



**“ISTD” SERIES
80% EFFICIENT
INDIRECT FIRED
DUCT FURNACE**
For Firing Natural Gas or Propane



**ISTD MODEL Shown
(Outdoor Unit)**

**“ISTD” Series
Power Vented
MODEL**

FEATURING

Indoor/Outdoor

80% Efficiency

Separated Combustion

**Balanced Tubular Flue
Design**

Low Pressure Drop

**Stainless Steel Tubular
Heat Exchanger**

**“DSI” Direct Spark
Ignition**

**Modulating Control
Systems – Down to
25% of Rated Input**



Intertek

**E.T.L.
All Models
Design Certified**

“ISTD” Hastings Indoor/Outdoor Indirect Gas Fired Duct Furnace

The Hastings 80% efficient “ISTD” series indirect gas fired duct furnace provides solutions for either indoor and outdoor applications and is design certified by E.T.L. Testing Laboratories.

The Hastings “ISTD” indirect gas fired duct furnace high efficiency tubular design heat exchanger has a wide range of MBH inputs from 100 MBH to 1200 MBH with an output efficiency rating of 80% with selected airflows required to meet selected application. Hastings “ISTD” duct furnace design will have turn down capabilities of 4:1 up to 12:1 based on project specifications.



The “ISTD” high efficiency tubular heat exchanger is constructed of a heavy duty 409 stainless steel which is a low carbon steel containing 12% chromium and a lesser amount of high grade nickel alloy that offers greater corrosion resistance.

The gas/air mix burners are designed and produced to provide positive flame control through all ranges of burner operation, whether it is on-off, two stage, or full modulation.

Single bank furnace “A” models are available from 100 MBH input to 400 MBH input, Double bank “B” models are available from 200 MBH input to 800 MBH input and the Triple bank “C” model is available with 1200 MBH input.

All “ISTD” duct furnaces can be located downstream of a cooling coil and are E.T.L. certified for this application.

All “ISTD” duct furnaces must be installed downstream of blower on the positive side of the fan to maintain E.T.L. certification.

Standard Equipment

Cabinet:

Aluminized steel weatherproof construction of 18 gauge thickness with enamel exterior finish.

Heating Section:

Type 409 stainless steel tubular heat exchanger

Burners are 18 gauge aluminized steel. Pilot is “DSI” direct spark ignition as standard for natural gas and propane.

Venting System:

Power vented “ISTD” indoor and outdoor models feature is a balanced tubular flue design with an integral power venter operating to draw combustion air evenly across the burner while venting the products of combustion at the same time.

Indoor ISTD models feature 1 exhaust vent connection per duct furnace with 2 piece door construction.

Indoor ISTD separated combustion models feature 1 exhaust vent connection and 1 combustion air inlet connection per duct furnace with 2 piece door construction.

Gas and Electrical Components

Combination Redundant Gas Valve with “DSI” direct spark ignition, high limit control, 115/24 volt control transformer.

Electrical System:

115 volt primary with 24 volt control circuit.

Gas System:

For inlet gas pressure of 6” to 14” w.c. natural gas, or 11” to 14” w.c. propane.

Certification: E.T.L.

Optional Items:

High fuel pressure regulators:

- 1/2 lb. to 5 lb. line pressure.
- 6 lb. to 40 lb. line pressure (specify gas pressure).

Two-stage gas valve – Provides both 100% and 50% gas input to yield two firing levels. Should be used with two stage thermostat (Natural gas only).

Separated combustion – For applications requiring outside air for combustion, and requires both an exhaust air and combustion air flues

“Selectra” Modulation Systems – Provides burner modulation down to 25% of full rate input.

MS-1: For applications requiring only make-up air. Maxitrol solid state electronic modulated system provides constant leaving air temperature. Wall mounted temperature Selectra Dial permits adjustment of discharge air temperature from convenient location.

MS-2: For space heating only applications. Maxitrol solid state electronic modulating system provides continuous blower operation and extremely close control of space temperature, by a wall mounted “Selectrastat”. Sensitive to 110° F.

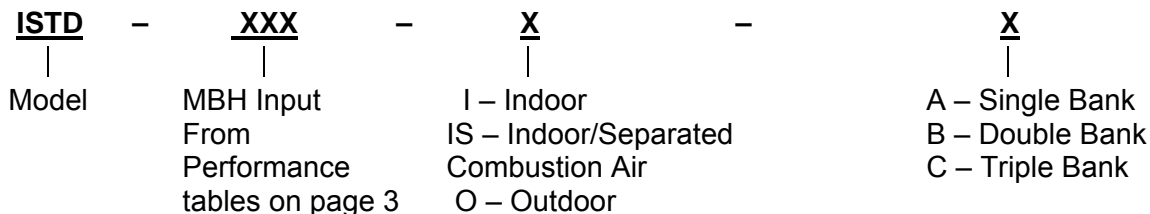
MS-3: For make-up air and space heating applications. Same as MS-1, but with two-position over-riding room thermostat for space heating as well as make-up air.

MS-5: For interface to modulation and input signal, 20-4 MA or 0-10 VDC.

Selection Procedure

- Determine required model size from performance tables using desired Btuh output. With desired temperature rise, read pressure drop and corresponding airflow.
- Specify the type of fuel, and any optional items or accessories.

MODEL DESIGNATION



Example: Select rooftop duct furnace for required Btuh output with 40° F temperature rise. Application is space heating with inlet temperature of 60° F in non-corrosive environment. Fuel is natural gas.

Selection:

- From Table 1, model size no. 400 is chosen with 320,000 Btuh output. For 40° F rise, pressure drop = 0.12” W.C. and airflow = 7404 SCFM.
- ISTD-400 model is picked.

Selection is thus complete:

ISTD-400 with 409 stainless steel tubular heat exchanger for natural gas firing. Unit develops 320,000 Btuh output at 0.12” w.c. pressure drop with 40° F rise and 7,404 SCFM.

TABLE 1 – PERFORMANCE FOR SINGLE “A” BANK FURNACE MODELS

Air Temp. Rise (F°)*				40°	50°	60°	70°	80°	90°
ISTD Model No.	MBH Input	Btuh Output	Shipping Weight (Lbs.)	Airflow (SCFM)					
100A	100	80	390	1850	1480	1234	1057	925	823
150A	150	120	413	2777	2221	1850	1586	1388	1234
200A	200	160	428	3702	2961	2468	2115	1850	1645
250A	250	200	484	4628	3702	3085	2644	2313	2057
300A	300	240	501	5553	443	3702	3173	2777	2468
350A	354	280	501	6479	5183	4629	3702	3235	2879
400A	400	320	520	7404	5923	4936	4230	3702	3291

TABLE 2 – PERFORMANCE FOR DOUBLE “B” BANK FURNACE MODELS

Air Temp. Rise (F°)*				60°	70°	80°	90°	100°	110°	120°
ISTD Model No.	MBH Input	Btuh Output	Shipping Weight (Lbs.)	Airflow (SCFM)						
200B	200	160	780	2468	2115	1850	1645	1480	1346	1234
300B	300	240	826	3702	3173	2777	2468	2221	2019	1851
400B	400	320	856	4936	4230	3702	3291	2962	2692	2468
500B	500	400	968	6170	5288	4626	4114	3702	3366	3085
600B	600	480	1002	7404	6346	5554	4936	4443	4039	3702
700B	700	560	1002	9258	7404	6478	5758	5183	4712	4319
800B	800	640	1040	9872	8460	7404	6582	5923	5385	4936

TABLE 3 – PERFORMANCE FOR TRIPLE “C” BANK FURNACE MODELS

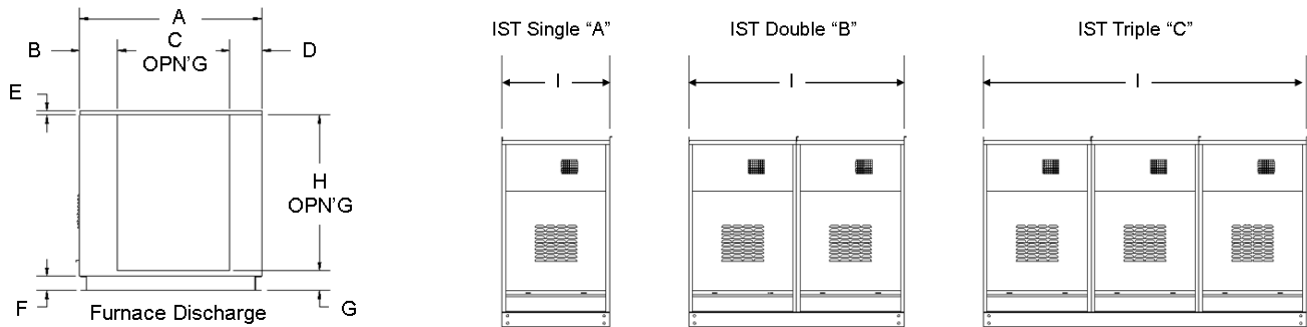
Air Temp. Rise (F°)*				90°	100°	130°
ISTD Model No.	MBH Input	Btuh Output	Shipping Weight (Lbs.)	Airflow (SCFM)		
1200C	1200	960	1560	9872	8077	6835

NOTE: For models 200B, 300B, 400B, 500B, 600B, 700B, 800B and 1200C, E.T.L. approved design certification applies to individual duct furnaces only.

TABLE 4 – FURNACE PRESSURE DROP

CFM	Furnace Size						
	IST-100	IST-150	IST-200	IST-250	IST-300	IST-350	IST-400
1000	0.05	0.04	0.04				
2000	0.06	0.05	0.04	0.04	0.03	0.03	
3000	0.06	0.06	0.05	0.04	0.04	0.04	0.03
4000		0.08	0.07	0.06	0.05	0.05	0.04
5000			0.08	0.07	0.07	0.07	0.07
6000				0.08	0.08	0.08	0.07
7500					0.13	0.13	0.12
10000							0.25

Dimensions



ISTD Single "A" Arrangement									
	A	B	C	D	E	F	G	H	I
100A	52	10.8	31.9	9.2	1.1	4	5.6	34.4	29
150A	52	10.8	31.9	9.2	1.1	4	5.6	34.4	29
200A	52	10.8	31.9	9.2	1.1	4	5.6	34.4	29
250A	52	10.8	31.9	9.2	1.1	4	5.6	44.4	29
300A	52	10.8	31.9	9.2	1.1	4	5.6	44.4	29
350A	52	10.8	31.9	9.2	1.1	4	5.6	44.4	29
400A	52	10.8	31.9	9.2	1.1	4	5.6	44.4	29

NOTE: All dimensions in inches. Check installation manual for recommended clearances.

*Indoor Separated Combustion model will have (1) venter outlet and (1) combustion air inlet per duct furnace.

ISTD Double "B" Arrangement									
	A	B	C	D	E	F	G	H	I
200B	52	10.8	31.9	9.2	1.1	4	5.6	34.4	58
300B	52	10.8	31.9	9.2	1.1	4	5.6	34.4	58
400B	52	10.8	31.9	9.2	1.1	4	5.6	34.4	58
500B	52	10.8	31.9	9.2	1.1	4	5.6	44.4	58
600B	52	10.8	31.9	9.2	1.1	4	5.6	44.4	58
700B	52	10.8	31.9	9.2	1.1	4	5.6	44.4	58
800B	52	10.8	31.9	9.2	1.1	4	5.6	44.4	58

NOTE: All dimensions in inches. Check installation manual for recommended clearances.

*Indoor Separated Combustion model will have (1) venter outlet and (1) combustion air inlet per duct furnace.

ISTD Triple "C" Arrangement									
	A	B	C	D	E	F	G	H	I
1200C	52	10.8	31.9	9.2	1.1	4	5.6	44.4	87

NOTE: All dimensions in inches. Check installation manual for recommended clearances.

*Indoor Separated Combustion model will have (1) venter outlet and (1) combustion air inlet per duct furnace.

Engineers Specifications

Furnace Section

- A. Tubular Heat Exchanger tubes shall be –
 - 1. Standard type 409 (chrome) stainless steel. .049" tubular tubes and .078" header plate.
 - 2. Tubular Heat Exchanger tubes and header plates are all swedged construction.
- B. Inshot Burners shall be made of 18 gauge aluminized.
- C. Tubular Heat Exchanger shall be so constructed as to slide out from compartment for easy service and maintenance
- D. Cabinet shall be of 16 gauge aluminized steel with exterior cabinet primed and finished with an enamel exterior white finish coat.

In order to maintain our policy of continuous product improvement, we reserve the right to change prices, specifications, ratings or dimensions without notice or obligation.



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REPRESENTED BY:

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