

**Sound Level**

Table A2-20 summarizes predicted sound pressure levels for Model CB Boilers. Tables A2-21 through A2-25 give detailed octave band sound pressure levels for each boiler. These values are based on standard motors. Optional motor types and altitude conditions can increase sound levels.

Units

The units for the sound level tables are dBA (decibels, measured on the A-weighted scale) in reference to 0.0002 microbars (20 micro-Newtons per square meter). They are standardly referenced in specifying and reporting sound pressure levels on industrial equipment.

Test Method

The sound pressure levels in the above tables were obtained from tests in accordance with the "ABMA Test Code for the Measurement of Sound from Packages Boilers." In accordance with this code, the sound pressure levels reported were measured on the boiler centerline 4-1/2 feet vertically above the bottom of the base rails and 3 feet horizontally in front of the end of the blower motor or front surface of the electrical cabinet.

Sound Level Meter

The sound level meter used complies with ANSI S1.4, Type 1 (Precision). The readings are taken with the meter set for slow response.

**Table A2-20. Sound Pressure Level Summary (50 - 800 hp)**

BOILER HP	50	60	70	80	100	125A	125	150	200	250	300	350	400	500	600	700	750	800
HFO, dBA	79	79	79	79	81	82	83	83	83	88	88	89	83	83	83	85	87	88
LFO, dBA	78	78	78	78	79	79	81	82	81	86	86	85	80	82	82	82	83	84
HFG, dBA	77	77	78	78	78	79	81	80	82	84	86	86	82	82	82	85	86	87
LFG, dBA	72	73	74	75	75	75	78	77	78	81	82	83	80	81	81	82	83	84

NOTES:

- Boiler No. followed by an "a" designates hot water boilers furnished in a smaller vessel size with additional tubes in the upper portion of the vessel.
- Sound Pressure levels measured on boilers operating in various locations and expressed in dBA are as follows:

ABBREVIATIONS:

- HF = High Fire
- LF = Low Fire
- O = Oil
- G = Gas

**Table A2-21. Model CB Boiler Sound Pressure Level Details (40 hp)**

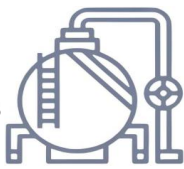
FIRING RATE FUEL	SOUND LEVEL dBA	OCTAVE BAND SOUND PRESSURE LEVELS IN dB RE .0002 MICROBAR									
		31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
40HP <sup>A</sup>											
LFG	76	73	75	72	74	76	70	67	68	64	57
LFO	77	73	75	75	76	75	72	67	66	66	58
HFG	79	81	78	74	80	78	71	69	68	64	58
HFO	79	72	77	77	81	78	73	69	66	66	58

NOTE:

- ABBREVIATIONS:  
 HF = High Fire

- LF = Low Fire  
 O = Oil  
 G = Gas

A. The data shown above was taken on the 40 hp. Since the highest Sound Level is below 80 dBA, no additional 36" diameter Firetubes were tested. If Sound Level predictions are required for the 15 thru 30 hp, use the values shown for the 40 hp.



**Table A2-22. Model CB Boiler Sound Pressure Level Details (50 - 125 hp)**

FIRING RATE FUEL	SOUND LEVEL dBA	OCTAVE BAND SOUND PRESSURE LEVELS IN dB RE .0002 MICROBAR									
		31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
50 HP											
LFG	72	71	65	71	71	70	68	63	60	53	46
LFO	78	71	76	78	73	72	72	76	61	56	54
HFG	77	72	68	75	76	74	74	66	61	54	47
HFO	79	72	70	75	75	77	77	70	63	56	54
60 HP											
LFG	73	70	75	72	72	73	68	61	56	50	45
LFO	78	68	77	74	74	75	74	71	58	53	48
HFG	77	73	75	72	72	75	76	63	55	50	44
HFO	79	75	75	75	75	77	77	72	59	52	45
70 HP											
LFG	74	70	70	75	74	73	71	62	56	51	46
LFO	78	70	73	77	74	75	74	70	59	53	57
HFG	78	72	72	77	78	75	76	68	58	52	57
HFO	79	73	73	80	77	77	76	70	60	54	48
80 HP											
LFG	75	70	75	75	73	75	76	66	62	62	53
LFO	78	69	77	76	74	76	74	73	63	62	57
HFG	78	72	74	78	75	75	76	57	61	59	52
HFO	79	75	75	75	74	76	75	69	62	59	54
100 & 100A HP											
LFG	75	69	69	75	76	73	71	65	63	59	50
LFO	79	68	73	78	78	75	79	76	63	59	54
HFG	78	69	70	77	77	74	74	69	63	59	50
HFO	81	68	70	77	78	78	77	71	64	59	57
125A HP											
LFG	75	69	70	76	78	73	71	65	63	59	50
LFO	79	68	73	78	78	75	74	76	63	59	54
HFG	79	70	70	77	79	75	75	69	63	59	50
HFO	82	70	71	78	80	79	78	71	64	59	57

NOTES:

1. ABBREVIATIONS:

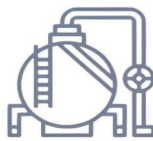
HF = High Fire

LF = Low Fire

O = Oil

G = Gas

2. Boiler HP followed by an "A" designates hot water boilers furnished in a smaller vessel size with additional tubes in the upper portion of the vessel.



**Table A2-23. Model CB Boiler Sound Pressure Level Details (125 - 200 hp)**

FIRING RATE FUEL	SOUND LEVEL dBA	OCTAVE BAND SOUND PRESSURE LEVELS IN dB RE .0002 MICROBAR									
		31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
125 HP											
LFG	78	76	70	78	80	80	73	65	58	56	51
LFO	81	80	75	82	82	81	77	74	67	63	60
HFG	81	79	73	87	78	80	76	71	64	57	51
HFO	83	78	78	89	79	82	81	77	64	70	58
150 & 175A HP											
LFG	77	75	70	78	76	77	72	67	63	58	55
LFO	82	76	68	80	78	79	75	71	66	60	58
HFG	80	71	72	82	76	80	76	71	64	58	52
HFO	83	70	71	83	79	82	77	73	65	60	55
200 HP											
LFG	78	74	74	78	79	79	72	65	58	54	50
LFO	81	76	74	79	77	81	75	71	62	60	55
HFG	82	77	76	82	79	81	78	72	62	55	50
HFO	83	76	76	81	78	82	79	73	66	59	53

NOTES:

1. ABBREVIATIONS:

HF = HighFire

LF = Low Fire

O = Oil

G = Gas

2. Boiler HP followed by an "A" designates hot water boilers furnished in a smaller vessel size with additional tubes in the upper portion of the vessel.

**Table A2-24. Model CB Boiler Sound Pressure Level Details (250 - 350 hp)**

FIRING RATE FUEL	SOUND LEVEL dBA	OCTAVE BAND SOUND PRESSURE LEVELS IN dB RE .0002 MICROBAR									
		31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
250 HP											
LFG	81	72	81	85	84	82	75	68	60	56	53
LFO	86	76	87	87	85	84	82	73	70	76	68
HFG	84	78	85	84	84	84	79	72	62	55	50
HFO	88	79	84	84	84	85	86	74	68	67	65
300 HP											
LFG	82	75	74	80	83	83	78	71	65	58	53
LFO	86	80	77	80	84	82	81	75	75	77	72
HFG	86	77	78	84	87	85	82	77	67	60	53
HFO	88	82	80	84	85	85	83	79	72	67	69
350 HP											
LFG	83	75	78	87	86	83	78	70	58	55	
LFO	85	82	79	84	84	84	84	70	66	66	
HFG	86	78	79	87	85	84	84	72	65	61	
HFO	89	82	82	85	85	86	86	79	68	68	

NOTE:

ABBREVIATIONS:

HF = High Fire

LF = Low Fire

O = Oil

G = Gas

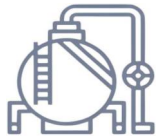


Table A2-25. Model CB Boiler Sound Pressure Level Details (400 - 800 hp)

FIRING RATE FUEL	SOUND LEVEL dBA	OCTAVE BAND SOUND PRESSURE LEVELS IN dB RE .0002 MICROBAR									
		31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	16kHz
400 HP											
LFG	80	70	79	85	87	78	70	66	61	55	50
LFO	80	74	83	86	87	78	71	67	63	58	50
HFG	82	73	84	87	89	80	74	70	64	57	50
HFO	83	75	85	87	89	80	75	71	73	58	52
500 HP											
LFG	81	78	83	87	87	78	73	66	62	58	54
LFO	82	77	83	87	87	81	75	70	63	59	55
HFG	82	79	87	87	84	79	76	70	63	57	55
HFO	83	77	87	87	84	81	77	71	62	58	55
600 HP											
LFG	81	78	83	87	87	79	73	66	62	58	54
LFO	82	77	83	87	87	81	75	70	63	59	55
HFG	82	79	87	87	84	79	76	70	63	57	55
HFO	83	77	87	87	84	81	77	71	62	58	55
700 HP											
LFG	82	80	87	91	87	80	75	70	66	62	56
LFO	82	79	88	90	87	81	76	72	67	63	57
HFG	85	80	90	89	89	82	77	76	66	64	57
HFO	85	81	90	91	89	82	80	77	68	65	57
750 HP											
LFG	83	82	89	93	87	81	76	71	67	63	
LFO	83	80	90	92	87	82	77	73	68	64	
HFG	86	81	91	90	89	83	79	89	68	66	
HFO	87	82	91	92	89	83	81	80	70	68	
800 HP											
LFG	84	83	90	94	87	82	77	73	68	64	
LFO	84	82	91	93	87	82	78	74	68	65	
HFG	87	82	92	91	89	83	81	82	70	68	
HFO	88	83	92	92	89	83	82	83	71	70	

NOTE:  
 ABBREVIATIONS:  
 HF = High Fire  
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**Sound Pressure**

On large size boilers, the need for auxiliary equipment, and the necessary interconnecting piping, make it impractical (and sometimes impossible) to provide a boiler testing environment that is suitable for obtaining the data needed to develop Sound Pressure Power levels.

**Typical Values**

Sound pressure levels (dBA) for identical boilers will vary between boiler rooms. In addition, variations will occur between different people using different sound meters on the same boiler. And finally, no two boilers can be expected to give precisely the same sound levels. For these reasons, we can only predict, but not guarantee, sound levels (dBA).

**Octave Band**

When predicting sound pressures in octave bands (e.g., dB at 125 Hz), even greater variations between boilers, between sound meters, and between operators can be expected. These larger variations in the low and high frequencies make octave band levels a less reliable method of reporting than A-scale

sound levels. (Since A-scale sound levels are dominated by mid-frequency sounds, the A-scale sound levels between two boilers can be in reasonable agreement even though the low and high frequencies of octave band measurement do not closely correspond).