c) Standard Purchasing Resolution 2: Award to Low Bidder Meeting Specifications – Department of Public Works Fleet Garage Unit Heater Replacement

Resolution #2020-09-138-J-4c

RESOLVED, That Troy City Council hereby **AWARDS** a contract for the purchase of replacement unit heaters for the Fleet Garage located at the Department of Public Works; as per bid specifications to the low bidder meeting specifications, *The Macomb Group* of *Sterling Heights MI,* for an estimated total cost of $45,255 at unit prices contained in the bid tabulation opened September 10, 2020; a copy of which shall be **ATTACHED** to the original Minutes of the meeting.

BE IT FURTHER RESOLVED, That the award is **CONTINGENT** upon contractor's submission of properly executed contract documents, including insurance certificates and all other specified requirements.

PURCHASE ORDER

No. 2021-00000412
DATE: 09/24/2020
PAGE: 1 of 1
FOB DESTINATION

Ship To
CITY OF TROY
Building Operations
4693 ROCHESTER ROAD
TROY, MI 48085

Bill To
CITY OF TROY
Building Operations
4693 ROCHESTER ROAD
TROY, MI 48085

COUNCIL RESOLUTION
2020-09-138-J-4c

VENDOR NO. 128390

Vendor
MACOMB GROUP
34400 MOUND ROAD
STERLING HEIGHTS, MI 48310

QUANTITY	UNIT	DESCRIPTION	UNIT COST	TOTAL COST
1	Each	HDB100AS Heater (UH-20) Warranty - Heat Exchanger 10 years; Remaining Parts 2 years.	2,150.0000	$2,150.00
3	Each	BDB175AE Heater (UH-19, UH-10, UH-8)	3,250.0000	$9,750.00
2	Each	BDB250AE 3-Phase Heater (UH-18, UH-9)	4,360.0000	$8,720.00
1	Each	BDB250TE Stainless Steel Heater (UH-17)	4,325.0000	$4,325.00
1	Each	BDP175A Heater (UH-16)	3,250.0000	$3,250.00
1	Each	BDP250AW 3-Phase Heater (UH-15)	4,360.0000	$4,360.00
5	Each	HDB125AS Heater (UH-14, UH-13, UH-12, UH-11, UH-7)	2,350.0000	$11,750.00
1	Each	HS100AS Heater (UH-6)	950.0000	$950.00

Entered By: MaryBeth Murz

$45,255.00

Special Instructions:

CITY COUNCIL AWARD DATE: 9/21/2020.

TERMS & CONDITIONS

1. Purchases of Municipalities are exempt from State Sales and Federal Excise Taxes.
2. Prior to acceptance, vendor agrees to provide City with information under the Right-to-Know Law, P.A. 1986, No. 80, and fully comply with all terms and conditions of the Michigan Occupational Safety and Health Act, MCL 408.1001, et seq. including vendor shall provide City with an "MSDS". Vendor also agrees to be responsible for all required labeling.
3. In cases of emergency/disaster, the City can purchase up to six(6) times the order amount for a period of six(6) months at the price contained in the contract.
4. Purchase Orders are signed electronically based upon computer generated "on-line" authorized approvals. Authentic signatures are on file in the City of Troy Purchasing Department.

NOTICE: The City could put the vendor on notice that vendors will be held financially responsible for any claims or awards made against the City as a result of the vendor's action. If the City has to defend the initial lawsuit, the City will bring in the vendor as a co-defendant or sue the vendor, either as the result of settling a claim or the conclusion of the lawsuit.

I HEREBY CERTIFY THAT THIS ORDER IS PROPERLY AUTHORIZED AND APPROVED. MaryBeth Murz

Opening Date: 09/10/2020
Date Reviewed: 09/10/2020

CITY OF TROY
BID TABULATION
GARAGE UNIT HEATERS

	VENDOR NAME:	The Macomb Group	SupplyCore Inc.
	CITY:	Sterling Heights, MI	Rockford, IL

PROPOSAL: Furnish Garage Unit Heaters

Estimated Qty	Description: Description: Modine Commercial Gas Fired Unit Heaters	Unit Cost (Each)	Estimated Total Cost	Unit Cost (Each)	Estimated Total Cost
1	HDB100AS heater with 30 degree hood, filter, and Summer/Winter (SW) toggle switch **(UH-20)**	$2,150.00	**$2,150.00**	$2,362.64	**$2,362.64**
3	BDB175AE heater with 60 degree hood, filter, and SW toggle switch **(UH-19, UH-10, UH-8)**	$3,250.00	**$9,750.00**	$3,538.47	**$10,615.41**
2	BDB250AE (3-phase) heater with 60 degree hood, field installed motor starter assembly, filter, and SW toggle switch **(UH-18, UH-9)**	$4,360.00	**$8,720.00**	$4,747.26	**$9,494.52**
1	BDB250TE (stainless steel) heater with 60 degree hood, and SW toggle switch **(UH-17)**	$4,325.00	**$4,325.00**	$4,703.30	**$4,703.30**
1	BDP175A heater with 60 degree hood, filter, and SW toggle switch **(UH-16)**	$3,250.00	**$3,250.00**	$3,538.47	**$3,538.47**
1	BDP250AW (3-phase) heater with 60 degree hood, field installed motor starter assembly, filter, and (SW) toggle switch **(UH-15)**	$4,360.00	**$4,360.00**	$4,747.26	**$4,747.26**
5	HDB125AS heater with 30 degree hood, filter, and SW toggle switch **(UH-14, UH-13, UH-12, UH-11, UH-7)**	$2,350.00	**$11,750.00**	$2,560.44	**$12,802.20**
1	HS100AS heater with SW switch only **(UH-6)**	$950.00	**$950.00**	$1,054.95	**$1,054.95**

NOTE: Include all delivery costs, handling and packaging, charges in the unit cost (each) price.

	Total Cost:	**$45,255.00**	**$49,318.75**
	State Warranty:	Heat Exchanger - 10 yrs; Remaining Parts 2 yrs: No Labor Allowance; All warranties must be approved.	One year
	Authorized Dealer: Y or N	Y	N
	Descriptive Literature: Y or N	Y	N
	Name:	Ian Thomas	Patrick Voller; Ashley Slabaugh
	Hours of Operation:	8AM - 5PM	8AM - 5PM CST
	24 Hr. Phone No.:	(586) 693-6236	(717) 448-5282; (815) 519-1539
	References: Y or N	Y	Y
	Payment Terms:	Net 30	Net 30
	Delivery Date:	4-5 Weeks A.R.O.	3-4 weeks after PO receipt
	Exceptions: Y or N	Y	Y
	Allow Bid to be broken up by item Y or N	N	N
	Acknowledgement: Y or N	Y	Y
	Forms: Y or N	Y	Y

Attest:
(*Bid Opening conducted via a Go-To Meeting)
Dennis Trantham
Kristine Kallek
Jackie Ahlstrom
Beth Zaccardelli

MaryBeth Murz,
Purchasing Manager

CITY OF TROY
ELECTRONIC BID PROPOSAL

The undersigned proposes to furnish **GARAGE UNIT HEATERS**, in accordance with the bid specifications attached hereto, which are to be considered an integral part of this proposal, at the following prices:

COMPANY NAME: THE MALCOMB GROUP

PROPOSAL: FURNISH GARAGE UNIT HEATERS

The undersigned, as bidder, declares that he/she has examined the specifications, including related documents.

NO SUBSTITUTES OR ALTERNATES WILL BE ACCEPTED.

Estimated Quantity	**Description: Modine Commercial Gas Fired Unit Heaters**	Unit Cost (Each)	Estimated Total Cost
1	HDB100AS heater with 30 degree hood, filter, and Summer/Winter (SW) toggle switch **(UH-20)**	$ 2,150.00	$ 2,150.00
3	BDB175AE heater with 60 degree hood, filter, and SW toggle switch **(UH-19, UH-10, UH-8)**	$ 3,250.00	$ 9,750.00
2	BDB250AE (3-phase) heater with 60 degree hood, field installed motor starter assembly, filter, and SW toggle switch **(UH-18, UH-9)**	$ 4,360.00	$ 8,720.00
1	BDB250TE (stainless steel) heater with 60 degree hood, and SW toggle switch **(UH-17)**	$ 4,325.00	$ 4,325.00
1	BDP175A heater with 60 degree hood, filter, and SW toggle switch **(UH-16)**	$ 3,250.00	$ 3,250.00
1	BDP250AW (3-phase) heater with 60 degree hood, field installed motor starter assembly, filter, and (SW) toggle switch **(UH-15)**	$ 4,360.00	$ 4,360.00
5	HDB125AS heater with 30 degree hood, filter, and SW toggle switch **(UH-14, UH-13, UH-12, UH-11, UH-7**	$ 2,350.00	$ 11,750.00
1	HS100AS heater with SW switch only **(UH-6)**	$ 950.00	$ 950.00

NOTE: Include all delivery costs, handling and packaging, charges in the unit cost (each) price.

STATE WARRANTY: HEAT EXCHANGER - 10 YEARS ; REMAINING PARTS 2 YEARS ; NO LABOR ALLOWANCES ALL WARRANTIES MUST BE APPROVED.

UNIT PRICES:
Unit prices prevail. The City of Troy Purchasing Department will correct all mathematical errors.

AUTHORIZED DEALER:

(✓) Our company is an authorized distributor of this equipment VIA Raley Brothers, Inc.

( ) Our company is not an authorized distributor of this equipment.

ADDITIONAL INFORMATION:
For questions about the specifications, please contact **Mr. Dennis Trantham**, Facilities & Grounds Operations Manager at **(248) 524-3503** between the hours of 8:00 AM and 4:00 PM, Monday through Friday.

CONTRACT FORMS:
Bidders should complete and sign the Legal Status of Bidder, Non-Collusion Affidavit, Certification regarding Debarment, the Certification regarding "Iran Linked Business" and the Familial Disclosure Forms and return with your bid proposal. Due to COVID-19 restrictions the City is waiving Notary requirements; but note that all forms must be signed and dated

DELIVERY:
All items will be FOB delivered freight paid delivered and installed, to the City of Troy Department of Public Works, 4693 Rochester Road, Troy MI 48085. ATTN: Dennis Trantham.

DOWN-PAYMENTS OR PREPAYMENTS:
Any bid proposal submitted which requires a down-payment or prepayment prior to delivery and full acceptance of the item(s) as being in conformance with specifications will not be considered for award.

AWARD:
The evaluation and award of this bid shall be a combination of factors, including but not limited to: cost, professional competence, warranties, and the correlation of the proposal submitted to the needs of the City of Troy.

The City of Troy reserves the right to award this bid to the lowest responsible bidder meeting specifications to reject low bids which have major deviations from the specifications; to accept a higher bid which has only minor deviations, in whatever manner is deemed to be in the City of Troy's best interest.

LOCAL PREFERENCE:
The City of Troy reserves the right to award a contract to a local business, one which pays City of Troy taxes (real and/or personal), if the bid of a local vendor is within 5% of the lowest responsive and responsible non-local bidder, then the local vendor is given one chance to match the low bid.

DOWN PAYMENTS AND PREPAYMENTS:
Any proposal submitted which requires a down payment or prepayment of any kind prior to delivery and acceptance of the items as being in conformance with specifications will not be considered for award.

ALTERNATES:
No substitutes or alternates will be accepted.

DESCRIPTIVE LITERATURE:
Please attach descriptive or pertinent literature specification or cut sheet(s) relevant to your company's bid proposal at the time of bid submission. It is attached and marked _____ for identification.
TROY DEPT. WORKS BLOWER UNITS SPECS, MACOMB 8.25.20

PURCHASE ORDER:
After approval of the successful bidder by the Troy City Council, the purchase order issued from the City of Troy will create a bilateral contract between the parties and commit the successful bidder to perform the contract in accordance with specifications. A contract document/ agreement will not be issued.

CONTACT INFORMATION:
Name(s): IAN THOMAS
HEATING AN MANAGER
24 Hr. Phone No. 586-693-6236
AFTER HOURS EMERGENCY SERVICE.
Hours of operation: 8AM - 5PM

COMPANY NAME: THE MACOMB GROUP

REFERENCES

Please list at least three (3) companies that have had similar work completed by your company.

COMPANY: John E Green
ADDRESS: 220 Victor St. Highland Park, MI 48203
CONTACT: PHONE:
EMAIL: Available upon Request

COMPANY: Hoyt Brumm & Link Inc
ADDRESS: 1400 E 9 mile Rd Ferndale, MI 48220
CONTACT: Available upon Request PHONE:
EMAIL:

COMPANY: Johnson & Wood
ADDRESS: 62130 E Hemphill Rd Berlin, MI 48529
CONTACT: PHONE:
EMAIL: Available upon REQUEST

COMPANY NAME: THE MACOMB GROUP

SIGNATURE PAGE

PRICES:
Prices shall remain firm for 60 days or bid award, whichever comes first, except the successful bidder whose prices shall remain firm for the entire contract period which shall commence on the date of award.

SIGNATURE OF AUTHORIZED COMPANY REPRESENTATIVE: _____

NOTE:
The undersigned has checked carefully the bid figures and understands that he/she shall be responsible for any error or omission in this bid offer and is in receipt of all addenda as issued.

TAX ID#: 38-2156104

COMPANY NAME: THE MACOMB GROUP

ADDRESS 6600 15 MILE CITY Sterling Heights STATE MI ZIP 48312

PHONE NUMBER 586-274-4100 FAX NUMBER 586-274-4125

REPRESENTATIVE'S NAME JIM CLOW (Print)

SIGNATURE OF AUTHORIZED COMPANY REPRESENTATIVE _____

PAYMENT TERMS: NET 30 WARRANTY: _____

E-MAIL: JCLOW@MACOMBGROUP.COM DELIVERY DATE: 4-5 WEEKS A.R.O

EXCEPTIONS:
Any exceptions, substitutions, deviations, etc., from the City specifications and this proposal must be stated below. The reason(s) for the exceptions, substitutions, and/or deviations are an integral part of this bid proposal offer:

9, 15, 18 are three phase all come with Summer toggle, All mezzanine. Blower single stage, other items not defined are quoted by request. Submittal must be approved prior to shipment.

☑ Check this box if your bid is not to be broken up by item and based on an all or none award.

ACKNOWLEDGEMENT:
I, JIM CLOW, certify that I have read the ***Instructions to Bidders*** (2 Pages) and that the bid proposal documents contained herein were obtained directly from the City's Purchasing Department or MITN website, www.mitn.info and is an official copy of the Authorized Version.

SIGNATURE OF AUTHORIZED COMPANY REPRESENTATIVE: _____

NOTE: The City of Troy, at their discretion, may require the bidder to supply a Financial Report from an impartial Financial Credit Reporting Service before award of contract at no cost to the City.

IMPORTANT: All City of Troy purchases require a **SAFETY DATA SHEET,** where applicable, in compliance with the **MIOSHA** "Right to Know" Law. Please include a copy of any relevant SDS at the time of bid submission.

U.S. CURRENCY: All figures quoted are to be in U.S. Funds.

Legal Status of Bidder:

The Bidder shall fill out the appropriate form and strike out the other two:

A **corporation** duly organized and doing business under the laws of the State of MICHIGAN
for whom JIM CLOW, bearing the office title of GOVERNMENT Sales Manager
whose signature is affixed to this proposal, is duly authorized to execute contracts.

A **partnership**, all members of which, with addresses, is:

AN **INDIVIDUAL**, WHOSE SIGNATURE IS AFFIXED TO THE PROPOSAL:

CITY OF TROY
OAKLAND COUNTY, MICHIGAN
NON-COLLUSION AFFIDAVIT

TO WHOM IT MAY CONCERN:

Jim Clow, being duly sworn deposed, says that he/she
(Print Full Name)
is Govt. Sales Manager. The party making the foregoing proposal or bid,
(State Official Capacity in Firm)

that such bid is genuine and not collusion or sham; that said bidder has not colluded, conspired, connived, or agree, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding and has not in any manner directly or indirectly sought by agreement or collusion, or communication or conference, with any person to fix the bid price or affiant or any other bidder, or to fix any overhead, profit, or cost element of said bid price, or that of any other bidder, or to secure the advantage against the City of Troy or any person interested in the proposed contract; and that all statements contained in said proposal or bid are true.

SIGNATURE OF PERSON SUBMITTING BID

Randall Heck
NOTARY'S SIGNATURE

Subscribed and sworn to before me this 27 day of AUGUST, 2020 in and for

County. MACOMB

My commission expires: 11/5/25

TROY
MICHIGAN

CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

The prospective participant certifies, to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under any non-procurement programs by any federal, state or local agency.

2. Have not, within the three year period preceding, had one or more public transactions (federal, state, or local) terminated for cause or default; and

3. Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:

   a. For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local), or a procurement contract under such a public transaction;

   b. For the violation of federal, or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or

   c. For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, the general grant of this authority exists within the City's Charter, Chapter 12, Section 12.2- Contracts.

[X] ***I am able to certify to the above statements.***

THE Maines Group

Name of Agency/Company/Firm *(Please Print)*

JIM Clow - Government Sales Manager

Name and title of authorized representative *(Please Print)*

Signature of authorized representative

Date 8/27/20

[ ] ***I am unable to certify to the above statements. Attached is my explanation.***

TROY
MICHIGAN

VENDOR CERTIFICATION THAT IT IS NOT AN "IRAN LINKED BUSINESS"

Pursuant to Michigan law, (the Iran Economic Sanctions Act, 2012 PA 517, MCL 129.311 et seq.), before accepting any bid or proposal, or entering into any contract for goods or services with any prospective Vendor, the Vendor must first certify that it is not an "IRAN LINKED BUSINESS", as defined by law.

Vendor	
Legal Name	THE MACUMB GROUP
Street Address	6600 15 MILE ROAD
City	STERLING HEIGHTS
State, Zip	MI 48312
Corporate I.D. Number/State	MICH 800131138
Taxpayer I.D. #	38-2156104

The undersigned, with: 1.)full knowledge of all of Vendors business activities, 2.)full knowledge of the requirements and possible penalties under the law MCL 129.311 et seq. and 3.) the full and complete authority to make this certification on behalf of the Vendor, by his/her signature below, certifies that: the Vendor is NOT an "IRAN LINKED BUSINESS" as require by MCL 129.311 et seq., and as such that Vendor is legally eligible to submit a bid and be considered for a possible contract to supply goods and/or services to the City of Troy.

Signature of Vendor's Authorized Agent: _____

Printed Name of Vendor's Authorized Agent: Jim Clow

Witness Signature: Randall Heck

Printed Name of Witness: RANDALL HECK

G:\ BidLanguage_IranLinkedBusiness

Proposer's Sworn and Notarized Familial Disclosure
(to be provided by the Proposer)

The undersigned, the owner or authorized officer of _____ (the "Proposer"), pursuant to the familial disclosure requirement provided in the Request for Proposal, hereby represent and warrant, except as provided below, that no familial relationships exist between the owner(s) or any employees of _____ THE MACOMB GROUP _____ and any member of the City of Troy City Council or City of Troy management.

List any Familial Relationships: N/A OR NONE

BIDDER: THE MACOMB GROUP

By: JIM CLOW

Its: GOVT. SALES MGR.

STATE OF MICHIGAN)

)ss.

COUNTY OF MACOMB)

This instrument was acknowledged before me on the 27 day of AUG, ~~2019,~~ 2020 by

Randall Heck

RANDALL HECK.

AccuSpec V4.29d
Transaction #: 14054208

JOB TITLE: Troy Dept Works Blower Units

Date: 08/25/2020

Approved By:
Submittal review and approval required prior to listed unit(s) being released for production and shipment. Unit(s) configured based on information provided. The Approver is responsible for ensuring the units, options, and accessories meet the job specifications.

MODINE

AccuSpec V4.29d

SUBMITTAL SCHEDULE & DATA

Gas- and Oil-Fired Unit Heaters, Infrared Heaters, and Indoor Duct Furnaces

Job Name: Troy Dept Works Blower Units
Location:
Submitted by: Ryan Pepper

Date: 08/25/2020
Engineer:
Architect:
Contractor:

	Unit Tag		
	UH 17 Stnls Stl Wash Bay	UH 16 Oil Mezzan.	UH 15 N. Overhead 208/3
Model Number	BDP250TE6530NBAN	BDP175AE4130NBAN	BDP250AE7231NBAN
Quantity of Units	1	1	1
Btu/Hr Input	250,000	175,000	250,000
Btu/Hr Output	205,000	143,500	205,000
CFM	3,800	2,800	3,800
Altitude	0-2000	0-2000	0-2000
Temperature Rise (degrees F)	50	47	50
External Static Pressure (E.S.P)	0.35	0.25	0.35
Total Static Pressure (T.S.P.)	0.455	0.365	0.455
Gas Type	Natural	Natural	Natural
Gas Control Type	Single-Stage, Intermittent Pilot Ignition	Single-Stage, Intermittent Pilot Ignition	Single-Stage, Intermittent Pilot Ignition
Supply Voltage	115/60/1	115/60/1	208/60/3
Control Voltage	24V	24V	24V
Motor HP	1-1/2	1-1/2	1-1/2
Motor RPM	1725	1725	1725
Blower RPM	650	835	650
Heat Exchanger Type	409 Stainless Steel Heat Exchanger/Burner	Aluminized Steel Heat Exchanger/Burner	Aluminized Steel Heat Exchanger/Burner
Thermal Efficiency %	82.0	82.0	82.0
Options & Accessories (See Attached Pages)			

Remarks_____

MODINE

AccuSpec V4.29d

SUBMITTAL SCHEDULE & DATA

Gas- and Oil-Fired Unit Heaters, Infrared Heaters, and Indoor Duct Furnaces

Job Name: Troy Dept Works Blower Units
Location:
Submitted by: Ryan Pepper

Date: 08/25/2020
Engineer:
Architect:
Contractor:

		Unit Tag	
	UH 11 Tire Change Area	UH 10 E. Overhead	UH 9 E. Overhead 208/3
Model Number	HDB125AS0111NBAN	BDP175AE4130NBAN	BDP250AE7231NBAN
Quantity of Units	1	1	1
Btu/Hr Input	125,000	175,000	250,000
Btu/Hr Output	102,500	143,500	205,000
CFM		2,800	3,800
Altitude	0-2000	0-2000	0-2000
Temperature Rise (degrees F)	60	47	50
External Static Pressure (E.S.P)	0.25	0.25	0.35
Total Static Pressure (T.S.P.)		0.365	0.455
Gas Type	Natural	Natural	Natural
Gas Control Type	Single Stage, Direct Spark Ignition, 100% Shut-Off with Continuous Retry	Single-Stage, Intermittent Pilot Ignition	Single-Stage, Intermittent Pilot Ignition
Supply Voltage	115/60/1	115/60/1	208/60/3
Control Voltage	24V	24V	24V
Motor HP	1/2	1-1/2	1-1/2
Motor RPM	1100	1725	1725
Blower RPM		835	650
Heat Exchanger Type	Aluminized Steel Heat Exchanger/Burner	Aluminized Steel Heat Exchanger/Burner	Aluminized Steel Heat Exchanger/Burner
Thermal Efficiency %	82.0	82.0	82.0
Options & Accessories (See Attached Pages)			

Remarks_____

MODINE

AccuSpec V4.29d

SUBMITTAL SCHEDULE & DATA

Gas- and Oil-Fired Unit Heaters and Infrared Heaters

Model	Description	Qty	Tag
HDB100AS0111NBAN	Blower Unit Heater	1	UH 20 Welding
	HDB100AS0111NBAN	1	UH 20 Welding
53858	Blower Enclosure	1	UH 20 Welding
53860	Filter	1	UH 20 Welding
53082	30° Downward Air Deflector Hood	1	UH 20 Welding
BDP175AE4130NBAN	Blower Unit Heater	1	UH 19 W. Man Dr.
	BDP175AE4130NBAN	1	UH 19 W. Man Dr.
45539	Blower Enclosure	1	UH 19 W. Man Dr.
58456	Filter	1	UH 19 W. Man Dr.
91644	30° Downward Air Deflector Hood	1	UH 19 W. Man Dr.
BDP250AE7231NBAN	Blower Unit Heater	1	UH 18 W Overhead 208/3
	BDP250AE7231NBAN	1	UH 18 W Overhead 208/3
45540	Blower Enclosure	1	UH 18 W Overhead 208/3
58531	Filter	1	UH 18 W Overhead 208/3
58996	Motor Starter Assembly (Field installed)	1	UH 18 W Overhead 208/3
91645	30° Downward Air Deflector Hood	1	UH 18 W Overhead 208/3
BDP250TE6530NBAN	Blower Unit Heater	1	UH 17 Stnls Stl Wash Bay
	BDP250TE6530NBAN	1	UH 17 Stnls Stl Wash Bay
45540	Blower Enclosure	1	UH 17 Stnls Stl Wash Bay
58531	Filter	1	UH 17 Stnls Stl Wash Bay

HDB125AS0111NBAN	Blower Unit Heater	1	UH 11 Tire Change Area
	HDB125AS0111NBAN	1	UH 11 Tire Change Area
53858	Blower Enclosure	1	UH 11 Tire Change Area
53860	Filter	1	UH 11 Tire Change Area
53082	30° Downward Air Deflector Hood	1	UH 11 Tire Change Area
BDP175AE4130NBAN	Blower Unit Heater	1	UH 10 E. Overhead
	BDP175AE4130NBAN	1	UH 10 E. Overhead
45539	Blower Enclosure	1	UH 10 E. Overhead
58456	Filter	1	UH 10 E. Overhead
91644	30° Downward Air Deflector Hood	1	UH 10 E. Overhead
BDP250AE7231NBAN	Blower Unit Heater	1	UH 9 E. Overhead 208/3
	BDP250AE7231NBAN	1	UH 9 E. Overhead 208/3
45540	Blower Enclosure	1	UH 9 E. Overhead 208/3
58531	Filter	1	UH 9 E. Overhead 208/3
58996	Motor Starter Assembly (Field installed)	1	UH 9 E. Overhead 208/3
91645	30° Downward Air Deflector Hood	1	UH 9 E. Overhead 208/3
BDP175AE4130NBAN	Blower Unit Heater	1	UH 8 S. E. Corner
	BDP175AE4130NBAN	1	UH 8 S. E. Corner
45539	Blower Enclosure	1	UH 8 S. E. Corner
58456	Filter	1	UH 8 S. E. Corner
91644	30° Downward Air Deflector Hood	1	UH 8 S. E. Corner
HDB125AS0111NBAN	Blower Unit Heater	1	UH 7 Center E Parts Rm
	HDB125AS0111NBAN	1	UH 7 Center E Parts Rm
53858	Blower Enclosure	1	UH 7 Center E Parts Rm
53860	Filter	1	UH 7 Center E Parts Rm
53082	30° Downward Air Deflector Hood	1	UH 7 Center E Parts Rm
HD 100AS0111FBAN	Propeller Unit Heater	1	UH 6 Mezzanine

AccuSpec V4.29d

HDB MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
HDB	100	A	S	01	11	N	B	A	N

1,2,3 - Product Type
HDB - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
100 - 100,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
S – Direct Spark Ignition

9,10 - Motor and Drive Code (Power Code)
01 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
11 - Natural, Single Stage, Direct Spark Ignition, 100% Shut-Off with Continuous Retry

13 – Fan Guard Type
N -

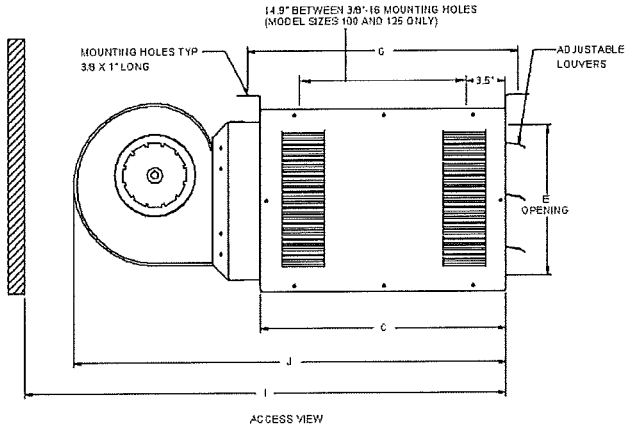
14 – Development Sequence
B - Current

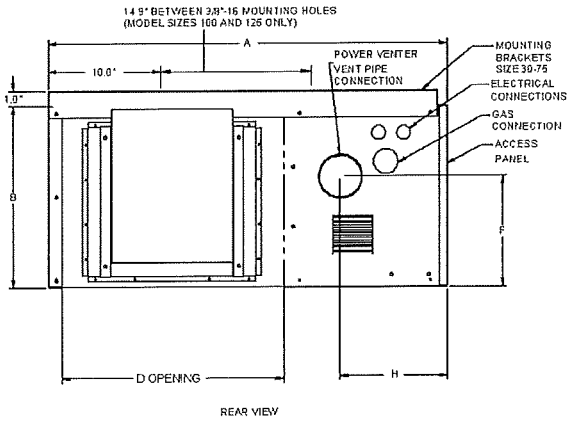
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

DIMENSIONS – UNIT

Model HDB Dimensions



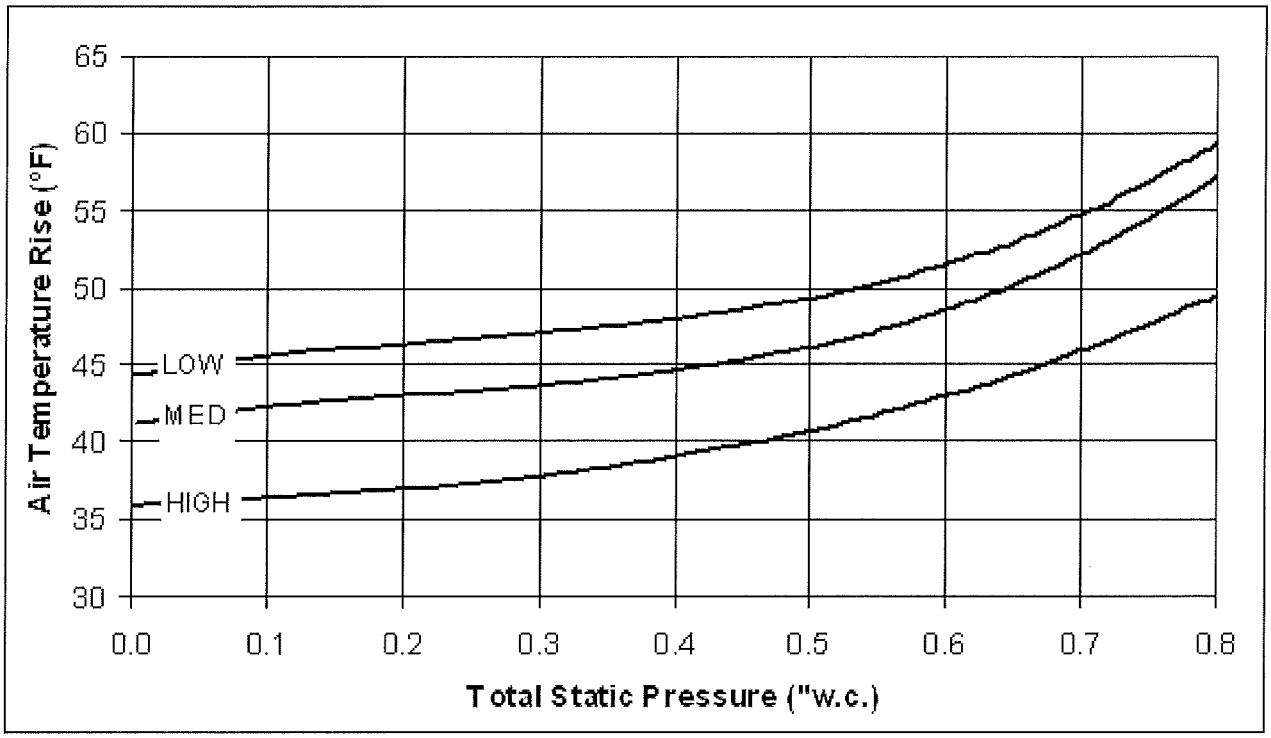


Model Size	HDB100
Dimensions (in inches)	
A	35.5
B	20.5
C	22
D	22.52
E	18.43
F	14
G	-
H	8.38
I	44.3
J	41.3
Vent Connector Diameter	4
Gas Connection	1/2
Blower	10-10
Approx. Shipping Weight	151 lbs.

AccuSpec V4.29d

HDB100 – BLOWER CURVE

Blower Curve Example



Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Open Drip Proof (ODP).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with three speed taps to allow for adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, direct motor driven assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Unit to have 4 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

MODINE

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

C ETL LISTED US

Intertek

General Performance Data

Model	BDP175
At 0' Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Entering Airflow (CFM)	2,800
Minimum Airflow (CFM)	1852
Maximum Airflow (CFM)	3241
Minimum Air Temp. Rise (°F)	41.0
Maximum Air Temp. Rise (°F)	71.7
Mounting Height (Max Ft.)[1]	24
Heat Throw (Max. Mtg. Ft.)[1]	85
Unit Total Power (Amps)	16.8
As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Configured Air Temp Rise (°F)	47
Motor Data	
Horse Power	1-1/2
RPM	1725
Type	P.S.C.
Motor Amps	15.00

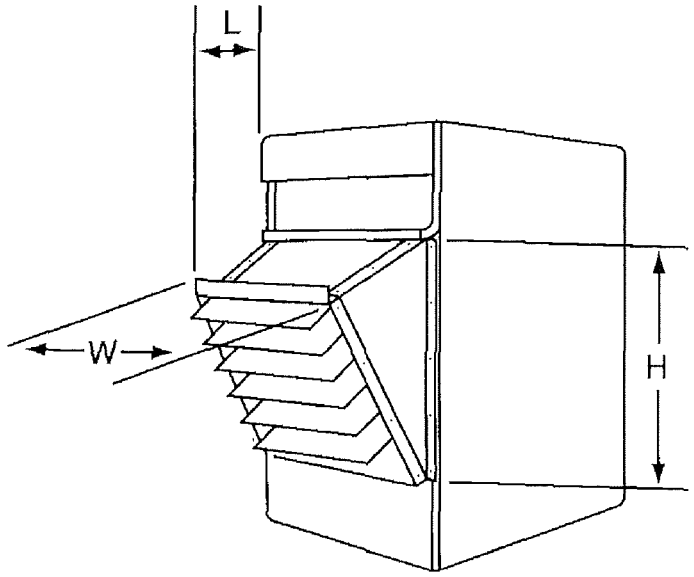
Clearances to Combustibles[2]	
Top	4"
Bottom	12"
Top of Power Exhauster	2"
Side (Access and Non-Access)	1"
Rear	6"

[1] At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit.

[2] Provide sufficient room around the heater to allow for proper combustion and operation of the fan. Free area around the heater must not be less than 1-1/2 times the discharge area of the unit.

DIMENSIONS – HOOD

30° Downward Deflector Hood



Dimensions (in inches) for Model BDP175

Height (H)	Length (L)	Width (W)
20.25	10.875	22.5

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired heat exchanger with dimpled tube pattern for efficient heat transfer.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 20 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 20 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be contoured and dimpled to provide efficient heat transfer and crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The heat exchanger(s) seams and duct connections shall be certified to withstand 0.5" W.C. external static pressure without burner flame disturbance.

The burner(s) shall be made of 28 gauge aluminized steel. Burner(s) shall have non-clogging, slotted ports with a stainless steel separator strip designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall intermittently light the pilot each time the system is energized. Once the pilot is proven, the main gas valve shall open and allow gas flow to the main burner.

AccuSpec V4.29d

BDP MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
BDP	250	A	E	72	31	N	B	A	N

1,2,3 - Product Type
BDP - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
250 - 250,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
E – E - Intermittent Pilot Ignition

9,10 - Motor and Drive Code (Power Code)
72 - 208V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
31 - Natural, Single-Stage, Intermittent Pilot Ignition

13 – Fan Guard Type
N -

14 – Development Sequence
B - Current

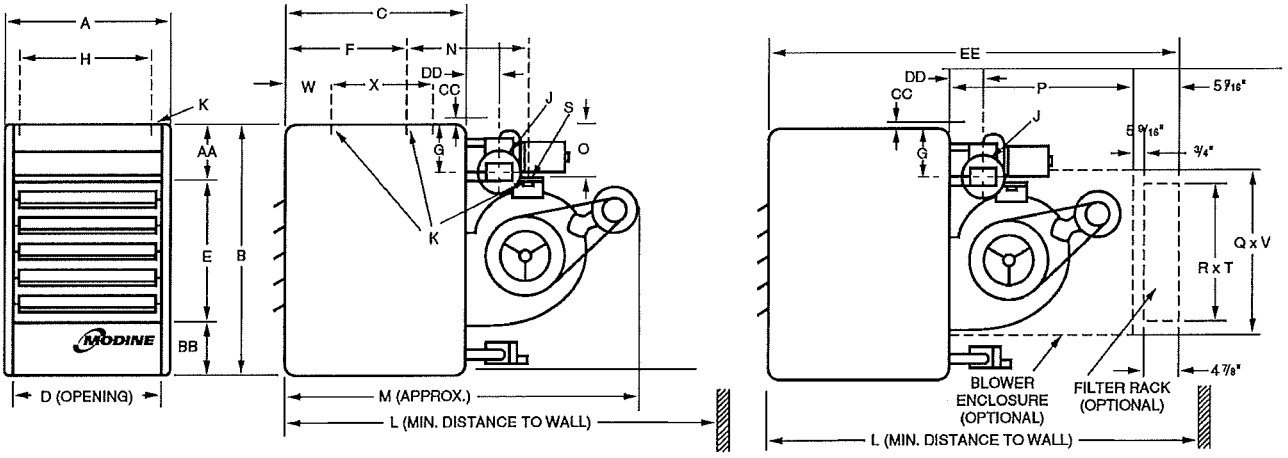
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

AccuSpec V4.29d

DIMENSIONS – UNIT

Model BDP Dimensions



Model Size **BDP250**

Dimensions (in inches)

A	25.625	P	34
B	40.25	Q	25.125
C	25	R	23.75
D	23.1875	S	20.375
E	24	T	32.75
F	13.5	V	34.25
G	7.5	W	N/A
H	22	X	N/A
J (Round)	6	AA	9
K (Mtg Holes) [1]	3/8-16	BB	7.25
M[2]	55	CC	-
N[3]	25.4375	DD	3.375
O	8.5	EE	63.625
L w/ Blower Enclosure and Filter Rack	69.625	L w/o Blower Enclosure and Filter Rack	61

Blower Wheel Diameter	15
Approximate Weight	315

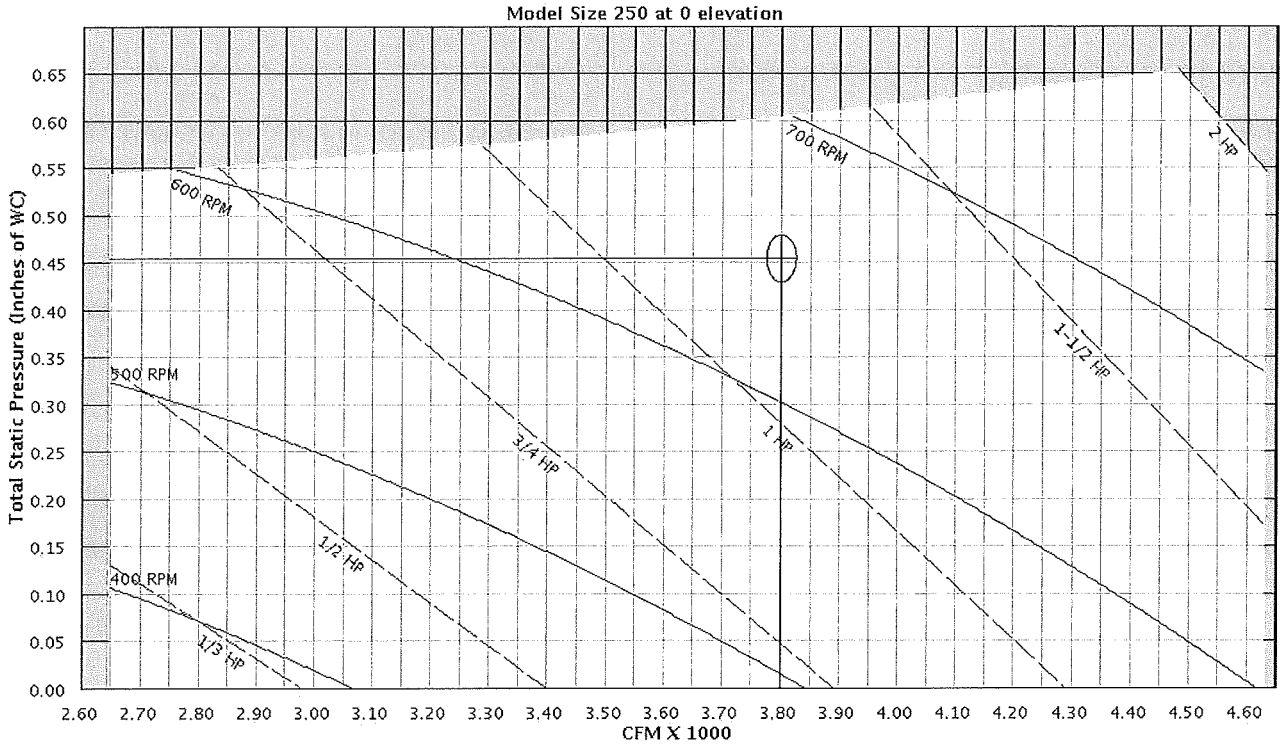
Gas Connection[4]	3/4

[1] BDP150 thru BDP 300 - 4 holes (2 on blower and 2 on unit). BDP 350 and BDP 400 – 6 holes (2 on blower and 4 on unit)

[2] This is an approximate dimension for standard motors, allow 3" for sheave and optional motors.

[3] Distance between mounting hole in unit casing and mounting hole on blower. On the BDP 350 and BDP 400, the distance is from rear mounting hole in casing to the mounting hole on blower.

[4] For natural gas; may vary depending on control availability.


Model Size 250 at 0 elevation
Total Static Pressure (Inches of WC)
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
600 RPM
700 RPM
2 HP
1-1/2 HP
500 RPM
1 HP
3/4 HP
1/2 HP
400 RPM
1/3 HP
2.60
2.70
2.80
2.90
3.00
3.10
3.20
3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
4.50
4.60
CFM X 1000

The unit gas controls shall be provided with the following:

Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 208V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1-1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Totally Enclosed (TE).

The motor shall be rated for 208V/60Hz/3Ph.

The motor shall be provided with an adjustable motor sheave to allow for minor adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, belt driven, assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Blower unit to have 6 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

AccuSpec V4.29d

BDP MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
BDP	250	T	E	65	30	N	B	A	N

1,2,3 - Product Type
BDP - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
250 - 250,000 Btu/hr Input

7 - Heat Exchanger Type
T - Stainless Steel Heat Exchange and Burner

8 - Pilot Ignition
E – E - Intermittent Pilot Ignition

9,10 - Motor and Drive Code (Power Code)
65 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
30 - Natural, Single-Stage, Intermittent Pilot Ignition

13 – Fan Guard Type
N -

14 – Development Sequence
B - Current

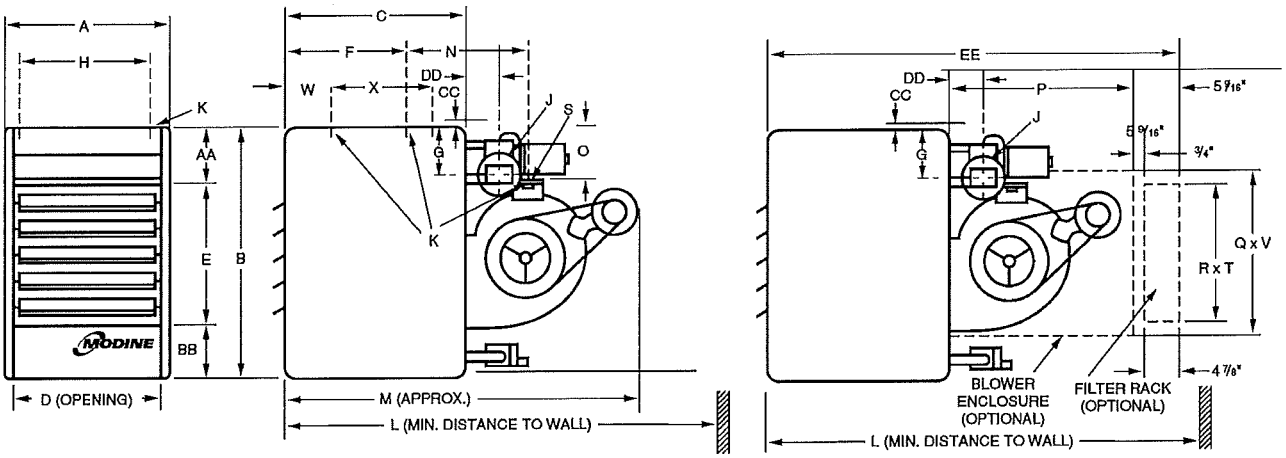
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

AccuSpec V4.29d

DIMENSIONS – UNIT

Model BDP Dimensions



Model Size **BDP250**

Dimensions (in inches)

A	25.625
B	40.25
C	25
D	23.1875
E	24
F	13.5
G	7.5
H	22
J (Round)	6
K (Mtg Holes) [1]	3/8-16
M[2]	55
N[3]	25.4375
O	8.5
L w/ Blower Enclosure and Filter Rack	69.625

P	34
Q	25.125
R	23.75
S	20.375
T	32.75
V	34.25
W	N/A
X	N/A
AA	9
BB	7.25
CC	-
DD	3.375
EE	63.625
L w/o Blower Enclosure and Filter Rack	61

Blower Wheel Diameter	15
Approximate Weight	315

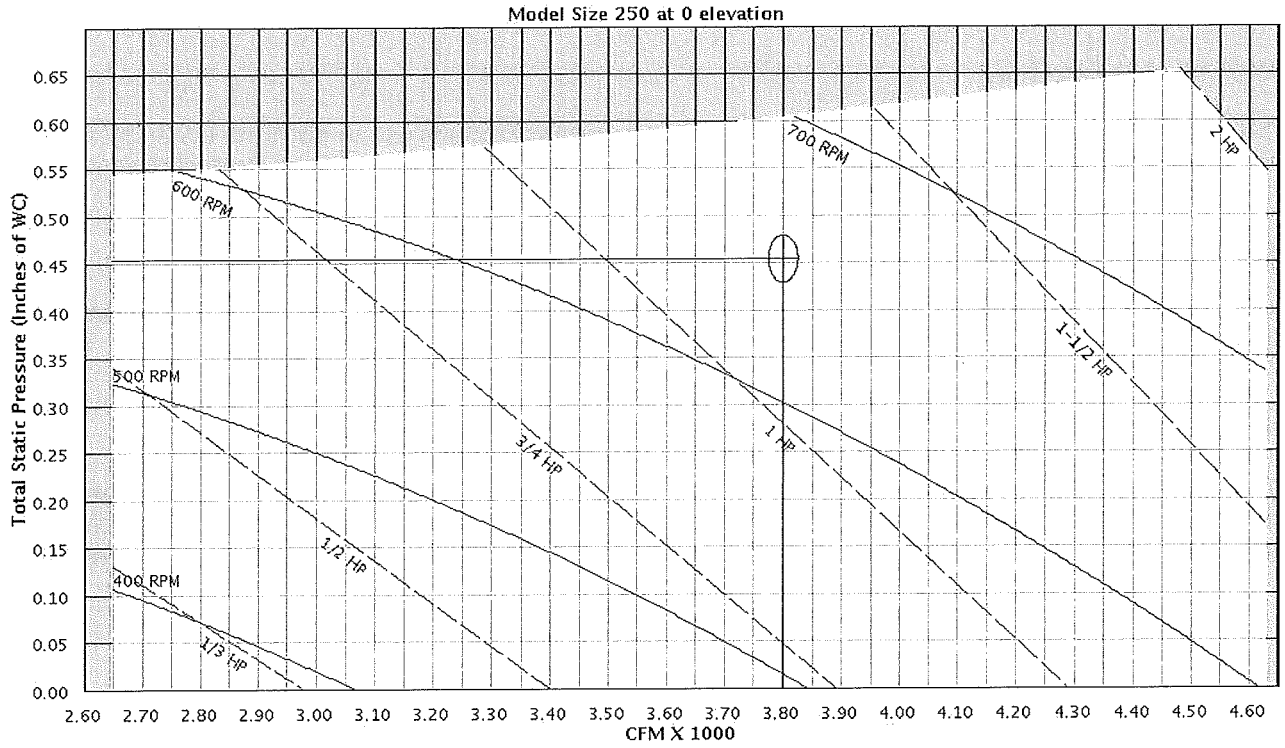
Gas Connection[4]	3/4

[1] BDP150 thru BDP 300 - 4 holes (2 on blower and 2 on unit). BDP 350 and BDP 400 – 6 holes (2 on blower and 4 on unit)

[2] This is an approximate dimension for standard motors, allow 3" for sheave and optional motors.

[3] Distance between mounting hole in unit casing and mounting hole on blower. On the BDP 350 and BDP 400, the distance is from rear mounting hole in casing to the mounting hole on blower.

[4] For natural gas; may vary depending on control availability.


Model Size 250 at 0 elevation
Total Static Pressure (Inches of WC)
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
600 RPM
700 RPM
2 HP
1-1/2 HP
500 RPM
1 HP
3/4 HP
1/2 HP
400 RPM
1/3 HP
2.60 2.70 2.80 2.90 3.00 3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60
CFM X 1000

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1-1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Totally Enclosed (TE).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with an adjustable motor sheave to allow for minor adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, belt driven, assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Blower unit to have 6 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

General Performance Data

Model	BDP175
At 0' Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Entering Airflow (CFM)	2,800
Minimum Airflow (CFM)	1852
Maximum Airflow (CFM)	3241
Minimum Air Temp. Rise (°F)	41.0
Maximum Air Temp. Rise (°F)	71.7
Mounting Height (Max Ft.)[1]	24
Heat Throw (Max. Mtg. Ft.)[1]	85
Unit Total Power (Amps)	16.8
As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Configured Air Temp Rise (°F)	47
Motor Data	
Horse Power	1-1/2
RPM	1725
Type	P.S.C.
Motor Amps	15.00

Clearances to Combustibles[2]	
Top	4"
Bottom	12"
Top of Power Exhauster	2"
Side (Access and Non-Access)	1"
Rear	6"

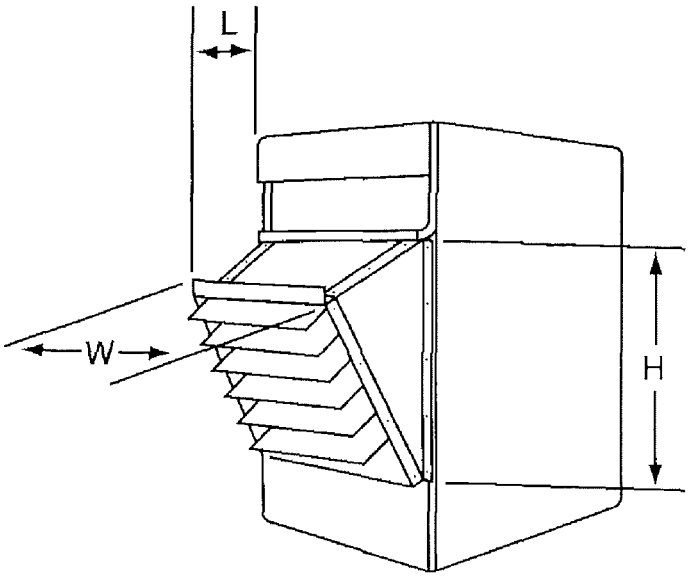
[1] At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit.

[2] Provide sufficient room around the heater to allow for proper combustion and operation of the fan. Free area around the heater must not be less than 1-1/2 times the discharge area of the unit.

AccuSpec V4.29d

DIMENSIONS – HOOD

30° Downward Deflector Hood



Dimensions (in inches) for Model BDP175

Height (H)	Length (L)	Width (W)
20.25	10.875	22.5

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired heat exchanger with dimpled tube pattern for efficient heat transfer.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 20 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 20 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be contoured and dimpled to provide efficient heat transfer and crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The heat exchanger(s) seams and duct connections shall be certified to withstand 0.5" W.C. external static pressure without burner flame disturbance.

The burner(s) shall be made of 28 gauge aluminized steel. Burner(s) shall have non-clogging, slotted ports with a stainless steel separator strip designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall intermittently light the pilot each time the system is energized. Once the pilot is proven, the main gas valve shall open and allow gas flow to the main burner.

AccuSpec V4.29d

BDP MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
BDP	250	A	E	72	31	N	B	A	N

1,2,3 - Product Type
BDP - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
250 - 250,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
E – E - Intermittent Pilot Ignition

9,10 - Motor and Drive Code (Power Code)
72 - 208V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
31 - Natural, Single-Stage, Intermittent Pilot Ignition

13 – Fan Guard Type
N -

14 – Development Sequence
B - Current

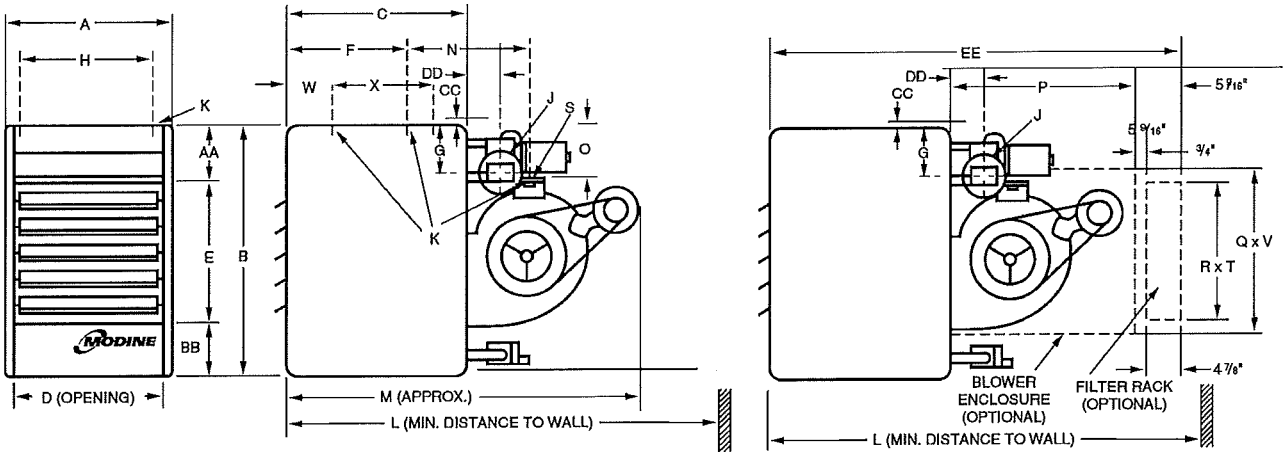
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

AccuSpec V4.29d

DIMENSIONS – UNIT

Model BDP Dimensions



Model Size **BDP250**

Dimensions (in inches)

A	25.625
B	40.25
C	25
D	23.1875
E	24
F	13.5
G	7.5
H	22
J (Round)	6
K (Mtg Holes) [1]	3/8-16
M[2]	55
N[3]	25.4375
O	8.5
L w/ Blower Enclosure and Filter Rack	69.625

P	34
Q	25.125
R	23.75
S	20.375
T	32.75
V	34.25
W	N/A
X	N/A
AA	9
BB	7.25
CC	-
DD	3.375
EE	63.625
L w/o Blower Enclosure and Filter Rack	61

Blower Wheel Diameter	15
Approximate Weight	315

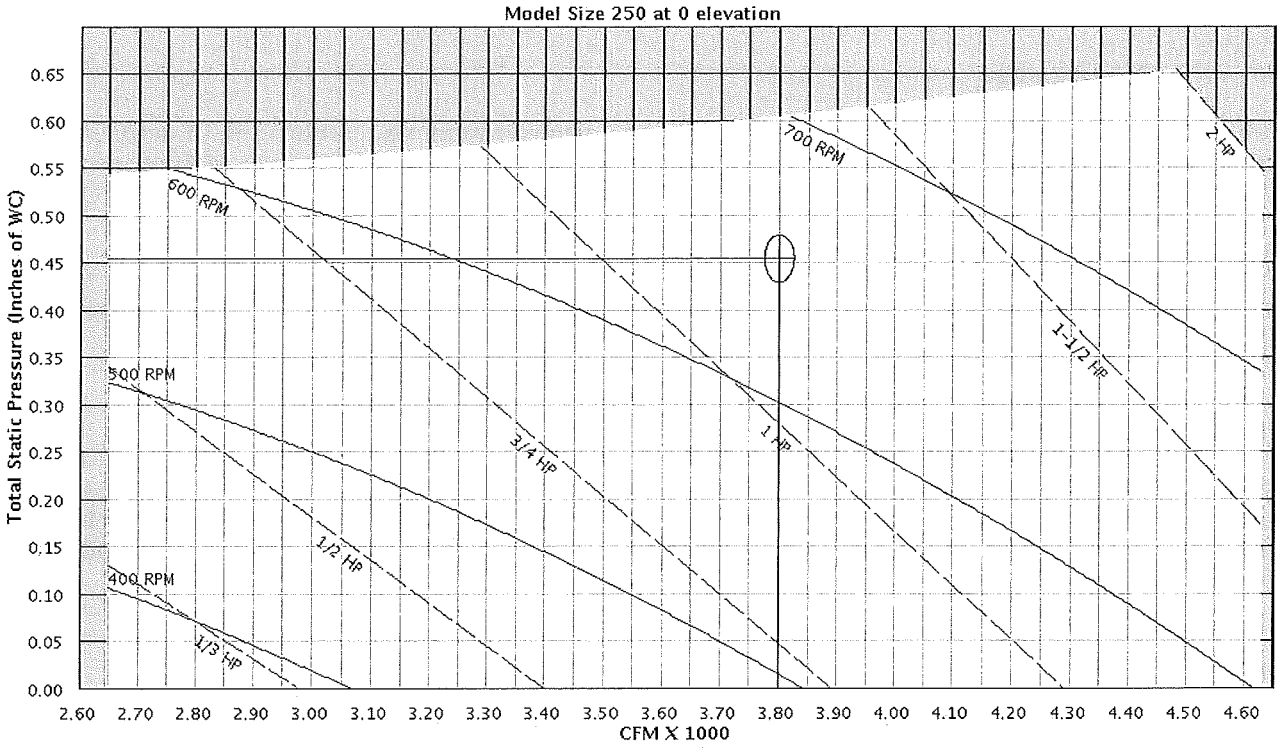
Gas Connection[4]	3/4

[1] BDP150 thru BDP 300 - 4 holes (2 on blower and 2 on unit). BDP 350 and BDP 400 – 6 holes (2 on blower and 4 on unit)

[2] This is an approximate dimension for standard motors, allow 3" for sheave and optional motors.

[3] Distance between mounting hole in unit casing and mounting hole on blower. On the BDP 350 and BDP 400, the distance is from rear mounting hole in casing to the mounting hole on blower.

[4] For natural gas; may vary depending on control availability.


Model Size 250 at 0 elevation
Total Static Pressure (Inches of WC)
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
600 RPM
700 RPM
500 RPM
400 RPM
2 HP
1-1/2 HP
1 HP
3/4 HP
1/2 HP
1/3 HP
2.60 2.70 2.80 2.90 3.00 3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60
CFM X 1000

The unit gas controls shall be provided with the following:

Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 208V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1-1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Totally Enclosed (TE).

The motor shall be rated for 208V/60Hz/3Ph.

The motor shall be provided with an adjustable motor sheave to allow for minor adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, belt driven, assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Blower unit to have 6 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

AccuSpec V4.29d

HDB MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
HDB	125	A	S	01	11	N	B	A	N

1,2,3 - Product Type
HDB - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
125 - 125,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
S – Direct Spark Ignition

9,10 - Motor and Drive Code (Power Code)
01 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
11 - Natural, Single Stage, Direct Spark Ignition, 100% Shut-Off with Continuous Retry

13 – Fan Guard Type
N -

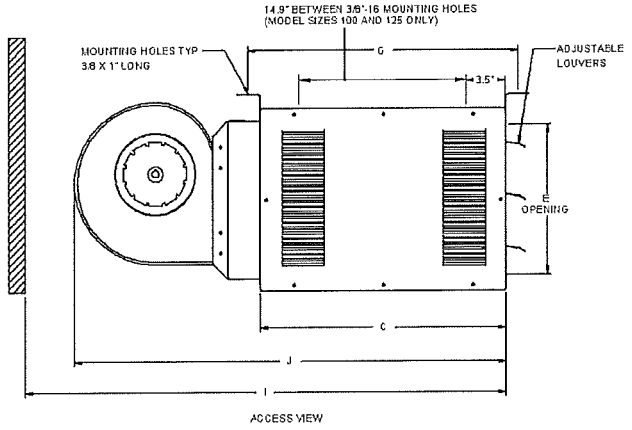
14 – Development Sequence
B - Current

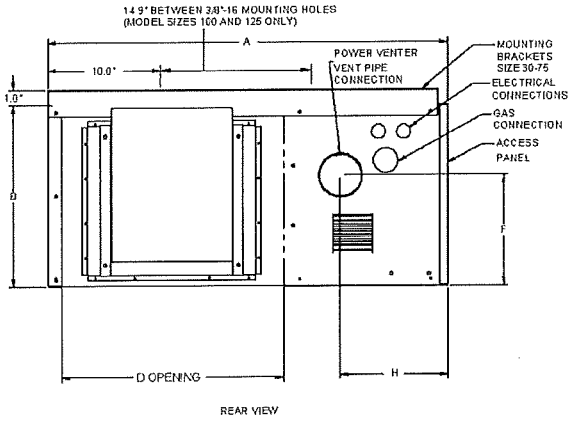
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

DIMENSIONS – UNIT

Model HDB Dimensions





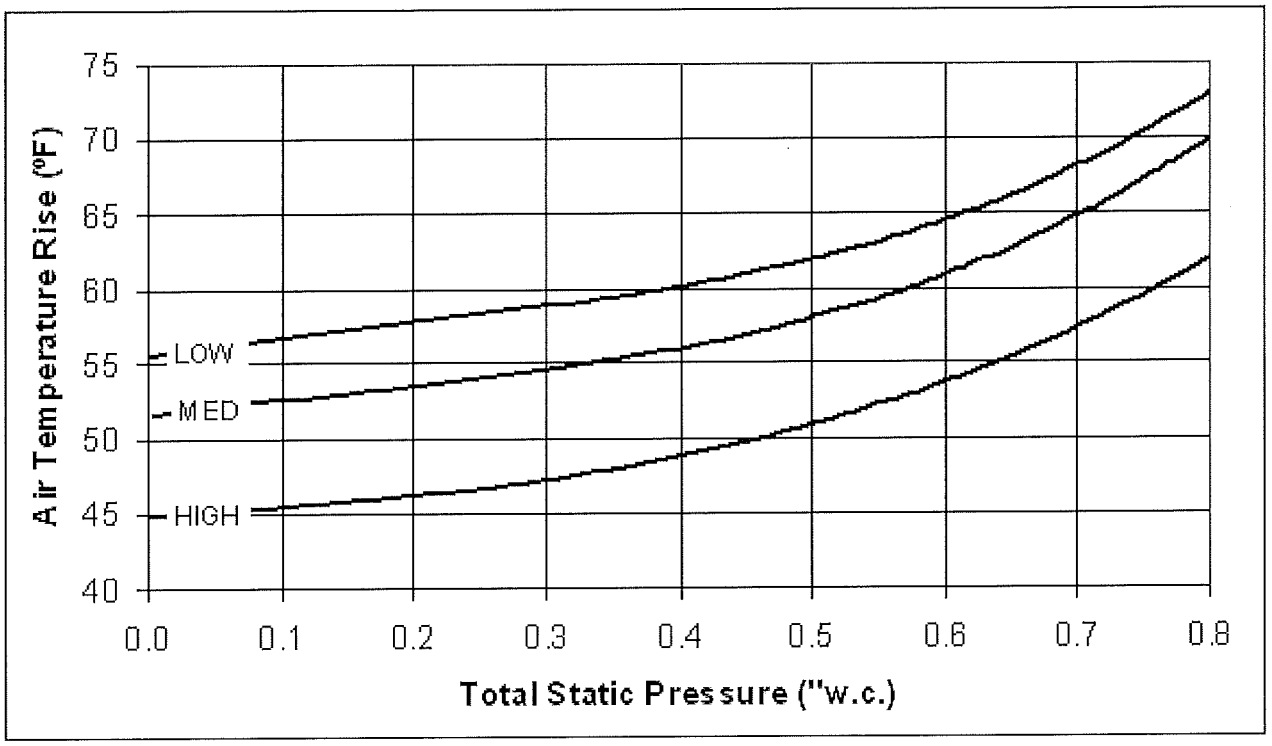
Model Size	HDB125
Dimensions (in inches)	
A	35.5
B	20.5
C	22
D	22.52
E	18.43
F	14
G	-
H	8.38
I	44.3
J	41.3
Vent Connector Diameter	4
Gas Connection	1/2
Blower	10-10
Approx. Shipping Weight	151 lbs.

MODINE

AccuSpec V4.29d

HDB125 – BLOWER CURVE

Blower Curve Example



Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Open Drip Proof (ODP).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with three speed taps to allow for adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, direct motor driven assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Unit to have 4 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

General Performance Data

Model	HDB 125
At 0' Elevation	
Btu/Hr. Input	125,000
Btu/Hr. Output	102,500
Minimum Airflow (CFM)	1235
Maximum Airflow (CFM)	2058
Minimum Air Temp. Rise (°F)	46.1
Maximum Air Temp. Rise (°F)	76.8
Maximum Static Pressure (in.w.c.)	0.8
Unit Total Power (Amps)	12.1

As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	125,000
Btu/Hr. Output	102,500

Motor Data	
Horse Power	1/2
Maximum RPM	1100
Type	P.S.C.
Motor Amps at 115V	9.5

Clearances to Combustibles	
Top and Bottom	1"
Vent Connector	4"
Access Side	18"
Non-Access Side	1"
Rear	18"

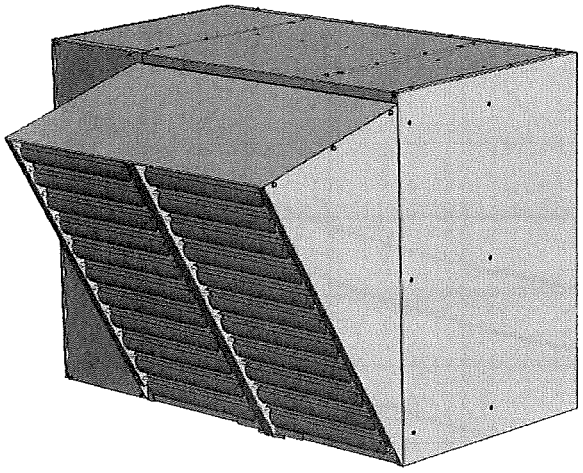
Mounting

Mounting brackets are slotted to accommodate joists on 16" or 24" centerlines.

AccuSpec V4.29d

DIMENSIONS – HOOD

30° Downward Deflector Hood with 25° to 65° Air Deflection Range



Dimensions (in inches) for Model HDB125

Height (H)	Length (L)	Width (W)
19.5	9.75	24.25

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired tubular heat exchanger with individually fired tubes for maximum heat transfer with minimal noise of flame ignition/extinction.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 22 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 18 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The burner(s) shall be in-shot type, directly firing each heat exchanger tube individually and is designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall directly light the gas by means of a direct spark igniter each time the system is energized.

The unit gas controls shall be provided with the following:

AccuSpec V4.29d

HDB MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
HDB	125	A	S	01	11	N	B	A	N

1,2,3 - Product Type
HDB - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
125 - 125,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
S – Direct Spark Ignition

9,10 - Motor and Drive Code (Power Code)
01 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
11 - Natural, Single Stage, Direct Spark Ignition, 100% Shut-Off with Continuous Retry

13 – Fan Guard Type
N -

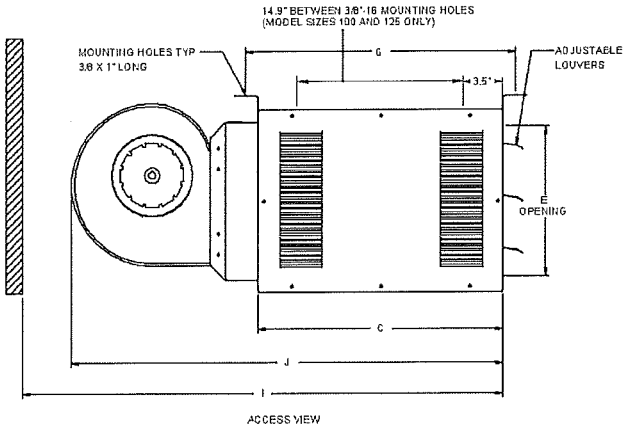
14 – Development Sequence
B - Current

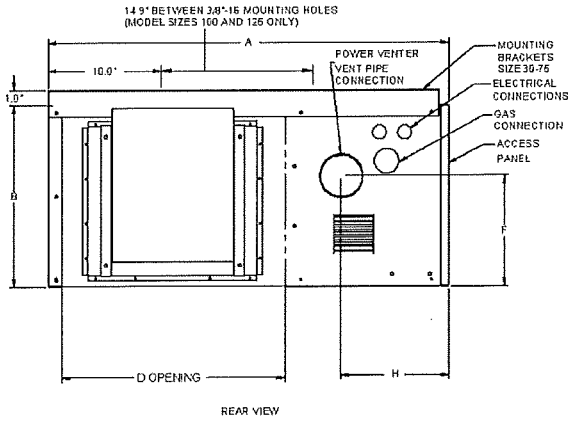
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

DIMENSIONS – UNIT

Model HDB Dimensions



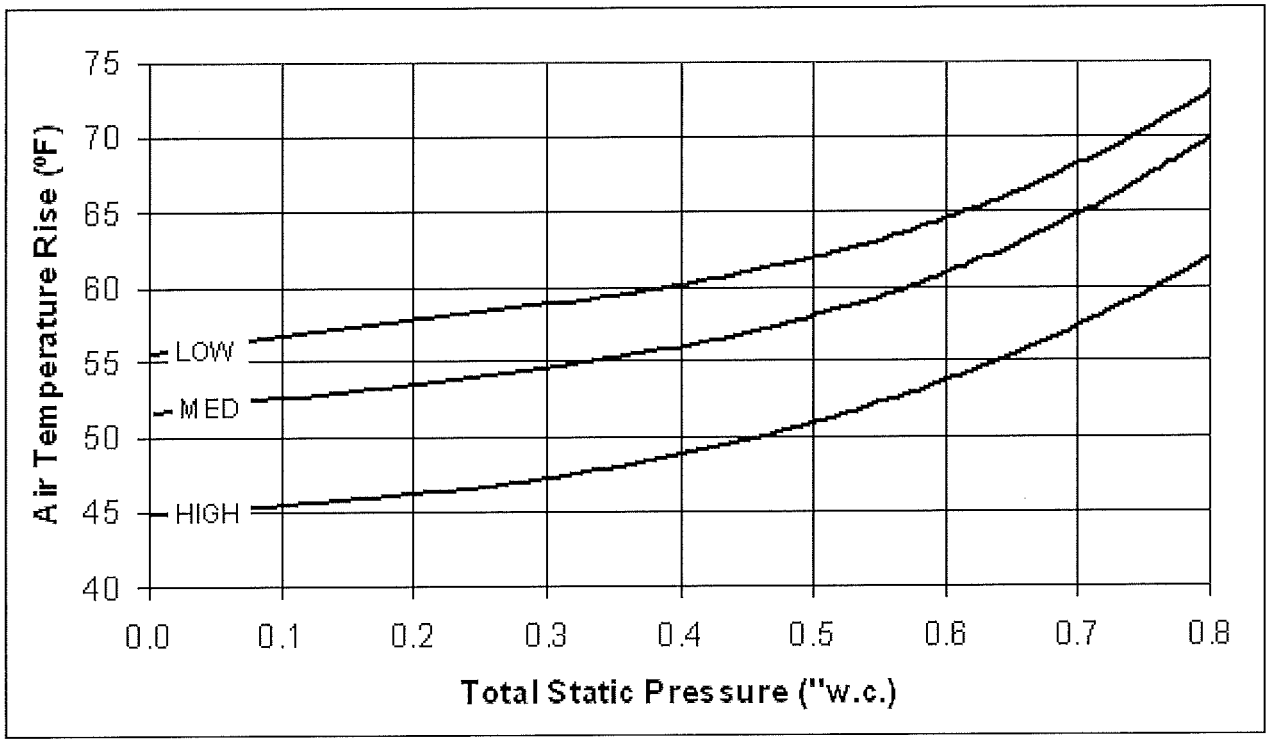


Model Size	HDB125
Dimensions (in inches)	
A	35.5
B	20.5
C	22
D	22.52
E	18.43
F	14
G	-
H	8.38
I	44.3
J	41.3
Vent Connector Diameter	4
Gas Connection	1/2
Blower	10-10
Approx. Shipping Weight	151 lbs.

AccuSpec V4.29d

HDB125 – BLOWER CURVE

Blower Curve Example



Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Open Drip Proof (ODP).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with three speed taps to allow for adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, direct motor driven assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Unit to have 4 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

C ETL LISTED US

Intertek

General Performance Data

Model	HDB 125
At 0' Elevation	
Btu/Hr. Input	125,000
Btu/Hr. Output	102,500
Minimum Airflow (CFM)	1235
Maximum Airflow (CFM)	2058
Minimum Air Temp. Rise (°F)	46.1
Maximum Air Temp. Rise (°F)	76.8
Maximum Static Pressure (in.w.c.)	0.8
Unit Total Power (Amps)	12.1

As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	125,000
Btu/Hr. Output	102,500

Motor Data	
Horse Power	1/2
Maximum RPM	1100
Type	P.S.C.
Motor Amps at 115V	9.5

Clearances to Combustibles	
Top and Bottom	1"
Vent Connector	4"
Access Side	18"
Non-Access Side	1"
Rear	18"

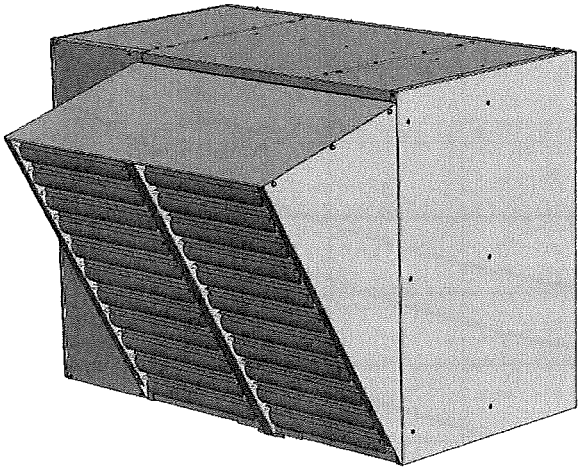
Mounting

Mounting brackets are slotted to accommodate joists on 16" or 24" centerlines.

AccuSpec V4.29d

DIMENSIONS – HOOD

30° Downward Deflector Hood with 25° to 65° Air Deflection Range



Dimensions (in inches) for Model HDB125

Height (H)	Length (L)	Width (W)
19.5	9.75	24.25

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired tubular heat exchanger with individually fired tubes for maximum heat transfer with minimal noise of flame ignition/extinction.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 22 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 18 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The burner(s) shall be in-shot type, directly firing each heat exchanger tube individually and is designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall directly light the gas by means of a direct spark igniter each time the system is energized.

The unit gas controls shall be provided with the following:

AccuSpec V4.29d

BDP MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
BDP	175	A	E	41	30	N	B	A	N

1,2,3 - Product Type
BDP - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
175 - 175,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
E – E - Intermittent Pilot Ignition

9,10 - Motor and Drive Code (Power Code)
41 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
30 - Natural, Single-Stage, Intermittent Pilot Ignition

13 – Fan Guard Type
N -

14 – Development Sequence
B - Current

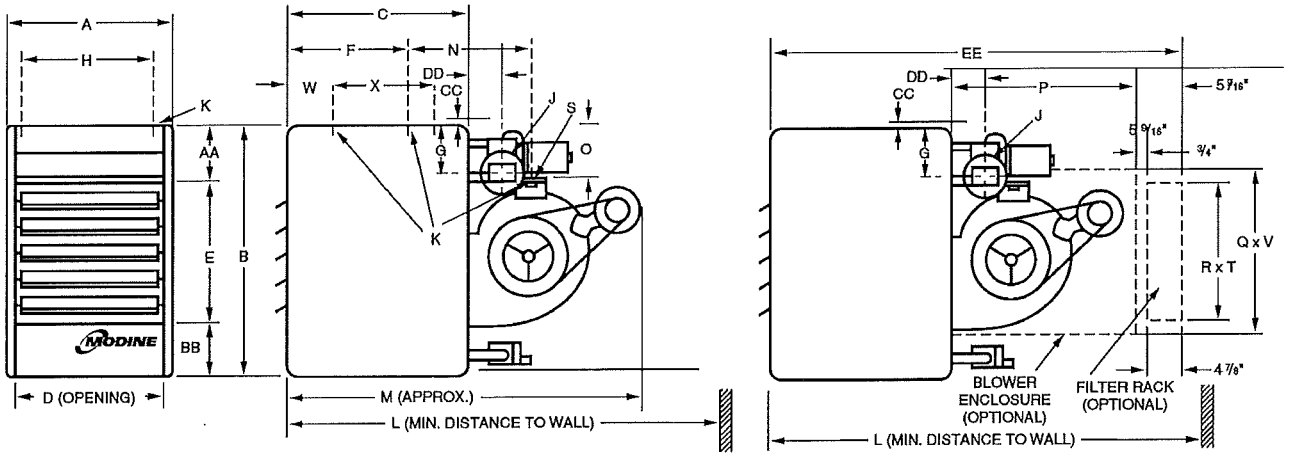
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

AccuSpec V4.29d

DIMENSIONS – UNIT

Model BDP Dimensions



Model Size **BDP175**

Dimensions (in inches)

A	23.5
B	35.25
C	22
D	21.0625
E	20
F	12
G	6.5625
H	19.875
J (Round)	5
K (Mtg Holes)[1]	3/8-16
M[2]	47.125
N[3]	21.5
O	7.25
L w/ Blower Enclosure and Filter Rack	62.625

P	30
Q	21.375
R	20
S	17.375
T	27.5
V	29
W	N/A
X	N/A
AA	8
BB	7.25
CC	-
DD	2.75
EE	56.625
L w/o Blower Enclosure and Filter Rack	53.125

Blower Wheel Diameter	13
Approximate Weight	237

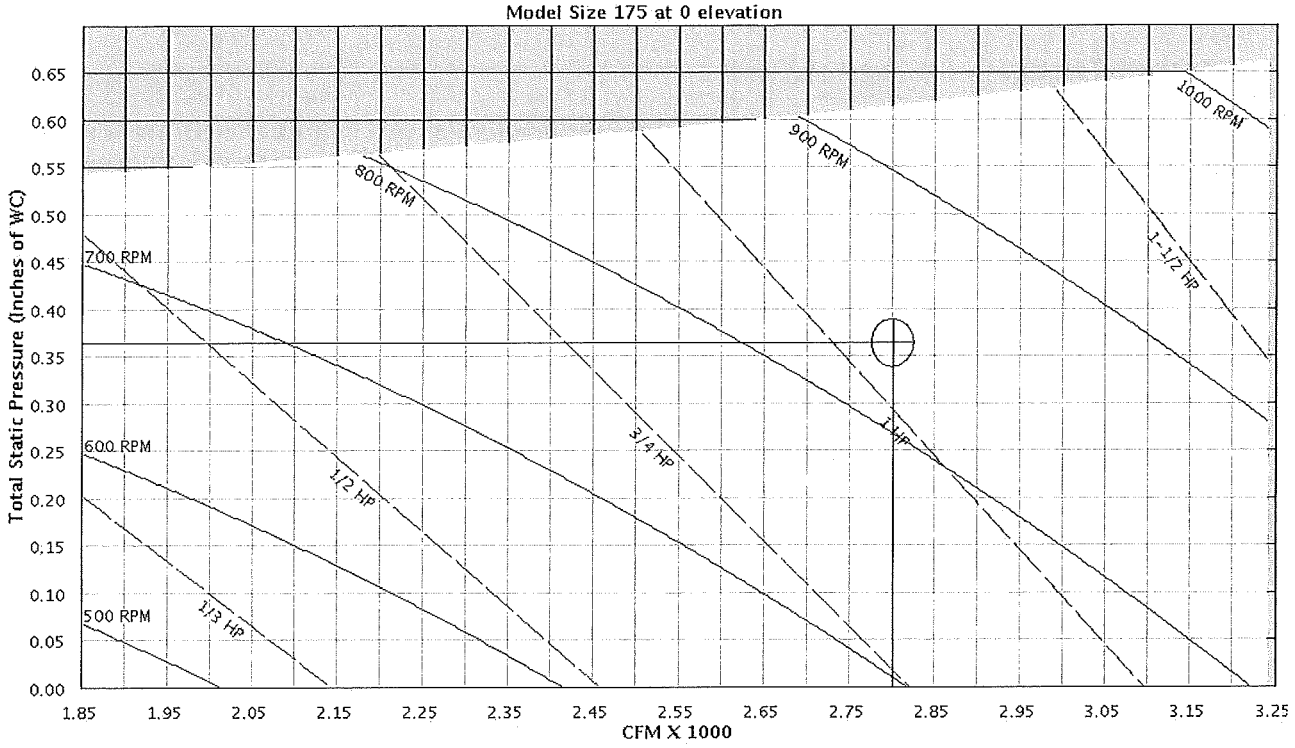
Gas Connection[4]	1/2

[1] BDP150 thru BDP 300 - 4 holes (2 on blower and 2 on unit). BDP 350 and BDP 400 – 6 holes (2 on blower and 4 on unit)

[2] This is an approximate dimension for standard motors, allow 3" for sheave and optional motors.

[3] Distance between mounting hole in unit casing and mounting hole on blower. On the BDP 350 and BDP 400, the distance is from rear mounting hole in casing to the mounting hole on blower.

[4] For natural gas; may vary depending on control availability.


Model Size 175 at 0 elevation
Total Static Pressure (Inches of WC)
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
1.85
1.95
2.05
2.15
2.25
2.35
2.45
2.55
2.65
2.75
2.85
2.95
3.05
3.15
3.25
CFM X 1000
1000 RPM
900 RPM
800 RPM
700 RPM
600 RPM
500 RPM
1-1/2 HP
1 HP
3/4 HP
1/2 HP
1/3 HP

The unit gas controls shall be provided with the following:

Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1-1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Totally Enclosed (TE).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with an adjustable motor sheave to allow for minor adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, belt driven, assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Blower unit to have 6 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

MODINE

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

C ETL LISTED US

Intertek

General Performance Data

Model	BDP250
At 0' Elevation	
Btu/Hr. Input	250,000
Btu/Hr. Output	205,000
Entering Airflow (CFM)	3,800
Minimum Airflow (CFM)	2646
Maximum Airflow (CFM)	4630
Minimum Air Temp. Rise (°F)	41.0
Maximum Air Temp. Rise (°F)	71.7
Mounting Height (Max Ft.)[1]	27
Heat Throw (Max. Mtg. Ft.)[1]	96
Unit Total Power (Amps)	5.7
As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	250,000
Btu/Hr. Output	205,000
Configured Air Temp Rise (°F)	50
Motor Data	
Horse Power	1-1/2
RPM	1725
Type	P.S.C.
Motor Amps	4.60

Clearances to Combustibles[2]	
Top	5"
Bottom	12"
Top of Power Exhauster	3"
Side (Access and Non-Access)	1"
Rear	6"

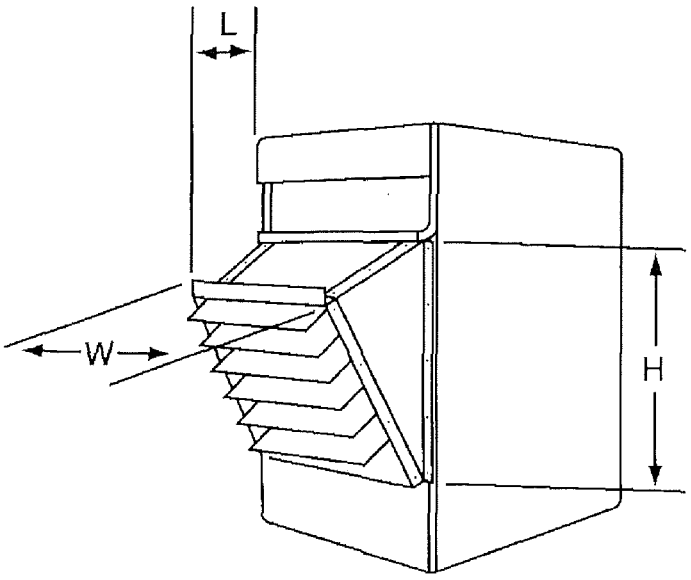
[1] At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit.

[2] Provide sufficient room around the heater to allow for proper combustion and operation of the fan. Free area around the heater must not be less than 1-1/2 times the discharge area of the unit.

AccuSpec V4.29d

DIMENSIONS – HOOD

30° Downward Deflector Hood



Dimensions (in inches) for Model BDP250

Height (H)	Length (L)	Width (W)
24.25	12.875	24.625

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired heat exchanger with dimpled tube pattern for efficient heat transfer.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 20 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 20 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be contoured and dimpled to provide efficient heat transfer and crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The heat exchanger(s) seams and duct connections shall be certified to withstand 0.5" W.C. external static pressure without burner flame disturbance.

The burner(s) shall be made of 28 gauge aluminized steel. Burner(s) shall have non-clogging, slotted ports with a stainless steel separator strip designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall intermittently light the pilot each time the system is energized. Once the pilot is proven, the main gas valve shall open and allow gas flow to the main burner.

Motor Starter

The unit shall be provided with a field installed motor starter assembly.

AccuSpec V4.29d

GENERAL PERFORMANCE DATA

Intertek

General Performance Data

Model	BDP175
At 0' Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Entering Airflow (CFM)	2,800
Minimum Airflow (CFM)	1852
Maximum Airflow (CFM)	3241
Minimum Air Temp. Rise (°F)	41.0
Maximum Air Temp. Rise (°F)	71.7
Mounting Height (Max Ft.)[1]	24
Heat Throw (Max. Mtg. Ft.)[1]	85
Unit Total Power (Amps)	16.8
As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	175,000
Btu/Hr. Output	143,500
Configured Air Temp Rise (°F)	47
Motor Data	
Horse Power	1-1/2
RPM	1725
Type	P.S.C.
Motor Amps	15.00

Clearances to Combustibles[2]	
Top	4"
Bottom	12"
Top of Power Exhauster	2"
Side (Access and Non-Access)	1"
Rear	6"

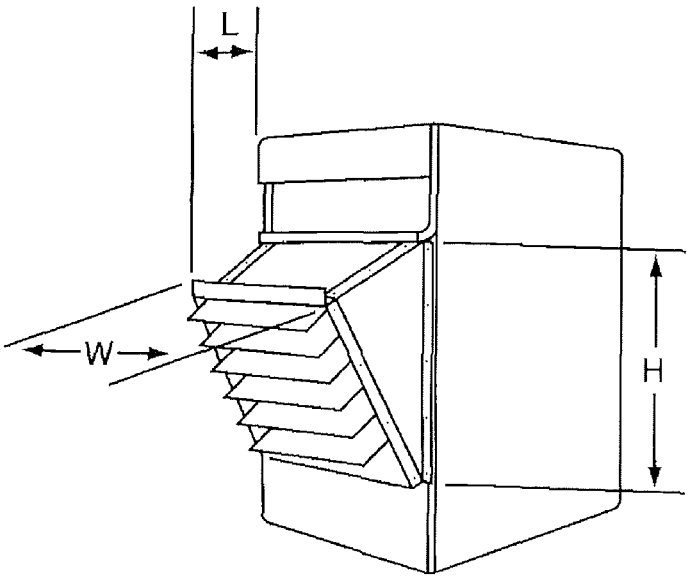
[1] At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit.

[2] Provide sufficient room around the heater to allow for proper combustion and operation of the fan. Free area around the heater must not be less than 1-1/2 times the discharge area of the unit.

AccuSpec V4.29d

DIMENSIONS – HOOD

30° Downward Deflector Hood



Dimensions (in inches) for Model BDP175

Height (H)	Length (L)	Width (W)
20.25	10.875	22.5

Standards

All unit(s) shall include:

The gas fired unit heater(s) shall include ETL design certification for use in both the US and Canada to the ANSI Z83.8 - latest revision, standard for "Gas Unit Heater and Gas-Fired Duct Furnaces" for safe operation, construction, and performance.

Mechanical Configuration

Furnace(s) section with 82% minimum efficiency provided by an indirect-fired heat exchanger with dimpled tube pattern for efficient heat transfer.

Venting Arrangement

The venting shall be a power exhausted arrangement. The unit shall be tested to insure proper ignition when the unit is subjected to 40 mile per hour wind velocities. The unit shall also include a factory mounted differential pressure switch designed to prevent main burner ignition until positive venting has been proven.

Unit Casing

The unit heater(s) casing shall be constructed of not less than 20 gauge aluminized steel with minimization of exposed fasteners.

All exterior casing parts shall be cleaned of all oils and a phosphate coating applied prior to painting. The exterior casing parts shall then be painted with an electrostatically applied baked-on gray-green polyester powder paint (7-mil thickness) for corrosion resistance.

The unit shall be furnished with horizontal air deflectors. The deflectors are adjustable to provide for horizontal directional airflow control (up or down).

Furnace Section

The heat exchanger(s) shall be made of 20 gauge aluminized steel tubes and headers.

The thermal efficiency of the unit(s) shall be a minimum of 82% efficient for all air flow ranges.

Each heat exchanger tube shall be individually and directly flame-fired. The heat exchanger tube shall be contoured and dimpled to provide efficient heat transfer and crimped to allow for thermal expansion and contraction. The flue collector box shall be made of 20 gauge aluminized steel.

The heat exchanger(s) seams and duct connections shall be certified to withstand 0.5" W.C. external static pressure without burner flame disturbance.

The burner(s) shall be made of 28 gauge aluminized steel. Burner(s) shall have non-clogging, slotted ports with a stainless steel separator strip designed for good lighting characteristics without noise of extinction for both natural and propane gas.

The ignition controller(s) shall be 100% shut-off with continuous retry.

The gas pressure shall be between 6-7" W.C for natural gas.

The solid state ignition system shall intermittently light the pilot each time the system is energized. Once the pilot is proven, the main gas valve shall open and allow gas flow to the main burner.

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HDB MODEL NOMENCLATURE

1,2,3	4,5,6	7	8	9,10	11,12	13	14	15	16
HDB	125	A	S	01	11	N	B	A	N

1,2,3 - Product Type
HDB - Power Vented Blower Unit

4,5,6 - Furnace Input Rating
125 - 125,000 Btu/hr Input

7 - Heat Exchanger Type
A - Aluminized Steel Heat Exchanger and Burner

8 - Pilot Ignition
S – Direct Spark Ignition

9,10 - Motor and Drive Code (Power Code)
01 - 115V motor

11,12 – Gas and Valve/Ignition Control Type (Control Code)
11 - Natural, Single Stage, Direct Spark Ignition, 100% Shut-Off with Continuous Retry

13 – Fan Guard Type
N -

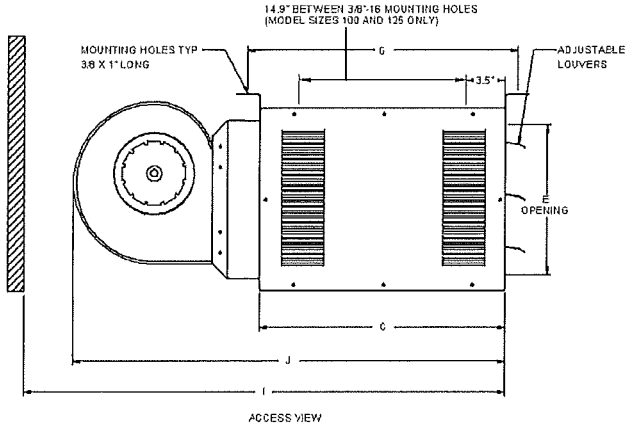
14 – Development Sequence
B - Current

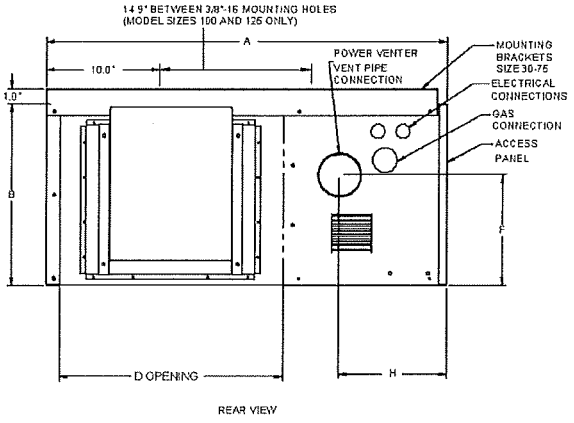
15 – Future
A – For Future Use

16 – Factory Installed Option
N - None

DIMENSIONS – UNIT

Model HDB Dimensions





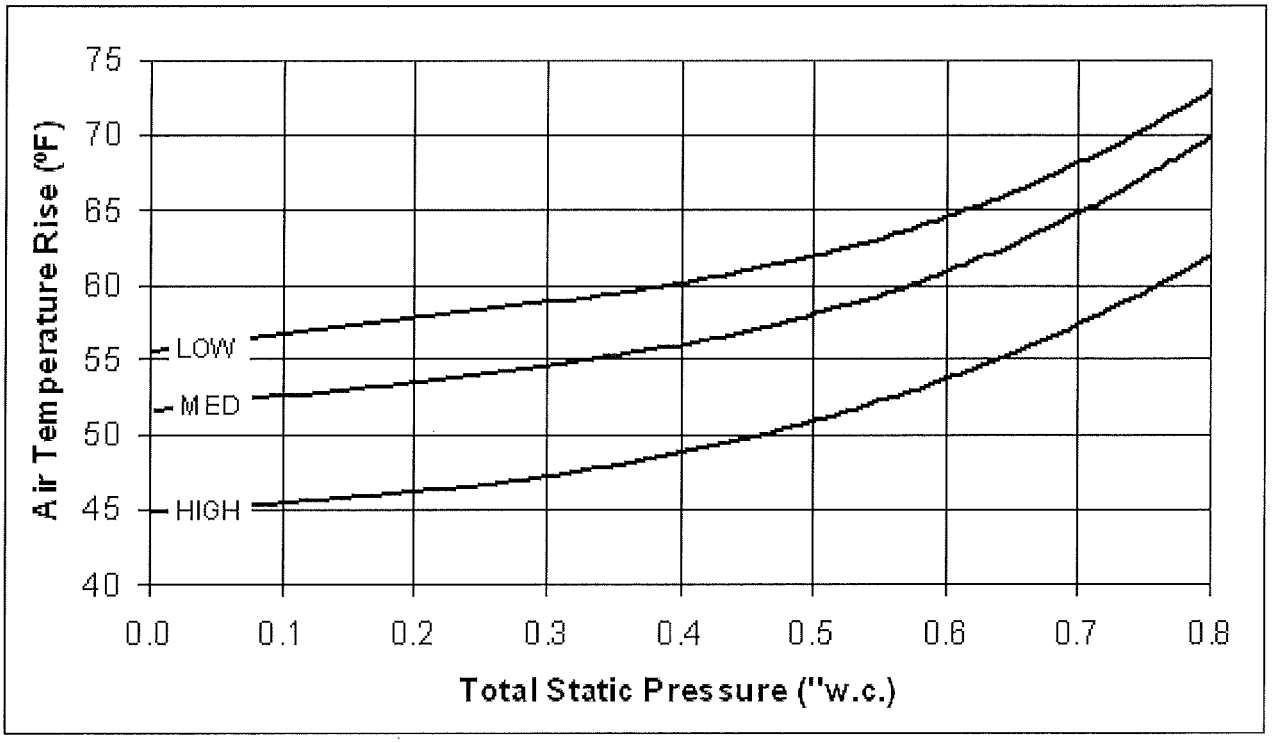
Model Size	HDB125
Dimensions (in inches)	
A	35.5
B	20.5
C	22
D	22.52
E	18.43
F	14
G	-
H	8.38
I	44.3
J	41.3
Vent Connector Diameter	4
Gas Connection	1/2
Blower	10-10
Approx. Shipping Weight	151 lbs.

MODINE

AccuSpec V4.29d

HDB125 – BLOWER CURVE

Blower Curve Example



Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1/2 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Blower models shall meet the following requirements:

The motor type shall be Open Drip Proof (ODP).

The motor shall be rated for 115V/60Hz/1Ph.

The motor shall be provided with three speed taps to allow for adjustment of the blower rpm at the job site.

The blower shall be a double width, double inlet (DWDI), forward curved, direct motor driven assembly with spider ball bearings.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Unit to have 4 suspension points.

Accessories

The following field installed accessory control devices shall be provided with the unit:

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GENERAL PERFORMANCE DATA

General Performance Data

Model	HD 100
At 0' Elevation	
Btu/Hr. Input	100,000
Btu/Hr. Output	82,000
Entering Airflow (CFM)	1490
Outlet Velocity	565
Air Temp. Rise (°F)	50
Mounting Height (Max Ft.)[1]	12
Heat Throw (Max. Mtg. Ft.)[2]	42
Unit Total Power (Amps)	5.05
As Configured at 0-2000 Ft. Elevation	
Btu/Hr. Input	100,000
Btu/Hr. Output	82,000
Configured Air Temp Rise (°F)	51
Motor Data	
Horse Power	1/6
RPM	1100
Type	P.S.C.
Motor Amps at 115V	2.50
Clearances to Combustibles	
Top and Bottom	1"
Vent Connector	4"
Access Side	18"
Non-Access Side	1"
Rear	18"

[1] At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit.

[2] Heat Throws are calculated at 65°F ambient with a 51°F air temperature rise with the unit mounted at a maximum mounting height of 12 feet.

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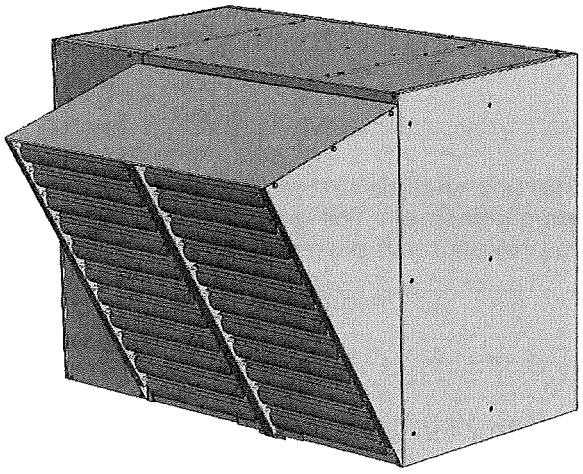
DIMENSIONS – HOOD

30° Downward Deflector Hood with 25° to 65° Air Deflection Range



Dimensions (in inches) for Model HD100

Height (H)	Length (L)	Width (W)
19.5	9.75	24.25

The unit gas controls shall be provided with the following:

Single-stage gas controls with a single-stage combination gas control, an ignition control. The unit fires at 100% full fire based on a call for heat from a room thermostat.

An automatic reset high limit switch mounted in the air stream to shut off the gas supply in the event of overheating.

A time delay relay that delays the start of the air mover to allow the heat exchanger a warm-up period after a call for heat. The time delay relay shall also continue the air mover operation after the thermostat has been satisfied to remove any residual heat in the heat exchanger.

The unit must be field adjusted for 0-2000 feet elevation above sea level. See units installation manual for instruction for altitude adjustments.

Electrical

All electrical components shall carry UL, ETL, or CSA certification.

A low voltage terminal board shall be provided for direct wiring connection to an external thermostat.

A single 115V to 24V step down transformer shall be provided for all unit controls.

Air Mover

The motor horsepower shall be 1/6 H.P.

The motor wiring shall be in flexible metal BX conduit.

The motor shall be controlled by a time delay relay.

Propeller models shall meet the following requirements:

The motor type shall be Single-Speed, Totally Enclosed (TE).

The air mover motor shall be a 115V motor.

Mounting

The unit shall be equipped with tapped holes to accept 3/8"-16 threaded rod for suspension.

Accessories

The following field installed accessory control devices shall be provided with the unit:

500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: September 14, 2020

To: Mark F. Miller, City Manager

From: Robert J. Brunner, Assistant City Manager
Rob Maleszyk, Chief Financial Officer
Lisa Burnham, Controller
Kurt Bovensiep, Public Works Director
Brian Varney, Fleet Operations Manager
Dennis Trantham, Facilities and Grounds Operations Manager
MaryBeth Murz, Purchasing Manager

Subject: Standard Purchasing Resolution 2: Award to Low Bidder Meeting Specifications - Department of Public Works Fleet Garage Unit Heater Replacement

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History

- The Fleet Garage is part of the original building constructed in 1975.
- The Fleet Garage is home to 20 staff members and services over 400 pieces of equipment including vehicles, trailers, and attachments in addition to the various units that are owned by individual departments.
- The garage operates 16 hours per day 5 days a week year round.
- The unit heaters in the garage have reached the end of their life cycle requiring significant repairs.
- Replacement of the unit heaters was identified in the Facilities Condition Assessment and Analysis.
- Replacement unit heaters will be installed by in-house Facilities staff.

Purchasing

- On September 10, 2020 a bid opening was conducted as required by City Charter/Code for the purchase of replacement unit heaters for the Fleet Garage located at the Department of Public Works.
- The bid was posted on the Michigan Intergovernmental Trade Network (MITN); www.mitn.info.
- Eighty eight (88) vendors were notified via the MITN website.
- Two (2) bid responses were received. Below is a detailed summary of potential vendors for the bid opportunity:

Companies notified via MITN	88
Troy Companies notified via MITN	2
Troy Companies notified - Active email Notification	2
Troy Companies - Active Free	0
Companies that viewed the bid	16
Troy Companies that viewed the bid	1

MITN *provides a resourceful online platform to streamline the procurement process, reduce costs, and make it easier and more transparent for vendors to do business with the City of Troy.*
Active MITN members with a current membership and paying annual dues receive automatic electronic notification which allows instant access to Bids, RFPS and Quote opportunities with the City.
Active MITN *non-paying* members are responsible to monitor and check the MITN website for opportunities to do business with the City.
Inactive MITN member status can occur when a company does not renew their account upon expiration. Inactive members cannot be notified of solicitations or access any bid information.

500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Purchasing (continued)

- *The Macomb Group of Sterling Heights, MI,* is the low bidder as specified and meets all bid specifications.

Financial

Funds are budgeted and available in the Capital Projects fund under the Fleet Maintenance Department Project Number 2021C0130 for the 2021 Fiscal Year. Expenditures will be charged to the Capital Fund Account 661.549.565.7975.900.

Recommendation

City management recommends awarding a contract for the purchase of replacement unit heaters for the Fleet Garage located at the Department of Public Works; as per bid specifications to the low bidder meeting specifications *The Macomb Group* of *Sterling Heights MI* at unit prices contained in the bid tabulation opened September 10, 2020 for an estimated total cost of $45,255.