

TD Series — Tubular Duct Furnaces

Indoor Duct Furnace

DESCRIPTION

The TD Series duct furnace is the latest addition to the Sterling HVAC tubular product line. Designed for use with existing systems for any ducted air application. Sterling HVAC indoor tubular duct furnaces are available in 7 sizes (100 – 400 MBH). Sterling HVAC products are proudly manufactured in the USA.

Standard energy saving features like the direct spark ignition and power venting reduce standby losses and offer improved seasonal efficiencies. The TD Series is certified by ETL as providing 82% thermal (combustion) efficiency.

TUBULAR HEAT EXCHANGER

The Sterling HVAC tubular heat exchanger has been designed to provide maximum and uniform heat transfer. The low pressure drop associated with this design enables heated air to be evenly distributed to the conditioned space. This curved, non-welded serpentine design experiences less thermally induced stress making it highly durable for significantly longer service life. All standard Sterling HVAC tubular heat exchangers are constructed of heavy duty 20-gauge aluminized steel with an optional 409 stainless steel heat exchanger available for applications in mildly corrosive environments.

DIRECT SPARK IGNITION SYSTEM

Sterling HVAC TD units utilize a direct spark pilotless ignition of the burner, providing fast heat delivery. This highly reliable and efficient ignition system incorporates an integrated electronic control board to regulate the system sequence of operation, including an externally mounted LED indicator for simple troubleshooting.

VENTING

The Sterling HVAC TD Series is ETL certified in accordance with category III venting requirements. This certification allows units to be vented both vertically and horizontally using either single wall or double wall venting materials. This venting flexibility of the TD duct furnace makes installation easier and more cost effective by allowing the installer to utilize existing venting components. The TD duct furnace can be field converted to separated combustion using the “Air Inlet Kit” or the “Combustion Air Inlet Kit”. This is recommend for units to be installed in dusty, dirty or mildly corrosive environments or where high humidity or slightly negative pressures exist. All critical components including the burners, direct spark ignition, and controls are fully enclosed within the unit and protected from the elements ensuring clean and efficient combustion.

CONTROL ACCESSIBILITY

Designed with the service person in mind, every component of the Sterling HVAC TD Series is easily accessible. Ignition and fan controls are located in one centrally located control panel. The access panel provides control isolation as well as a pleasing exterior appearance.



TD-400



TD-100

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STANDARD FEATURES

- In-Shot Burner Design
- 20-Gauge Steel Jacket with Baked Enamel Finish
- Double Wall Construction
- 115/1/60 Supply Voltage
- Direct Spark Ignition
- Redundant Single-Stage Gas Valve
- 82% Thermal Efficiency
- 115/24 Volt Controls transformer
- Power Vented
- 20-Gauge Aluminized Steel Heat Exchanger
- Four Point Suspension
- For Natural or Propane Gas
- 10 Year Heat Exchanger, Flue Collector and Burner Warranty
- Easy Access Control Panel
- Left Hand Control Access – Field Convertible to Right Hand

OPTIONAL FEATURES

- 409 Stainless Steel Heat Exchanger and Flue Collector
- Supply Voltages (Field Mounted Transformer): 208 & 230/1/60 and 208, 230, 460, 575/3/60
- Two-Stage and Various Electronic Modulation Gas Controls
- High Pressure Regulator 1/2 - 35 PSI
- Single and Two-Stage Mercury Free Ductstats and Thermostats
- Locking Thermostat Cover
- Low Ambient Control
- Vent Caps
- 24V SPST Relay
- Stainless Steel Drip Pan
- Horizontal and Vertical Louvers
- Air Inlet Kit (For conversion to separated combustion and two roof or wall penetrations. Includes a vent cap for the combustion air inlet pipe)
- Combustion Air Inlet Kit (For conversion to separated combustion and a single roof or wall penetration)

Unit Number Description

Digit	T	X	X	X	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	+	
Item	Prefix					UT		CA			FT	FM	GT	AL	GC	SV	MT	MS	DL	AS		
	(Internal use Only)																					

1, 2 - Unit Type [UT]

TD - Tubular Duct Furnace

3, 4, 5 - Capacity [CA]

- 100 - 100,000 BTU/HR
- 150 - 150,000 BTU/HR
- 200 - 200,000 BTU/HR
- 250 - 250,000 BTU/HR
- 300 - 300,000 BTU/HR
- 350 - 350,000 BTU/HR
- 400 - 400,000 BTU/HR

6 - Furnace Type [FT]

A - Left Side Access

Note: Field convertible to right side access; refer to unit installation instructions.

7 - Heat Exchanger (Furnace)

Material [FM]

- 1 - Aluminized Steel (Standard)
- 2 - 409 Stainless Steel

Note: Heat Exchanger Material [FM] selection includes flue collector material.

8 - Gas Type [GT]

- N - Natural Gas
- P - Propane Gas (LP)

9 - Altitude [AL]

- S - 0-4,999 feet
- T - 5,000-11,999 feet

Note: Installations over 2,000 feet require gas input deration in the field. Refer to unit installation instructions.

10 - Direct Spark Gas Control [GC]

- 1 - Single Stage
- 2 - Two Stage
- 3 - Electronic Modulation w/Room Sensing
- 4 - Electronic Modulation w/Duct Sensing
- 5 - Electronic Modulation w/Duct Sensing & Room Override Stat
- 6 - Electronic Modulation w/External 4-20 mA Input
- 7 - Electronic Modulation w/External 0-10 VDC Input

11 - Supply Voltage [SV]

- 1 - 115/1/60
- 2 - 208/1/60
- 3 - 230/1/60
- 4 - 208/3/60
- 5 - 230/3/60
- 6 - 460/3/60
- 7 - 575/3/60
- Z - Special

Note: Supply Voltages [SV] 2-7 include field mounted step down transformer.

12 - Motor Type [MT]

- 0 - None/Not Applicable

13 - Motor Sizes [MS]

- 0 - None/Not Applicable

14 - Design Level [DL]

- A - First Design Level

15+ - Accessories [AS]

FACTORY INSTALLED

K5 - Air Flow Prove Switch

P4 - Terminal Block Wiring

P6 - Summer/Winter Switch

S5 - Stainless Steel Burners

† FIELD INSTALLED (AS-____)

† All Field Installed Accessories are to be entered as a separate line item using the catalog number which utilizes "AS" as a prefix. i.e: G3 becomes AS-G3.

A7 - High Pressure Regulator:

A7-1/2-1 - Regulator for 0.5-10 PSI

A7-3/8-1 - Regulator for 10-20 PSI

A7-5/16-1 - Regulator for 20-35 PSI

F1 - One-Stage T675A Ductstat

F2 - Two-Stage T678A Ductstat

G1 - One-Stage T87K Mercury Free Thermostat w/Subbase Kit

G2 - One-Stage T87K Mercury Free Thermostat w/TG511A Guard Kit

G3 - One-Stage T834N Mercury Free Thermostat w/Fan Switch

G5 - Two-Stage TH5220D Mercury Free Thermostat w/Subbase

G6 - Locking Thermostat Cover

G9 - One-Stage T822K Mercury Free Thermostat

H5 - Low Ambient Control

M2-2 - Vent Cap (5 inch) (Unit Capacity 100-200)

M2-3 - Vent Cap (6 inch) (Unit Capacity 250-400)

P5 - 24V SPST Relay-Specify Purpose

S4 - Stainless Steel Drip Pan

X5 - Horizontal and Vertical Louver Kit

X8-H5 - Horizontal Combustion Air Inlet Kit, 5 inch (Unit Capacity 100-200)

X8-H6 - Horizontal Combustion Air Inlet Kit, 6 inch (Unit Capacity 250-400)

X8-V5 - Vertical Combustion Air Inlet Kit, 5 inch (Unit Capacity 100-200)

X8-V6 - Vertical Combustion Air Inlet Kit, 6 inch (Unit Capacity 250-400)

X9-DBL-5 - Air Inlet Kit, 5 inch (Unit Capacity 100-200)

X9-DBL-6 - Air Inlet Kit, 6 inch (Unit Capacity 250-400)

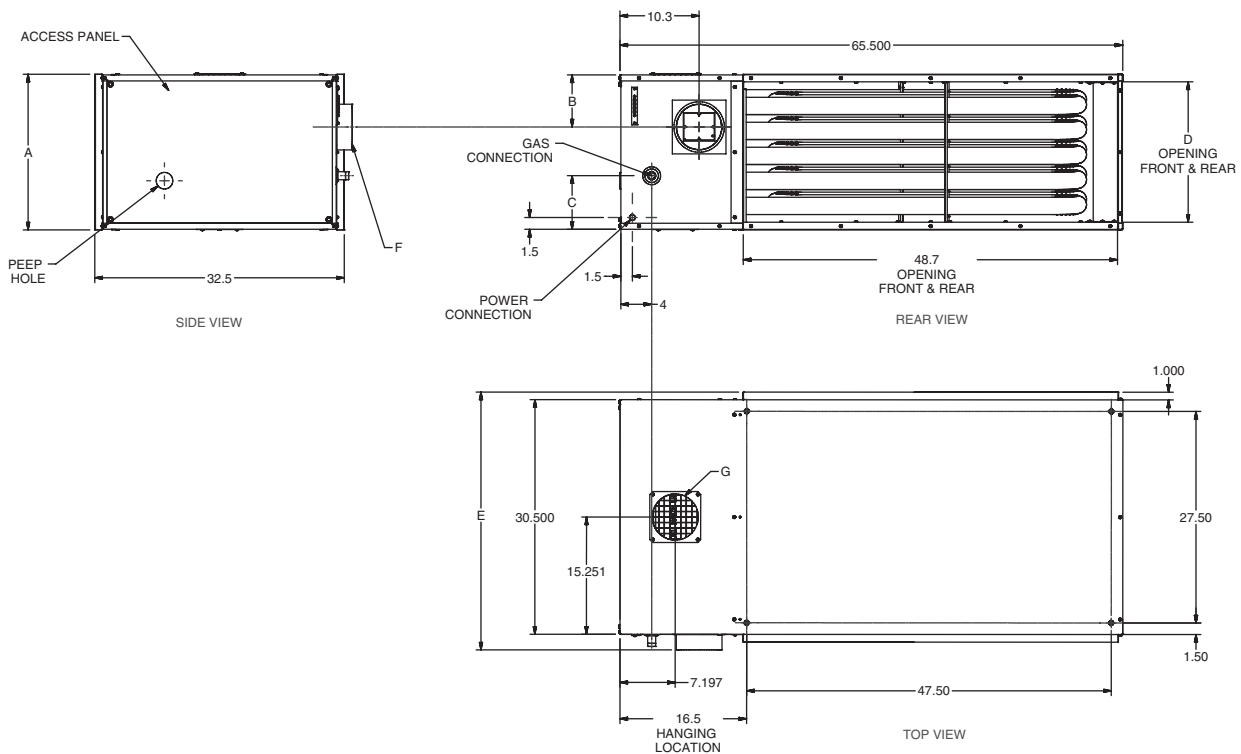
Note: X9 kits allow for conversion to separated combustion and include the M2 vent cap for the combustion air inlet pipe. X8 kits allow for conversion to separated combustion and venting concentrically through one roof or wall penetration.

TD Series — Tubular Duct Furnace

Dimensional Data

Tubular Duct Furnace Dimensions

Unit Capacity (MBH)	100	150	200	250	300	350	400
Dimensional Data - inches (mm)							
"A" Overall Unit Height	10.3 (262)	13.7 (348)	17 (432)	20.2 (513)	23.5 (597)	26.7 (678)	30 (762)
"B" Height to Centerline Flue	7.6 (193)	10.5 (267)	11.9 (302)	6.8 (173)	8.4 (213)	10 (254)	11.6 (295)
"C" Height to Gas Connection	2.5 (64)	3.7 (94)	5.3 (135)	7 (178)	7 (178)	8.7 (221)	10.3 (262)
"D" Opening Height, Front & Rear	8.5 (216)	11.7 (297)	15 (381)	18.2 (462)	21.5 (546)	24.7 (627)	28 (711)
"E" Overall Unit Depth	32.7 (831)	32.7 (831)	32.7 (831)	33.5 (851)	33.5 (851)	33.5 (851)	33.5 (851)
"F" Flue Size Diameter	5 (127)	5 (127)	5 (127)	6 (152)	6 (152)	6 (152)	6 (152)
"G" Air Inlet Size Diameter	5 (127)	5 (127)	5 (127)	6 (152)	6 (152)	6 (152)	6 (152)
Gas Inlet, Natural Gas - inch	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Gas Inlet, LP Gas - inch	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Approximate Unit Weight - lb (kg)	160 (73)	221 (100)	250 (113)	270 (122)	296 (134)	321 (146)	355 (161)
Approximate Ship Weight - lb (kg)	270 (122)	331 (150)	360 (163)	403 (183)	429 (195)	454 (206)	488 (221)



D9362

TD Series — Tubular Duct Furnace Performance Data



Tubular Duct Furnace Performance Data

UNIT CAPACITY (MBH)	100	150	200	250	300	350	400
Maximum Input - MBH	100	150	200	250	300	350	400
(kW)	(29.3)	(43.9)	(58.6)	(73.2)	(87.8)	(102.5)	(117.1)
Minimum Input - MBH	50	75	100	125	150	175	200
(kW)	(14.6)	(21.9)	(29.3)	(36.6)	(43.9)	(51.2)	(58.6)
Output - MBH	82	123	164	205	246	287	328
(kW)	(24.0)	(36.0)	(48.0)	(60.0)	(72.0)	(84.1)	(96.1)
Full Load Amps at 115V	2.2	2.2	2.2	1.8	1.8	1.8	1.8
Minimum Circuit Amps at 115V	2.5	2.5	2.5	1.9	1.9	1.9	1.9
Minimum CFM	758	1137	1517	1896	2275	2654	3034
(m³/s)	(0.357)	(0.536)	(0.715)	(0.894)	(1.074)	(1.252)	(1.431)
Temperature Rise - °F	100	100	100	100	100	100	100
(°C)	(56)	(56)	(56)	(56)	(56)	(56)	(56)
Pressure Drop - in. WC	0.07	0.03	0.04	0.08	0.03	0.07	0.08
(kPa)	(0.017)	(0.007)	(0.009)	(0.019)	(0.007)	(0.017)	(0.019)
Maximum CFM	2528	3792	5057	6321	7585	8849	10,114
(m³/s)	(1.193)	(1.789)	(2.386)	(2.983)	(3.579)	(4.176)	(4.773)
Temperature Rise - °F	30	30	30	30	30	30	30
(°C)	(17)	(17)	(17)	(17)	(17)	(17)	(17)
Pressure Drop - in. WC	0.65	0.44	0.54	0.76	0.69	0.76	0.70
(kPa)	(0.16)	(0.11)	(0.13)	(0.19)	(0.16)	(0.19)	(0.17)

Ratings are shown for unit installations at elevations between 0 and 2,000 feet (610m). For unit installations in USA above 2,000 feet (610m), the unit input must be field derated 4% for each 1,000 feet (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA 54). For installations in Canada, any references to deration at altitudes in excess of 2,000 feet (610m) are to be ignored. At altitudes of 2,000 to 4,500 feet (610 to 1372m), the unit must be field derated and be so marked in accordance with the ETL certification. See Installation Instructions for USA and Canadian field deration information.

Temperature Rise and Pressure Drop Graph

