HOT WATER HEATERS
HEAT EXCHANGERS
HOT WATER HEATING SPECIALTIES

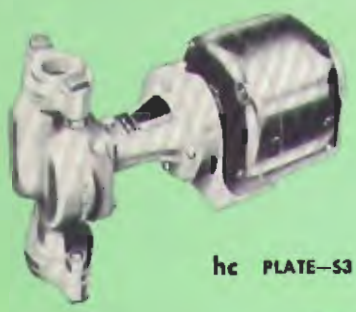
H-99

Corporate Office
342 MADISON AVENUE
NEW YORK 17, N. Y.

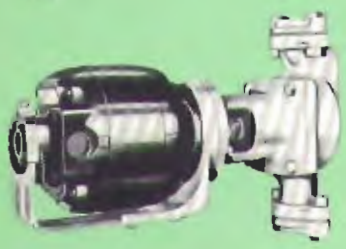
TACO HEATERS, INCORPORATED
General Office & Plant
1160 Cranston St., Cranston 9, R. I.
Representatives in All Principal Cities

In Canada
TACO HEATERS OF CANADA, LTD.
4 GILEAD PLACE, TORONTO 2

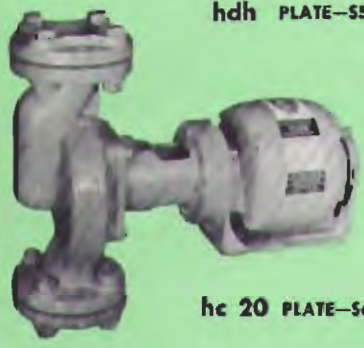
TACO CIRCULATORS (PUMPS)



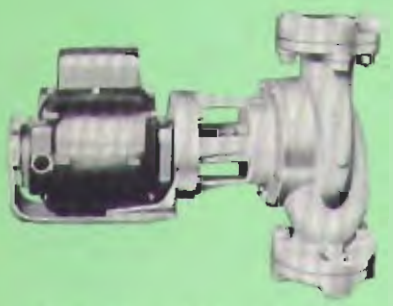
hc PLATE—S3



hdh PLATE—S51



hc 20 PLATE—S64



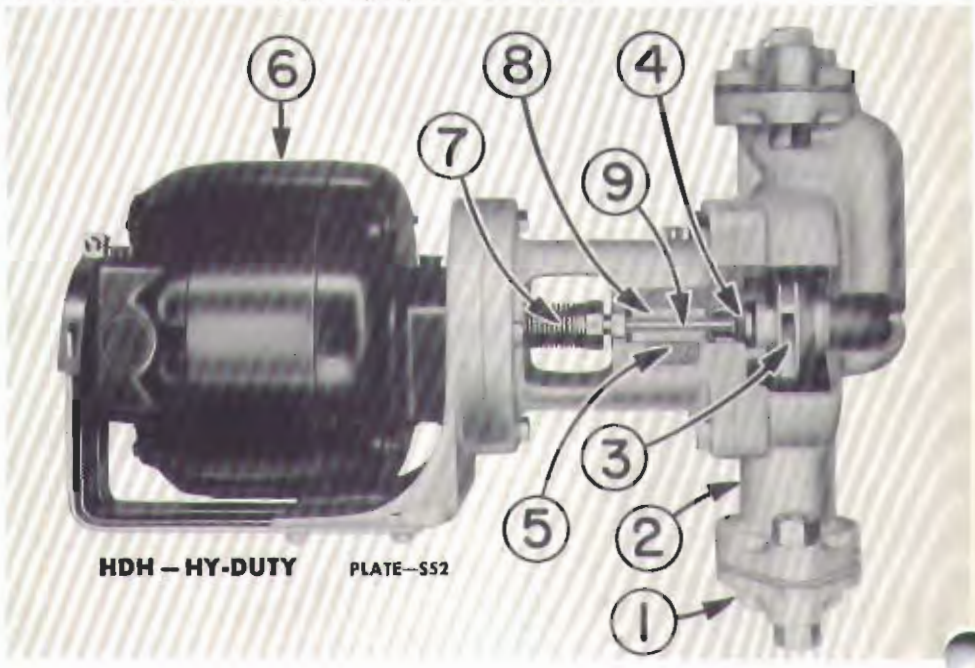
hc 34, 36 and 38 PLATE—S53

The simplicity of design and the high efficiency of Taco Circulators is the result of many years of research and experience in this field. All parts incorporated are not only the finest that are produced but are selected on the basis of how they will perform in relationship with all other parts.

The motors are specially selected for quiet operation and have more than ample capacity for lower cost operation.

They are EASY TO SERVICE. For example, the seals can be replaced on the job by any mechanic. The only tools required are an open end wrench, an Allen set screw wrench and a screw driver.

Taco Circulators are conservatively rated, conveniently lubricated and offer years of dependable service.

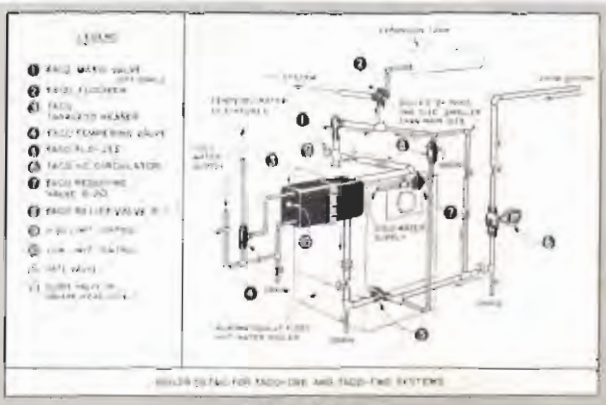


HDH — HY-DUTY PLATE—S52

Table 1 - Specifications

		HC—STANDARD ¾", 1", 1¼" & 1½"	HDH—HY-DUTY ¾", 1", 1¼" & 1½"	HC-20-2"	HC 34, HC 36, HC 38
1	Flanges	2 Bolt—Cast Iron or Bronze*	2 Bolt—Cast Iron or Bronze*	Two Inch with Four Bolts	3"—4 Bolt—Cast Iron
2	Body	Cast Iron or Bronze	Cast Iron or Bronze	Cast Iron or Bronze	Cast Iron
3	Impeller—Dynetrically Balanced	Cast—Open Type	Cast Bronze—Closed Type	Cast Iron or Bronze Open Type	Cast Bronze—Closed Type
4	Rotary Seals	Carbon & Cast Iron	Carbon & Cast Iron	Carbon and Stainless Steel	Carbon & Bronze
5	Large Oil Reservoir	Packed with Wool Waste	Packed with Wool Waste	Packed with Wool Waste	Packed with Wool Waste
6	Motor—Selected for Quietness**	Rubber Mounted—Overload Protected	Rubber Mounted—Overload Protected	Rubber Mounted—Overload Protected	Rubber Mounted—Overload Protected
7	Drive Coupling	Flexible Steel Spring	Flexible Steel Spring	Flexible Steel Spring	Flexible Rubber
8	Oilite Bearing	Porous Bronze	Porous Bronze	Porous Bronze	Porous Bronze
9	Stainless Steel Shaft	Super-Finished	Super-Finished	Super-Finished	Super-Finished

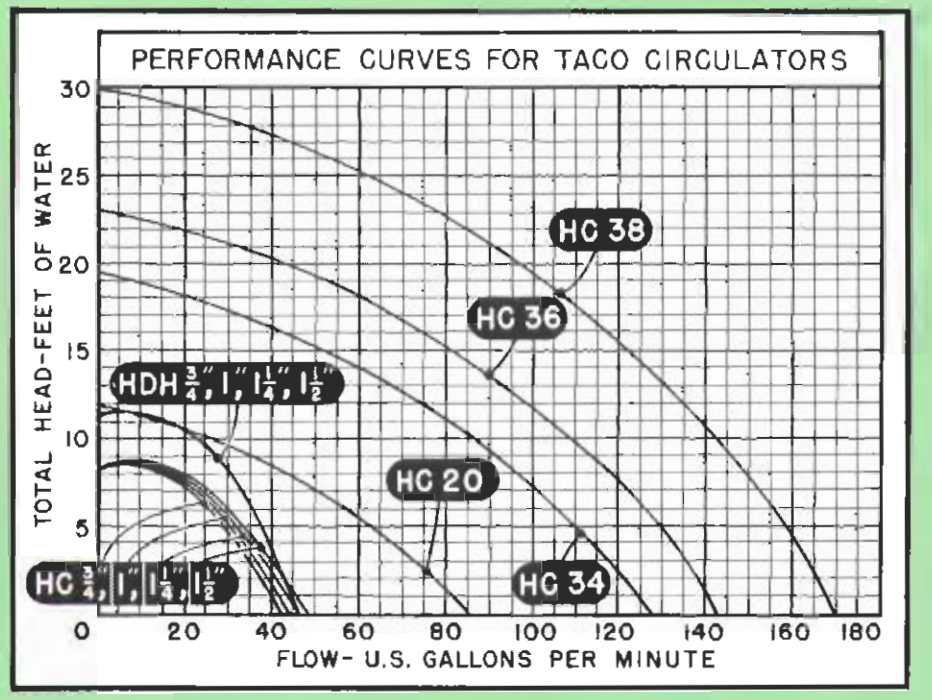
*Interchangeable ¾", 1", 1¼" or 1½" flanges—Circulator itself has full 1½" capacity.
**For motor characteristics see SIZES & DIMENSION TABLE.
All Taco Circulators are shipped with cast iron body, bracket and flanges unless otherwise specified. All but the HC34, HC36 and HC38 are currently available with bronze bodies and flanges or all bronze, including body, bracket and flanges.



PLATE—E80A

Circulator Ratings

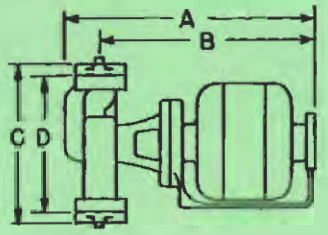
Circulators cannot be rated accurately on a square foot of radiation basis because the size and amount of piping and fittings in the system must also be considered. For selecting proper size circulators, use Performance Curve below or use our simplified design tables.



PLATE—E43A

Curves based on 60 cycle motor operation. Capacities for 50 cycle motor operation sent on request.

hc, hdh, hc 20, 34, 36 & 38

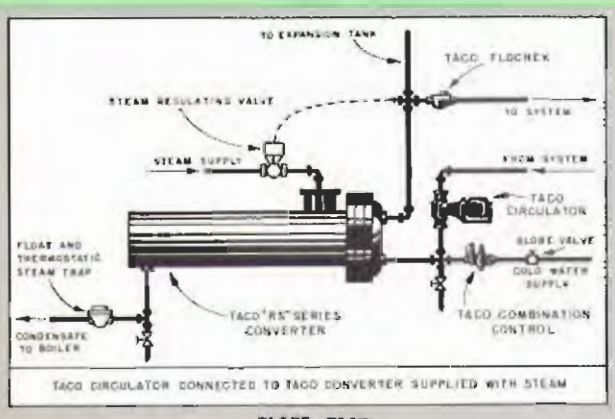


PLATE—E101

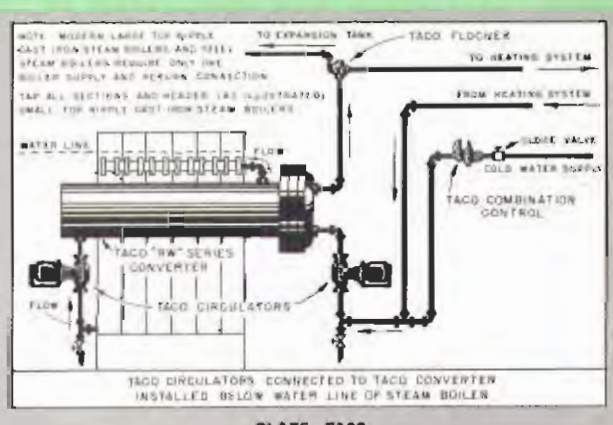
Table 2 - Sizes and Dimensions

Size	Motor—60C-AC† 1725 R.P.M.	A	B	C	D	Approx. Weight
HC Standard— ¾", 1", 1¼" & 1½"	⅛ HP—110 Volt	15¾"	13¾"	9"	7½"	40 Lbs.
HDH Hy-Duty— ¾", 1", 1¼" & 1½"	⅛ HP—110 Volt	16⅜"	14⅛"	10"	8½"	45 Lbs.
HC-20-2"	1/6 HP—115 Volt	17"	14½"	13"	11"	58 Lbs.
HC-34	⅓ HP—110 Volt	21 1/16"	17⅞"	16 3/32"	13"	125 Lbs.
HC-36	½ HP—110/220 Volt	23"	9 11/16"	16 3/32"	13"	135 Lbs.
HC-38	¾ HP—110/220 Volt	23½"	20 3/16"	16 3/32"	13"	140 Lbs.

† All motors are available in other current characteristics.



PLATE—E107



PLATE—E108

TACO FLOW CHECKS

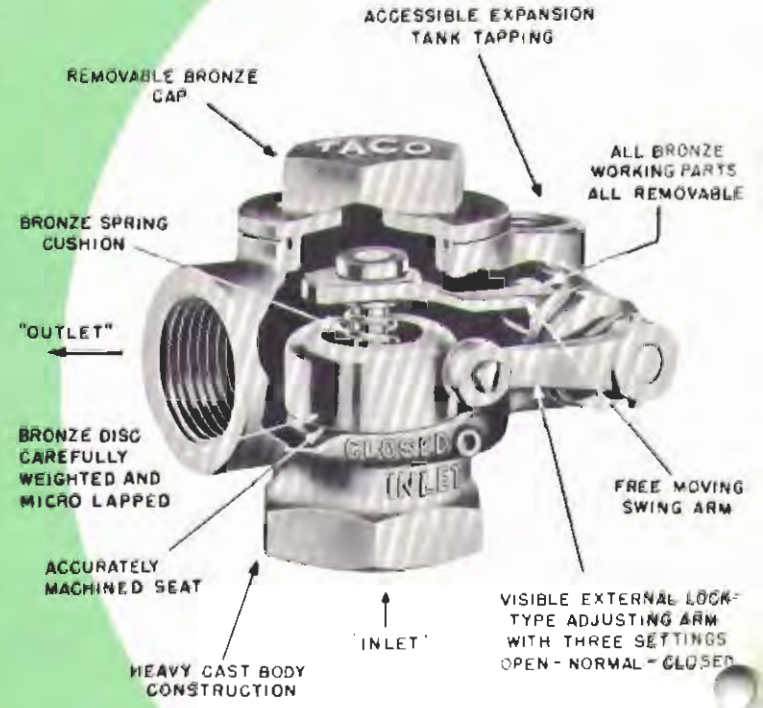
Angle and Horizontal Types

Taco Flow Check is a high grade accurately weighted automatic valve which is installed in the flow riser above the boiler.

It opens automatically when the circulator is running. When the room thermostat is satisfied, and the circulator is stopped, the flow check closes, preventing any hot water from flowing to the system. This makes possible the use of the heating boiler to obtain domestic hot water all year 'round.

Taco Flow Check has a simple external 3 position adjustment: Open, Normal and Closed in both the angle and horizontal types.

Working parts are all non-corroding bronze.



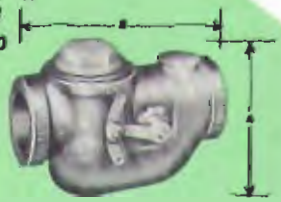
Interior Design of Angle and Horizontal is alike

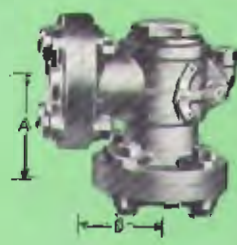
PLATE—S12

1" and 1¼" Angle
PLATE—S9

1½" Angle
PLATE—S11

1" H and 1¼" H
Horizontal
PLATE—S10





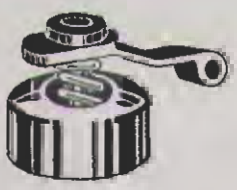
2" and 2½" Angle
PLATE—S13

TABLE 3

Size	Type	Connections		Dimensions		Approx. Shipping Weight Lbs.
		Inlet	Outlet	"A"	"B"	
1"S	Angle-Bronze	Sweat	Sweat	1¾"	1¾"	2½
1"	Angle C.I.	Screwed	Screwed	2"	2"	3⅜
1¼"	"	Screwed	Screwed	2"	2"	3¾
1½"	"	Flanged	Screwed	3"	2⅜"	8¼
2"	"	Flanged	Flanged	3 1/16"	3 1/16"	21½
2½"	"	Flanged	Flanged	3 7/16"	3 7/16"	21½
1"H	Horizontal C.I.	Screwed	Screwed	4 5/16"	5 5/16"	5½
1¼"H	"	Screwed	Screwed	4 5/16"	5 5/16"	5½
1½"H	"	Screwed	Flanged	5"	8⅛"	12
2"H	"	Flanged	Flanged	7"	10½"	30
2½"H	"	Flanged	Flanged	7"	10½"	30
3"H	"	Flanged	Flanged	7 1 16"	11⅜"	38

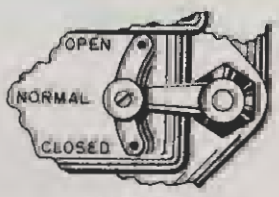
For installation details Plates E80A, E107 and E108 Pages 2 & 3

To clean seat of Taco Flow Checks, simply move adjusting arm up and down a few times with circulator running.



PLATE—E55

Accurately machined and micro lapped bronze weight.



PLATE—E56

Simple, clearly visible, three position external adjustment.

PLATE—E57

Carefully machined brass seat.

Only ONE *required per radiator. Same fitting is used for radiators above or below main.*

PLATE—S5

Cast Iron Taco Venturi Fitting. For use on radiators above or below the main. Only one required per radiator.

PLATE—S6

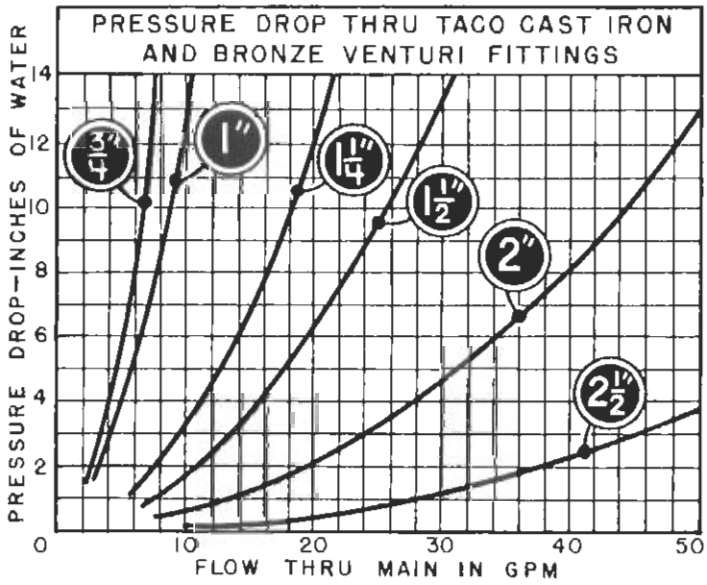
FOR USE ON RETURN BRANCH ONLY

These fittings are powerful little suction pumps powered by the water passing through them. One fitting is connected to the return branch of each radiator. As water passes through, a suction is created pulling water through the radiator, thereby causing positive, uniform circulation. Made in cast iron and bronze. Same fitting is used for radiators above or below the main. Only one type to stock.

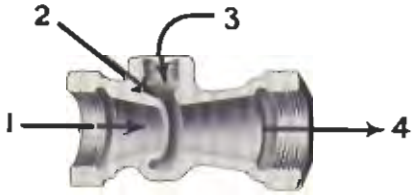
Cross section of Taco Venturi Fitting. Note rugged one piece construction. Nothing to rust, loosen or wear out.

PLATE—S7

Bronze (Sweat Type) Taco Venturi Fittings. For use on radiators above or below the main. Only one required per radiator.



PLATE—S3



PLATE—S8

Taco Venturi Fitting for Positive Action

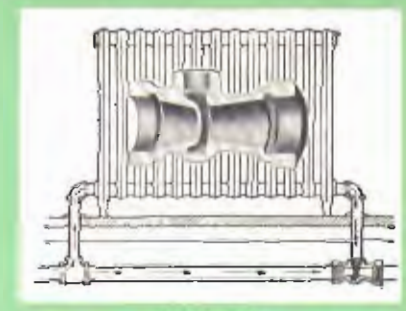
1—Water enters here from main.

2—Pressure is changed to velocity at nozzle.

3—Water is drawn through radiator by Venturi pump-action created here.

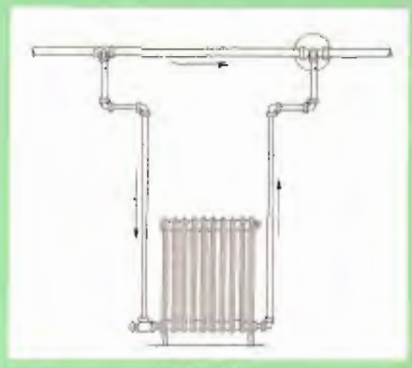
4—Velocity is converted back into pressure in main with minimum loss.

For Main and Riser sizes see Separate Design Tables.



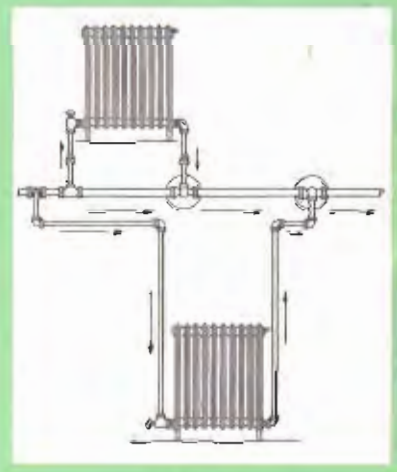
PLATE—E49

Single radiator above main. Ordinary tee on supply branch, Taco Venturi Fitting on return branch. Only one Venturi Fitting required.



PLATE—E50

Single radiator below main. Ordinary tee on supply branch, Taco Venturi Fitting on return branch. Only one Venturi Fitting required.

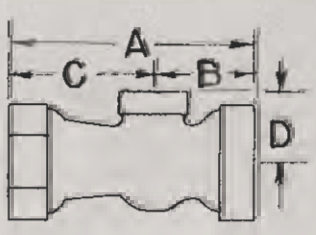


PLATE—E51

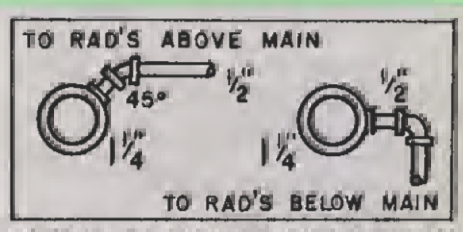
Radiators above and below main. Ordinary tees on supply branches. Same Taco Venturi Fittings used on return branches.

TABLE 4

Type	Venturi fitting Sizes: Mains Conns.	Venturi fitting Sizes: Branch Conns.	"A"	"B"	"C"	"D"	Approx. Shipping Weight Lbs.
Cast Iron Screwed Conn.	¾" x	½"	3½"	1⅜"	1⅞"	1⅝"	1
	1" x	½" or ¾"	4¾"	1 11/16"	2 5/16"	1 13/16"	1⅝
	1¼" x	½", ¾" or 1"	4 11/16"	1⅞"	2 5/16"	1¾"	2⅛
	1½" x	½", ¾" or 1"	5¼"	2 1/16"	3"	1¾"	3½
	2" x	½", ¾" or 1"	6"	2⅜"	3¼"	2⅛"	6½
	2½" x	½", ¾" or 1"	6"	2¾"	3¼"	2⅜"	7¼
Bronze Sweat Conn.	¾" x	½"	3¼"	1⅜"	1⅞"	1¼"	1
	1" x	½" or ¾"	4½"	1⅝"	2⅜"	1 7/16"	1
	1¼" x	½" or ¾"	4 15/16"	2 1/16"	2 5/16"	1 11/16"	1⅜
	1½" x	½", ¾" or 1"	5¼"	2¼"	3"	2⅛"	2



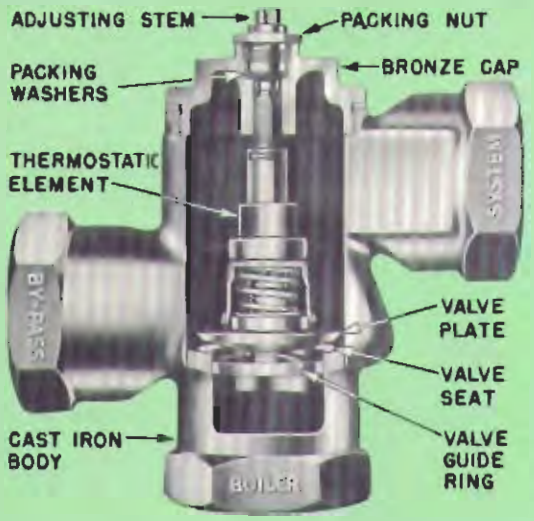
PLATE—E54



DETAIL OF SUPPLY AND RETURN LATERAL CONNECTION TO MAIN

PLATE—E52

TACO PANELTROL



PLATE—S23

For Panel Heating Systems

The TACO PANELTROL is just what the name implies — a control for Panel Heating Systems.

It is designed to serve a dual function. First — It can be adjusted to deliver water to Radiant Heating Panels at any temperature between 110° F. and 150° F., provided the boiler water temperature is higher than these settings.

Second — It permits obtaining Domestic Hot Water from the same boiler by carrying the boiler water temperature at 180° F. or higher if necessary.

The Valve Itself

In addition to exhaustive laboratory tests, the TACO PANELTROL has also been thoroughly field tested. Its present design is simple and fool-proof, yet positive in action and performance.

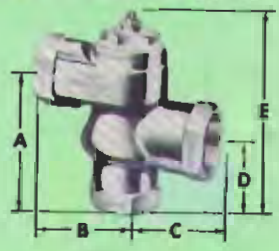
The "Heart" of the TACO PANELTROL is a time tested, field proven thermostatic element made of the same material as is used in the Type "B" Taco Tempering Valve, which is the largest selling tempering valve today. The actuating substance is hermetically sealed, will not tire or fatigue and cannot corrode.

Body is cast iron and all working parts are bronze, brass or stainless steel.

Connections are 1½" but may be bushed for smaller size piping.

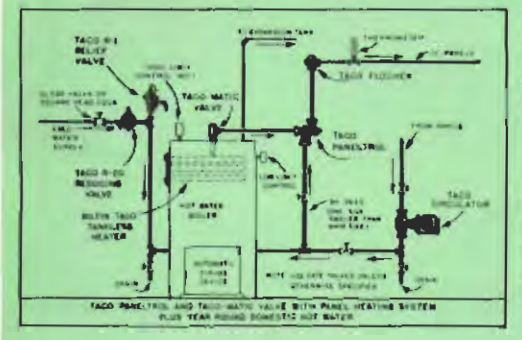
TABLE 5

Size	Dimensions					Approx. Shipping Wt. Lbs.
	"A"	"B"	"C"	"D"	"E"	
1½"	4 1/16"	3"	3"	2 3/8"	6"	7½



PLATE—S24

Year round DOMESTIC HOT WATER SUPPLY



PLATE—E65
Installation Diagram

Taco Paneltrol unfailingly controls panel water temperature between 110° and 150° F. regardless of how high the boiler water temperature. So your Taco heater can safely be used to provide year 'round domestic hot water without fear of overheating the panels.

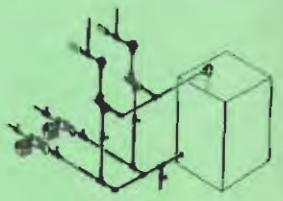
ZONE CONTROL

Because of its low cost, the TACO PANELTROL is particularly suitable for zoned control panel heating systems. By the use of two or more valves, various panel water temperatures may be obtained such as would be required in a combination floor and ceiling installation, large industrial plants, garages, etc.

LOW COST OPERATION

The TACO PANELTROL provides a low cost method of blending hot boiler water with return panel water. Operation of the system is controlled by an ordinary room thermostat and the Circulator runs only when heat is required. Thus it can be seen that power savings will result.

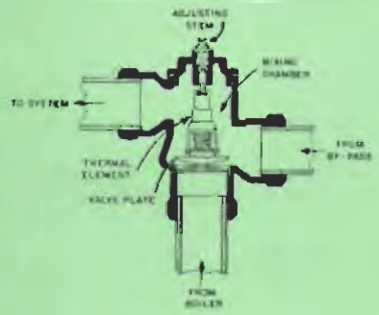
PLATE—E61



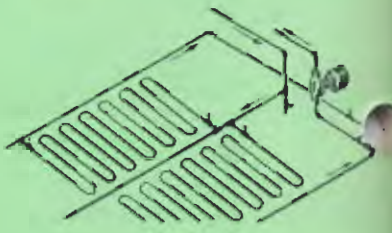
PLATE—E64
Taco Panetrols on a 2 Zone Installation

How Taco Paneltrol Works

When circulator operates, hot boiler water and relatively cool system return water from the by-pass are pumped through TACO PANELTROL. After mixing thoroughly, this blended water goes to system. Whenever blended water temperature tends to go above or below the predetermined setting (any temperature from 110° to 150° F.), Taco Paneltrol thermal element expands or contracts. This restricts or increases flow of hot boiler water to mixing chamber without creating additional pressure drop.



PLATE—E62



PLATE—E63

TACO-MATIC VALVE

The Taco-Matic Valve is a thermostatic device, designed primarily to protect the performance of a tankless water heater when used in conjunction with a forced circulation hot water heating system. It starts to open at 185° F. and is wide open at 210° F. Fully closed at 175° F.

Bodies are cast iron. Thermostatic element is hermetically sealed and will not corrode, fire or fatigue. It successfully avoids the use of volatile liquid in bellows or bi-metal for power.

PLATE—S55

1"

PLATE—S54

Protects Performance of Tankless Heater

One of the biggest dividends obtained with the TACO-MATIC is protected performance (without the need of a reverse acting control) of a tankless heater or indirect storage type heater. This one feature alone is worth its small cost.

The TACO-MATIC is designed to close tightly should the temperature of the water in the boiler drop below 175° F. This means that there is a constant supply of hot boiler water circulating around the coils of a tankless heater thus assuring ideal conditions for its operation, and providing an ample supply of domestic hot water under any and all conditions. This performance is of particular importance when Tankless heaters are used in conjunction with modern small water content boilers. TACO-MATIC performs the function of a reverse acting control thereby effecting still another saving.

PLATE—S56

1¼"

PLATE—S26

Improves Performance of Large Pipe Conversion Jobs

Old hot water systems, with their large water content, when converted to forced circulation often have a tendency to overheating and unevenness of heat distribution. The gradual build up of temperatures together with the longer circulator operation provided by the TACO-MATIC valve completely eliminates these conditions.

PLATE—S25A

1½"

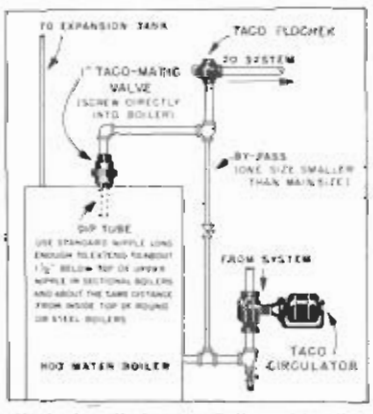
PLATE—S27A

Reduces Objectionable Pipe Noises

TACO-MATIC'S gradual mixing operation prevents extremely high water temperatures being forced into the system. There are, therefore no snapping noises through the piping as it expands and contracts throughout the house.

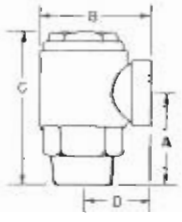
HOW IT WORKS

Aquastat is wired to burner. Room thermostat is wired to start burner and circulator simultaneously. On a call for heat from the room thermostat, burner runs until sufficient heat is built up in boiler to open Taco-Matic Valve (starts to open at 185° F.—wide open at 210° F.). With circulator running, hot water is pumped into the system until boiler water temperature drops to 175° F. when Taco-Matic closes. Return water is then pumped thru by-pass. Without any return water flowing thru boiler, burner quickly restores the temperature to again open Taco-Matic Valve. This performance is repeated until room thermostat is satisfied.



1" Taco-Matic Installation on Boiler with Biltin Taco

PLATE—E66A



PLATE—E106

PLATE—S57

WITH DIP TUBE FOR AIR ELIMINATION

1" and 1¼" Taco-Matic is double tapped for use with a dip tube to direct air generated in boiler to the expansion tank. Dip tube is not furnished. Use a standard nipple for this purpose. See installation diagram.

TABLE 6—SIZES AND DIMENSIONS

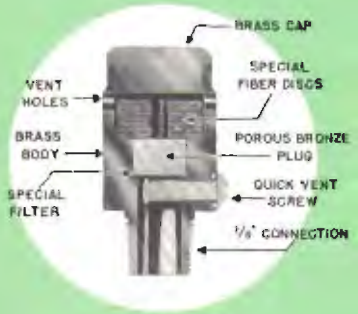
Size	Connections	Dimensions "A"	"B"	"C"	"D"	Approx. Shipping Weight Lbs.
*1"	1" x 1" and 1½"	—	3¼"	4½"	—	4¼
1¼"	1¼" x 1¼" and 2"	3 7/16"	4 7/16"	5 7/16"	2½"	5½
**1½"	1½" x 1½"	5¼"	4 7/16"	7⅛"	2½"	7

*May be bushed to ¾". **For longer installation, use 2 or more. (Represents size of supply main.

TACO AIR VALVES

Taco-Vent Automatic Hot Water Air Valve

(PATENT No. 2,601,216)



PLATE—S29

Contractors and homeowners have for more than 100 years been asking why someone didn't invent a reliable valve that would always automatically vent a hot water radiator. Taco has now come up with what we've all been looking for. TACO-VENT works perfectly *all* the time. Hot water heating systems can't be air-bound.
Convenient because no adjustments are necessary and there are no keys, coins or screwdrivers to fuss with.
Safe because the porous bronze plug limits the flow of water which is readily absorbed by the multiple fibre discs.

TACO-VENT Pays for Itself by

1—Keeping radiation free of air all the time.
2—Saves fuel and gives greater comfort.

TABLE 7 — SIZE & DIMENSIONS

Size Conns.	Dimensions	Approx. Shipp. Wt.
⅛"	¾" x 1½"	1 oz.
¼"	¾" x 1½"	1 oz.

Maximum Working Pressure—30 P.S.I.
Boxed in Packages of 12

HOW TACO-VENT WORKS

1—Air passes through special filter, porous bronze plug, special fiber discs and vent holes to atmosphere.

2—Water, following the air, is cleaned of all foreign matter by the special filter which tests indicate will last indefinitely.

3—The water is then "slowed up" as it passes through the porous bronze plug.

4—Water reaching the special fiber discs, causes them to swell, completely sealing the valve.

5—As more air accumulates the special fiber discs dry and shrink, thus permitting the valve to again vent, repeating the above cycle.

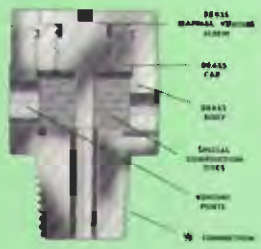
PLATE—S28

Taco Automatic Steam Air Valve

(Pat. Appd. For)

PLATE—S60

The Taco Steam Air Valve works on an entirely different (but proven) principle. Because of this principle the valve operates without pinging, clicking or hissing and is less than one quarter (¼) the size of ordinary steam air valves. The valve is nickel plated with contrasting striping around the top. This color combination plus its small size will harmonize with all decorative schemes.



PLATE—S61

HOW IT WORKS

1—Air is forced out between special composition discs by steam pressure.

2—As steam enters the valve, the moisture in the steam starts to swell the discs.

3—The discs are sized and of such material that they will not completely seal until all air has been forced out and valve is full of steam

4—After thermostat is satisfied and steam subsides, the system may go into a vacuum for a few minutes after which the discs dry and shrink and are ready for another cycle.

TABLE 8 — SIZE & DIMENSIONS

Size Conns.	Dimensions	Approx. Shipp. Wt.
⅛"	1" x ¾"	1 oz.

Maximum Working Pressure—10 P.S.I.
Individually boxed in Packages of 12

Taco Hy-Vent

AUTOMATIC HOT WATER AIR VALVE FOR HIGH POINTS AND PANEL HEATING SYSTEMS

PLATE—S30

Taco Hy-Vents are designed for high venting capacity. They are particularly suitable for high points, radiant panels, down feed systems, etc. Taco Hy-Vents can also be used on cold water lines where pressure does not exceed 30 pounds per sq. in.

HOW TACO HY-VENT WORKS

1—When the valve shell is full of water the valve is closed.
2—When sufficient air accumulates, the float drops and the valve opens.
3—As the air passes out, water again fills the shell, closing the valve.
4—As fast as air accumulates, this action is repeated.

THE VALVE ITSELF

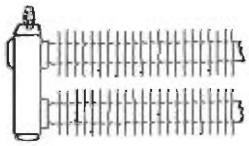
Valve is made entirely of non-corrosive materials. The valve seat is made of Neoprene and is not affected by high temperature, oil, anti-freeze, etc.

TABLE 9 — SIZE & DIMENSIONS

Size Conns.	Dimensions	Approx. Shipp. Wt.
⅛"	3" X 1½"	8 ozs.

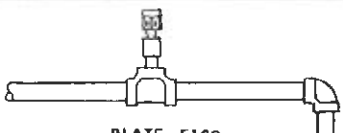
Maximum Working Pressure—30 P.S.I.
Individually Packaged

PLATE—E70
RADIATORS



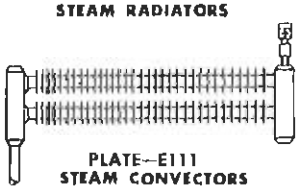
PLATE—E72
CONVECTORS

PLATE—E71
BASEBOARDS



PLATE—E109
STEAM MAINS

PLATE—E110
STEAM RADIATORS



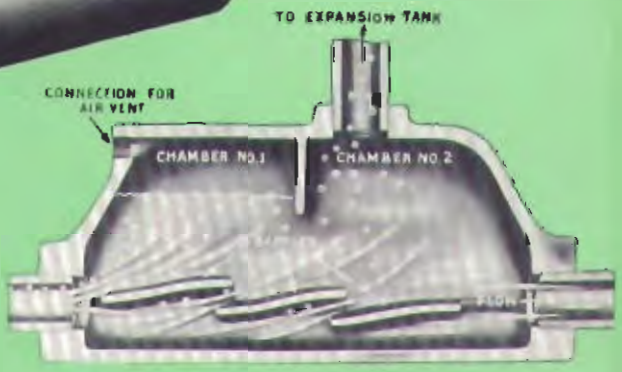
PLATE—E111
STEAM CONVECTORS

PLATE—E73

TACO AIR-SCOOP (PATENT APPLIED FOR)

FOR REMOVING AIR FROM FORCED CIRCULATION HOT WATER HEATING SYSTEMS.

PLATE—S58



PLATE—S59

The Taco Air-Scoop is a SIMPLE AND POSITIVE device for automatically removing air from forced circulation hot water heating systems. It is cast in one piece with no parts to loosen, corrode or rattle.

HOW TACO AIR-SCOOP WORKS

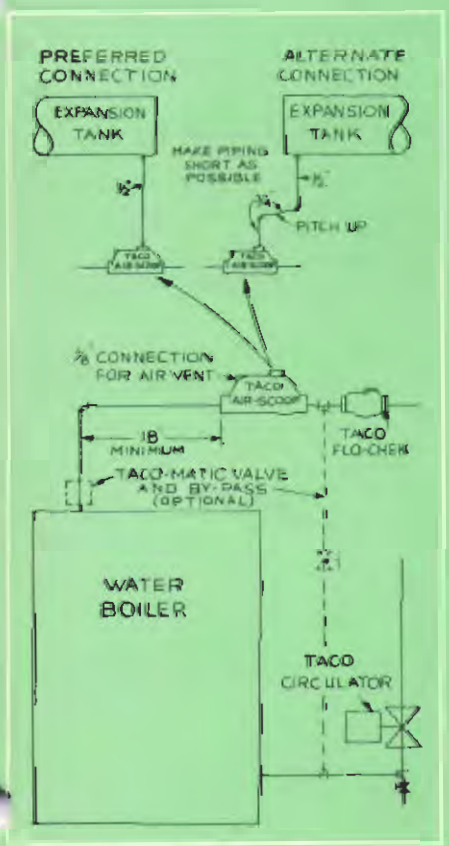
1—Heated water liberates air. The hotter the water the more air it will liberate.

2—Air, being lighter than water, will tend to travel along the upper portion of a horizontal pipe.

3—As the air and water enter the "Air-Scoop," the air bubbles are scooped up by the first baffle and rise into the upper chambers. Any air bubbles that get thru the first baffle are scooped up by the second or third.

4—Air that accumulates in chamber No. 1 is removed from the system by the Air Valve and of course can't return. Air from chamber No. 2 passes into the expansion tank to act as an air cushion.

5—Should the air completely fill the expansion tank and back down into the "Air-Scoop," the excess will be removed by the Air Valve without disturbing the operation of the system.



PLATE—E104

PLATE—E103

INSTALLATION

The Taco "Air-Scoop" should be installed horizontally in the supply line and approximately 18" from the vertical line and elbow. The expansion or air cushion tank should be installed directly over the "Air-Scoop" and connected with a short piece of pipe (see Plate—E104).

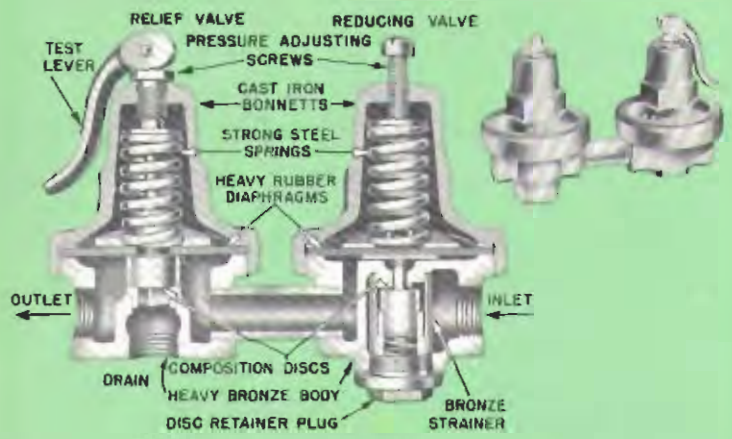
When the system is first filled, all you have to do is vent the radiators and high points and the job is finished. No draining water. No repeat operations. No cutting or adjusting. No going back to job.

TABLE 10 — SIZES AND DIMENSIONS

Size	"A"	"B"	"C"	Approx. Shipping Weight Lbs.
¾"	9¼"	4½"	3 1/16"	6½
1"	9¼"	4½"	3 1/16"	6½
1¼"	10"	5 1/16"	3 13/16"	9
1½"	10"	5 1/16"	3 13/16"	9
2"	11½"	7"	5"	16½
2½"	11½"	7"	5"	16½

Maximum Working Pressure—30 P.S.I.

TACO RELIEF & REDUCING VALVES



Taco Comb. Control No. 101-2B
PLATE — S50

These valves are designed for use with Hot Water Heating Systems.

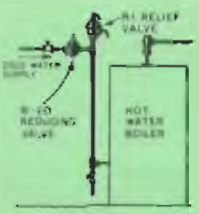
Taco Relief Valves are set to relieve should the pressure in the system exceed twenty-nine (29) pounds.

Taco Reducing Valves are set to maintain a minimum pressure in the system of twelve (12) pounds. Should the pressure in the system drop below this setting the valve will automatically feed water until system pressure again reaches twelve (12) pounds, at which point valve will close.

TABLE 11

Number and Type	Conns.	Body	Diaphragm	Approx. Ship. Wt. Lbs.
TACO RELIEF VALVES				
R-1	¾"	Cast Iron	Phos. Bronze	10
TACO REDUCING VALVES (With Biltin Strainers)				
R-20	¾"	Cast Iron	Phos. Bronze	6
TACO COMB. RELIEF & REDUCING VALVES				
No. 101-2B	½"	Bronze	Rubber	6

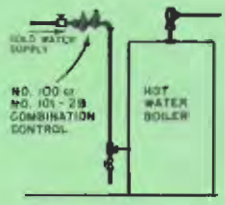
All working parts are bronze.



PLATE—E59

PLATE—S63
Taco Reducing Valve R-20

PLATE—S62
Taco Relief Valve R-1



PLATE—E60

TACO FLOW REGULATOR

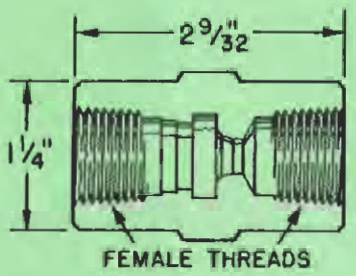
PLATE—H12

Controls the Flow of Water

Taco Flow Regulators are designed to control the flow of water.

One of the common complaints with tankless heaters is that when the heater is overdrawn, cool water is discharged. So Taco Flow Regulators are designed to limit the discharge to a pre-determined gallonage, regardless of city water pressure.

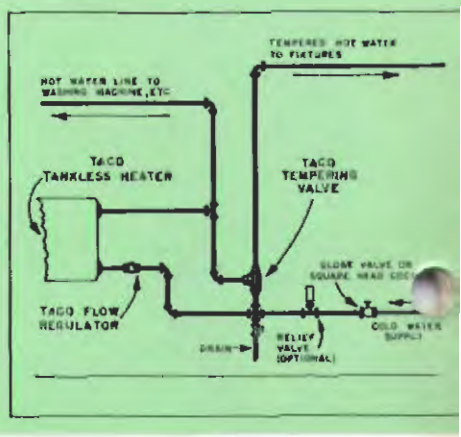
These Regulators will accurately control the flow of water at any pressure from 15 to 150 lbs. per square inch.



PLATE—E20

TABLE 12 — SIZES AND CAPACITIES

Size	Flow Rate	Conn's	Approx. Ship. Wt. Each
2 G	2 GPM	½"	8 Oz.
3 G	3 GPM	½"	8 Oz.
4 G	4 GPM	½"	8 Oz.
5 G	5 GPM	¾"	6 Oz.
6 G	6 GPM	¾"	6 Oz.
8 G	8 GPM	¾"	6 Oz.

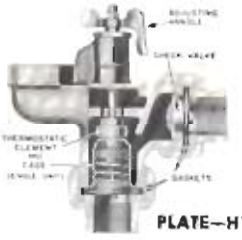


PLATE—E22

TACO TEMPERING VALVE

To guard against excessively hot domestic hot water, a Taco Tempering Valve is recommended. This valve mixes cold water with hot water from the Tankless Taco (or storage tank) to give tempered water at the fixtures. The mixing action is thrifty in that it makes sure that no water is wasted, as too hot, when a faucet is turned on. In addition Taco Tempering valves also lengthen out the delivery of hot water from Tankless Heaters, Storage Tanks and Automatic Storage Water Heaters. All Brass, Bronze and Stainless Steel construction. Factory tested for 125 lbs. per square inch working pressure.

Not recommended for more than 10 lbs. per square inch steam pressure, where steam is used as the heating medium.



PLATE—H10

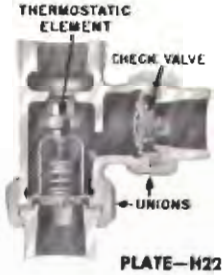
Type "A" Adjustable ½" and ¾"

The Type "A" is an adjustable version of the popular Type "B". It utilizes the same time tried and field proven hermetically sealed thermostatic element which will not corrode, tire or fatigue.

Valve is readily adjustable from 120° F. to 160° F. Fitted with two (2) malleable and bronze unions for easy installation.

See table below for sizes and ratings.

PLATE—H9



PLATE—H22

Type "B" Non-Adjustable ½" and ¾"

This is the "fuss-proof" non-adjustable valve that has become the world's largest seller. The "heart" of the valve is the hermetically sealed thermostatic element which has been proven in hundreds of thousands of installations.

Factory set to deliver water at approximately 135°-145° F.

Fitted with two (2) malleable and bronze unions for easy installation.

See table below for sizes and ratings.

PLATE—H21

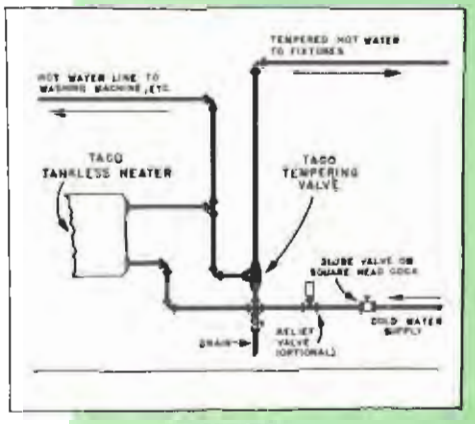
PLATE—H11

Type "T"—Adjustable 1", 1½" and 2"

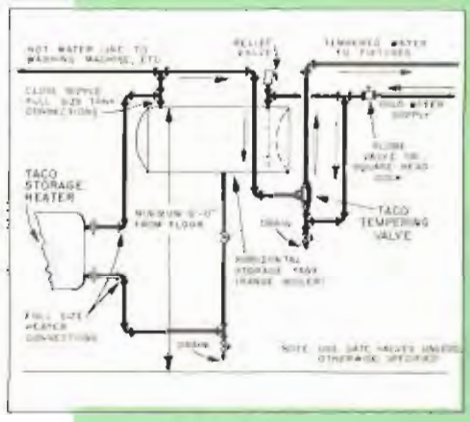
A thoroughly dependable mixing valve for larger jobs with many years of satisfactory performance behind it.

Valve is readily adjustable from 130° F. to 200° F.

See table for sizes and ratings.



PLATE—E18



PLATE—E19

TABLE 13

Ratings and Dimensions

Size		*Ratings No. of Baths	Length	Appr. Ship. Wt. Lbs.
Type	In.			
A	½"	1-2	5⅛"	2¼
A	¾"	1-3	5⅛"	2¼
B	½"	1-2	4"	2
B	¾"	1-3	4"	2
T	1"	3-20	8⅜"	7
T	1½"	15-40	9 1/16"	10
T	2"	40-90	9 7/16"	13

*Where water pressure is under 60 lbs. per square inch, use next larger size valve.

For Water with a Final Temperature of 140° F.

AVERAGE SERVICE *Water Requirements* FOR VARIOUS TYPES OF BUILDINGS

FOR TANKLESS HEATERS (Use as listed) •

APARTMENT HOUSES—*180 G.P.H. Base, plus:*

Apartments or baths	12 G.P.H. for each
Barber Shop	10 G.P.H. for each fixture
Beauty Parlor	10 G.P.H. for each fixture
*Soda Fountain	60 G.P.H. for each fixture

If automatic dishwasher is used, determine actual requirements.

*Restaurant or Tavern — 1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

Laundry Washing Machines — 30 G.P.H. for each

BARBER SHOPS—*180 Gals. Per Hour Base,* plus 10 G.P.H. for each fixture.

BEAUTY SALONS—*180 Gals. Per Hour Base,* plus 10 G.P.H. for each fixture.

CLUBS—*180 Gals. Per Hour Base, plus:* (Business and Residence)

**Showers — 60 G.P.H. for each

Lavatories — 10 G.P.H. for each

*Restaurants — 1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

FACTORIES—*180 Gals. Per Hour Base, plus:*

**Showers	120 G.P.H. for each
Lavatories	10 G.P.H. for each
*Restaurants	1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.
Processing	Actual requirements
***Bradley Wash Fountains	54" Circular—260 G.P.H. 54" Semi-Circular—180 G.P.H. 36" Circular—180 G.P.H. 36" Semi-Circular—125 G.P.H.

GOLF CLUBS—*180 Gals. Per Hour Base, plus:*

**Showers	120 G.P.H. for each
Lavatories	10 G.P.H. for each
*Restaurants	1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

GYMNASIUMS—*180 Gals. Per Hour Base, plus:*

**Showers	120 G.P.H. for each
Lavatories	10 G.P.H. for each

FOR STORAGE HEATERS (Omit 180 G.P.H. Base)

HOSPITALS—*180 Gals. Per Hour Base, plus:*

**Showers or Tubs	60 G.P.H. for each
Lavatories	10 G.P.H. for each
Laundry Tubs	120 G.P.H. for each
Dishwashers	1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

HOTELS—*180 Gals. Per Hour Base, plus:*

**Showers or Tubs	12 G.P.H. for each
Lavatories only	10 G.P.H. for each
Barber Shop	10 G.P.H. for each fixture
Beauty Salon	10 G.P.H. for each fixture
*Soda Fountain	60 G.P.H. for each fixture. If automatic dishwasher is used, determine actual requirements.
*Restaurants	1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.
Laundry Tubs	120 G.P.H. for each

OFFICE BUILDINGS—*180 Gals. Per Hour Base, plus:*

Lavatories — 10 G.P.H. for each

Barber Shops — 10 G.P.H. for each fixture

Beauty Salons — 10 G.P.H. for each fixture

*Restaurants — 1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

*Soda Fountain — 60 G.P.H. for each fixture. If automatic dishwasher is used, determine actual requirements.

RESIDENCES—

Refer to page 14 Table 20 for Storage Heaters. For Tankless Heaters see page 12 Table 14.

RESTAURANTS OR TAVERNS—*180 G.P.H. Base, plus:*

1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

SCHOOLS—*180 Gals. Per Hour Base, plus:*

**Showers	120 G.P.H. for each
Lavatories	10 G.P.H. for each
*Restaurants	1½ G.P.H. for each meal served during peak period. If automatic dishwasher is used, determine actual requirements.

SODA FOUNTAINS—*180 Gals. Per Hour Base, plus*

1 G.P.H. for each person served during peak period. If automatic dishwasher is used, determine actual requirements.

*Some communities require a 180° F. sterilize-rinse for dishes and pots. To obtain this high temperature, steam is generally used as the heating medium.

**These requirements are based on shower heads regulated for a maximum flow of hot water of 2 G.P.M. This is particularly important in clubs, schools and gymnasiums.

***These requirements represent the quantity of 140° F. water required to deliver 100° F. to 115° F. mixed water at the outlets.

TACO EXTERNAL TANKLESS HEATERS

• *For Larger Sizes of Taco Heaters See Separate Catalog* •

PLATE—H-23
Tankless Taco Cast Iron Shell

Working Pressure lbs. per square inch

Coil	Shell	
150	15 Steam	30 Water

Taco Tankless Heaters supply hot water without the need of a storage tank. Service water connections are copper to brass or bronze only. All copper coils are readily removable. Taco Tempering Valves are recommended for use with these Taco Heaters.

RATED CAPACITIES AND DIMENSIONS

Size	Number of Baths	Gallons Heated from 40° to 140°F. Boiler Water 180°F.	Boiler Water Pipe Sizes	Domestic Water Conns.	Width by Height by Length	Tempering Valve Required	Taco Flow Regulator Size	Shipping Weight Lbs.
TABLE 14 — RESIDENTIAL TANKLESS HEATERS								
142F	1 to 2	4	2"	½"	10⅛ x 12⅛ x 16½	B or A½"	4G	69
153F	3	5	2½"	½"	10⅛ x 12⅛ x 16½	B or A½"	5G	73
184F	4	6	2½"	¾"	10⅞ x 14 x 18	B or A¾"	6G	107
238F	8	8	2½"	1"	12 x 14½ x 21	T - 1"	8G	141

TACO EXTERNAL STORAGE HEATERS

PLATE—H1

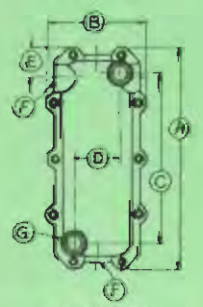
Toco Storage Heaters are used for heating tank service water when connected to steam or hot water heating boilers. They consist of copper coils surrounded by cast iron or steel shells. Service water connections are copper to brass or bronze only. All copper coils are readily cleanable.

Working Pressure lbs. per square inch — Coil 150 — Shell 15 Steam 30 Water

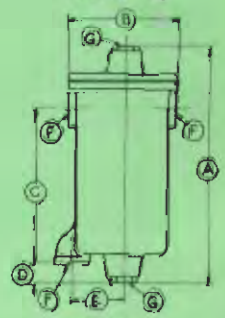
PLATE—H2

TABLE 15 — SELECTION FOR OIL AND STOKER JOBS BOILER WATER AT 180° F.

Number of Baths or Families	TACO SIZE		Pipe Connections Boiler	Pipe Connections Tank	Tank Capacity Gallons
1	Domestic No.	2	1¼"	1"	40
1- 2		28	1¼"	1"	66
2- 3		3	2"	1¼"	82
4- 5	Multi-Coil No.	MC180	2"	1½"	120
5- 6		MC240	2"	1½"	150
6- 7		MC300	2½"	2"	180
7- 9		MC360	2½"	2"	250
9-11		MC450	3"	2½"	300
11-15		MC600	3"	2½"	375



PLATE—E1
Domestic Taco—Cast Iron Shell



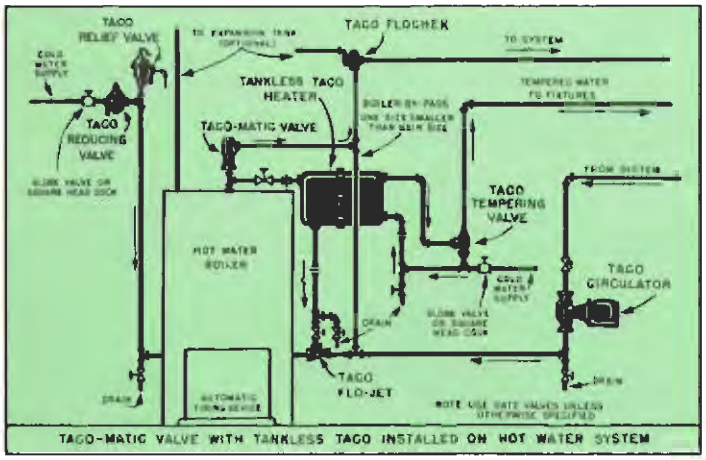
PLATE—E2
Cast Iron Shell, Multi-Coil Taco

SIZE OF TACO	CAPACITIES Gallons in 3 Hours Heated from 40° to 140°F. Taco Below Water Line: Boiler Water at 212°F.	CAPACITIES Gallons in 3 Hours Heated from 40° to 140°F. Taco Below Water Line: ‡Boiler Water at 180°F.	CAPACITIES Gallons in 3 Hours Heated from 40° to 140°F. TACO on Steam of 0 lbs. Gauge Pressure	CAPACITIES Square Feet Hot Water Radiation *TACO Below Water Line Boiler at 212°F.	CAPACITIES Square Feet Hot Water Radiation *TACO on Steam of 0 lbs. Gauge Pressure	SIZE OF TACO	PIPE CONNECTION Boiler Conn. Inches F	PIPE CONNECTION Tank Conn. Inches G	Height or Length Inches A	Diameter Inches B	Location of Tappings C	Location of Tappings D	Location of Tappings E	Shipping Weight Lbs.
TABLE 16 — DOMESTIC TACO														
1A	52	30	100	50	80	1A	1	¾	14¾	6	11½	2⅝	1½	18
2	82	52	150	65	105	2	1¼	1	15¼	7½	10¾	3½	2⅛	25
28	120	82	225	95	155	28	1¼	1	19⅜	7½	15½	3½	2½	38
3	160	120	300	140	230	3	2	1¼	21½	9	17	4⅜	2½	63
TABLE 17 — MULTI-COIL TACO														
MC 150	250	150	475	210	310	MC 150	2	1¼	20⅛	8⅝	11⅞	1⅞	3⅞	65
MC 180	300	180	560	250	375	MC 180	2	1½	20¼	9¾	11	2⅜	4	75
MC 240	400	240	750	330	500	MC 240	2	1½	22¾	9¾	13⅞	2⅜	4	84
MC 300	500	300	940	420	625	MC 300	2½	2	22⅞	12	13⅛	2⅛	4¾	129
MC 360	600	360	1150	500	750	MC 360	2½	2	25½	12	16	2⅛	4¾	140
MC 450	750	450	1410	630	940	MC 450	3	2½	26½	15	16	2½	6	209
MC 600	1000	600	1620	710	1130	MC 600	3	2½	31	15	20¾	2½	6	251

*Based on 150 Btu (170°F. average radiator temperature). A circulator is recommended for this application.
‡Automatically fired for year round operation.

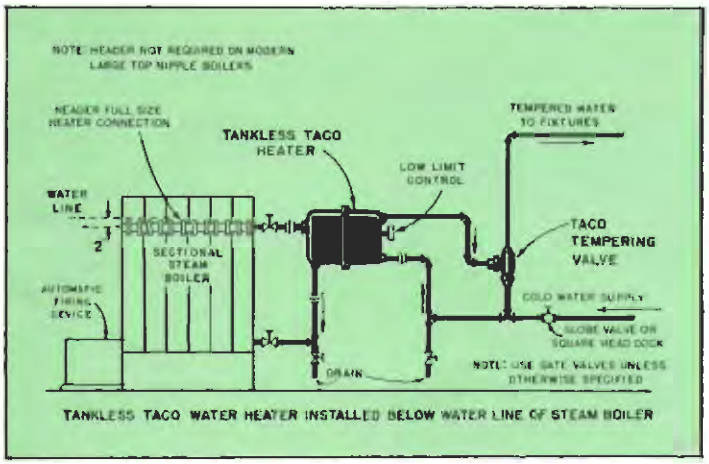
TACO EXTERNAL TANKLESS HEATERS

Diagrams



TACO-MATIC VALVE WITH TANKLESS TACO INSTALLED ON HOT WATER SYSTEM

PLATE—E16



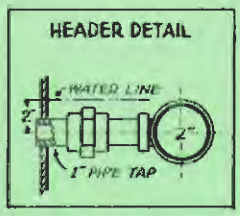
TANKLESS TACO WATER HEATER INSTALLED BELOW WATER LINE OF STEAM BOILER

PLATE—E15

GENERAL

LOCATING AND CONNECTING HEATER

Taco heaters may be used with sectional or round cast iron or steel boilers.



PLATE—E7

TABLE 18—Tappings Giving Equalization of Pipe Areas

Header Size (Dia.)	Sizes, Quantity Tappings in Boiler Sections		
	1"	1¼"	1½"
2"	4	3	2
2½"	6	4	3
3"	9	5	4
4"	15	10	7

Tappings smaller than 1" not practical

STEAM SYSTEMS

Taco should be installed as close to the water line as possible. On **Sectional Steam Boilers,** where the water line is below the bottom of the top nipple ports, all sections should be tapped and headered together. Plate E7 above shows best method of header connection. If boiler has large top nipple port providing intersectional circulation only one tapping and no header is required. If boiler has divided (split) sections, tap each section on both sides and connect together with headers. If boiler has waterways extending above normal water line, keep water sufficiently high during summer to cover these water ways. This enables aquastat to hold entire boiler at 180°F. without steaming in summer. Round cast iron or steel boilers do not require headers.

HOT WATER SYSTEMS

Taco Heaters should be installed at the top of **hot water boilers** to increase circulation of boiler water through the shell of the Taco. For year round operation some means to prevent circulation of hot water to the radiation when heat is not required must be provided. This may be done by a Taco Flow Check which is operated by a Taco Circulator. Plate E11 and Plate E16 on this page illustrates connections to boiler.
If the Taco heater is installed by separate boiler connection, vent this circuit into the expansion tank. In such cases, do not vent from Taco Flow Check to expansion tank.

TACO EXTERNAL STORAGE

SELECTING HEATER AND TANK

See page 12 of this catalogue for detailed recommendations of average water requirements to aid in selection of heater sizes for all types of applications. Private residences and apartments having 3 to 5 rooms usually require a minimum of 30 gallons of storage for each family or bath. Oversize storage tanks are desirable. Where there are many servants and an unusual demand for kitchen and laundry, use 50 or more gallons of storage per bath with a minimum tank capacity of 100 gallons.

STORAGE TANK CAPACITY

Storage tanks of given diameter contain the number of gallons shown per foot of length.

12"	6 gallons	30"	36 gallons
14"	8 gallons	36"	52 gallons
16"	11.2 "	42"	72 gallons
18"	13.5 "	48"	94 gallons
20"	16 gallons	54"	119 gallons
24"	24 gallons	60"	147 gallons

Installation Details

CONTROLS

Furnish, install, and so wire temperature controlling devices that boiler water is maintained at 180°F., when room thermostat is satisfied. All control companies supply wiring diagrams. Install a TACO-MATIC VALVE (eliminates the need of a reverse acting control) on each forced hot water system to prevent boiler water temperature from dropping below 175°F. When locating aquastat in piping connections to Taco, exercise care not to restrict boiler water circulation.

INSULATION

Insulate storage tank, piping and Taco for fuel economy.

TAX ON HEATING BOILER

Allowance for domestic hot water need be made in the selection of a boiler only if there are more than two bathrooms to be served or if the use of domestic hot water exceeds 75 gallons in 24 hours, in which case the following allowance should be made:

Storage Type Taco: 120 BTU per gallon of storage tank capacity.

Tankless Taco: 12,000 BTU for each bathroom in excess of two.

VALVES AND DRAINS

Use gate valves for proper cleaning of Taco and for controlling quantity of water entering Taco shell and coil. Drains and blow-offs are necessary.

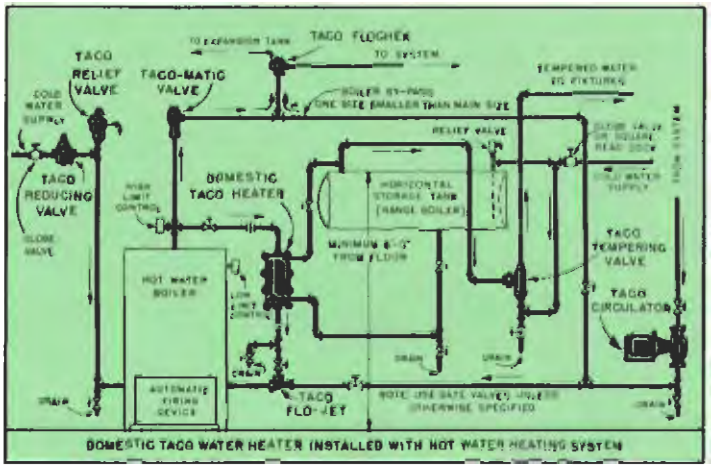
HARD WATER AREAS

In those areas where excessive lime is present in the water, use of Tankless Taco is not recommended, except where provision is made for regularly cleaning Taco. Use of Taco Tank with Heating Unit is suggested in such hard water areas.

TEMPERING VALVE

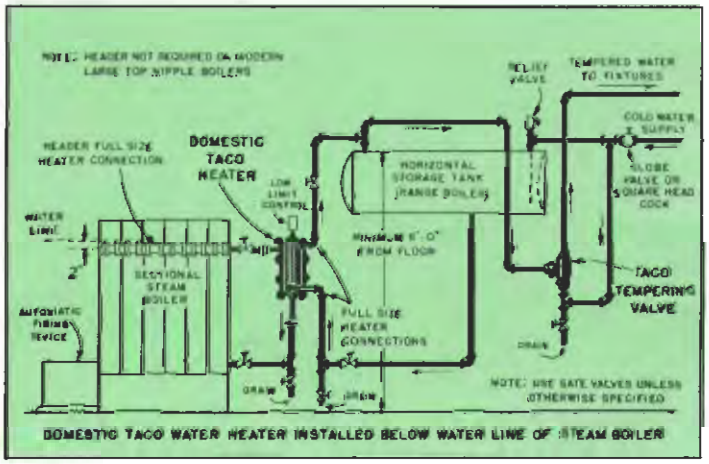
To prevent excessively hot water at fixtures a Taco Tempering Valve should be installed.

Diagrams



DOMESTIC TACO WATER HEATER INSTALLED WITH HOT WATER HEATING SYSTEM

PLATE—E11



DOMESTIC TACO WATER HEATER INSTALLED BELOW WATER LINE OF STEAM BOILER

PLATE—E10

HEATERS Installation Details

Vertical storage tanks up to about 66 gallon capacities are satisfactory, if properly installed. Top of tank should be at least 6' above floor level.

Horizontal storage tanks are recommended for medium size installations and are essential on large jobs. Horizontal storage tanks smaller than 14" in diameter are not recommended. Keep top of medium size tank at least 3' above boiler water line, higher if possible. On large installations, keep bottom of storage tank at or above boiler water level . . . higher if possible.

PLATE—E8

PLATE—E9

CONNECTING TACO HEATER AND TANK

Plates E8 and E9 above show connection made by means of a close nipple and tee into hot water outlet from vertical and horizontal tanks respectively.

Do not connect into center of head of horizontal tank.

Domestic water piping should be brass pipe or copper tubing.

OTHER OUTSTANDING TACO PRODUCTS

TACO CONVERTERS AND COMMERCIAL WATER HEATERS, for heating water or radiation using steam or boiler water as the heating medium. For more detailed information about these Taco heat exchangers see catalog form number 503010.

TACO CWF CHILLERS AND EVAPORATORS, for chilling water used in air conditioning and refrigeration (with freon). The Taco Chiller's shell and tube construction benefits directly from Taco's long and successful experience in the large heat exchanger field. See catalog form number 520809 for more details.

STRAIGHT TUBE HEATERS were designed primarily for easy cleaning. To clean, it is not necessary to remove any piping. Just remove rear head, run a brush or tube cleaner through the tubes, replace rear head and flush.

Heaters of this type are regularly supplied with cast iron shell and copper tubes. Special alloy tubes are also available at extra cost.

See form number 531105 for details.

BILTIN TACO HEATERS are supplied to many manufacturers of cast iron and steel boilers.

They are designed specifically for their respective boilers by the joint engineering staffs of the boiler manufacturer and Taco.

Illustrated is one of the many designs we manufacture. But more important is the fact that their quality is the finest that money can buy. So be sure that every boiler you buy is equipped with a GENUINE BILTIN TACO.

TACO MULTI-PURPOSE PUMPS have a wide application of uses, and one of their most important purposes is to fill the design requirements of the many applications of the Original Equipment Materials Field. They can be used as coolant pumps for soluble oil, and as pumps for all types of liquids; they have many applicatians where it is desired to move water at any temperature up to 210°F.

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