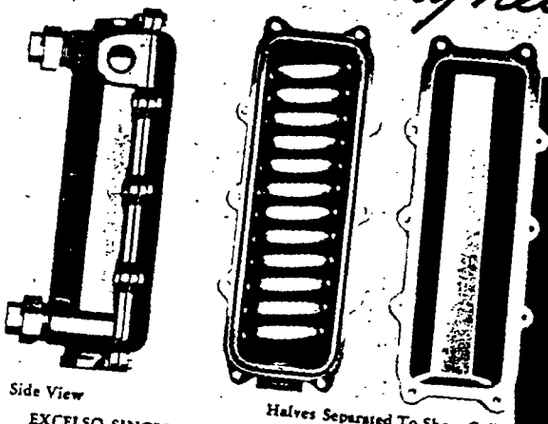
PLAINTIFF'S EXHIBIT

ASI-999

AMERICAN HEATING ACCESSORIES

Make any heating system better



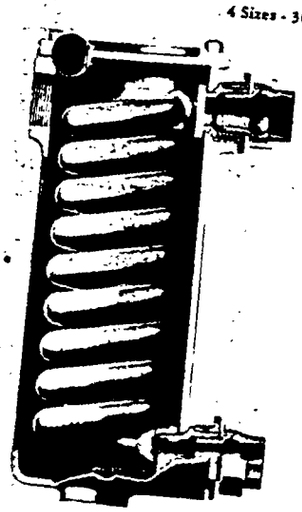
Side View

Halves Separated To Show Coil

EXCELSO SINGLE COPPER COIL · INDIRECT HEATER
4 Sizes - 30 to 52 Gallons Capacity

EXCELSO HEATERS
DIRECT AND INDIRECT

for domestic hot water supply in homes or buildings of any size



Excelso Single Copper Coil Indirect Heater. 5 sizes-66 to 144 gallons capacity.



Excelso Double Copper Coil Indirect Heater. 4 sizes-160 to 400 gallons capacity.



Excelso Triple Copper Coil Indirect Heater. 4 sizes-500 to 1000 gallons capacity.

Excelso Dual Copper Coil Indirect Heater. 4 sizes-1200 to 2500 gallons capacity.

These products are part of the complete line of AMERICAN Heating Accessories, which includes Air and Vent Valves; Packed and Packless Radiator Valves; Circulator and Convector Valves; Balancing Elbows and Fittings; Direct and Indirect Water Heaters; Damper Regulators; Thermostats; and Controls for all heating requirements.

AMERICAN-Standard

HEATING & PLUMBING

Serving the Nations' Health and Comfort

04104

EXCELSO

Indirect water heater

The Nation's best known "FUELLESS" water heater

Excelso pioneered this economical method of heating domestic water. Hundreds of thousands of Excelso Heaters have been serving the public for over 25 years.

All single coil heaters, sizes 10 to 16 inclusive have union at both coil openings. All shell openings have female connections. Sizes 25 and larger have female connections at coil and shell openings.

04105

QUALITY FEATURES

Easily removable cover plate facilitates cleaning and inspection of heater interior.

Shells are close-grained, heavy walled gray iron castings, all carefully machined. Gasket surface is precision ground. Self draining construction shell helps eliminate sediment accumulation.

Coils are of pure, heavy gauge, helically wound seamless copper tubing.

Patented Ground Joint Brass Connections in sizes 13 to 48 inclusive permit easy replacement or cleaning of coil.

ABUNDANT HOT WATER. Excelso Indirect Water Heaters utilize the heated water in the heating boiler to provide ample domestic hot water supply. The same fire is used for both heating and hot water. As long as boiler is in operation, hot water is available. Excelso Heaters are conservatively rated, therefore each size delivers its full rated capacity, for efficient and economical service.

SAVINGS OF MORE THAN HALF USUAL COST. The high efficiency of Excelso Units, plus the elimination of all care and fuel expense of a separate heater, permits extremely low operating costs. Savings of 50% to 75% are usually effected. Excelso installations pay for themselves in a comparatively short time.

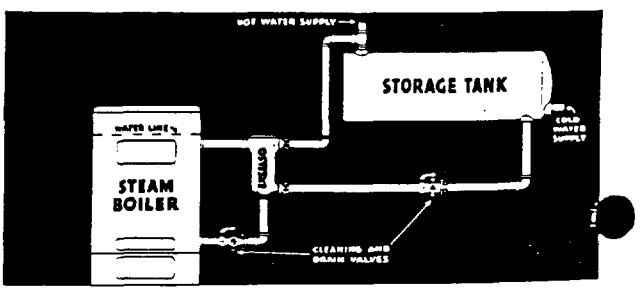
CAPACITIES OF FROM 30 TO 2500 GALLONS. This large range of capacities offers a selection of sizes to meet practically any demand. Any size home, store, apartment or other building requiring hot water, can easily be equipped with Excelso Indirect Heaters, for convenient and inexpensive hot water supply.

MANY VARIED USES. Excelso Indirect Water Heaters have many applications besides domestic hot water supply. Warming swimming pools—warming sprinkler tanks to prevent freezing—heating industrial process hot water—heating auxiliary radiation—are a few of many every day uses.

ALL YEAR HOT WATER. Automatically fired steam and forced hot water heating systems, when equipped with Excelso Indirect Water Heaters, provide the modern convenience of year 'round hot water, simply by continuing to run the boiler during the summer months. The operating cost is moderate and expense of a separate direct-fired water heater saved.

OPERATING PRINCIPLE. Hot water from heating boiler circulates down through the *shell* of Excelso Unit, transferring its heat to the domestic water which circulates up through the *coil* to storage tank. (See typical installation drawings.) This keeps a constant supply of hot water available in storage tank, with practically no extra tax on boiler.

TYPICAL INSTALLATION

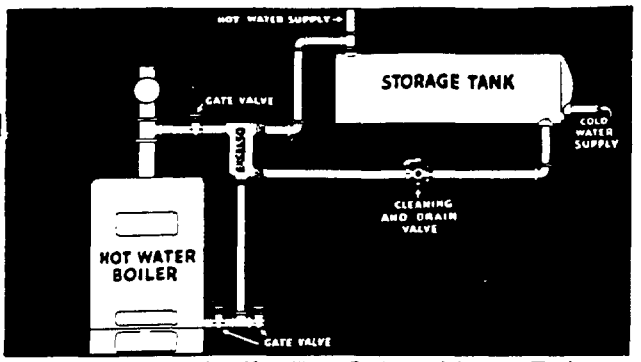


Excelso connected to Steam Boiler and Storage Tank

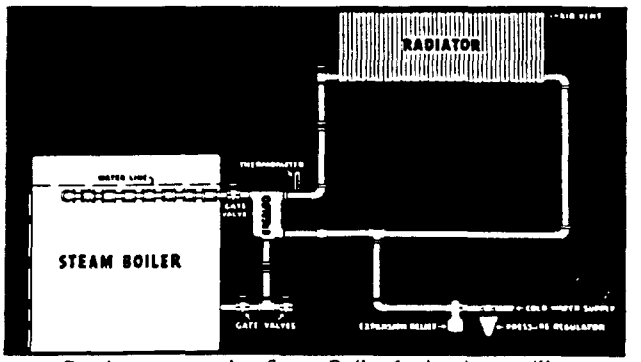
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TYPICAL INSTALLATIONS



Excelso connected to Hot Water Boiler and Storage Tank



Excelso connected to Steam Boiler for heating auxiliary hot water radiation

EXCELSO INDIRECT HEATERS (STOCK NO. 740) CAPACITIES AND DIMENSIONS

	Size No.	Capacities—Gallons in 3 Hours Heated from 40 to 140° F. Heater Below Water Line—Boiler Water at 212°	Heater with Boiler Water at 180°	Heater in Live Steam 0 lbs. Pressure	Length In.	Width In.	Diameter In.	Shell Openings Number and Size	Coil Openings In.	C. to C. Coil Openings In.
Single Coil	10	30	.....	40	8 3/4	5 3/4		2-1"	3/4	5 1/2
	011	30	.....	50	9 7/8	5 3/4		2-1"	3/4	6 7/8
	012	40	.....	75	11 7/8	5 3/4		2-1"	3/4	8 3/16
	012A	52	30	100	14 3/4	5 3/4		4-1"	3/4	11 3/16
	13	66	40	125	11 3/4		6 1/2	2-1 1/2"	1	7 5/8
	14	82	52	160	15 1/2		6 1/2	2-1 1/2"	1	11 3/8
	14A	100	66	200	18 1/8		6 1/2	2-1 1/2"	1	14
	15	120	82	225	19 1/4		6 1/2	3-1 1/2"	1	15 1/4
	16	144	100	250	23 1/2		6 1/2	3-1 1/2"	1	19 1/4
Double Coil	25	160	120	300	12 1/2		9	2-2"	1 1/2	6 3/8
	26	192	144	400	15		9	2-2"	1 1/2	8 7/8
	27	300	160	600	19		9	3-2"	1 1/2	13 5/8
	28	400	192	750	23 1/4		9	3-2"	1 1/2	17 3/4
Triple Coil	34	500	300	900	18 3/4		13 3/4	3-3"	2 1/2	11 1/2
	35	600	400	1200	21		13 3/4	3-3"	2 1/2	13 5/8
	36	800	500	1500	25		13 3/4	3-3"	2 1/2	17 3/4
	37	1000	600	1750	29		13 3/4	3-3"	2 1/2	21 1/2
Dual Coil	42	1200	1000	2000	21 1/2	26	13 3/4	3-4"	3	13 5/8
	44	1600	1200	2500	25 1/4	26	13 3/4	3-4"	3	17 3/4
	46	2000	1600	3000	29 1/4	26	13 3/4	3-4"	2	21 1/2
	48	2500	2000	4000	35 1/4	26	13 3/4	3-4"	3	27 1/2

HOT WATER RADIATOR HEATING CAPACITIES—SQUARE FEET

Capacities of Excelso Water Heaters in square feet of direct water radiation, shown here, are for heaters installed below water line of steam or vapor boilers and on live steam. Always allow extra capacity above actual direct radiation for mains and risers.

Size of Heater	10	011	012	012A	13	14	14A	15	16	25	26	27	28	34	35	36	37	42	44	46	48
*Below Water Line	20	30	40	45	55	80	90	100	120	130	150	250	330	400	500	650	800	1000	1100	1300	1600
†Live Steam	40	50	60	70	85	120	140	160	180	200	250	400	500	600	800	1000	1200	1500	1750	2000	2500

*Below water line capacities based on 120°F. heater inlet temperature and 160°F. outlet temperature. Boiler water temperature 212°F.

†Steam capacities based on 140°F. heater inlet temperature and 180°F. outlet temperature. Steam at 0 lbs. gauge pressure. For capacities with higher steam pressures, multiply above ratings by correct factor in steam conversion table below.

STEAM CONVERSION TABLE

Steam Pressure, Lbs.	0	2	5	10	15	20	25	30	40	50	75	100
Factor	1.	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.	2.2	2.6

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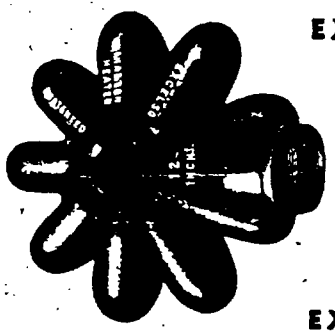
EXCELSO PRODUCTS ARE BACKED BY THE BEST KNOWN NAME IN HEATING

EXCELSO DIRECT WATER HEATERS

These Heaters are designed for installation in the fire-pots of heating boilers or warm air furnaces and will supply domestic hot water, or heat auxiliary radiation, as long as heating unit is in operation.

The three Excelso Direct Water Heaters shown below have stood the test of time and have proven capable of supplying domestic hot water at lowest cost. They are universally accepted by Heating and Plumbing Contractors who desire the best in quality and reliability.

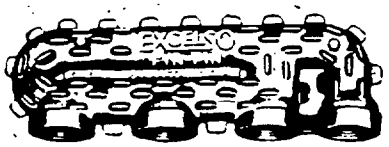
Carefully made of cast iron and thoroughly tested before shipment, Excelso Direct Water Heaters possess long life and assure dependable service. Ten sizes are available with capacities from 30 to 250 gallons.



PHAETON

EXCELSO PHAETON WATER HEATERS (STOCK NO. 741)

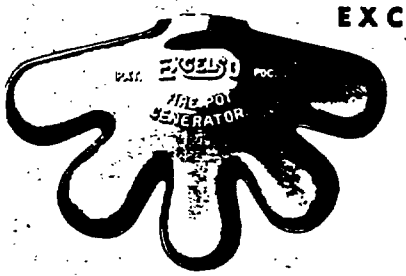
Excelso Phaeton Heaters are probably the most efficient fire-pot heating units ever designed. They are made with the same special care as all other Excelso products, involving sturdy, smooth castings, properly cut threads, and other refinements that give them extra dependability. These Heaters are made in six sizes handling up to 250 gallons of hot water capacity or 400 square feet of radiation. Besides being outstanding for domestic hot water supply, they are used extensively for warming auxiliary radiation in enclosed verandas, bathrooms, kitchens, or wherever additional warmth, not supplied by regular heating plant, is required. Made of iron.



FIN PIN

EXCELSO FIN PIN WATER HEATERS (STOCK NO. 743 IRON)

Excelso Fin Pin Water Heaters are inexpensively priced and are installed down in the firebeds of boilers and furnaces. This Excelso Heater gives particularly good service in soft coal and coke fired heating plants because the body of the unit projects down into the fuel bed below the caked surface and into the live coals. The fins on the castings provide air circulation thus eliminating a dead spot in the fire around the heater. Because Excelso Fin Pin Heaters are made from cast metal their span of life is much greater than ordinary iron pipe coils.



FIRE POT GENERATOR

EXCELSO FIRE POT GENERATORS (STOCK NO. 742)

Excelso Fire Pot Generators are made in two sizes, 40 and 60 gallons capacity. The wide five finger waterways provide rapid circulation and reduce to a minimum the possibility of sediment accumulation. In territories where hard water is encountered the Excelso Fire Pot Generator is the ideal heater being far superior to pipe coils or heaters with small waterways. This heater is particularly adaptable to hot water heating boilers, because it fits closely to the back wall of the boiler and is installed above the fire.

Three tappings in size No. 1 and four in size No. 2 provide for standard 2½" firepot openings as well as practically all firepot or door frame openings.

Made of iron.

CAPACITIES AND DIMENSIONS
EXCELSO PHAETON WATER HEATERS (STOCK NO. 741)

Gallons Tank Capacity	Hot Water Rad. Cap.	Diameter In.	Height In.	Tapping Sizes In.	C. to C. Side Outlets
30	40	6	3 ½	1	2 ½
45	75	8	4 ½	1	2 ½
80	100	10	5 ¼	1 ½	3
100	150	12	6	2	3 ½
150	250	15	7	2 ½	4 ½
250	400	18	8	3	5 ½

CAPACITIES AND DIMENSIONS
EXCELSO FIN PIN WATER HEATERS (STOCK No. 743 Iron)

Size	Gals. Tank Capacity	Size of Tappings In.	Over-all Dimensions In.	C. to C. of Tappings In.
No. 30	30	1	12x4x2	2 ½-5 ¾-9
No. 40	40	1	12x5x2	2 ½-5 ¾-9
EXCELSO FIRE POT GENERATORS (STOCK NO. 742)				
1	Up to 40	1	6 ½x10x5	2 ½
2	Up to 60	1	8 ½x10x8	2 ½-5 ½

AMERICAN RADIATOR & Standard Sanitary
New York CORPORATION Pittsburgh
PITTSBURGH 30, PA.

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