

#### RGRS/RGRT- SERIES Models with Input Rates from 45,000 to 120,000 BTU/HR [13.19 to 35.17 kW]

(All Models 90% A.F.U.E.<sup>+</sup> or Above)



# 90 HIGH EFFICIENCY UPFLOW GAS FURNACES

The Ruud Value Series 90 High Efficiency line of upflow gas furnaces are designed for utility rooms, closets, or alcoves. Because of the low-profile 34 inch height, this model can be used vertically to satisfy most applications that traditionally call for a horizontal furnace.

The design is certified by CSA.

#### **Features**

- Low profile "34 inch" design is lighter and easier to handle and leaves room for optional accessories.
- Left or right side gas, electric, and condensate drainage connections on upflow models.
- Integrated control board manages all operational functions and provides accessory hookups for an electronic air cleaner.
- A slow-opening gas valve and a specially designed inducer system make it one of the quietest furnaces on the market today.
- Pre-paint galvanized steel cabinet.
- Optional indoor or outdoor combustion air. In addition, combustion air may be piped to either the top or right side of the cabinet on all upflow models. A special molded fitting is provided to ease installation.
- Control board diagnostics.

A variety of cooling coils and plenums designed to use with the Ruud Value Series 90 gas furnaces are available as optional accessories for air conditioning models.

tA.F.U.E. (Annual Fuel Utilization Efficiency) calculated in accordance with Department of Energy test procedures.





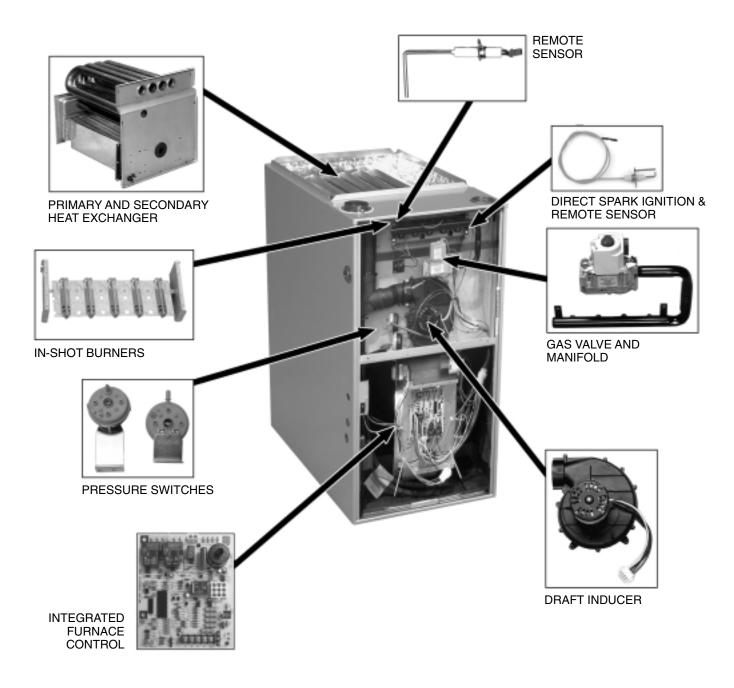












### **STANDARD EQUIPMENT**

Completely assembled and wired; heat exchanger; primary: aluminized steel, secondary: 29-4C stainless steel; induced draft; pressure switches; redundant main gas control; blower compartment door safety switch; solid state time on/off blower control; limit controls; manual shut-off valve; 100% safety lock out; cool fan off delay; field selectable heat fan off delay; one hour automatic retry; self-test diagnostics; flame sense current diagnostics; electronic air cleaner connections; pressure regulator for natural and L.P. (propane) gases; transformer; direct drive, multi-speed blower motor. (Please note: a thermostat is not included as standard equipment.)

### **OPTIONAL EQUIPMENT**

(See Accessory Page)

NOTE: Furnace is not listed for use with fuels other than natural or L.P. (propane) gas.

All models can be converted by a qualified distributor or local service dealer to use L.P. (propane) gas without changing burners. Factory approved kits must be used to convert from natural to L.P. (propane) gas and may be ordered as optional accessories from a parts distributor.

For L.P. (propane) operation, refer to Conversion Kit Index Form.



#### BEFORE PURCHASING THIS APPLIANCE, READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR RETAILER.

### PHYSICAL DATA AND SPECIFICATIONS—UPFLOW MODELS **U.S. and Canadian Models**

MODEL NUMBERS RGRS/RGRT- SERIES	RGRS-04EMAES	RGRS-06EMAES	RGRT-07EMAES	RGRT-07EYBGS	RGRS-09EZAGS	RGRS-09EZAJS	RGRS-10EZAJS	RGRS-12ERAJS
Input-BTU/Hr [kW] ①	45,000 [13.19]	60,000 [17.58]	75,000 [21.98]	75,000 [21.98]	90,000 [26.37]	90,000 [26.37]	105,000 [30.77]	120,000 [35.17]
Heating Capacity BTU/Hr [kW]	42,000 [12.31]	56,000 [16.41]	70,000 [20.51]	70,000 [20.51]	84,000 [24.61]	84,000 [24.61]	97,000 [28.43]	113,000 [33.12]
High Altitude Input [kW] ②	40,500 [11.87]	54,000 [15.83]	67,500 [19.78]	67,500 [19.78]	81,000 [23.73]	81,000 [23.73]	94,500 [27.70]	108,000 [31.65]
High Altitude Output Capacity [kW] ②	37,800 [11.07]	50,400 [14.77]	63,000 [18.46]	63,000 [18.46]	76,000 [22.27]	76,000 [22.27]	87,500 [25.64]	100,000 [29.31]
Blower (D x W) [mm]	11 x 7 [279 x 178]	11 x 7 [279 x 178]	11 x 7 [279 x 178]	12 x 7 [305 x 178]	12 x 11 [305 x 279]	12 x 11 [305 x 279]	12 x 11 [305 x 279]	11 x 10 [279 x 254]
Motor H.P. [W] Speeds-Type	1/2 [373] 4-PSC	1/2 [373] 3-PSC	1/2 [373] 3-PSC	3/4 [559] 3-PSC	1/2 [373] 3-PSC	3/4 [559] 3-PSC	3/4 [559] 3-PSC	3/4 [559] 3-PSC
Motor Full Load Amps	6.8	6.8	6.8	9.5	8.0	9.5	9.5	9.5
Heating Speed	Med-Low	Low	Med	Low	Med	Low	Low	Low
Cooling Speed	High							
Heat Ext. Static Pressure (In. W.C.) [kPa]	.10 [.025]	.12 [.029]	.12 [.029]	.12 [.029]	.15 [.037]	.15 [.037]	.20 [.049]	.20 [.049]
Rated Ext. Static Pressure (In. W.C.) [kPa]	.50 [.12]	.50 [.12]	.50 [.12]	.50 [.12]	.50 [.12]	.50 [.12]	.50 [.12]	.50 [.12]
Heating C.F.M. @ .2" [.049 kPa] W.C. E.S.P. [L/s]	885 [417]	845 [398]	1050 [495]	1275 [600]	1465 [691]	1465 [691]	1445 [682]	1580 [745]
Cooling C.F.M. @ .5" [.124 kPa] W.C. E.S.P. [L/s]	1195 [564]	1100 [519]	1110 [524]	1540 [725]	1580 [746]	1910 [901]	1810 [854]	1900 [897]
Temperature Rise Range °F [°C]	30-60 [16.7-33.3]	40-70 [22.2-38.9]	45-75 [25-41.7]	40-70 [22.2-38.9]	35-65 [19.4-36.1]	35-65 [19.4-36.1]	50-80 [27.8-44.4]	50-80 [27.8-44.4]
Return Air Cabinets (Opt.) RXGR- Filter Size [mm]	C17B (2) 12" x 16" [305 x 406]	C17B (2) 12" x 16" [305 x 406]	C17B (2) 12" x 16" [305 x 406]	C21B (2) 12" x 20" [305 x 508]	C21B (2) 12" x 16" [305 x 406]	C21B (2) 12" x 16" [305 x 406]	C21B (2) 12" x 16" [305 x 406]	C24B (2) 24" x 16" [609 x 406]
Approx. Shipping Weight (Lbs.) [kg]	111 [50.3]	117 [53.1]	123 [55.8]	123 [55.8]	148 [67.1]	148 [67.1]	152 [68.9]	160 [72.6]
AFUE 3	93.5%	92.5%	92.8%	92.0%	93.5%	93.5%	92.0%	93.5%
California Seasonal Efficiency ③	84.68%	86.44%	87.16%	85.16%	85.96%	85.96%	86.93%	87.57%

NOTES: All models are 115V, 60HZ, 1Ø. Gas connection size for all models is 1/2" [13 mm] N.P.T. ① See Conversion Kit Index Form for high altitude derate.

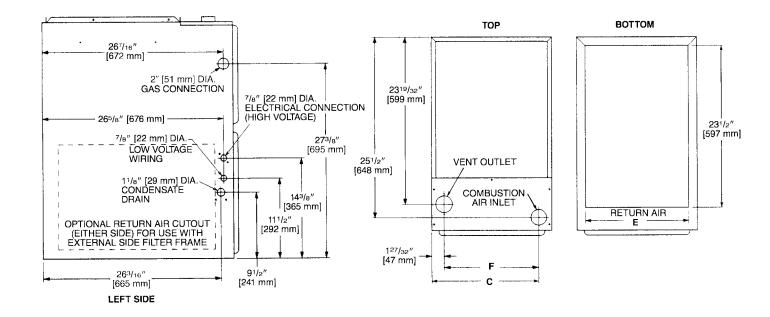
② Canadian installations only.③ In accordance with D.O.E. test procedures.

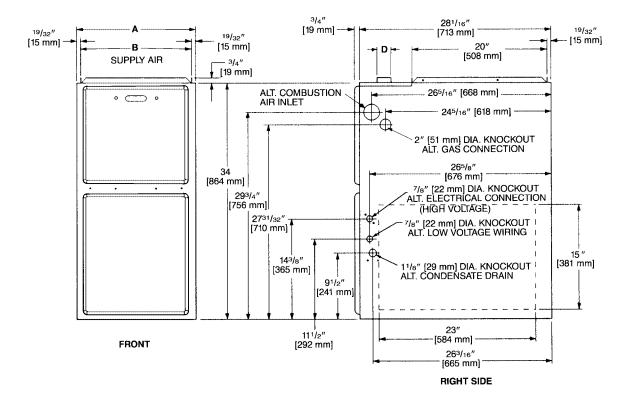
# **MODEL IDENTIFICATION**

<u>R</u>	<u>G</u>	<u>R</u>	<u>S</u>	— <u>(</u>	04E	Μ	<u>A</u>	E	<u>S</u>
R U U D	Gas Furnace	<b>R</b> = Upflow Condensing	Design Series <b>S</b> = 3rd Design Series <b>T</b> = 4th Design Series	Heating Inp Electric Ignition 04E 06E 07E 09E 10E 12E	but Designation <u>Input BTU/HR [kW]</u> 45,000 [13.1] 60,000 [17.6] 75,000 [21.9] 90,000 [26.4] 105,000 [30.7] 120,000 [35.2]	Blower Designation [mm] $M = 11 \times 7$ $[279 \times 178]$ $R = 11 \times 10$ $[279 \times 254]$ $Y = 12 \times 7$ $[305 \times 178]$ $Z = 12 \times 11$ $[305 \times 279]$	Variations A = Std. B = Wide Cabinet	Heating & Cooling Designation (Nominal) E = 1100-1300(3R) G = 1500-1700(4R) J = 1900-2100(5R)	Fuel Designation <b>S</b> = Natural Gas - CSA - United States & Canada (North American)

[ ] Designates Metric Conversions

## **UPFLOW MODELS**





MODEL							IEET	- LEFT MINIMUM CLEARANCE (IN.) [mm]					m]	SHIP
RGRS/RGRT-	A	В	C	D	E	F	SIDE	RIGHT SIDE	BACK	ТОР	FRONT	VENT	WGTS. [kg]	
04	17 <sup>1</sup> /2 [445]	16 <sup>11</sup> /32 [415]	15 <sup>5</sup> /8 [397]	2 [51]	15 [422]	13 <sup>25</sup> /32 [352]	0	0	0	1 [25]	2 [51]	0	111 [50]	
06	17 <sup>1</sup> /2 [445]	16 <sup>11</sup> /32 [415]	15 <sup>5</sup> /8 [397]	2 [51]	15 [422]	13 <sup>25</sup> /32 [352]	0	0	0	1 [25]	2 [51]	0	117 [53]	
07EM	17 <sup>1</sup> /2 [445]	16 <sup>11</sup> /32 [415]	155/8 [397]	2 [51]	15 [422]	13 <sup>25</sup> /32 [352]	0	0	0	1 [25]	2 [51]	0	123 [56]	
07EY	21 [533]	19 <sup>27</sup> /32 [504]	191/8 [487]	2 [51]	18 <sup>1</sup> /2 [511]	179/32 [441]	0	0	0	1 [25]	2 [51]	0	123 [56]	
09	21 [533]	19 <sup>27</sup> /32 [504]	191/8 [487]	2 [51]	18 <sup>1</sup> /2 [511]	179/32 [441]	0	0	0	1 [25]	2 [51]	0	148 [67]	
10	21 [533]	19 <sup>27</sup> /32 [504]	191/8 [487]	2 [51]	18 <sup>1</sup> /2 [511]	179/32 [441]	0	0	0	1 [25]	2 [51]	0	152 [69]	
12	241/2 [622]	2311/32 [593]	22 <sup>5</sup> /8 [575]	2 [51]	22 [600]	20 <sup>25</sup> /32 [530]	0	0	0	1 [25]	2 [51]	0	160 [73]	

## **BLOWER PERFORMANCE DATA—RGRS/RGRT-MODELS**

MODEL	BLOWER SIZE	MOTOR H.P. SPEED		CFM [L/s] AIR DELIVERY EXTERNAL STATIC PRESSURE INCHES WATER COLUMN [kPa]						
NOMBER	[mm]	[W]	SFLLD	0.1 [.02]	0.2 [.05]	0.3 [.07]	0.4 [.10]	0.5 [.12]	0.6 [.15]	0.7 [.17]
RGRS-04EMAES	11 x 7 [279 x 178]	1/2 [373]	LOW MED-LO MED-HI HIGH	805 [380] 920 [434] 1140 [538] 1360 [642]	780 [368] 885 [417] 1110 [524] 1320 [623]	760 [358] 850 [401] 1085 [512] 1280 [604]	720 [340] 810 [382] 1045 [493] 1235 [583]	685 [323] 775 [365] 1010 [476] 1195 [564]	645 [304] 730 [344] 950 [448] 1140 [538]	605 [285] 690 [325] 890 [420] 1080 [500]
RGRS-06EMAES	11 x 7 [279 x 178]	1/2 [373]	LOW MED HIGH	880 [415] 1060 [500] 1260 [594]	845 [398] 1025 [483] 1215 [573]	815 [384] 990 [467] 1175 [554]	790 [373] 960 [453] 1135 [535]	760 [358] 925 [436] 1100 [519]	715 [337] 880 [415] 1040 [491]	670 [316] 835 [394] 985 [465]
RGRT-07EMAES	11 x 7 [279 x 178]	1/2 [373]	LOW MED HIGH	880 [415] 1090 [514] 1300 [613]	850 [401] 1050 [495] 1255 [592]	825 [389] 1010 [477] 1210 [571]	785 [370] 970 [458] 1160 [547]	750 [354] 925 [436] 1110 [524]	702 [331] 875 [413] 1055 [498]	655 [309] 825 [389] 1005 [474]
RGRT-07EYBGS	12 x 7 [305 x 178]	3/4 [559]	LOW MED HIGH	1290 [609] 1480 [698] 1705 [805]	1275 [602] 1435 [677] 1665 [786]	1280 [696] 1415 [668] 1615 [762]	1220 [576] 1390 [656] 1570 [741]	1195 [564] 1370 [647] 1540 [727]	1170 [552] 1300 [614] 1475 [696]	1140 [538] 1255 [592] 1400 [661]
RGRS-09EZAGS	12 x 11 [305 x 279]	1/2 [373]	LOW MED HIGH	1235 [582] 1490 [703] 1720 [811]	1210 [571] 1465 [691] 1670 [788]	1180 [559] 1445 [679] 1620 [764]	1150 [543] 1405 [663] 1600 [755]	1120 [528] 1375 [649] 1580 [746]	1075 [507] 1315 [620] 1520 [717]	1035 [488] 1255 [592] 1460 [689]
RGRS-09EZAJS	12 x 11 [305 x 279]	3/4 [559]	LOW MED HIGH	1490 [703] 1720 [811] 2100 [991]	1465 [691] 1670 [788] 2050 [967]	1445 [679] 1620 [764] 2000 [944]	1405 [663] 1600 [755] 1955 [923]	1375 [649] 1580 [746] 1910 [901]	1315 [620] 1520 [717] 1825 [861]	1255 [592] 1460 [689] 1745 [823]
RGRS-10EZAJS	12 x 11 [305 x 279]	3/4 [559]	LOW MED HIGH	1490 [703] 1710 [807] 2010 [949]	1445 [682] 1665 [786] 1955 [923]	1405 [663] 1620 [764] 1900 [897]	1375 [649] 1580 [746] 1855 [875]	1350 [637] 1540 [727] 1810 [854]	1295 [611] 1475 [696] 1710 [807]	1240 [585] 1410 [665] 1610 [859]
RGRS-12ERAJS	11 x 10 [279 x 245]	3/4 [559]	LOW MED HIGH	1610 [760] 1870 [882] 2115 [998]	1580 [746] 1820 [860] 2050 [967]	1555 [734] 1775 [838] 1990 [939]	1515 [715] 1715 [809] 1945 [917]	1475 [696] 1660 [783] 1900 [897]	1415 [668] 1590 [750] 1795 [847]	1355 [639] 1520 [717] 1690 [795]

[ ] Designates Metric Conversions

# **GENERAL TERMS OF LIMITED WARRANTY**

Ruud will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

\*For Complete Details of the Limited Warranty, Including Applicable Terms and Conditions, See Your Local Installer or Contact the Manufacturer for a Copy. Primary and Secondary Heat Exchanger ... Twenty (20) Years Conditional Parts\* (Registration Required) ...... Ten (10) Years

# ACCESSORIES—UPFLOW

#### VENT TERMINATION KITS CONCENTRIC: HORIZONTAL/

VERTICAL =

RXGY-E03A (US & Canadian Installations)

**HORIZONTAL TWO PIPE:** RXGY-D02, RXGY-D03, RXGY-D04 (US Installations)

RXGY-D02A, RXGY-D03A, RXGY-D04A (Canadian Installations)

RXGY-G02 (US Only)

NEUTRALIZER KIT: RXGY-A01

FOSSIL FUEL KIT: RXPF-F01, RXPF-F02 (TVA)

RETURN AIR PLENUM: RXGR-C17B RXGR-C21B RXGR-C24B

EXTERNAL BOTTOM FILTER RACK: RXGF-CB EXTERNAL SIDE FILTER RACK: RXGF-CA

FILTEF	RACK FILTER SIZES* INC	HES [mm]
MODEL RGRS/RGRT-	RXGF-CB (BOTTOM)	RXGF-CA (SIDE)
04	15 <sup>3</sup> /4 x 25 [400 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
06	15 <sup>3</sup> /4 x 25 [400 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
07EE	15 <sup>3</sup> /4 x 25 [400 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
07EF	19 <sup>1/4</sup> x 25 [489 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
09	19 <sup>1</sup> /4 x 25 [489 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
10	19 <sup>1</sup> /4 x 25 [489 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]
12	22 <sup>3</sup> /4 x 25 [578 x 635]	15 <sup>3</sup> /4 x 25 [400 x 635]

\*Filter racks are shipped without filters.

Filters shipped with furnace may be used or a suitable 1" [25.4 mm] filter.

## PLENUM DATA FOR "A" COILS

Plenum adapters are required in some instances for use on upflow applications when plenum and furnace size do not match.

FURNACE WIDTH IN. [mm]	PLENUM WIDTH IN. [mm]	PLENUM ADAPTER UPFLOW	COIL Plenum
14 [356]	16 <sup>1</sup> /4 [413]	RXAA-C171	RXAL-B16BU
14 [356]	20 <sup>1</sup> /4 [514]	RXAA-C172	RXAL-B20BU
171/2 [445]	16 <sup>1</sup> /4 [413]	RXAA-C185	RXAL-B16BU
171/2 [445]	20 <sup>1</sup> /4 [514]	RXAA-C173	RXAL-B20BU
171/2 [445]	21 <sup>5</sup> /8 [549]	RXAA-C187	RXAL-B21BU
171/2 [445]	25 <sup>1</sup> /4 [641]	RXAA-C174	RXAL-B25BU
21 [533]	25 <sup>1</sup> /4 [641]	RXAA-C175	RXAL-B25BU
21 [533]	22 <sup>1</sup> /4 [565]	RXAA-C176	RXAL-B22BU
21 [533]	21 <sup>5</sup> /8 [549]	RXAA-C188	RXAL-B21BU
241/2 [622]	25 <sup>1</sup> /4 [641]	RXAA-C177	RXAL-B25BU
241/2 [622]	215/8 [549]	RXAA-C187	RXAL-B21BU

#### **INTERNAL FILTER RACK FOR BOTTOM**

**OR SIDE RETURN:** RXGF-DA\*

Each order contains (1) one box of 10 filter racks supplied without filters.

\*Filters available through PROSTOCK®.

### RXGP-F03

**TWINNING KIT**—is for use with Ruud Value Series 90 Gas Furnaces for parallel operation requirements.

WARNING: IMPORTANT NOTICE						
A SOLID METAL BASE PLATE (SEE TABLE) MUST BE IN PLACE WHEN THE FURNACE IS INSTALLED WITH SIDE OR REAR AIR RETURN DUCTS. FAILURE TO INSTALL A BASE PLATE COULD CAUSE PRODUCTS OF COMBUSTION TO BE CIRCULATED INTO THE LIVING SPACE AND CREATE POTENTIALLY HAZARDOUS CONDITIONS. SOLID BOTTOM IS AVAILABLE FACTORY INSTALLED WITH OPTION CODE <b>263</b> .						
FURNACE BASE BASE WIDTH SOLID BOTTOM BASE PLATE SIZE IN. [mm] KIT NO. PLATE NO. IN. [mm]						
17 <sup>1</sup> /2 [445] 21 [533] 24 <sup>1</sup> /2 [622]	RXGB-D17 RXGB-D21 RXGB-D24	AE-61874-02 AE-61874-03 AE-61874-04	15 <sup>1</sup> /8 x 23 <sup>9</sup> /16 [384 x 598] 18 <sup>5</sup> /8 x 23 <sup>9</sup> /16 [473 x 598] 25 <sup>5</sup> /8 x 23 <sup>9</sup> /16 [651 x 598]			

## FOR HIGH ALTITUDES:

\*HIGH ALTITUDE KIT: RXGY-F04 (105 KBTU/H) RXGY-F05 (120 KBTU/H) RXGY-F06 (45 KBTU/H/60 KBTU/H/90 KBTU/H) RXGY-F07 (75 KBTU/H)

\*For installations over 5000 ft.

OPTION CODE FOR HIGH ALTITUDE: US & Canada - 278

**NOTE:** High altitude kits and options do **NOT** include additional burner orifices. If a burner orifice change is necessary, they must be ordered through PROSTOCK<sup>®</sup>. See Installation Instructions for more information.

Option – 278 furnaces are shipped with #51 DMS orifices installed. This is one drill size smaller than standard furnaces to account for expected average elevations and heating values typically seen in these areas.

**CAUTION:** Always follow National Fuel Gas Code (NFGC) guidelines when converting for high altitudes.

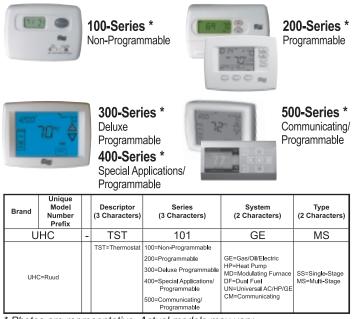
For all installations above 2000 ft. (including all option – 278 models), the burner orifice size needs to be recalculated and verified. A burner orifice change may still be required. See Installation Instructions for more information.

**NOTE:** For Canadian installations only, an optional derate (manifold gas pressure reduction) method may be used to adjust the furnace for altitude. See Installation Instructions for more information. This optional method may **NOT** be used for U.S. installations.

#### [ ] Designates Metric Conversions

# ACCESSORIES—UPFLOW (Cont.)

#### THERMOSTATS



\* Photos are representative. Actual models may vary. For detailed thermostat match-up information, see specification sheet form number T22-001.

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

**Ruud Heating**, **Cooling and** Water Heating



P.O. Box 17010, Fort Smith, AR 72917

"In keeping with its policy of continuous progress and product improvement, Ruud reserves the right to make changes without notice." PRINTED IN U.S.A. 10-09 DC

FORM NO. G22-497 REV. 4 Supersedes Form No. G22-497 Rev. 3