

**Original Test Data**

Client: ECO Innovations Technology Inc. Engineer: Blaine Serio  
 Job No.: G101070334 Tested By: Pocholo Laforteza Date: 24-April-2013  
 Product: Drain Water Heat Recovery Pipe Reviewed By: Rick Curkeet Date: June 17<sup>th</sup>, 2013  
 Model No.: TD336B, TD342B, TD348B, TD360B, TD372 Standard(s): CSA B55.1 Issued: 2012/07/01 Test Method for Measuring Efficiency and Pressure Loss of Drain Water Heat Recovery Units  
 Sample Control Number(s): 134000131, 134000129, 134000126, 134000119, 134000120

Tests to be Performed					
Required	Page	Standard	Clause	Test Description	Pass/Fail
NA	1	NA	NA	Tests to be Performed	NA
NA	2	NA	NA	Test Equipment	NA
NA	3	NA	NA	Product Photos	NA
YES	4	CSA B55.1	5.2	Heat Recovery Efficiency	PASS
YES	5	CSA B55.1	5.2	Pressure Loss Vs. Length Chart	PASS
YES	6	CSA B55.1	5.2	Efficiency Vs. Length Chart	PASS
YES	7	CSA B55.1	5.2	Efficiency and Pressure Loss Vs. Length Table	PASS

**Original Test Data**

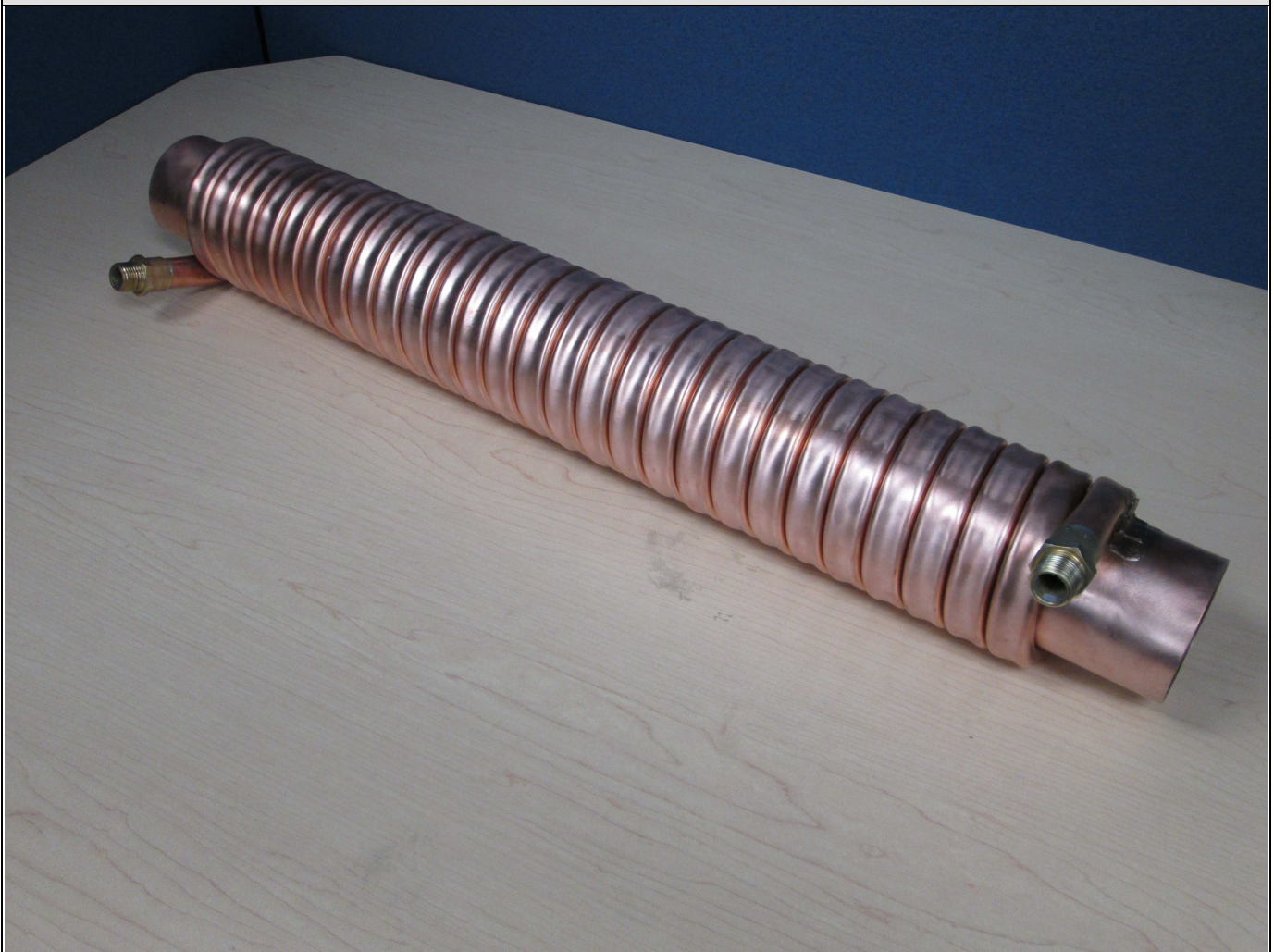
Client: ECO Innovations Technology Inc. Engineer: Blaine Serio *BS*  
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Test Equipment				
#	Description	ITS #	Cal. Date	Cal. Due
1	Controller with RTD	Serial: 8340798	14-Jan-2013	14-Jan-2014
2	Controller with RTD	Serial: 8340800	14-Jan-2013	14-Jan-2014
3	Controller with RTD	Serial: 8340801	14-Jan-2013	14-Jan-2014
4	Controller with RTD	Serial: 8370190	14-Jan-2013	14-Jan-2014
5	Pressure Transducer	Serial: 4823201001	11-Jan-2013	11-Jan-2014
6	Pressure Transducer	Serial: 4741505013	11-Jan-2013	11-Jan-2014
7	Flow Meter	Serial: 151007	15-Feb-2013	15-Feb-2014

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**Product Photos:**



**External View**



# Intertek Test Data Sheets

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**Heat Recovery Efficiency CSA B55.1 Clause 5.2 Pass:   X   Fail:**

**Test Purpose:**  
 To measure the heat transfer efficiency / effectiveness at various test points

**Test Clause:**

5.2.1	Each test point shall be recorded when the apparatus has reached the steady state test condition.
5.2.2	Tests shall be performed at the nominal flow rates of 5.5, 7, 9, 10, 12, and 14 ± 0.2 L/min. Each of these flow rates is referred to as a test point.
5.2.3	Potable water entering the DWHR unit shall be controlled to 12 ± 5 °C. Water entering the drain shall be controlled such that the temperature is 28 ± 1 °C above the potable water temperature.
5.2.4	A single supply of potable water shall be connected to the DWHR unit inlet. The same heated potable water flow shall be directed to the water heater and cold side of the mixing valve to ensure that it wholly and only supplies the drain water flow.
5.2.6	The drain water shall be made to flow into a type of trap both prior to falling vertical and after the DWHR unit. An immersion temperature sensor shall then be installed into the immersed section of each trap to enable accurate measurement of the drain water inlet and outlet temperatures. The traps shall be insulated to be a minimum RSI of 0.5 m <sup>2</sup> -K/W.

**Test Parameters:**

Inlet Water (Tci)	12 °C (± 5°C)
Drain Water Inlet (Thi)	(Tci) + 28°C (± 1°C)
Flow Rates	5.5, 7, 9, 10, 11, 12.5 and 14 L/min (± 0.2 L/min)

**Test Results:**  
**See the following excel sheets:**  
 Calculation\_sheet\_30\_inch.xlsx  
 Calculation\_sheet\_42\_inch.xlsx  
 Calculation\_sheet\_48\_inch.xlsx  
 Calculation\_sheet\_60\_inch.xlsx  
 Calculation\_sheet\_72\_inch.xlsx  
  
 T4\_Interpolation.xls

**Test Notes:**  
 Testing was conducted at the university of waterloo with the assistance of Professor Michael Collins. The tabulated results for the efficiency and pressure loss curve fits are shown below.

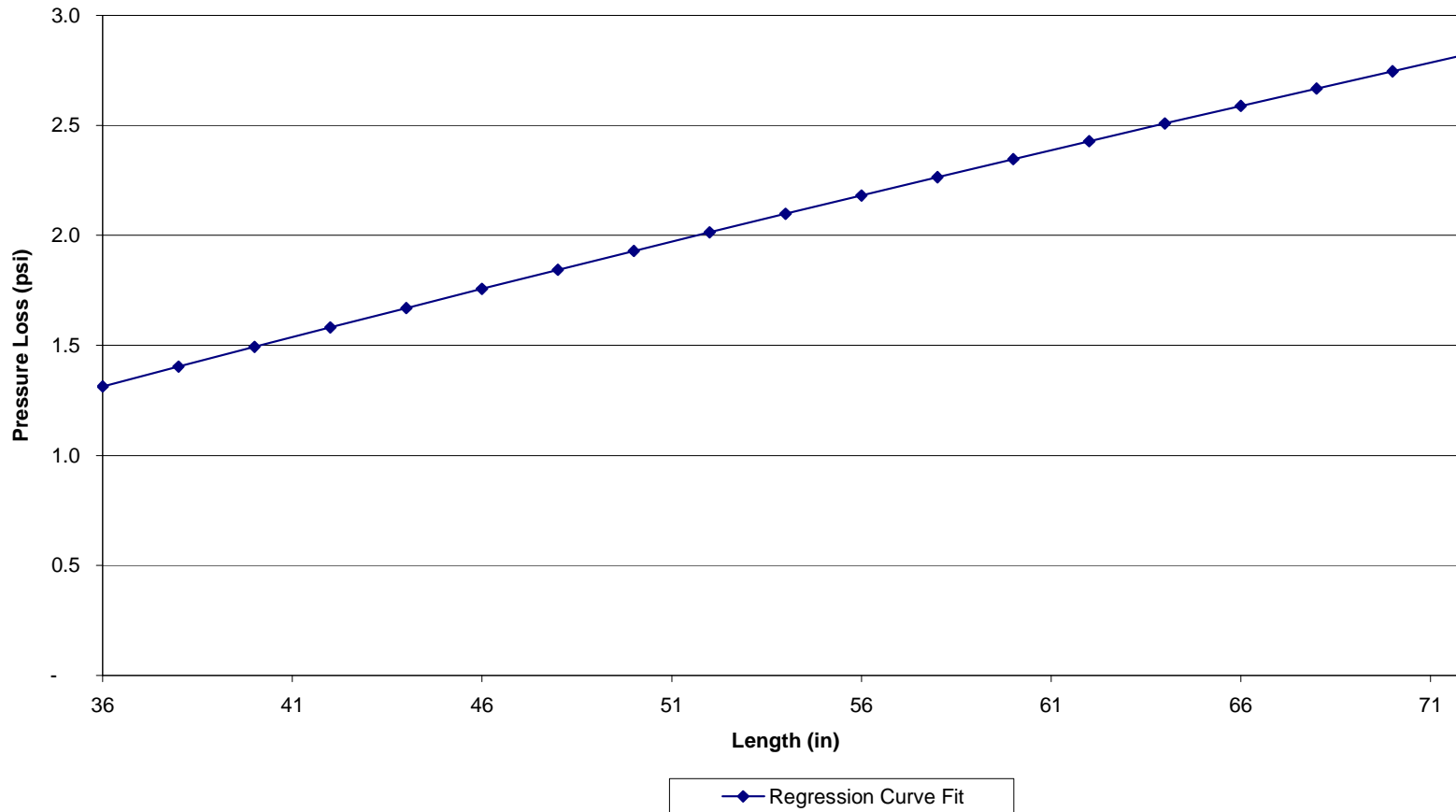
Equipment Used (See page 2 for details):

1	2	3	4	5	6	7			
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**Pressure Loss at 9.5 (L/min) Vs. Length**



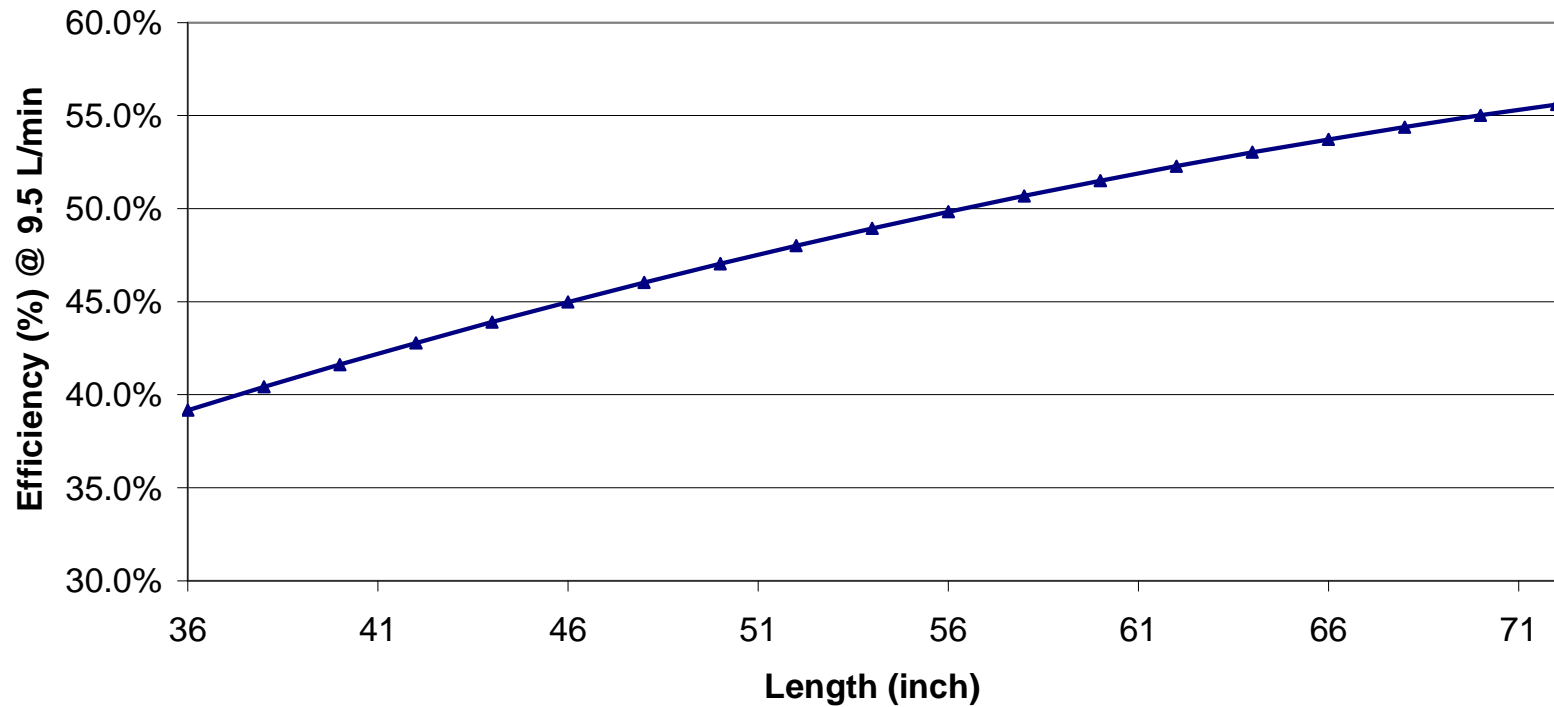
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**Calculate Efficiency at 9.5 (L/min) VS Length**



—▲— Regression Curve Fit

Equipment Used (See page 2 for details):

1	2	3	4	5	6	7			
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Model Number	Diameter (in)	Diameter (mm)	Length (in)	Length (mm)	Calculated Efficiency (%) @ 9.5 L/min	Calculated Pressure Loss (psi) @ 9.5 L/min	Heat Recover (kW)	Pressure Loss (kPa)	Mass (kg)
TD336B	3	76.2	36	914.4	39.2%	1.3	7.0	9.1	10.0
TD338B	3	76.2	38	965.2	40.4%	1.4	7.2	9.7	10.4
TD340B	3	76.2	40	1016	41.6%	1.5	7.5	10.3	10.9
TD342B	3	76.2	42	1066.8	42.8%	1.6	7.7	10.9	11.2
TD344B	3	76.2	44	1117.6	43.9%	1.7	7.9	11.5	11.9
TD346B	3	76.2	46	1168.4	45.0%	1.8	8.1	12.1	12.4
TD348B	3	76.2	48	1219.2	46.0%	1.8	8.2	12.7	13.0
TD350B	3	76.2	50	1270	47.0%	1.9	8.4	13.3	13.4
TD352B	3	76.2	52	1320.8	48.0%	2.0	8.6	13.9	14.0
TD354B	3	76.2	54	1371.6	48.9%	2.1	8.8	14.5	14.6
TD356B	3	76.2	56	1422.4	49.8%	2.2	8.9	15.0	15.2
TD358B	3	76.2	58	1473.2	50.7%	2.3	9.1	15.6	15.8
TD360B	3	76.2	60	1524	51.5%	2.3	9.2	16.2	16.5
TD362B	3	76.2	62	1574.8	52.3%	2.4	9.4	16.7	17.0
TD364B	3	76.2	64	1625.6	53.0%	2.5	9.5	17.3	17.7
TD366B	3	76.2	66	1676.4	53.7%	2.6	9.6	17.8	18.3
TD368B	3	76.2	68	1727.2	54.4%	2.7	9.7	18.4	18.9
TD370B	3	76.2	70	1778	55.0%	2.7	9.9	18.9	19.6
TD372B	3	76.2	72	1828.8	55.6%	2.8	10.0	19.5	20.3

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1	2	3	4	5	6	7			
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Intertek Comments:	
<input checked="" type="checkbox"/>	The product complies with all applicable requirements of this test.
<input type="checkbox"/>	The product does not comply with the requirements of this test.
Test Date: 24-April-2013      Tested By: <b>Pocholo Laforteza</b>	

Equipment Used (See page 2 for details):

1	2	3	4	5	6	7	8	9	
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