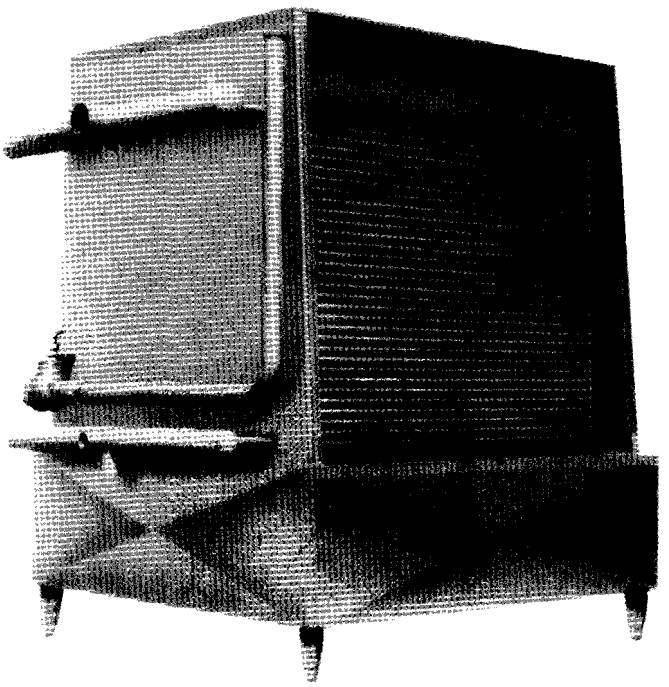
INSTANT CHILLED WATER UNITS

SHORT GAS FLOW



Enables chilling water to 33-34° without freeze-up ... brine solutions, glycols and other liquids to comparable low temperatures

Two Types for Sanitary and Circulating Services

Stainless Steel Construction with Options

SHORT GAS FLOW

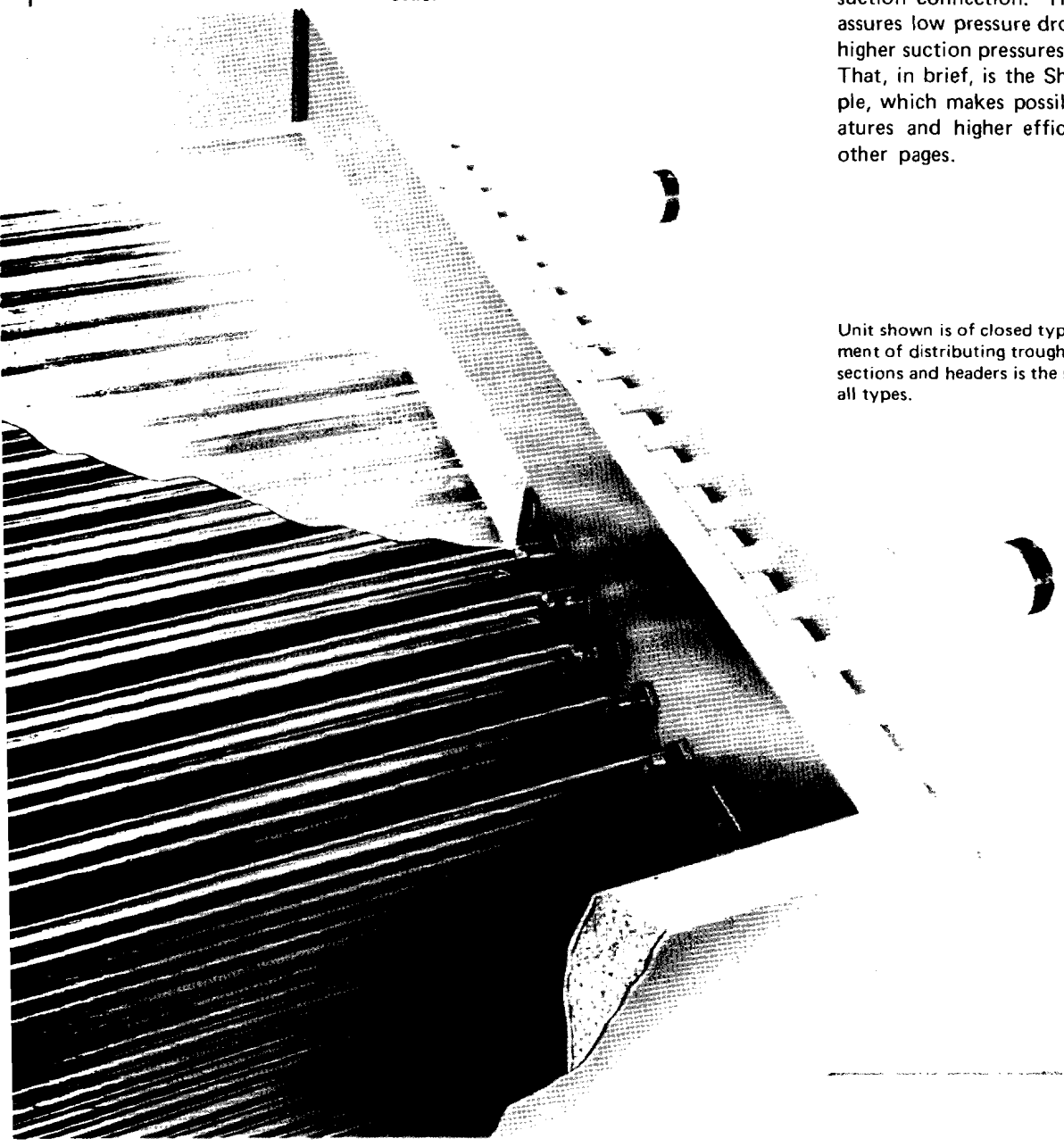
In the illustration below you are looking down into the opened top of a large CJ Chilled Water Unit. A portion of the stainless steel distributing trough above the corrugated cooling sections is shown in phantom for easier visualization.

Look closely and you will see that the flat bottom of this 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 required rate of flow. Chilled liquid falls into the collecting tank at bottom of unit.

At right of 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 sections. Evaporating gas along with the recirculating liquid refrigerant can, due to the internal section construction, move directly from any point within the section to the top suction connection. This direct, rapid flow assures low pressure drop and permits use of higher suction pressures.

That, in brief, is the Short Gas Flow principle, which makes possible the lower temperatures and higher efficiencies described on other pages.

Chilled Water Unit shown at left has sixteen 32-corrugation x 60" cooling sections and provision for four more. Yet gas travel is no greater; suction pressure no lower than for a single section.



Unit shown is of closed type. Arrangement of distributing trough, cooling sections and headers is the same for all types.

CHESTER-JENSEN

CHILLED WATER UNITS

Chilling water instantly and continuously to 33° - 34° presents no problem to the user of a Chester-Jensen Chilled Water Unit. 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 may, of course, be adjusted to higher end temperatures if desired.

The Chilled Water Unit is designed to continuously perform the above duties over periods ranging from hours to weeks or months as may be required ... is built of stainless steel in two major types described on pages 4 to 7.

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 may flow by gravity as desired.

Refrigerant is circulated inside the cooling sections under conditions which enable 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 economy of operation. (Description on page 3.)

The services in which the two types of Chester-Jensen Chilled Water Units are used are as varied as there are problems to be met.

Briefly, units of Open Type, having lift-off covers at sides and front, will satisfy most requirements for chilling ingredient water, beverages, juices, syrups, etc., where cooling sections and other parts may require regular inspection and cleaning.

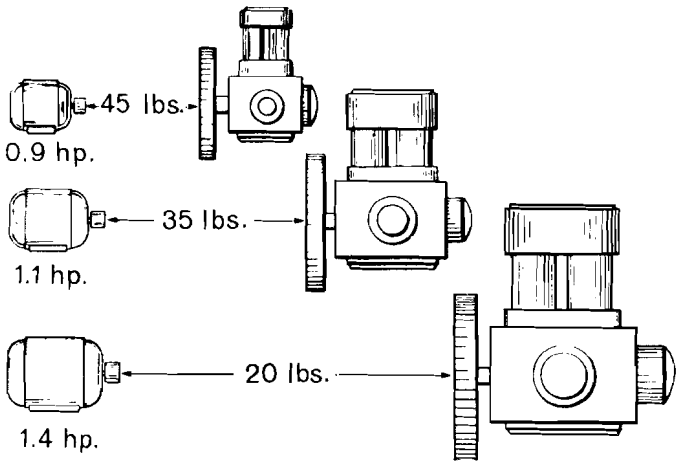
Units of Closed Type, with lift-off top covers, will economically solve almost any problem of chilling circulating water, brine, glycol solutions, etc. They may also be employed to chill ingredient water or other products via a plate heat exchanger. This is especially economical in various processing operations where a heat exchanger requiring chilled circulating water is used and cold ingredient water is also required.

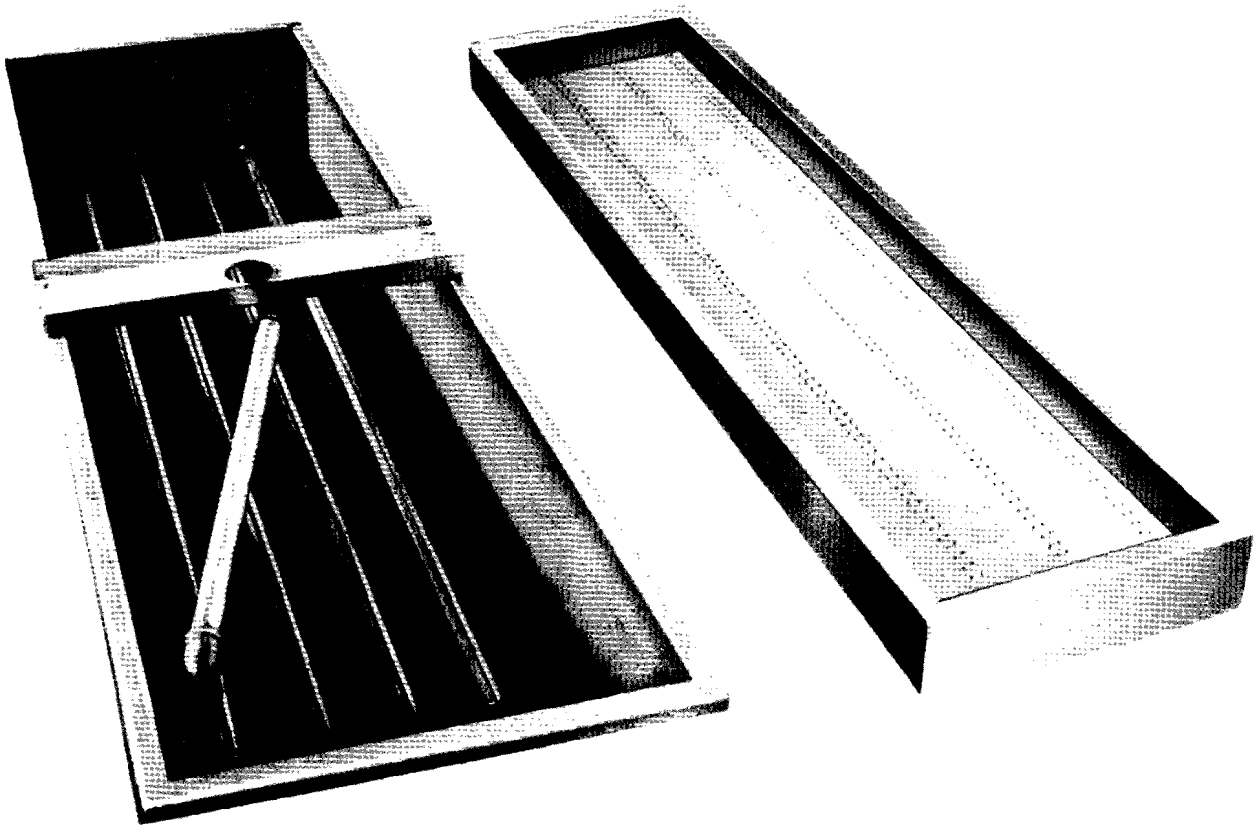
Standard size units are shown on page 13. Units larger than standard are available. Please consult the factory for details.

HERE'S HOW...

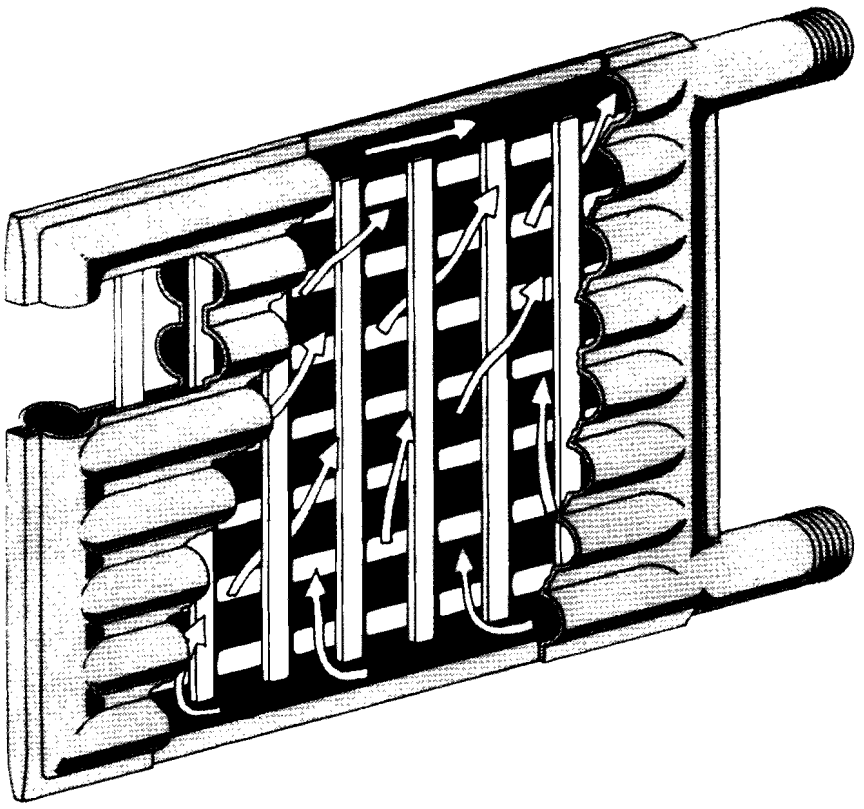
Higher Suction Pressure
- **Reduces Compressor Load**
- **Saves Power Per Ton of Refrigeration**

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





Above is top view of a four-section Closed Type Chilled Water Unit with covers and distributing trough removed. Trough fits under feed pipe, which is also shown. Cross piece permits dividing top covers into two sections, and opening in it enables feeding unit from top - by gravity if desired. Distributing trough for four sections is shown above. Note 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. Prompt removal of the gas is, therefore, greatly to be desired.

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

Short Gas Flow plus relatively short flow of liquid refrigerant mean, when taken together, that pressure drop through the cooling sections is very small. Thus suction pressure at the compressor can be high as compared with other types of equipment. This reduces load on the compressor to produce a given tonnage of refrigeration. (See drawing on opposite page showing horsepower requirements at various suction pressures.)

An important by-product of the Short Gas Flow design is, in many instances, saving of floor space. 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 with 26° full flooded ammonia chill 75° water to 33° at the rate of approximately 8200 gallons per hour. (If chilling 45° water, capacity would be approximately doubled. See tables, pages 8 and 9 for complete temperature capacity data.)

OPEN TYPE for sanitary and oth cooling services.

Open Type Chilled Water Units, shown and described on this and the following page, might well be referred to as of all-purpose design. They are well adapted to almost every liquid chilling service - from circulating water to that used for ingredient purposes ... and for juices and beverages of many kinds.

However, Closed Type Units, shown and described on pages 6 and 7, possess certain advantages in purely circulating services.

Closed During Operation; Open for Cleaning

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

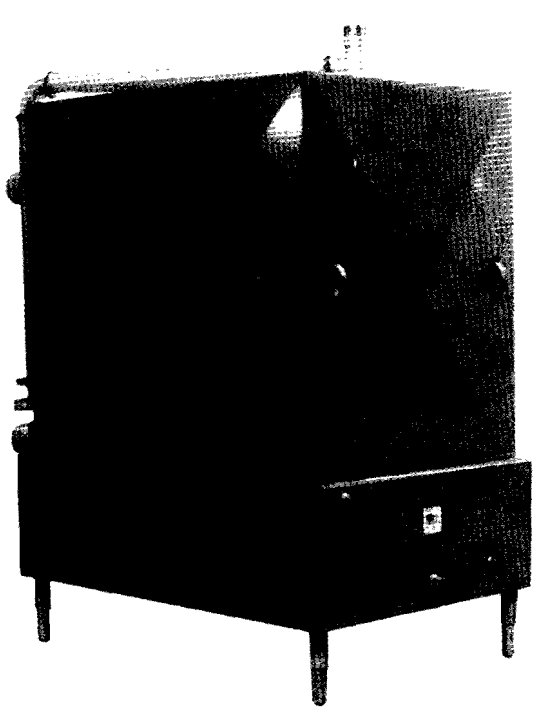
The rear end of the unit is permanently enclosed. Both sides and front of unit are enclosed with relatively light stainless steel lift-off covers which are easily removed. Distributing trough is removable with top enclosure in place. Cooling sections are spaced four inches apart, permitting brushing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

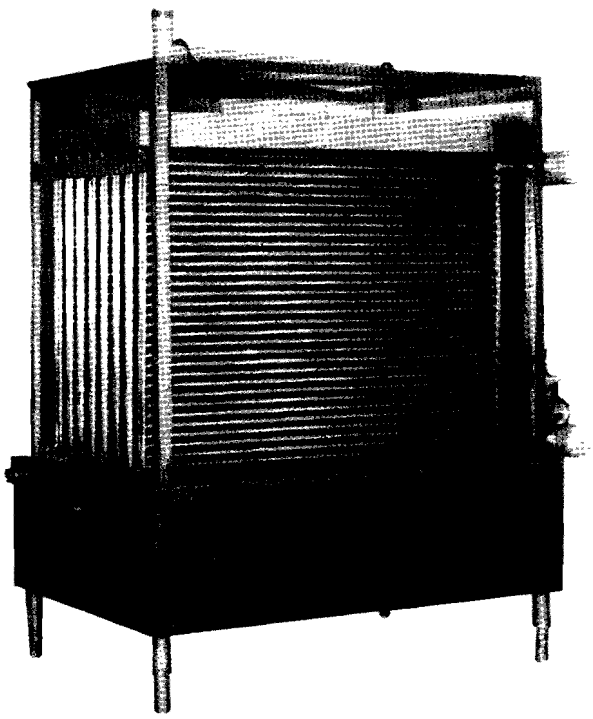
Three Types of Finish Meet Specific Needs

All CJ Open Type Chilled Water Units are constructed entirely of stainless steel, with the exception of refrigeration 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.

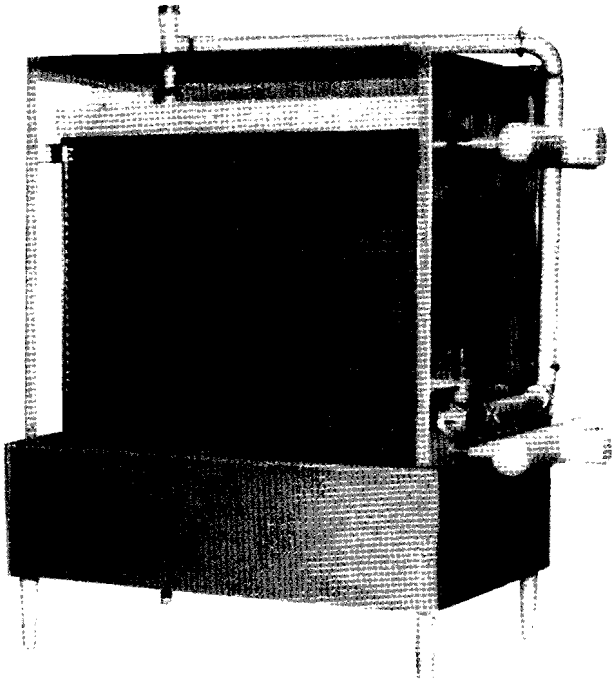
These differing finishes and the size and number of cooling sections provided for - which, of course, affects dimensions - are the only changes which occur in the design or construction of the units and apply to cooling sections and other parts alike. (See complete specifications and options on page 12.)





Eight wide cabinet with full compliment of 32 corrugation sections.

water or product



Constant Efficiency Per Cooling Section

All units are equipped with patented Short Gas Flow cooling sections, with A.S.M.E. 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. (See tables on pages 8 and 9 for capacity per section at various temperature ranges, and required refrigeration tonnage.)

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

Frames, Collecting Tank and Float Control

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 permits perfect leveling on uneven floors, as is desirable to maintain an even flow of liquid over the cooling sections.

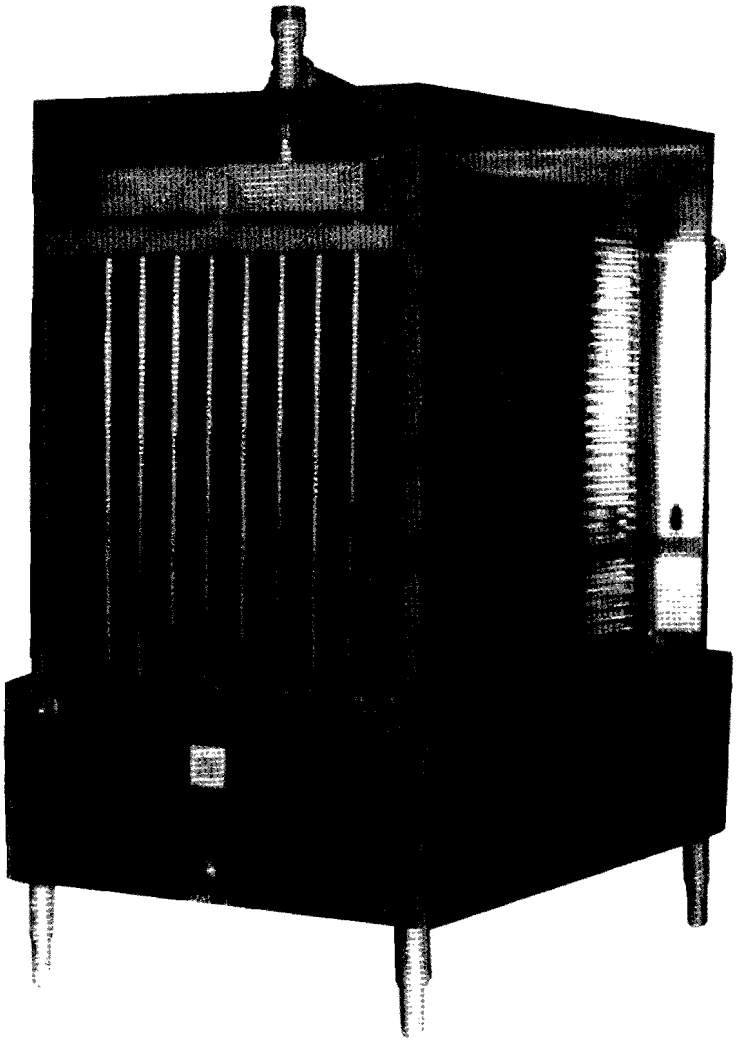
Standard units are built with frames to accommodate either 1 to 4, 5 to 8, or 9 to 12 cooling sections having 21 or 32 corrugations each as required. Larger or smaller units can be furnished on special order. In any case it is recommended that frames capable of holding more cooling sections than are 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 sides and bottom, and inner lining of stainless steel. Collecting tanks of other than standard size can be furnished on special order.

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

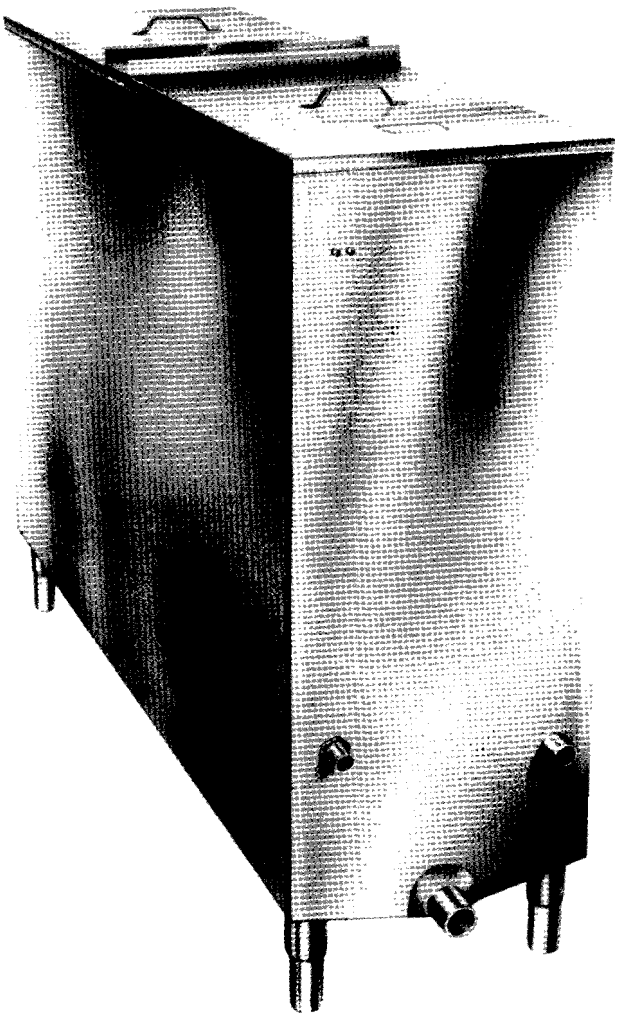
*200 PSIG at 200°F.



CLOSED TYPE ... for chilli
glyc

Closed Type Chilled Water Units, shown and described on this and the following page, 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.

Using, say, 34° water from the Chilled Water Unit as the coolant in a CJ 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 in turn is still some three or four degrees lower than the basic water temperature obtainable with other types of instant and continuous water chilling equipment. (For details see pages 8 & 9.)



Standard Sizes

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

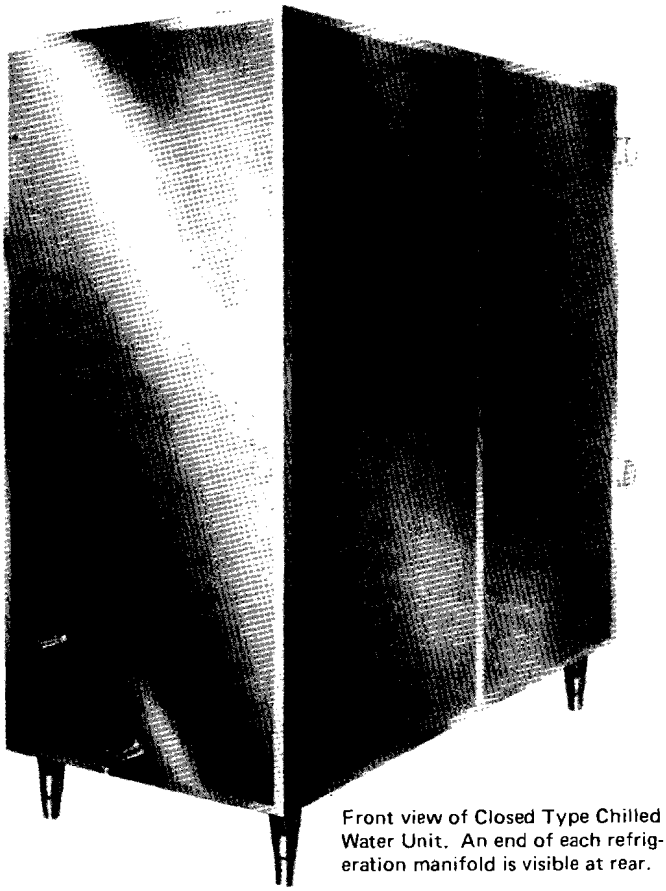
All sizes of cabinets are available in three different sub-types designed to meet specific requirements as follows:

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 2" insulation on sides and bottom, and inside lining of 16-gauge stainless steel, 2B finish.

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

circulating water, brine, solutions and similar services.



Front view of Closed Type Chilled Water Unit. An end of each refrigeration manifold is visible at rear.

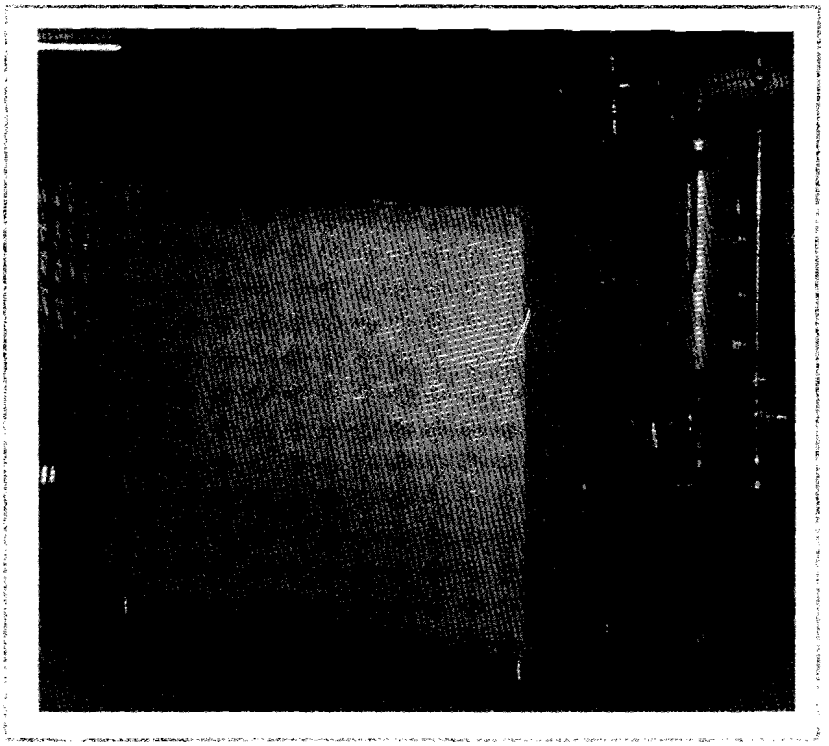
These differences in cabinet construction and the size and number of cooling sections provided for - which, of course, affects dimensions - are the only changes which occur in the design or construction of the Closed Units. (See complete specifications and options on page 12.)

Constant Efficiency

All units are equipped with patented Short Gas Flow cooling sections, with A.S.M.E.* 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. (See tables on pages 8 and 9 for capacity per section at various temperature ranges, and required refrigeration tonnage.)

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

*200 PSIG at 200°F.



Closed Type Chilled Water Unit can be supplied with low-pressure side freon refrigerant controls pre-assembled at the factory. C-4-1-21 Unit shown with only 1-21 corrugation section installed.

Need Help?

The accompanying tables make it easily possible to determine the size of Chilled Water Unit required to meet almost any problem of continuously chilled water or a comparable liquid to the desired end temperatures. In the rare event the tables and other material on these pages may not provide a wholly satisfactory answer to your specific problem, we are sure that one can be suggested by CJ engineers.

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 ground flush plus 2B finish is optional at extra cost, as is also No. 4 finish.

Refrigerants

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

Capacities per 21 Corrugation, 28 sq. ft Cooling Section

Cool from °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
		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
		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 G.P.H. Allowable refrigeration is 15 tons R.

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

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

Cool from °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
		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
		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 G.P.H. Allowable refrigeration is 20 tons R.

Selecting Section Size

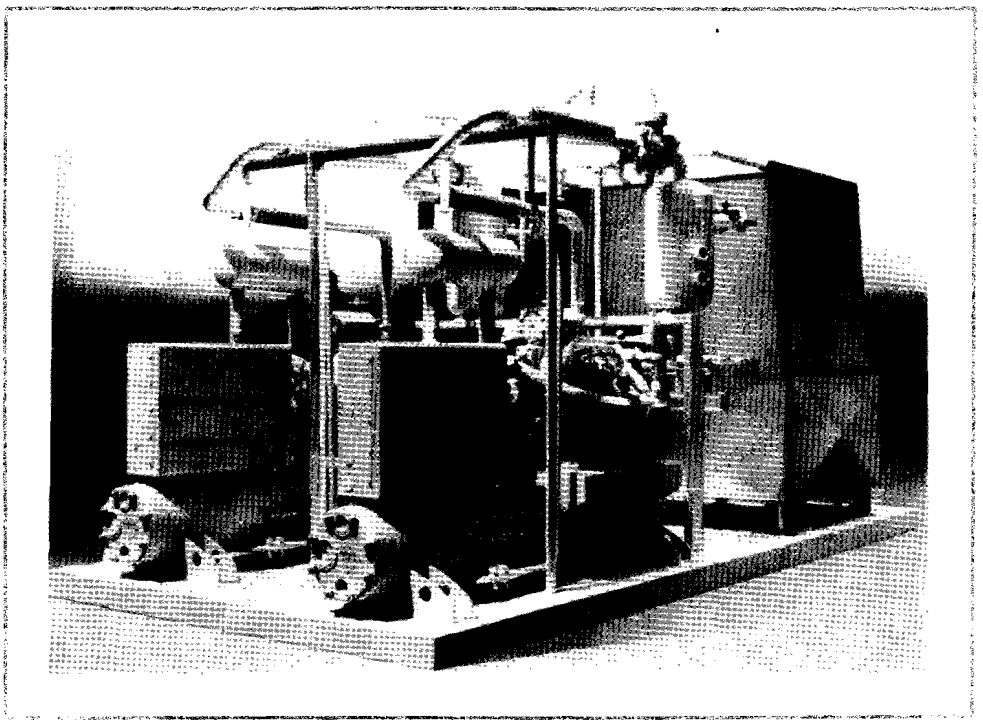
Cooling sections having 60" effective length and either 21 or 32 corrugations will perform as stated in tables. However, it is in general more economical to select 32 sections for services in which liquid is to be cooled over a wide capacity range, and those having 21 corrugations when the temperature range is relatively narrow.

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 available upon request.

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

PACKAGE UNITS FOR CHILLING LIQUIDS



- **Factory Assembled with Auxiliaries and Controls**
- **Platform Mounted; Piped and Wired**

Chester-Jensen builds to customer specification complete platform mounted liquid chilling plants which are ready to be placed in service when connected to plant power and water lines. Such units may include compressors, condensers, pumps, controls, and other equipment essential to successful and economical operation.

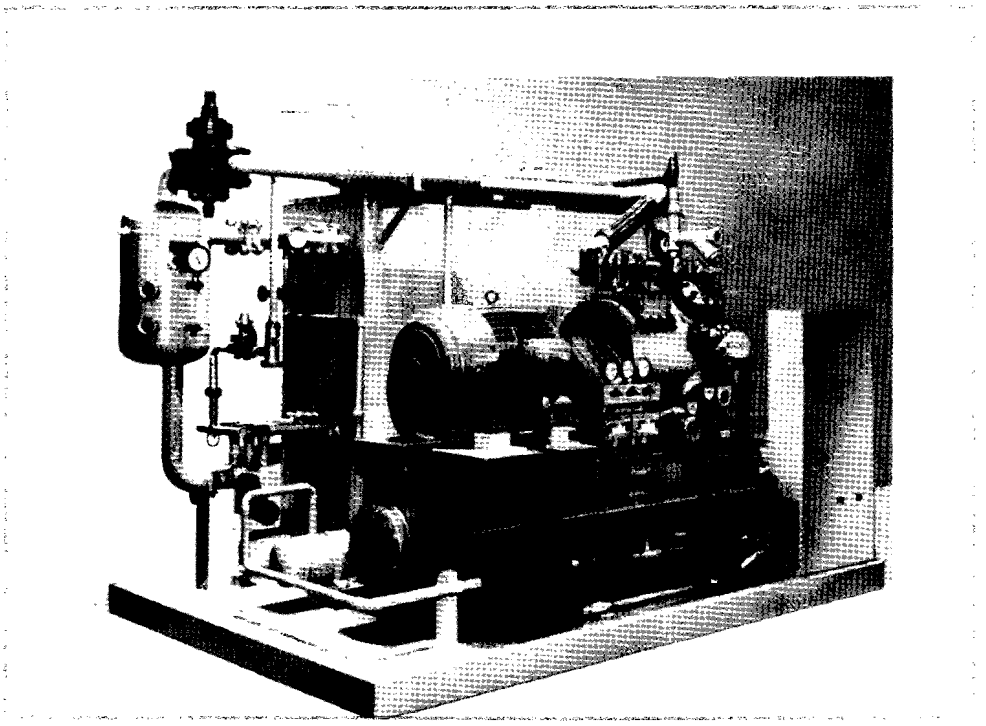
These package units are by nature more compact than any similar apparatus installed piece by piece, and are arranged for easiest possible attendance. Installation time and its overall cost are greatly reduced.

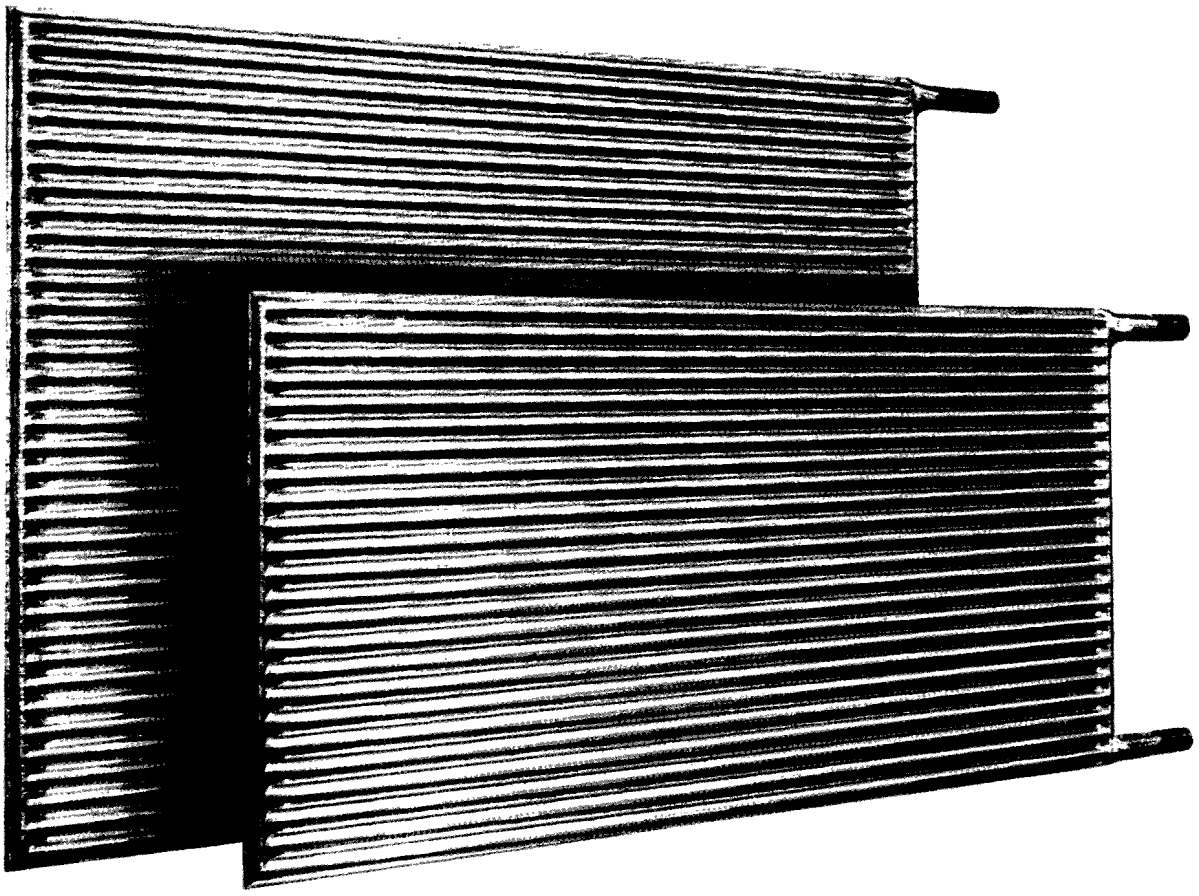
Unit shown at top of page chills ingredient water to 33°; employs two separate banks of four cooling sections with separate refrigeration systems to permit maximum load variation.

Unit shown at bottom of page is for generation of 33° chilled water to be used in any one or all three heat exchangers in an industrial application.

In addition to Package Units designed solely for chilling liquids to a specific temperature, Chester-Jensen builds other types capable of cooling or heating liquids to a specified temperature as incoming product may require. In such services optimum temperature plus or minus one-half degree F. can usually be achieved.

In this type of service a Chester-Jensen Plate Heat Exchanger is employed. When cooling is required, a Chilled Water Unit supplies the coolant. When heating is required, the necessary hot water is supplied by a simple means of utilizing plant steam. Suitable automatic controls maintain required temperatures at all times.



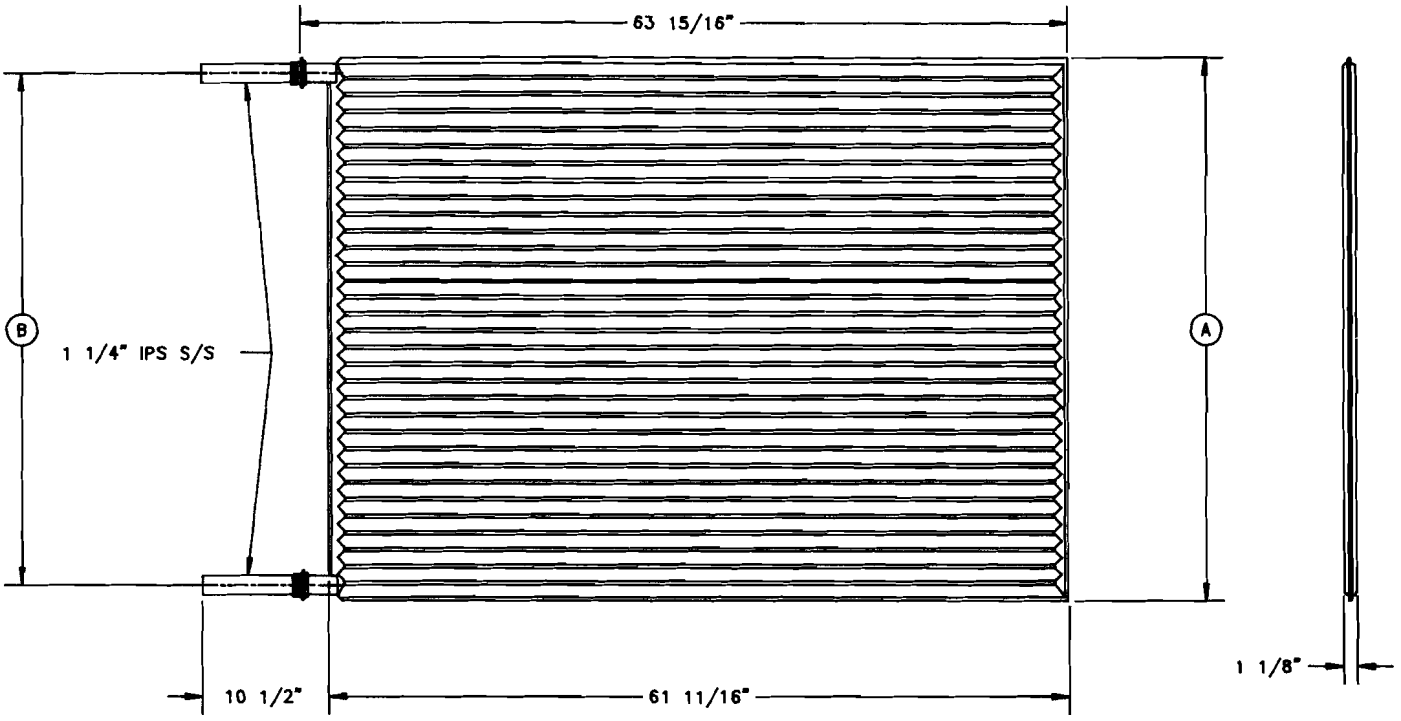


SHORT GAS FLOW COOLING SECTIONS

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 200 PSIG at 200°F



SPECIFICATIONS

CJ CHILLED WATER UNITS

Standard Open Type B (Unpolished)

COOLING SECTIONS - 18-gauge 304 stainless steel, 2B finish; welds wire brushed; short gas flow, 21 or 32 corrugation A.S.M.E. 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 a 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 flow exceeds 35 GPM.

Standard Closed Type A (Uninsulated-Unpolished)

COOLING SECTIONS - 18-gauge 304 stainless steel, 2B finish; welds wire brushed; 21 or 32 corrugations. A.S.M.E. 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

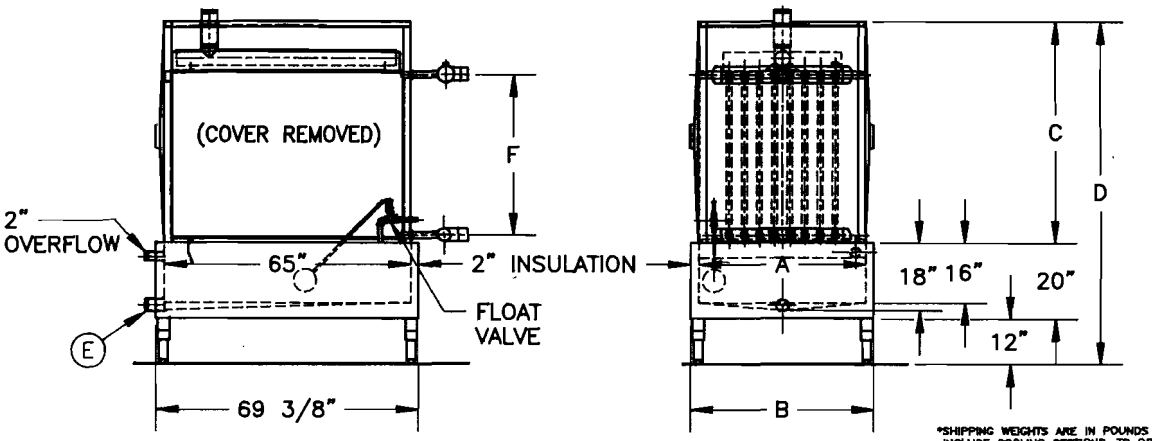
TYPE C (Insulated, Stainless Steel Jacket) - General specifications same as Type A except that cabinet-collecting tank has 2" of insulation on sides and bottom. Lining and outside jacket 16 gauge stainless steel, 2B finish. Underneath bottom is stainless steel.

TYPE D (Insulated, Polished Stainless Steel Jacket) General specifications are same as Type C except that 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 flow exceeds 35 GPM.

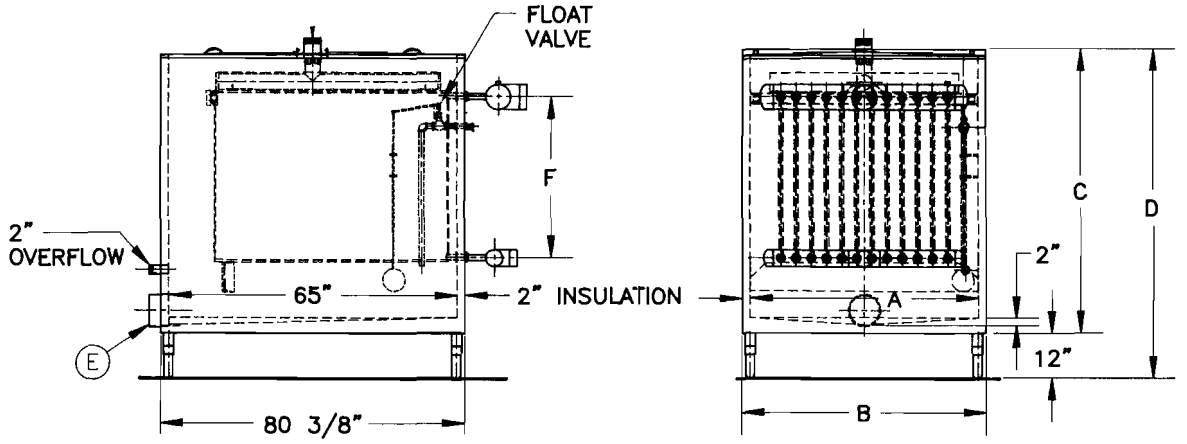
* A.S.M.E. Certification 200 PSIG @ 200°F



*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 SECTIONS. 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

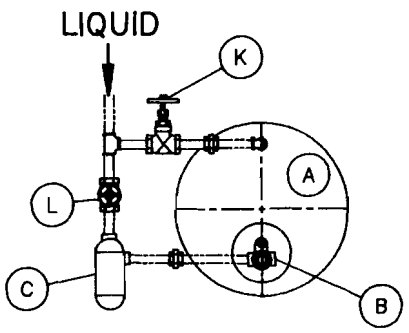
STANDARD DIMENSIONS AND WEIGHTS FOR CLOSED TYPE CHILLED WATER UNITS

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*

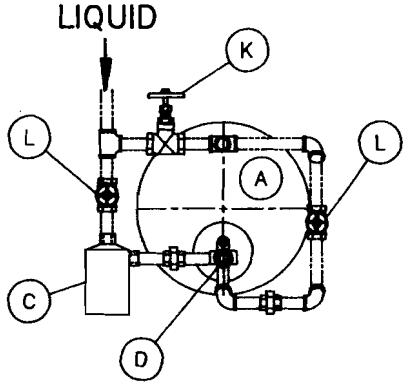
FLOODED--GRAVITY FEED AMMONIA CONTROLS

CHILLERS MAY BE SUPPLIED WITH STANDARD FACTORY SELECTED, CAPACITY SPECIFIC CONTROLS AS DESCRIBED ON THIS AND THE OPPOSING PAGE. OTHER OPTIONS ARE AVAILABLE. PLEASE CONSULT THE FACTORY.

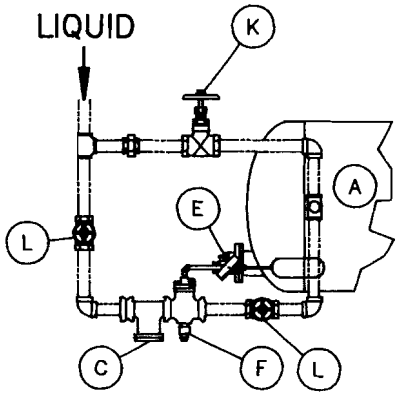
PHILLIPS STYLE LIQUID FEED AND LEVEL CONTROLS



DIRECT FEED
UP TO
25 T R



REMOTE FEED
25 – 50 T R



PILOT OPERATED FEED
OVER 50 T R

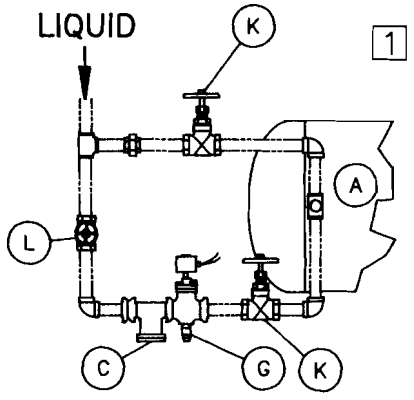
LEGEND

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

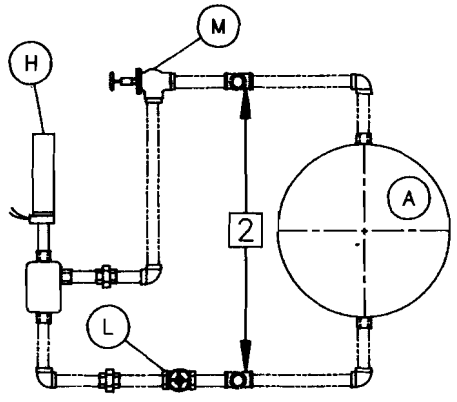
NOTES

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

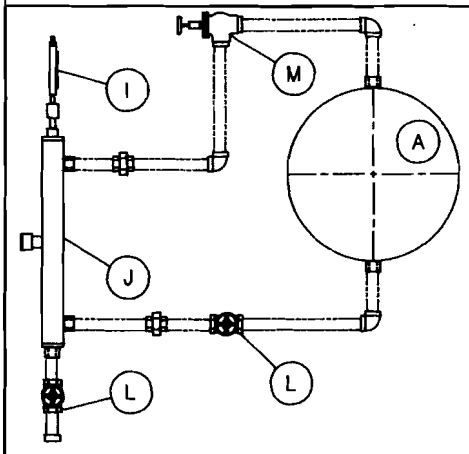
SOLENOID STYLE LIQUID FEED AND LEVEL CONTROLS



SOLENOID LIQUID FEED



FLOAT SWITCH LEVEL CONTROL

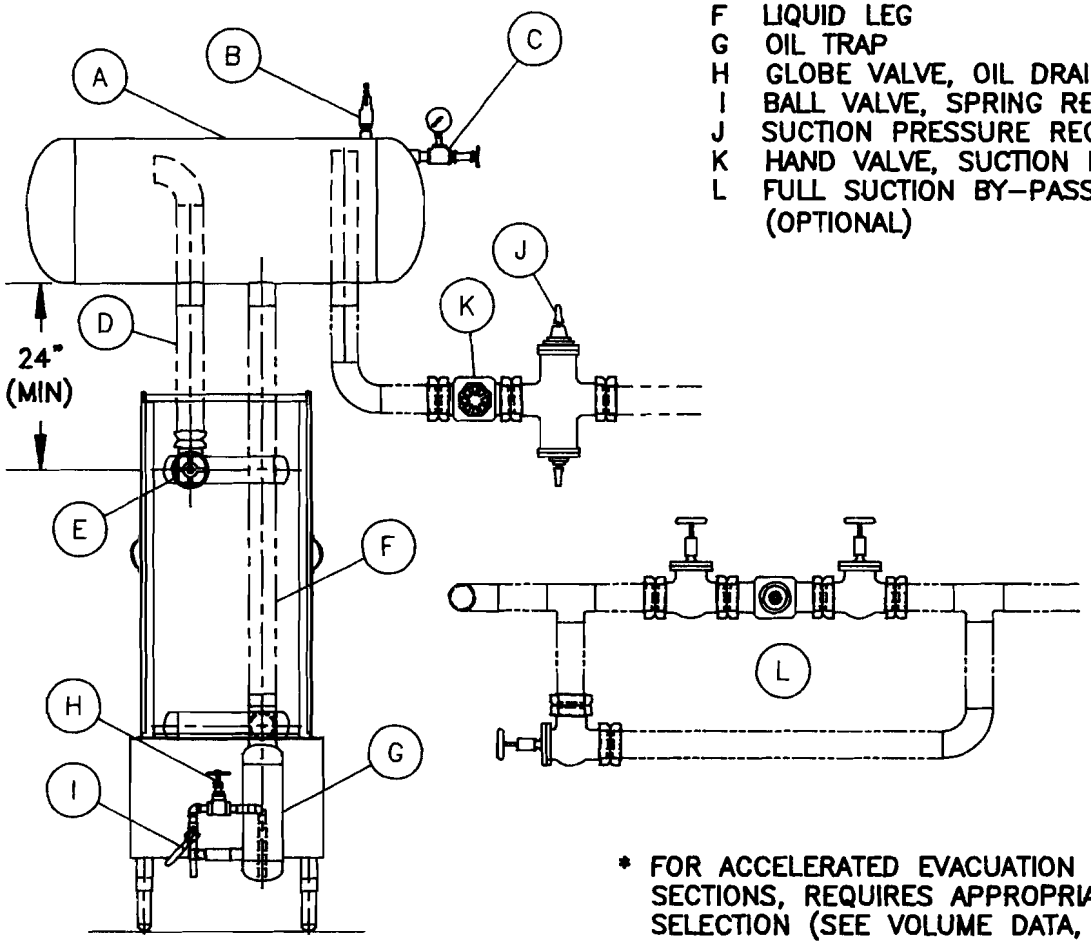


HANSEN VARI– LEVEL CONTROL

FLOODED--GRAVITY FEED AMMONIA CONTROLS (CONTINUED)

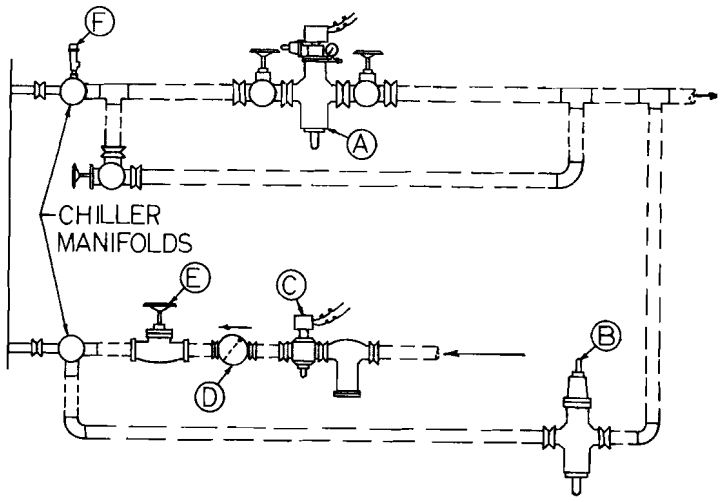
LEGEND

- A SURGE DRUM, ASME 200 PSIG
- B RELIEF VALVE(S), 200 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.

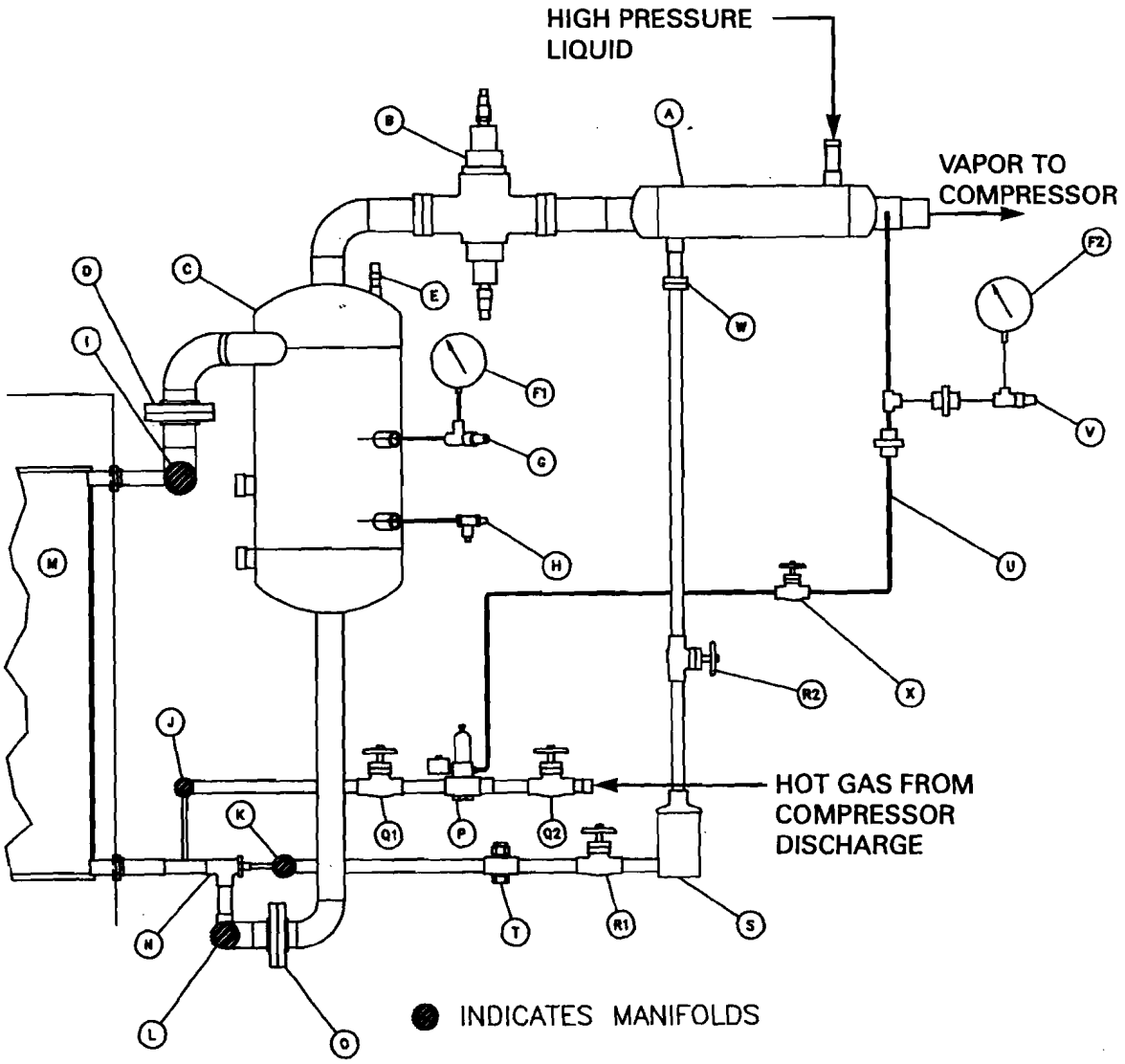
Recirculation Rate is recommended at 3:1, i.e circulation (liquid feed) at 4:1.

LEGEND

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

FLOODED FREON (R-22) 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.

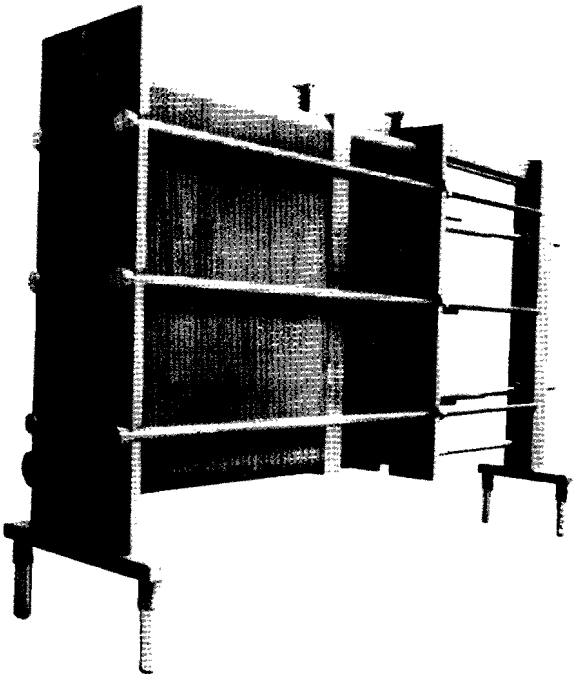


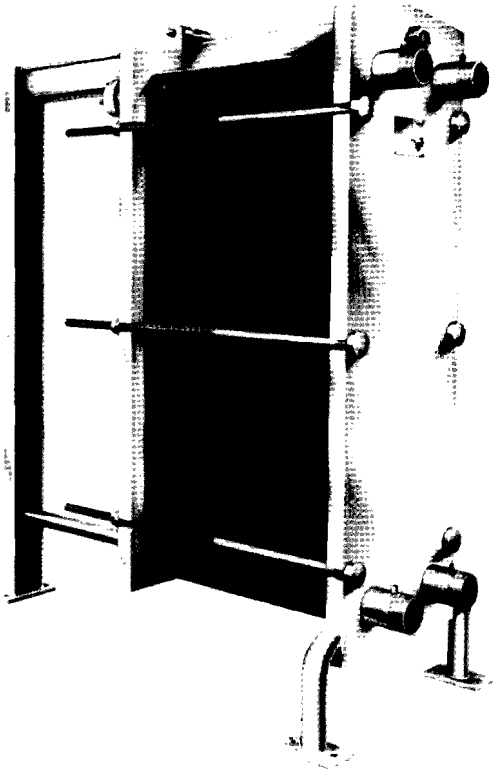
LEGEND

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)		

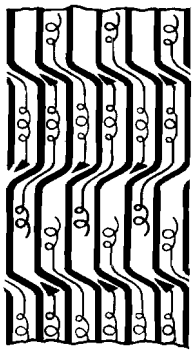
PLATE HEAT EXCHANGERS...

...sanitary and industrial type for every cooling and heating service.

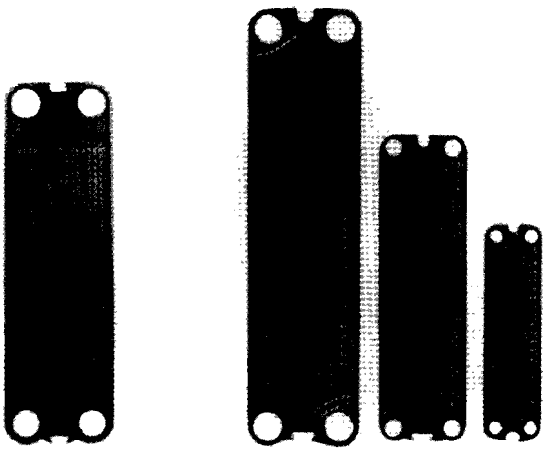




CJ Plate Heat Exchanger is completely adaptable to product heating, cooling and regenerating services involving pourable homogeneous liquids. It can perform all these services simultaneously, and may be readily converted from one service to another if desired, and from its minimum economical capacity to one several times greater. Through this flexibility it can actually deliver the lifetime service for which it is built.



CJ's famous Parallel Flow plate design. The angled edges of the corrugations on each pair of plates form a series of flow restrictions or dams. Turbulence, necessary to high heat transfer efficiency, is created by the plate itself in the wider flat surfaces between plates, as indicated by swirls on the arrows. This is Controlled Turbulence as opposed to that created by high pressure or rate of flow . . . causing even redistribution of liquid at each corrugation over the entire surface of the plate . . . puts every square inch to work at full efficiency.



Write for complete information on CJ Plate Heat Exchangers, contained in Catalog Section K.