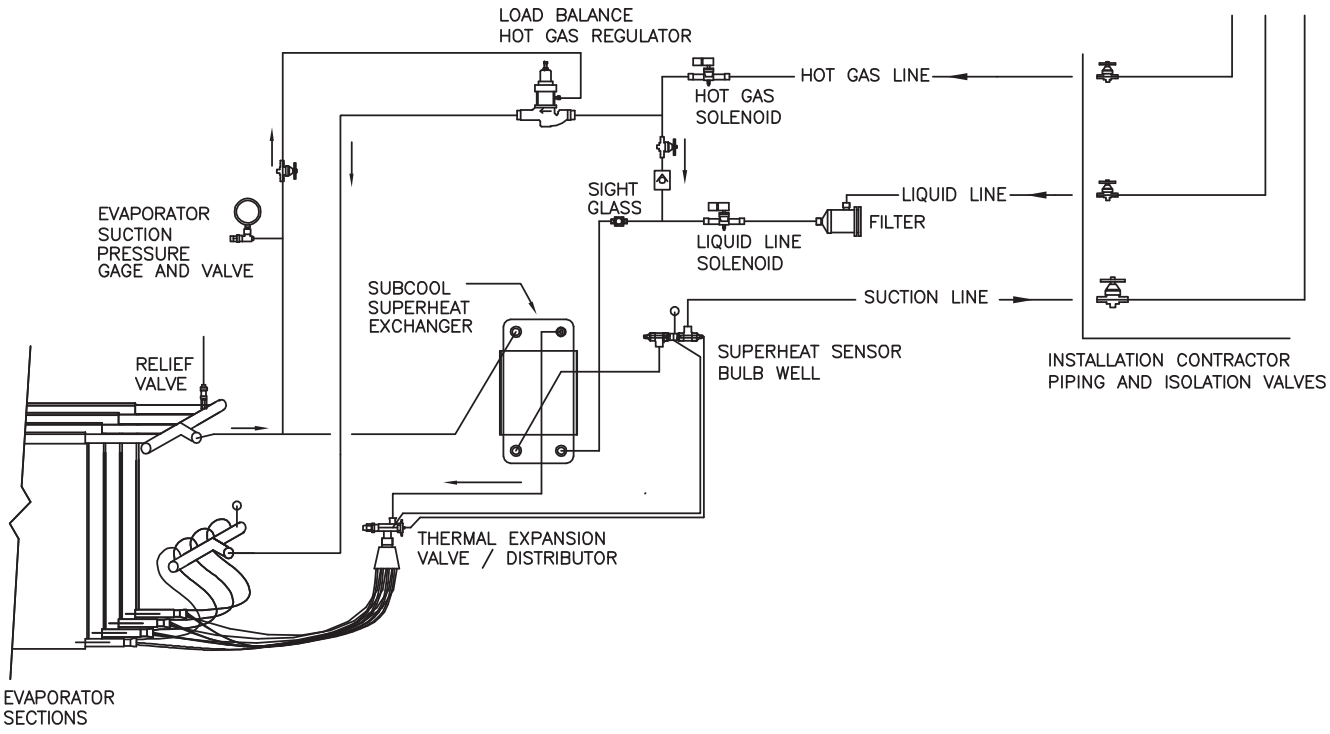


LEGEND

A.	LIQUID/SUCTION HEAT EXCHANGER	N.	PHILLIPS INJECTOR(S)
B.	EVAPORATOR PRESSURE REGULATOR	O.	LIQUID LEG FLANGES
C.	SURGE DRUM, ASME 200 LBS.	P.	HOT GAS REGULATOR W/ SOLENOID
D.	SUCTION FLANGES	Q1.	VALVE, HOT GAS LINE
E.	RELIEF VALVE	Q2.	VALVE, HOT GAS LINE
F1.	PRESSURE GAUGE, SURGE DRUM	R1.	VALVE, LIQUID LINE
F2.	PRESSURE GAUGE, SENSING LINE	R2.	VALVE, LIQUID LINE
G.	GAUGE VALVE, STEEL	S.	STRAINER
H.	CHARGING VALVE	T.	MOISTURE/LIQUID INDICATOR
I.	SUCTION MANIFOLD	U.	PRESSURE SENSING LINE
J.	HOT GAS MANIFOLD	V.	GAUGE VALVE, BRASS
K.	HIGH PRESSURE LIQUID MANIFOLD	W.	LIQUID LINE FLANGES
L.	LOW PRESSURE LIQUID MANIFOLD	X.	SENSING LINE VALVE
M.	EVAPORATOR PLATE(S)		

Chill-Flex Freon Controls

The Chester-Jensen Chill-Flex Chiller refrigeration control system is designed to recapture refrigerant from escaping vapor line and re-utilize in the liquid line, achieve a greater throughput of refrigerant in the thermal expansion valve, and allow a much greater range in load variation.



Companion High-Side Condensing Units

Chester-Jensen also can provide the high-side condensing unit as part of a component package for our Instant Chiller operating with Chill-Flex or Flooded Freon low side refrigeration controls. These units are specifically engineered to operate at an optimum level with our control sets.

Chilling with Glycol?

A serpentine style evaporator section is available for use with propylene glycol. Please contact us for more information on these units.

Chester-Jensen Co., Inc.

P.O. Box 908 • Chester, PA 19016-0908 • (800) 685-3750

www.chester-jensen.com