



NEBRASKA D SERIES

TECHNICAL DATA INFORMATION PACKET

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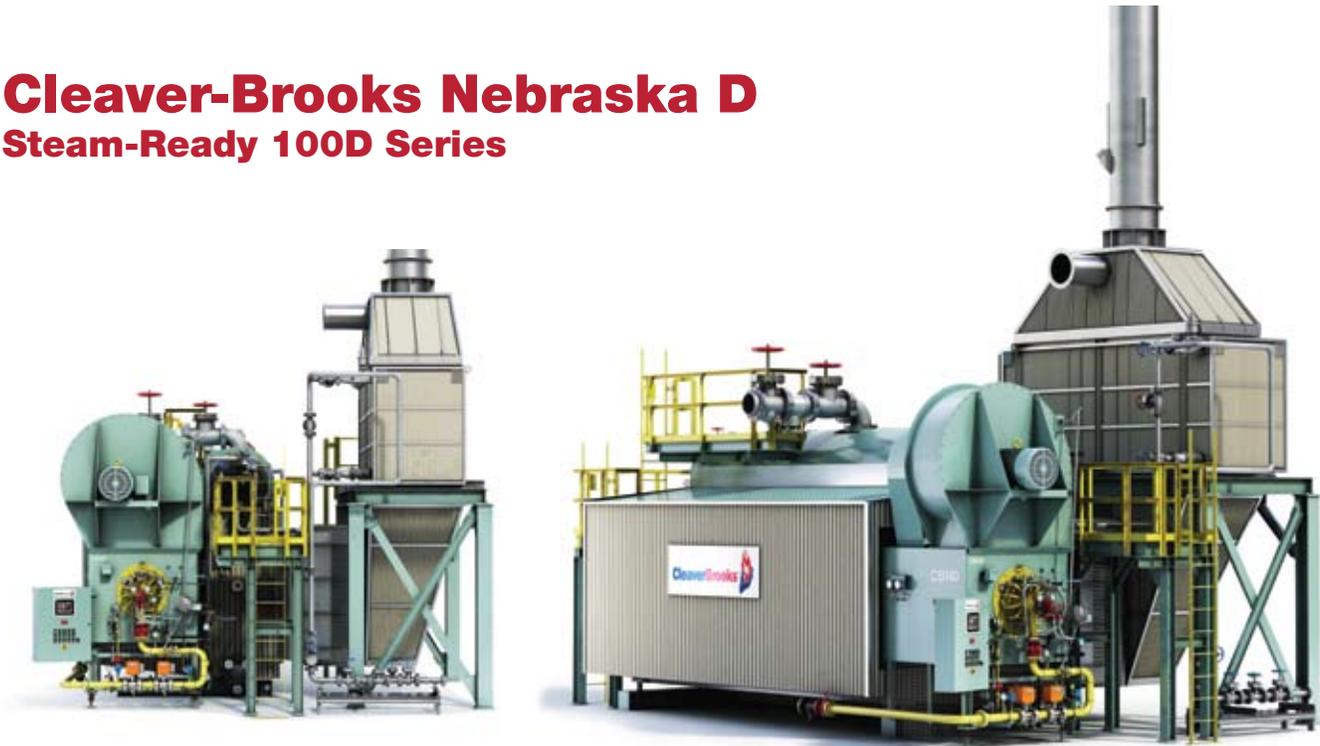
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Cleaver-Brooks Nebraska D Steam-Ready 100D Series



Capacities and Specifications

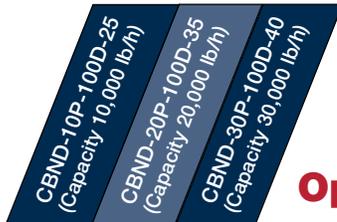
*Shown with NATCOM NXT Burner. For 100D Series, ProFire Burner is standard feature.

Boiler Dimensions	CBND-10P-100D-25	CBND-20P-100D-35	CBND-30P-100D-40
Capacity	10,000 lb/h	20,000 lb/h	30,000 lb/h
Upper Drum	36 in	36 in	36 in
Lower Drum	24 in	24 in	24 in
Length Over Casing	10 ft	13 ft 4 in	15 ft
Width, Gas Outlet	12 3/4 in	16 3/4 in	28 3/4 in
Height, Gas Outlet	67 in	67 in	67 in
Front to CL Gas Outlet	12 5/8 in	14 5/8 in	20 5/8 in
Shipping Height	11 ft 5 in	11 ft 5 in	11 ft 5 in
Overall Width	9 ft 8 1/2 in	9 ft 8 1/2 in	9 ft 8 1/2 in
Min Operating Pressure	100 psig	100 psig	100 psig

Economizer

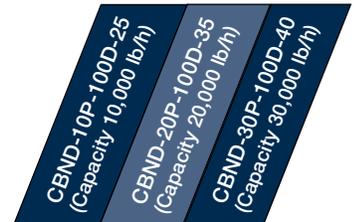
E1 Economizers	CBND-10P-100D-25	CBND-20P-100D-35	CBND-30P-100D-40	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	0.05 in	
Effective Length	7 ft	7 ft	7 ft	
Material	Carbon Steel	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	NG & #2 oil	
Economizer Trim				
Economizer feedwater bypass	1.25 in	1.5 in	2 in	
Header vent valve	1 in	1 in	1 in	
Header drain valve	1 in	1 in	1 in	

Standard Features



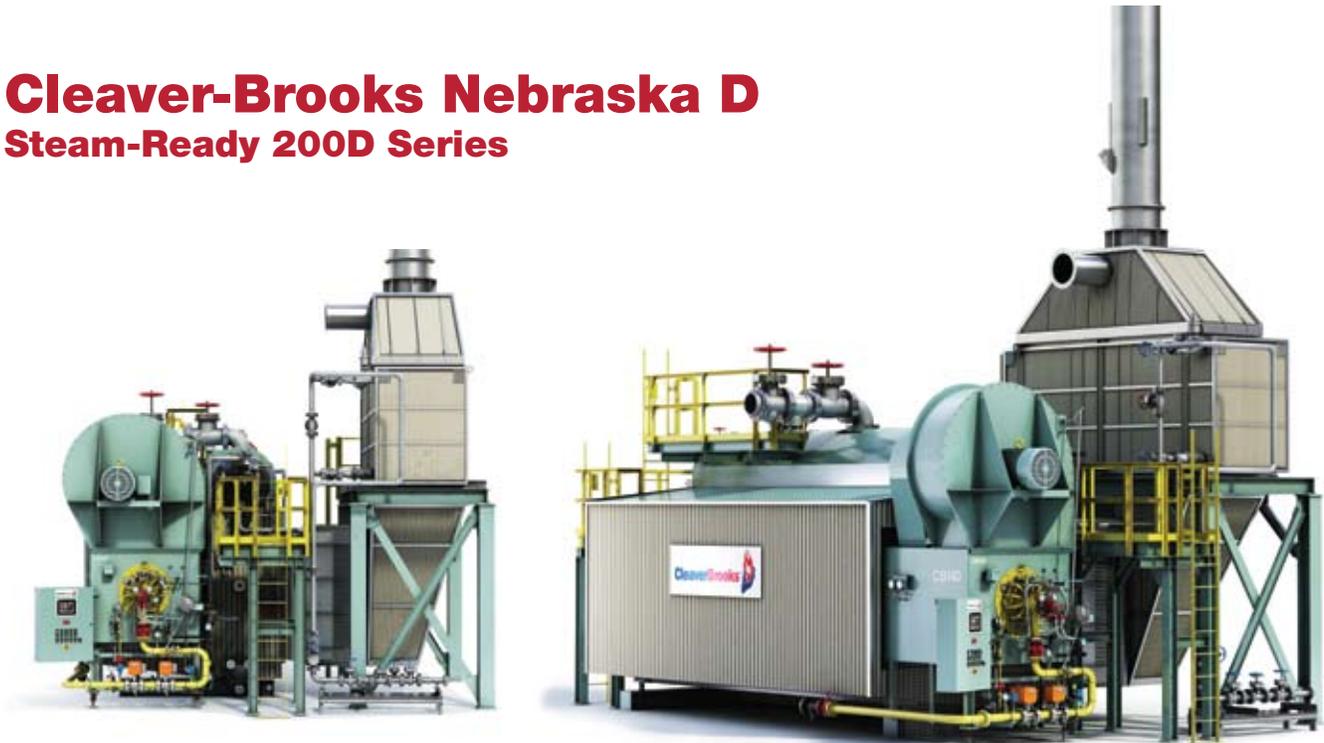
Pressure Vessel			
Design Pressure 250	•	•	•
Tubes 2 in 178-A.105 Wall	•	•	•
Steam Quality 0.5% Moist	•	•	•
RH - Right Hand	•	•	•
LH - Left Hand	•	•	•
AL - Aluminum Casing	•	•	•
Operating Pressure - 100–200 psig	•	•	•
Auxiliary Equipment			
Steam Trim	•	•	•
Feedwater Trim	•	•	•
Boiler Platform Clips	•	•	•
Economizer	•	•	•
Stack - 40 ft, 50 ft, 60 ft	◇	◇	◇
Controls			
Hawk 5000 Control	•	•	•
Single Point (SP)	•	•	•
Feedwater - Single Element	•	•	•
Burner			
ProFire D	•	•	
ProFire XL (See ProFire Burner technical data sheet for detailed information)			•

Optional Features



Pressure Vessel			
Design Pressure up to 375 psig	•	•	•
Hinged Manways	•	•	•
Lower Drum Heating Coil (LDHC)	•	•	•
Tubes 2 in 178-A.120 Wall-PV	•	•	•
Tubes 2 in 178-A.135 Wall-PV	•	•	•
Operating Pressure - 200–325 psig	•	•	•
Auxiliary Equipment			
Platforms & Ladders - Boiler	•	•	•
Platforms & Ladders - Stack	◇	◇	◇
Platform & Ladder - Economizer	◇	◇	◇
Sootblowers	•	•	•
Variable Frequency Drive	•	•	•
Selective Catalytic Reduction	◇	◇	◇
Controls			
Parallel Positioning (PP)	•	•	•
Fully Metered (FM)	◇	◇	◇
Eye-Hye® Remote Drum Level Transmitter	•	•	•
Feedwater 2- or 3-Element	•	•	•
O ₂ Trim	•	•	•
O ₂ Analyzer	•	•	•

Cleaver-Brooks Nebraska D Steam-Ready 200D Series



*Shown with NATCOM NXT Burner.

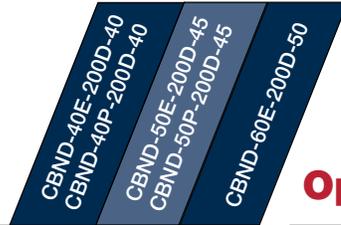
Capacities and Specifications

Boiler Dimensions	CBND-40E-200D-40 CBND-40P-200D-40	CBND-50E-200D-45 CBND-50P-200D-45	CBND-60E-200D-50
Capacity	40,000 lb/h	50,000 lb/h	60,000 lb/h
Upper Drum	36 in	36 in	36 in
Lower Drum	24 in	24 in	24 in
Length Over Casing	15 ft	16 ft 8 in	18 ft 4 in
Width, Gas Outlet	24 3/4 in	28 3/4 in	32 3/4 in
Height, Gas Outlet	79 3/4 in	79 3/4 in	79 3/4 in
Front to CL Gas Outlet	18 5/8 in	20 5/8 in	22 5/8 in
Shipping Height	13 ft 7 5/16 in	13 ft 7 5/16 in	13 ft 7 5/16 in
Overall Width	10 ft 10 1/4 in	10 ft 10 1/4 in	10 ft 10 1/4 in
Min Operating Pressure	100 psig	100 psig	100 psig

Economizer

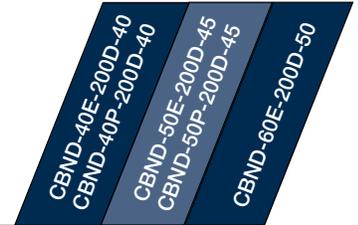
E2 Economizers	CBND-40E-200D-40 CBND-40P-200D-40	CBND-50E-200D-45 CBND-50P-200D-45	CBND-60E-200D-50	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	0.05 in	
Effective Length	9 ft	9 ft	9 ft	
Material	Carbon Steel	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	NG & #2 oil	
Economizer Trim				
Economizer feedwater bypass	2 in	2.5 in	2.5 in	
Header vent valve	1 in	1 in	1 in	
Header drain valve	1 in	1 in	1 in	

Standard Features



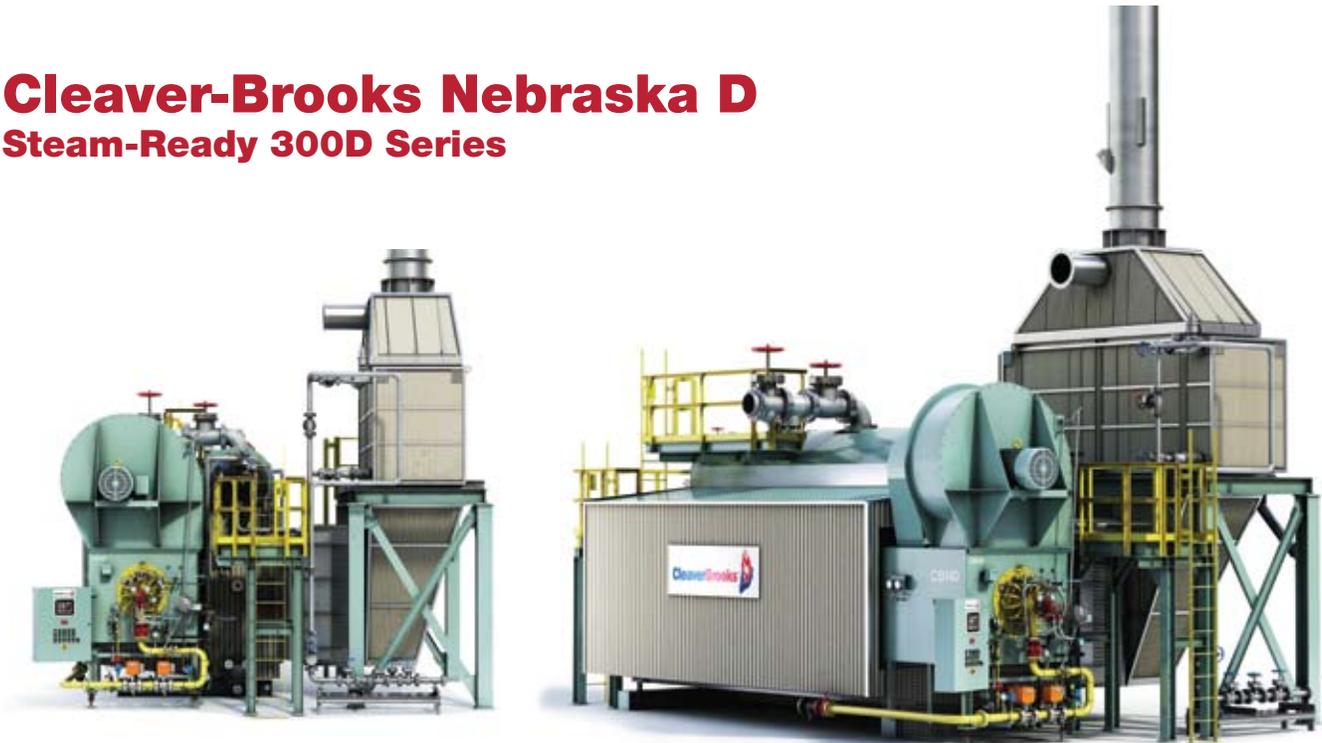
Pressure Vessel				
Design Pressure 250	•	•	•	
Tubes 2 in 178-A.105 Wall	•	•	•	
Steam Quality 0.5% Moist	•	•	•	
RH - Right Hand	•	•	•	
LH - Left Hand	•	•	•	
AL - Aluminum Casing	•	•	•	
Operating Pressure - 100–200 psig	•	•	•	
Auxiliary Equipment				
Steam Trim	•	•	•	
Feedwater Trim	•	•	•	
Boiler Platform Clips	•	•	•	
Economizer	•	•	•	
Stack - 40 ft, 50 ft, 60 ft	◇	◇	◇	
Controls				
Hawk 5000 Control	•	•	•	
Single Point (SP) - NXT	•	•	•	
Parallel Positioning (PP) - PF	•	•	•	
Feedwater - Single Element	•	•	•	
Burner				
NATCOM NXT for E Series (See NXT Burner technical data sheet for detailed information)	•	•	•	
ProFire XL for P Series (See ProFire Burner technical data sheet for detailed information)	•	•	•	

Optional Features



Pressure Vessel				
Design Pressure up to 375 psig	•	•	•	
Hinged Manways	•	•	•	
Lower Drum Heating Coil (LDHC)	•	•	•	
Tubes 2 in 178-A.120 Wall-PV	•	•	•	
Tubes 2 in 178-A.135 Wall-PV	•	•	•	
Operating Pressure - 200–325 psig	•	•	•	
Auxiliary Equipment				
Platforms & Ladders - Boiler	•	•	•	
Platforms & Ladders - Stack	◇	◇	◇	
Platform & Ladder - Economizer	◇	◇	◇	
Sootblowers	•	•	•	
Variable Frequency Drive	•	•	•	
Selective Catalytic Reduction	◇	◇	◇	
Controls				
Parallel Positioning (PP)	•	•	•	
Fully Metered (FM) - NXT	•	•	•	
Eye-Hye® Remote Drum Level Transmitter	•	•	•	
Feedwater 2- or 3-Element	•	•	•	
O ₂ Trim	•	•	•	
O ₂ Analyzer	•	•	•	

Cleaver-Brooks Nebraska D Steam-Ready 300D Series



Capacities and Specifications

Boiler Dimensions	CBND-70E-300D-55	CBND-80E-300D-65	CBND-90E-300D-70
Capacity	70,000 lb/h	80,000 lb/h	90,000 lb/h
Upper Drum	42 in	42 in	42 in
Lower Drum	24 in	24 in	24 in
Length Over Casing	20 ft	23 ft 4 in	25 ft
Width, Gas Outlet	36 3/4 in	40 1/2 in	44 3/4 in
Height, Gas Outlet	88 1/2 in	88 1/2 in	88 1/2 in
Front to CL Gas Outlet	24 5/8 in	26 5/8 in	28 5/8 in
Shipping Height	14 ft 6 in	14 ft 6 in	14 ft 6 in
Overall Width	11 ft 5 in	11 ft 5 in	11 ft 5 in
Min Operating Pressure	100 psig	100 psig	100 psig

Economizer

E3 Economizers	CBND-70E-300D-55	CBND-80E-300D-65	CBND-90E-300D-70	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	0.05 in	
Effective Length	12 ft	12 ft	12 ft	
Material	Carbon Steel	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	NG & #2 oil	
Economizer Trim				
Economizer feedwater bypass	2.5 in	3 in	3 in	
Header vent valve	1 in	1 in	1 in	
Header drain valve	1 in	1 in	1 in	

Standard Features

CBND-70E-300D-55
 (Capacity 70,000 lb/h)

CBND-80E-300D-65
 (Capacity 80,000 lb/h)

CBND-90E-300D-70
 (Capacity 90,000 lb/h)

Pressure Vessel				
Design Pressure 250	•	•	•	
Tubes 2 in 178-A.105 Wall	•	•	•	
Steam Quality 0.5% Moist	•	•	•	
RH - Right Hand	•	•	•	
LH - Left Hand	•	•	•	
AL - Aluminum Casing	•	•	•	
Operating Pressure - 100–200 psig	•	•	•	
Auxiliary Equipment				
Steam Trim	•	•	•	
Feedwater Trim	•	•	•	
Boiler Platform Clips	•	•	•	
Economizer	•	•	•	
Stack - 40 ft, 50 ft, 60 ft	◇	◇	◇	
Controls				
Hawk 5000 Control	•	•	•	
Single Point (SP)	•	•	•	
Feedwater - Single Element	•	•	•	
Burner				
NATCOM NXT (See NXT Burner technical data sheet for detailed information)	•	•	•	

Optional Features

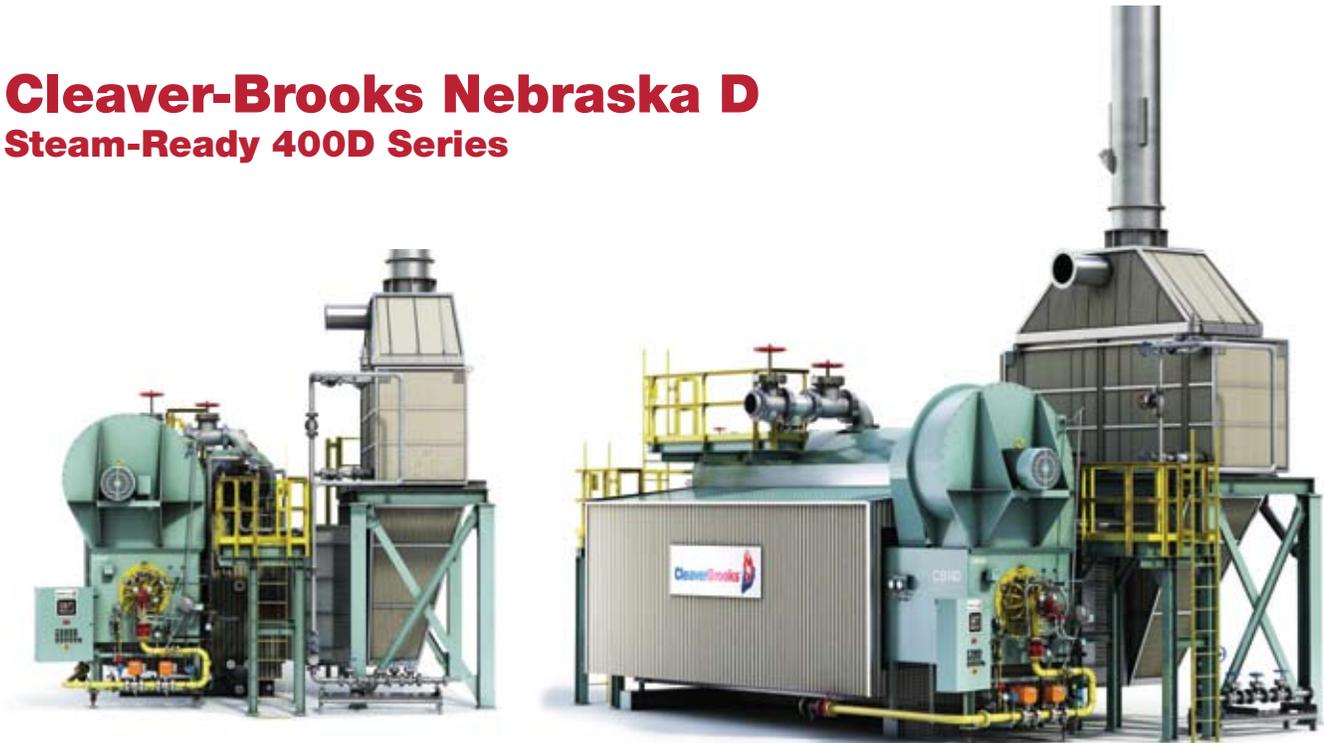
CBND-70E-300D-55
 (Capacity 70,000 lb/h)

CBND-80E-300D-65
 (Capacity 80,000 lb/h)

CBND-90E-300D-70
 (Capacity 90,000 lb/h)

Pressure Vessel				
Design Pressure up to 375 psig	•	•	•	
Hinged Manways	•	•	•	
Lower Drum Heating Coil (LDHC)	•	•	•	
Tubes 2 in 178-A.120 Wall-PV	•	•	•	
Tubes 2 in 178-A.135 Wall-PV	•	•	•	
Operating Pressure - 200–325 psig	•	•	•	
Auxiliary Equipment				
Platforms & Ladders - Boiler	•	•	•	
Platforms & Ladders - Stack	◇	◇	◇	
Platform & Ladder - Economizer	◇	◇	◇	
Sootblowers	•	•	•	
Variable Frequency Drive	•	•	•	
Selective Catalytic Reduction	◇	◇	◇	
Controls				
Parallel Positioning (PP)	•	•	•	
Fully Metered (FM)	•	•	•	
Eye-Hye® Remote Drum Level Transmitter	•	•	•	
Feedwater 2- or 3-Element	•	•	•	
O ₂ Trim	•	•	•	
O ₂ Analyzer	•	•	•	

Cleaver-Brooks Nebraska D Steam-Ready 400D Series



Capacities and Specifications

*CBND-90E-300D-70 shown. 400D to 600D CBND units are available with grade mounted fan, fuel train and controls. See corresponding burner dimension table for details.

Boiler Dimensions	CBND-100E-400D-75	CBND-110E-400D-85	CBND-120E-400D-90
Capacity	100,000 lb/h	110,000 lb/h	120,000 lb/h
Upper Drum	48 in	48 in	48 in
Lower Drum	24 in	24 in	24 in
Length Over Casing	26 ft 8 in	30 ft	31 ft 8 in
Width, Gas Outlet	52 3/4 in	56 3/4 in	60 3/4 in
Height, Gas Outlet	88 1/2 in	88 1/2 in	88 1/2 in
Front to CL Gas Outlet	32 5/8 in	34 5/8 in	36 5/8 in
Shipping Height	15 ft 1/2 in	15 ft 1/2 in	15 ft 1/2 in
Overall Width	11 ft 7 3/4 in	11 ft 7 3/4 in	11 ft 7 3/4 in
Min Operating Pressure	100 psig	100 psig	100 psig

Economizer

E3 Economizers	CBND-100E-400D-75	CBND-110E-400D-85	CBND-120E-400D-90	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	0.05 in	
Effective Length	12 ft	12 ft	12 ft	
Material	Carbon Steel	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	NG & #2 oil	
Economizer Trim				
Economizer feedwater bypass	3 in	3 in	3 in	
Header vent valve	1 in	1 in	1 in	
Header drain valve	1 in	1 in	1 in	

Standard Features

CBND-100E-400D-75
(Capacity 100,000 lb/hr)

CBND-110E-400D-85
(Capacity 110,000 lb/hr)

CBND-120E-400D-90
(Capacity 120,000 lb/hr)

Pressure Vessel			
Design Pressure 250	•	•	•
Tubes 2 in 178-A.105 Wall	•	•	•
Steam Quality 0.5% Moist	•	•	•
RH - Right Hand	•	•	•
LH - Left Hand	•	•	•
AL - Aluminum Casing	•	•	•
Operating Pressure - 100–200 psig	•	•	•
Auxiliary Equipment			
Steam Trim	•	•	•
Feedwater Trim	•	•	•
Boiler Platform Clips	•	•	•
Economizer	•	•	•
Stack - 40 ft, 50 ft, 60 ft	◇	◇	◇
Controls			
Hawk 5000 Control	•	•	•
Fully Metered (FM)	•	•	•
O ₂ Trim	•	•	•
Feedwater - Single Element	•	•	•
Burner			
NATCOM NXT (See NXT Burner technical data sheet for detailed information)	•	•	•

Optional Features

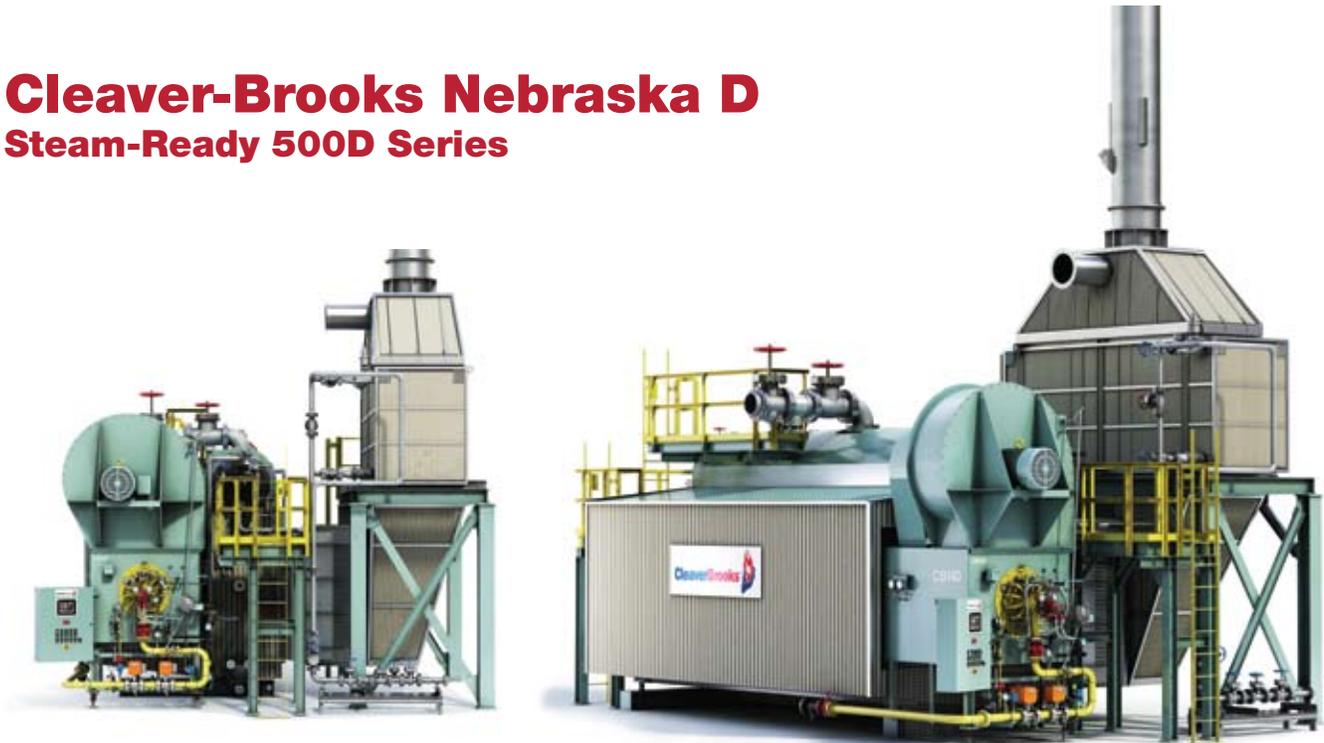
CBND-100E-400D-75
(Capacity 100,000 lb/hr)

CBND-110E-400D-85
(Capacity 110,000 lb/hr)

CBND-120E-400D-90
(Capacity 120,000 lb/hr)

Pressure Vessel			
Design Pressure up to 375 psig	•	•	•
Hinged Manways	•	•	•
Lower Drum Heating Coil (LDHC)	•	•	•
Tubes 2 in 178-A.120 Wall-PV	•	•	•
Tubes 2 in 178-A.135 Wall-PV	•	•	•
Operating Pressure - 200–325 psig	•	•	•
Auxiliary Equipment			
Platforms & Ladders - Boiler	•	•	•
Platforms & Ladders - Stack	◇	◇	◇
Platform & Ladder - Economizer	◇	◇	◇
Sootblowers	•	•	•
Variable Frequency Drive	•	•	•
Selective Catalytic Reduction	◇	◇	◇
Controls			
Eye-Hye® Remote Drum Level Transmitter	•	•	•
Feedwater 2- or 3-Element	•	•	•

Cleaver-Brooks Nebraska D Steam-Ready 500D Series



Capacities and Specifications

*CBND-90E-300D-70 shown. 400D to 600D CBND units are available with grade mounted fan, fuel train and controls. See corresponding burner dimension table for details.

Boiler Dimensions	CBND-135E-500D-95	CBND-150E-500D-100	CBND-175E-500D-115
Capacity	135,000 lb/h	150,000 lb/h	175,000 lb/h
Upper Drum	54 in	54 in	54 in
Lower Drum	24 in	24 in	24 in
Length Over Casing	30 ft	35 ft	40 ft
Width, Gas Outlet	68 3/4 in	72 3/4 in	80 3/4 in
Height, Gas Outlet	90 1/2 in	91 1/2 in	91 1/2 in
Front to CL Gas Outlet	40 5/8 in	42 5/8 in	46 5/8 in
Shipping Height	15 ft 10 1/2 in	15 ft 10 1/2 in	15 ft 10 1/2 in
Overall Width	12 ft 7 3/4 in	12 ft 7 3/4 in	12 ft 7 3/4 in
Min Operating Pressure	100 psig	100 psig	100 psig

Economizer

E4 Economizers	CBND-135E-500D-95	CBND-150E-500D-100	CBND-175E-500D-115	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	0.05 in	
Effective Length	16 ft	16 ft	16 ft	
Material	Carbon Steel	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	NG & #2 oil	
Economizer Trim				
Economizer feedwater bypass	3 in	4 in	4 in	
Header vent valve	1 in	1 in	1 in	
Header drain valve	1 in	1 in	1 in	

Standard Features

CBND-135E-500D-95
(Capacity 135,000 lb/hr)

CBND-150E-500D-100
(Capacity 150,000 lb/hr)

CBND-175E-500D-115
(Capacity 175,000 lb/hr)

Pressure Vessel			
Design Pressure 250	•	•	•
Tubes 2 in 178-A.105 Wall	•	•	•
Steam Quality 0.5% Moist	•	•	•
RH - Right Hand	•	•	•
LH - Left Hand	•	•	•
AL - Aluminum Casing	•	•	•
Operating Pressure - 100–200 psig	•	•	•
Auxiliary Equipment			
Steam Trim	•	•	•
Feedwater Trim	•	•	•
Boiler Platform Clips	•	•	•
Economizer	•	•	•
Stack - 40 ft, 50 ft, 60 ft	◇	◇	◇
Controls			
Hawk 5000 Control	•	•	•
Fully Metered (FM)	•	•	•
O ₂ Trim	•	•	•
Feedwater - Single Element	•	•	•
Burner			
NATCOM NXT (See NXT Burner technical data sheet for detailed information)	•	•	•

Optional Features

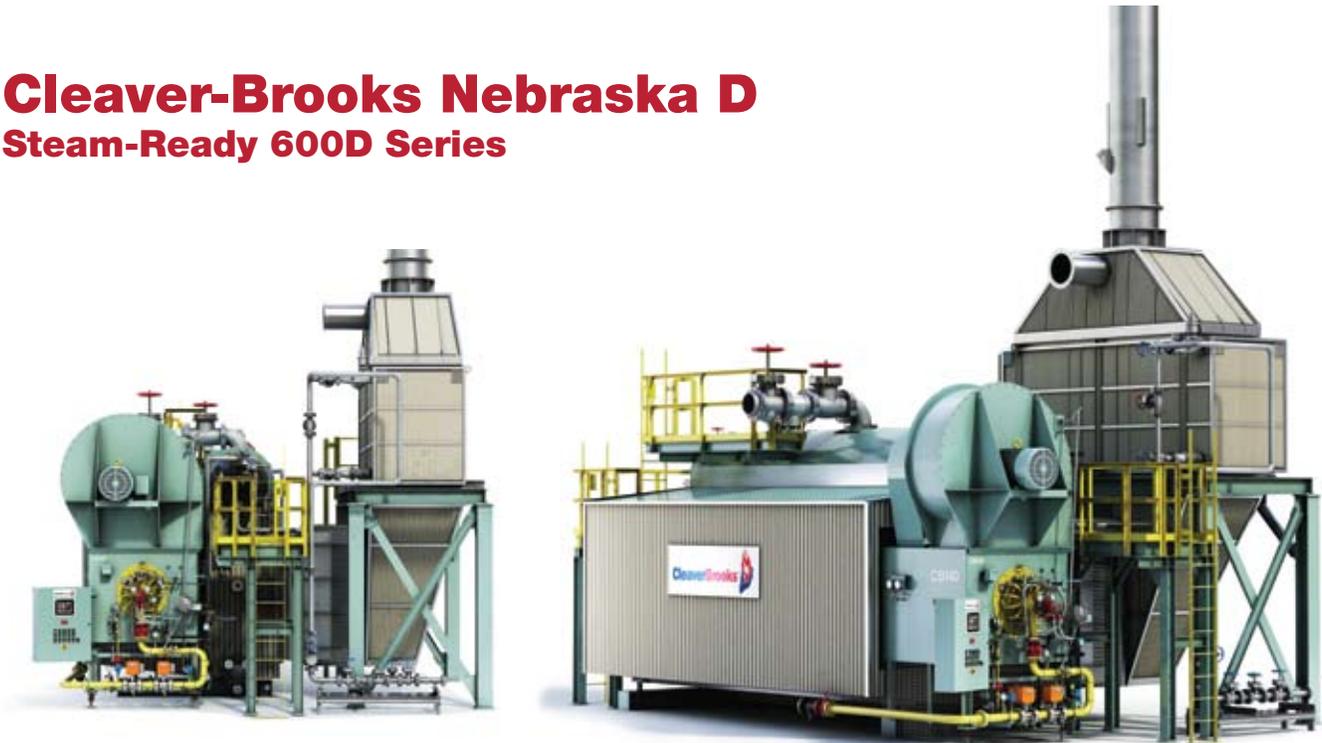
CBND-135E-500D-95
(Capacity 135,000 lb/hr)

CBND-150E-500D-100
(Capacity 150,000 lb/hr)

CBND-175E-500D-115
(Capacity 175,000 lb/hr)

Pressure Vessel			
Design Pressure up to 375 psig	•	•	•
Hinged Manways	•	•	•
Lower Drum Heating Coil (LDHC)	•	•	•
Tubes 2 in 178-A.120 Wall-PV	•	•	•
Tubes 2 in 178-A.135 Wall-PV	•	•	•
Operating Pressure - 200–325 psig	•	•	•
Auxiliary Equipment			
Platforms & Ladders - Boiler	•	•	•
Platforms & Ladders - Stack	◇	◇	◇
Platform & Ladder - Economizer	◇	◇	◇
Sootblowers	•	•	•
Variable Frequency Drive	•	•	•
Selective Catalytic Reduction	◇	◇	◇
Controls			
Eye-Hye® Remote Drum Level Transmitter	•	•	•
Feedwater 2- or 3-Element	•	•	•

Cleaver-Brooks Nebraska D Steam-Ready 600D Series



Capacities and Specifications

*CBND-90E-300D-70 shown. 400D to 600D CBND units are available with grade mounted fan, fuel train and controls. See corresponding burner dimension table for details.

Boiler Dimensions	CBND-200E-600D-120	CBND-225E-600D-125
Capacity	200,000 lb/h	225,000 lb/h
Upper Drum	54 in	54 in
Lower Drum	24 in	24 in
Length Over Casing	41 ft 8 in	43 ft 4 in
Width, Gas Outlet	92 3/4 in	104 3/4 in
Height, Gas Outlet	91 1/2 in	91 1/2 in
Front to CL Gas Outlet	52 5/8 in	58 5/8 in
Shipping Height	15 ft 10 1/2 in	15 ft 10 1/2 in
Overall Width	12 ft 9 1/8 in	12 ft 9 1/8 in
Min Operating Pressure	100 psig	100 psig

Economizer

E4 Economizers	CBND-200E-600D-120	CBND-225E-600D-125	STANDARD EQUIPMENT ALSO INCLUDED Temperature gauges – feedwater inlet/outlet Temperature thermowell – feedwater inlet/outlet Temperature gauges – flue gas inlet/outlet Temperature thermowell – flue gas inlet/outlet
Fin Height	0.75 in	0.75 in	
Transverse Pitch	4.5 in	4.5 in	
Longitudinal Pitch	4.5 in	4.5 in	
Segment	0.172 in	0.172 in	
Fin Thickness	0.05 in	0.05 in	
Effective Length	16 ft	16 ft	
Material	Carbon Steel	Carbon Steel	
Fins	Serrated	Serrated	
Bends	Cold Bent	Cold Bent	
Fuel	NG & #2 oil	NG & #2 oil	
Economizer Trim			
Economizer feedwater bypass	6 in	6 in	
Header vent valve	1 in	1 in	
Header drain valve	1 in	1 in	

Standard Features

CBND-200E-600D-120
(Capacity 200,000 lb/hr)
CBND-225E-600D-125
(Capacity 225,000 lb/hr)

Pressure Vessel			
Design Pressure 250	•	•	
Tubes 2 in 178-A.105 Wall	•	•	
Steam Quality 0.5% Moist	•	•	
RH - Right Hand	•	•	
LH - Left Hand	•	•	
AL - Aluminum Casing	•	•	
Operating Pressure - 100–200 psig	•	•	
Auxiliary Equipment			
Steam Trim	•	•	
Feedwater Trim	•	•	
Boiler Platform Clips	•	•	
Economizer	•	•	
Stack - 40 ft, 50 ft, 60 ft	◇	◇	
Controls			
Hawk 5000 Control	•	•	
Fully Metered (FM)	•	•	
O ₂ Trim	•	•	
Feedwater - Single Element	•	•	
Burner			
NATCOM NXT (See NXT Burner technical data sheet for detailed information)	•	•	

Optional Features

CBND-200E-600D-120
(Capacity 200,000 lb/hr)
CBND-225E-600D-125
(Capacity 225,000 lb/hr)

Pressure Vessel			
Design Pressure up to 375 psig	•	•	
Hinged Manways	•	•	
Lower Drum Heating Coil (LDHC)	•	•	
Tubes 2 in 178-A.120 Wall-PV	•	•	
Tubes 2 in 178-A.135 Wall-PV	•	•	
Operating Pressure - 200–325 psig	•	•	
Auxiliary Equipment			
Platforms & Ladders - Boiler	•	•	
Platforms & Ladders - Stack	◇	◇	
Platform & Ladder - Economizer	◇	◇	
Sootblowers	•	•	
Variable Frequency Drive	•	•	
Selective Catalytic Reduction	◇	◇	
Controls			
Eye-Hye® Remote Drum Level Transmitter	•	•	
Feedwater 2- or 3-Element	•	•	

ProFire Burners D126, LND145

Technical Data Sheet

Designed for CBND-10P-100D-25

12.2 MM BTU/H NG; 12.1 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
Designed integral FD fan, packaged fuel train and remote control panel. Choice of right- or left-hand fuel rack.	Single Point or Parallel Positioning Combustion Control System (CCS) with O ₂ trim.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	20	20	20	20
NOx emissions ppmvd @3%O ₂	95	135	30	100
CO emissions ppmvd @3%O ₂	100	75	100	100
VOC lb/MM BTU (HHV)	0.006	0.004	0.006	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	8	6

Performance guarantees are based on normal operating conditions and valid from 25% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for 100% MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing Steam flow (pph)	Atomizing air for cold start	
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)
10	30	30	65	30	32

Pressure control valve not included. See piping spec for design ratings. See also general design data for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

ProFire Burners

D252, LND300

Technical Data Sheet

Designed for CBND-20P-100D-35

24.3 MM BTU/H NG; 24.2 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
Designed integral FD fan, packaged fuel train and remote control panel. Choice of right- or left-hand fuel rack.	Single Point or Parallel Positioning Combustion Control System (CCS) with O ₂ trim.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	20	20	20	20
NOx emissions ppmvd @3%O ₂	95	135	30	100
CO emissions ppmvd @3%O ₂	100	75	100	100
VOC lb/MM BTU (HHV)	0.006	0.006	0.006	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	8	6

Performance guarantees are based on normal operating conditions and valid from 25% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for 100% MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing Steam flow (pph)	Atomizing air for cold start	
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)
10	30	30	130	30	65

Pressure control valve not included. See piping spec for design ratings. See also general design data for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

ProFire D Series Burners

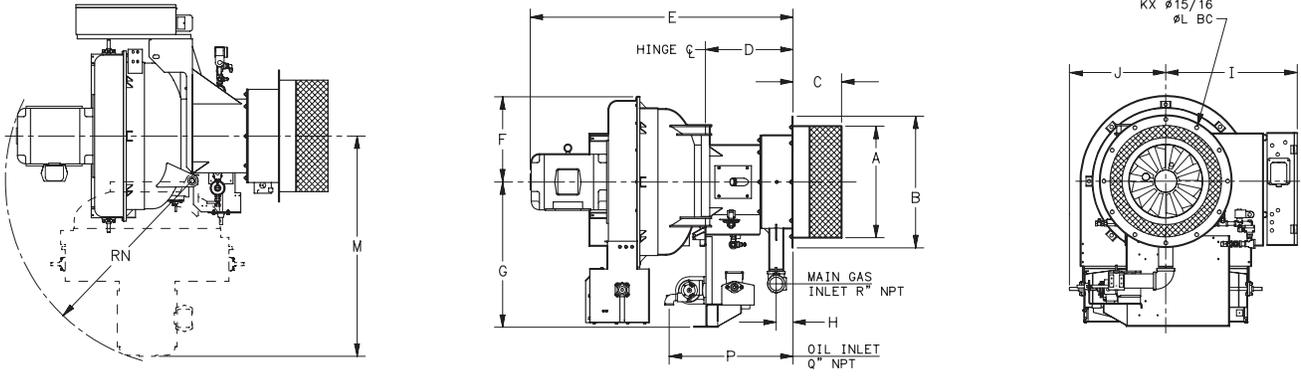
D-126, D-252

Dimension Tables

Designed for 10P-100D-25 and 20P-100D-35 CBND Boilers
 12.6–25.2 MM BTU/H NG; 12.6–25.2 MM BTU/H #2 OIL

Boiler Size	Burner Model	Gas Input (MBH)	#2 Oil Input (GPH)	PPH @ 84% Eff.	Motor HP	Metering System Motor HP 3 PH.	Blower Motor Volt/PH 60 Hz.	Gas Pressure Required (PSI)
CBND-10P-100D-25	D-126	12,600	90	10,000	15	1/2	460/3	2.5
CBND-20P-100D-35	D-252	25,200	180	20,000	30	3/4	460/3	4.3

Gas input based on natural gas at 1,000 Btu/cu. ft. and 0.60 gravity. Oil input based on No. 2 oil at 140,000 Btu/gal. PPH overall efficiency of 84% estimated. Blower wheel and motor HP is based on altitude up to 2,500 ft. above sea level. For higher altitude or 50 Hz. applications, consult factory. Firing at higher furnace pressures de-rates the burner by approximately 5% per 1/2 in. of additional pressure; consult factory.



Boiler Size	Burner Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R
CBND-10P-100D-25	D-126	22	27	12	21 1/2	56 7/8	15	30 1/8	4 1/8	24 3/4	21	12	25	45	37 3/8	30 1/2	1 1/4	3
CBND-20P-100D-35	D-252	31 1/2	37	15	22	66 3/8	21	37 3/8	4 5/8	32 3/8	23 3/4	12	35	56 7/8	47 1/2	31	1 1/4	4

ProFire LND Series Burners

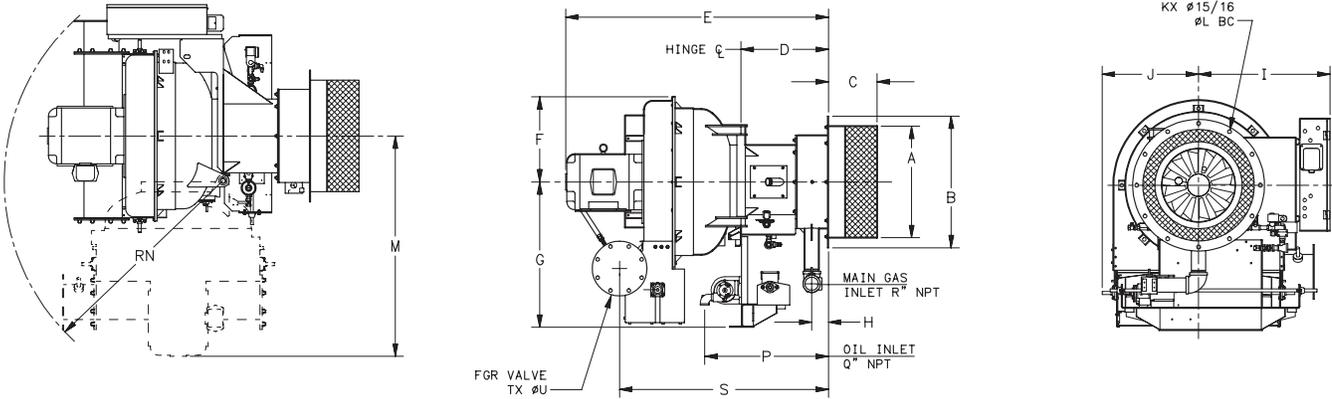
LND-145, LND-300

Dimension Tables

Designed for 10P-100D-25 and 20P-100D-35 CBND Boilers
12.6–25.2 MM BTU/H NG; 12.6–25.2 MM BTU/H #2 OIL

Boiler Size	Burner Model	Gas Input (MBH)	#2 Oil Input (GPH)	PPH @ 84% Eff.	Motor HP	Metering System Motor HP 3 PH.	Blower Motor Volt/PH 60 Hz.	Gas Pressure Required (PSI)	F.G.R. Line Piping Size
CBND-10P-100D-25	LND-145	12,600	90	10,000	15	1/2	460/3	2.5	8
CBND-20P-100D-35	LND-300	25,200	180	20,000	40	3/4	460/3	4.3	10

Gas input based on natural gas at 1,000 Btu/cu. ft. and 0.60 gravity. Oil input based on No. 2 oil at 140,000 Btu/gal. PPH overall efficiency of 84% estimated. Blower wheel and motor HP is based on altitude up to 2,500 ft. above sea level. For higher altitude or 50 Hz. applications, consult factory. Firing at higher furnace pressures de-rates the burner by approximately 5% per 1/2 in. of additional pressure; consult factory.



Boiler Size	Burner Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
CBND-10P-100D-25	LND-145	22	27	12	21 1/2	56 7/8	15	30 1/8	4 1/8	24 3/4	20 5/8	12	25	45	47 3/8
CBND-20P-100D-35	LND-300	31 1/2	37	15	22	66 3/8	21	37 3/8	4 5/8	32 3/8	23 3/4	12	35	56 7/8	58

Boiler Size	Burner Model	P	Q	R	S	T	U	V
CBND-10P-100D-25	LND-145	30 1/2	1 1/4	3	47 7/8	16	7/8	9 1/2
CBND-20P-100D-35	LND-300	31	1 1/4	4	51 5/8	16	7/8	11 3/4

ProFire XL Burner

General Data Sheet

For 100D to 200D CBND Boilers

12.6 to 63 MM BTU/H Burners

Each pre-engineered burner system shall be designed for the following general conditions:

Codes & Regulations				
System Compliant to:	Component listing:	Piping standard:	Enclosure rating:	Area classification:
NFPA 85 or CSA B149.3	UL	B31.3	NEMA 4	Non hazardous

Plant General Data								
Altitude	Equipment Location	FD Fan Motor Voltage	Control Voltage	Instrument Air Pressure	Noise Limitation*	Ambient Temperature	Combustion Air Temperature	Maximum Relative Humidity
0-2500 ft ASL	Indoors or Outdoors	480V/3/60HZ or 600V/3/60HZ (Canada)	120V	80 psig Regulated	92dBA @ 3ft	15°F to 100°F	50°F to 100°F must be tempered to the specified temperature	60%

Fuel									
Main Burner Fuel option	Igniter Fuel option	Natural Gas Temperature at Train Inlet	Natural Gas		#2 Oil				
Natural Gas and/or #2 Oil	Natural Gas and/or Propane Gas	60°F-80°F	Composition % Volume	High Heating Value (HHV)	Composition % Mass	High Heating Value (HHV)	Fuel Bound Nitrogen (FBN) % Mass	Asphaltene % Mass	Viscosity SSU @60°F
			95% CH ₄ 2% C ₂ H ₆ 2% N ₂ 1% CO ₂	994 BTU/SCF	87.27 C 12.5 H 0.2 S 0.01 ash	19,300 BTU/lb	≤0.02	≤3	42

Packaged burner general design conditions

*The noise level emission guarantee applies for each individual system component provided (not combined) and does not consider the overall plant floor level noise. Noise emission guarantee is based on free field sound, hemispherical radiation at the stated distance and does not include combination of sound effect radiated from other sources or noise reflected from the interior building walls and other surfaces. Also, it does not take into consideration factors which may contribute to overall installed noise levels such as existing noise from motors, casings, ducts, flowmeters, dampers, VIVs and other power house equipment.

ProFire Burners XL378, LNXL378

Technical Data Sheet

Designed for CBND-30P-100D-40

36.4 MM BTU/H NG; 36.4 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
Designed integral FD fan, parallel positioning, packaged fuel train and remote control panel. Choice of right- or left-hand fuel rack.	O ₂ trim and Variable Speed Drive (VSD).	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	20	20	20	20
NOx emissions ppmvd @3%O ₂	95	135	30	100
CO emissions ppmvd @3%O ₂	100	75	100	100
VOC lb/MM BTU (HHV)	0.006	0.004	0.006	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	8	6

Performance guarantees are based on normal operating conditions and valid from 25% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for 100% MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing Steam flow (pph)	Atomizing air for cold start	
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)
10	30	30	170	30	95

Pressure control valve not included. See piping spec for design ratings. See also general design data for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

ProFire Burners XL504, LNXL504

Technical Data Sheet

Designed for CBND-40P-200D-40

48.6 MM BTU/H NG; 48.5 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
Designed integral FD fan, parallel positioning, packaged fuel train and remote control panel. Choice of right- or left-hand fuel rack.	O ₂ trim and Variable Speed Drive (VSD).	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	20	20	20	20
NOx emissions ppmvd @3%O ₂	95	135	30	100
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.006	0.004	0.006	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	8	6

Performance guarantees are based on normal operating conditions and valid from 25% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for 100% MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing Steam flow (pph)	Atomizing air for cold start	
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)
10	30	30	255	30	125

Pressure control valve not included. See piping spec for design ratings. See also general design data for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

ProFire Burners XL630, LNXL630

Technical Data Sheet

Designed for CBND-50P-200D-45
60.7 MM BTU/H NG; 60.5 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
Designed integral FD fan, parallel positioning, packaged fuel train and remote control panel. Choice of right- or left-hand fuel rack.	O ₂ trim and Variable Speed Drive (VSD).	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	20	20	20	20
NOx emissions ppmvd @3%O ₂	95	135	30	100
CO emissions ppmvd @3%O ₂	100	75	100	100
VOC lb/MM BTU (HHV)	0.006	0.004	0.006	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	8	6

Performance guarantees are based on normal operating conditions and valid from 25% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for 100% MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing Steam flow (pph)	Atomizing air for cold start	
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)
10	30	30	315	30	155

Pressure control valve not included. See piping spec for design ratings. See also general design data for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

ProFire XL Series Burners

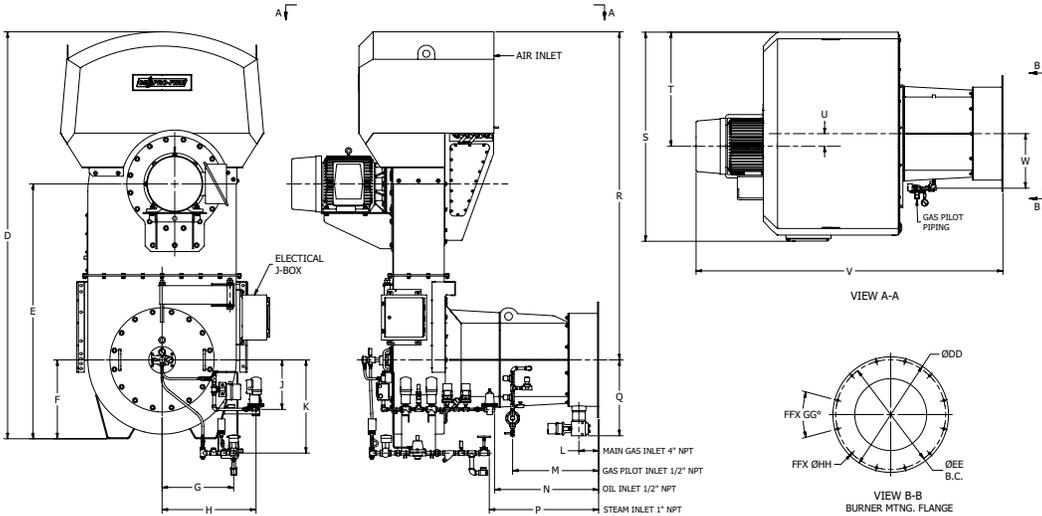
XL-378, XL-504, XL-630

Dimension Tables

Designed for 30P-100D-40, 40P-200D-40 and 50P-200D-45 CBND Boilers
 37.8–63.0 MM BTU/H NG; 37.8–63.0 MM BTU/H #2 OIL

Boiler Size	Burner Model	Gas Input (MBH)	#2 Oil Input (GPH)	PPH @ 84% Eff.	Motor HP	Blower Motor Volt/3 PH 60 Hz.	Furnace Pressure ("w.c.)	Gas Pressure Required (PSI)
CBND-30P-100D-40	XL-378	37,800	270	30,000	30	460/3	5.0	10
CBND-40P-200D-40	XL-504	50,400	360	40,000	50	460/3	3.5	10
CBND-50P-200D-45	XL-630	63,000	450	50,000	75	5.0	10	

Gas input based on natural gas at 1,000 Btu/cu. ft. and 0.60 gravity. Oil input based on No. 2 oil at 140,000 Btu/gal. PPH overall efficiency of 84% estimated. Blower wheel and motor HP is based on altitude up to 2,500 ft. above sea level. For higher altitude or 50 Hz. applications, consult factory. Firing at higher furnace pressures de-rates the burner by approximately 5% per 1/2 in. of additional pressure; consult factory.



Boiler Size	Burner Model	D	E	F	G	H	J	K	L	M	N	P	Q
CBND-30P-100D-40	XL-378	137 3/10	83 3/10	26 3/5	24	31 7/10	17 3/5	33	6 1/2	28	36 2/5	38 3/10	23 3/10
CBND-40P-200D-40	XL-504	144 1/2	90 1/2	28	25 2/5	33 3/10	17 3/5	33	7	30 1/2	36 9/10	38 4/5	27
CBND-50P-200D-45	XL-630	144 1/2	90 1/2	28	25 2/5	33 3/10	17 3/5	33	7	30 1/2	36 9/10	38 4/5	27

Boiler Size	Burner Model	R	S	T	U	V	W	DD	EE	FF	GG	HH
CBND-30P-100D-40	XL-378	110 4/5	72 3/10	38 1/2	3 3/5	98 9/10	16 1/10	30	28 3/10	12	30°	47/50
CBND-40P-200D-40	XL-504	116 1/2	74 1/5	40 1/2	4 1/2	108 4/5	19 2/5	41	39	12	30°	47/50
CBND-50P-200D-45	XL-630	116 1/2	74 1/5	40 1/2	4 1/2	108 4/5	19 2/5	41	39	12	30°	47/50

ProFire LNXL Series Burners

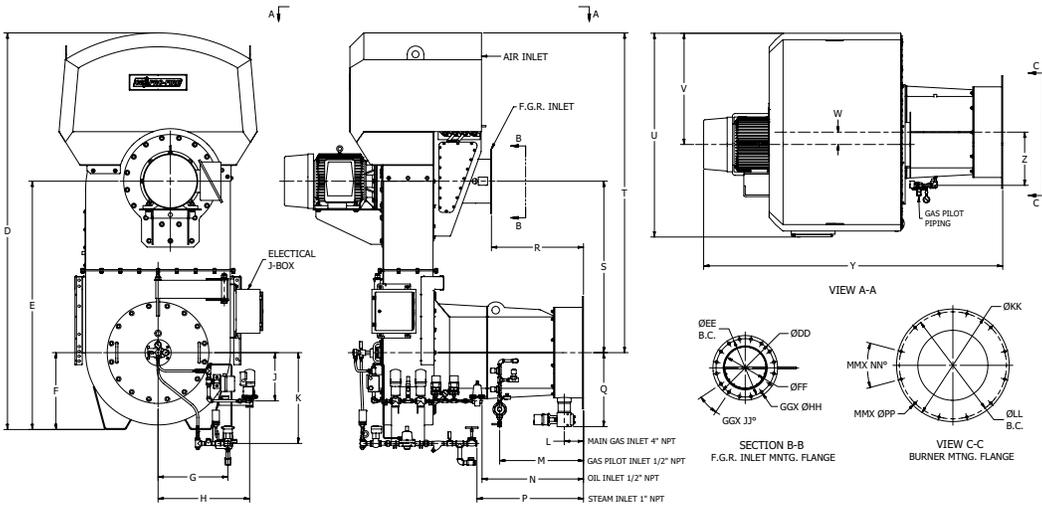
LNXL-378, LNXL-504, LNXL-630

Dimension Tables

Designed for 30P-100D-40, 40P-200D-40 and 50P-200D-45 CBND Boilers
 37.8–63.0 MM BTU/H NG; 37.8–63.0 MM BTU/H #2 OIL

Boiler Size	Burner Model	Gas Input (MBH)	#2 Oil Input (GPH)	PPH @ 84% Eff.	Motor HP	Blower Motor Volt/3 PH 60 Hz.	Furnace Pressure ("w.c.)	Gas Pressure Required (PSI)	F.G.R. Line Piping Size
CBND-30P-100D-40	LNXL-378	37,800	270	30,000	40	460/3	6.0	10	14
CBND-40P-200D-40	LNXL-504	50,400	360	40,000	60	460/3	7.7	10	16
CBND-50P-200D-45	LNXL-630	63,000	450	50,000	100	9.6	10	16	

Gas input based on natural gas at 1,000 Btu/cu. ft. and 0.60 gravity. Oil input based on No. 2 oil at 140,000 Btu/gal. PPH overall efficiency of 84% estimated. Blower wheel and motor HP is based on altitude up to 2,500 ft. above sea level. For higher altitude or 50 Hz. applications, consult factory. Firing at higher furnace pressures de-rates the burner by approximately 5% per 1/2 in. of additional pressure; consult factory.



Boiler Size	Burner Model	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
CBND-30P-100D-40	LNXL-378	137 3/10	83 3/10	26 3/5	24	31 7/10	17 3/5	33	6 1/2	28	36 2/5	38 3/10	23 3/10	31 1/2	56 4/5	110 4/5	72 3/10
CBND-40P-200D-40	LNXL-504	144 1/2	90 1/2	28	25 2/5	33 3/10	17 3/5	33	7	30 1/2	36 9/10	38 4/5	27	33 1/2	62 1/2	116 1/2	74 1/5
CBND-50P-200D-45	LNXL-630	144 1/2	90 1/2	28	25 2/5	33 3/10	17 3/5	33	7	30 1/2	36 9/10	38 4/5	27	33 1/2	62 1/2	116 1/2	74 1/5

Boiler Size	Burner Model	V	W	Y	Z	DD	EE	FF	GG	HH	JJ	KK	LL	MM	NN	PP
CBND-30P-100D-40	LNXL-378	38 1/2	3 3/5	98 9/10	16 1/10	21	18 4/5	13 3/10	24	1 10/77	15°	30	28 3/10	12	30°	47/50
CBND-40P-200D-40	LNXL-504	40 1/2	4 1/2	108 4/5	19 2/5	23 1/2	21 3/10	15 3/10	16	1 10/77	22 1/2°	41	39	12	30°	47/50
CBND-50P-200D-45	LNXL-630	40 1/2	4 1/2	108 4/5	19 2/5	23 1/2	21 3/10	15 3/10	16	1 10/77	22 1/2°	41	39	12	30°	47/50

NXT Burner

General Data Sheet

For 200D to 600D CBND Boilers

48 to 271 MM BTU/H Burners

Each NXT burner system shall be designed for the following general conditions:

Codes & Regulations				
System Compliant to:	Component listing:	Piping standard:	Enclosure rating:	Area classification:
NFPA 85 or CSA B149.3	UL	B31.3	NEMA 4	Non hazardous

Plant General Data										
Altitude	Equipment Location		FD Fan Motor Voltage	Control Voltage	Instrument Air Pressure	Noise Limitation*	Ambient Temperature	Combustion Air Temperature		Maximum Relative Humidity
0–2500 ft ASL	48 to 109 MM BTU/H 200D–300D	120 to 271 MM BTU/H 400D–600D	480V/3/60HZ or 600V/3/60HZ (Canada)	120V	70 psig Regulated	85dBA @ 3ft	15°F to 125°F	48 to 109 MM BTU/H 200D–300D	120 to 271 MM BTU/H 400D–600D	60%
	Indoors	Indoors or Outdoors						50°F to 100°F must be tempered to the specified temperature		

Fuel									
Main Burner Fuel option	Igniter Fuel option	Natural Gas Temperature at Train Inlet	Natural Gas		#2 Oil				
			Composition % Volume	High Heating Value (HHV)	Composition % Mass	High Heating Value (HHV)	Fuel Bound Nitrogen (FBN) % Mass	Asphaltene % Mass	Viscosity SSU @60°F
Natural Gas and/or #2 Oil	Natural Gas and/or Propane Gas	40°F–80°F	95% CH ₄ 2% C ₂ H ₆ 2% N ₂ 1% CO ₂	994 BTU/SCF	87.27 C 12.5 H 0.2 S 0.01 ash	19,300 BTU/lb	≤0.02	≤3	42

Packaged burner general design conditions

*The noise level emission guarantee applies for each individual system component provided by NATCOM (not combined) and does not consider the overall plant floor level noise. Noise emission guarantee is based on free field sound, hemispherical radiation at the stated distance and does not include combination of sound effect radiated from other sources or noise reflected from the interior building walls and other surfaces. Also, it does not take into consideration factors which may contribute to overall installed noise levels such as existing noise from motors, casings, ducts, flowmeters, dampers, VIVs and other power house equipment.

NXT-048 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-40E-200D-40, 40 K PPH sat.
48 MM BTU/H NG; 46 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.34' W=6.69' Lturn=11.33' Ltot=13.00'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 9% FGR	#2 Oil, 9% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	60	105	30	75
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	9% FGR NG
FM	20	100	95	240	70	45	40/40 Oil 40/50 NG	3.5	3.9
SP, PP	18	95	95	240	70	45			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

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NXT-060 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-50E-200D-45, 50 K PPH sat.
60 MM BTU/H NG; 58 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.34' W=6.69' Lturn=12.67' Ltot=14.67'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 10% FGR	#2 Oil, 10% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	65	105	30	75
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	10% FGR NG
FM	20	100	95	300	70	60	50/60 Oil 60/60 NG	5.1	5.7
SP, PP	18	95	95	300	70	60			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

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NXT-072 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-60E-200D-50, 60 K PPH sat.
72 MM BTU/H NG; 69 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.34' W=6.69' Lturn=14.00' Ltot=16.33'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 11% FGR	#2 Oil, 11% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	70	110	30	75
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	11% FGR NG
FM	20	100	95	360	70	70	75/100 Oil 75/100 NG	7.1	8.2
SP, PP	18	95	95	360	70	70			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

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NXT-085 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-70E-300D-55, 70 K PPH sat.
85 MM BTU/H NG; 81 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.97' W=6.69' Lturn=15.33' Ltot=18.00'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 12% FGR	#2 Oil, 12% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	70	110	30	75
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	12% FGR NG
FM	22	125	120	420	70	80	75/100 Oil 75/100 NG	5.3	6.1
SP, PP	20	120	120	420	70	80			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

Reference documents

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NXT-097 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-80E-300D-65, 80 K PPH sat.
97 MM BTU/H NG; 93 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.97' W=6.69' Lturn=18.33' Ltot=21.33'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 13% FGR	#2 Oil, 13% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	75	115	30	80
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	13% FGR NG
FM	22	125	120	475	70	90	100/125 Oil 100/150 NG	7.1	8.4
SP, PP	20	120	120	475	70	90			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

Reference documents

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NXT-109 Burner

Technical Data Sheet

For indoor applications,
uncontrolled or 30 ppm
NOx emissions

Designed for CBND-90E-300D-70, 90 K PPH sat.
109 MM BTU/H NG; 104 MM BTU/H #2 OIL

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=8.97' W=6.69' Lturn=19.67' Ltot=23.00'	FD fan, fuel train and control panel are windbox mounted. Right- or left-hand drum arrangements available.	Fully Metered (FM), Parallel Positioning (PP) and Single Point Positioning (SP). All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 13% FGR	#2 Oil, 13% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	80	120	30	80
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Fan motors of 100 HP and above are only offered with manual start/stop control. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

	Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Fan test block No FGR/FGR (HP)	Allowed furnace pressure @ MCR (inwc)	
	NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		No FGR NG	13% FGR NG
FM	22	125	120	540	70	100	125/150 Oil 125/150 NG	9.1	10.8
SP, PP	20	120	120	540	70	100			

Allowed furnace pressure given for NG fuel including 0.75 inwc margin. Oil-only application will result in slightly reduced furnace pressure. Pressure control valves not included. See piping spec for design ratings. See also general operating conditions for additional details.

Reference documents

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NXT-120 Burner

Technical Data Sheet

Designed for CBND-100E-400D-75, 100 K PPH sat.
120 MM BTU/H NG; 115 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=9.04' W=6.69' Lturn=21.00' Ltot=24.67'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 13% FGR	#2 Oil, 13% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	80	120	30	85
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
22	125	120	600	70	115	8.1/8.4 Oil 8.1/8.4 NG	2.1/2.3 Oil 3.3/3.6 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

Reference documents

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NXT-132 Burner

Technical Data Sheet

Designed for CBND-110E-400D-85, 110 K PPH sat.
132 MM BTU/H NG; 127 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=9.04' W=6.69' Lturn=24.00' Ltot=28.00'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 14% FGR	#2 Oil, 14% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	80	120	30	85
CO emissions ppmvd @3%O ₂	50	75	50	75
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
22	125	120	660	70	125	8.4/9.0 Oil 8.4/8.7 NG	2.2/2.6 Oil 3.4/3.1 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

Reference documents

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NXT-144 Burner

Technical Data Sheet

Designed for CBND-120E-400D-90, 120 K PPH sat.
144 MM BTU/H NG; 138 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=9.04' W=6.69' Lturn=25.00' Ltot=29.67'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 15% FGR	#2 Oil, 15% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	85	125	30	90
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
22	125	120	720	70	135	8.7/9.4 Oil 8.6/9.0 NG	2.2/2.3 Oil 3.0/3.2 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

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Commissioning plan

NXT-162 Burner

Technical Data Sheet

Designed for CBND-135E-500D-95, 135 K PPH sat.
162 MM BTU/H NG; 155 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=10.11' W=6.69' Lturn=26.33' Ltot=31.33'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 16% FGR	#2 Oil, 16% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	85	130	30	90
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
24	150	145	820	70	145	9.5/9.8 Oil 9.2/9.7 NG	2.3/2.4 Oil 2.8/3.4 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

Reference documents

Please reference the below documents for additional information on the content outlined in this data sheet. All documents are available in the Cleaver-Brooks Boiler Book.

Guide specifications
General design data
Product dimension tables

Piping specifications
Inspection and test plan
Paint specification

Scope detail
Job document list
Commissioning plan

NXT-180 Burner

Technical Data Sheet

Designed for CBND-150E-500D-100, 150 K PPH sat.
180 MM BTU/H NG; 173 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=10.11' W=6.69' Lturn=27.67' Ltot=33.00'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 17% FGR	#2 Oil, 17% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	90	130	30	95
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
24	150	145	900	70	175	9.9/10.4 Oil 9.7/10.3 NG	2.0/2.2 Oil 3.4/3.6 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

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Paint specification

Scope detail
Job document list
Commissioning plan

NXT-210 Burner

Technical Data Sheet

Designed for CBND-175E-500D-115, 175 K PPH sat.
210 MM BTU/H NG; 201 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=10.11' W=6.69' Lturn=32.00' Ltot=38.00'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 17% FGR	#2 Oil, 17% FGR
Excess Air %*	15	15	15	15
NOx emissions ppmvd @3%O ₂	95	130	30	95
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
24	150	145	1040	70	200	9.4/10.3 Oil 9.3/10.2 NG	2.8/3.0 Oil 3.5/3.7 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

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NXT-240 Burner

Technical Data Sheet

Designed for CBND-200E-600D-120, 200 K PPH sat.
240 MM BTU/H NG; 230 MM BTU/H #2 OIL

For 50°F to 100°F combustion air applications, uncontrolled or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=10.09' W=6.69' Lturn=32.67' Ltot=39.67'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 17.5% FGR	#2 Oil, 17.5% FGR
Excess Air %*	15	17.5	15	17.5
NOx emissions ppmvd @3%O ₂	100	130	30	95
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
26	150	145	1200	70	230	9.5/10.2 Oil 10.4/10.5 NG	2.9/3.0 Oil 3.5/3.7 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

Reference documents

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Paint specification

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NXT-271 Burner

Technical Data Sheet

Designed for CBND-225E-600D-125, 225 K PPH sat.
271 MM BTU/H NG; 260 MM BTU/H #2 OIL

For 50°F to 100°F combustion
air applications, uncontrolled
or 30 ppm NOx emissions

Designed for furnace dimensions of at least:	Physical arrangement:	Combustion Control System (CCS) compatibility options:	Fuel Options:	Choice of NFPA or CSA compliance for U.S. or Canadian units, respectively (contact us for TSSA compliance).
H=10.11' W=6.69' Lturn=33.67' Ltot=41.33'	Designed for remote installation of FD fan, fuel train and control panel. Choice of right- or left-hand fuel rack. Choice of right, left, top, or bottom combustion air inlet flanged connection.	Fully Metered (FM) Combustion Control System (CCS) with O ₂ trim. All systems use 4-20mA and pneumatic actuators.	Main Fuel: Natural gas and/or #2 oil. Igniter fuel: Natural gas and/or propane.	

Performance guarantees

	NG, no FGR	#2 Oil, no FGR	NG, 18% FGR	#2 Oil, 18% FGR
Excess Air %*	17.5	17.5	17.5	17.5
NOx emissions ppmvd @3%O ₂	105	135	30	100
CO emissions ppmvd @3%O ₂	50	75	75	100
VOC lb/MM BTU (HHV)	0.004	0.004	0.004	0.004
Total PM lb/MM BTU (HHV)	0.01	0.05	0.01	0.05
Turndown	10	8	10	8

Performance guarantees are based on normal operating conditions and valid from 12.5% to 100% MCR, boiler with gas tight furnace division wall and to nominal operating pressure and temperature. Igniter emissions are not guaranteed. For application where CB does not provide the controls, emissions are guaranteed in manual mode only. SOx emissions are not burner dependent and depend solely on the sulfur content of the fuel. Burner/boiler systems are not intended for automatic recycling use. Please contact your local representative for more details.

*Excess air given for MCR only.

Specific operating conditions

Regulated pressure at train inlet (psig)			Atomizing steam flow (pph)	Atomizing air for cold start		Burner + Windbox DP No FGR/FGR (in wc)	AHG DP No FGR/FGR (in wc)
NG	#2 Oil	Atomizing Steam		(psig)	(SCFM)		
26	150	145	1350	70	260	10.2/10.8 Oil 10.2/10.8 NG	2.7/2.9 Oil 3.7/3.9 NG

Pressure control valves not included. See piping spec for design ratings. See also general design data for additional details. All pressure drops are given at worst case conditions specified in the general design data. Burner + Windbox DP includes a windbox mounted opposed blade damper. Actual site DP may vary. DP shown does not include any design margin.

Reference documents

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Guide specifications
General design data
Product dimension tables

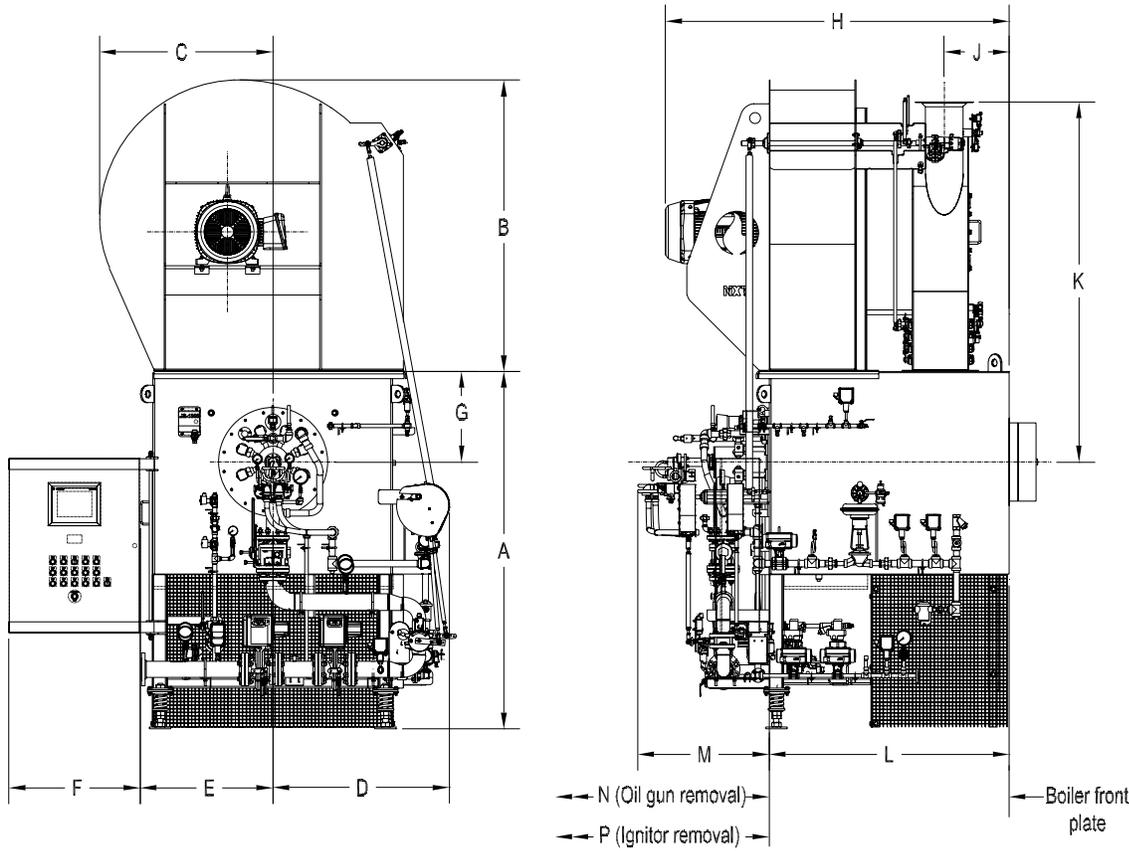
Piping specifications
Inspection and test plan
Paint specification

Scope detail
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NXT-048 to NXT-109 Burners

Dimension Tables

Designed for 200D to 300D CBND Boilers
 48 to 109 MM BTU/H Burners



Boiler Size	Burner Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
CBND-40E-200D-40 CBND-50E-200D-45 CBND-60E-200D-50	NXT-048 NXT-060 NXT-072	98.5	81	48	52	37	37	25	98	23	100	66	37	137	99
CBND-70E-300D-55 CBND-80E-300D-65 CBND-90E-300D-70	NXT-085 NXT-097 NXT-109	105	90	54	52	40	37	28	108	26	106	72	38	149	111

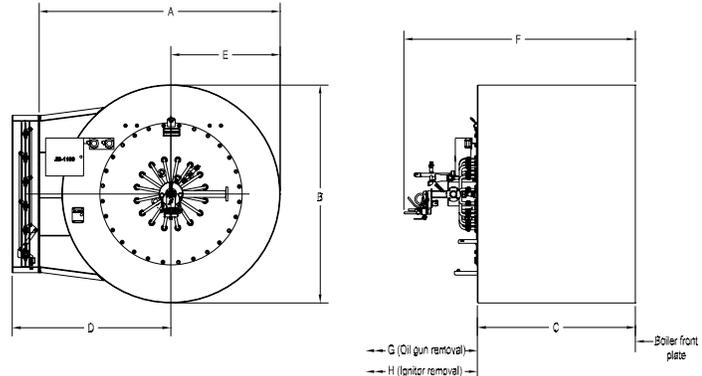
All dimensions are in inches. Dimensions may differ depending on the options chosen and are given for general reference only. Refer to final project specific general arrangement drawing for exact dimensions to be used for construction purposes. Refer to the "E" dimension for shipping width. Control panel, if supplied, is being folded towards the burner when units are shipped. (Control panel is mounted on hinged supporting brackets). For retrofit application, oil gun and ignitor removal length could be larger by up to 12 inches.

NXT-120 to NXT-271 Burners

Dimension Tables

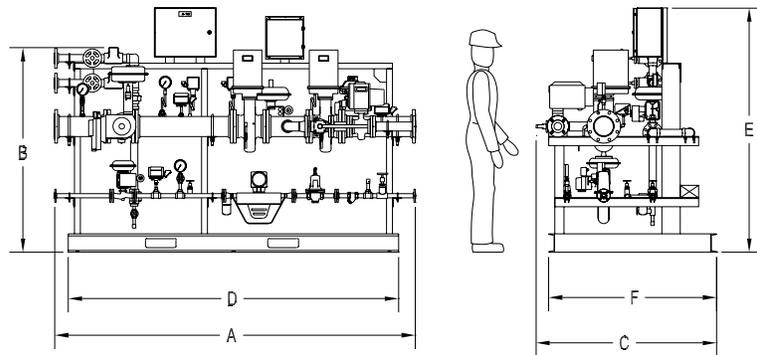
Designed for 400D to 600D CBND Boilers
120 to 271 MM BTU/H Burners

General Dimensions



Boiler Size	Burner Model	A	B	C	D	E	F	G	H
CBND-100E-400D-75 CBND-110E-400D-85 CBND-120E-400D-90	NXT-120 NXT-132 NXT-144	88	78	84	63	39	128	162	117
CBND-135E-500D-95 CBND-150E-500D-100 CBND-175E-500D-115	NXT-162 NXT-180 NXT-210	92	82	90	65	41	134	169	124
CBND-200E-600D-120 CBND-225E-600D-125	NXT-240 NXT-271	100	90	96	69	45	141	176	131

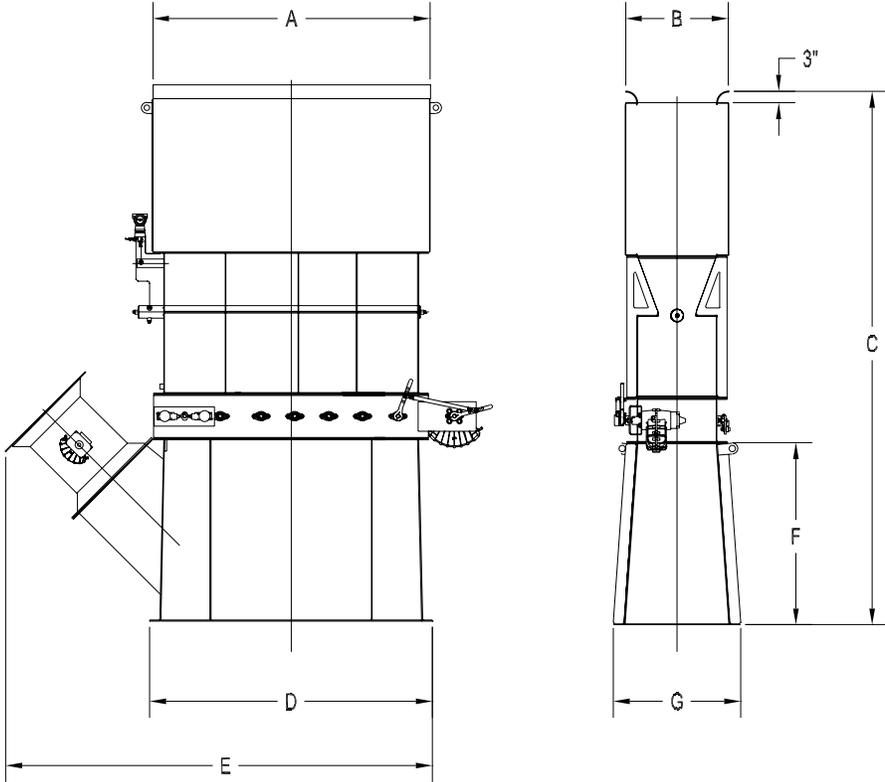
Fuel Rack Dimensions



Boiler Size	Burner Model	Fuel	A	B	C	D	E	F
CBND-100E-400D-75 CBND-110E-400D-85 CBND-120E-400D-90 CBND-135E-500D-95 CBND-150E-500D-100 CBND-175E-500D-115	NXT-120 NXT-132 NXT-144 NXT-162 NXT-180 NXT-210	Natural Gas	108	72	48	96	66	32
CBND-200E-600D-120 CBND-225E-600D-125	NXT-240 NXT-271	Natural Gas + Oil	124	68	60	108	84	60

All dimensions shown in inches. Dimensions may differ depending on options chosen and are given for general reference only. Refer to final project specific general arrangement drawing for exact dimensions to be used for construction purposes. For retrofit application - oil gun (G) and igniter (H) removal length may expand by up to 12 inches.

Air Handling Components Dimensions



Boiler Size	Burner Model	A	B	C*	D	E	F	G
CBND-100E-400D-75	NXT-120	70	28	142	78	116	40	32
CBND-110E-400D-85	NXT-132	78	30	154	78	126	44	32
CBND-120E-400D-90	NXT-144	78	30	154	84	132	48	34
CBND-135E-500D-95	NXT-162	84	32	158	94	136	52	38
CBND-150E-500D-100	NXT-180	84	32	168	94	140	56	38
CBND-175E-500D-115	NXT-210	94	34	190	102	154	60	40
CBND-200E-600D-120	NXT-240	102	38	202	114	170	68	44
CBND-225E-600D-125	NXT-271	102	38	218	114	184	72	44

All dimensions shown in inches. Dimensions may differ depending on options chosen and are given for general reference only. Refer to final project specific general arrangement drawing for exact dimensions to be used for construction purposes. To obtain the total length without FGR, subtract dimension "F" from dimension "C."

*Subtract 3 inches from dimension "C" when the silencer is ducted.



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