

Ranco Controls



RANCO



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Ice Machine Controls

A12 Series Direct Replacement Contact Cut-In Controls



One-for-one replacements for vending machines, automatic beverage dispensers, and reach-in coolers. Reliable off-cycle defrost. SPST switch with Off position.

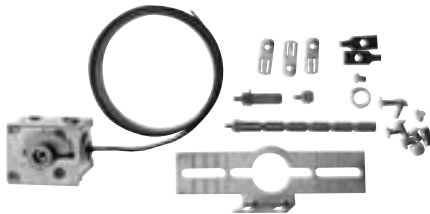
Electrical Rating

RATING	120V	208/240V
A.C. FULL LOAD AMPS	16	16
A.C. LOCKED ROTOR AMPS	80	80
PILOT DUTY (VA)	240	240

Ordering Data

ServiceFirst Item #	Mfg. #	NORMAL OFF (°F)	WARM OFF(°F)	COLD OFF (°F)	CUT-IN OFF(°F)	CAPILLARY LENGTH
CNT04796	A12-1506	15	22	9	38	39 X 3/8 X 1-3/8"
CNT04782	A12-700	18	26	11.5	37	84"
CNT04776	A12-701	23.5	31	15	41	84"
CNT04783	A12-1560	24	29	19	38	72"

A22/A30 Adaptable Replacement Constant Differential Controls



These compact controls are readily adaptable to nearly all commercial refrigerators and freezers. A wide selection of temperature ranges, differentials, and capillary lengths are available. Break-off shafts are included with installation instructions for easy, fast installation. Controls have "Off" position except as noted.

Electrical Rating

RATING	A22				A30		
	120V	240V	277V	24V	120V	240V	277V
AC FULL LOAD AMPS	20	20	16	-	20	20	16
AC LOCKED ROTOR AMPS	80	80	60	-	80	80	60
PILOT DUTY (VAC)	500	500	500	240	240	240	240
RESISTIVE LOADS AMPS	25	25	-	-	-	-	16

Ordering Data

ServiceFirst Item #	Mfg. #	SWITCH	DIFF.	NORMAL OFF (°F)	ON (°F)	WARM ON (°F)	COLD OFF (°F)	CAPILLARY LENGTH
CNT04801	A30-180	SPST	13	9	22	38	-4	42"
CNT04803	A30-260	SPST	6	16	22	30	.5	72"
CNT04780	A30-261	SPST	6	-	-	61	32	84"
CNT04794	A30-262	SPST	12	20	32	43	3	84"
CNT04804	A30-263	SPST	22.5	11	33.5	47	.5	84"
CNT04790	A30-301*	SPST	8.5	-3	5.5	20.5	-24	84"
CNT04806	A22-391*	SPDT	8	27	35	51	11	66"
CNT04798	A22-1112	SPST	5	34	39	44	25	72"

*Does not have "OFF" position** Non stock special order.

Ice Machine Controls

A30 Series Direct Replacement, Constant Differential And Constant Cut-in Controls



Direct replacement constant differential or constant cut-in cold controls. Used on commercial refrigerators, freezers, ice machines, vending machines, beverage coolers, and water coolers. Controls have SPST switching with "Off" position unless noted.

Electrical Rating

RATING	24V	120V	240V	277V
A.C. FULL LOAD AMPS	-	20	20	16
A.C. LOCKED ROTOR AMPS	-	80	80	60
PILOT DUTY (VA)	240	240	240	240
RESISTIVE LOADS AMPS	-	-	-	16

Ordering Data

ServiceFirst		TYPE OF ADJUST	DIFF	WARM		COLD		CAP	BULB
Item #	Mfg. #			OFF	ON	ON	OFF		
CNT04810	A30-2209	DIAL	8	36.5	44.5	46	35	48"	-
CNT04784	A30-2210	DIAL	8	32	40	42	30	48"	-

A22 Ice Bin Level Control Ice Harvest Control



Controls are designed as replacements for ice machine applications.

Electrical Rating

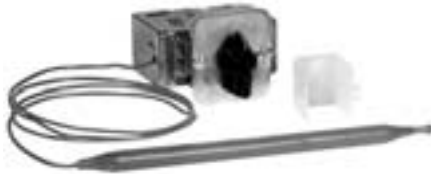
RATING	120V	240V	277V
FULL LOAD AMPS	20	20	16
LOCKED ROTOR AMPS	80	80	60
PILOT DUTY (VA)	500	500	500
RESISTIVE LOADS AMPS	25	25	—

Ordering Data

ServiceFirst		APPLICATION	RANGE (°F)	DIFFERENTIAL (°F)	SWITCH	SENSING ELEMENT
Item #	Mfg. #					
CNT04795	A22-1129	BIN LEVEL CONTROL	35 - 51	6	SPDT	48" CAPILLARY

Room Air Conditioner Controls

C12 Single Stage Control



This control replaces many OEM controls on single stage packaged terminal, room, and thru-the-wall heat/cool units.

Electrical Rating

RATING	125V	240V	277V
FULL LOAD AMPS	20	20	16
LOCKED			
ROTOR AMPS	80	80	60
PILOT DUTY (VA)	240	240	240
RESISTIVE LOADS AMPS	25	-	16

Ordering Data

ServiceFirst Item #	Mfg. #	SWITCH	TEMPERATURE RANGE (°F)	DIFFERENTIAL (°F)	SENSING ELEMENT
CNT04800	C12-5010	SPDT	60 TO 98	3	36" CAPILLARY WITH 3/8 X 9" BULB

C17-100 Two Stage Control



This control replaces many OEM controls on two-stage cooling and heat/cool units. The two SPDT switches are staged 3.5°F apart.

Electrical Rating

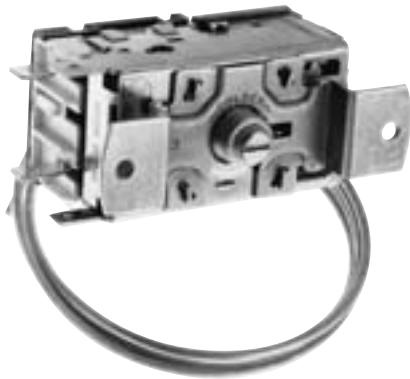
RATING	125V	240V	277V
FULL LOAD AMPS		20	20
LOCKED			
ROTOR AMPS	80	80	60
PILOT DUTY (VA)	240	240	240
RESISTIVE LOADS AMPS	-	-	16

Ordering Data

ServiceFirst Item #	Mfg. #	SWITCH	TEMPERATURE RANGE (°F)	DIFFERENTIAL (°F)	SENSING ELEMENT
CNT04809	C17-100	2 SPDT	71 TO 101 (COOLING) 64 TO 94 (HEATING)	3.5	26" CAP WITH 3/8 X 8-9/16" BULB

Water Cooler Controls

K-3000 Direct Replacement Water Cooler Controls



Two Ranco K-3000 Series Water Cooler controls will replace about 80% of your control needs for equipment from such makers as Ebco, Elkay, Sunroc, Halsey-Taylor, Kelvinator, and General Electric.

Features

- Small, compact design
- Laser-welded bellows for reliability
- Computer calibrated
- Patented switch for high performance
- Screwdriver adjustment

Electrical Rating

RATING	120V	208/240V
A.C. FULL LOAD AMPS	10	6
A.C. LOCKED ROTOR AMPS	40	36
PILOT DUTY (VA)	240	240
RESISTIVE LOADS AMPS	—	6

Ordering Data

ServiceFirst		DIFF. (°F)	NORMAL ON (°F)	NORMAL OFF (°F)	COLD OFF (°F)	WARM ON (°F)	CAPILLARY LENGTH
Item #	Mfg. #						
CNT04799	K-3001	7	53	46	37	61	48"

Pressure Controls

O Series Dual Function Pressure Controls



These controls offer a tailored variety of ranges and options for R12, R22, and R502 refrigerants. Low and high pressure functions are combined into a single control with one switch.

Features

- Exclusive “convertible” reset for manual or automatic high pressure reset on some models
- NEMA 1 enclosure with non-conductive cover
- Front-located captive cover screw
- Large, easy-to-read scale plate
- SUPER CAP® capillary protection system
- Universal mounting and compact design
- Color coded flare nuts

Electrical Rating

RATING	O12 - SPST			
	24V	120V	240V	241-600V
FULL LOAD AMPS	-	24	24	-
LOCKED ROTOR AMPS	-	144	144	-
PILOT DUTY (VA)	144	720	720	125

Ordering Data

ServiceFirst Item #	Mfg. #	LOW PRESSURE (OPENS LOW)			HIGH PRESSURE (OPENS HIGH)			CAPILLARY	REPLACES		
		RESET AUTO	RESET MAN.	DIFFERENTIAL RANGE PSI	RESET AUTO	RESET MAN.	DIFFERENTIAL RANGE PSI			DIFFERENTIAL PSI	LENGTH
CNT04808	O12-4833	•		12" TO 50	5 TO 35	•	•	150 TO 450	70-FIXED	48"†	HONEYWELL: P421B, JOHNSON: P70LA-50, P70LA-81, P70LB-6, P70LN-8, P70LN-9, P70MA-48, P70MN-2
CNT04792	O12-1549	•		10" TP 100	10 TO 40	•		150 TO 450	70-FIXED	36"†	HONEYWELL: 107555, JOHNSON: P70LA-1, P70LA-14, P70LA-20, P70LA-24, P70LA-28, P70LB-1, P70LB-19
CNT04793	O12-4834	•		10" TP 100	10 TO 40	•	•	150 TO 450	70-FIXED	48"†	HONEYWELL: 107555, 107556, 110198, JOHNSON: P70LA-1, P70LB-1, P70MA-1

* 1/4" SAE male flare † 1/4" SAE flare nut ** 36" refrigerant hose

Pressure Controls

O Series Single Function High Pressure Controls



These controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

Features

- NEMA 1 enclosure with non-conductive cover
- Front-located captive cover screw
- Large, easy-to-read scale plate
- SUPER CAP® capillary protection system
- Universal mounting and compact design
- Screw terminals are raised and fully accessible for easy wiring
- Laser-welded bellows for extended life
- Heavy-duty plated steel frame
- Suitable for R12, R22, and R502 applications

Ordering Data

ServiceFirst Item #	Mfg. #	RESET		RANGE PSI	DIFFERENTIAL PSI	SWITCH	PRESSURE CONNECTION	CAP. LENGTH	REPLACES
		AUTO	MANUAL						
O10 SERIES – HIGH PRESSURE CONTROLS									
CNT04778	O10-2054	•		100 TO 400	40 TO 150	SPST- OPENS LOW	†	36"	JOHNSON: P70AA-144, P70AA-143, P70AC-1, P70AC-8, P70AA-158, 2P6 P70AA-91, P70AA-68, P70AA-78
O16 SERIES – HIGH PRESSURE CONTROLS									
CNT04785	O16-108	•		100 TO 400	40 TO 150	SPDT	†	36"	JOHNSON: P70CA-17, P70CA-46, P70CA-50, P70CA-76, P70CA-77, P70EA-6
CNT04812	O16-200		•		40	SPDT	†	48"	HONEYWELL: P422B, JOHNSON: P70DA-1

† 1/4" SAE flare nut

Pressure Controls

O Series Single Function Low Pressure Controls



These controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

Features

- NEMA 1 enclosure with non-conductive cover
- Front-located captive cover screw
- Large, easy-to-read scale plate
- SUPER CAP® capillary protection system
- Universal mounting and compact design
- Screw terminals are raised and fully accessible for easy wiring
- Laser-welded bellows for extended life
- Heavy-duty plated steel frame

Electrical Rating

	O10 / O11 - SPST				O16 - SPDT			
	24V	120V	240V	241-600V	24V	120V	240V	241-600V
RATING VOLTAGE	24V	120V	240V	241-600	24V	120V	240V	241-600
FULL LOAD AMPS		24	24			17	17	
LOCKED ROTOR AMPS		144	144			102	102	
PILOT DUTY (VA)	144	720	720	125	144	720	720	125

Ordering Data

ServiceFirst Item #	Mfg. #	RESET		RANGE PSI	DIFFERENTIAL PSI	SWITCH	PRESSURE CONNECTION	CAP. LENGTH	REPLACES
		AUTO	MANUAL						
O10 SERIES – LOW PRESSURE CONTROLS									
CNT04779	O10-1402	•		12" TO 50	5 TO 35		*		HONEYWELL: P420B, JOHNSON: 970AB-29, P70AA-123, P70AC-9, P70AB-12, P70AB-40, P70AA-47, P70AB-44
CNT04781	O10-1483	•		10" TO 100	10 TO 40	SPST-OPENS LOW	†	36"	JOHNSON: P70AA-25 4P5 P70AB-2, P70AA-114, P70AA-130, 2P7 1260P3, P70AB16, P70AB-21 2P1
O16 SERIES – LOW PRESSURE CONTROLS									
CNT04802	O16-527	•			10 TO 40		†	36"	JOHNSON: P70AB-2
* 1/4" SAE male flare		† 1/4" SAE flare nut							

Temperature Controls

O Series Custom and Wide Range Temperature Controls



Recognizing the need for flexibility in design of refrigeration equipment, these controls offer a wide selection for such products as self-contained refrigerators, freezers, coolers, walk-in units, and refrigeration display cases.

Specifications

- Maximum adjustment accuracy with 7 revolution range adjustment screws
- NEMA 1 enclosure with non-conductive cover
- Front-located captive cover screw
- Large easy-to-read scale plate
- Universal mounting and compact design
- Laser-welded bellows for extended life

Electrical Rating

RATING	O10 / O11			
	24V	120V	240V	241-600V
FULL LOAD AMPS	-	24	24	-
LOCKED ROTOR AMPS	-	144	144	-
PILOT DUTY (VA)	144	720	720	125
RESISTIVE LOADS AMPS	-	-	-	-

010 Series Temperature Controls

Ordering Data

ServiceFirst Item #	Mfg. #	RANGE (°F)	DIFFERENTIAL (°F)	SWITCH	CAPILLARY LENGTH	COMMENTS
LOW						
CNT04811	O10-1408	-15 to 40	3 to 20		72" W / REMOTE BULB	DIFFERENTIAL AT LOW END OF RANGE IS 6 TO 25
MEDIUM						
CNT04807	O10-1416	0 to 55	3 to 20	SPST-	72"	DIFFERENTIAL AT LOW END OF RANGE IS 6 TO 25
CNT04805	O10-1418	0 to 55	3 to 20	OPENS	AIR COIL	
CNT04791	O10-1409	0 to 55	3 to 20	LOW	72" W / REMOTE BULB	

ETC Commercial Temperature Controls

ETC Commercial Temperature Controls



The Ranco ETC is a microprocessor-based family of temperature controls designed to provide on/off control for commercial heating, cooling, air conditioning and refrigeration applications. With its wide temperature range, one and two stage capability, selectable heating/cooling modes and multi-voltage input, the ETC is one of the most versatile temperature controls available.

Digital Display

Unlike many electronic controls, the ETC is simple to install and set up. One finger is all you need to program it. The standard digital display and keypad allow the user to adjust the temperature settings with 1° resolution. Setpoint temperature, differential and mode of operation (heating or cooling) can all be selected using the keypad and display.

When not in the programming mode, the display gives a constant readout of the sensor temperature. Annunciators on the liquid crystal display also indicate when the relay is energized.

Choice of One or Two Stage Models

The ETC line includes both one and two stage models. On two stage controls, each stage can be set independently thus eliminating the bothersome task of calculating interstage temperatures. And two stage models can be set up with overlapping heating or cooling stages.

Specifications

Temperature setpoint range	-30° to 220°F
Differential range	1°F to 30°F
Input power requirements	120 or 208/240 VAC (24 VAC optional)
Sensor	Thermistor, 2" long x 1/4" dia. with 8' cable
Control Ambient Temperatures	
Operating	-20°F to 140°F
Storage	-40°F to 176°F
Ambient humidity	0 to 95% RH, non-condensing
Enclosure	NEMA 1, plastic (NEMA 4X optional)
Dimensions	NEMA 1 models, 6.52" high x 2.7" wide x 2.48" deep NEMA 4X models, 7.84" high x 2.7" wide x 2.48" deep
0 to 10 V output impedance	1 K ohms
Agency Approvals	UL listed, file E94419, Guide XAPX CSA certified, file LR68340. class 4813 02
Switch action	SPDT

RELAY OUTPUT RATINGS - NO (NC):	ONE STAGE		TWO STAGE	
	120V	208/240V	120V	208/240V
Full load amps	16 (5.8) A	8 (2.9) A	9.8 (5.8) A	4.0 (2.9) A
Locked rotor amps	96 (34.8) A	48 (17.4) A	58.8 (34.8) A	29.4 (17.4) A
Resistive amps	15 (5.8) A	8 (2.9) A	9.8 (5.8) A	4.9 (2.9) A
Horsepower	1 (1/4) HP	1 (1/4) HP	1/2 (1/4) HP	1/2 (1/4) HP
Pilot duty	125VA at 120/208/240 VAC			

Ordering Data

ServiceFirst Item #	Mfg. #	NUMBER OF STAGES	ENCLOSURE	INPUT VOLTAGE	0 TO 10 VOLT OUTPUT
CNT04777	ETC-111000	ONE	NEMA 1	120/208/240 VAC	NO
CNT04797	ETC-112000			24 VAC	NO

Heat Pump Controls

E15 Series Timer-initiated Heat Pump De-ice Controls



Provides field-adjustable timer control for de-icing of heat pump outdoor coils. Interlock prevents more than one defrost cycle per time period and temperature must be 28°F or lower, to start.

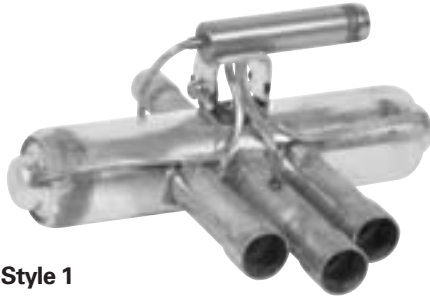
Electrical Rating

RATING	Use These Ratings When Connected SPDT				Use These Ratings When Connected SPST			
	24V	120V	240V	277V	24V	120V	240V	277V
FULL LOAD AMPS	-	10	10	10	-	20	20	10
LOCKED ROTOR AMPS	-	40	40	40	-	80	80	40
PILOT DUTY (VA)	240	240	240	240	240	240	240	240
RESISTIVE LOADS AMPS	-	25	25	16	-	25	25	16

Ordering Data

ServiceFirst Item #	Mfg. #	VOLTAGE	SWITCH	INITIATION TIMING	TERMINATION TEMP (°F)	SENSING ELEMENT
CNT04814	E15-2601	240	SPDT	FIELD SELECTABLE: 30, 45, OR 90 MINUTES	ADJUSTABLE - 55 TO 78	60" CAPILLARY W/ 5/16" X 5-1/16" BULB

Heat Pump Reversing Valves



Style 1

These solenoid operated Reversing Valves are slide type, 4-way with a 4-way pilot valve and operate under the full pressure of the heat pump system. The valves are used on unitary, split system, and window-type heat pump applications. There are six different styles designed to meet your particular system need.

4-Way Reversing Valves

ServiceFirst Item #	Mfg. #	Capacity (Tons)		Style#	Tube Size (I.D.)		Old Valve Number
		R22	R410A		Suction	High Pressure	
VAL08662	V2-408060-270	.75 to 2.0	.9 to 2.2	2	1/2"	3/8"	V2-100
VAL08661	V6-412080-170	1.0 to 5.5	1.3 to 6.7	1	3/4"	1/2"	V6-2101
VAL08660	V6-414080-170	1.0 to 5.5	1.3 to 6.7	1	7/8"	1/2"	V6-2103



Style 2

Solenoid Coils

ServiceFirst Item #	Mfg. #	Voltage (VAC)	Color Code	Watts	
				50 Hz	60 Hz
COL12849	LDK-110000-000	24	Red	5	4
COL13366	LDK-310000-000	120	Black	5	4
COL12814	LDK-410000-000	208/240	Green	5	4
COL12815	LDK-510000-000	277	Blue	5	4

Choosing The Correct Solenoid Coil

RANCO offers Type LDK solenoid coils for use with the V1-4/V2-4/V3-4/ V6-4/ V10-4/V12-4 RANCO Heat Pump Reversing Valves. These color coded epoxy encapsulated, continuous duty, moisture resistant magnetic coils are designed to operate the pilot valve controlling the Reversing Valves listed above. Included with the solenoid coil is a W29 wiring harness with 48" leads.

WARNING

RANCO'S Vxx-4 series reversing valves can be used to replace the older version valves as indicated in the far right column of the above chart. Solenoid coils are not interchangeable. LDK series coils must be used with the Vxx-4 series reversing valves and the L30 series coils used with the previous version valves listed above.

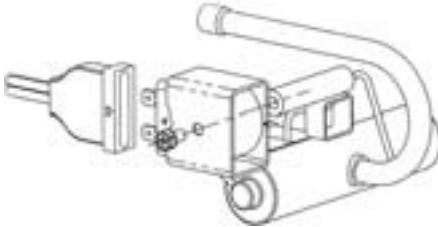
Ranco Reversing Valve Operating Specification

Min. ▲ P to Reverse	15 psi
Max. ▲ P to Reverse	440 psi
Max. Pressure	680 psi
Min. Burst Pressure	2500 psi
Max. Operating Temperature	250°F
Min. Life Cycles	135,000
Min. Operating Voltage	85% of Rated Volts
Max. Operating Voltage	110% of Rated Volts
Max. Leakage to Suction:	
V1-4/V2-4/V3-4	2,000 cc/min.
V6-4	4,000
V10-4	6,000
V12-4	15,000

Note: Dry Air at 150 psi, Valve at 160°F. Air at 70°F.

LDK Solenoid Coils for Heat Pump Reversing Valves

LDK Series Solenoid Coils



Wiring Harness LDK Plug: Align arrow on plug with arrow on coil and push on until terminals on coil are fully engaged.

Application

Type LDK solenoid coils are designed for use with V1-4/V2-4/V3-4/V6-4/V10-4/V12-4 RANCO Heat Pump Reversing Valves.

Features

- Encapsulated and color coded by voltage.
- Moisture resistant magnetic coil is fungus proof.
- Class A rating, suitable for operation at 10% over and 15% under rated voltage.
- Connection - Quick connect W29 wiring harness.
- Designed for low wattage - efficient operation at hot summer and cold winter ambients.

Description

Type LDK solenoid coils are encapsulated, continuous duty, moisture resistant magnetic coils designed to operate the pilot valve controlling the reversing valve. The LDK is rated UL Thermal Class "A" (105).

Operation

The LDK is designed for 50/60 hertz operational at 15% underrated voltage as well as 10% over rated voltage for short periods.

Installation

Place the LDK coil over solenoid tube of pilot valve. Install the coil mounting screw and tighten to a minimum torque of 22.4 inch-pounds and a maximum torque of 33.9 inch-pounds.

Wiring Harness LDK Plug - align arrow on plug with arrow on coil and push on until terminals on coil are fully engaged. Connect wiring harness to equipment wiring using wiring nuts and/or splice connectors.

CAUTION

To prevent possible electrical shock or equipment damage, disconnect electrical power to unit before and during installation. DO NOT restore electrical power to unit until the device is properly installed.

CAUTION

LDK series coils must only be used with Vxx-4 series reversing valves. For earlier V series valves, use the L30 series coils only (page 17).

Solenoid Coils

ServiceFirst Item #	Mfg. #	Voltage (VAC)	Color Code	Watts	
				50 Hz	60 Hz
COL12849	LDK-110000-070	24	Red	5	4
COL13366	LDK-310000-070	120	Black	5	4
COL12814	LDK-410000-070	208/240	Green	5	4
COL12815	LDK-510000-070	277	Blue	5	4

L30 Solenoid Coils for Heat Pump Reversing Valves

L30 Series Solenoid Coils



Type L30 solenoid coils are used with the V1/V2/V3/V6/V10 Ranco heat pump reversing valves. These color coded epoxy encapsulated, continuous duty, moisture resistant magnetic coils are designed to operate the pilot valve controlling the reversing valves listed above. Included with the solenoid coil is a W29 wiring harness with 48" leads.

Ordering Data

ServiceFirst Item #	Mfg. #	VOLTAGE (VAC)	COLOR CODE	WATTS	
				50 Hz	60 Hz
CNT04786	L30-0024	24	RED	6	4
CNT04813	L30-0240	208/240	GREEN	6	4
CNT04815	L30-0277	277	BLUE	6	4



Literature Order Number	RSP-PRC035-EN
Filing Hierarchy	Service Products/Refrigeration Components
Date	January 2006
Supersedes	New
Stocking Location	Print on Demand

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.