

Equipment Assessment Guide

Site Evaluation and Model Selection for Eco-Clamp™ Installations

The Eco-Clamp™ Assessment ensures that each installation achieves maximum fuel-efficiency gains by properly matching device size and placement to the equipment's fuel demand and piping configuration. Accurate assessment also allows Magna-Tek to maintain performance verification standards across all projects and helps installers produce consistent, repeatable results.

Assessment Objectives

Confirm system type,
BTU input, and fuel
source

Identify the nearest
accessible gas line
before combustion

Record pipe diameter
and material

Match with the
correct Eco-Clamp™
model

Document baseline
operating conditions
and verify installation
quality

Pre-Assessment Preparation

Before arriving onsite, technicians should:

- Review mechanical drawings (if available) to locate all gas-fired appliances.
- Gather required tools: tape measure or calipers, camera or phone, notepad or digital form, and optional combustion analyzer.
- Ensure building access and coordinate with property management for service area permissions.
- Check environmental conditions - note ambient temperature and operational load if assessing during active heating season.

Data Collection Requirements

Technicians must complete the following checklist for each appliance:

Data Field	Description / Units	Example Entry
Equipment Type	Boiler / MUA / DHW / Generator	MUA Unit
Manufacturer & Model	Label from appliance	Engineered Air DJ-20
BTU Input	Nameplate BTU/hr	850,000 BTU/hr
Fuel Type	Natural Gas / Propane / Diesel	Natural Gas
Gas Pressure	In-w.c. or psi	7 in-w.c.
Pipe Material	Steel / Copper / CSST	Steel
Pipe Size	Diameter (inches)	1¼"
Accessible Mount Location	Distance from combustion	18" upstream of valve
Existing Line Fittings	Coupling / Union / Flexible / None	Union
Ambient Conditions	°C or °F	21 °C
Comments / Notes	Unique site observations	Dual boiler setup, install on shared feed

Compatibility Confirmation

An Eco-Clamp™ can be installed if all of the following conditions are met:

01

The fuel line is metallic (steel, copper, or iron).

02

Sufficient straight pipe length exists for clamp placement (minimum 8").

03

No excessive heat, vibration, or shielding materials present.

If any conditions are not met, document them in the comments section and contact Magna-Tek Technical Support for review.

Selecting the Correct Eco-Clamp™ Model

Model selection is based primarily on pipe size and confirmed BTU input. When BTU values are borderline or unavailable, select the model using pipe diameter closest to the burner inlet (per Magna-Tek protocol).

Pipe Size	Typical BTU Range	Recommended Model	Notes
½" – ¾"	100 000 – 400 000	AFS-1	Small furnaces, DHW heaters
1" – 1¼"	400 000 – 900 000	AFS-1A	Rooftop and MUA units
1½" – 2"	900 000 – 3 000 000	AFS-2	Commercial boilers
2½" – 3"	3 000 000 – 6 000 000	AFS-3	High-capacity heating systems
4" – 6"	6 000 000 – 9 000 000	AFS-4 – AFS-6	Industrial or generator systems

 **Reference:** Magna-Tek Eco-Clamp BTU Selection Chart, Rev. 2025, (Pages 4 & 5)

Baseline Measurement (Optional)

When feasible, obtain a combustion-analyzer reading before installation:

- CO (ppm)
- O₂ (%)
- CO₂ (%)

- Stack temperature (°C/°F)
- Combustion efficiency (%)

These readings can later be compared with post-installation results or fuel-use regression data to confirm combustion improvement.

Accurate assessment is critical to the integrity of Eco-Clamp™ installations. By following these guidelines, installers and energy consultants ensure that every deployment meets Magna-Tek's validated performance standards.

BTU Chart by Equipment Type

Water Heaters and Boilers

BTU Range	Pipe Size	AFS-LD	AFS-HD	AFS-1	AFS-1A	AFS-1B	AFS-2	AFS-3
1,000 - 120,000	1/4" - 1/2"	2	2	-	-	-	-	-
120,000 - 250,000	1/2" - 1"	-	3	3	-	-	-	-
250,000 - 600,000	1" - 1 3/4"	-	-	4	4	-	-	-
600,000 - 850,000	2" - 2 1/2"	-	-	-	-	5	4	-
850,000 - 1,200,000	2 1/2" - 3"	-	-	-	-	-	5	5
1,200,000 - 3,000,000	3" - 4"	-	-	-	-	-	6	6

Industrial Applications

(Greenhouses, Generators, Asphalt Plants)

BTU Range	Pipe Size	AFS-2	AFS-3	AFS-4	AFS-6	AFS-8
1,200,000 - 3,000,000	2 1/2" - 3"	5	5	-	-	-
3,000,000 - 5,000,000	3" - 4"	6	6	7	-	-
5,000,000 - 7,000,000	4" - 6"	-	-	8	8	-
7,000,000 - 9,000,000	6" - 8"	-	-	-	9	9

BTU Chart by Equipment Type

HVAC Units

BTU Range	Pipe Size	AFS-LD	AFS-HD	AFS-1	AFS-1A	AFS-1B	AFS-2	AFS-3
1,000 - 120,000	1/4" - 1/2"	2	2	-	-	-	-	-
120,000 - 250,000	1/2" - 1"	-	3	3	-	-	-	-
250,000 - 600,000	1" - 1 3/4"	-	-	4	4	-	-	-
600,000 - 850,000	2" - 2 1/2"	-	-	-	-	5	4	-
850,000 - 1,200,000	2 1/2" - 3"	-	-	-	-	-	5	5
1,200,000 - 3,000,000	3" - 4"	-	-	-	-	-	6	6

Installation Guidelines

- **Assessment:** Use the Eco-Clamp Installation Assessment Form to evaluate the equipment type, BTU rating, pipe size, and other operational factors to select the appropriate Eco-Clamp model and quantity.
- **Efficiency Maximization:** Install Eco-Clamps close to fuel delivery points to optimize savings and performance. Refer to the Energy Efficiency Analysis section in the Program Overview for expected savings.
- **Monitoring:** After installation, conduct periodic checks to ensure clamps are functioning as expected. Adjust placement if performance goals are not met.



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