Inspections Division
Date: 09/18/15

ECOSTYLE RADIANT PANELS

Installation and Operation Manual 2013

Exclusively distributed by:
QHT INCORPORATED

Inspections Division

Date: 09/18/15

Inspections Division
Date: 09/18/15

Table of contents

Panel radiators

General / Guarantee	3
Technical data and radiator dimensions	4
Connections	5
Output Tables	6
Correction Factor Table	7
Thermostatic Valve Adjustment	8
Radiator Fittings	8
Series Piping	9
Monoflow Tee Piping	10
Manifold Piping	11

General

The Biasi radiators are produced from high-quality material and components.

EXCELLENT HEAT OUTPUT

Modern radiators have remarkably low water content to ensure fast heat-up and high output. The low water content combined with large convector plates radiate heat in a highly efficient way.

HEATING SYSTEM

Biasi radiators are designed for use on closed heating systems, where the free access of oxygen is prevented. A compact, well planned and constructed system saves energy and components making up the system. Draining the system requires more fresh water, which result in rust on the inside of the steel surface. Due to this it is not advisable to empty the heating system for the summer. The water temperature should be between 0 to 210°F and the pH value between 7 and 9.

PRESSURE RATING

The working pressure of Biasi radiators is 87 psi. It must not be exceeded when planning the heating system. In heating systems of tall buildings one also has to remember the dynamic, additional pressure given by the pump, beside the normal hydrostatic pressure. All Biasi radiators are pressure tested during production.

MOUNTING

Current directives and generally accepted practices must be followed when the radiator is mounted. It is not recommended to remove the plastic cover until all the construction work is completed. The wall must always be checked before the brackets are mounted to ensure it can support the weight and use of the radiator. The Ecostyle radiators are supplied with clamp bracket for easy mounting.

APPLICATION ENVIRONMENT

Biasi radiators are intended for heating dry rooms. In case they are mounted in bathrooms, the mounting must always be on dry walls and not directly under a shower or similar fixture.

Guarantee

Each Biasi radiator is guaranteed for 10 years from the date of installation against defects caused by faulty materials or manufacture. The defective product is replaced by a similiar or technically corresponding radiator.

The guarantee does not cover damages that are due to faulty storage and handling at delivery or installation, nor damages that are due to faulty use of the radiator, such as inside and outside rust, use or corrosive substances, too high pressure or damage due to freezing.

The guarantee does not cover incidental damages caused by the Biasi product, costs for change of product, production loss of the customer, unreceived profit or other indirect costs.

In case of a guarantee claim the buyer must contact the seller and present of evidence of purchase of the product, for example, order confirmation, delivery note or identification number of the radiator. The defective product must always be sent back to Biasi for inspection within one month from the day of complaint, if not otherwise agreed upon.

Ecostyle

Inspections Division
Date: 09/18/15

Technical data

Material	Cold rolled steelplate EN 10130
Surface treatment	Surface treatment in five steps: Alcalically degreased • Phosphated • Dipped in primer (cathaphoretic) • Coated with polyester-epoxy resin powder • Baked (about 400°F) The surface treatment process follows the standard DIN 55900.
Standard color	White, RAL 9016.
Working pressure	87psi
Connections	6 x 1/2"
Certification	ISO 9001 and ISO 14001
Heights	12, 16, 20, 24 and 36 inch
Lengths	Vary by height (16 - 71 inches)
Types	Double Panel
Packaging	Clamp brackets included in the package. Thermostatic valve insert, 1 air vent and 2 installed blind plugs included.

Radiator Dimensions

Inspections Division
Date: 09/18/15

Connections

The integrated valve system is welded onto the radiator during the manufacturing process and is thereafter a fixed part of the radiator. All Biasi Ecostyle radiators are equipped with a built in valve insert suitable for thermostatic sensor heads (purchased separately).

BOTTOM CONNECTION

Thanks to the built in valve system, connection at the bottom is possible. Bottom right hand connection is standard, but the radiators are reversible so left hand connection is possible.

SAME END CONNECTION

Top-bottom same end connection requires external supply and return valves. The bottom connections are to be plugged.

OPPOSITE ENDS CONNECTION

Top-bottom opposite ends connection requires external supply and return valves. The bottom connections are to be plugged.

Note!
The radiator must be connected as above. Faulty connections might cause a heat output decrease.

Ecostyle

Inspections Division
Date: 09/18/15

Radiator Output Chart

Radiator Model	Height (in)	Length (in)	Output (BTU) @ 180°F	Output (BTU) @ 140°F	Weight (lbs)	Water Content (gal)	Equivalent Baseboard @ 180°F (ft)
B-12.16 ECO	12	16	1,705	1,031	15	0.37	3.0
B-12.24 ECO		24	2,562	1,548	22	0.53	4.5
B-12.32 ECO		32	3,414	2,064	29	0.71	6.0
B-12.40 ECO		40	4,266	2,579	37	0.90	7.5
B-12.48 ECO		48	5,119	3,094	44	1.08	9.0
B-12.56 ECO		56	5,971	3,610	51	1.27	10.5
B-12.64 ECO		64	6,828	4,128	58	1.43	12.0
B-16.16 ECO	16	16	2,167	1,310	20	0.48	3.8
B-16.24 ECO		24	3,254	1,967	30	0.71	5.7
B-16.32 ECO		32	4,337	2,622	40	0.95	7.6
B-16.40 ECO		40	5,421	3,277	49	1.19	9.5
B-16.48 ECO		48	6,504	3,932	59	1.43	11.4
B-16.56 ECO		56	7,587	4,586	69	1.66	13.3
B-16.64 ECO		64	8,675	5,244	78	1.90	15.2
B-16.71 ECO		71	9,758	5,899	88	2.11	17.1
B-20.16 ECO	20	16	2,610	1,578	25	0.58	4.6
B-20.24 ECO		24	3,916	2,367	37	0.87	6.9
B-20.32 ECO		32	5,221	3,156	50	1.14	9.2
B-20.40 ECO		40	6,526	3,945	62	1.43	11.4
B-20.48 ECO		48	7,831	4,734	74	1.72	13.7
B-20.56 ECO		56	9,137	5,523	86	2.01	16.0
B-20.64 ECO		64	10,442	6,312	98	2.30	18.3
B-24.16 ECO	24	16	3,037	1,836	30	0.69	5.3
B-24.24 ECO		24	4,551	2,751	45	1.06	8.0
B-24.32 ECO		32	6,069	3,669	60	1.40	10.6
B-24.40 ECO		40	7,587	4,586	74	1.74	13.3
B-24.48 ECO		48	9,106	5,504	89	2.09	16.0
B-24.56 ECO		56	10,624	6,422	104	2.43	18.6
B-24.64 ECO		64	12,138	7,337	118	2.80	21.3
B-24.71 ECO		71	13,656	8,255	133	3.14	24.0
B-36.16 ECO	36	16	4,240	2,563	46	0.95	7.4
B-36.24 ECO		24	6,362	3,846	68	1.43	11.2
B-36.32 ECO		32	8,480	5,126	90	1.90	14.9
B-36.40 ECO		40	10,602	6,409	112	2.38	18.6
B-36.48 ECO		48	12,724	7,691	135	2.85	22.3

Outputs based on supply temperatures shown, 20º F ΔT and 68º F Room Temperature

Inspections Division

Date: 09/18/15

Radiator Output Correction Factors

Water Temperature		Room Temperature (°F)						
Supply (°F)	Return (°F)	52	56	60	64	68	72	76
200	185	1.38	1.34	1.30	1.26	1.22	1.19	1.14
200	180	1.35	1.32	1.28	1.23	1.20	1.16	1.12
200	175	1.33	1.29	1.25	1.21	1.17	1.14	1.09
200	170	1.30	1.26	1.22	1.18	1.14	1.11	1.07
190	175	1.28	1.24	1.20	1.16	1.12	1.09	1.05
190	170	1.26	1.22	1.18	1.13	1.10	1.06	1.02
190	165	1.23	1.19	1.15	1.11	1.07	1.04	0.99
190	160	1.20	1.16	1.12	1.08	1.05	1.01	0.97
180	165	1.18	1.14	1.10	1.06	1.03	0.99	0.95
180	160	1.16	1.12	1.08	1.04	1.00	0.96	0.92
180	155	1.13	1.09	1.05	1.01	0.97	0.94	0.89
180	150	1.10	1.07	1.03	0.98	0.95	0.91	0.87
170	155	1.09	1.05	1.01	0.96	0.93	0.89	0.85
170	150	1.06	1.02	0.98	0.94	0.90	0.87	0.82
170	145	1.03	0.99	0.95	0.91	0.87	0.84	0.80
170	140	1.01	0.97	0.93	0.88	0.85	0.81	0.77
160	145	0.99	0.95	0.91	0.86	0.83	0.79	0.75
160	140	0.96	0.92	0.88	0.84	0.80	0.77	0.72
160	135	0.93	0.89	0.85	0.81	0.78	0.74	0.70
160	130	0.91	0.87	0.83	0.78	0.75	0.71	0.67
150	135	0.89	0.85	0.81	0.77	0.73	0.69	0.65
150	130	0.86	0.82	0.78	0.74	0.70	0.67	0.62
150	125	0.83	0.80	0.76	0.71	0.68	0.64	0.60
150	120	0.81	0.77	0.73	0.68	0.65	0.61	0.57
140	125	0.79	0.75	0.71	0.67	0.63	0.60	0.55
140	120	0.76	0.72	0.68	0.64	0.60	0.57	0.53
140	115	0.74	0.70	0.66	0.61	0.58	0.54	0.50
140	110	0.71	0.67	0.63	0.58	0.55	0.51	0.47
130	115	0.69	0.65	0.61	0.57	0.53	0.50	0.45
130	110	0.66	0.62	0.58	0.54	0.51	0.47	0.43
130	105	0.64	0.60	0.56	0.51	0.48	0.44	0.40
130	100	0.61	0.57	0.53	0.48	0.45	0.41	0.36
120	105	0.59	0.55	0.51	0.47	0.43	0.40	0.35
120	100	0.56	0.53	0.49	0.44	0.41	0.37	0.32
120	95	0.54	0.50	0.46	0.41	0.38	0.34	0.29
120	90	0.51	0.47	0.43	0.38	0.34	0.31	0.26

Ecostyle

Inspections Division
Date: 09/18/15

Thermostatic Valve Adjustment

Each Ecostyle radiator is supplied with a adjustable valve body. Each valve body is fitted with a factory installed manual adjustment cover (Fig. 1). By turning the cover clockwise water flow to the radiator is reduced. By turning the cover counter clockwise water flow to the radiator is increased. If the cover is removed completely (Fig. 2), the valve will be in the full open position.

Each valve is also equipped with a flow limiter adjustment. It will control how much water is allowed through the radiator at the full open cover position. It is adjusted by turning the black plastic segmen of the valve. The adjustment is labeled with the numbers 1 through 6. 1 being the least amount of flow and 6 being the maximum amount of flow. The indicator mark on the brass section of the valve indicates the setting of the valve. Fig. 3 shows examples of three different settings.

A termostatic head can also be mounted to the valve body to allow automatic adjustment of the valve according to room temperature. To fit the thermostatid head, simply remove the adjustment cover completely exposing the valve body. Place the collar of the thermostatic head over the valve body (Fig 4). Thread the collar of the thermostatic head onto the valve body until tight (Fig. 5). Set the termostatic head according to the manufacturers instructions for desired room temperature.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Radiator Connection Fittings

1 DIVERTER VALVES

RV-301241 STAIGHT DIVERTING VALVE
RV-301341 ANGLED DIVERTING VALVE
NOTES: ADJUSTABLE BY-PASS FROM 30 - 50 %

2 ISOLATION VALVES

RV-301040 STAIGHT ISOLATING VALVE
RV-301140 ANGLED ISOLATION VALVE

3 THERMOSTATIC CONTROL

RV-200000 THERMOSTATIC CONTROL HEAD

TOWEL BAR VALVES

4 RV-338452 ANGLED THERMOSTATIC VALVE
RV-339452 STRAIGHT THERMOSTATIC VALVE

5 RV-342452 ANGLED SHUT OFF
RV-343452 STRAIGHT SHUT OFF

PIPE CONNECTIONS - (SOLD PER PAIR)

6 RV-681503A 3/8" PEX COMPRESSION FITTING
RV-681524 1/2" PEX COMPRESSION FITTING
RV-681555 5/8" PEX COMPRESSION FITTING
RV-437516 1/2" COPPER COMPRESSION FITTING
RV-NA10262 1/2" COPPER SWEAT FITTING

7 RV-940451 RADIATOR ADAPTER (MUST BE USED FOR DIRECT PIPE CONNECTION TO RADIATOR - NO DIVERTER OR ISOLATION VALVE)

Inspections Division
Date: 09/18/15

Radiator Piping - Series

NOTES:

- MAX OF 3 RADIATORS ON ONE LOOP
- THERMOSTATIC HEADS CAN BE USED FOR INDIVIDUAL RADIATOR ADJUSTMENT

1 DIVERTER VALVES

RV-301241 STAIGHT DIVERTING VALVE
RV-301341 ANGLED DIVERTING VALVE
NOTES: ADJUSTABLE BY-PASS FROM 30 - 50 %

PIPE CONNECTIONS - (SOLD PER PAIR)

6

RV-681503A 3/8" PEX COMPRESSION FITTING
RV-681524 1/2" PEX COMPRESSION FITTING
RV-681555 5/8" PEX COMPRESSION FITTING
RV-437516 1/2" COPPER COMPRESSION FITTING
RV-NA10262 1/2" COPPER SWEAT FITTING

Ecostyle

Inspections Division
Date: 09/18/15

Radiator Piping - Monoflow Tee

NOTES:

- MONOFLOW TEES SHOULD BE INSTALLED ON RETURN PIPE FROM RADIATOR
- SUPPLY AND RETURN TEES MUST BE AT LEAST 12 INCHES APART
- THERMOSTATIC HEADS CAN BE USED FOR INDIVIDUAL RADIATOR ADJUSTMENT

2 ISOLATION VALVES

RV-301040 STAIGHT ISOLATING VALVE
RV-301140 ANGLED ISOLATION VALVE

3 THERMOSTATIC CONTROL

RV-200000 THERMOSTATIC CONTROL HEAD

PIPE CONNECTIONS - (SOLD PER PAIR)

6

RV-681503A 3/8" PEX COMPRESSION FITTING
RV-681524 1/2" PEX COMPRESSION FITTING
RV-681555 5/8" PEX COMPRESSION FITTING
RV-437516 1/2" COPPER COMPRESSION FITTING
RV-NA10262 1/2" COPPER SWEAT FITTING

Inspections Division
Date: 09/18/15

Radiator Piping - Manifold

3 THERMOSTATIC CONTROL

RV-200000 THERMOSTATIC CONTROL HEAD

TOWEL BAR VALVES

4
RV-338452 ANGLED THERMOSTATIC VALVE
RV-339452 STRAIGHT THERMOSTATIC VALVE

5
RV-342452 ANGLED SHUT OFF
RV-343452 STRAIGHT SHUT OFF

PIPE CONNECTIONS - (SOLD PER PAIR)

6
RV-681503A 3/8" PEX COMPRESSION FITTING
RV-681524 1/2" PEX COMPRESSION FITTING
RV-681555 5/8" PEX COMPRESSION FITTING
RV-437516 1/2" COPPER COMPRESSION FITTING
RV-NA10262 1/2" COPPER SWEAT FITTING

7
RV-940451 RADIATOR ADAPTER (MUST BE USED FOR DIRECT PIPE CONNECTION TO RADIATOR - NO DIVERTER OR ISOLATION VALVE)

Inspections Division
Date: 09/18/15