Engineering Submittal - IWT InterStor Indirect Water Heaters

Intertek Intertek

Job Name _____

Address _____

_____

Designer / Engineer _____

Wholesaler _____

Contractor _____

Model / Quantity

□ IWT 40 _____ □ IWT 50 _____
□ IWT 65 _____ □ IWT 80 _____
□ IWT 119 _____ □ IWT 80-Max_____
□ IWT 119-Max _____

Date _____

Features

- Durable metal jacket
- Approved for both heating and for chilled water applications
- 2” of polyurethane foam insulation
- Front heating connections for a flexible installation
- Top hot and cold connections on residential units
- Oversized low pressure drop coil
- Ships with a 10KΩ sensor
- Large smooth wall heating coils in counterflow configuration
- Thermal well for sensor or aquastat
- 444 stainless steel tank shell and 316L stainless steel heating coil and inlet dip tube
- Factory-installed drain valve with cap

Certifications

- Compliant with NSF/ANSI 372:2016 for Drinking Water System Components - Lead Content
- Compliant with IAS 1-91 Issued: 1992/06/01 IAS - U.S. Requirements for Indirect Water Heaters for use with External Heat Source

Warranties

- Limited lifetime tank and heating coil warranty for residential use
- 5 years limited tank and heating coil warranty for commercial use
- 1 year limited parts warranty

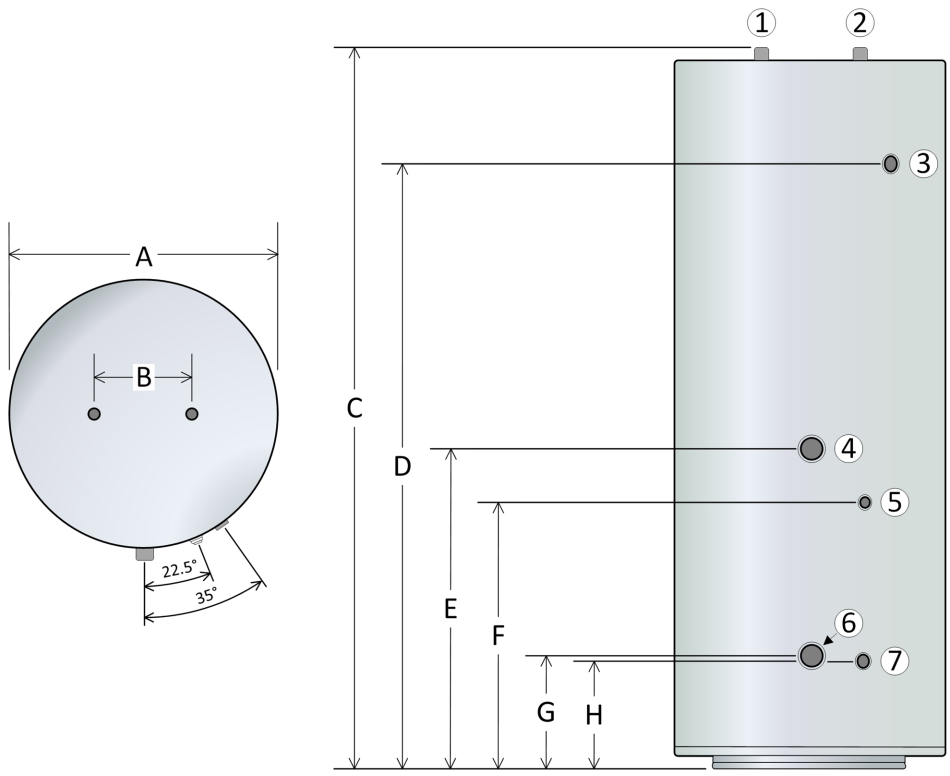

Figure 1 *Tank dimensions - IWT 40, IWT 50, IWT 65*

	IWT 40	IWT 50	IWT 65
A = Diameter	21⅝" / 55.0 cm	21⅝" / 55.0 cm	24⅜" / 62.0 cm
B = Hot - cold center to center	7⅞" / 20.0 cm	7⅞" / 20.0 cm	7⅞" / 20.0 cm
C = Height to outlet	46⅛" / 117.0 cm	57⅞" / 147.0 cm	55½" / 141.0 cm
D = Floor to relief valve	36½" / 93.0 cm	48⅜" / 123.0 cm	45⅛" / 114.6 cm
E = Floor to boiler supply	22½" / 57.5 cm	25½" / 65.0 cm	26¼" / 66.6 cm
F = Floor to sensor well	18⅜" / 46.5 cm	21¼" / 54.0 cm	21" / 53.2 cm
G = Floor to boiler return	9" / 23.0 cm	9" / 23.0 cm	9¾" / 24.6 cm
H = Floor to drain	8½" / 22.0 cm	8½" / 22.0 cm	9¼" / 23.6 cm

1	¾" M NPT Hot water outlet	5	Sensor well
2	¾" M NPT Cold water inlet	6	1" M NPT Out to boiler (boiler return)
3	¾" F NPT T&P relief valve	7	½" F NPT (tank drain)
4	1" M NPT In from boiler (boiler supply)		

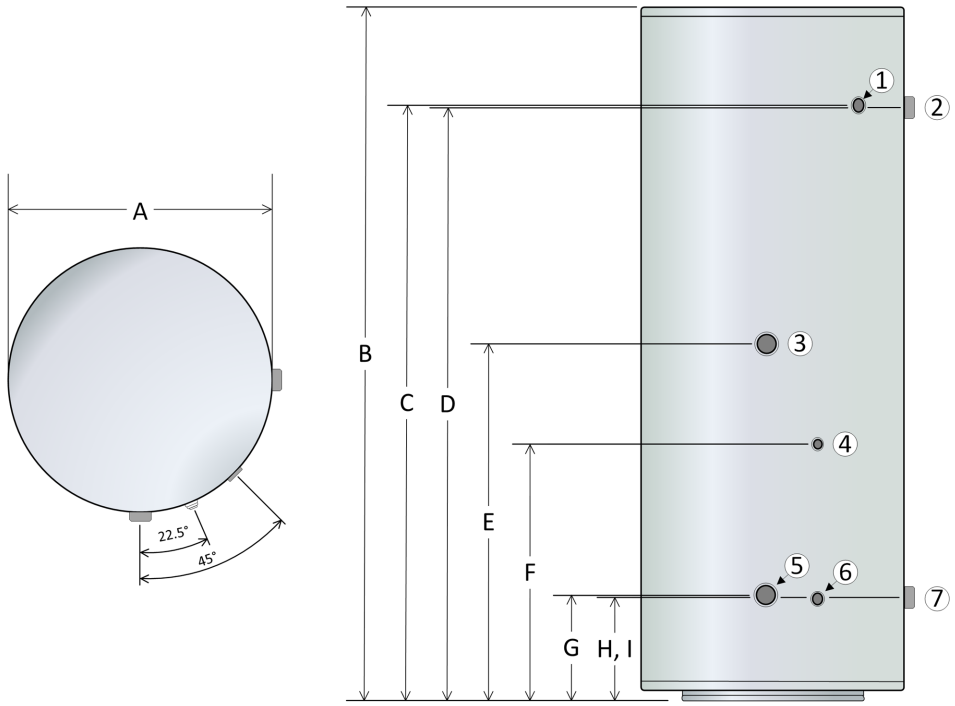

Figure 2 *Tank dimensions: IWT 80, IWT 80-Max, IWT 119, IWT 119 Max*

	IWT 80	IWT 80 Max	IWT 119	IWT 119 Max
A = Diameter	24⅜" / 62.0 cm	24⅜" / 62.0 cm	28" / 71.0 cm	28" / 71.0 cm
B = Height	64⅜" / 163.5 cm	64⅜" / 163.5 cm	65¾" / 167.0 cm	65¾" / 167.0 cm
C = Floor to Relief valve	55" / 139.7 cm	55" / 139.6 cm	55⅞" / 142.0 cm	55⅞" / 142.0 cm
D = Floor to Hot water outlet	55" / 139.7 cm	54½" / 138.6 cm	55⅞" / 142.0 cm	55½" / 141.0 cm
E = Floor to Boiler supply	29" / 73.6 cm	32⅞" / 83.6 cm	28⅜" / 71.9 cm	31¼" / 79.5 cm
F = Floor to Sensor well	23⅝" / 60.1 cm	23⅝" / 60.1 cm	25" / 63.4 cm	25¼" / 64.0 cm
G = Floor to Boiler return	9¼" / 23.6 cm	9⅜" / 24.6 cm	10¼" / 25.9 cm	10⅞" / 27.5 cm
H = Floor to Drain	9¼" / 23.6 cm	9¼" / 23.6 cm	10¼" / 25.9 cm	10⅜" / 26.5 cm
I = Floor to Cold water inlet	9¼" / 23.6 cm	9⅜" / 24.6 cm	10½" / 26.9 cm	10⅞" / 27.5 cm

	IWT 80	IWT 80-Max • IWT 119 • IWT 119-Max
1	¾" F NPT T&P Relief valve	1" F NPT T&P Relief valve
2	1" M NPT Hot water outlet	1½" M NPT Hot water outlet
3	1" M NPT In from boiler (boiler supply)	1½" M NPT In from boiler (boiler supply)
4	Sensor well	Sensor well

	IWT 80	IWT 80-Max • IWT 119 • IWT 119-Max
5	1" M NPT Out to boiler (boiler return)	1½" M NPT Out to boiler (boiler return)
6	½" F NPT (tank drain)	½" F NPT (tank drain)
7	1" M NPT Cold water inlet	1½ M NPT Cold water inlet

Product Specifications

Specification	IWT 40 (150L)	IWT 50 (200L)	IWT 65 (250L)	IWT 80 (302L)	IWT 119 (425L)
Max. Operating Pressure	150 psi	150 psi	150 psi	150 psi	150 psi
Height	45.2" / 114.8 cm	57" / 144.8 cm	54.5" / 138.4 cm	64.5" / 163.8 cm	65.7" / 166.9 cm
Max. Diameter	22" / 55.9 cm	22" / 55.9 cm	24.5" / 62.2 cm	24.5" / 62.2 cm	28" / 71.1 cm
Water temperature for rated output	180°F / 82°C	180°F / 82°C	180°F / 82°C	180°F / 82°C	180°F / 82°C
Gross tank volume	40 USG / 151 Liters	53 USG / 201 Liters	66 USG / 250 Liters	79.3 USG / 300 Liters	119 USG / 450 Liters
Net tank volume	38.3 USG / 145 Liters	50.7 USG / 192 Liters	63.9 USG / 242 Liters	77.4 USG / 293 Liters	113 USG / 426 Liters
Weight	100 Lbs / 45.3 kg	127 Lbs / 57.6 kg	145 Lbs / 65.8 kg	166 Lbs / 75 kg	230 Lbs / 104 kg
Shipping weight	120 Lbs / 54.4 kg	145 Lbs / 65.7 kg	170 Lbs / 77 kg	193 Lbs / 87.5 kg	275 Lbs /125 kg
Domestic conn. size	¾" M	¾" M	¾"M	1" M	1½" M
First hour delivery	204 Gal/Hr	259 Gal/Hr	309 Gal/Hr	356 Gal/Hr	474 Gal/Hr
Continuous Draw*	170 Gal/Hr	217 Gal/Hr	259 Gal/Hr	287 Gal/Hr	373 Gal/Hr
Boiler Output Required*	120,000 Btu/Hr	140,000 Btu/Hr	180,000 Btu/Hr	200,000 Btu/Hr	240,000 Btu/Hr
Minimum flow rate	14 GPM	14 GPM	14 GPM	14 GPM	14 GPM
Heating coil pressure drop*	6.2 Ft. Hd.	7 Ft. Hd.	7.5 Ft. Hd.	10.1 Ft. Hd.	11.8 Ft. Hd.
Coil heat transfer area	8.1 Ft^2 / 0.75 m^2	10.2 Ft^2 / 0.94 m^2	11.3 Ft^2/ 1.05 m^2	13.8 Ft^2/ 1.28 m^2	18.3 Ft^2/ 1.7 m^2
Certified - water heater	✓	✓	✓	✓	✓
Certified - low lead	✓	✓	✓	✓	✓

Specification	IWT 80-Max (302L)	IWT 119-Max (425L)
Max. Operating Pressure	150 psi	150 psi
Height	64.5" / 163.8 cm	65.7" / 166.9 cm
Max. diameter	24.5" / 62.2 cm	28" / 71.1 cm
Water temperature for rated output	180° F / 82° C	180° F / 82° C
Gross tank capacity	79.3 USG / 300 Liters	119 USG / 450 Liters
Net tank capacity	75.0 USG / 284 Liters	111 USG / 419 Liters
Weight - empty	188 Lbs / 85 kg	246 Lbs /111 kg
Shipping weight	201 Lbs / 91 kg	290 Lbs / 131 kg
Domestic conn. size	1½" M	1½" M
First hour delivery*	719 Gal/Hr	753 Gal/Hr
Continuous Draw @ *	653 Gal/Hr	653 Gal/Hr
Boiler Output Required *	420,000 Btu/Hr	420,000 Btu/Hr
Minimum flow rate	25 GPM	25 GPM
Heating coil pressure drop*	16.7 ft. hd	16.7 ft. hd
Coil Heat Transfer Area	26.9 $ft.^2$ / 2.5 m^2	26.9 $ft.^2$ / 2.5 m^2
Certified - water heater	✓	✓
Certified - low lead	✓	✓

Clearances from Heater Jacket

Surface	Distance from Combustibles	For Service
Front	1"	24"
Rear, Right and Left Sides	1"	1"
Top	1"	1"
Bottom	0"	0"

Recovery Rates

IWT 40 (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 14 gpm / 160 °F		Boiler Flow - 14 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
50,000	97	60	114	78
60,000	108	72	129	93
80,000	132	96	159	124
100,000	155	120	190	156
120,000	166	131	204	170
140,000	166	131	204	170
160,000	166	131	204	170

IWT 50 (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 14 gpm / 160 °F		Boiler Flow - 14 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
50,000	107	60	124	78
60,000	118	72	139	93
80,000	141	96	169	124
100,000	165	120	199	156
120,000	188	144	230	187
140,000	211	167	259	217
160,000	211	167	259	217

IWT 65 (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 14 gpm / 160 °F		Boiler Flow - 14 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
50,000	116	60	134	78
60,000	128	72	149	93
80,000	151	96	179	124
100,000	174	120	209	156
120,000	198	144	239	187
140,000	221	168	269	218
160,000	244	192	300	249
180,000	252	199	309	259

IWT 80 (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 14 gpm / 160 °F		Boiler Flow - 14 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
50,000	136	60	153	78
60,000	147	72	168	93
80,000	171	96	198	124
100,000	194	120	228	156
120,000	217	144	259	187
140,000	240	168	289	218
160,000	263	192	319	249
180,000	287	216	349	280
200,000	292	221	356	287

IWT 119 (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 20 gpm / 160 °F		Boiler Flow - 20 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
50,000	170	60	187	78
60,000	181	72	202	93
80,000	204	96	232	124
100,000	228	120	262	156
120,000	251	144	293	187
140,000	274	168	323	218
160,000	297	192	353	249
180,000	321	216	383	280
200,000	344	240	413	311
220,000	367	263	443	342
240,000	390	287	474	373

IWT 80 Max (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 25 gpm / 160 °F		Boiler Flow - 25 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
200,000	322	249	383	311
220,000	347	274	414	342
240,000	371	299	444	373
250,000	383	311	459	389
300,000	444	373	536	467
350,000	505	435	612	544

IWT 80 Max (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 25 gpm / 160 °F		Boiler Flow - 25 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
380,000	542	473	658	591
400,000	566	498	688	622
420,000	591	523	719	653

IWT 119 Max (135 °F)				
Boiler Output (BTU/Hr)	Boiler Flow = 25 gpm / 160 °F		Boiler Flow - 25 gpm / 180°F	
	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water	1st Hour Rating (Gal/Hr)	Continuous rating (Gal/Hr) 58°F entering cold water
200,000	357	249	418	311
220,000	381	274	448	342
240,000	405	299	479	373
250,000	418	311	494	389
300,000	479	373	570	467
350,000	539	435	646	544
380,000	576	473	692	591
400,000	600	498	722	622
420,000	625	523	753	653

Pressure Drop vs Tank Flow

Pressure Drop (ft of head) vs Tank Flow			
Model	10 gpm	14 gpm	25 gpm
IWT 40	3.3	6.2	-
IWT 50	4.0	7.0	-
IWT 65	4.4	7.5	-
IWT 80	5.4	10.1	-
IWT 119	6.5	11.8	-
IWT 80 Max	8.0	14.4	16.7
IWT 119 Max	8.0	14.4	16.7

Temperature Sensor Resistance Values*

Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω
30	-1	34,558	115	46	4,184
35	2	29,996	120	49	3,760
40	4	26,099	125	52	3,383
45	7	22,763	130	54	3,050
50	10	19,900	135	57	2,754
55	13	17,436	140	60	2,490
60	16	15,311	145	63	2,255
65	18	13,474	150	66	2,045
70	21	11,883	155	68	1,857
75	24	10,501	160	71	1,689
80	27	9,299	165	74	1,538
85	29	8,250	170	77	1,403
90	32	7,334	175	79	1,281
95	35	6,532	180	82	1,172
100	38	5,828	185	85	1,073
105	41	5,210	190	88	983
110	43	4,665	195	91	903

*for supplied sensor