

ELGE® Shell & Coil Heat Exchangers Type MD

Technical Description

SCOPE OF APPLICATION

Type MDR covers a complete range of applications for radiators, ventilation, geothermal heating and drying systems.

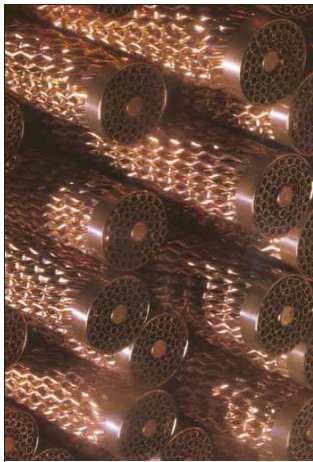
Type MDS are for domestic hot water applications.

HEAT TRANSFER MEDIA

The heat exchangers are designed for steam-water, water-water and glycol compound applications.

COIL

The coil is manufactured from profiled spiral wound copper tubes. The special profile of the tubes forms the external flow area.



SHELL

The shell is made from copper which complies with current pressure vessel standard.

INSULATION

The insulation comprises fiberglass, covered with plastic sheeting. The insulation can be easily removed.

MOUNTING

Bracket on the shell for wall mounting.

PRESSURE AND TEMPERATURES

MAWP: 250 psi at 250 °F / 17 bar at 120 °C

MAWT: 300 °F at 245 psi / 150 °C at 17 bar

CONNECTIONS

Type MDR (heat exchangers):

Shell connections: Copper for brazing.

Coil connections: Copper for brazing.

Type MDS (water heaters):

Shell connections: Copper for brazing.

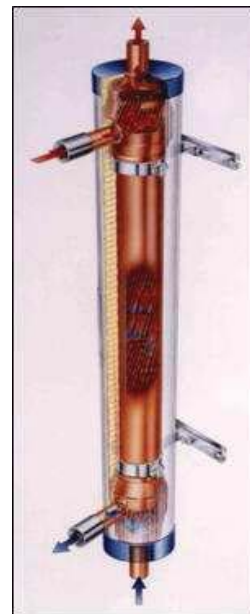
Coil connections: Copper for brazing.

NAME PLATE

A plate giving the reference number, type, data and type approval number is fitted to the outer shell.

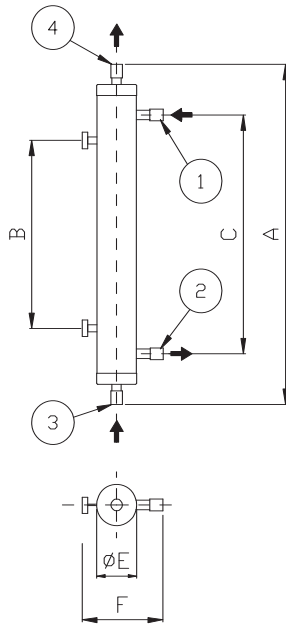
QUALITY ASSURANCE

Each MD heat exchanger is designed, manufactured and tested in accordance with ASME. "UM" Stamp is available upon request.



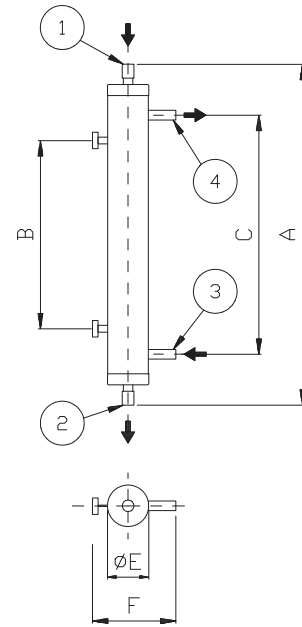
ELGE® Shell & Coil Heat Exchangers Type MD Dimensions

Type MDR



1. Primary Supply
2. Primary Return
3. Heating Return
4. Heating Supply

Type MDS



1. Primary Supply
2. Primary Return
3. Cold Water
4. Domestic Hot Water

Type	Dimensions (inch)					Weight lb	Connections				Volume US Gal.	
	A	B	C	E	F		1 inch	2 inch	3 inch	4 inch	Shell	Coil
MD-60-05	29.5	11.5	17.1	4.9	10.8	22	1		1		0.2	0.2
MD-60-10	50.4	29.2	35.0	4.9	10.8	26	1		1		0.3	0.3
MD-60-12	58.3	29.2	42.7	4.9	10.8	29	1		1		0.4	0.4
MD-80-08	42.9	27.0	28.3	5.9	12.0	33	1 1/2		1 1/2		0.3	0.4
MD-80-10	48.8	27.0	34.2	5.9	12.0	40	1 1/2		1 1/2		0.3	0.4
MD-80-12	56.7	27.0	42.1	5.9	12.0	44	1 1/2		1 1/2		0.4	0.6
MD-80-14	64.6	27.0	50.0	5.9	12.0	51	1 1/2		1 1/2		0.5	0.6
MD-100-08	44.9	29.0	30.3	6.9	13.0	41	2		2		0.5	0.5
MD-100-10	50.8	29.0	36.2	6.9	13.0	48	2		2		0.5	0.5
MD-100-12	58.7	29.0	44.1	6.9	13.0	52	2		2		0.7	0.7
MD-100-14	66.6	29.0	52.1	6.9	13.0	59	2		2		0.8	0.8

Standard delivery is with brackets for wall mounting, but also available with floor stand on special order.

Selection Table For "MDS" Steam-To-Water Heaters

Tables 1 show typical selections for applications with four different temperature rises and with seven different steam pressures.
NOTE: Valve in inches follows the letter in the designation. The trap size in inches follows the hyphen.

50—120 deg F (70 degree) Water Temperature Rise

TABLE 1

ELGE Model	HW GPM	MBH / HR	Steam 5 psi			Cond. Temp	Steam 10 psi			Cond. Temp	Steam 15 psi			Cond. Temp
			PPH	Valve	Trap		PPH	Valve	Trap		PPH	Valve	Trap	
MDS 60-05	3	105	109	0.75	OT-0.50	100	110	0.75	OT-0.50	97	110	0.75	OT-0.50	95
MDS 80-08	8	279	290	1.00	OT-0.50	76	292	1.00	OT-0.50	73	295	0.75	OT-0.50	71
MDS 100-08	21	731	761	1.50	OT-1.00	78	768	1.50	OT-1.00	76	773	1.25	OT-1.00	74

50—140 deg F (90 degree) Water Temperature Rise

TABLE 2

ELGE Model	HW GPM	MBH / HR	Steam 5 psi			Cond. Temp	Steam 10 psi			Cond. Temp	Steam 15 psi			Cond. Temp
			PPH	Valve	Trap		PPH	Valve	Trap		PPH	Valve	Trap	
MDS 60-05	2	89	93	0.75	OT-0.50	108	94	0.75	OT-0.50	103	95	0.75	OT-0.50	100
MDS 80-08	6	268	279	1.00	OT-0.50	85	281	0.75	OT-0.50	81	284	0.75	OT-0.50	78
MDS 100-08	18	805	837	1.50	OT-1.00	91	844	1.50	OT-1.00	87	851	1.25	OT-1.00	84

40—120 deg F (80 degree) Water Temperature Rise

TABLE 3

ELGE Model	HW GPM	MBH / HR	Steam 5 psi			Cond. Temp	Steam 10 psi			Cond. Temp	Steam 15 psi			Cond. Temp
			PPH	Valve	Trap		PPH	Valve	Trap		PPH	Valve	Trap	
MDS 60-05	3	120	124	0.75	OT-0.50	102	125	0.75	OT-0.50	98	126	0.75	OT-0.50	95
MDS 80-08	7	279	290	1.00	OT-0.50	69	293	1.00	OT-0.50	66	295	0.75	OT-0.50	64
MDS 100-08	20	797	829	1.50	OT-1.00	74	836	1.50	OT-1.00	71	842	1.25	OT-1.00	69

40—140 deg F (100 degree) Water Temperature Rise

TABLE 4

ELGE Model	HW GPM	MBH / HR	Steam 5 psi			Cond. Temp	Steam 10 psi			Cond. Temp	Steam 15 psi			Cond. Temp
			PPH	Valve	Trap		PPH	Valve	Trap		PPH	Valve	Trap	
MDS 60-05	2	99	103	0.75	OT-0.50	108	104	0.75	OT-0.50	103	105	0.75	OT-0.50	100
MDS 80-08	6	298	310	1.00	OT-0.50	83	313	1.00	OT-0.50	78	315	0.75	OT-0.50	75
MDS 100-08	16	795	828	1.50	OT-1.00	84	835	1.50	OT-1.00	80	841	1.25	OT-1.00	77

ORDERING EXAMPLE: SELECT ITEMS FROM THE TABLES ABOVE AND ON PAGES 8 & 9

SPU A11 S1.25 OT- 0.75 R1 N

Single Package Unit

S-Self-Acting
P-Pneumatic
E-Electric

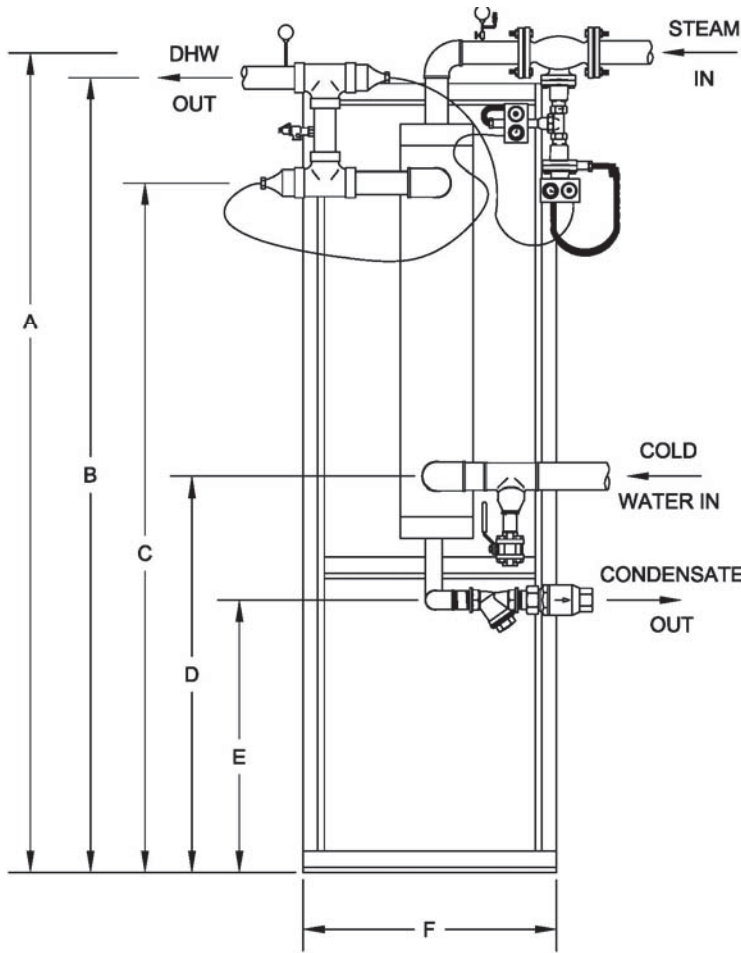
Y or N at the end for:
Yes I want optional
overheat protection or
No I don't.

ELGE Model	HW GPM	MBH / HR	Steam 5 psi			Cond. Temp	PD psi	HW GPM	ELGE Model
Model	GPM	/ HR	PPH	Valve	Trap	Temp	psi	GPM	Model
A11	10	447	465	1.25	OT-0.75	123	3.0	10	A11

Relief Valve Note:

R1	UP TO 1.9 MBH
R2	UP TO 2.1 MBH
R3	UP TO 3.6 MBH
R4	UP TO 4.5 MBH
R5	UP TO 6.0 MBH

Type "MDS" Steam Water Heater Dimensions



ELGE® Steam Water Heater Features

- Shell and Coil Water Heater-Insulated with Stainless steel jacket.
- Self-actuated Temperature Control Valve with Safety Temperature Limiter or Pneumatic Temperature Control Valve.
- Temperature Sensor.
- Float - Thermostatic Steam Trap.
- Temperature / Pressure Relief Valve.
- Y-strainer on condensate before trap.
- Temperature and pressure gauges.

NOTE: Self-actuated Temperature Control Valve with Safety Temperature Limiter shown at left.

Heat Exchanger Data Pressure and Temperature

Max. Operating Pressure 250 psig

Max. Operating Temperature 300° F

Materials of Construction

Pressure Vessel: Copper tube which complies with current pressure standard.

Pressure Heads: Wrot copper pressure fittings

Copper Tube: 3/8" Copper Tubing with 22 gauge wall (Specially perforated and spiral winding)

ELGE® SPU Model	Dimensions in inches						CW inlet	HW outlet	Weight pounds
	A	B	C	D	E	F			
MDS-60-05	63	57	37	17	13*	25	1.00	1.00	130
MDS-80-08	64	58	38	17	13*	25	1.50	1.50	140
MDS-100-08	65	59	39	17	13*	25	2.00	2.00	150

NOTE: * For trap and strainer size see selection tables
 + For Valve size see tables
 + Dimensions may change without notice

Represented By:

The Best Solution For Your Application

Coil Design is Reliable and Self-Cleaning

ELGE®'s coil design eliminates stress at the connection points due to expansion and contraction. In addition, this movement causes the coil to be self-cleaning. Scale is automatically removed and can be easily flushed from the system through the flush valve on the bottom of the Steam Water Heater.

Efficient and Economical

ELGE®'s Steam Water Heater is efficient in both space and performance. Its vertical design requires less than 4 square feet. ELGE's use of proven components provides a reliable yet economical package

Accurate Temperature Control

ELGE®'s Steam Water Heater may be specified with either self-actuated or pneumatic control valves. The state-of-the-art controls monitor water temperatures and modulate the steam flow to maintain a preset water temperature to +/- 4 deg F.

APPLICATIONS

- * Schools and Universities
- * Hospitals
- * Hotels and Restaurants
- * Apartment Buildings
- * Institutions
- * Correctional Facilities
- * Military Bases
- * Industrial Buildings
- * Sport Complexes
- * Retirement Homes

Eliminates Storage Tank Hazards

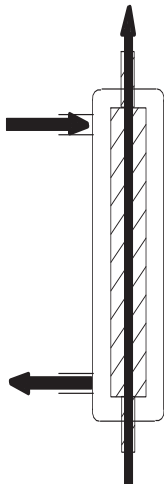
Expensive, spacious storage tanks can be eliminated or their size minimized by using an instantaneous ELGE® Steam Water Heater.

Storage tanks are a breeding ground for corrosion-causing bacteria and hazardous bacteria such as legionella, etc. Stratified tanks can supply the ideal breeding temperature for any type of water borne bacteria.

Superior Flow and Operation

The domestic water must circulate through the coil and the steam through the shell.

BEST



ELGE®

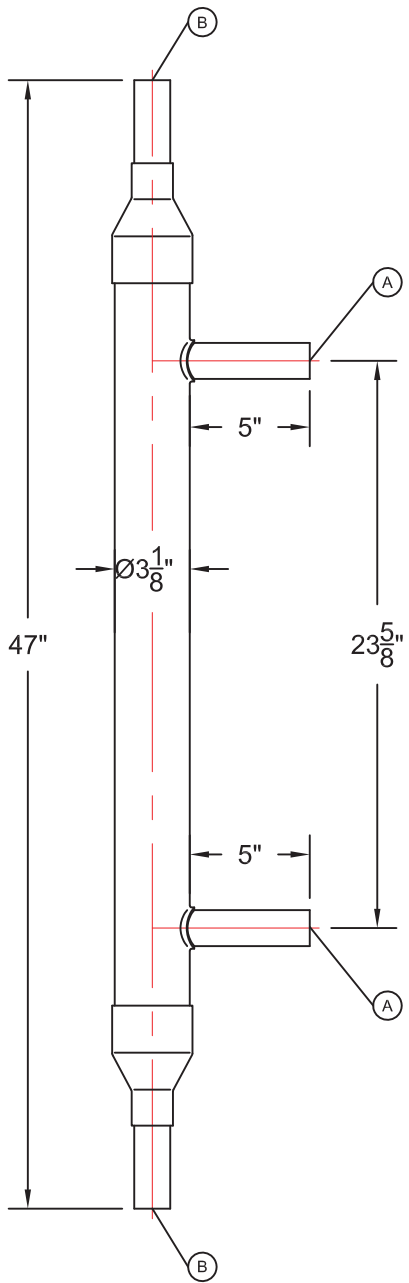
Water in the Coil

- High flow rate through oval shaped tube produces rapid, turbulent flow ideal for coil's heat transfer surface resulting in **high heat exchange efficiency**.
- Small volume of water heated only to the temperature required in circulating loop.
- Rapid flow rate and optimized water heating minimizes deposits in the tubes.
- Economical state-of-the-art controls can easily manage to maintain a preset water temperature to +/- 4°F under varying hot water load demands

Others

Water in the Shell

- Uses slow convective flow around the coil's heat transfer surface resulting in **poor efficiency**.
- Poor heat transfer design requires water closest to coils to be overheated.
- Overheating water and slow flow **maximizes mineral deposits** on tubes.
- **Expensive/complicated controls** required



APPROVED	
Company:	_____
Approved by:	_____
	Name

	Signature
Date:	_____

DESIGN DATA

LOCATION	PRESSURE, PSIG		TEMPERATURE, F°	
	DESIGN	TEST	DESIGN	TEST
SHELL	250	PER CODE	300	70

MATERIAL

SHELL	SB 75
HEAD	SB 75
NOZZLES	SB 75

NOZZLE

	SIZE	SERVICE	DESCRIPTION
A	1-1/2"	SHELL INLET, OUTLET	TUBING
B	1-1/2"	COIL INLET, OUTLET	TUBING

NOTES:

1. FABRICATED AND STAMPED
IN ACCORDANCE WITH ASME CODE, SECTION VIII, DIV.1
EDITION 2010 & ADDENDA 2011
2. N.D.E. - NONE.

DRAWN BY R.S.	
CHECK BY A.F.	
QUALITY CONTROL G.M.	

ELGE TECHNOLOGIES L.L.C.

MD-80-08
GENERAL

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Ronkonkoma, NY 11779
www.elgetechnologies.com

SIZE A	SERIAL NO	DWG NO. MD-80-08	REV 0
SCALE 1:8		SHEET #1	