

UNI-LINE®

PRODUCT CATALOG



Robertshaw

ARANCO®

PARAGON®

UNI-LINE®

**The brands you
trust delivering
comprehensive
solutions.**



Robertshaw®

Easy and efficient

Robertshaw® Heating Controls are Simply the Right Choice™. Robertshaw Heating products offer kitted solutions and universal features that enable a single product to replace hundreds.



RANCO®

Solutions-driven innovation

Ranco® Controls have been an industry standard for 100 years with a full line of refrigeration products. Our quality and features make Ranco an easy choice, with universal controls to reduce inventory and features like the Super Cap® to reduce breakage and costly callbacks.



PARAGON®

Increased versatility

Paragon® Defrost Controls lead the pack in versatility with the only multi-voltage timer engineered to refrigeration standards. At four defrosts a day, the Paragon Universal Defrost Timer is rated to last 16 years longer than competitive offerings.

COOKING

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REFRIGERATION - *continued*

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WALL THERMOSTATS

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Selecting the table setting is as important as the cooking controls used to deliver uncompromising excellence.

The Robertshaw® electromechanical and electronic controls offer reliability and custom solutions for setting, controlling and monitoring temperatures in commercial cooking applications.

Electric Infinite Switches	A2
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Gas Valves.....	A20
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COOKING





Robertshaw®



Scan for all models, literature and cross reference

ELECTRIC INFINITE SWITCHES



5500-134

5500 Series

The Robertshaw® 5500 Series Infinite Switch is a rotary switch which controls the power dissipated by a heating element. It is used on electric ranges, hot plates, warming drawers and zones, barbecue grills, space heaters, quartz heaters and many applications which call for proportionate control of a resistive load.

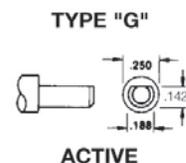
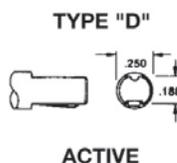
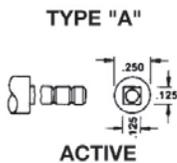
Features and Benefits

- Small compact design
- Clockwise or counterclockwise rotation
- Variety of shaft lengths and configurations
- Screw mount or bushing mount
- Push-To-Turn (PTT) or Non-Push-To-Turn (Non-PTT)

Specifications

Part Numbers	Description	% Input at Low	Dial	Dial Shaft Type	Dial Shaft Length	Mounting Type	Voltage	Electrical Rating
5500-134	Commercial Uni-Kit®	5%	Black	D	2-1/8"	Universal	120V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-135	Commercial Uni-Kit	5%	White	D	2-1/8"	Universal	120V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-200	Infinite Controls Uni-Kit Push-To-Turn	5%	None	A	2" Break-Off	Universal	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-202	Infinite Controls Uni-Kit	5%	None	A	2" Break-Off	Universal	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-212	G.E./Hotpoint Uni-Kit	5%	None	G	2" Break-Off	Universal	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-234	Commercial Uni-Kit	5%	Black	D	2-1/8"	Universal	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-235	Commercial Uni-Kit	5%	White	D	2-1/8"	Universal	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)
5500-287	Whirlpool Uni-Kit Push-To-Turn	5%	None	D	1-3/8", 7/8" & 11/16" Break-Offs	4 Position Screw	240V AC	100 Watts to 3600 Watts at 240V AC, 15 Amps max @ 210°F (100°C)

Product Dimensions - Dimensions are in inches.

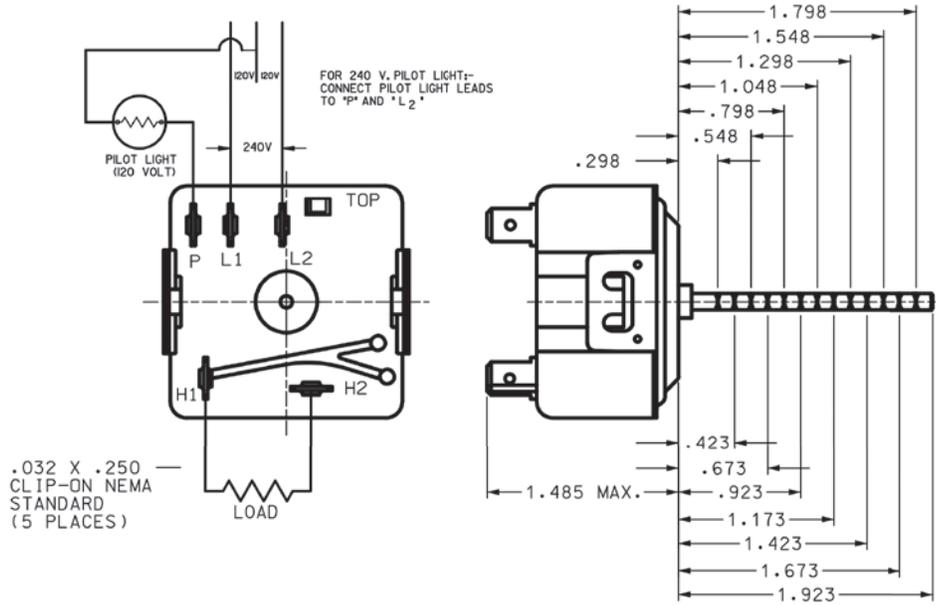




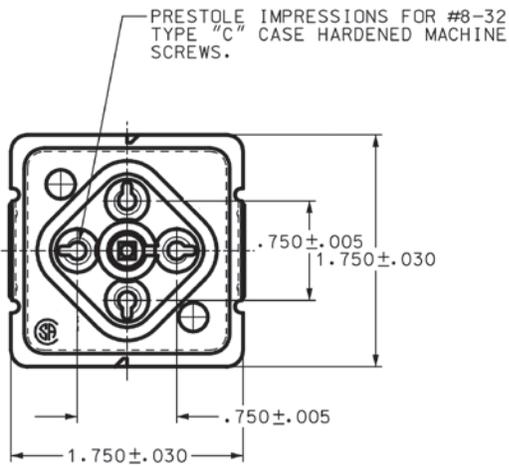
Robertshaw[®]

Product Drawings

Product Dimensions - Dimensions are in inches.



.032 X .250
CLIP-ON NEMA
STANDARD
(5 PLACES)





COOKING

Robertshaw®



Scan for all models, literature and cross reference



5300-614



5300-401

ELECTRIC THERMOSTATS

5300 Series

The Robertshaw® 5300 Series Electric Thermostat is a snap-acting, single pole single throw (SPST) type thermostat. Most thermostats use silver contacts and have heavy-duty terminals for durability and sustained accuracy. The snap-action mechanism is precise and reliable. This direct acting series of thermostats is suitable for the commercial cooking industry.

Features and Benefits

- KN models are NAK filled diastats with temperature ranges up to 975°F (524°C)
- Rugged and compact design for versatility and long life
- Bulb and capillary available in copper, nickel plated copper and stainless steel (most models)
- Plastic coating available for protection against moisture, dust, etc. (most models)
- Dials of heat resistant plastic available
- RX millivolt models with hermetically sealed reed switch
- Stem flat in down position
- Ambient temperature 200°F (93°C)

Specifications

Part Numbers	Description	Temperature Range	Capillary Length	Bulb Size	Stem Length	Mounting Bracket	Dial Type	Mechanical Differential	Stuffing Box	Electrical Rating
5300-146	SJ Pilot Duty Model with Auxiliary Switch	100°F to 450°F	36"	3/16" x 11-1/8" Nickel	13/16"	#1, 1-3/4"	4-Way	12°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-175	S Model	100°F to 325°F	36"	3/16" x 11-3/4" Nickel	13/16"	#1, 1-3/4"	NA	12°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-219	SP Model	60°F to 240°F	36"	1/4" x 6-7/16" Copper	3/8"	#1, 1-3/4"	NA	8°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-401	RX Millivolt Model with Hermetically Sealed Reed Switch	200°F to 400°F	36"	3/8" x 5-5/8" Nickel	13/16"	#1, 1-3/4"	4-Way	8°F	1/4" Nickel	0.67 Amp @ 5V DC





Robertshaw
®

Specifications - continued

Part Numbers	Description	Temperature Range	Capillary Length	Bulb Size	Stem Length	Mounting Bracket	Dial Type	Mechanical Differential	Stuffing Box	Electrical Rating
5300-406	RX Millivolt Model with Hermetically Sealed Reed Switch	200°F to 375°F	36"	3/8" x 5-5/8" Nickel	13/16"	#1, 1-3/4"	4-Way	8°F	3/8" Nickel	0.67 Amp @ 5V DC
5300-502	KNP Model with 1-10 Dial (Wide)	250°F to 960°F	36"	5/32" x 8-3/4" Stainless Steel	1"	#5, 1-1/4"	4-Way	25°F	NA	27 Amp @ 208V AC 25 Amp @ 240V AC 22.5 Amp @ 277V AC 20 Amp @ 480V AC 125 VA Pilot Duty at 120/277 Volts
5300-612	SP Model Uni-Kit®	60°F to 250°F	60"	1/4" x 9-1/4" Copper	2" Kit	#6, Kit	4-Way	8°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-614	SP Model Uni-Kit	60°F to 250°F	60"	3/8" x 4-1/2" Nickel	2" Kit	#6, Kit	4-Way	8°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-618	SP Model Uni-Kit	100°F to 450°F	60"	3/16" x 11-1/8" Nickel	2" Kit	#6, Kit	4-Way	12°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-641	SP Model Uni-Kit	200°F to 400°F	36"	5/16" x 7-1/2" Nickel	2" Kit	#6, Kit	4-Way	8°F	3/8" Nickel	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-651	SP Model Uni-Kit	175°F to 550°F	60"	3/16" x 11-5/8" Nickel	2" Kit	#6, Kit	4-Way	12°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-671	SP Model Uni-Kit	300°F to 700°F	60"	3/16" x 12-1/4" Nickel	2" Kit	#6, Kit	4-Way	12°F	NA	30 Amp @ 277V AC 20 Amp @ 480V AC 18 FLA, 72 LRA @ 250V AC 125 VA Pilot Duty at 120/277 Volts
5300-711*	KX Pilot Duty Model Dip Sealed	200°F to 400°F	36"	3/8" x 5-5/8" Nickel	13/16"	#1, 1-3/4"	4-Way	8°F	1/4" Nickel	50 VA Pilot Duty at 120 / 277 Volts
5300-735	KXP Pilot Duty Model Uni-Kit	175°F to 550°F	60"	3/16" x 11-5/8" Nickel	2" Kit	#6, Kit	4-Way	12°F	NA	50 VA Pilot Duty at 120 / 277 Volts
5300-766	KX Pilot Duty Model	200°F to 400°F	24"	5/16" x 5-5/8" Stainless Steel	13/16"	#1, 1-3/4"	4-Way	8°F	3/8" Nickel	50 VA Pilot Duty at 120 / 277 Volts

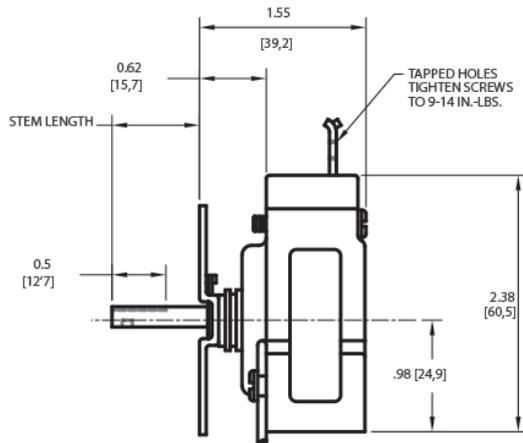
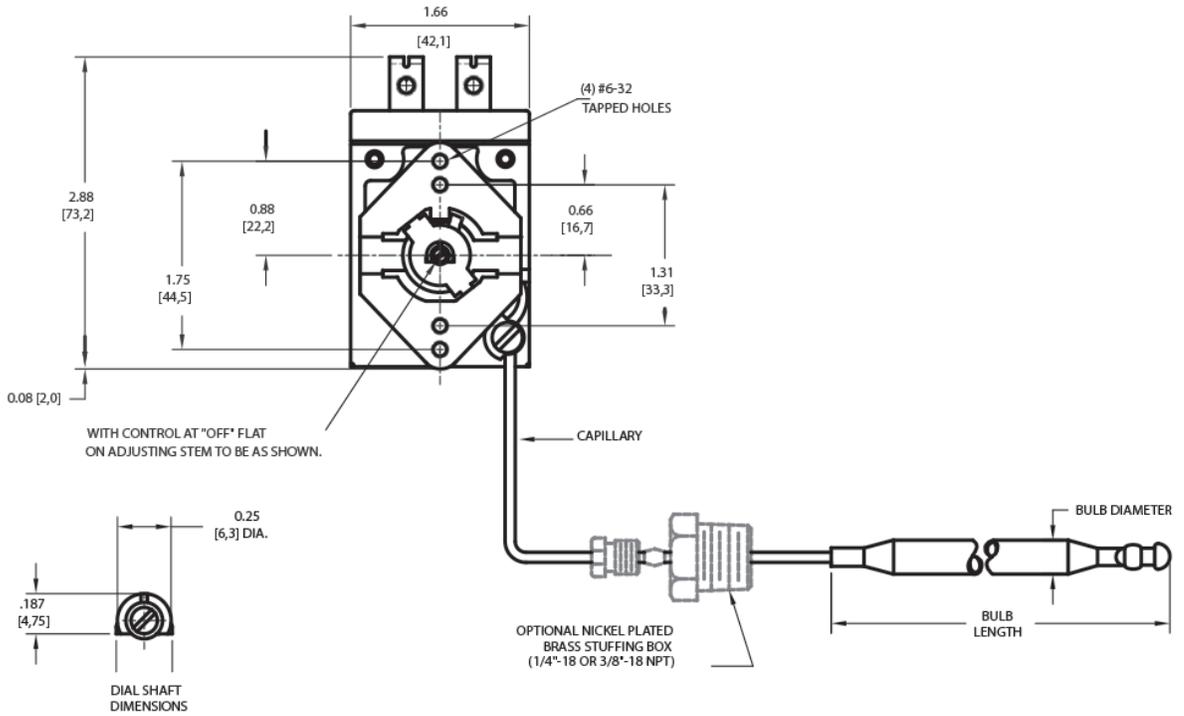
*International export models





Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].





ELECTRIC THERMOSTATS - LIMIT CONTROLS

5225 Series

The Robertshaw® 5225 Series Limit Control is designed for any appliance where temperature protection is needed. All 5225 Series controls are non-adjustable, factory calibrated, and feature negative biased power element diaphragms. The 5225 Series is a proven safety control for commercial and specialty applications. They are available in automatic or manual reset versions with temperature settings from 425°F to 600°F (218°C to 316°C).

Features and Benefits

- Bulb and capillary assemblies available in nickel plated copper
- Available in manual reset or automatic operation
- Control function is designed to interrupt power in the appliance circuit at the calibrated temperature



5225-112

Robertshaw[®]



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Fixed Temperature	Capillary Length	Bulb Size	Mounting Bracket	Stuffing Box
5225-009	LCH Manual Reset Limit Control	450°F	30"	5/16" x 3-5/8" Nickel	#1	NA
5225-010	LCC Automatic Reset Limit Control	450°F	60"	3/16" x 4-7/8" Nickel	#1	3/8"
5225-047	LCH Manual Reset Limit Control	450°F	24"	3/16" x 7-5/8" Nickel	#1	3/8"
5225-054	LCH Manual Reset Limit Control	440°F	30"	1/4" x 4-7/8" Nickel	#7	Panel Nut
5225-112	LCH Manual Reset Limit Control	450°F	30"	1/4" x 4-7/8" Nickel	#3	1/4"

Model	Description	UL Rating	CSA Rating	European
LCH	SPST - Break on Temperature Rise Manual Reset. Type M2*	30 A, 250 V AC @ 125-480 V AC 35 VA PD @ 24 V, 60 Hz	30 A @ 125-480 V AC	30 A @ 480 V AC
LCC	SPDT - Make and / or Break on Temperature Rise. Automatic Reset	25 A, 250 VA @ 125-480 V, 60 Hz 35 A @ 24 V AC	25 A, 250 V AC @ 125-480 V AC 35 VA PD @ 24 V, 60 Hz	25 A @ 480 V AC

*M2 switch - trip free - will not recycle if reset button is depressed



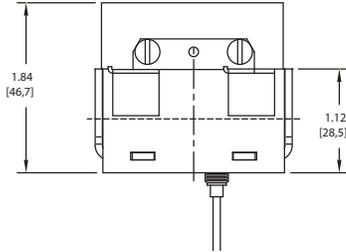


Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

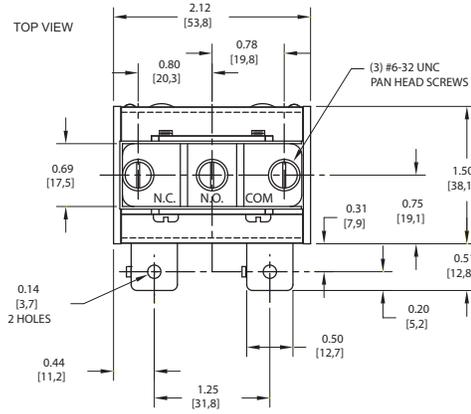
MODEL LCC

FRONT VIEW

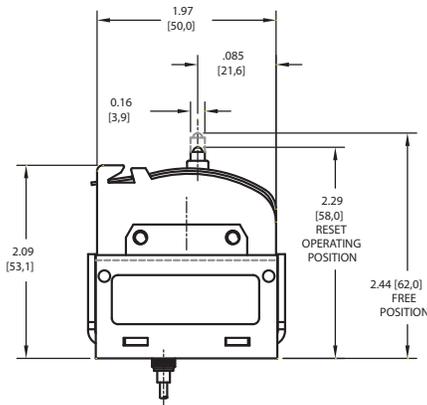


MODEL LCC

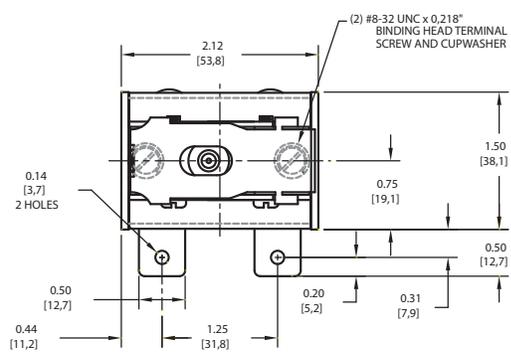
TOP VIEW



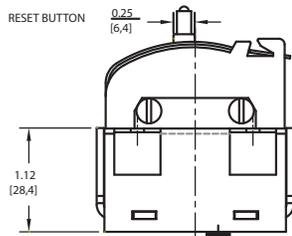
MODEL LCH



MODEL LCH



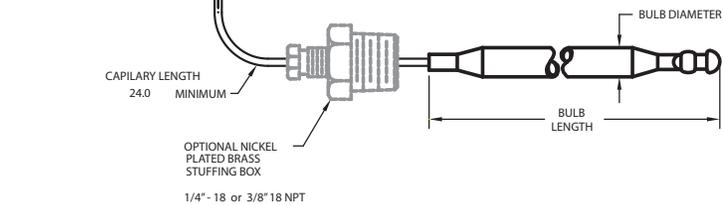
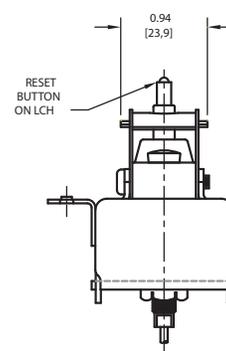
MODEL LCH



Panel Nut



MODEL LCH

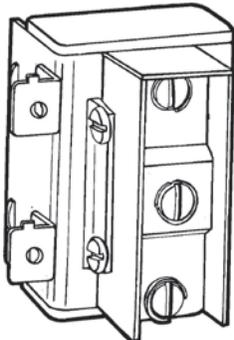




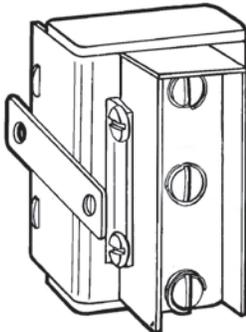
Product Drawings

Mounting Bracket Types

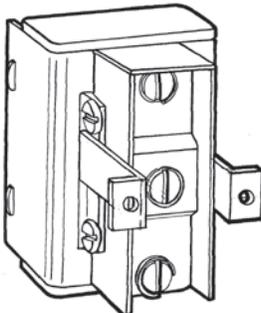
Type #1



Type #3



Type #7



Robertshaw[®]

1 Year
Limited
Warranty





Robertshaw®



Scan for all models, literature and cross reference



5210-125

ELECTRIC THERMOSTATS

5210 Series

The Robertshaw® 5210 Series Electric Thermostat is a direct acting, single pole, slow make and break type thermostat. Typical applications are for incubators, laboratory ovens, water baths, sterilizers, dishwashers, steam tables, scalding tanks and other equipment where a close temperature differential is required.

Features and Benefits

- Temperature ranges to 550°F (288°C)
- Single pole, slow make and break design
- Very sensitive to temperature change
- Small temperature differential between make and break
- Fine silver contacts to assure consistent switch action and long life
- Rugged and compact design for versatility of application
- Bulb and capillary available in copper or nickel plated copper

Specifications

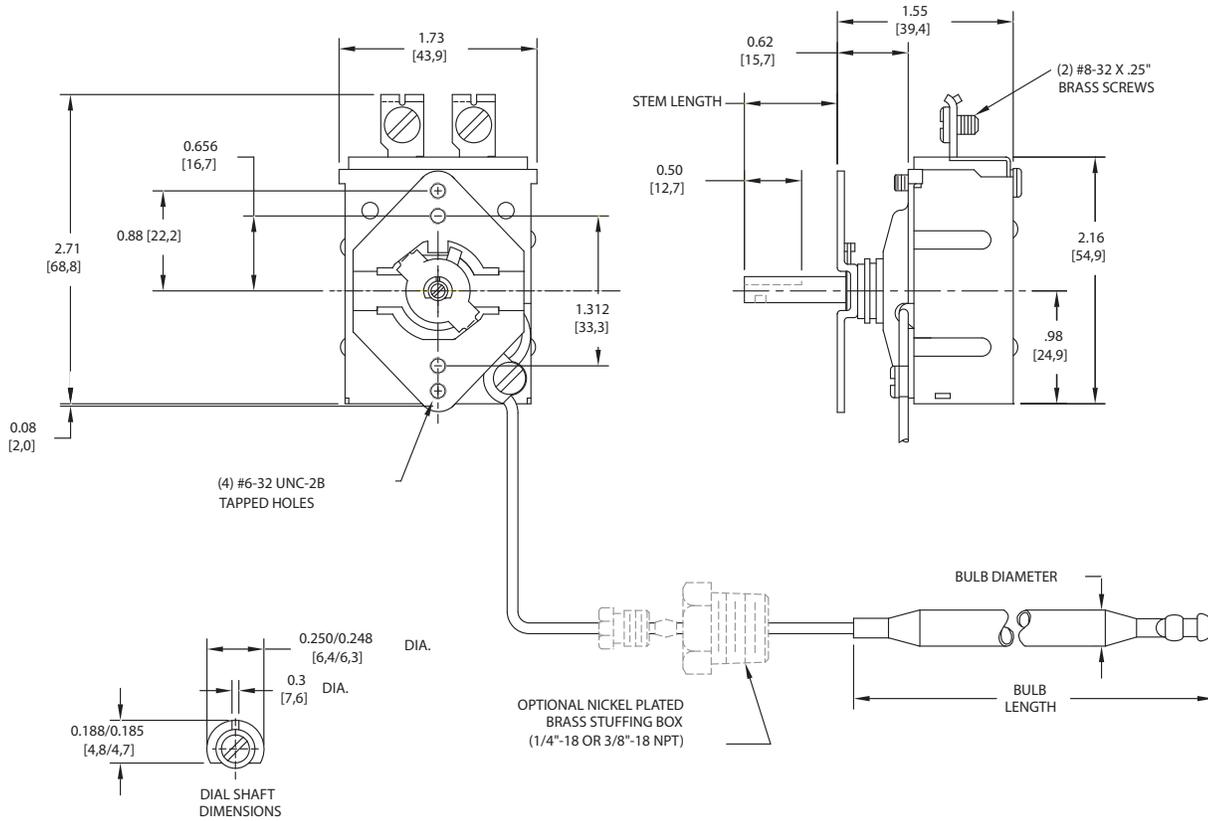
Part Numbers	Description	Dial Temperature Range	Ambient Temperature	Capillary Length	Bulb Size	Electrical Rating
5210-125	B-10 Commercial Direct Acting Thermostat	60°F to 200°F (15°C to 93°C)	32°F to 150°F (0°C to 60°C)	42"	3/16" x 15-3/8" Nickel	20 Amps @ 125V AC 15 Amps @ 250V AC 125VA PD @ 125V AC





Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



Robertshaw[®]

1 Year
Limited
Warranty



Robertshaw®



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ELECTRIC THERMOSTATS



5000-851

5000 Series

The Robertshaw® 5000 Series Electric Thermostat is a heavy-duty thermostat designed for use in harsh applications where precise temperature control is required. The control uses a double pole single throw (DPST) snap-action mechanism with a positive OFF switch. It is recommended for use on applications that require double pole operation and accurate temperature control.

Features and Benefits

- DPST with positive OFF
- Mechanical snap-action is instantaneous, positive and non-fatiguing
- Reacts to exceedingly small movements of the diaphragms for very close temperature differential
- Diaphragm assembly features two stainless steel diaphragms electrically welded together
- Maximum sensitivity without over-stressing the metal
- Supplied with terminals mounted in four different positions
- Bulb and capillary available in copper, nickel plated copper, or stainless steel

Specifications

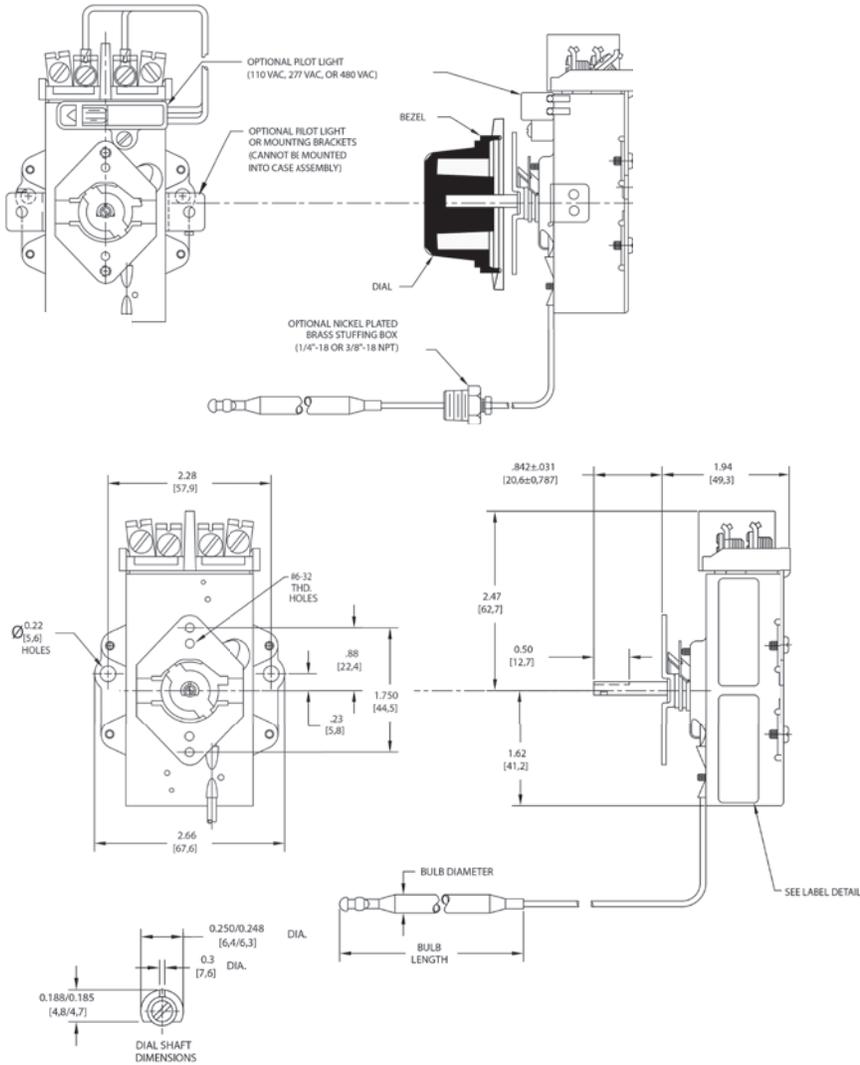
Part Numbers	Description	Dial Temperature Range	Capillary Length	Bulb Size	Dial Type	Mechanical Differential	Electrical Rating
5000-811	D1 & D18 Commercial Electric Thermostat with Pilot Light, 4-Way Bezel, Uni-Kit®	60°F to 250°F (15°C to 121°C)	60"	3/8" x 4-1/2"	4-Way	6°F (3°C)	120, 277V AC @ 30A 480V AC @ 10A 277V AC @ 250VA 125V AC @ 125VA
5000-851	D1 & D18 Commercial Electric Thermostat with Pilot Light, 4-Way Bezel, Uni-Kit	100°F to 550°F (38°C to 288°C)	60"	3/16" x 13" Nickel	4-Way	6°F (3°C)	120, 277V AC @ 30A 480V AC @ 10A 277V AC @ 250VA 125V AC @ 125VA



Robertshaw[®]

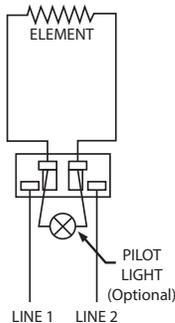
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

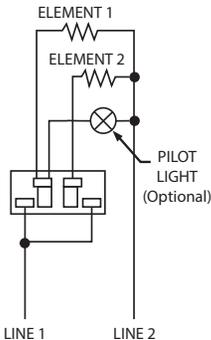


Wiring Diagram

SINGLE ELEMENT
DOUBLE POLE
SINGLE PHASE



TWO ELEMENTS
SINGLE POLE
SINGLE PHASE





Robertshaw®



Scan for all models, literature and cross reference



4350-028

GAS THERMOSTATS

4350 Series

The Robertshaw® 4350 Series Gas Thermostat is a combination gas cock and by-pass type thermostat. It is available with both by-pass and pilot adjustments. With these thermostats, the gas is turned on and the temperature setting made with a single turn of the dial. The 4350 Series is available for a wide variety of applications, especially ranges and griddles.

Features and Benefits

- Highly adaptable because of multiple orientations and number of outlets
- Mounted, via flange nipple, above or below the manifold
- Available with various temperature ranges
- Front adjustment for pilot and by-pass
- Modulating seat action
- Bulb and capillary available in copper, nickel plated copper and stainless steel

Specifications

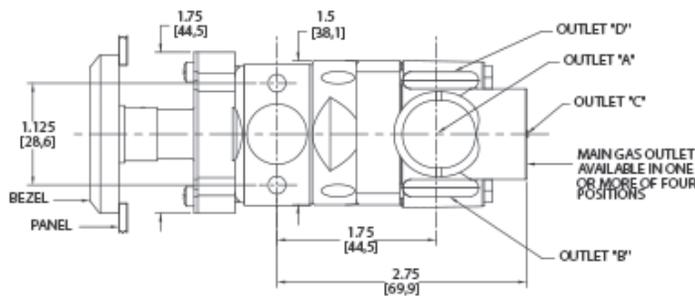
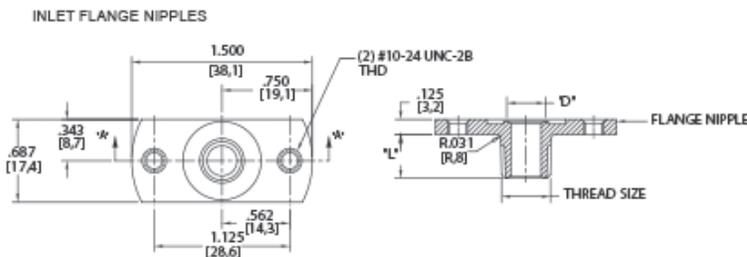
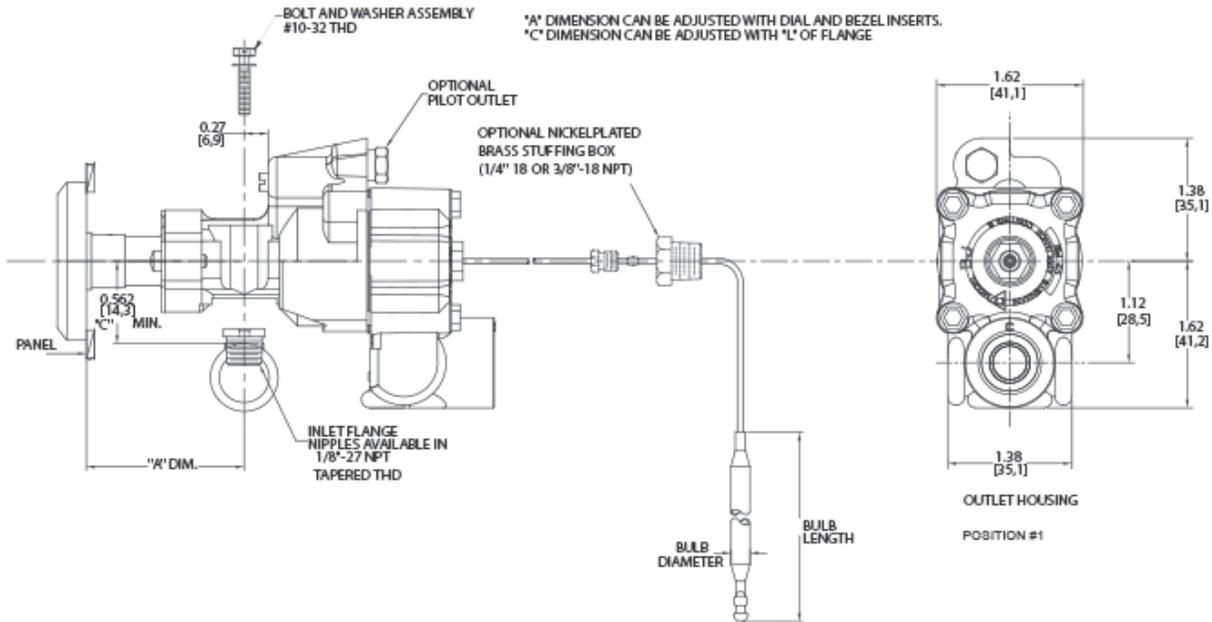
Part Numbers	Description	Max Inlet Pressure	Main Outlet Size	Main Outlet Position	Housing Rotated	Pilot Outlet	Flange Type	Capillary Length	Sensing Bulb	Capacity (Natural Gas)	Temperature Range
4350-015	BJWA Control for Ovens	0.5 PSI	1/4" Pipe	B	180°	Plug	Narrow	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F to 500°F (121°C to 260°C)
4350-027	BJWA Kit for Ovens	0.5 PSI	1/4" Pipe	A, B, C, D	No	Yes	Wide	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F to 550°F (121°C to 288°C)
4350-028	BJWA Kit for Griddles	0.5 PSI	1/4" Pipe	A, B, C, D	No	Yes	Wide	36"	3/16" x 8-5/8"	70,000 BTU/HR	150°F to 400°F (66°C to 205°C)
4350-029	BJWA Kit for Ovens	0.5 PSI	7/16" Tubing	C	No	Yes	Wide	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F to 550°F (121°C to 288°C)
4350-040	BJWA Control for Ovens	0.5 PSI	1/4" Pipe	D	90° Clockwise	Plug	Narrow	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F to 550°F (121°C to 288°C)
4350-127	BJWA Kit for Ovens	0.5 PSI	1/4" Pipe	A, B, C, D	180°	No	Wide	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F to 550°F (121°C to 288°C)
4350-128	BJWA Kit for Griddles	0.5 PSI	1/4" Pipe	A, B, C, D	180°	No	Wide	48"	3/16" x 8-5/8"	70,000 BTU/HR	150°F to 400°F (66°C to 205°C)





Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].





Robertshaw®



Scan for all models, literature and cross reference



4290-008

GAS THERMOSTATS

4290 Series

The Robertshaw® 4290 Series Gas Thermostat is a snap-acting hydraulic thermostat and used to provide temperature control by interrupting gas flow to the burner. The 4290 Series gas thermostat is available for a wide variety of applications including small ovens, griddles, brooders, warming cabinets, and fryers.

Features and Benefits

- Capable up to 30,000 BTUs
- Available in various temperature ranges, with temperature control up to 600°F (316°C)
- Snap-acting from Off position to full gas flow
- Adjustable bypass key and bypass settings are optional
- Applicable to use with high capacity gas operated diaphragm valves (700-800 Series)
- Adapts to limited mounting space
- Bulb and capillary assemblies supplied in nickel plated copper or stainless steel
- Dials in heat resistant plastic are included
- Ambient temperature is 300°F (149°C)

Specifications

Part Numbers	Description	Capillary Length	Bulb Size	Inlet Size	Outlet Size	Stuffing Box	Pilot Outlet	Stem Flat	Temperature Range
4290-006	GS Gas Snap-Action Hydraulic Control	30"	3/8" x 5-3/8" Nickel	1/4" Tubing	1/4" Tubing	1/4" Nickel	NA	Down	200°F to 410°F (93°C to 210°C)
4290-008	GS Gas Snap-Action Hydraulic Control	60"	3/8" x 4-1/2" Nickel	3/8" Pipe	3/8" Pipe	3/8" Nickel	NA	Down	60°F to 250°F (16°C to 121°C)
4290-020	GS Gas Snap-Action Hydraulic Control	36"	3/16" x 13" Nickel	1/4" Tubing	1/4" Tubing	NA	NA	Down	200°F to 550°F (93°C to 288°C)



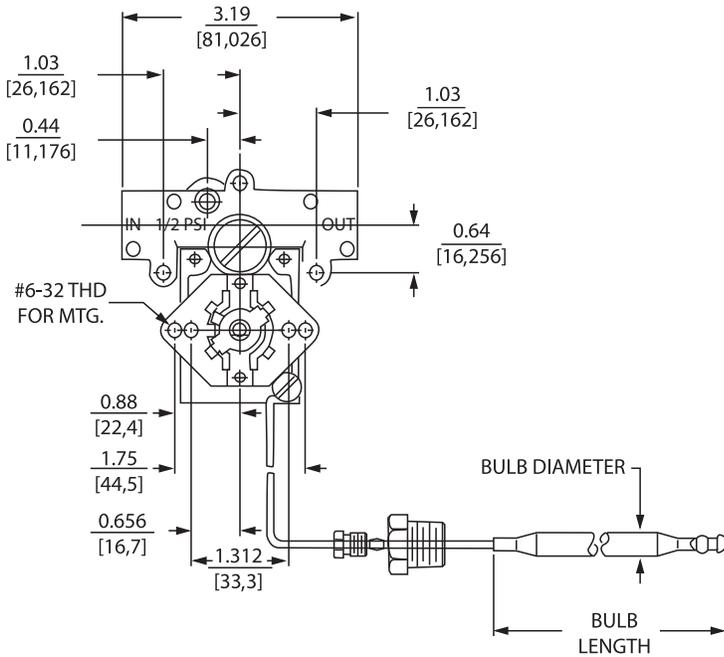


Robertshaw[®]

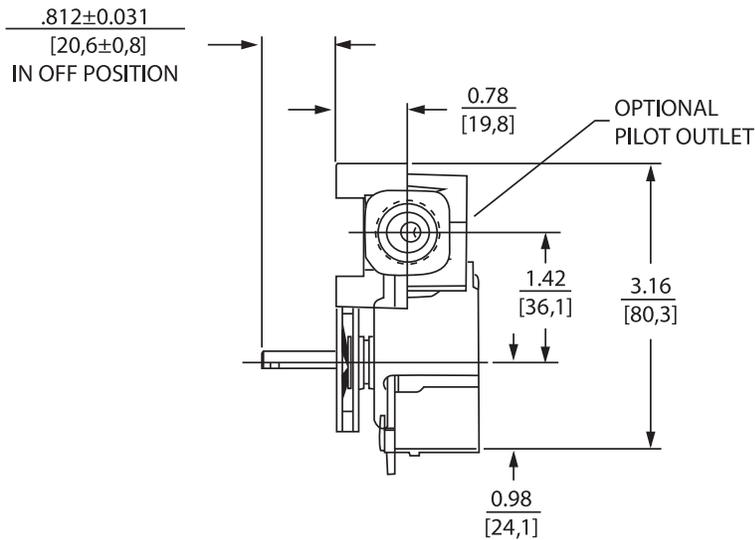
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Front View



Right View





Robertshaw®



Scan for all models, literature and cross reference



4200-005
Type #2 Body



4200-025
Type #1 Body

GAS THERMOSTATS

4200 Series

The Robertshaw® 4200 Series Gas Thermostat is a heavy-duty, high capacity gas thermostat. These units are available with modulating only or with modulating snap-acting bypass. Both pilot and bypass adjustments are provided. Pilot outlets and customized settings are optional. They are available for a wide variety of applications such as deck ovens, convection ovens, baking ovens, and ranges.

Features and Benefits

- Heat resistant materials and rugged design
- The pilot and bypass keys are accessible and the pilot and keys are slotted for easy adjustment from the front of the control
- Provides temperature control on most gas appliance systems
- Allows for low temperature control
- Modulates the main gas supply and controls the bypass gas with a snap under the same thermostatic action
- Bulb and capillary assemblies supplied in copper, nickel plated copper or steel
- 4-Way mounting position
- RoHS Compliant

Specifications

Part Numbers	Description	Inlet Side "F"	Inlet Rear "H"	Outlet Side "E"	Outlet Rear "G"	Pilot Outlet	Capillary Length	Bulb Size	Temperature Range
4200-005	FDO Gas Thermostat, Body Type #2	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	3/16" x 14-3/4" Nickel	150°F to 550°F (66°C to 288°C)
4200-007	FDO Gas Thermostat Body Type #1	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	1/4" x 8-7/16" Nickel	150°F to 550°F (66°C to 288°C)
4200-011	FDTO Gas Thermostat, Body Type #2	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	3/16" x 14-3/4" Nickel	200°F to 550°F (93°C to 288°C)
4200-025	FDO Gas Thermostat Uni-Kit® Body Type #1	3/8" Pipe	3/8" Pipe	3/8" Pipe	3/8" Pipe	Side & Rear	54"	3/16" x 14-3/4" Nickel	150°F to 550°F (66°C to 288°C)
4200-026	FDTO Gas Thermostat Uni-Kit Body Type #1	3/8" Pipe	3/8" Pipe	3/8" Pipe	3/8" Pipe	Side & Rear	54"	3/16" x 14-3/4" Nickel	200°F to 550°F (93°C to 205°C)
4200-503	FDTH Gas Thermostat Body Type #1	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	3/16" x 15-3/8" Nickel	300°F to 650°F (149°C to 343°C)
4200-505	FDTH Gas Thermostat, Body Type #2	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	3/16" x 14-3/4" Nickel	300°F to 650°F (149°C to 343°C)
4200-508	FDH Gas Thermostat, Body Type #2	1/2" Pipe	NA	1/2" Pipe	NA	Side	48"	3/16" x 14-3/4" Nickel	300°F to 650°F (149°C to 343°C)



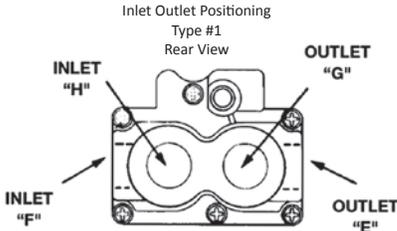
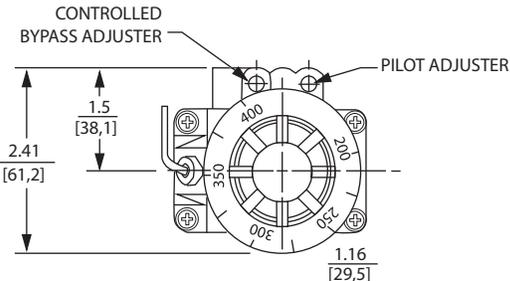


Robertshaw[®]

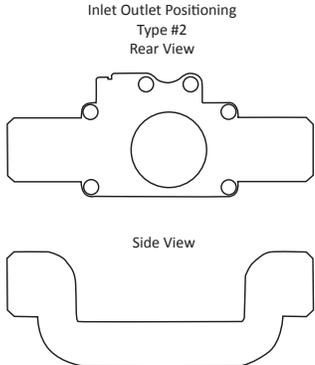
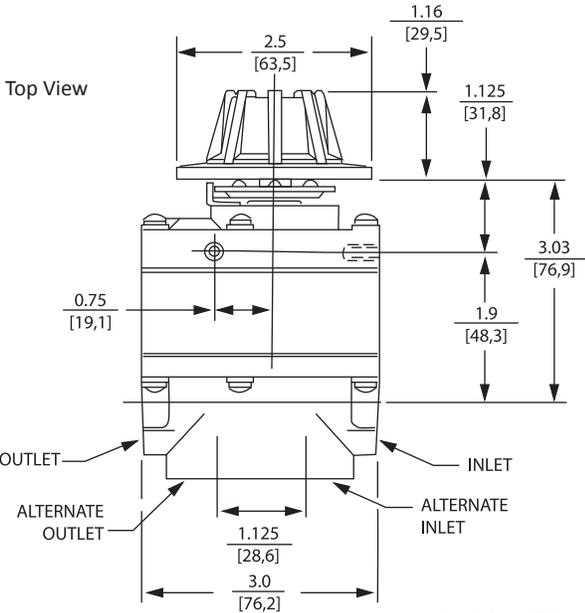
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

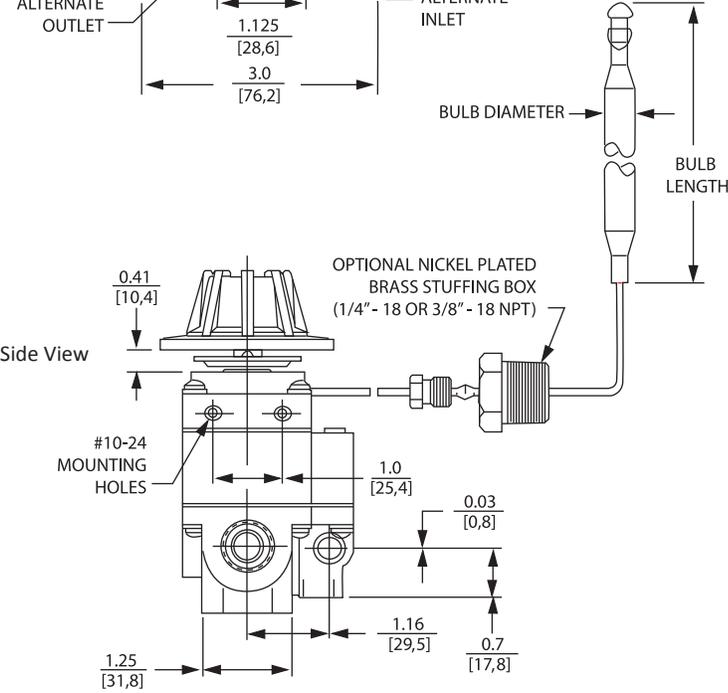
Front View



Top View



Side View

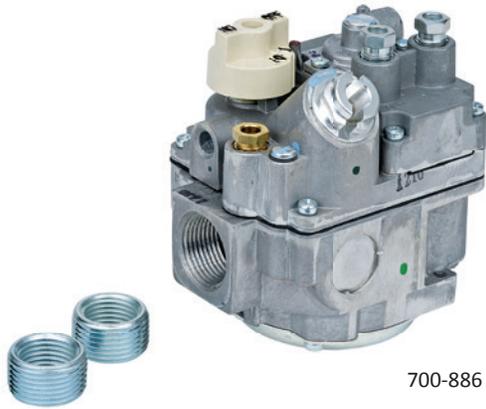




Robertshaw®



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700-886

GAS VALVES - BLEED CONTROL

700 Series

The Robertshaw® Unitrol® 700 Series Bleed Control Gas Valves combine a manual main and pilot gas valve, a separate automatic safety pilot valve, pilot adjustment valve, and a diaphragm valve. The regulated models also feature “straight line” gas pressure regulation. Robertshaw diaphragm gas valves are single function, and are excellent replacements for solenoid gas valves. Models are available with or without a gas cock and regulated or non-regulated. Standard features include pilot outlet, pilot gas filter and pilot adjustment key.

Features and Benefits

- Normally closed solenoid
- Compact size with high flow rates
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Pressure Regulation	Reducer Bushings Included	Comments
700-804	Bleed Control Gas Valve	305,000 BTU	3/4"	3/4"	3.5" WC Natural Gas	NA	Has slow opening feature. Which can be removed and is Thermocouple driven
700-886	Bleed Control Gas Valve	305,000 BTU	3/4"	3/4"	3.5" WC Natural Gas	1/2" (x2)	Thermopile driven
700-887	Bleed Control Gas Valve	240,000 BTU	1/2"	1/2"	4.0" WC Natural Gas	NA	Thermopile driven





Robertshaw®



Scan for all models, literature and cross reference



4075-029



4075-200

GAS VALVES - SOLENOID

4075 Series

The Robertshaw® 4075 Series Gas Solenoid is designed to control the flow of gas in cooking appliances. Both single FJT and dual FJTDO models are available for a wide variety of applications such as ovens, griddles and fryers.

Features and Benefits

- Normally closed solenoid
- Multiple inlet/outlet configurations
- 1/8" side pilot outlets available
- Compact size with high flow rates
- Standard NEMA terminals
- Inlet filtered screen
- Gas types: natural, manufactured, fixed, LP and LP/air mixtures
- RoHS compliant
- AC rectification for silent operation

Specifications

Part Numbers	Description	Inlet	Outlet	Pilot Outlet	Max Pressure	Capacity	Ambient Temperature	Electrical Rating	Comments
4075-029	FJT Single Gas Solenoid Valve	3/8" Pipe	3/8" Pipe	Left and Right	0.5 PSI	119,000 BTU	-40°F to 275°F (-40°C to 135°C)	24 / 120 / 240 Volts @ 50/60 Hz	Includes (2) 1/8" plugs
4075-200	FJTDO Dual Gas Solenoid Valve	3/8" Pipe	3/8" Pipe	NA	0.5 PSI	165,000 BTU both 110,000 BTU each	-40°F to 275°F (-40°C to 135°C)	24 / 120 / 240 Volts @ 50/60 Hz	0.10 Amp Coil

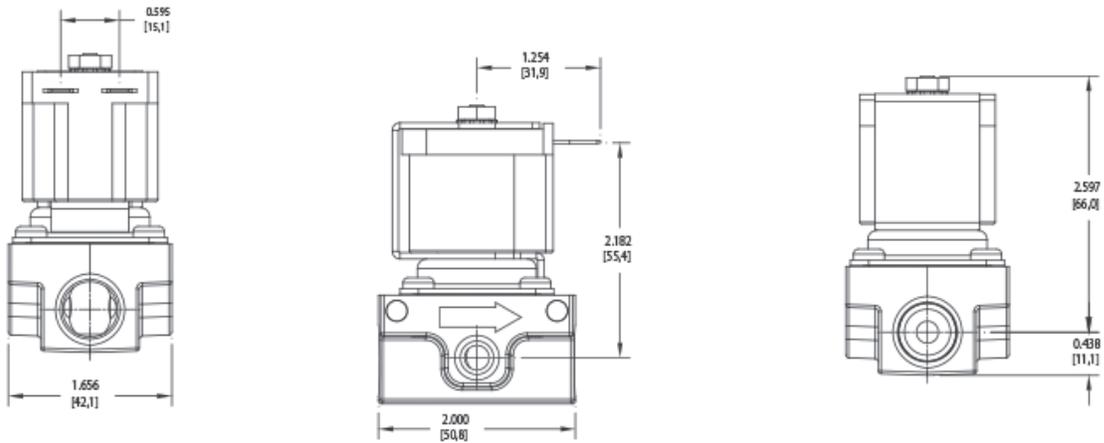




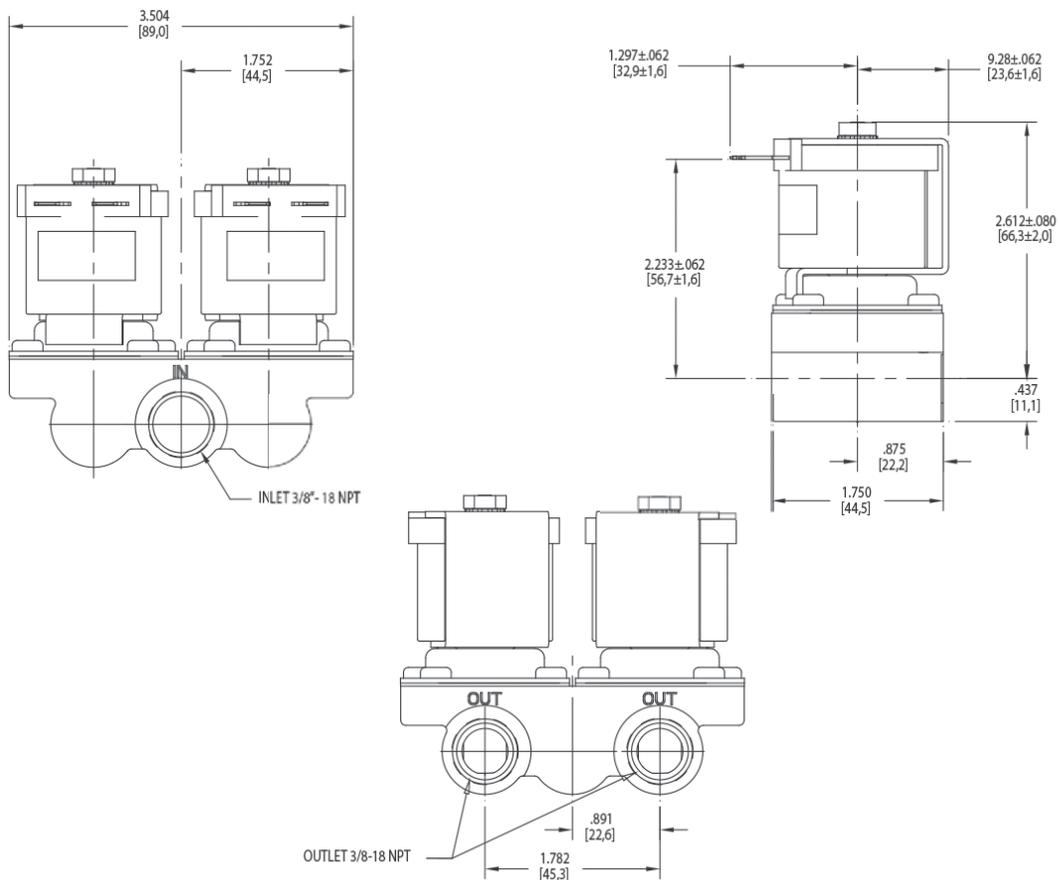
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Single



Dual



1 Year
Limited
Warranty

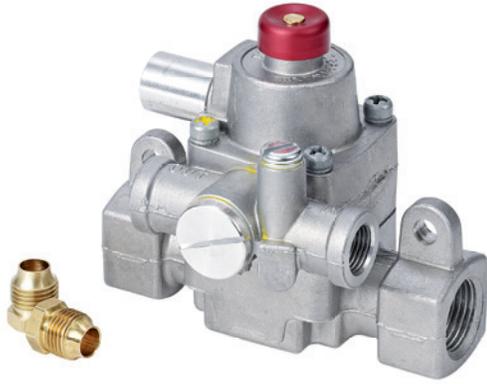


Robertshaw®



Scan for all models, literature and cross reference

GAS VALVES - THERMOMAGNETIC SAFETY



1720-004



1720-801

1720 Series

The Robertshaw® 1720 Series Thermomagnetic Safety Valve is a control used to cut off the flow of gas to the burner in the event of a pilot outage. The magnet assembly is energized by voltage generated by a thermocouple that is heated by the pilot flame. When this flame is extinguished, the thermocouple voltage decreases until a spring overcomes the magnetic force and closes off both the pilot and main gas. This control can be used for commercial and residential ovens, infrared heaters, chicken and pig brooders, recreational vehicle gas appliances and many more applications requiring automatic safety valves.

Features and Benefits

- 300°F (149°C) ambient temperature rated and 350°F (177°C) versions available
- J models available with separate pilot inlet/outlet tube connections
- K models are pilot outlet only
- Compatible with other Robertshaw models such as the BJWA, FD, and GS series thermostats
- RoHS compliant

Specifications

Part Numbers	Description	Body Inlet & Outlet	Head Pilot Inlet & Outlet	Ambient Temperature	Max Pressure
1720-004	TS11J Complete Magnet and Body Assembly	7/16" Tube	1/4" Tube	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-005	TS11J Complete Magnet and Body Assembly	1/4" Pipe	3/16" Tube	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-007	TS11J Complete Magnet and Body Assembly	1/2" Pipe	1/4" Tube	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-008	TS11J Complete Magnet and Body Assembly	1/4" Pipe	1/4" Tube	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-801	TS11J J Magnet Head Only - Inlet and Outlet	NA	Kit, 1/8" Pipe, 3/16" Tubing, 1/4" Tubing	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-802	TS11K K Magnet Head Only - Outlet Only	NA	Kit, 1/8" Pipe, 3/16" Tubing, 1/4" Tubing	32°F to 300°F (0°C to 149°C)	0.5 PSI

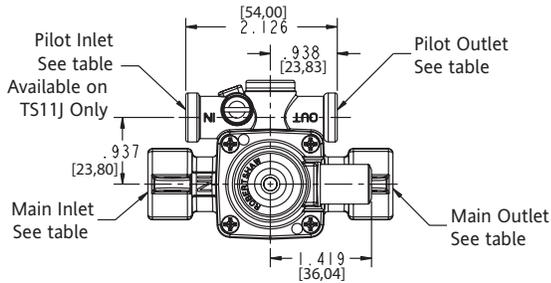




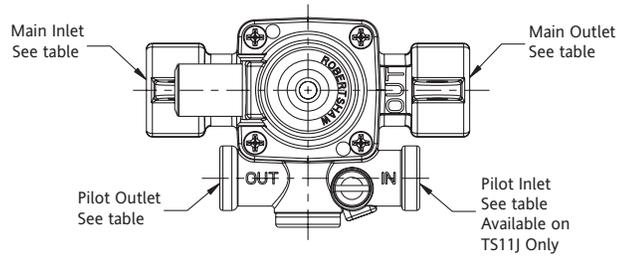
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

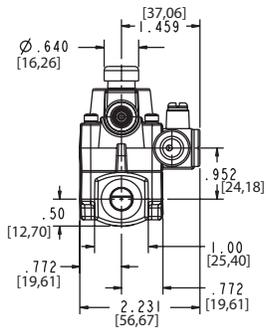
Top



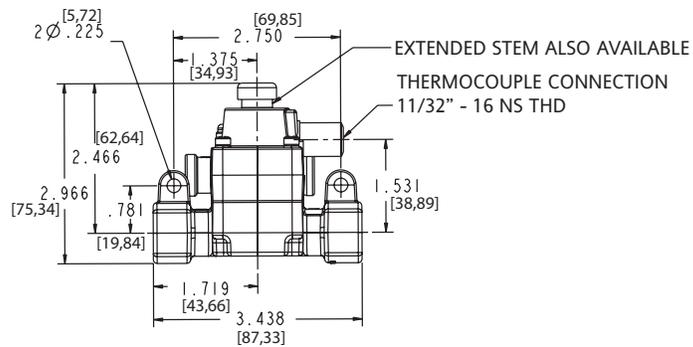
Top (rotated 180°)



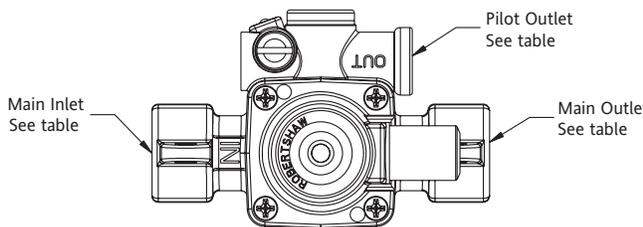
Side



Front



K Model Top with No Pilot Inlet



1 Year Limited Warranty

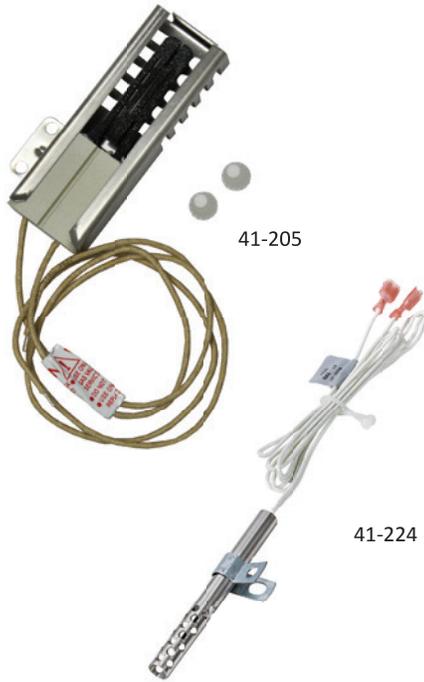




Robertshaw®



Scan for all models, literature and cross reference



HOT SURFACE IGNITORS

41-200 Series

The Robertshaw® 41-200 Series Hot Surface Ignitors are engineered to meet all your gas range and oven needs. These ignitors are used in the ranges of most major appliance original equipment manufacturers. In addition, most ignitors are designed to match the Robertshaw bi-metal gas valves.

Features and Benefits

- High physical and thermal strength
- Easy mounting
- Silent ignition
- Kits include two (2) porcelain nuts

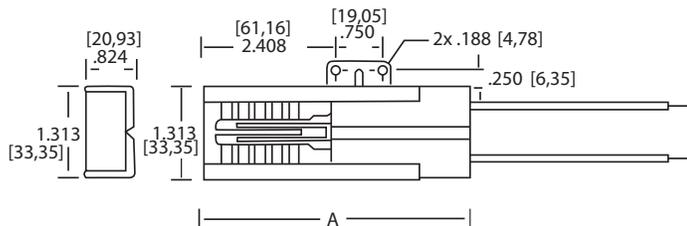
Specifications

Part Numbers	Description	Length A	Lead Length	Type	Amp Rating	Operating Voltage
41-204	Hot Surface Ignitor	4-1/2"	14-1/2"	501A	3.2 to 3.6 A	120V AC
41-205	Hot Surface Ignitor	3-1/2"	19"	501A	3.2 to 3.6 A	120V AC
41-206	Hot Surface Ignitor, No Shield, 5 1/2" Ceramic	7-1/4"	8-3/8"	501	3.2 to 3.6 A	120V AC
41-209	Hot Surface Ignitor with Plug Adaptor	3-1/2"	16-3/4"	501A	3.2 to 3.6 A	120V AC
41-224	Hot Surface Ignitor	NA	36"	401XM	1.4 to 2.1 A	24V AC

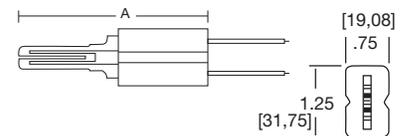
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

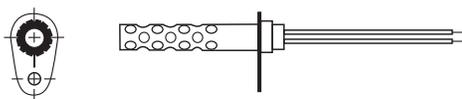
Type 501A



Type 501



Type 401 XM



1 Year Limited Warranty



Robertshaw[®]

OVEN SPARK IGNITION MODULES

41-500 Series

The Robertshaw[®] 41-521 is an 0+1 Oven Spark Ignition Module designed for oven re-ignition. A spark is generated for as long as the appropriate input terminal is energized.

Features and Benefits

- Spark generator with 2,000,000 sparks
- Strong dielectric strength tested up to 1500 Volts RMS at 60 Hz for one second
- Spark frequency ranges from 1.0 to 5.0 Hz
- Humidity tested to 90% RH relative humidity for 48 hours
- AGA listed



41-521



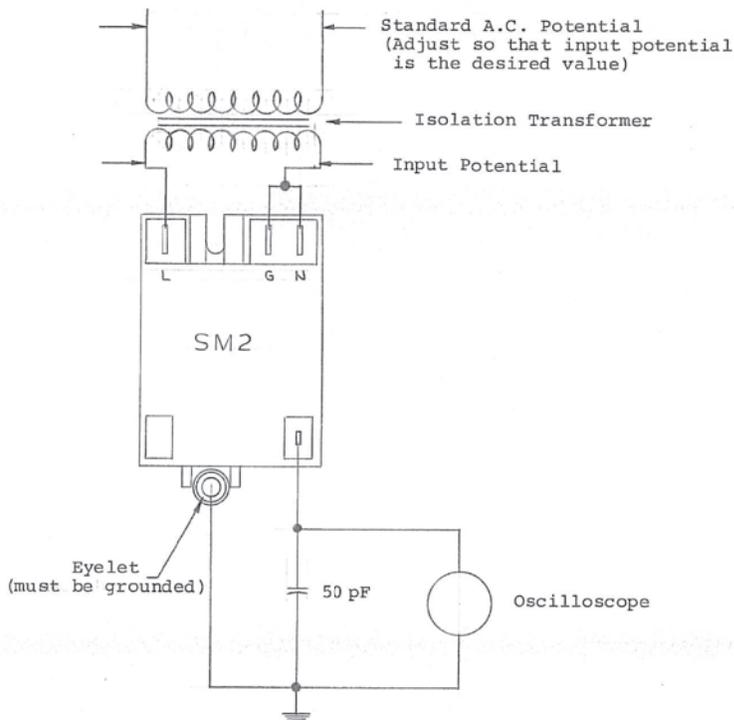
Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Spark Frequency	Spark Gap	Ambient Temperature	Electrical Rating
41-521	SM2 Electronic Re-Ignition Oven Spark Module	2.5 Hz to 4.5 Hz	1/8" max	32°F to 200°F (0°C to 93°C)	120V AC, 18 kV peak across 50 pF (picoFarad) capacitance load

Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



1 Year Limited Warranty



Heating, ventilation and air conditioning contractors value quality performance products, while consumers welcome dependable comfort. With Robertshaw® heating products, both are achievable while delivering productivity and environmentally responsible results. Robertshaw heating products offer kitted and universal solutions designed to replace hundreds of products.

Gas Valves.....B2
 Water Heating Gas ValvesB15
 Heating KitsB16
 Ignition ControlsB18
 IgnitorsB28
 Pilots.....B32
 Thermocouples.....B34
 Thermopiles.....B36
 Air Pressure Sensing SwitchesB38
 Heating Accessories.....B40



HEATING





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700-059

GAS VALVES

700 Series - Pilot, Hot Surface and Direct Spark

The Robertshaw® 700 Series Universal Gas Valves are designed for intermittent pilot ignition applications. These universal models include all the necessary parts to adapt the valves to direct spark or hot surface applications. Each valve incorporates a manual valve, pilot valve, and a main gas pressure regulator (optional by model). These valves are designed for many residential and commercial applications such as central heating units, wall heaters, boilers and mobile home furnaces.

Features and Benefits

- Universal models with pilot, hot surface and direct spark ignition systems
- Maximum inlet pressure 14" WC (0.5 PSI)
- Ambient temperature of -40°F to 175°F
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Pressure Regulator Setting	Electrical Rating	Comments
700-048	Universal Model	720,000 BTU	1"	1"	3.5" WC Natural Gas	24V AC @ 60 Hz	High capacity
700-049	Universal Model	300,000 BTU	1/2"	1/2"	3.0" WC Natural Gas	24V AC @ 60 Hz	Includes pilot plug
700-056	Universal Model	350,000 BTU	3/4"	3/4"	3.5" WC Natural Gas	24V AC @ 60 Hz	Straight-thru with slow opening feature for soft ignition. Can be field removed.
700-057	Universal Model	720,000 BTU	1"	1"	4.0" WC Natural Gas	24V AC @ 60 Hz	Straight-thru
700-059	Universal Model	720,000 BTU	1"	1"	4.0" WC Natural Gas	24V AC @ 60 Hz	Straight-thru with slow opening feature for soft ignition. Can be field removed.



1 Year Limited Warranty



GAS VALVES

700 Series - Millivolt

The Robertshaw® 700 Series Millivolt Gas Valves are wall thermostat actuated combination controls which provide installation flexibility from furnaces to swimming pool applications. The complete line of 700-500 millivolt gas valves offers a wide range of replacements from small capacity 3/8" pipe to high capacity 1" pipe up to 720,000 BTU usage.

Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Terminal type combination screw/spade
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



Robertshaw[®]



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Straight-Thru (FPT)	Outlet Side (FPT) With Plugs	Reducer Bushing (NPT)	Pressure Regulator Setting	Electrical Rating	Compatible with
700-502	Millivolt	100,000 BTU	1/2"	1/2"	1/2"	2	3.5" WC Natural Gas	250mV to 750mV	Coaxial and two lead thermopile
700-504	Millivolt	240,000 BTU	1/2"	3/4"	1/2"	1	3.5" WC Natural Gas	250mV to 750mV	Coaxial and two lead thermopile
700-505	Millivolt Nonregulated	300,000 BTU	3/4"	3/4"	Straight-thru	2	NA	250mV to 750mV	NA
700-506	Millivolt	300,000 BTU	3/4"	3/4"	Straight-thru	2	3.5" WC Natural Gas	250mV to 750mV	Coaxial and two lead thermopile
700-511	Pool Heater	400,000 BTU	3/4"	3/4"	Straight-thru	2	Uni-Kit® Natural Gas	250mV to 750mV	Teledyne-Lars coaxial and two lead thermopile
700-515	Millivolt	485,000 BTU	3/4"	3/4"	Straight-thru	2	10.0" WC Natural Gas	250mV to 750mV	NA
700-516	Millivolt	240,000 BTU	1/2"	1/2"	Straight-thru	NA	4.0" WC Natural Gas	250mV to 750mV	NA



1 Year Limited Warranty



HEATING

Robertshaw®



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700-402

GAS VALVES

700 Series - 24 Volt Combination

The Robertshaw® 700 Series 24 Volt Combination Gas Valves offer replacement flexibility. With capacities ranging to 720,000 BTU, three-position outlets and multi-positional capability, these combination gas valves offer unlimited replacement possibilities. The 24 Volt Uni-Kit® models are suitable for either natural or LP gas. The valve is factory set at 3.5" WC natural gas. A regulator cover plate is included to convert to LP gas.

Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Combination screw/spade terminal type
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Side Outlets	Pressure Regulator Setting	Electrical Rating	Comments
700-400	24 Volt Combination	240,000 BTU	1/2"	3/4"	Straight-thru	Uni-Kit® Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	
700-402	24 Volt Combination	240,000 BTU	1/2"	3/4"	1/2"	Uni-Kit Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	
700-406	24 Volt Combination	300,000 BTU	3/4"	3/4"	Straight-thru	Uni-Kit Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	
700-409	24 Volt Combination	240,000 BTU	1/2"	1/2"	Straight-thru	3.5" WC Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	Thermopile type safety magnet
700-426	24 Volt Combination	300,000 BTU	3/4"	3/4"	Straight-thru	3.5" WC Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	Slow opening feature for soft ignition
700-442	24 Volt Combination	720,000 BTU	1"	1"	Straight-thru	3.5" WC Natural Gas	24V AC @ 0.2 Amps, 12V DC @ 0.18 Amps	Slow opening feature for soft ignition



1 Year Limited Warranty



Robertshaw[®]



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1 Year Limited Warranty

GAS VALVES

700 Series - Line Voltage

The Robertshaw[®] 700 Series Line Voltage Gas Valves offer the same replacement flexibility as the 24 Volt combination controls. Line Voltage models are available in 120 and 240 Volts AC. Features include three-position outlets, multi-positional capability and capacities ranging up to 720,000 BTU.

Features and Benefits

- Slotted safety magnet
- Gas cock dial marking Off - Pilot - On
- Ambient temperature of -40°F to 175°F
- Pilot outlet 1/4" tubing
- Cover type for conduit connection
- Inlet filtered screen
- RoHS compliant



700-454

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Straight-Thru (FPT)	Outlet Side (FPT) With Plugs	Reducer Bushings Included (NPT) 3/4" x 1/2"	Pressure Regulator Setting	Lead Length	Electrical Rating
700-452	Line Voltage Valve	240,000 BTU	1/2"	3/4"	1/2"	1	3.5" WC Natural Gas	32"	120V AC @ 0.034 Amps
700-454	Line Voltage Valve	300,000 BTU	3/4"	3/4"	Straight-thru	2	3.5" WC Natural Gas	32"	120V AC @ 0.034 Amps



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700-513

GAS VALVES

700 Series - Diaphragm/Solenoid

The Robertshaw® 700 Series Diaphragm/Solenoid Gas Valves are single function, diaphragm types and are excellent replacements for solenoid gas valves. Models are available with or without a gas cock, and in regulated or non-regulated configurations. Standard features include pilot outlet, pilot gas filter and pilot adjustment key. Valves can be mounted in any position except upside down. These valves do not have a safety magnet.

Features and Benefits

- Pilot outlet 1/4" tubing
- Maximum inlet pressure 14" WC (0.5 PSI)
- Ambient temperature of -40°F to 175°F
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Side Outlets	Pressure Regulator Setting	Electrical Rating
700-422	24 Volt Diaphragm Solenoid	240,000 BTU	1/2"	3/4"	1/2"	3.5" WC Natural Gas	12V DC @ 0.18 Amps, 24V AC @ 0.2 Amps
700-513	Millivolt Diaphragm Solenoid without Gas Cock	240,000 BTU	1/2"	1/2"	Straight-thru	NA	250 - 750 mV



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Robertshaw



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1 Year Limited Warranty

GAS VALVES

700 Series - 2-Stage 24 Volt

The Robertshaw® 2-Stage 24 Volt Gas Valves - standing pilot as well as intermittent pilot models - feature reliability, performance, flexibility and easy installation all in one compact control. These valves feature a manual valve (gas cock), inlet/outlet screens, pilot gas filter, and pilot adjustment key. Models have a slotted automatic pilot safety magnet to provide gas shut-off in case of a pilot outage.

Features and Benefits

- Pilot outlet 1/4" tubing
- Terminal type 1/4" quick-connect
- Ambient temperature of -40°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



700-064

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Reducer Bushing (NPT)	Pressure Regulator Setting	Electrical Rating	Comments
700-064	Universal 2-Stage	720,000 BTU	1"	1"	2	1.3" WC low-fire, 3.5" WC high-fire for Natural Gas, 2.8" WC low-fire, 11.0" WC high-fire for LP	24V AC @ 50/60 Hz, 0.2 Amps low-fire, 0.4 Amps high-fire	Slow opening feature for soft ignition. Can be field removed.



HEATING

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GAS VALVES

700 Series - Snap-Throttle Hydraulic

The Robertshaw® 700 Series Snap-Throttle Hydraulic Combination Gas Valves are thermostatically operated by a remote temperature sensing bulb. Models are available with single capillary or remote dial-in snap-action and snap-throttle types. Valves can be mounted in any position except upside down.

Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of 32°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Side (FPT) With Plugs	Pressure Regulator Setting	Capillary Length	Bulb Outer Diameter	Bulb Length	Dial Temperature	Remote Temperature
700-205	Snap-Throttle Hydraulic	100,000 BTU	1/2"	1/2"	3.5" WC Natural Gas	36"	1/4"	8"	58°F to 90°F	45°F to 95°F



1 Year Limited Warranty

B8



GAS VALVES

700 Series - Actuators

The Robertshaw® 700 Series Gas Valves are the industry standard with capacity ranges from 5,000 to 1,150,000 BTUs. Several actuator types are available depending upon the application such as 24 Volts, Line Voltage, Millivolt and Hydraulic.

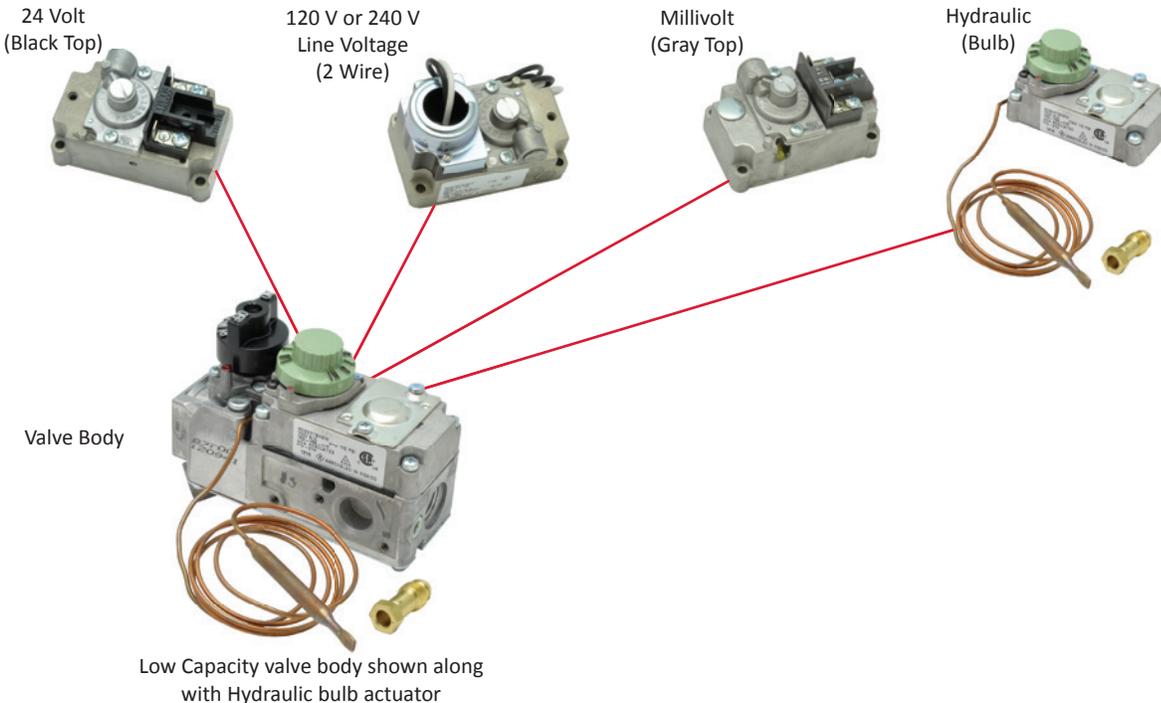


Standard 700 shown with Millivolt gray top actuator

Actuators available for 700 series gas valves

Actuator	Model	Ambient Temperature	Operating Temperature	Power	Current	NEC
12 Volt DC	7000E, E12	-40°F To 175°F (-40°C To 80°C)	NA	2.2 Watts	0.18 Amps @ 12V DC	Class 2
24 Volt	7000E	-40°F To 175°F (-40°C To 80°C)	NA	5 Watts	0.18 Amps @ 12V DC	Class 2
Line Voltage	7000E120 Or 7000E240	-40°F To 175°F (-40°C To 80°C)	NA	4 Watts	0.034 Amps @ 120V 0.017 Amps @ 240V	Class 1
Millivolt	7000Mv	-40°F To 225°F (-40°C To 107°C)	NA	Pull-In Voltage 100mV Drop-Out Voltage 15mV	NA	NA
Hydraulic	7000S	32°F to 175°F	Std: 58°F To 90°F (14°C To 32°C) Hi: 100°F To 250°F (38°C To 120°C)	NA	NA	NA

Note: All the above models are available in regulated (R), high/low (RB) or convertible (RC).

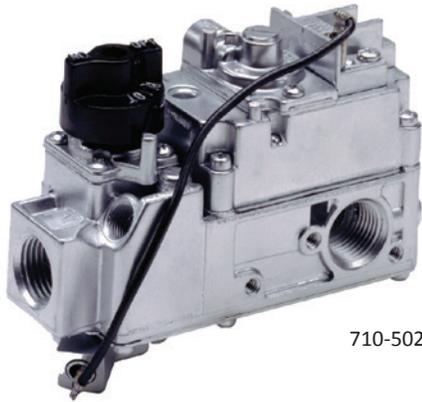




Robertshaw®



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710-502

GAS VALVES

710 Series - Low Capacity

The Robertshaw® 710 Series Low Capacity Gas Valves feature an extremely compact control designed for low capacity and limited space applications. Features include three-position outlets, multi-positional capability and component replaceability.

Features and Benefits

- Low capacity with 3-13/16" H x 4-21/32" L x 1-29/32" W dimensions
- Gas cock dial marking Off - Pilot - On
- Ambient temperature of -40°F to 175°F
- Pilot outlet 1/4" tubing
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant





Specifications

Part Numbers	Description	Application	Capacity	Inlet Size	Outlet Size	Reducer Bushing (NPT)	Pressure Regulator Setting
710-203	Hydraulic Snap-Action Low Capacity	Recreational vehicles	70,000 BTU Natural Gas, 112,000 BTU LP	1/2"	1/2"	(2) 1/2" x 3/8"	NA
710-205	Hydraulic Snap-Action Low Capacity	Wall furnaces	70,000 BTU Natural Gas, 112,000 BTU LP	1/2"	1/2"	(2) 1/2" x 3/8"	3.5" WC Natural Gas
710-402	24 Volt Low Capacity	Wall furnaces	70,000 BTU	1/2"	1/2"	(2) 1/2" x 3/8"	3.5" WC Natural Gas
710-501	Millivolt Low Capacity	Space heaters	70,000 BTU	1/2"	1/2"	(2) 1/2" x 3/8"	NA
710-502	Millivolt Low Capacity	Space heaters	70,000 BTU	1/2"	1/2"	(2) 1/2" x 3/8"	3.5" WC Natural Gas
710-503	Millivolt Low Capacity	Fireplace control	70,000 BTU	1/2"	3/8"	NA	Hi-Lo Adjustable 1.7" to 3.5" WC Natural Gas
710-511	Millivolt Low Capacity	Fireplace control	70,000 BTU	1/2"	3/8" Straight-thru	NA	Hi-Lo Adjustable 1.7" to 3.5" WC Natural Gas

Specifications continued

Part Numbers	Capillary Length	Electrical Rating	Comments
710-203	36"	NA	
710-205	36"	NA	
710-402	NA	24V DC @ 0.2 Amps, 12V AC @ 0.18 Amps	
710-501	NA	250mV to 750mV	Use two lead thermopiles only
710-502	NA	250mV to 750mV	Use two lead thermopiles only
710-503	NA	250mV to 750mV	Use two lead thermopiles only
710-511	NA	250mV to 750mV	Special dropout safety magnet to meet Canadian specifications used with quick-dropout pilot assembly 1819-100. Use two lead thermopiles only.

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Robertshaw®



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720-402

GAS VALVES

720 Series - 24 Volt Dual

The Robertshaw® 720 Series 24 Volt Dual Gas Valve is a six-function gas valve incorporating a manual valve, safety shut-off magnet, dual automatic valves, main gas regulator, and pilot adjustment. Models are available with and without a pressure regulator. Uni-Kit® models are factory set at 3.5" WC for natural gas, but can be converted to LP by installing the regulator conversion kit included.

The wiring connections, manual selector and adjustments are easily accessible on top of the valve. With a 3-9/16" swing radius, the 720 Series lends itself well to replacing many OEM valves. Valve can be mounted in any position except upside down.

Features and Benefits

- Gas cock dial marking Off - Pilot - On
- Pilot outlet 1/4" tubing
- Ambient temperature of -40°F to 175°F
- Combination screw/spade terminal type
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- Multiple actuators available
- RoHS compliant

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Side Outlets	Pressure Regulator Setting	Reducer Bushings Included (NPT) 3/4" x 1/2"	Reducer Bushings Included (NPT) 1/2" x 3/8"	Electrical Rating	Comments
720-400	24 Volt Dual	150,000 BTU	1/2"	3/4"	None	Uni-Kit® Natural Gas	1	1	24V AC, 0.5 Amps, 50/60 Hz	
720-402	24 Volt Dual	150,000 BTU	1/2"	3/4"	1/2" FPT with plugs	Uni-Kit Natural Gas	1	NA	24V AC, 0.5 Amps, 50/60 Hz	
720-406	24 Volt Dual	150,000 BTU	3/4"	3/4"	None	Uni-Kit Natural Gas	2	NA	24V AC, 0.5 Amps, 50/60 Hz	
720-472	24 Volt Dual	150,000 BTU	1/2"	1/2"	1/2" FPT with plugs	3.5" WC Natural or 11.0" LP Convertible	NA	1	24V AC, 0.5 Amps, 50/60 Hz	Step-opening to 40% of full flow within 30 seconds for mobile home
720-474	24 Volt Dual	150,000 BTU	1/2"	1/2"	1/2" FPT with plugs	3.5" WC Natural or 11.0" LP Convertible	NA	1	24V AC, 0.5 Amps, 50/60 Hz	Step-opening for mobile home



1 Year Limited Warranty



GAS VALVES

720 Series - Lever Actuated

The Robertshaw® 720 Series Lever Actuated Gas Valves are designed for intermittent pilot ignition applications. This series incorporates a manual valve, pilot valve, dual automatic valves (2), and a main gas pressure regulator. Uni-Kit® models are factory set at 3.5" WC for natural gas, but can be converted to LP by installing the regulator conversion kit included. The 720 Series is designed for many residential applications such as central heating units, space heaters, wall heaters, boilers, and mobile home furnaces. This valve has a compact swing radius of only 3-9/16" to enable it to fit a wide range of OEM replacement applications.

Features and Benefits

- Pilot outlet 1/4" tubing
- 1/4" quick connect terminal type
- Ambient temperature of -40°F to 175°F
- Maximum inlet pressure 14" WC (0.5 PSI)
- Standard NEMA terminals
- Rated as NEC Class 2
- Inlet filtered screen
- Various gas types: natural, manufactured, mixed, LP, and LP/air mixtures
- RoHS compliant



720-079

Robertshaw



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Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Pressure Regulator Setting	Electrical Rating	Comments
720-070	Slow Opening Model	150,000 BTU	1/2"	3/4"	Uni-Kit® Natural Gas	24V AC , 50/60 Hz, 45 Amps, 5 Watts	Has slow-opening feature for soft ignition. Not normally used on hot surface applications
720-079	Universal Model	150,000 BTU	1/2"	3/4"	Uni-Kit Natural Gas	24V AC , 50/60 Hz, 45 Amps, 5 Watts	



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HEATING

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722-079

GAS VALVES

722 Series - Low Capacity Dual

The Robertshaw® 722 Series Low Capacity Dual Gas Valve Uni-Kit® models are designed for a wide variety of intermittent pilot, direct spark or hot surface heating applications.

They incorporate dual automatic valves (redundant) that are pressure regulated and come factory set at 3.5" WC for natural gas. They can be converted to LP by installing the regulator conversion kit that is included.

Features and Benefits

- Small, compact size, 3-9/16" swing radius, and 90° flanged outlet for side outlet applications allow for greater flexibility of installation
- Incorporates a manual selector valve (On-Off), dual automatic valves, main gas regulator and inlet/outlet pressure taps
- Easily accessible wiring connections, manual selector, and adjustments designed to replace many OEM valves
- Multi-positional and can be mounted in any position except upside down
- As a safety feature, special screws are used and replacement parts are not available to prevent unsafe attempts at repair

Specifications

Part Numbers	Description	Capacity	Inlet Size	Outlet Size	Pressure Regulator Setting	Comments
722-051	Hot Surface and Direct Spark Low Capacity Dual	170,000 BTU	1/2"	1/2"	Uni-Kit® Natural Gas	Straight-thru
722-079	Universal Low Capacity Dual	170,000 BTU	1/2"	1/2"	Uni-Kit Natural Gas	Straight-thru, 1/2" flanged outlet adapts for side outlet applications



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WATER HEATING GAS VALVES

110 Series

The Robertshaw® 110 Series Water Heating Gas Valves are designed for universal replacement applications in water tanks. All models feature a built-in, non-cycling Energy Cut-Off (ECO) system to shut off all gas to the water heater in case of excessive water temperatures. The ECO is designed to detect over-temperature conditions and to open. Once opened, the control will not function and a new replacement will be required.

Features and Benefits

- Models include 5-1/2" sensing element
- Various inlet size, outlet size, regulator settings and shank lengths
- Right hand or left hand threads
- Multiple BTU capacities available
- Domestic, commercial and recreational vehicle applications



110-202

Robertshaw[®]



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Specifications

Part Numbers	Description	Flow Setting	Inlet Size	Outlet Size	Shank Length	Pressure Regulator Setting	Temperature
110-202	Water Heater Thermostat Uni-Kit®	45,000	1/2" Pipe	1/2" Inverted Flare	1-3/8"	4.0" WC Natural Gas	160°F (71°C)
110-326	Water Heater Thermostat Uni-Kit	45,000	1/2" Pipe	1/2" Inverted Flare	1-3/8"	3.5" WC Natural Gas	160°F (71°C)
110-262	Water Heater Thermostat Uni-Kit	38,000	1/2" Pipe	1/2" Inverted Flare (Right Hand Threads)	1-3/8"	9" WC to 12" WC LP	160°F (71°C)
110-265	Water Heater Thermostat Uni-Kit	38,000	1/2" Pipe	1/2" Inverted Flare (Left Hand Threads)	1-3/8"	9" WC to 12" WC LP	160°F (71°C)



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HEATING

Robertshaw®



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HEATING KITS



710-296

710 Series - Millivolt Kit

The Robertshaw® 710-296 Millivolt Kit includes a low profile millivolt actuated gas valve, a pilot generator kit and an easy-to-use mechanical wall thermostat. The kit includes the Robertshaw gas valve cross reference pocket guide.

Features and Benefits

- Most common parts needed in retrofit millivolt applications
- Reduces inventory with most common parts
- Easy-to-select, use and install

Specifications

Part Numbers	Description	Hood Type	Thermostat	Gas Valve
710-296	Millivolt Kit	1820-009 Pilot Kit	986-1R Thermostat	710-502 Low Profile

HEATING KITS



712-017

712 Series - Pilot Kits

The Robertshaw® 712 Series Intermittent Pilot Ignition System Kit features flame rectification with solid-state logic and flame sensing to provide automatic sequencing that will ensure proper operation of an intermittent pilot ignition device. The 712 pilot ignition systems are available with one of four different gas valve types to fit a wide range of furnace applications.

Caution: Do not use on LP gas applications

Features and Benefits

- Quick and easy installation
- Complete in-depth instructions and trouble shooting information
- Used on natural gas systems only

Specifications

Part Numbers	Description	Gas Valve	Inlet	Outlet	Capacity	Restart	Pressure Regulator Setting	Ignition Control
712-017	Intermittent Pilot Ignition System Kit	720-070	1/2"	3/4"	200,000 BTU	Nonlockout	3.5" WC Natural Gas Only	780-715 (Nonlockout)



Robertshaw®

HEATING KITS

Hot Surface Uni-Kit360

The Robertshaw® Uni-Kit360 Heating Kit has you covered 360° with universal products all in one box for use with HSI (Hot Surface Ignition) gas systems. Kit includes the following:

- Universal gas valve
- Universal ignition control
- Universal nitride ignitor
- Universal flame sensor
- Universal air pressure sensing switch
- Gas valve cross reference pocket book, screwdriver and toolbag

Features and Benefits

- Universal controls with the necessary parts included for most hot surface heating applications
- Reduces inventory with one easy-to-order SKU
- Trusted brand in heating controls for over 100 years



UNI-KIT360



Specifications

Part Numbers	Description	Gas Valve	Inlet	Outlet	Capacity	Hot Surface Ignitor	Flame Pattern	Ignition Control	Air Sensing Switch
UNI-KIT360	Universal Hot Surface Heating Repair Kit	720-079	1/2"	3/4"	150,000 BTU	41-802N	10-760	780-910	2374-510

HEATING KITS

Regulator Kits

The Robertshaw® 1751 Series Add-on Pressure Regulator Kits are available for use on the following factory model types; 7000, 7010, 7100, 7200 and 7222. Each 1751 pressure regulator kit provides straight-line regulation and includes all the necessary parts including instructions to convert a specific factory model gas valve.

Features and Benefits

- Converts natural gas to LP and vice versa
- Not for use with hydraulic models which cannot be field converted
- Includes all necessary parts for easy regulation conversion



1751-003



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Suitable For	Series	Regulator Type	Adjustable WC Pressure Low/High
1751-003	Add-On Pressure Regulator Kit	Natural Gas	700 & 710 Series (Models 7000 & 7000LC)	3.5" WC Natural Gas	3" / 7"
1751-013	Add-On Pressure Regulator Kit	LP	700 & 710 Series (Models 7000 & 7000LC)	11.0" WC LP Gas	8" / 12"
1751-021	Add-On Pressure Regulator Kit	LP	700 & 710 Series (Models 7000 & 7000LC)	Hi-Low Adjustable Output LP Gas	2.7" / 11"

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Robertshaw®



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780-001

IGNITION CONTROLS

780 Series - Pilot Controls Uni-Kits

The Robertshaw® 780 Series Pilot Controls Uni-Kits® feature a flame sense circuit that will work equally well on a one rod (local sense) or a two rod (remote sense) application. The automatic recycle features assure that, in the event of flame failure, main gas is disabled and the spark repetition sequence is restarted until pilot gas is ignited. Only after pilot ignition has been re-established can main gas be returned to the burner.

The Robertshaw lockout version kits include the capability to shut off all gas to the furnace, should pilot ignition fail to occur after a predetermined time period. The 780-002 provides three tries for ignition. Each ignition period is 90 seconds followed by a six minute time delay between ignition attempts. If the pilot flame is not sensed after three tries, the unit goes into lockout and must be reset at the thermostat.

Features and Benefits

- Replaces one rod and/or two rod systems
- Reduces truck stock inventory, saving space and money
- Includes vent damper adapter assembly
- Easy-to-install with complete in-depth installation instructions
- Pilot and main valves draw 1 Amp at 0.5 power factor
- Combined load at 1.5 Amps at 0.4 power factor
- 95% relative humidity noncondensing at 104°F

Specifications

Part Numbers	Description	Spark Rate	Flame Sense Current	Max Total Current Load	Flame Failure Re-Ignition Time	Thermostat Anticipator Setting	Temperature Range	Transformer	Input Voltage
780-001	Gas ignition control - nonlockout	3 to 4 per second	0.7mA DC @ 25°C	1.5 Amps	0.8 seconds	0.7 Amps	-40°F to 175°F	24V AC, 20 VA	24V AC @ 50/60 Hz
780-002	Gas ignition control - lockout	3 to 4 per second	0.7mA DC @ 25°C	1.5 Amps	0.8 seconds	0.7 Amps	-40°F to 175°F	24V AC, 20 VA	24V AC @ 50/60 Hz

1 Year Limited Warranty



IGNITION CONTROLS

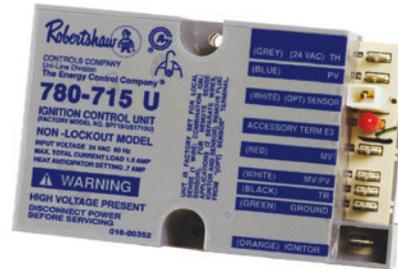
780 Series - Pilot Controls

The Robertshaw® 780 Series Pilot Controls feature flame rectification with solid-state logic and flame sensing to provide automatic sequencing that will ensure proper operation of an intermittent pilot ignition device. When the thermostat calls for heat, the 780 series control simultaneously initiates ignition sparking and opens the pilot valve portion of the gas valve. Pilot flame recognition stops ignition sparking and opens the main valve portion of the gas valve. Pilot burner flame is continuously monitored at a synchronous frequency for the duration of the heating cycle. Should the pilot flame fail during the heating cycle, the control will shut off the main valve until the pilot flame is established.

The Robertshaw 780-845 lockout ignition control provides 90 seconds of spark, followed by a six minute time delay (purge) between ignition attempts. If the pilot flame is not sensed after three tries, the control goes into a one-hour lockout period. At the end of the lockout period, if the demand for heat is still present, the unit will repeat the three tries for ignition.

Features and Benefits

- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions
- Pilot and main valves draw 1 Amp at 0.5 power factor
- Combined load at 1.5 Amps at 0.4 power factor
- 95% relative humidity noncondensing at 104°F



780-715



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Spark Rate	Flame Sense Current	Max Total Current Load	Flame Failure Re-Ignition Time	Thermostat Anticipator Setting	Safety Lockout Timing	Temperature Range	Transformer	Input Voltage
780-715	Intermittent Pilot - Nonlockout	3 to 4 per second	0.7mA DC @ 25°C	1.5 Amps	0.8 seconds	0.7 Amps	NA	-40°F to 175°F	24V AC, 20 VA	24V AC @ 50/60 Hz
780-735	Intermittent Pilot - Lockout	3 to 4 per second	0.7mA DC @ 25°C	1.5 Amps	0.8 seconds	0.7 Amps	NA	-40°F to 175°F	24V AC, 20 VA	24V AC @ 50/60 Hz
780-845	Intermittent Pilot - Lockout	4 to 15 per second	0.7mA DC @ 25°C	1.5 Amps	2 seconds	0.7 Amps	90 seconds	-40°F to 175°F	24V AC, 20 VA	24V AC @ 50/60 Hz



1 Year Limited Warranty





HEATING

Robertshaw®



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780-910

IGNITION CONTROLS

780 Series - Universal Hot Surface Control Uni-Kit®

The Robertshaw® 780 Series Universal Hot Surface Control Uni-Kit® is designed for use on gas fired systems. These controls are equipped with a self-diagnostic green LED for quick troubleshooting. The LED indicates if the system is in normal operation, has gone into lockout, has a weak flame signal, or has an internal error (a defective module). This kit provides all the necessary instructions and hardware needed to replace most hot surface modules.

Features and Benefits

- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions
- Local (sense through the hot surface ignitor) or remote flame sensors
- Single or three ignition attempts or 7 second ignition trial time
- Ignitor warm-up time is 17 or 34 seconds
- 34 seconds or less pre-purge
- Natural or LP gas controls
- Works with 120V AC hot surface ignitors
- Maximum valve current at 1.5 Amps at 24V AC
- 95% relative humidity noncondensing at 104°F

Specifications

Part Numbers	Description	Max Ignitor Current	Flame Failure Re-Ignition Time	Thermostat Anticipator Setting	Temperature Range	Control Input Voltage	Supply Voltage
780-910	Universal Hot Surface Ignition Uni-Kit	5 Amps	0.8 seconds	1 Amp	-40°F to 176°F	24V AC	120V AC @ 50/60 Hz



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B20



IGNITION CONTROLS

780 Series - Hot Surface Controls

The Robertshaw® 780 Series Hot Surface Controls are designed for use on gas fired systems. The system acts on a demand for heat by a switch or thermostat to supply power to the ignition control. On non pre-purge models, the ignitor will be energized immediately and remain on for either of two optional selected ignitor heat-up times: approximately 17 or 34 seconds. For models with the prepurge option, there is a time delay equal to the heat-up time selected before the ignitor is energized. At the end of the ignitor heat-up time, the gas valve is opened supplying gas to the main burner. After several seconds, the ignitor is turned off and the sensor is energized. As long as flame is sensed, the system continues to operate.

Features and Benefits

- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions
- Molded-in terminal barriers between terminals
- Models available for local and remote sense application
- Mounting screw provides a positive ground connection
- Small compact size provides no hassle installation
- Main valve current is 1.5 Amps at 24V AC
- 95% relative humidity noncondensing at 104°F



780-785

Robertshaw



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Specifications

Part Numbers	Description	Valve Trial Time	Supply Voltage	Ignition Attempts	Pre-Purge Timer	Ignitor Warm-Up Timer	Sensor Type	Max Ignitor Current	Thermostat Anticipator Setting	Temperature Range
780-783	Hot Surface Ignition Control	8 seconds	120V AC	3	34 seconds	34 seconds	Local	5 Amps	0.1 Amps	-40°F to 176°F
780-785	Hot Surface Ignition Control	6 seconds	120V AC	3	NA	34 seconds	Local	5 Amps	0.1 Amps	-40°F to 176°F
780-790	Hot Surface Ignition Control	4 seconds	120V AC	1	NA	17 seconds	Local	5 Amps	0.1 Amps	-40°F to 176°F

Specifications continued

Part Numbers	Input Voltage	Supply Voltage
780-783	24V AC @ 50/60 Hz	120, 208/240, 277 Volts AC
780-785	24V AC @ 50/60 Hz	120, 208/240, 277 Volts AC
780-790	24V AC @ 50/60 Hz	120, 208/240, 277 Volts AC



1 Year Limited Warranty



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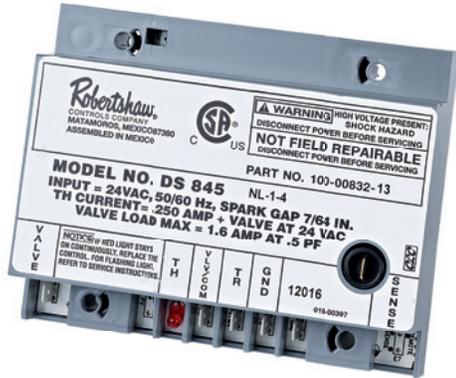


Scan for all models, literature and cross reference



1 Year Limited Warranty

IGNITION CONTROLS



780-502

780 Series - Direct Spark Controls

The Robertshaw® 780 Series Direct Spark Controls are applicable to commercial cooking equipment, gas fired heating, and water heating systems of many types. The system acts on a demand for heat by a switch or thermostat to open the gas valve. At the same time, the 780 series ignition control supplies a spark to the electrode which ignites the gas. After the gas is lit, an electronic circuit proves the presence of flame using flame rectification. When the thermostat is satisfied, the gas valve will be closed to shut off the main burner gas.

Features and Benefits

- Replaces one rod and/or two rod systems
- Reduces truck stock inventory, saving space and money
- Easy-to-install with complete in-depth installation instructions

Specifications

Part Numbers	Description	Type	Supply Voltage	Ignition Attempts	Valve Trial Time
780-502	Direct Spark Ignition Controls	Non Pre-Purge, Enclosed	24V AC	1	4 seconds
780-511	Direct Spark Ignition Controls	Pre-Purge, Remote, Enclosed, 1/4 Q.C.	24V AC	3	7 seconds



IGNITION CONTROLS

785 Series - Automatic Pilot Relight Kits

The Robertshaw® 785 Series Automatic Pilot Relight Kits are designed for use on rooftop heating equipment, water heaters, boilers, space heaters, unit heaters, dryers, and other commercial, industrial, and residential appliances where the problem of pilot outage may occur. It should only be applied to those systems which already incorporate the necessary pilot-safety control system.

Features and Benefits

Kit Includes:

- Ignitor assembly
- Mounting bracket



785-001

Specifications

Part Numbers	Description	Spark Gap	Temperature Range	High Voltage Output	Electrical Rating
785-001	Pilot Relight Kit	1/8"	-40°F to 185°F	15kV	24/120 Volts AC, 0.1 Amp

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Scan for all models, literature and cross reference



1 Year Limited Warranty

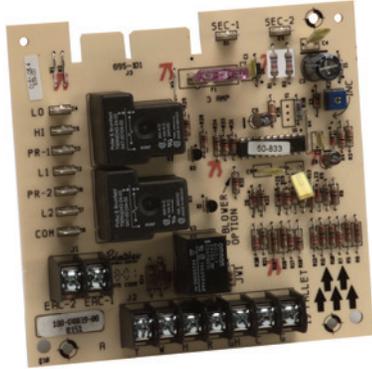




Robertshaw®



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695-101

IGNITION CONTROLS

695 Series - Fan Control

The Robertshaw® 695-101 Series Fan Control is a solid state control designed and engineered for the replacement market. It replaces the Carrier / BDP Gas Furnace Control Center that has been used in new equipment for many years. This control center is an exact replacement. No modification to the original wiring or to the appliance sheet metal is required.

Features and Benefits

- Easy-to-install with complete in-depth installation instructions
- 95% relative humidity non-condensing at 50°C
- Reduces truck stock inventory, saving space and money

Specifications

Part Numbers	Description	Cool Off Time	Heat Off Time (Adjustable)	Temperature Range	Control Voltage	Input Voltage
695-101	Replacement Circuit Board for Fan Control Centers	90 seconds	80 to 240 seconds	-40°F to 176°F	18 - 30 Volts AC	120V AC @ 60 Hz

1 Year Limited Warranty



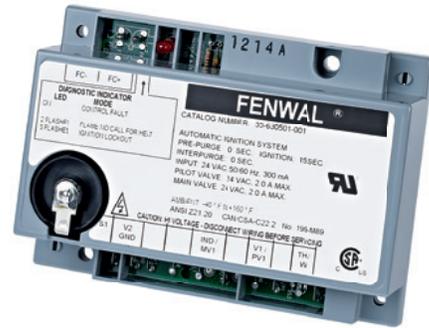
IGNITION CONTROLS

35 Series - Fenwal® Intermittent Pilot Controls

The Fenwal 35 Series Pilot Controls are a 24V AC intermittent pilot ignition control. The microprocessor circuit design provides precise, repeatable timing and operating sequences. The on-board diagnostics with LED output provide assistance with troubleshooting to ensure safe and efficient operation.

Features and Benefits

- Quick connect terminals for easy connection
- Easy-to-install with complete in-depth installation instructions
- Pilot valve draws 2.0 Amps maximum
- Main valve draws 2.0 Amps maximum
- Gray enclosure (Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money



35-630501-001



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Flame Sense Method	Auto Reset	Ignition Tries Before Lockout	Trial For Ignition	Pre-Purge	Inter-Purge	Gas Valve Rating (Main and Pilot)	Control Voltage	Electrical Rating
35-630501-001	Intermittent Pilot Ignition Control	Remote	No	1	15	0 seconds	0 seconds	2.0 Amps @ 24V AC	18 - 30 Volts AC	24V AC @ 300mA



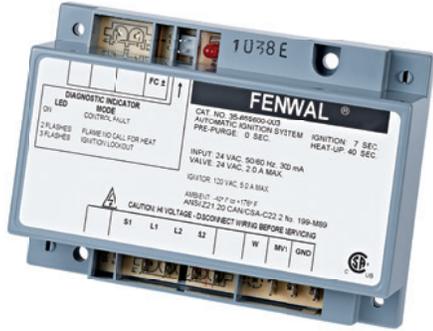
1 Year Limited Warranty



HEATING



Scan for all models, literature and cross reference



35-655800-003

IGNITION CONTROLS

35 Series - Fenwal® Hot Surface Controls

The Fenwal 35 Series Hot Surface Controls are designed to perform many gas-fired 24V AC appliance functions in a single control, resulting in lower system costs. This series monitors the demand for heat, ignites and maintains the flame during heating, and provides diagnostic support.

The on-board diagnostics with LED output provide assistance with troubleshooting and ensures safe and efficient burner operation. The microprocessor circuit design provides precise, repeatable timing sequences for ignition and pre-purge and inter-purge times, as well as multiple tries for ignition.

Features and Benefits

- Edge connector type for easy connection
- Easy-to-install with complete in-depth installation instructions
- Gray enclosure (Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money

Specifications

Part Numbers	Description	Flame Sense Method	Auto Restart	Ignition Tries Before Lockout	Trial for Ignition	Pre-Purge	Inter-Purge	Hot Surface Ignitor	Gas Valve Rating	Control Voltage	Electrical Rating
35-655800-003	Hot Surface Ignition Control, Field Selectable Line Voltage Capability	Local / Remote	Yes	1	7	0 seconds	0 seconds	40 second Heat Up, 120/240 Volts AC, 5 Amps Max	2.0 Amps @ 24V AC	18 - 30 Volts AC, 50/60 Hz	24V AC @ 300mA, 120 or 240 Volts AC (L1 and L2 only)
35-655801-013	Hot Surface Ignition Control, Field Selectable Line Voltage Capability	Local / Remote	Yes	3	7	0 seconds	15 seconds	40 second Heat Up, 120/240 Volts AC, 5 Amps Max	2.0 Amps @ 24V AC	18 - 30 Volts AC, 50/60 Hz	24V AC @ 300mA, 120 or 240 Volts AC (L1 and L2 only)



1 Year Limited Warranty



IGNITION CONTROLS

35 Series - Fenwal® Direct Spark Controls

The Fenwal 35 Series Direct Spark Ignition Controls utilize a microprocessor to continually analyze and control the proper operation of the gas burner.

The microprocessor circuit design provides precise, repeatable timing sequences for ignition times and purge times, one hour automatic reset and flame sensing during pre-purge.

The 35 Series includes on-board diagnostics with LED output to provide assistance with troubleshooting, and to ensure safe and efficient burner operation.

Features and Benefits

- Various connection and construction types available
- Easy-to-install with complete in-depth installation instructions
- Gray enclosure (where applicable Noryl N-190) of fire retardant plastic
- Reduces truck stock inventory, saving space and money



35-605606-223



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Flame Sense Method	Auto Reset	Ignition Tries Before Lockout	Trial For Ignition	Pre-Purge	Inter-Purge	Connection	Construction	Gas Valve Rating	Control Voltage	Electrical Rating
35-605606-111	Direct Spark Ignition Control	Remote	Yes	3	4	15	15	Edge Connector	Gray Noryl	2.0 Amps @ 24V AC	18 - 30 Volts AC, 50/60 Hz	24V AC @ 300mA
35-605606-223	Direct Spark Ignition Control	Remote	Yes	3	7	30	30	Edge Connector	Gray Noryl	2.0 Amps @ 24V AC	18 - 30 Volts AC, 50/60 Hz	24V AC @ 300mA
35-704600-005	Direct Spark Ignition Control	Local	No	1	10	0	0	Quick Connect Terminals	Open Board	1.5 Amps @ 120V AC	102 to 138 Volts AC, 50/60 Hz	120V AC @ 350mA
35-725206-117	Direct Spark Ignition Control	Remote	Thermostat Power Off	3	15	15	15	Multi-Pin Connector	Potted	1.5 Amps @ 120V AC	102 to 138 Volts AC, 50/60 Hz	120V AC @ 50mA



1 Year Limited Warranty





Robertshaw®



Scan for all models, literature and cross reference



41-401

IGNITORS

Carbide Series

The Robertshaw® Carbide Series Hot Surface Ignitors deliver dependable ignition in heating systems of every description: furnaces, boilers, rooftop heaters, infrared burners, unit heaters, water heaters, and many other types of HVAC equipment.

Features and Benefits

- Made from high-purity recrystallized silicon carbide (Crystar™) which combines physical and thermal strength with stable electrical properties
- Designed to reach ignition temperature(s) within 17 seconds
- Have 18-gauge nickel chrome lead wires embedded and metalized in place for maximum holding strength and electrical conductivity
- Manufactured with lead wires enclosed in a special high-temperature fiberglass insulation providing electrical protection
- Operate at 120V AC. Some modules are rated for 208/240V input, however, the voltage to the ignitor is stepped down to 120V AC

Specifications

Part Numbers	Description	Ceramic Block Style	Lead Wire Length	Terminal Connector Type	Comments
41-401	Hot Surface Carbide Ignitors	A	4-1/2"	A	Includes a gasket
41-402	Hot Surface Carbide Ignitors	B	19"	NA	
41-403	Hot Surface Carbide Ignitors	C	5-1/2"	NA	
41-404	Hot Surface Carbide Ignitors	C	4-1/2"	D	Includes special mounting adaptors
41-405	Hot Surface Carbide Ignitors	D	5-1/2"	NA	
41-406	Hot Surface Carbide Ignitors	E	10-1/2"	NA	Includes a gasket
41-407	Hot Surface Carbide Ignitors	C	4-1/2"	B	
41-408	Hot Surface Carbide Ignitors	B	5"	C	
41-409	Hot Surface Carbide Ignitors	C	4-1/2"	D	
41-410	Hot Surface Carbide Ignitors	B	4-1/2"	B	
41-411	Hot Surface Carbide Ignitors	B	4-1/2"	C	Includes special mounting adaptors
41-412	Hot Surface Carbide Ignitors	F	5-1/4"	D	
41-414	Hot Surface Carbide Ignitors	F	5-1/4"	D	Includes special mounting adaptors
41-418	Hot Surface Carbide Ignitors	B	5-1/4"	C	Includes bracket
41-419	Hot Surface Carbide Ignitors	G	5"	D	



41-402



41-403



41-404



41-405



41-406



41-407



41-408



41-409



41-410



41-411



41-412



41-414

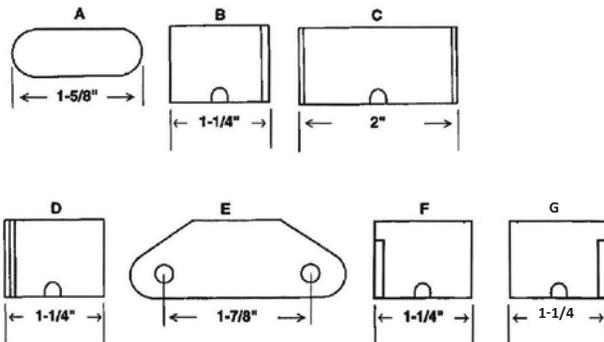


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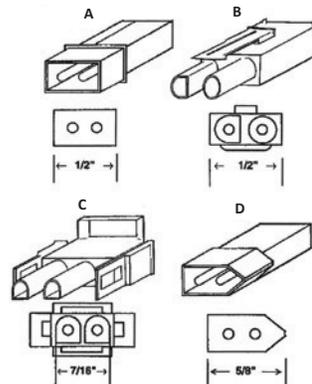


41-419

Ceramic Block Styles



Terminal Block Styles





Robertshaw®



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IGNITORS

Hot Surface Mini-Ignitor Series

The Robertshaw® 41-600 Series Hot Surface Mini-Ignitors deliver dependable ignition in all heating systems. The mini-ignitor's three-second heat-up time, in combination with its small size, have been embraced by gas furnace OEMs.

Features and Benefits

- Engineered for easy handling, simple installation and trouble-free operation
- Made of a unique, non-porous, high strength material
- Operates at 120V AC

Specifications

Part Numbers	Description	Ceramic Block Style	Replaces
41-604	Hot Surface Furnace Mini-Ignitor	4"	Armstrong #44744-2
41-605	Hot Surface Furnace Mini-Ignitor	2.5"	York Conversion Kit #473-20937-001

1 Year Limited Warranty



IGNITORS

Universal Ignitor Series

The Robertshaw® Universal Ignitors are the perfect truck stock item. All universal ignitors replace over 130 ignitors currently used in the field. To allow for universal applications, mounting brackets and hardware are included.

Robertshaw Universal Ignitors are recommended for operating voltage of 120V AC. Two models are available. The 41-802N is the best model available with the highest level of durability. The 41-803 offers good durability.

Features and Benefits

41-802N

- The ultimate in silicon nitride with technology from Kyocera™ for the best durability
- Best heat dissipation

41-803

- High density silicon carbide for good physical strength and durability
- Less current required to light



Robertshaw[®]



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Heating Element	Warranty Duration
41-802N	Universal Hot Surface Ignitor	Flat blade	3 years
41-803	Universal Hot Surface Ignitor	Double helix spiral	1 year

1 Year Limited Warranty

3 Year Limited Warranty





Robertshaw®



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1820-009



1830-490

PILOTS

1820 and 1830 Series

The Robertshaw® 1820 Series Pilot Uni-Kit® models are designed to replace hard-to-find ITT-General PG9 type pilots. A special 1/4" tubing adaptor is typically provided with nut and ball sleeve. Uni-Kits are available with and without a 32" [810mm] thermopile.

The 1830 Series Pilot Uni-Kit models are designed to be used with all Robertshaw and most competitive thermocouples. Uni-Kit models include an adaptor that converts a threaded thermocouple/thermopile model 2CH to a snap-in thermocouple type, model 2C.

Features and Benefits

- Many flame pattern types available
- Thermocouple or thermopile options
- Spark electrode available
- Horizontal or vertical gas inlet
- Several mounting bracket types available
- Aerated pilots with non-linting characteristics

Specifications

Part Numbers	Description	Hood Type	Mounting Bracket Type	Flame Pattern Type	Lead Lengths	Includes
1820-009	PG9 Replacement Pilot Uni-Kit®	NA	NA	90° Right Hand	36"	1950-532 Thermopile and Orifices
1820-019	PG9 Replacement Pilot Uni-Kit	NA	NA	90° Left Hand	36"	1950-532 Thermopile and Orifices
1830-001	2CH & 2C Incinerator-Target Pilot Uni-Kit	2	6	Standard	NA	Orifices
1830-210	2CH & 2C Incinerator-Target Pilot Uni-Kit	2	2	Standard	NA	Orifices
1830-489*	2CH & 2C Incinerator-Target Pilot Uni-Kit	6	6	3-Way	NA	Orifices
1830-490	2CH & 2C Incinerator-Target Pilot Uni-Kit	6	6	3-Way	NA	Orifices
1830-491	2CH & 2C Incinerator-Target Pilot Uni-Kit	6	6	3-Way	NA	Orifices

*International export models



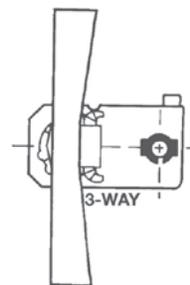
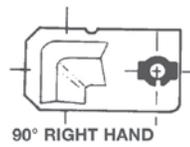
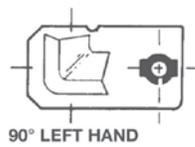
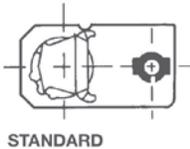
Hood Type



Mounting Bracket Type



Flame Pattern Type





Robertshaw®



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1980-030

THERMOCOUPLES

1900 Series

The Robertshaw® 1900 Series Thermocouples include either a special low-mass or quick dropout thermocouple. It is usually found on applications that require an oxygen depletion system on the thermo safety. It is also found on many LP gas applications that require a quick dropout of the thermo safety if there is a loss of pilot flame.

⚠ ATTENTION: The 1960-027 has standard thermocouple threads, and WILL NOT fit applications with metric threads.

The Robertshaw 1970 Series Uni-Couple® design allows for installation to virtually all pilot burners. The versatile zip nut may be pushed, pulled or threaded onto the thermocouple's rolled threads for proper positioning in every application.

The Robertshaw 1980 Series Snap-Fit Thermocouples offer easy installation into the majority of pilot burners. They are manufactured without complicated adaptors, but with extra insulation that the brass sheath provides under high ambient temperatures.

Features and Benefits

- Easy burner installation with attached threaded nut
- Stainless steel outer jacket for long life and resistance to heat blistering
- Combination of copper and nickel alloys for good electrical conductivity
- Mica washer to insulate from shorting conditions
- Tinnerman clip included
- Various lengths available for multiple applications

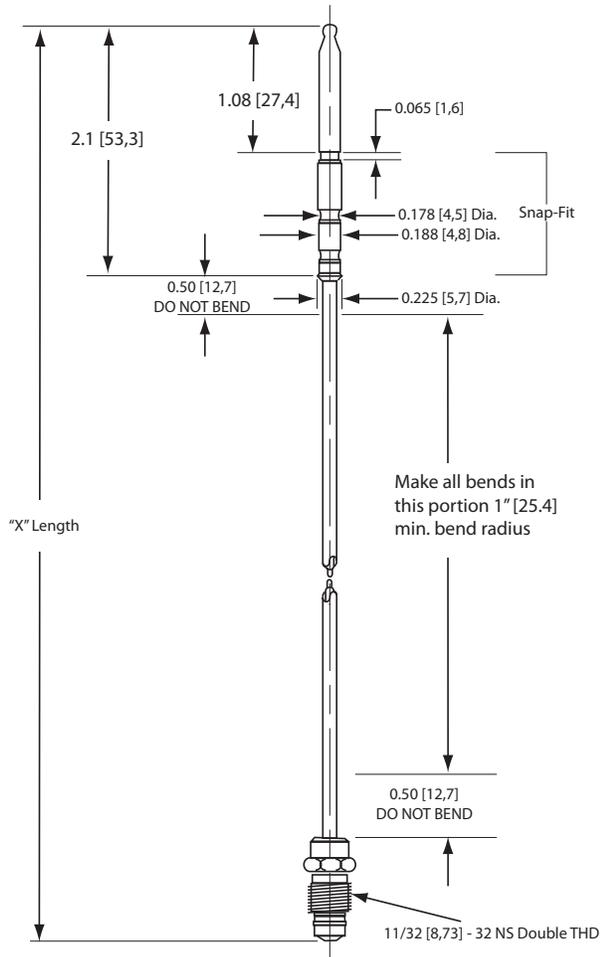
Specifications

Part Numbers	Description	"X" Length
1960-027	Low Mass Thermocouple	27"
1970-018	Uni-Couple® 20 to 30 Millivolts	18"
1970-024	Uni-Couple 20 to 30 Millivolts	24"
1970-036	Uni-Couple 20 to 30 Millivolts	36"
1980-018	Snap-Fit Thermocouple	18"
1980-024	Snap-Fit Thermocouple	24"
1980-030	Snap-Fit Thermocouple	30"
1980-036	Snap-Fit Thermocouple	36"
1980-048	Snap-Fit Thermocouple	48"



Product Drawings

1980 Series



1 Year
Limited
Warranty



Robertshaw®



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1950-001



1951-001

THERMOPILES

1950 and 1951 Series

The Robertshaw® 1950 and 1951 Series Thermopiles lead the industry for gas appliance applications. Their primary function is to ensure a standing pilot light is operative so that on a call for heat, the main burner gas will be properly ignited. Thermopiles are placed in gas applications to detect the existence of a flame for safety purposes by shutting off the potential gas flow to a burner.

A thermopile is the assembly of many thermocouples to increase the millivolt output.

Robertshaw thermopiles have two types of connections: coaxial and two-wire spade connectors. The 1950 Series Thermopiles, also known as TP-75, are two-wire spade connectors. The 1951 Series Thermopiles, also known as CP-2 (250 to 750 millivolts), are coaxial connectors. The 1950 and 1951 Series Thermopiles (pilot generators) are designed for use on self-powered gas control systems. They can be used to replace similar competitive devices.

Features and Benefits

- Easy burner installation with attached threaded nut
- Stainless steel outer jacket for long life and resistance to heat blistering
- Combination of copper and nickel alloys for good electrical conductivity
- Mica washer to insulate from shorting conditions
- Tinnerman clip included
- Various lengths available for multiple applications

Specifications

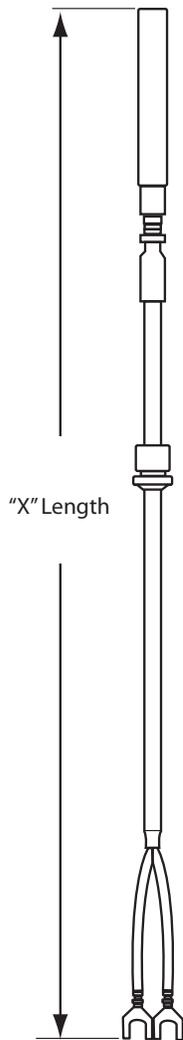
Part Numbers	Description	"X" Length	Includes	Connection Type	Open Circuit Output
1950-001	Thermopile	36"	PG9 Pilot Adaptor	Two Lead	250-750 mV
1950-532	Thermopile	36"		Two Lead	250-750 mV
1951-001	Thermopile	36"	PG9 Pilot Adaptor	Coaxial	250-750 mV
1951-536	Thermopile	36"		Coaxial	250-750 mV



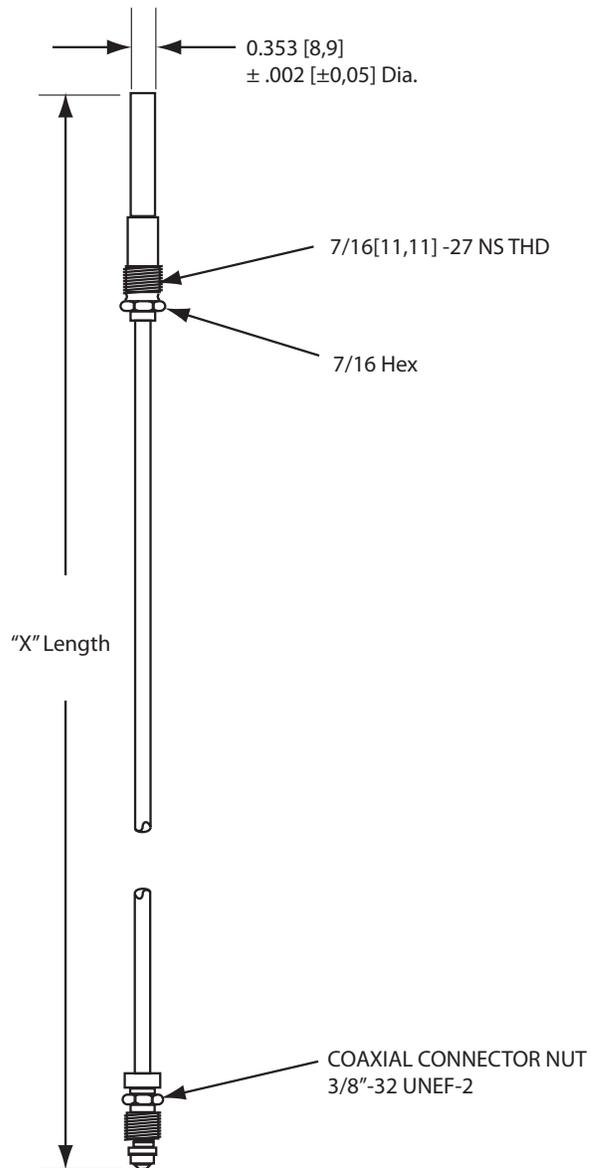


Product Drawings

1950 Series



1951 Series





Robertshaw®



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2374-510



10-650

AIR PRESSURE SENSING SWITCHES

2374 Series - Universal

The Robertshaw® 2374-510 Air Pressure Sensing Switch has a glass-filled polycarbonate housing containing a sensing diaphragm and an integral snap-acting switch with three male 90° quick-connect terminals. The switch can sense positive, negative or differential air pressure. The field adjustable set point range of this switch is 0.10" WC to 10.0" WC. Using the switch accessories contained in this kit, the switch can be applied to a wide variety of residential and light commercial HVAC applications.

2374-510 Kit Contents:

- Air pressure sensing switch
- Calibration springs (5 options)
- Orifice flows (4 options)
- Mounting brackets (2 options)
- Calibration tool (hex wrench)

The Robertshaw 10-650 Sensing Probe Kit provides a simple, practical and standardized approach to sampling air for HVAC air pressure sensing applications. This convenient kit includes a seven inch universal air sample probe suitable for both static and impact applications. The included mounting flange is efficiently installed using the (2) 6# x 3/8" type 25 tap screws. The mounting flange locks the air sample probe in place via a 6# x 1/4" slotted set screw, providing a standard method of controlling the insertion depth of the air sample probe into the air stream. Three feet of clear vinyl tubing is included in the kit for connecting the air sample probe to the air switch. Also provided is a slip-on adaptor for use with an installed air switch equipped with a compression style air sample line connector.

10-650 Kit Contents:

- Universal 7" probe
- Mounting flange
- Flange-locking screw set
- 3' vinyl tubing
- Slip-on adaptor

Specifications

Part Numbers	Description	Switch	Set Point Range	Temperature Range	Connection	Electrical Rating
2374-510	Universal Air Pressure Sensing Switch	SPDT	0.10" to 10.0" WC	-40°F to 190°F (-40°C to 88°C)	Silver Contacts	1/10 Hp @ 120 to 277 Volts AC; 28VA Pilot Duty @ 24V AC; 125VA Pilot Duty @ 120V AC; 5 Amps @ 24, 120, 277 Volts AC
10-650	Sensing Probe Kit with 7" Probe	NA	NA	-40°F to 190°F (-40°C to 88°C)	3/16" Flexible Rubber Tubing	NA



1 Year Limited Warranty



AIR PRESSURE SENSING SWITCHES

2374 Series - Adjustable

The Robertshaw® 2374 Series Adjustable Air Sensing Switches are designed to replace a wide variety of air sensing switches found in residential and light commercial applications including furnaces, electronic air cleaners and humidifiers. Two models are currently available with an SPDT switch that can be actuated by positive or negative pressure or by pressure differential. Highly accurate, these switches are practically insensitive to temperature change with an operating temperature range of -40°F to 190°F (-40°C to 88°C). Each switch includes mounting hardware and an adjustment tool for easy installation and calibration.

Features and Benefits

- Field adjustable control set point
- Air sample line connectors will accept 1/8", 1/4" or 3/8" tubing
- Electrical connection is 1/4" spade
- Vertical operating mounting position for diaphragm
- UL File Number MH6213, CSA File Number LR18754



2374-495

Robertshaw[®]



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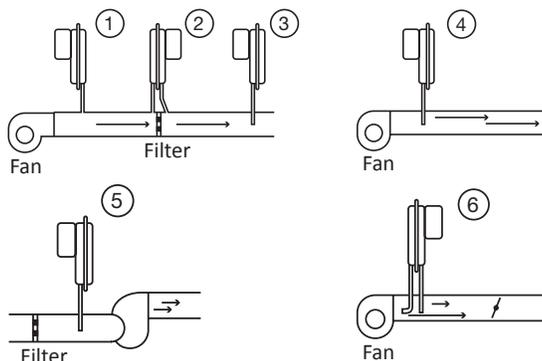
Specifications

Part Numbers	Description	Switch	Set Point Range	Maximum Pressure	Temperature Range	Electrical Rating
2374-495	Adjustable Air Sensing Switch	SPDT	0.25" to 1.0" WC	0.5 PSI	-40°F to 190°F (-40° to 88°C)	5 Amps @ 120-277 Volts AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA
2374-498	Adjustable Air Sensing Switch	SPDT	1.00" to 4.0" WC	0.5 PSI	-40°F to 190°F (-40° to 88°C)	5 Amps @ 120-277 Volts AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA

Typical Applications For Sensing Switch and Sensing Probe Kit

1	Positive static pressure increases as the filter gets dirty.
2*	Differential across filter changes as filter gets dirty.
3	Flow is reduced as filter gets dirty.
4	Fan operation or air flow with little or no static pressure.
5	Negative pressure increases as the filter gets dirty.
6*	Fan operation and true air flow with varying amounts of static pressure. Probes must be perpendicular to the air flow.

* Applications use two (2) Sensing Probe Kits



2 Year Limited Warranty



Robertshaw®



HEATING ACCESSORIES

Flame Sensors

The Robertshaw® Flame Sensor Assembly and Replacement Sensors have high temperature Kanthol sensor rods that will withstand 1800°F (982°C). The sensor rod is 4" long and can be cut and bent to match an original unit. Excellent replacement for most manufacturers' flame sensors.

Features and Benefits

- Includes 30" of Teflon® insulated lead wire with a 482°F (250°C) rating
- Connects to a 1/4" quick connect terminal

Specifications

Part Numbers	Description	Comments
10-227	Replacement S1 Sensor	S1 Sensor has 1/4" quick connect terminal
10-760	Flame Sensor Assembly	Full assembly



Scan for all models, literature and cross reference

HEATING ACCESSORIES



Universal Pilot Ignitor Sensor

The Robertshaw® Universal Pilot Mounting Ignitor Sensor is primarily used with the 712 series intermittent pilot ignition Uni-Kit®. This ignitor and sensor assembly includes mounting bracket, mounting hardware and 24" lead.

Features and Benefits

- Includes all necessary parts for installation
- Quick replacement parts

Specifications

Part Numbers	Description	Length	Comments
1751-729	Universal Pilot Mounting Ignitor Sensor	24"	Includes ignitor/sensor assembly, mounting bracket and hardware

1 Year Limited Warranty



Robertshaw[®]

HEATING ACCESSORIES

Pilot Orifices

The Robertshaw[®] Pilot Orifices are used as replacement parts in Robertshaw 1820 and 1830 type pilots.

Features and Benefits

- Compatible with 1820, 1830 (2C, 2CH, 2S, 2SH) Pilots
- Orifice can fit into 3/16" or 1/4" tubing



10-021

Specifications

Part Numbers	Description	Type Gas	Tube Size	Orifice Size
10-021	Pilot Orifice for Heating or Cooking	Natural Gas	3/16" or 1/4"	0.018"
10-114	Pilot Orifice for Heating or Cooking	LP	3/16" or 1/4"	0.010"
10-209	Pilot Orifice for Heating or Cooking	Natural Gas	3/16" or 1/4"	0.026"
10-210	Pilot Orifice for Heating or Cooking	LP	3/16" or 1/4"	0.016"



HEATING ACCESSORIES

Tubing

The Robertshaw[®] aluminum tubing is versatile for all your replacement needs. It comes in a full range of sizes in 50 and 5 foot lengths.

Features and Benefits

- Aluminum tubing meets ASTM Standard #483
- Uses a 1435 alloy with a 0.035 wall thickness
- Tubing is rated at 90 PSI with an 11,000 tensile, 9500 yield and a 25% elongation



11-193

Specifications

Part Numbers	Description	Length	Diameter Size
11-193	Aluminum Tubing	50'	1/4"
11-195	Aluminum Tubing	50'	3/8"
11-293	Aluminum Tubing with Fittings	5'	1/4"



Scan for all models, literature and cross reference

1 Year Limited Warranty



HEATING

Robertshaw®



1751-012

HEATING ACCESSORIES

Dial - Gas

The Robertshaw® line of replacement gas dials for gas valves come in many colors with various options. More selections can be viewed at www.uni-line.com.

Features and Benefits

- Replacement dial for use with Unitrol® 7000 gas valves
- Beige color with On, Off and Pilot selections
- Not for use with 700 Series Pilot Ignition gas valves

Specifications

Part Numbers	Description
1751-012	Beige knob dial



Scan for all models, literature and cross reference

1 Year Limited Warranty



HEATING ACCESSORIES

4590 Series - Breakaway Ferrules

The Robertshaw® 4590 Series Breakaway Ferrules are used for attaching tubing to gas valves. Applications include heating, cooking and water heating.

Features and Benefits

- One breakaway ferrule part replaces the need for an additional nut
- Sold in multiple quantities for convenience
- Screw machined brass fittings for quality performance



Specifications

Part Numbers	Description	Size	Quantity
4590-065	Breakaway Ferrules For Venting	1/8" Tubing	Package of 15
4590-067	Breakaway Ferrules	3/16" Tubing	Package of 15
4590-069	Breakaway Ferrules	1/4" Tubing	Package of 15
4590-071	Breakaway Ferrules	3/8" Tubing	Package of 6
4590-816	Extended Breakaway Ferrules	1/4" Extended	Package of 15

Robertshaw[®]



Scan for all models, literature and cross reference

1 Year Limited Warranty





Installers prefer a vast selection of quality solutions for commercial refrigeration applications while requiring intuitive installation set-up and dependable performance.

The Ranco® brand is trusted in commercial refrigeration for ease-of-use, performance, reliability and innovation.

Electronic Controls	C2
Temperature Controls - Cold Controls	C6
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Temperature Controls - Specialty Applications.....	C10
Temperature Controls - Wide Range	C13
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REFRIGERATION





REFRIGERATION

PARAGON[®]



Scan for all models, literature and cross reference



C2

ELECTRONIC CONTROLS



ERC2-212111-370

ERC-2 Series

The Paragon[®] ERC-2 Electronic Refrigeration Control is a microprocessor-based electronic controller designed to manage both the temperature and the defrost functions of a commercial refrigeration unit.

Features and Benefits

- Real-time clock for defrost control
- Integrated control
- Temperature control function
- 4 relay outputs 120-240 Volts AC @ 50/60 Hz
- Compressor
- Evaporator fan
- Alarm
- Digital display module
- Keypad programming
- Two temperature sensors (supplied)
- Refrigeration cycle
- Safe mode operation
- Continues operation based on performance average in the event sensor fails
- Power failure recovery
- All settings retained in memory
- Time-of-day carried over for 100 hours

Specifications

Part Numbers	Description	Case Type	Temperature Sensor	Defrost Cycles	Temperature Range	Electrical Rating
ERC2-212111-370	ERC-2 Electronic Control with integrated display	NEMA 1	NTC thermistor	1 to 8 per day or 1 every 48 hours	-40°F to 60°F (-40°C to 16°C)	120/208/240 Volts AC (+10, -15%), 50/60 Hz



Output Relay Rating

Compressor: SPST	120V AC	208V AC	240V AC
Horsepower Rating (HP)	1	1.5	2
FLA/LRA	16/96	12/72	12/72
Pilot Duty (VA)	470	470	470
Defrost: SPST NO	120V AC	208V AC	240V AC
Resistive Amps	16	16	16
Horsepower Rating (HP)	1/2	3/4	1
Pilot Duty (VA)	470	470	470
Evaporator Fan: SPST NC	120V AC	208V AC	240V AC
Resistive Amps	16	16	16
Horsepower Rating (HP)	1/2	3/4	1
FLA/LRA	10/59	8/48	8/48
Pilot Duty (VA)	470	470	470
Alarms: SPST NO	120V AC	208V AC	240V AC
Resistive Amps	5	5	5
Pilot Duty (VA)	240	240	240

1 Year
Limited
Warranty



REFRIGERATION

RANCO



Scan for all models, literature and cross reference



C4

ELECTRONIC CONTROLS



ETC-111000-000

ETC Series

The Ranco® ETC Series Electronic Temperature Control offers a full-featured electronic replacement for electrical-mechanical temperature controls used in many commercial refrigeration applications. With its wide temperature range, one and two stage capability, selectable heating/cooling modes and multi-voltage input, the ETC is designed to provide application flexibility. Models available include 120/208/240 Volts AC and 24V AC.

Features and Benefits

- Wide temperature range (-30°F to 220°F)
- Wide differential adjustment (1°F to 30°F)
- LCD read-out for sensor temperature, control settings, and relay status
- High Amp output relay (FLA 16 Amps @ 120V AC and 8 Amps @ 208/240 Volts AC) single stage
- EEPROM memory retains control settings during power outages
- Keypad lockout to prevent end-user alteration of settings
- 8 foot lead with sensor is extendable up to 400 feet using 18 or 22-gauge thermostat wire
- Easy 4-step set-up
- Heavy-duty relay is 1 HP rated
- Selectable °F or °C heating/cooling modes
- Single and two stage models
- NEMA 1 case and cover
- NEMA 4X models available

Specifications

Part Numbers	Description	Number of Stages	Enclosure Type	Temperature Range	Differential Range	Electrical Rating	0 to 10 Volt Output
ETC-111000-000	Electronic Temperature Control	One	NEMA 1	-30°F to 220°F (-34°C to 104°C)	1°F to 30°F (1°C to 16°C)	120/208/240 Volts AC	No
ETC-112000-000	Electronic Temperature Control	One	NEMA 1	-30°F to 220°F (-34°C to 104°C)	1°F to 30°F (1°C to 16°C)	24V AC	No
ETC-141000-000	Electronic Temperature Control	One	NEMA 4X	-30°F to 220°F (-34°C to 104°C)	1°F to 30°F (1°C to 16°C)	120/208/240 Volts AC	No
ETC-211000-000	Electronic Temperature Control	Two	NEMA 1	-30°F to 220°F (-34°C to 104°C)	1°F to 30°F (1°C to 16°C)	120/208/240 Volts AC	No
ETC-212000-000	Electronic Temperature Control	Two	NEMA 1	-30°F to 220°F (-34°C to 104°C)	1°F to 30°F (1°C to 16°C)	24V AC	No
1309007-044	Thermistor Sensor, 2" long x 1/4" diameter with 8' #22 AWG cable	NA	NA	NA	NA	NA	NA



Relay Electrical Ratings

Single Stage Models			Two Stage Models		
120V AC	208/240 Volts AC	NO Contact	120V AC	208/240 Volts AC	
16 Amps	8 Amps	Full-load Amps	9.8 Amps	4.9 Amps	
96 Amps	48 Amps	Locked Rotor Amps	58.8 Amps	29.4 Amps	
15 Amps	8 Amps	Resistive Amps	9.8 Amps	4.9 Amps	
1 HP	1 HP	Horsepower	1/2 HP	1/2 HP	
120V AC	208/240 Volts AC	NC Contact	120V AC	208/240 Volts AC	
5.8 Amps	2.9 Amps	Full-load Amps	5.8 Amps	2.9 Amps	
34.8 Amps	17.4 Amps	Locked Rotor Amps	34.8 Amps	17.4 Amps	
5.8 Amps	2.9 Amps	Resistive Amps	5.8 Amps	2.9 Amps	
1/4 HP	1/4 HP	Horsepower	1/4 HP	1/4 HP	



REFRIGERATION

RANCO



Scan for all models, literature and cross reference



A12-1560

TEMPERATURE CONTROLS - COLD CONTROLS

A12 and 9531 Series - Constant Cut-in

The Ranco® A12 and 9531 Series Constant Cut-in Temperature Controls are designed to switch electrical components of refrigeration systems in response to sensed temperatures.

Features and Benefits

- Laser-welded stainless steel bellows
- Fixed or adjustable temperature settings
- High-amperage contacts
- Pneumatic action provided by vapor-filled capillary or capillary with bulb sensing elements
- Constant On or Off positions available
- Choice of mounting brackets, adjustment ranges and cams, and slotted or flatted shafts
- Standard 1/4" quick-connect terminals with optional screw terminals

Specifications

Part Numbers	Description	Cold Off	Normal Off	Warm Off	Cut-In	Capillary Length
A12-1506	Constant Cut-In Control	9°F	15°F	22°F	38°F	39" x 3/8" x 1-3/8"
A12-1560	Constant Cut-In Control	19°F	24°F	29°F	38°F	72"
A12-700	Constant Cut-In Control	11.5°F	18°F	26°F	37°F	84"
A12-701	Constant Cut-In Control	15°F	23.5°F	31°F	41°F	84"
9531N195	Constant Cut-In Control with Pigtail	5°F	NA	29°F	40°F	58.5"
9531N320	Constant Cut-In Control	11°F	16°F	21°F	40°F	20.5"
9531N395*	Constant Cut-In Control with Pigtail	12°F	19°F	25°F	38°F	48.5"

*International export models

CRUS
Recognized
Component

1 Year
Limited
Warranty



TEMPERATURE CONTROLS - COLD CONTROLS

A22, A30 and 9530 Series - Constant Differentials

The Ranco® A22, A30 and 9530 Series Constant Differential Temperature Controls are designed to switch electrical components of refrigeration systems in response to sensed temperatures.

Features and Benefits

- Laser-welded stainless steel bellows
- Fixed or adjustable temperature settings
- High-amperage contacts
- Pneumatic action provided by vapor-filled capillary or capillary with bulb sensing elements
- Constant On or Off positions available
- Choice of mounting brackets, adjustment ranges and cams, and slotted or flatted shafts
- Standard 1/4" quick-connect terminals with optional screw terminals



A30-2210



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Switch	Off Position	Cold Off	Cold On	Normal Off	Normal On	Warm On	Differential	Capillary Length
A22-391	Adaptable Constant Differential Control	SPDT	No	11°F	19°F	27°F	35°F	51°F	8°F	66"
A22-1112	Adaptable Constant Differential Control	SPST	No	25°F	30°F	34°F	39°F	44°F	5°F	72"
A22-1129	Ice Bin Level and Harvest Control	SPDT	NA	NA	NA	35°F	51°F	NA	6°F	48"
A30-180	Adaptable Constant Differential Control	SPST	Yes	-4°F	9°F	9°F	22°F	38°F	13°F	42"
A30-260	Adaptable Constant Differential Control	SPST	Yes	0.5°F	5.5°F	16°F	22°F	30°F	6°F	72"
A30-261	Adaptable Constant Differential Control	SPST	Yes	32°F	38°F	NA	NA	61°F	6°F	84"
A30-262	Adaptable Constant Differential Control	SPST	Yes	3°F	15°F	20°F	32°F	43°F	12°F	84"
A30-263	Adaptable Constant Differential Control	SPST	Yes	0.5°F	23°F	11°F	33.5°F	47°F	22.5°F	84"
A30-301	Adaptable Constant Differential Control	SPST	No	-24°F	NA	-3°F	5.5°F	20.5°F	8.5°F	84"
A30-2209	Constant Differential Control with Dial	SPST	Yes	35°F	NA	36.5°F	44.5°F	46°F	8°F	48"
A30-2210	Constant Differential Control with Dial	SPST	Yes	30°F	NA	32°F	40°F	42°F	8°F	48"
9530N814	Constant Differential Control with Dial	SPST	Yes	12°F	NA	16°F	40°F	43°F	24°F	30"



1 Year Limited Warranty



REFRIGERATION

RANCO



Scan for all models, literature and cross reference

1 Year Limited Warranty

C8

TEMPERATURE CONTROLS - COLD CONTROLS



K12L-1529-002

K Series

The Ranco® K Controls are used all over the globe to control the temperature in commercial and domestic refrigeration, air conditioning and heating applications. Typical uses include refrigerators, freezers, bottle and liquid coolers, and refrigerator display cases.

Features and Benefits

- Compact size
- Standard mounting configurations
- Constant/fixed differential
- SPST close-on-rise switching
- Various capillary lengths

Specifications

Part Numbers	Description	Country of Origin	Switch	Cold Cut-In	Cold Cut-Out	Normal Cut-Out	Warm Cut-In	Warm Cut-Out	Constant Cut-In	Capillary Length
K12L-1529-002*	Cold Control International Models	Czech Republic	SPST	NA	-8.3°C	-4.7°C	NA	-0.8°C	5.5°C	2130 mm
K50P-1125-001*	Cold Control International Models	Czech Republic	SPST	-9°C	-18°C	NA	9°C	NA	NA	1200 mm
K50P-1126-001*	Cold Control International Models	Czech Republic	SPST	-18°C	-24°C	NA	-9°C	NA	NA	1200 mm
K50P-1127-001*	Cold Control International Models	Czech Republic	SPST	5°C	2°C	NA	13°C	NA	NA	1200 mm
K50P-6063-001*	Cold Control International Models	Czech Republic	SPST	5°C	-6°C	NA	11°C	NA	NA	1200 mm
K50Q-1125-001*	Cold Control International Models	China	SPST	-9°C	-18°C	NA	9°C	NA	NA	1200 mm
K50Q-1126-001*	Cold Control International Models	China	SPST	-18°C	-24°C	NA	-9°C	NA	NA	1200 mm
K50Q-1127-001*	Cold Control International Models	China	SPST	5°C	2°C	NA	13°C	NA	NA	1200 mm

*International export models



TEMPERATURE CONTROLS

Varifix® Series

The Ranco® Varifix International Cold Controls are designed for fast and easy service replacements. They are available for both refrigerator and freezer applications.

Features and Benefits

- Trusted brand
- Capillary is crimped and sealed for maximum reliability
- High level of performance
- Complete kit includes all necessary hardware



VT9

Specifications

Part Numbers	Description	Application	Normal Cut-Out	Normal Cut-In	Capillary Length
VA-2	Service Replacement Thermostat	Absorption Refrigerator	-18°C	-14.5°C	2000mm
VB7	Service Replacement Thermostat	Bottle or Beverage Cooler and Frost Free Refrigerator	3°C	7°C	1200 mm
VC1	Service Replacement Thermostat	Refrigerator / Manual Defrost	-14.5°C	-5°C	1200 mm
VF3	Service Replacement Thermostat	Freezer and Ice Cream Cabinet	-24°C	-16°C	2000 mm
VR-6	Service Replacement Thermostat	Freezer with Reverse Thermostat	-34°C	-16.5°C	1999mm
VS-5	Service Replacement Thermostat	Freezer with Standard Signal Thermostat	-34°C	-16.5°C	2000mm
VT9	Service Replacement Thermostat	Refrigerator Auto Defrost	-18.5°C	33.5°C	1200 mm
VTD9	Service Replacement Thermostat	Refrigerator for 2 Temperatures with Bypass Valve	-26.9°C	-14.3°C	2000mm
VX0	Service Replacement Thermostat	Larder Refrigerator	-15°C	-5°C	1999mm



Scan for all models, literature and cross reference

1 Year Limited Warranty





REFRIGERATION

RANCO

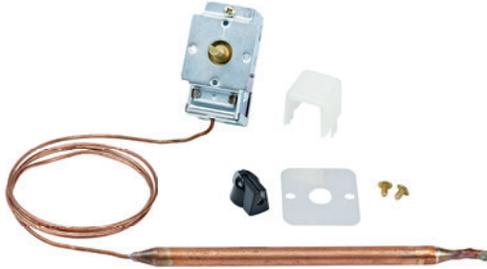


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1 Year Limited Warranty

C10

TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



C12-5010

Heat/Cool

The Ranco® Heat / Cool Controls replace many OEM controls which govern the on/off compressor function. Heat and cool controls are found on room air conditioners such as packaged terminal, room and through-the-wall heat and cool units.

Features and Benefits

- Fixed or adjustable temperature settings
- Laser-welded stainless steel sensing elements
- Narrower differentials attainable
- C12 can be used for cool only units or heat/cool units when used with a separate changeover switch
- C17 has two SPDT electrically isolated switches, calibrated at different set points and differentials
- Two stage SPDT switches are staged 3.5°F

Specifications

Part Numbers	Description	Application	Switch	Temperature Range	Differential	Capillary	Sensing Element
C12-5010	Single Stage Heat / Cool Control	Packaged Terminal, Room and Through-the-Wall Heat / Cool Units	SPDT	60°F to 98°F	3°F	36"	3/8" x 9" Bulb
C17-100	Two Stage Heat / Cool Control	Packaged Terminal, Room and Through-the-Wall Heat / Cool Units	2 SPDT	71°F to 101°F (Cooling), 64°F to 94°F (Heating)	3.5°F	26"	3/8 x 8-9/16" Bulb





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TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS

Heat Pump Controls

The Ranco® Heat Pump Controls provide accurate control of temperature and defrost for heat pumps.

The C12-2001 control is an adjustable resistance heat thermostat used to turn on heat in response to outdoor temperature.

The E15-2601 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.

Features and Benefits

- Laser-welded stainless steel sensing elements
- Narrower differentials attainable
- Defrost includes field selectable defrost cycles



C12-2001

Specifications

Part Numbers	Description	Application	Switch	Temperature Range	Timing	Differential	Capillary Length	Sensing Element
C12-2001	Resistance Heat Lockout Thermostat	Heat Pump Controls	SPDT	-1°F to 59°F	NA	5°F	30"	3/8" x 6" Bulb
E15-2601	Timer-Initiated Heat Pump De-Ice Control	Heat Pump Controls	SPDT	Adjustable 55°F to 78°F	Field Selectable: 30, 45, or 90 Minutes	NA	60"	5/16" x 5-1/16" Bulb



REFRIGERATION

RANCO®



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1 Year Limited Warranty

C12

TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



F25-107

F Series - Fan Control

The Ranco® Fan Controls terminate defrost, and delay the evaporator fan operation on electric heat, hot gas and reverse cycle commercial refrigeration systems.

Features and Benefits

- Prevents warm, moist air from being circulated into the refrigerated space
- Remote bulb sensing
- Factory-fixed low event for fan delay

Specifications

Part Numbers	Description	Application	Switch	Fan On	Defrost Termination Range	Capillary Length	Sensing Element
F25-107	Defrost Termination / Fan Delay Control	Beverage / Reach-in Medium Temperature	SPDT	20°F Fixed	40°F to 75°F (5°C to 24°C)	60"	3/8" X 4" Cross Ambient Bulb

TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS



K-3001

Water Cooler Control

The Ranco® Water Cooler Control is designed as a universal replacement for water and beverage cooler applications.

Features and Benefits

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

Specifications

Part Numbers	Description	Application	Cold Off	Normal Off	Normal On	Warm On	Differential	Capillary Length
K-3001	Direct Replacement Water Cooler Control	Ice Equipment, Thermal Storage and Water Cooler Controls	37°F	46°F	53°F	61°F	7°F	48"



RANCO



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Listed Product

RA US
Recognized Component

1 Year Limited Warranty

C13

TEMPERATURE CONTROLS - WIDE RANGE

O Series

The Ranco® Wide Range O Series Temperature Controls provide a wide selection of controls customized to allow users exact adjustments within manufacturers' limits.

The Ranco O Series features heavy-duty plated steel frames, non-conductive covers with front-located captive cover screws, raised screw terminals for fully accessible wiring, and large easy-to-read scales.

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.

Features and Benefits

- Maximum adjustment accuracy with 7 revolution range adjustment screws
- NEMA 1 enclosure with non-conductive cover
- Universal mounting and compact design
- Laser-welded bellows for extended life
- Wide range adjustable differential

The O60 Series have these additional features:

- 10 times setting sensitivity of most other wide range controls (O60 series only)
- Gas-filled, nonposition-sensitive bulb (O60 series only)



O10-1409
with Coil Capillary



O10-1418
with Air Coil

Specifications

Part Numbers	Description	Switch	Temperature Range	Differential	Capillary Length	Bulb
O10-1408	Low Temperature Controls	SPST	-15°F to 40°F	3°F to 20°F	72"	Remote
O10-1409	Medium Temperature Controls	SPST	0°F to 55°F	3°F to 20°F	72"	Remote
O10-1410	High Temperature Controls	SPST	25°F to 75°F	3°F to 20°F	72"	Remote
O10-1416	Medium Temperature Controls	SPST	0°F to 55°F	3°F to 20°F	72"	Cross Ambient
O10-1418	Medium Temperature Controls	SPST	0°F to 55°F	3°F to 20°F	Air Coil	Remote
O60-100	Extra Low-Wide Range Temperature Controls	SPDT	-35°F to 95°F	4°F to 50°F	96"	3/8" x 6" Cross Ambient
O16-6930-090*	Extra Low-Wide Range Temperature Control	SPDT	-34°C to 34°C	4°C to 25°C	1800mm	Cross Ambient
O16-6950-090*	Extra Low-Wide Range Temperature Control	SPDT	-35°C to -7°C	1.7°C to 12°C	2000mm	Coiled
O16-6951-090*	Extra Low-Wide Range Temperature Control	SPDT	-18°C to 13°C	1.7°C to 12°C	2000mm	Coiled
O16-6954-090*	Extra Low-Wide Range Temperature Control	SPDT	-5°C to 25°C	1.7°C to 12°C	2000mm	Coiled
O16-6980-090*	Extra Low-Wide Range Temperature Control	SPDT	-18°C to 13°C	1.7°C to 12°C	1800mm	Cross Ambient
O16-6981-090*	Extra Low-Wide Range Temperature Control	SPDT	-5°C to 25°C	1.7°C to 12°C	1800mm	Cross Ambient
O16-8900-090*	Extra Low-Wide Range Temperature Control	SPDT	-18°C to 13°C	4°C to 30°C	2000mm	Coiled

*Australian export models



REFRIGERATION

FRANCO®



Scan for all models, literature and cross reference



UL LISTED
Listed Product

Recognized Component

1 Year Limited Warranty

C14

PRESSURE CONTROLS



O10-1402

O Series - Single Low Pressure Controls

The Ranco® O Series Single Low Pressure Controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

Features and Benefits

- Controls available for most refrigerant types
- High-amp rated switch (SPST) design (O10-1402/O10-1483)
- Super Cap® capillary vibration protection system
- Non-conductive front cover with captive screw
- Adjustable differential and range
- Easy-to-read scale plate
- Vibration cone (absorbs and reduces vibration away from brazed joint)
- Low mass copper alloy capillary tube (reduces capillary stress caused by equipment vibration)

The O16-624 control has additional features:

- Compatible with refrigerants 134A, 401A, 401B, 402A, 402B, 403A, 403B and 404A
- Originally designed for use with obsolete refrigerants R12, R22, R500 and R502

Specifications

Part Numbers	Description	Reset	Switch	Pressure Range	Differential	Pressure Connection	Capillary Length
O10-1402	Low Pressure Control	Auto	SPST	12" Hg to 50 PSI	5 to 35 PSI	1/4" SAE flare nut	36"
O10-1483	Low Pressure Control	Auto	SPST	10" Hg to 100 PSI	10 to 40 PSI	1/4" SAE flare nut	36"
O16-527	Low Pressure Control	Auto	SPDT	10" Hg to 100 PSI	10 to 40 PSI	1/4" SAE flare nut	36"
O16-624	Low Pressure Control	Auto	SPST	12" Hg to 80 PSI	5 to 38 PSI	1/4" SAE flare nut	36"
O16-8705-090*	Low Pressure Control	Manual	SPDT	-70 to 300 kPa	60 kPa (Fixed)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
O16-8706-090*	Low Pressure Control	Auto	SPDT	-70 to 300 kPa	60 to 400 kPa	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
O16-8713-090*	Low Pressure Control	Auto	SPDT	-70 to 300 kPa	60 to 400 kPa	NA	1 meter

*Australian export models





Scan for all models, literature and cross reference



1 Year Limited Warranty

PRESSURE CONTROLS

O Series - Single High Pressure Controls

The Ranco® O Series Single High Pressure Controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

Features and Benefits

- 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



Specifications

Part Numbers	Description	Reset	Switch	Pressure Range	Differential	Pressure Connection	Capillary Length
010-2054	Single Function High Pressure Control	Auto	SPST	100 to 400 PSI	40 to 150 PSI	1/4" SAE flare nut	36"
016-108	Single Function High Pressure Control	Auto	SPDT	100 to 400 PSI	40 to 150 PSI	1/4" SAE flare nut	36"
016-200	Single Function High Pressure Control	Manual	SPDT	150 to 450 PSI	40 PSI	1/4" SAE flare nut	48"
020-7006	Single Function High Pressure Control	Auto	DPST	100 to 400 PSI	40 to 150 PSI	1/4" SAE flare nut	36"
016-8750-090*	High Pressure Control	Auto	SPDT	700 to 3000 kPa	250 to 800 kPa	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
016-8751-090*	High Pressure Control	Manual	SPDT	700 to 3000 kPa	320 (Fixed)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA

*Australian export models



REFRIGERATION

RANCO



Scan for all models, literature and cross reference



UL
LISTED
Listed Product

RA
US
Recognized Component

1 Year
Limited
Warranty

C16

PRESSURE CONTROLS



O12-1506

O Series - Dual Pressure

The Ranco® Dual Pressure Controls combine the functions of a single high-pressure limit control and a single low-pressure control in one unit with a single pole, single throw (SPST) switch.

Features and Benefits

- Convertible feature allows selection of manual or reset function when operating at high pressure (O12-4833/O12-4834)
- A wide range of high-pressure manual or automatic reset controls can be replaced (O12-4833 or O12-4834)
- A high-pressure limit is combined with suction pressure sensing to provide temperature control and/or pumpdown
- High-limit adjustment screw
- Low-pressure differential and range adjusting screws
- Selector screw for manual or automatic
- Reset button
- Low-pressure scale plate
- High-impact plastic cover with center mount screw
- High-pressure scale plate
- Super Cap® capillary protection system
- Color-coded for easy identification of pressure line
- High-side capillary flare nut (silver)
- Low-side capillary flare nut (brass)

Specifications

Part Numbers	Description	Switch	Low Reset	Low Cut-In	Low Differential	High Reset	High Cut-Out	High Differential	Pressure Connection	Capillary Length
O12-1502	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI	5 to 35 PSI	Auto	150 to 450 PSI	70 Fixed PSI	1/4" SAE flare nut	36"
O12-1506	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI	5 to 35 PSI	Auto	100 to 250 PSI	50 Fixed PSI	1/4" SAE flare nut	36"
O12-1549	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI	10 to 40 PSI	Auto	150 to 450 PSI	70 Fixed PSI	1/4" SAE flare nut	36"
O12-4833	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI	5 to 35 PSI	Convertible	150 to 450 PSI	70 Fixed PSI	1/4" SAE flare nut	48"
O12-4834	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI	10 to 40 PSI	Convertible	150 to 450 PSI	70 Fixed PSI	1/4" SAE flare nut	48"
O17-8701-090*	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	350 kPa (Fixed)	Auto	700 to 3000 kPa	60 to 400 kPa	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
O17-8703-090*	Dual Pressure Control	SPDT	Manual	-30 to 700 kPa	350 kPa (Fixed)	Manual	700 to 3000 kPa	60 kPa (Fixed)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
O17-8705-090*	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	350 kPa (Fixed)	Manual	700 to 3000 kPa	60 to 400 kPa	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA
O17-8711-090*	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	350 kPa (Fixed)	Auto	700 to 3000 kPa	60 to 400 kPa	NA	1 meter

*Australian export models



PRESSURE CONTROLS

O Series - Ice Bank Control

The Ranco® O Series Ice Bank Control is suitable for soft drink dispensers, drink vending machines and ice builders for thermal storage. Uses a special water-filled bulb and transmission fluid to control ice thickness in applications utilizing a refrigerated water bath with ice bank reserve capacity.



Specifications

Part Numbers	Description	Switch	Cut-In	Cut-Out	Temperature	Capillary Length	Sensing Element
O18-100	Ice Bank Control	SPST	34.5°F	27.5°F	Fixed 32°F	76"	Bulb



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1 Year Limited Warranty





REFRIGERATION

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P30-5826

LUBE OIL CONTROLS

P30 Series

The Ranco® P30 Series Lube Oil Protection Controls guard pressure-lubricated refrigeration compressors against major damage due to loss of oil pressure.

This control utilizes the built-in P30 Time Delay Switch to start timing when oil pressure drops below operating requirements.

The timer is designed not only to track oil pressure recovery within a set period, but also to alert the control circuit to open and stop the compressor when the recovery period is exceeded.

These controls also feature replaceable time delay modules, Super Cap® capillary protection system and front-located captive cover screw.

Features and Benefits

- Alarm circuit standard
- Ambient temperature compensated
- Super Cap® capillary protection system
- High impact, non-conductive cover
- Field replaceable switch module
- Manual reset
- Industry standard circuitry and terminal identification

Specifications

Part Numbers	Description	Pressure Connection Lube and Suction	Time Delay	Pressure Range	Electrical Rating
P30-5826	P30 Series Lube Oil Protection Control	3/6" Capillary with Flare Nut	120 seconds	9 PSID Fixed	120V AC or 240V AC, Pilot Duty 720VA

1 Year Limited Warranty



Scan for all models, literature and cross reference

1 Year Limited Warranty

REFRIGERATION ACCESSORIES

Refrigerant Hoses

The Ranco® refrigerant hose is a heavy-duty hose designed for critical applications such as commercial refrigeration.

Made of Teflon® tubing and surrounded by a braided 304 stainless steel wire, the hose is designed to resist breakage from compressor vibration.

Features and Benefits

- Hose inner diameter - 3/16"
- Hose outer diameter - 5/16"
- Maximum operating pressure - 3,000 PSI
- Minimum burst pressure - 12,000 PSI
- Minimum bend radius - 2"
- Vacuum - 28" Hg



1290132-A24



1290132-A36

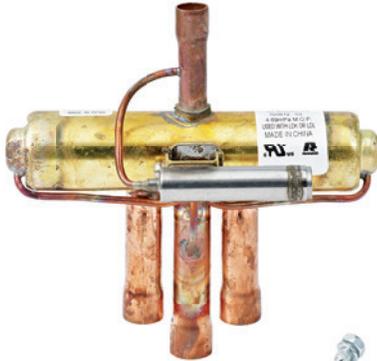
Specifications

Part Numbers	Description	Hose Length	Fittings (1/4 SAE)
1290132-A24	Refrigerant Hose	24"	One straight and one 90° elbow. Both ends have 7/16" - 20 Female Flare Connector
1290132-A36	Refrigerant Hose	36"	One straight and one 90° elbow. Both ends have 7/16" - 20 Female Flare Connector



REFRIGERATION

RANCO



V2-408060-170

REVERSING VALVES

V Series

The Ranco® 4-Way Reversing Valves are designed for heat pump applications such as window-type, unitary and split systems.

They are the key component to provide heating and cooling from the heat pump system by reversing the flow direction of the refrigerant.

These solenoid operated valves are slide type with a 4-way pilot valve, and operate under the full pressure of the heat pump system.

Note: Solenoid coils are not included.

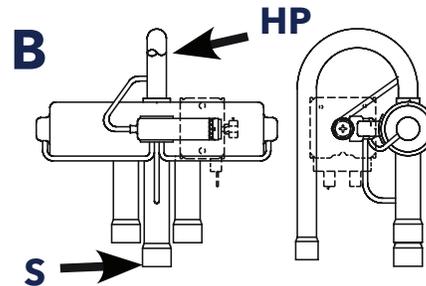
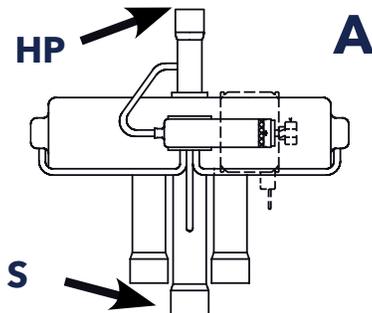
Specifications

Part Numbers	Description	Capacity Nominal	Capacity R-22	Capacity R-410A	Tube Size Suction	Tube Size Discharge	Style
V2-408060-170	4-Way Reversing Valve	1 ton	0.75 to 2.0 tons	0.9 to 2.2 tons	1/2"	3/8"	A
V2-408060-270	4-Way Reversing Valve	2 tons	0.75 to 2.0 tons	0.9 to 2.2 tons	1/2"	3/8"	B
V2-410060-470	4-Way Reversing Valve	2 tons	1.0 to 2.5 tons	1.3 to 2.5 tons	5/8"	3/8"	D
V2-4100F0-370	4-Way Reversing Valve	2 tons	1.0 to 2.5 tons	1.3 to 2.5 tons	5/8"	3/8" Outer Diameter	C
V3-410080-770	4-Way Reversing Valve	3 tons	1.0 to 2.8 tons	1.3 to 3.1 tons	5/8"	1/2"	E
V3-412080-870	4-Way Reversing Valve	3 tons	1.0 to 3.0 tons	1.3 to 3.5 tons	3/4"	1/2"	E
V6-412080-170	4-Way Reversing Valve	6 tons	1.0 to 5.5 tons	1.3 to 6.7 tons	3/4"	1/2"	A
V6-414080-170	4-Way Reversing Valve	6 tons	1.0 to 5.5 tons	1.3 to 6.7 tons	7/8"	1/2"	A
V10-414080-170	4-Way Reversing Valve	10 tons	3.0 to 9.9 tons	3.8 to 11.9 tons	7/8"	1/2"	A
V10-418140-170	4-Way Reversing Valve	10 tons	3.0 to 11.2 tons	3.8 to 13.5 tons	1-1/8"	7/8"	A
V12-4220T0-270	4-Way Reversing Valve	12 tons	6.0 to 14.0 tons	6.3 to 16.8 tons	1-3/8"	1-1/8" Outer Diameter	F



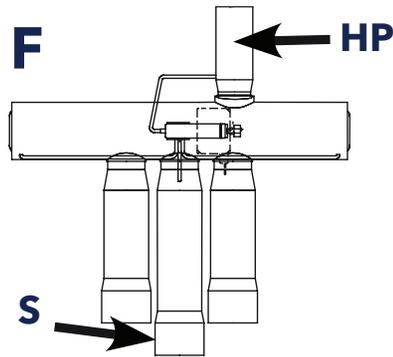
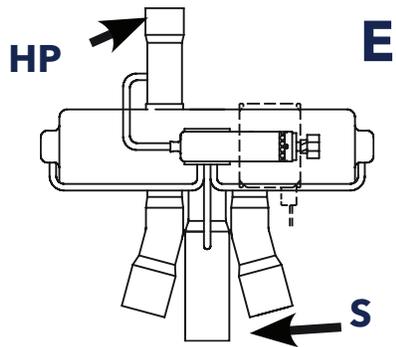
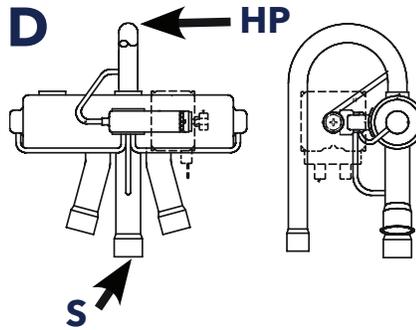
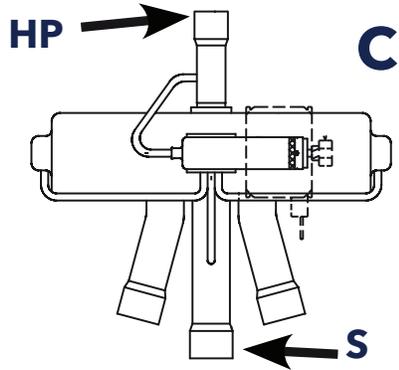
Scan for all models, literature and cross reference

Product Drawings





Product Drawings



Legend
HP: High Pressure
S: Suction

RRANGO®

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Limited
Warranty

C21



REFRIGERATION

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REVERSING VALVES - SOLENOID COILS



LDK-110000-070

LDK Series

The Ranco® LDK Series Solenoid Coils are designed for use with current production (Generation 4) V0, V1, V2, V3, V6, V10 and V12 Ranco 4-way Reversing Valves.

These color-coded, encapsulated, continuous duty, moisture resistant electro-magnetic coils are designed to operate the pilot valve that controls these reversing valves.

A W29 wiring harness with 48" leads is included with the solenoid coil.

Features and Benefits

- Epoxy encapsulated
- Continuous duty
- Moisture resistant magnetic coils
- Includes wiring harness

Specifications

Part Numbers	Description	Color Code	Lead Length	Electrical Rating	Power
LDK-110000-070	Solenoid Coils for Reversing Valves	Red	48"	24V AC	5 Watts at 50 Hz, 4 Watts at 60 Hz
LDK-310000-070	Solenoid Coils for Reversing Valves	Black	48"	120V AC	5 Watts at 50Hz, 4 Watts at 60 Hz
LDK-410000-070	Solenoid Coils for Reversing Valves	Green	48"	208/240 Volts AC	5 Watts at 50 Hz, 4 Watts at 60 Hz



SOLENOID VALVES

1000 Series

The Ranco® 1000 Series Solenoid Valves are designed for installation on commercial refrigerating systems using various refrigerant fluids to stop the flow of those fluids. When the coil is energized by a cold control with setpoint, the plunger opens the valve seat connecting the inlet to the outlet to allow open flow. Additional coils are sold separately.

Features and Benefits

- Normally closed (NC) solenoid valves without coils
- Direct acting and diaphragm pilot operated versions available
- Direct acting valves operate on magnetic field and can open with zero pressure differential



1020UL/2S

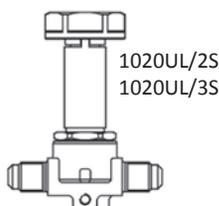


1064UL/3S

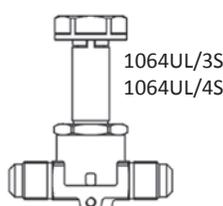
Specifications

Part Numbers	Description	Connection Type	Connections	Flow kV [m3/h]	Pressure PSI (Bar)	Temperature Range Min To Max
1020UL/2S	Solenoid Valve, Direct Acting	SAE	1/4"	0.18	652 (45)	-31°F To 230°F (-35°C To 110°C)
1020UL/3S	Solenoid Valve, Direct Acting	SAE	3/8"	0.23	652 (45)	-31°F To 230°F (-35°C To 110°C)
1064UL/3S	Solenoid Valve, Diaphragm Pilot Operated	SAE	3/8"	0.80	652 (45)	-31°F To 230°F (-35°C To 110°C)
1064UL/4S	Solenoid Valve, Diaphragm Pilot Operated	SAE	1/2"	0.80	652 (45)	-31°F To 230°F (-35°C To 110°C)
1070UL/4S	Solenoid Valve, Diaphragm Pilot Operated	SAE	1/2"	2.20	652 (45)	-31°F To 230°F (-35°C To 110°C)
1070UL/5S	Solenoid Valve, Diaphragm Pilot Operated	SAE	5/8"	2.61	652 (45)	-31°F To 230°F (-35°C To 110°C)
1028UL/2S	Solenoid Valve, Direct Acting	ODS	1/4"	0.15	652 (45)	-31°F To 230°F (-35°C To 110°C)
1028UL/3S	Solenoid Valve, Direct Acting	ODS	3/8"	0.23	652 (45)	-31°F To 230°F (-35°C To 110°C)
1068UL/3S	Solenoid Valve, Diaphragm Pilot Operated	ODS	3/8"	0.80	652 (45)	-31°F To 230°F (-35°C To 110°C)
1068UL/4S	Solenoid Valve, Diaphragm Pilot Operated	ODS	1/2"	0.80	652 (45)	-31°F To 230°F (-35°C To 110°C)
1078UL/5S	Solenoid Valve, Diaphragm Pilot Operated	ODS	5/8"	2.61	652 (45)	-31°F To 230°F (-35°C To 110°C)
1099UL/9S	Solenoid Valve, Diaphragm Pilot Operated	ODS	1-1/8"	5.70	652 (45)	-31°F To 230°F (-35°C To 110°C)
9105/RA4	Coil Hm2 - 110-120V 60 Hz					
9105/RA6	Coil Hm2 - 220-230V 60 Hz					

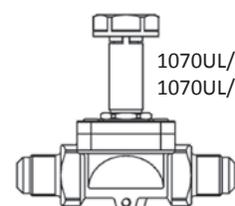
Product Drawings



1020UL/2S
1020UL/3S



1064UL/3S
1064UL/4S



1070UL/4S
1070UL/5S



Scan for all models, literature and cross reference



1 Year Limited Warranty



RANCO



Scan for all models, literature and cross reference



2230/4S



2203/S



2271/2S

THERMOSTATIC EXPANSION VALVES

2000 Series

The Ranco® 2000 Series Thermostatic Expansion Valves (TXVs) are designed for installation on commercial refrigerating systems using various refrigerant fluids to regulate the flow of refrigerant liquid into evaporators. These TXVs are designed to work with interchangeable orifice assemblies to provide flexibility in selection of capacities and can be used in a wide range of applications including refrigeration, air conditioning, heat pump and chiller systems.

Features and Benefits

- Accurate throttle device to control superheat to the setpoint
- Body is made of hot forged brass in angle configuration
- Interchangeable orifice assembly can easily be replaced through the inlet connection
- Quality materials to ensure proper functionality of diaphragm and seating
- Includes bulb bracket to enable proper placement of bulb to the pipe
- Stainless steel bulb, capillary tubing, diaphragm casing and rod
- Copper tube for solder connection
- Solder adaptors sold separately



Specifications

Part Numbers	Description	SAE Flare In	SAE Flare Out	SAE Flare Equal	ODS Out Inches (mm)	ODS Equal Inches (mm)	Refrigerant	Evaporating Temperature Range Min to Max	Pressure PSI (Bar)	Temperature Range Min to Max
2210/4	Thermostatic Expansion Valve, SAE, R22	3/8"	1/2"	NA	NA	NA	R22 - R407C	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2210/4E	Thermostatic Expansion Valve, SAE, R22	3/8"	1/2"	1/4"	NA	NA	R22 - R407C	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2210/4S	Thermostatic Expansion Valve, ODS, R22	3/8"	NA	NA	1/2" (NA)	NA	R22 - R407C	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2210/4SE	Thermostatic Expansion Valve, ODS, R22	3/8"	NA	NA	1/2" (NA)	1/4" (NA)	R22 - R407C	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2220/4	Thermostatic Expansion Valve, SAE, R134a	3/8"	1/2"	NA	NA	NA	R134a	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2220/4E	Thermostatic Expansion Valve, SAE, R134a	3/8"	1/2"	1/4"	NA	NA	R134a	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2220/4S	Thermostatic Expansion Valve, ODS, R134a	3/8"	NA	NA	1/2" (NA)	NA	R134a	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2220/4SE	Thermostatic Expansion Valve, ODS, R134a	3/8"	NA	NA	1/2" (NA)	1/4" (NA)	R134a	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2230/4	Thermostatic Expansion Valve, SAE, R404A	3/8"	1/2"	NA	NA	NA	R404A-R507	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2230/4E	Thermostatic Expansion Valve, SAE, R404A	3/8"	1/2"	1/4"	NA	NA	R404A-R507	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2230/4S	Thermostatic Expansion Valve, ODS, R404A	3/8"	NA	NA	1/2" (NA)	NA	R404A-R507	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)
2230/4SE	Thermostatic Expansion Valve, ODS, R404A	3/8"	NA	NA	1/2" (NA)	1/4" (NA)	R404A-R507	-40°F to 50°F (-40°C to 10°C)	493 (34)	-76°F to 248°F (-60°C to 120°C)

1 Year Limited Warranty





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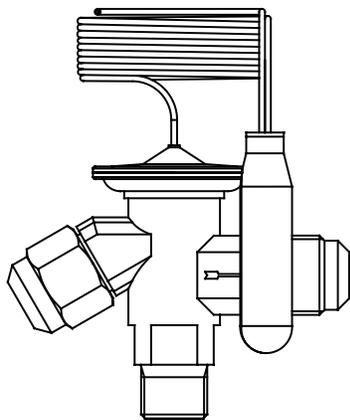
Specifications - continued

Part Numbers	Description	Connector Type	Capacity R22/R407C -40°F to 50°F (-40°C to 10°C) Tons (kW)	Capacity R134A -40°F to 50°F (-40°C to 10°C) Tons (kW)	Capacity R404A/R507 -40°F to 50°F (-40°C to 10°C) Tons (kW)	Capacity R404A/R507 -76°F to -13°F (-60°C to -25°C) Tons (kW)
220X	Orifice Assembly, SAE	SAE	0.1 (0.5)	0.1 (0.4)	0.1 (0.38)	0.1 (0.38)
2200	Orifice Assembly, SAE	SAE	0.3 (1)	0.3 (0.9)	0.2 (0.7)	0.2 (0.7)
2201	Orifice Assembly, SAE	SAE	0.7 (2.5)	0.5 (1.8)	0.5 (1.6)	0.5 (1.6)
2202	Orifice Assembly, SAE	SAE	1.0 (3.5)	0.7 (2.6)	0.6 (2.1)	0.6 (2.1)
2203	Orifice Assembly, SAE	SAE	1.5 (5.2)	1.3 (4.6)	1.2 (4.2)	1.0 (3.5)
2204	Orifice Assembly, SAE	SAE	2.3 (8)	1.9 (6.7)	1.7 (6)	1.4 (4.9)
2205	Orifice Assembly, SAE	SAE	3.0 (10.5)	2.4 (8.6)	2.2 (7.7)	1.7 (6)
2206	Orifice Assembly, SAE	SAE	4.4 (15.5)	3.0 (10.5)	2.6 (9.1)	1.9 (6.6)
220X/S	Orifice Assembly, ODS	ODS	0.1 (0.5)	0.1 (0.4)	0.1 (0.38)	0.1 (0.38)
2200/S	Orifice Assembly, ODS	ODS	0.3 (1)	0.3 (0.9)	0.2 (0.7)	0.2 (0.7)
2201/S	Orifice Assembly, ODS	ODS	0.7 (2.5)	0.5 (1.8)	0.5 (1.6)	0.5 (1.6)
2202/S	Orifice Assembly, ODS	ODS	1.0 (3.5)	0.7 (2.6)	0.6 (2.1)	0.6 (2.1)
2203/S	Orifice Assembly, ODS	ODS	1.5 (5.2)	1.3 (4.6)	1.2 (4.2)	1.0 (3.5)
2204/S	Orifice Assembly, ODS	ODS	2.3 (8)	1.9 (6.7)	1.7 (6)	1.4 (4.9)
2205/S	Orifice Assembly, ODS	ODS	3.0 (10.5)	2.4 (8.6)	2.2 (7.7)	1.7 (6)
2206/S	Orifice Assembly, ODS	ODS	4.4 (15.5)	3.0 (10.5)	2.6 (9.1)	1.9 (6.6)

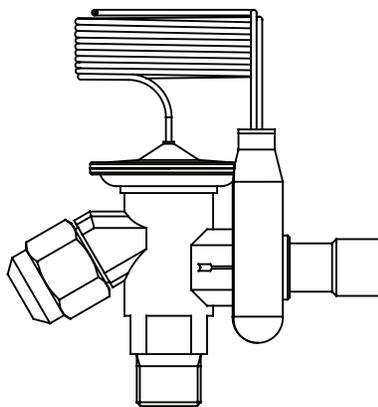
Part Numbers	Description	Flare end
2271/2S	Solder Adaptor	1/4"
2271/3S	Solder Adaptor	3/8"



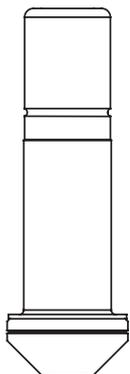
Product Drawing



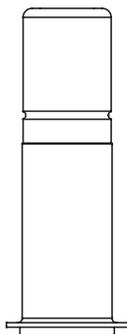
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2220/4, 2220/4E,
2230/4, 2230/4E



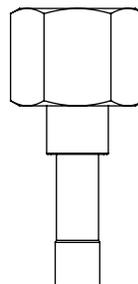
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220/4S, 2220/4SE,
2230/4S, 2230/4SE



220X, 2200, 2201,
2202, 2203, 2204,
2205, 2206



220X/S, 2200/S,
2201/S, 2202/S,
2203/S, 2204/S,
2205/S, 2206/S



2271/2S, 2271/3S



REFRIGERATION

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REGULATORS



3310/4S



3330/5S

3000 Series

The Ranco® 3000 Series Pressure Regulators are designed for installation on commercial refrigerating systems using various refrigerant fluids to modulate the flow of refrigerant at a constant pressure from the sensing point to the outlet of the regulator. There are various regulators designed for use in multiple locations depending on application.

Features and Benefits

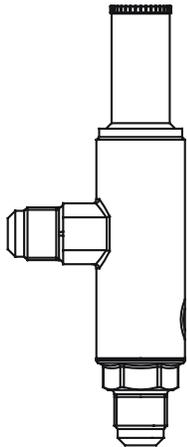
- Provides constant flow of refrigerant for a wide range of loads
- Basic operations for compressor, evaporator and hot gas bypass systems
- Simple settings
- Low pressure drop
- Excellent seat seal in closed position eliminates leaking
- High quality materials used to provide long regulator life



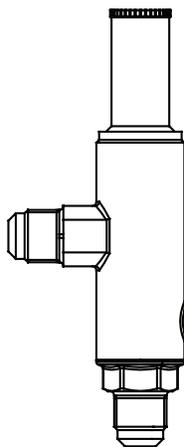
Specifications

Part Numbers	Description	Connection Types	Connection Inches (mm)	Regulation Range PSI (Bar)	Flow Kv [m3/h]	Pressure PSI (Bar)	Temperature Range Min to Max
3310/4S	Hot Gas Bypass Capacity Regulator	ODS	1/2" (NA)	2.9 to 87 (0.2 to 6)	0.70	406 (28)	-40°F to 230°F (-40°C to 110°C)
3310/5S	Hot Gas Bypass Capacity Regulator	ODS	5/8" (16)	2.9 to 87 (0.2 to 6)	1.26	406 (28)	-40°F to 230°F (-40°C to 110°C)
3310/7S	Hot Gas Bypass Capacity Regulator	ODS	7/8" (22)	2.9 to 87 (0.2 to 6)	1.84	406 (28)	-40°F to 230°F (-40°C to 110°C)
3320/4S	Crankcase Pressure Regulator	ODS	1/2" (NA)	2.9 to 87 (0.2 to 6)	3.30	261 (18)	-40°F to 230°F (-40°C to 110°C)
3320/5S	Crankcase Pressure Regulator	ODS	5/8" (16)	2.9 to 87 (0.2 to 6)	3.30	261 (18)	-40°F to 230°F (-40°C to 110°C)
3320/7S	Crankcase Pressure Regulator	ODS	7/8" (20)	2.9 to 87 (0.2 to 6)	3.30	261 (18)	-40°F to 230°F (-40°C to 110°C)
3330/4S	Evaporating Pressure Regulator	ODS	1/2" (NA)	0 to 79 (0 to 5.5)	2.70	261 (18)	-40°F to 230°F (-40°C to 110°C)
3330/5S	Evaporating Pressure Regulator	ODS	5/8" (16)	0 to 79 (0 to 5.5)	2.70	261 (18)	-40°F to 230°F (-40°C to 110°C)
3330/7S	Evaporating Pressure Regulator	ODS	7/8" (22)	0 to 79 (0 to 5.5)	2.70	261 (18)	-40°F to 230°F (-40°C to 110°C)

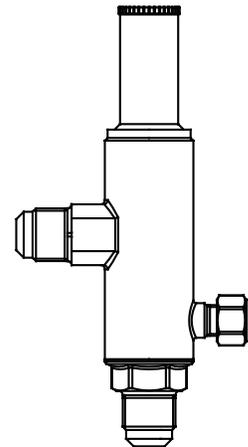
Product Drawing



3310/4S, 3310/5S, 3310/7S



3320/4S, 3320/5S, 3320/7S



3330/5S, 3330/7S

1 Year Limited Warranty



REFRIGERATION

RANCO



Scan for all models, literature and cross reference



3950/22



3940/3

MOISTURE INDICATORS

3900 Series

The Ranco® 3900 Series Moisture / Liquid Indicators are designed for installation on commercial refrigerating systems using various refrigerant fluids to indicate the amount of moisture in the system. The moisture indicator consists of a sensitive element ring, which changes color passing from green to yellow according to the percentage of moisture. When the sensitive element becomes “yellow”, it’s time to replace the dehydrator filter. If the charge and working condition are normal, the refrigerant fluid appears perfectly liquid underneath the “lens” of the indicator.

Features and Benefits

- Provides instant feedback about the state of the refrigerant
- Total hermetic construction to avoid possible refrigerant leaks
- Hot forged brass body
- Copper tube for solder connections
- Easy to view glass lens



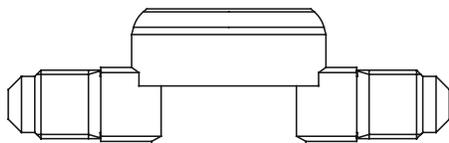
Specifications

Part Numbers	Description	Connection Type	Connection Inches (mm)	Pressure PSI (Bar)	Temperature Range Min to Max
3910/33	Moisture/Liquid Indicator, SAE, Male-Male	SAE	3/8" (NA)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3950/22	Moisture/Liquid Indicator, SAE, Male-Female	SAE	1/4" (NA)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3950/33	Moisture/Liquid Indicator, SAE, Male-Female	SAE	3/8" (NA)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3940/2	Moisture/Liquid Indicator, ODS, Copper Brazen	ODS	1/4" (NA)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3940/3	Moisture/Liquid Indicator, ODS, Copper Brazen	ODS	3/8" (NA)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3940/5	Moisture/Liquid Indicator, ODS, Copper Brazen	ODS	5/8" (16)	653 (45)	-22°F to 230°F (-30°C to 110°C)
3940/7	Moisture/Liquid Indicator, ODS, Copper Brazen	ODS	7/8" (22)	653 (45)	-22°F to 230°F (-30°C to 110°C)

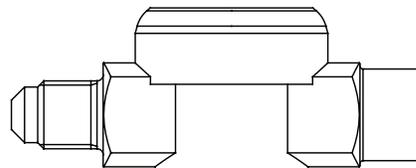
Moisture Contained in Fluid Table (ppm)

Color	R22	R134a	R404A	R407C	R410A	R507
Green	<60	<75	<30	<30	<30	<30
Green-Yellow	60	75	30	30	30	30
Yellow	>60	>75	>30	>30	>30	>30

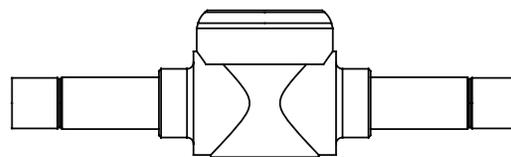
Product Drawing



3910/33



3950/22, 3950/33



3940/2, 3940/3,
3940/5, 3940/7

1 Year
Limited
Warranty



REFRIGERATION

RANCO



Scan for all models, literature and cross reference



4305/2



4308/3

SOLID CORE FILTER DRIERS

4300 Series

The Ranco® 4300 Series Solid Core Filter Driers are designed for installation on commercial refrigerating systems using various refrigerant fluids to ensure the internal filtering of additives. These solid core filter driers have efficient dehydration with minimum charge loss while blocking oil by-products dragged into the system. Impurities accumulate in the ring between the metal shell and the block to prevent filter clogging.

Features and Benefits

- Filter completely manufactured in steel
- Nickel plated flare threaded or copper plated solder connections
- Solder connections made of copper tubing
- Blocks are molded from a blend of dehydrating charge, totally made of 3 Å molecular sieves, and a special binding agent in appropriate proportions
- Good deacidifying characteristics with superlative capacity of water absorption
- Compacted and stout manufacturing process making product resistant to shock and abrasions
- Uniform wall thickness for linear flow through the block
- Block is chemically inert and does not react with refrigerant fluids



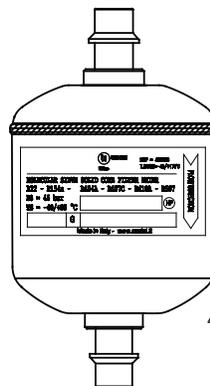
Specifications

Part Numbers	Description	International Code	Connection Type	Connections Inches	ODM Connection Inches	Volume Inches ³ (cm ³)	Pressure PSI (Bar)	Temperature Range Min to Max
4303/2	Solid Core Filter Drier SAE, 1/4", small	032	SAE	1/4"	NA	3.05 (50)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4303/3	Solid Core Filter Drier SAE, 3/8", small	033	SAE	3/8"	NA	3.05 (50)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4305/2	Solid Core Filter Drier SAE, 1/4", medium	052	SAE	1/4"	NA	4.88 (80)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4308/2	Solid Core Filter Drier SAE, 1/4", large	082	SAE	1/4"	NA	7.93 (130)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4308/3	Solid Core Filter Drier SAE, 3/8", large	083	SAE	3/8"	NA	7.93 (130)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4316/3	Solid Core Filter Drier SAE, 3/8", larger	163	SAE	3/8"	NA	15.26 (250)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4316/4	Solid Core Filter Drier SAE, 1/2", larger	164	SAE	1/2"	NA	15.26 (250)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4316/5	Solid Core Filter Drier SAE, 5/8", larger	165	SAE	5/8"	NA	15.26 (250)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4303/2S	Solid Core Filter Drier ODS, 1/4", small	032S	ODS	1/4"	3/8"	3.05 (50)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4303/3S	Solid Core Filter Drier ODS, 3/8", small	033S	ODS	3/8"	1/2"	3.05 (50)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4305/2S	Solid Core Filter Drier ODS, 1/4", medium	052S	ODS	1/4"	3/8"	4.88 (80)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4308/3S	Solid Core Filter Drier ODS, 3/8", large	083S	ODS	3/8"	1/2"	7.93 (130)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4316/5S	Solid Core Filter Drier ODS, 5/8", larger	165S	ODS	5/8"	3/4"	15.26 (250)	653 (45)	-40°F to 176°F (-40°C to 80°C)
4341/7S	Solid Core Filter Drier ODS, 7/8", largest	417S	ODS	7/8"	1-1/8"	40.89 (670)	653 (45)	-40°F to 176°F (-40°C to 80°C)

Product Drawing



4303/2, 4303/3,
4305/2, 4308/2,
4308/3, 4316/3,
4316/4, 4316/5



4303/2S,
4303/3S, 4305/2S,
4308/3S, 4316/5S

1 Year
Limited
Warranty



REFRIGERATION

RANCO



Scan for all models, literature and cross reference

1 Year Limited Warranty

C34

BALL VALVES



6590/3

6590 Series

The Ranco® 6590 Series Ball Valves are designed for installation on commercial refrigerating systems using various refrigerant fluids to ensure the internal equilibrium of pressures when the valve is closed.

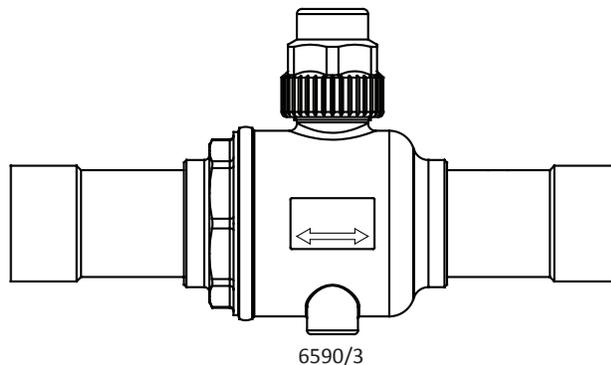
Features and Benefits

- Permits bi-directional flow of the refrigerant
- Prevents risk of ejection or explosion of the spindle
- Body is hot forged brass
- Ball is chromium plated, hot forged brass
- Copper tube solder connections
- Spindle is steel with proper surface protection
- Chloroprene rubber for outlet seal gaskets
- Glass reinforced cap covers the spindle

Specifications

Part Numbers	Description	Ball Port	ODS Connections Inches (mm)	Capacity Tons (Kv [m3/h])	Pressure PSI (Bar)	Temperature Range Min to Max
6590/3	Ball Valve 3/8", 0.8 Tons	10	3/8" (NA)	0.8 (3)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/4	Ball Valve 1/2", 1.4 Tons	10	1/2" (NA)	1.4 (5)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/5	Ball Valve 5/8", 1.4 Tons	15	5/8" (16)	1.4 (5)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/6	Ball Valve 3/4", 4.1 Tons	15	3/4" (NA)	4.1 (14.5)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/7	Ball Valve 7/8", 6.8 Tons	19	7/8" (22)	6.8 (24)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/9	Ball Valve 1-1/8", 11.4 Tons	25	1-1/8" (NA)	11.4 (40)	652 (45)	-40°F to 302°F (-40°C to 150°C)
6590/11	Ball Valve 1-3/8", 19.3 Tons	32	1-3/8" (35)	19.3 (68)	652 (45)	-40°F to 302°F (-40°C to 150°C)

Product Drawing





ELECTRICAL RATINGS

Control Type	Volts AC	Motor Load Rating		Resistive Load Maximum Amps	Pilot Duty Maximum Volt Amps	Switch Action
		Maximum Full Load Amps	Maximum Locked Rotor Amps			
A12	120	16	80	NA	240	SPST
	208	16	80	NA	240	
	240	16	80	NA	240	
A22	120	20	80	25	500	SPDT
	240	20	80	25	500	
	277	16	60	NA	500	
A30	24	NA	NA	NA	240	SPST
	120	20	80	NA	240	
	240	20	80	NA	240	
	277	16	60	16	240	
C12-2001	24	NA	NA	NA	240	SPDT
	120	20	85	25	240	
	240	20	85	25	240	
	277	16	60	20	240	
C12-5010	125	20	80	25	240	SPDT
	240	20	80	NA	240	
	277	16	60	16	240	
C17-100	120	20	80	NA	240	2 SPDT
	240	20	80	NA	240	
	277	16	60	16	240	
E15	24	NA	NA	NA	240	SPDT
	120	10	40	25	240	
	240	10	40	25	240	
	277	10	40	16	240	
F25	120	20	80	NA	360	SPDT
	240	20	80	25	360	
K	120	10	40	NA	240	SPST
	250	6	36	6	240	
O10	24	NA	NA	NA	144	SPST
	120	24	144	24	720	
	240	24	144	24	720	
	241/600	NA	NA	NA	125	
O16, O60	24	NA	NA	NA	144	SPDT
	120	17	102	24	720	
	240	17	102	24	720	
	241/600	NA	NA	NA	125	
P30	120	NA	NA	NA	720	NA
	240	NA	NA	NA	720	



Timers, whether used for defrost or electrical systems, are essential for the longevity and energy saving functionality of important equipment.

The Paragon® defrost and the Tork® electric timers offer versatility and unbeatable quality to control power and compressor defrost cycles.

Defrost products include electromechanical and electronic timers for commercial and residential applications.

Defrost Timers - Electromechanical..... D2

Defrost Timers - Electronic D5

Electric Timers - Electromechanical..... D8

Electric Timers - Electronic D12

Residential Defrost Timers D13



TIMERS





TIMERS

PARAGON[®]



Scan for all models, literature and cross reference



D2



8045-00



8245-20

DEFROST TIMERS - ELECTROMECHANICAL

8000 Series

The Paragon[®] 8000 Series Commercial Defrost Controls are designed for commercial freezers and refrigerators to provide automatic defrost capability. They accommodate various types of defrost systems including electric defrost heaters, hot gas, and compressor off cycle.

Features and Benefits

- Time initiated; temperature, pressure or time terminated models available
- High-amp switch contacts: 40 amps, 2 HP
- Positive slider bar switch design assures positive electrical contact and wipes the contact surface of contaminants
- Temperature or pressure terminated models are designed for defrost termination using an external temperature or pressure device
- Safety back-up – mechanical time-driven defrost termination
- Heavy-duty synchronous design drive motor
- Choice of three contact arrangements
- Adjustable frequency of defrost initiation from 1 to 6 cycles per day with a minimum of 4 hours between successive operations
- Adjustable back-up defrost termination from 4 to 110 minutes in 2 minute increments
- Heavy-duty steel enclosure with knockouts (on the bottom, back and sides) and hasp and staple padlock
- All 8240 models have an adjustable cut-in pressure dial calibrated from 36-110 pounds for R12, R22, R502





Specifications

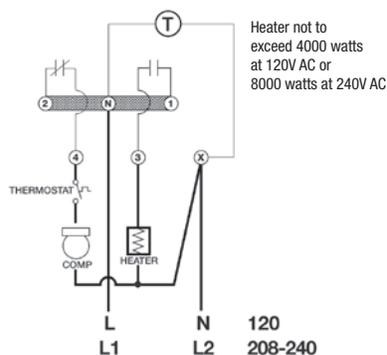
Part Numbers	Description	Switch Arrangement Contacts 2-4	Switch Arrangement Contacts 1-3	Switch Arrangement Contacts 3-N	Termination Type	Voltage
8041-00	Electric Heat	Closed	Open	Closed	Time	120V AC
8045-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Time	120V AC
8045-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Time	208-240V AC
8141-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	Closed	Temp or Pressure	120V AC
8141-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	Closed	Temp or Pressure	208-240V AC
8145-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temp or Pressure	120V AC
8145-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temp or Pressure	208-240V AC
8145-20B	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temp or Pressure	208-240V AC
8245-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Pressure	208-240V AC
D81-8145-00EX*	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temp or Pressure	120V AC
D81-8145-20EX*	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temp or Pressure	208-240V AC

*International export models

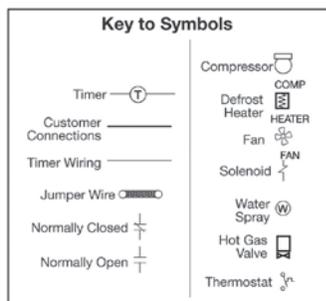
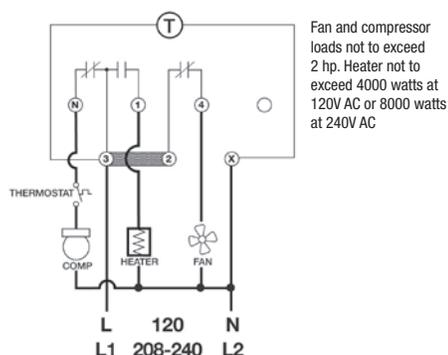
Product Drawings

Electric Heat Defrosting

Models 8045-00 and 8045-20 - Wiring Diagram



Models 8041-00 and 8041-20 - Wiring Diagram



1 Year Limited Warranty



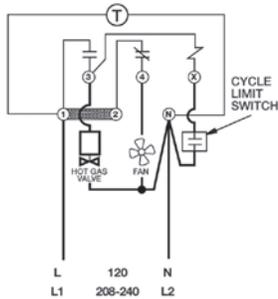
TIMERS

PARAGON

Product Drawings

Hot Gas Defrosting

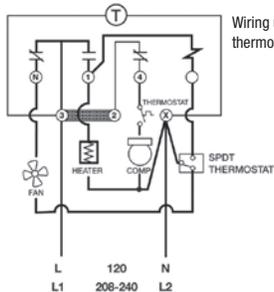
Models 8145-00, 8145-20 and E357-00 -
Wiring Diagram



Wiring using 120V or 240V single phase line with compressor thermostat closed during defrost.

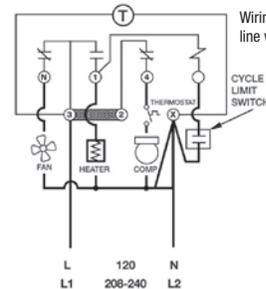
Electric Heat Defrosting

Models 8141-00 and 8141-20 -
Wiring Diagram



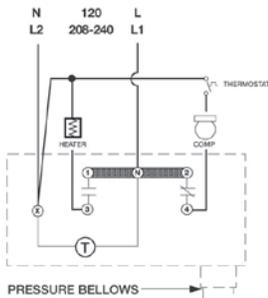
Wiring using differential of SPDT thermostat to delay fan after defrosting

Models 8141-00, 8141-20 -
Wiring Diagram



Wiring using 120V or 240V single phase line with auxiliary fan circuit

Models 8245-00 and 8245-20 -
Wiring Diagram



Wiring for electric heat system without magnetic starter

Key to Symbols			
Timer	T	Compressor	COMP
Customer Connections		Defrost Heater	HEATER
Timer Wiring		Fan	FAN
Jumper Wire		Solenoid	SOL
Normally Closed		Water Spray	WS
Normally Open		Hot Gas Valve	HGV
		Thermostat	T



DEFROST TIMERS - ELECTRONIC

9000 Series

The Paragon® 9045-00 and 9145-00 Universal Defrost Timers (UDT) are the only multi-voltage defrost timers engineered to industry refrigeration standards.

Designed to withstand the most rigorous refrigeration applications, this control offers a real-time clock and 100 hours of power loss protection for both time and defrost schedules. Mechanism-only models also are available to fit in standard defrost timer enclosures.

Features and Benefits

- Certified to UL873 standard for temperature-indicating and regulating equipment
- Wires directly to 120V AC, 208V AC or 240V AC power sources without jumpers or switches
- Rated to 30,000 cycles for refrigeration controllers with switches
- Easy programming, easy set-up, set time, set defrost start and defrost end
- Initiate 15 minute manual defrost
- 100 hours of power loss protection for both time and defrost schedule
- Real-time clock
- Lighted display shows defrost start time and duration
- System status indicators



9045-00



9045-00M

PARAGON®



Scan for all models, literature and cross reference



1 Year Limited Warranty



TIMERS

PARAGON



Scan for all models, literature and cross reference

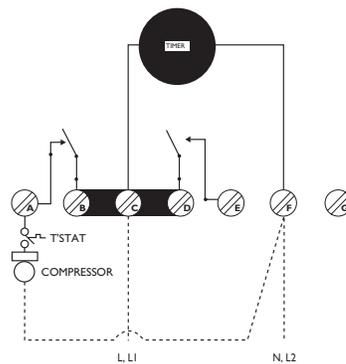
Specifications

Part Numbers	Description	Relay Switch	Initiation Type	Termination Type	Voltage
9045-00	Universal Defrost Timer	SPST	Time	Time	120-208-240V AC
9045-00M	Mechanism Only	SPST	Time	Time	120-208-240V AC
9145-00	Universal Defrost Timer	SPDT	Time	Time, Temp or Pressure	120-208-240V AC
9145-00M	Mechanism Only	SPDT	Time	Time, Temp or Pressure	120-208-240V AC

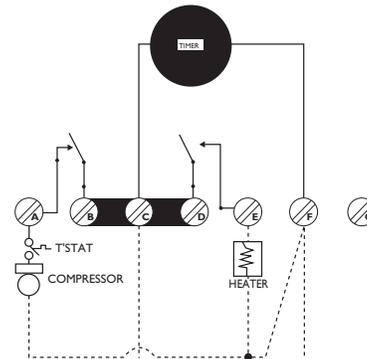
9045							
Terminal Data	A	B	C	D	E	F	G
Relay Contact	SPST #1 NC Contact	SPST #1 Common Contact	L1 Power in to Timer	SPST #2 NO Contact	SPST #2 Common Contact	L2/N Power in to timer	No Connection
Relay Rating	30 A resistive @ 120 to 240V AC 1 HP @ 120V AC, 2 HP @ 208 to 240V AC			30 A resistive @ 120 to 240V AC 1 HP @ 120V AC, 2 HP @ 208 to 240V AC			
Device Connections	Compressor (Typical)			Defrost Device (Typical)		Defrost Termination Switch	

9145							
Terminal Data	A	B	C	D	E	F	G
Relay Contact	SPDT NC Contact	SPDT NO Contact	SPDT Common Contact	SPST NO Contact	SPST Common Contact	L2/N Power in to timer	Defrost Termination Device Input L2/N side
Relay Rating	15 A resistive @ 120 to 240V AC 1/4 HP @ 120V AC, 1/2 HP @ 208 to 240V AC	30 A resistive @ 120 to 240V AC 1 HP @ 120V AC 2 HP @ 208 to 240V AC			30 A resistive @ 120 to 240V AC 1 HP @ 120V AC, 2 HP @ 208 to 240V AC		
Device Connections	Fan (Typical) Compressor (Optional)	Defrost Device (Typical)	L1 Power to Timer and to Defrost Termination Device		Compressor (Typical) Fan (Optional)		Defrost Termination Switch

Product Drawings



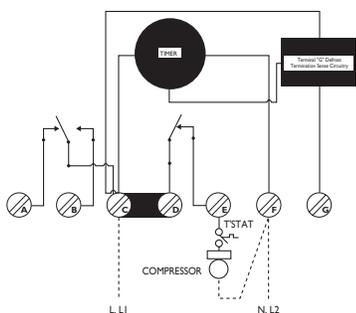
9045 AIR DEFROST - Time Initiated
Time Terminated - Wiring Diagram



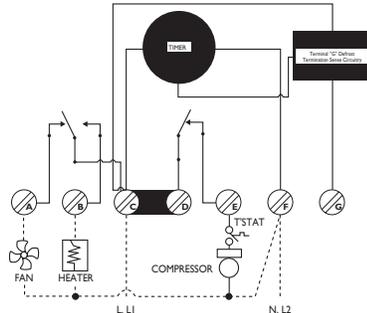
9045 ELECTRIC DEFROST - Time Initiated
Time Terminated - Wiring Diagram



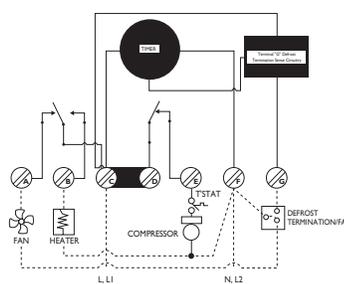
Product Drawings



9145 AIR DEFROST - Time Initiated
Time Terminated - Wiring Diagram



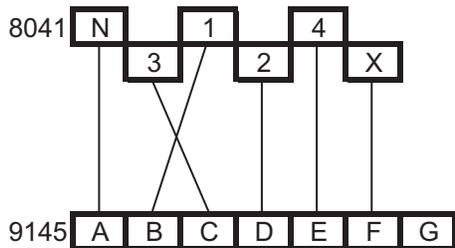
9145 ELECTRIC DEFROST - Time Initiated
Time Terminated - Wiring Diagram



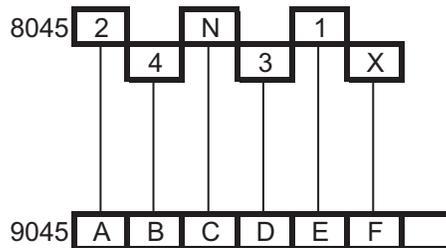
9145 ELECTRIC DEFROST - Time Initiated
Temperature Terminated - Wiring Diagram

Conversion Diagrams for Paragon Mechanical Controls

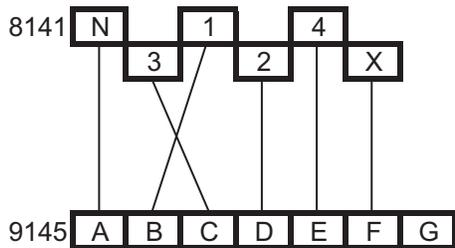
Convert 8041 to 9145



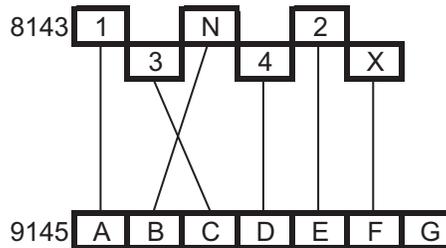
Convert 8045 to 9045



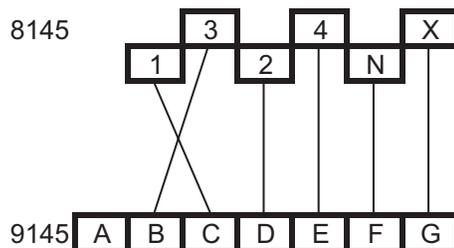
Convert 8141 to 9145



Convert 8143 to 9145



Convert 8145 to 9145





TIMERS

TORK®



Scan for all models, literature and cross reference



D8



1102



P47

ELECTRIC TIMERS - ELECTROMECHANICAL

1100 Series - 24 Hour Time Switches

The Tork® 1100 Series Electric Timers offer 24 hour time switches with automatic On-Off control when operation is required at the same time every day, seven days a week.

Applications include On-Off control of heating, air conditioning, display lighting, ventilating, pumps and fans.

Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

Features and Benefits

- Heavy-duty synchronous, self-starting high torque timing motor
- Power consumption: 3 watts maximum
- Automatic operation for 24 hour timers with one pair of On-Off trippers supplied – accommodates up to 12 pairs
- Multilingual dial markings – English, French and Spanish
- Temporary manual override
- General purpose (NEMA 1) metal enclosure of deep-drawn steel, enamel coated and lockable hasp
- Combination 1/2" and 3/4" knockouts on both sides, bottom and back

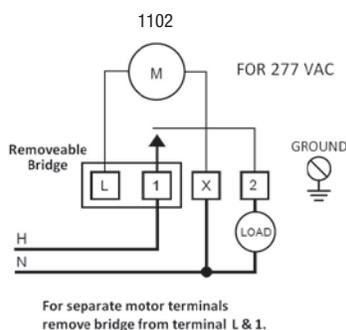
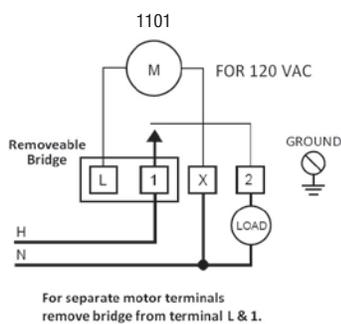


Specifications

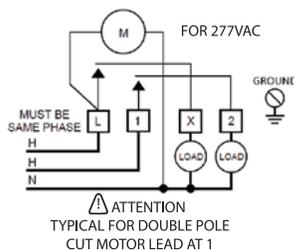
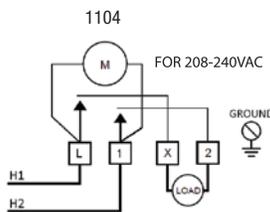
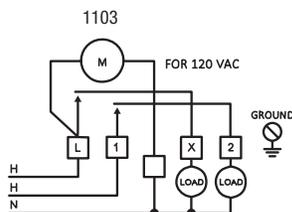
Part Numbers	Description	Contact Ratings	Automatic Operation	Operating Temperature	Enclosure	Switch	Voltage
1101	24 Hour Electromechanical Timer	40 A Resistive 20 A Inductive 1000 VA Pilot Duty 2HP (24 FLA) 120V AC	Minimum ON 20 minutes; OFF 75 minutes	-40°F to 165°F (-40°C to 74°C)	Metal	SPST	120V AC
1102	24 Hour Electromechanical Timer	40 A Resistive 20 A Inductive 1000 VA Pilot Duty 2HP (24 FLA) 120V AC	Minimum ON 20 minutes; OFF 75 minutes	-40°F to 165°F (-40°C to 74°C)	Metal	SPST	208-277V AC
1103	24 Hour Electromechanical Timer	40 A Resistive 20 A Inductive 1000 VA Pilot Duty 2HP (24 FLA) 120V AC	Minimum ON 20 minutes; OFF 75 minutes	-40°F to 165°F (-40°C to 74°C)	Metal	DPST	120V AC
1104	24 Hour Electromechanical Timer	40 A Resistive 20 A Inductive 1000 VA Pilot Duty 2HP (24 FLA) 120V AC 5HP 240V AC	Minimum ON 20 minutes; OFF 75 minutes	-40°F to 165°F (-40°C to 74°C)	Metal	DPST	208-277V AC
P47	Accessory trippers for 1100 Series Timers	NA	NA	NA	NA	NA	NA

Product Drawings

Single Pole - Wiring Diagrams



Double Pole - Wiring Diagrams



1 Year Limited Warranty



TIMERS

TORK®



Scan for all models, literature and cross reference



W220

ELECTRIC TIMERS - ELECTROMECHANICAL

W Series - 7 Day Time Switches

The Tork® W Series - 7 day time switches offer the easiest and most accurate setting of any 7 day time switch through its unique combination of On-Off trippers, distinctive time indicator, and trigger action switch tripping mechanism.

Applications include On-Off control of heating, air conditioning, display lighting, ventilating, pumps and fans. Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

Features and Benefits

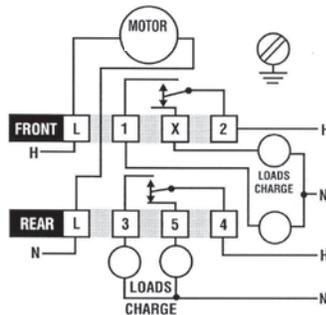
- Heavy-duty synchronous, self-starting high torque timing motor
- Power consumption: 3 watts maximum
- Keeps dial on time up to 24 hours during power outage
- Automatic operation with 7 day calendar dial accommodates up to 2 pairs of On-Off removable Trippers per day – 7 pairs are supplied
- Multilingual dial markings – English, French and Spanish
- General purpose (NEMA 1) metal enclosure of deep-drawn steel, enamel coated and lockable hasp

Specifications

Part Numbers	Description	Contact Ratings	Automatic Operation	Operating Temperature	Enclosure	Switch	Voltage
W220	7 Day Electromechanical Timer	40 A Resistive 20 A Inductive 1000 VA Pilot Duty 2HP (24 FLA) 120V AC	Minimum ON 1 hour OFF 2 hours	-40°F to 165°F (-40°C to 74°C)	Metal	DPDT	120V AC

Product Drawings

W220 (DPDT) - Wiring Diagram



LISTED
Listed
Product



1 Year
Limited
Warranty

D10



ELECTRIC TIMERS - ELECTROMECHANICAL

TU40 Series - Universal 24 Hour Time Switches

The Tork® TU40 Series - Universal 24 hour time switches with multi-voltage options offer automatic On-Off control when operation is required at the same time every day, seven days a week.

Applications include On-Off control of heating, air conditioning, display lighting, ventilating, pumps, fans and security systems. Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

Features and Benefits

- Automatic input voltage detection without DIP switches
- LED indicators for load and power
- Includes On/Off/Auto switch
- Power consumption: 6 VA maximum
- Temporary manual override is standard
- Combination 1/2" and 3/4" knockouts on both sides, bottom and back
- Enclosure includes indoor/outdoor NEMA 3R plastic



TU40



Scan for all models, literature and cross reference

TORK



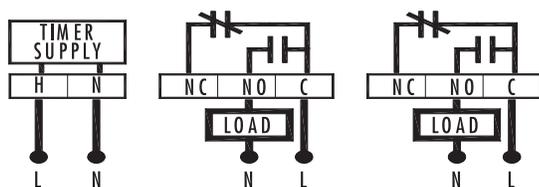
Specifications

Part Numbers	Description	Contact Ratings (Normally Open)	Automatic Operation	Temperature Range	Enclosure	Switch	Voltage
TU40	24 Hour Electromechanical Timer	40 A Resistive 30 A Inductive 720 VA Pilot Duty 1HP 120V AC 2HP 240V AC	Minimum setting: 15 minutes	-31°F to 116°F (-35°C to 47°C)	Plastic	4 in 1 DPDT, SPST, SPDT, DPST	Universal Multi-Voltage 120/208-240/277V AC

Product Drawings

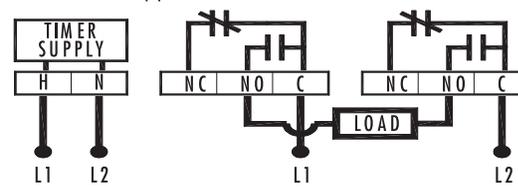
TU40 - 120/277V AC Application - Wiring Diagram

120/277VAC Application



TU40 - 208/240V AC Application - Wiring Diagram

208/240VAC Application



1 Year Limited Warranty



TIMERS

TORK®



Scan for all models, literature and cross reference



E101B

ELECTRIC TIMERS - ELECTRONIC

E100B Series

The Tork® E100B series multipurpose 1 channel control comes with 120 - 277 Volts AC input voltages for 24 hour programming. Standard enclosure for indoor and outdoor settings uses patented 40 Amp contacts. Applications include display lighting, security systems, HVAC, signs, sump pumps and ventilating fans. Tork Electric Timers are sold exclusively through Robertshaw to HVACR wholesalers.

Features and Benefits

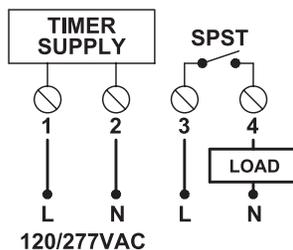
- Automatic input voltage detection without DIP switches
- LCD Display
- Simple programming with brief easy-to-follow instructions
- Power consumption: 6 watts minimum
- Daylight savings time is automatic (can be omitted)
- Manual override until the next regularly scheduled On or Off. Automatic operation then resumes or permanently if desired
- AM/PM clock format
- Power outage back-up with permanent schedule retention. Super-capacitor maintains real-time clock for 100 hours
- Includes load status and power failure indicators

Specifications

Part Numbers	Description	Contact Ratings	Scheduling	Setpoints	Operating Temperature	Enclosure	Switch	Voltage
E101B	24 Hour Electronic Timer	40 A General purpose 40 A Inductive 720 VA Pilot Duty 1HP (120V AC)	Same Everyday	20 with 1 minute minimums	-40°F to 149°F (-40°C to 65°C)	Nema 3R Plastic	SPST	120-277V AC

Product Drawings

E101B Series - Wiring Diagram



1 Year Limited Warranty



Scan for all models, literature and cross reference



LISTED
Listed Product



1 Year Limited Warranty

RESIDENTIAL DEFROST TIMERS

Domestic Defrost Timers

The Paragon® 1401 Series Defrost Timers are a synchronous motor control that activates an internal SPDT switch to actuate a defrost heater in a refrigerator. These heavy-duty 15 Amp Paragon timers are used by OEM manufacturers to replace both the older classic design timers and the new OEM versions.

Features and Benefits

- Bulk quantities must be ordered in multiples of 12
- Quiet - synchronous design provides extremely quiet operation
- Position freedom - timer can be mounted in various locations
- Interchangeability - standard mounting allows use in all applications
- Double insulated - requires no earth grounding
- RoHS compliant

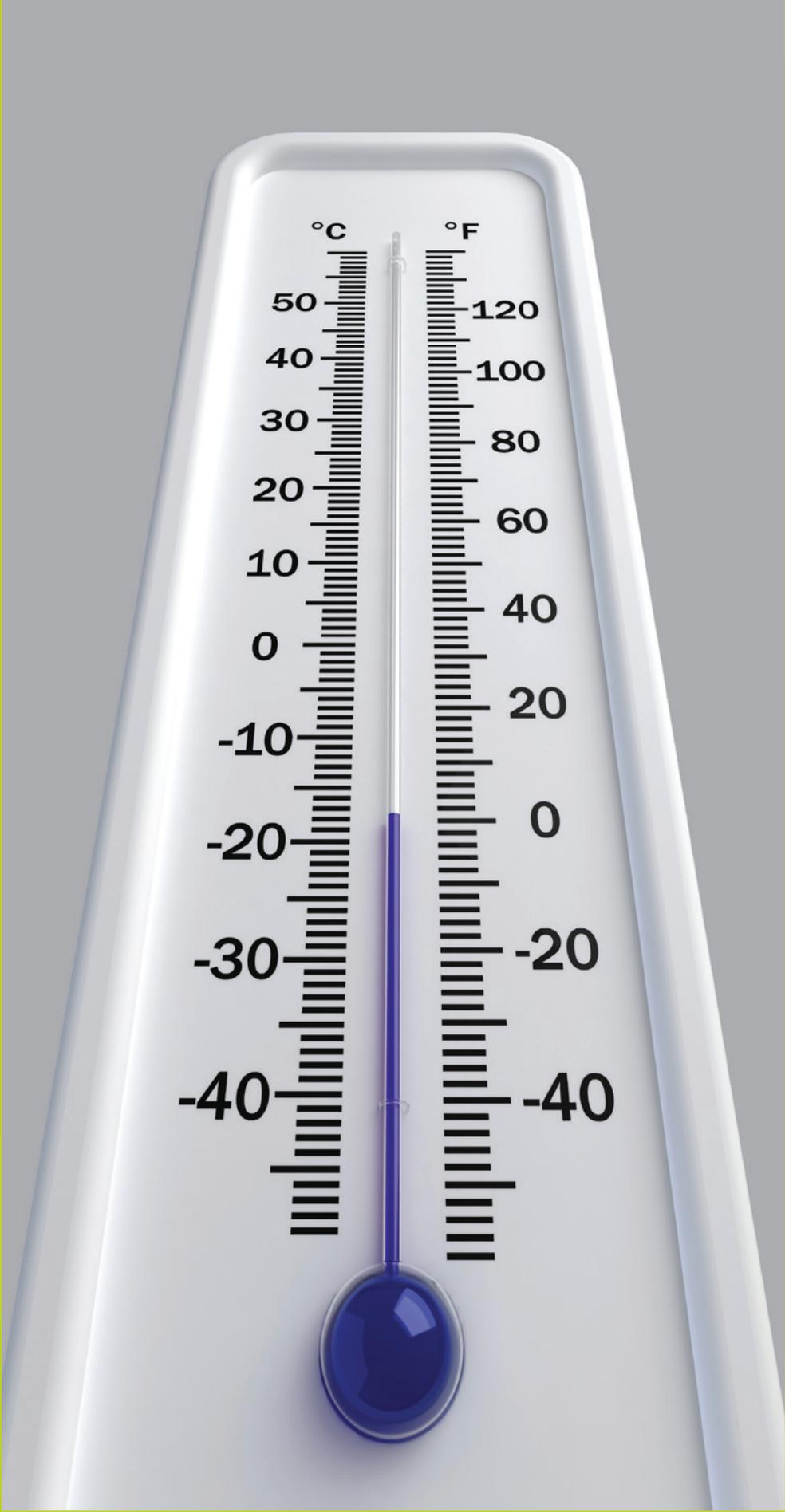


A1401-00

Specifications

Part Numbers	Description	Bulk Quantity	OEM	Timing
A1401-00*	Defrost Timer in Refrigerator	12	Admiral	6 hours 21 minutes
B1401-00*	Defrost Timer in Refrigerator	12	Frigidare	8 hours 20 minutes
G1401-00*	Defrost Timer in Refrigerator	12	G.E.	6 hours 25 minutes

*International export models



Contractors appreciate smooth HVAC installations while consumers look for a fine balance between temperature comfort and energy savings.

The Robertshaw® wall thermostats and humidistats offer all of the above. With its extensive yet focused product offering, the Robertshaw product line can deliver intuitive, feature-rich and efficient solutions for homeowners and commercial customers.

Programmable.....	E2
Non-Programmable.....	E9
Mechanical.....	E15
Line Voltage.....	E19
Humidity Controls.....	E20



WALL THERMOSTATS





WALL THERMOSTATS

Robertshaw®



Scan for all models, literature and cross reference



9825i2



9025i

PROGRAMMABLE

i2 Deluxe Series

The Robertshaw® i2 Series Programmable Thermostats are easy-to-install and program. Our patent pending Set-Up Wizard can help you spend 50% less installation time over competitive models. Feature-rich, the 9801i2 and 9825i2 thermostats can be used with the 9025i outdoor sensor to maintain comfort settings and indoor humidity levels while minimizing window condensation.

Features and Benefits

All i2 Series Programmable Thermostats feature:

- Set-Up Wizard
- 7-Day, 5-2, 5-1-1 or 24 hour programming
- 2, 4, 6 Events per day
- Programmable service reminders
- Trilingual display options
- Worry-free memory storage
- Contractor ID with programmable service schedule
- Indoor/Outdoor remote sensor capability
- Adjustable temperature differential
- Adjustable timed upstaging

9801i2 and 9825i2 Thermostats with Humidity Control have these additional features:

- Adjustable humidification and dehumidification set points
- Automatic humidification control (when coupled with the remote outdoor sensor)
- Adjustable overcooling limits
- Customizable dew point control

9020i and 9025i Indoor and Outdoor Sensors features:

- Designed to sense air temperature at a remote location up to 300 feet from thermostat
- Automatic configuration with i2 thermostats
- Installs with a simple twisted pair wiring to 158°F (-40°C to 70°C)

California Title 24 Compliant

WALL THERMOSTATS



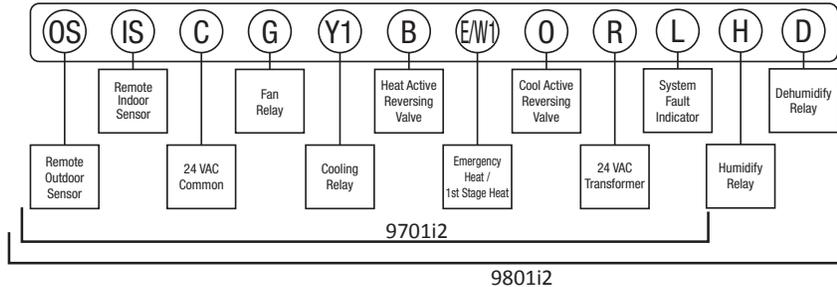
Robertshaw®

Specifications

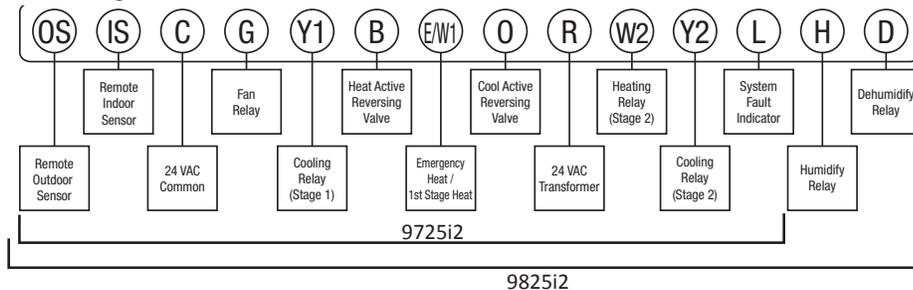
Part Numbers	Description	Application	Temperature Range / Accuracy	Auto Changeover Deadband	Temporary Temperature Override	Electrical Rating
9701i2	7 Day Programmable	1 Heat / 1 Cool, Gas, Oil, Electric and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	Selectable 2°F to 8°F (-16°C to -13°C)	3 hour max or next setpoint and vacation setting	24V AC 1 Amp max load per terminal (relay outputs) 3 Amp max load (all terminals combined)
9725i2	7 Day Programmable	Universal Staging up to 3 Heat / 2 Cool, Gas, Oil, Electric and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	Selectable 2°F to 8°F (-16°C to -13°C)	3 hour max or next setpoint and vacation setting	24V AC 1 Amp max load per terminal (relay outputs) 3 Amp max load (all terminals combined)
9801i2	7 Day Programmable with Humidity Control	1 Heat / 1 Cool, Gas, Oil, Electric and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	Selectable 2°F to 8°F (-16°C to -13°C)	3 hour max or next setpoint and vacation setting	24V AC 1 Amp max load per terminal (relay outputs) 3 Amp max load (all terminals combined)
9825i2	7 Day Programmable with Humidity Control	Universal Staging up to 3 Heat / 2 Cool, Gas, Oil, Electric and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	Selectable 2°F to 8°F (-16°C to -13°C)	3 hour max or next setpoint and vacation setting	24V AC 1 Amp max load per terminal (relay outputs) 3 Amp max load (all terminals combined)
9020i	Indoor Sensor	For use with i Series and i2 Series Thermostats	NA	NA	NA	NA
9025i	Outdoor Sensor	For use with i Series and i2 Series Thermostats	-40°F to 158°F (-40°C to 70°C)	NA	NA	NA

Product Drawings

Terminal Designations 9701i2 and 9801i2



Terminal Designations 9725i2 and 9825i2



5 Year Limited Warranty



WALL THERMOSTATS

Robertshaw®



Scan for all models, literature and cross reference



RS6320

PROGRAMMABLE

RS6000 and RS5000 Value Series

The Robertshaw® RS6000 and RS5000 Series Programmable Thermostats offer 7 day and 5-2 day models with enhanced features, energy saving setpoints, and value pricing. When powered-up, the thermostat initiates the Pop-up Wizard with step-by-step installation instructions to save time. All models cover a wide range of applications that are fully compatible with gas and electric furnaces, and heat pumps. Universal control is available on multi-stage systems.

Features and Benefits

- Pop-up Wizard
- Auto changeover
- Bigger, brighter backlight with nightlight option
- Easy change battery access
- Circulating fan
- Low temperature freeze protection
- Adjustable temperature differential and upstaging

RS6000 Series 7 Day have these additional features:

- Universal control available on RS6220 and RS6320
- Copy command for easy programming

RS5000 Series 5-2 Day have these additional features:

- Universal control available on RS5220
- Vacation setpoint

Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Electrical Rating
RS5110	5-2 Day Programmable	1 Heat / 1 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS5220	5-2 Day Programmable	Universal Staging up to 2 Heat / 2 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS5220C*	5-2 Day Programmable	Universal Staging up to 2 Heat / 2 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS6110	7 Day Programmable	1 Heat / 1 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS6220	7 Day Programmable	Universal Staging up to 2 Heat / 2 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS6320	7 Day Programmable	Universal Staging up to 3 Heat / 2 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS6320C*	7 Day Programmable	Universal Staging up to 3 Heat / 2 Cool, Gas, Electric, Oil, Millivolt and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)

*International export models

California Title 24 Compliant

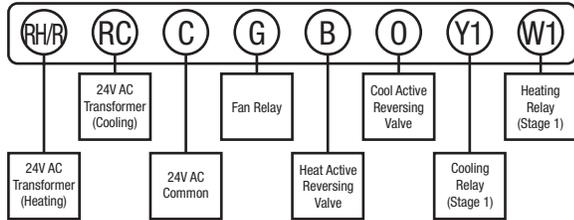
WALL THERMOSTATS



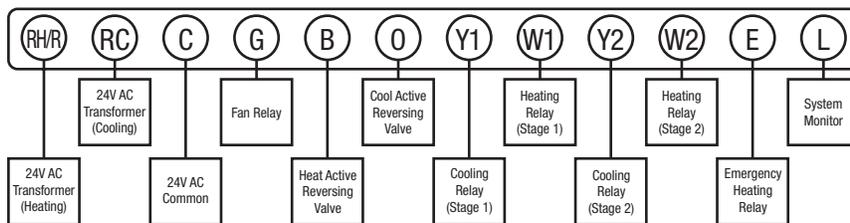
Robertshaw[®]

Product Drawings

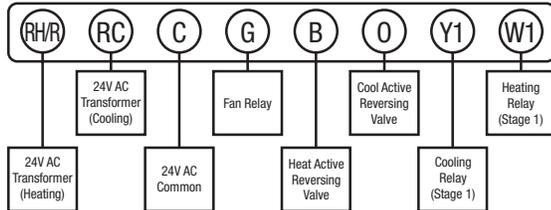
Terminal Designations RS5110



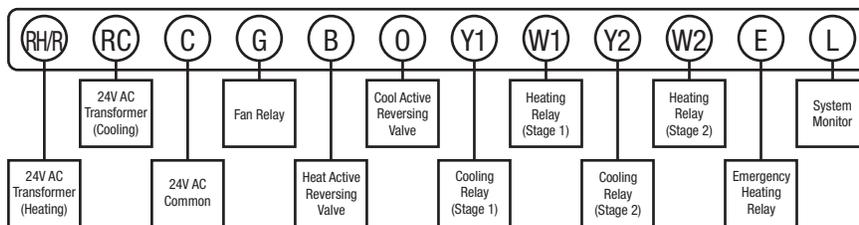
Terminal Designations RS5220



Terminal Designations RS6110



Terminal Designations RS6220 and RS6320



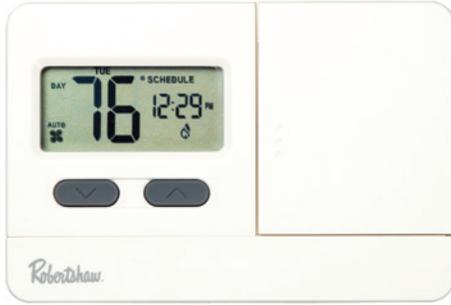


WALL THERMOSTATS

Robertshaw®



Scan for all models, literature and cross reference



RS3110

PROGRAMMABLE

RS3000 Economy Series

The Robertshaw® RS3000 Series Programmable Thermostats provide temperature control to help reduce energy costs up to 25%. The RS3000 family provides custom program options in value-packed thermostats for an economical price. All models are fully compatible with all standard 24V AC heating and cooling systems.

Features and Benefits

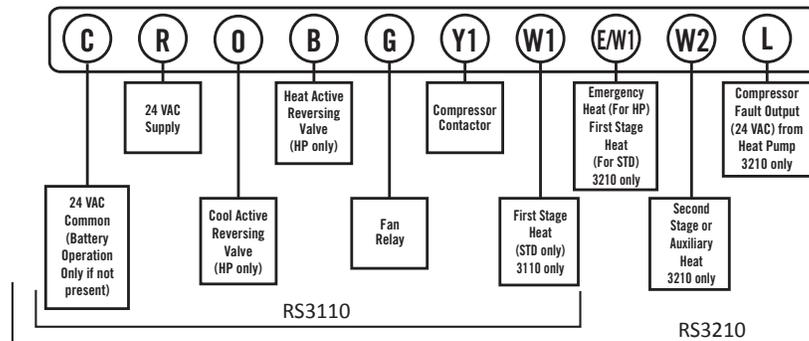
- New improved display
- Adjustable temperature differential
- Filter monitor
- O and B terminals
- Automatic compressor short cycle protection
- Zone system compatible
- Quick Wire terminal block
- Worry-free memory retention

Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Electrical Rating
RS3110	5-2 Day Programmable	1 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS3110C*	5-2 Day Programmable	1 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS3210	5-2 Day Programmable	2 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS3210C*	5-2 Day Programmable	2 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)

*International export models

Product Drawings Terminal Designations RS3110 and RS3210



2 Year Limited Warranty

California Title 24 Compliant

WALL THERMOSTATS



PROGRAMMABLE

300 Series

The Robertshaw® 300 Series Programmable Thermostats offer a contemporary design with a large, easy-to-read LCD display. The 300 Series features a lockable key pad and door that offer security against unwanted tampering. Select models have O and B terminals for use with heat pumps or controlling dampers and fresh air economizers. It also can connect to remote indoor and outdoor sensors for added indoor comfort. The compressor short cycle protection reduces wear and tear to HVAC equipment.

Features and Benefits

- Auto changeover
- 3-hour override allows temporary adjustment of temperature
- Automatic compressor short cycle protection
- Multiple remote sensor capable



300-224



10-528

Robertshaw



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Auto Changeover Deadband	Temporary Temperature Override	Electrical Rating
300-224	5-2 Day Programmable	1 Heat / 1 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 2.25 Amp max load (all terminals combined)
300-225	7 Day Programmable	1 Heat / 1 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 2.25 Amp max load (all terminals combined)
300-227	7 Day Programmable	3 Heat / 2 Cool or 2 Heat / 1 Cool Heat Pump systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 2.25 Amp max load (all terminals combined)
300-229	7 Day Programmable	2 Heat / 2 Cool or 2 Heat / 1 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 2.25 Amp max load (all terminals combined)
10-528	Indoor Sensor	NA	NA	NA	NA	NA
10-529	Outdoor Sensor	NA	NA	NA	NA	NA

2 Year Limited Warranty

California Title 24 Compliant

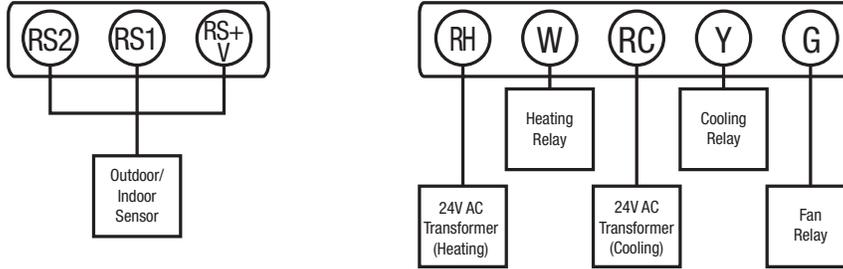


WALL THERMOSTATS

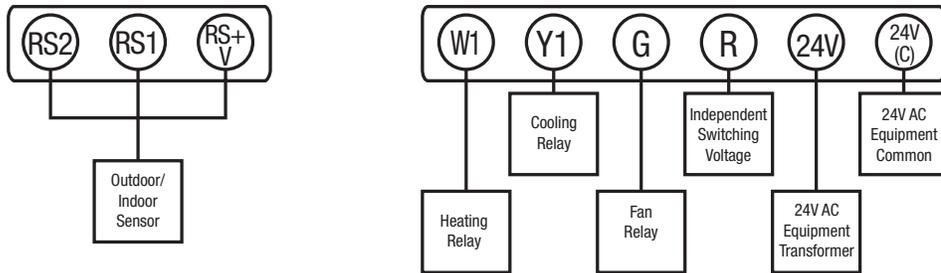
Robertshaw®

Product Drawings

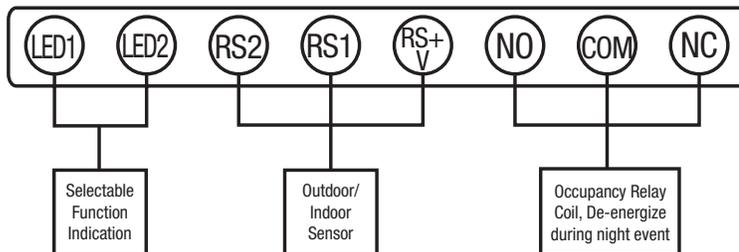
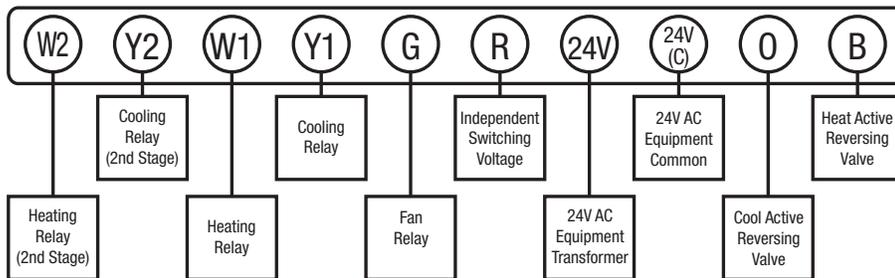
Terminal Designations - 300-224



Terminal Designations - 300-225



Terminal Designations - 300-227 and 300-229



WALL THERMOSTATS



NON-PROGRAMMABLE

RS4000 Value Series

The Robertshaw® RS4000 Series Non-Programmable Thermostats are Simply the Right Choice™ when it comes to automatic temperature control at an affordable price. When powered up, the thermostat initiates the Pop-up Wizard to walk the installer through the set-up in simple language. Three models cover a wide range of applications that are fully compatible with gas and electric furnaces, and heat pumps. Each model can be powered with either two AA batteries or 24V AC common.

Features and Benefits

- Pop-up Wizard
- Auto changeover
- Bigger, brighter backlight with nightlight option
- Easy change battery access
- Circulating fan
- Low temperature freeze protection
- Adjustable temperature differential and upstaging

RS4220 and RS4320 Thermostats have these additional features:

- Universal control with compatibility to multi-stage gas/ electric furnaces and heat pumps



RS4110

Robertshaw[®]



Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Electrical Rating
RS4110	Digital Non-Programmable	1 Heat / 1 Cool, Gas, Electric, Oil, Millivolt, and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS4220	Digital Non-Programmable	Universal Staging up to 2 Heat / 2 Cool, Gas, Electric, Oil, Millivolt, and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS4220C*	Digital Non-Programmable	Universal Staging up to 2 Heat / 2 Cool, Gas, Electric, Oil, Millivolt, and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS4320	Digital Non-Programmable	Universal Staging up to 3 Heat / 2 Cool, Gas, Electric, Oil, Millivolt, and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS4320C*	Digital Non-Programmable	Universal Staging up to 3 Heat / 2 Cool, Gas, Electric, Oil, Millivolt, and Heat Pump systems	45°F to 90°F (7°C to 32°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)

*International export models

5 Year Limited Warranty

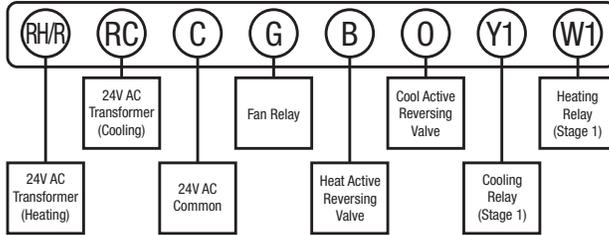


WALL THERMOSTATS

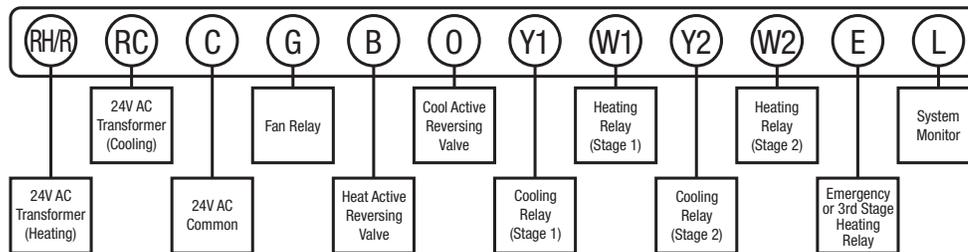
Robertshaw®

Product Drawings

Terminal Designations RS4110



Terminal Designations RS4220 and RS4320



WALL THERMOSTATS



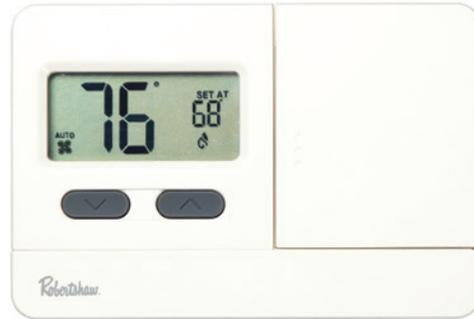
NON-PROGRAMMABLE

RS2000 Economy Series

The Robertshaw® RS2000 Series Non-Programmable Thermostats are fully compatible with all standard 24V AC heating and cooling systems. With the comfort, convenience and efficiency features that contractors and homeowners want, our Economy Series is a perfect cost effective solution.

Features and Benefits

- New improved display
- Adjustable temperature differential
- Filter monitor
- Automatic compressor short cycle protection
- O and B terminals
- Zone system compatible
- Quick wire terminal block



RS2110

Robertshaw



Scan for all models, literature and cross reference

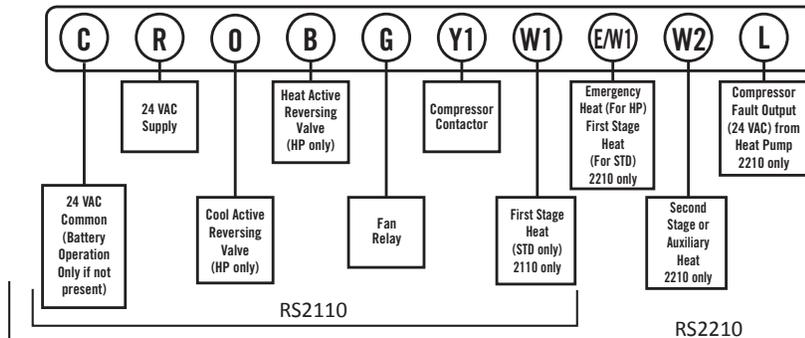
Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Electrical Rating
RS2110	Digital Non-Programmable	1 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS2110C*	Digital Non-Programmable	1 Heat / 1 Cool, Electric, Gas, Oil, Millivolt and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS2210	Digital Non-Programmable	2 Heat / 1 Cool, Electric, Gas, Oil, and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)
RS2210C*	Digital Non-Programmable	2 Heat / 1 Cool, Electric, Gas, Oil, and Heat Pump systems	45°F to 95°F (7°C to 35°C) / +/-1°F (+/-0.5°C)	24V AC with battery back-up OR 3V DC battery powered 1 Amp max load per terminal 3 Amp max load (all terminals combined)

*International export models

Product Drawings

Terminal Designations RS2110 and RS2210



2 Year Limited Warranty



WALL THERMOSTATS

Robertshaw®



Scan for all models, literature and cross reference



300-201



10-528

NON-PROGRAMMABLE

300 Series

The Robertshaw® 300 Series Non-Programmable Thermostats offer a contemporary design with a large, easy-to-read LCD display. The 300 Series has features that users need like a lockable key pad and door that offer security against unwanted tampering. Select models have O and B terminals for use with heat pumps or controlling dampers and fresh air economizers. Also, it can connect to remote indoor and outdoor sensors for added indoor comfort. The compressor short cycle protection reduces wear and tear to HVAC equipment.

Features and Benefits

- Automatic compressor short cycle protection
- O and B terminals on select models
- Occupied and unoccupied mode allows for different setting for day and night (Not included on 300-204)
- Multiple remote sensor capable (Not included on 300-204)

Specifications

Part Numbers	Description	Application	Temperature Range / Accuracy	Auto Changeover Deadband	Temporary Temperature Override	Electrical Rating
300-201	Digital Non-Programmable	1 Heat / 1 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-202	Digital Non-Programmable	3 Heat / 2 Cool or 2 Heat / 1 Cool Heat Pump systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-203	Digital Non-Programmable	2 Heat / 2 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-204	Digital Non-Programmable	Heat only, Gas systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-205	Digital Non-Programmable	Cool only, Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-206	Digital Non-Programmable	1 Heat / 1 Cool, Gas, Oil and Electric systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-207	Digital Non-Programmable	1 Heat / 1 Cool Heat Pump systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
300-208	Digital Non-Programmable	2 Heat / 1 Cool Heat Pump systems	38°F to 88°F (3°C to 31°C) / +/-1°F (+/-0.5°C)	2°F (1°C)	3 hour max	24V AC 0.05 - 0.75 Amp per output 3 Amp max load (all terminals combined)
10-528	Indoor Sensor	NA	NA	NA	NA	NA
10-529	Outdoor Sensor	NA	NA	NA	NA	NA

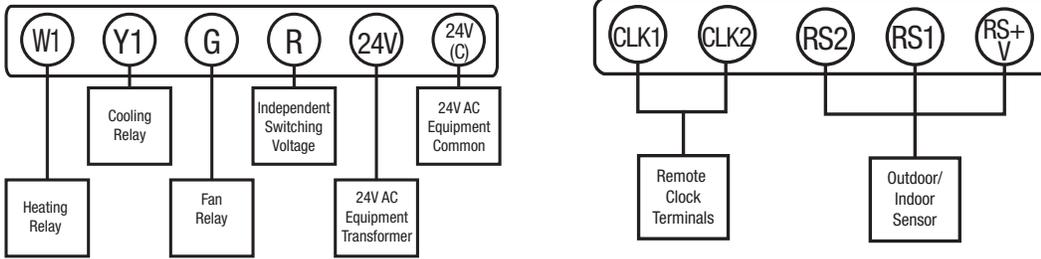
WALL THERMOSTATS



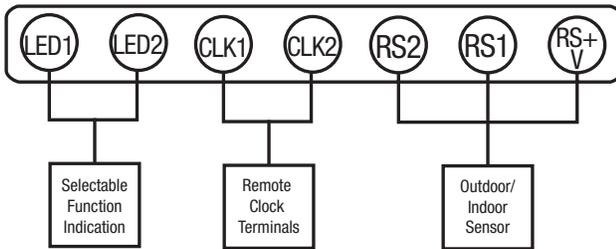
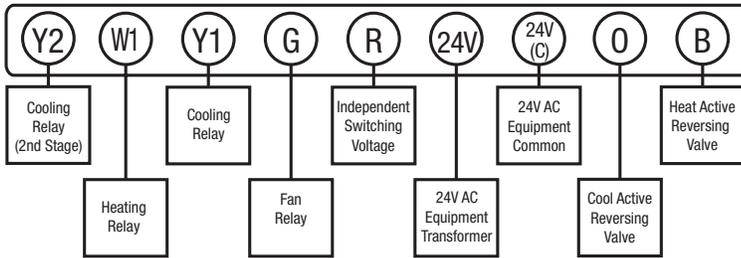
Robertshaw®

Product Drawings

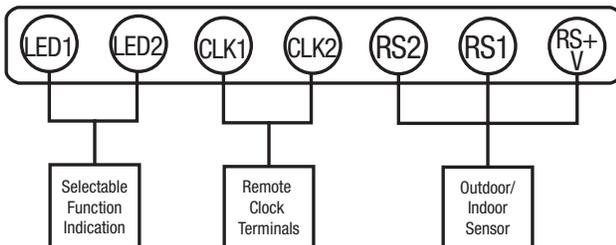
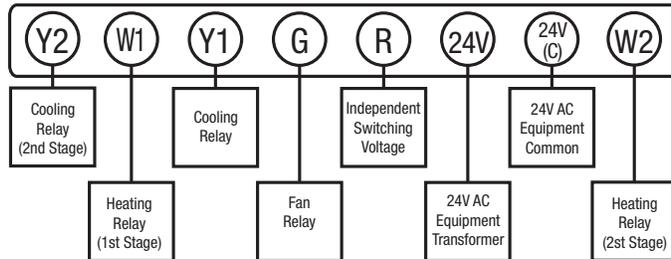
Terminal Designations - 300-201



Terminal Designations - 300-202



Terminal Designations - 300-203



2 Year Limited Warranty

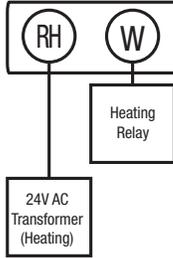


WALL THERMOSTATS

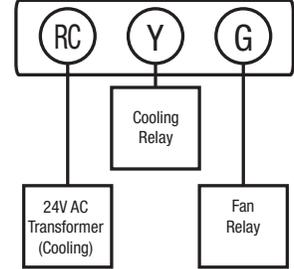
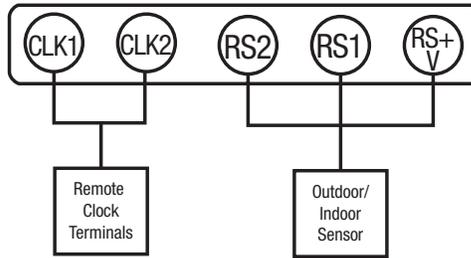
Robertshaw®

Product Drawings

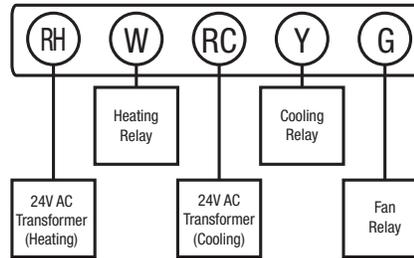
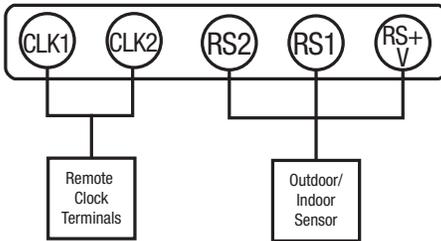
Terminal Designations - 300-204



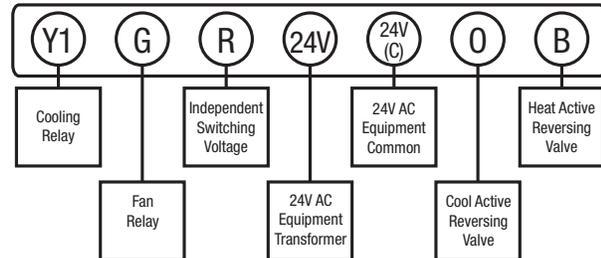
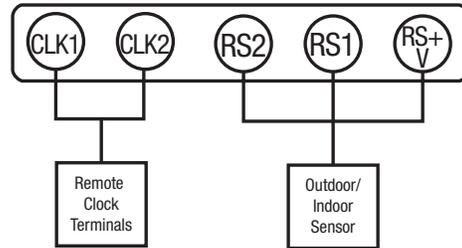
Terminal Designations - 300-205



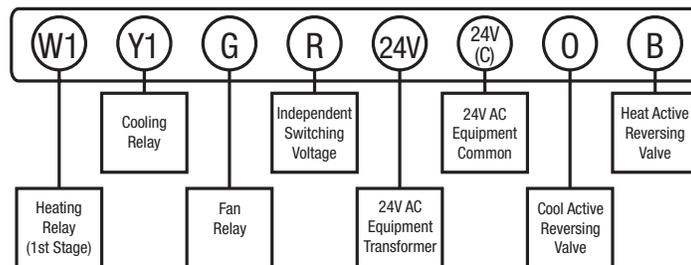
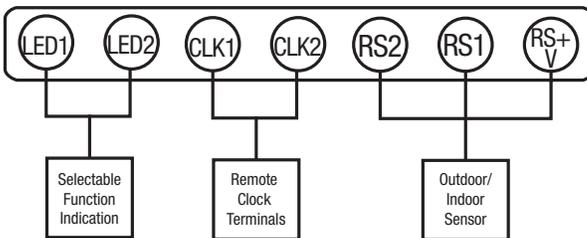
Terminal Designations - 300-206



Terminal Designations - 300-207



Terminal Designations - 300-208



WALL THERMOSTATS



MECHANICAL

9200 Series

The Robertshaw® 9200 Series Mechanical Thermostats are both attractive and functional. The temperature display is easy-to-read and offers accurate room temperature measurement. The simple two-piece design saves time at installation. Four Robertshaw 9200 series thermostats replace over 50 competitive models, so less inventory is needed to meet each job requirement.

Features and Benefits

- Heavy-duty adjustable heat anticipation - More anticipation settings to choose from allows use on a wider range of heating equipment
- No sub-base required - Simple base and cover design speeds installation. Base can be mounted on wall, freeing both hands for wiring
- Mercury-free - No leveling required. Speeds up installation time
- J-Box compatible - Not only will it meet code, but it speeds up installation
- Positive-off switch - Assured shutdown of HVAC system (9200)



Robertshaw



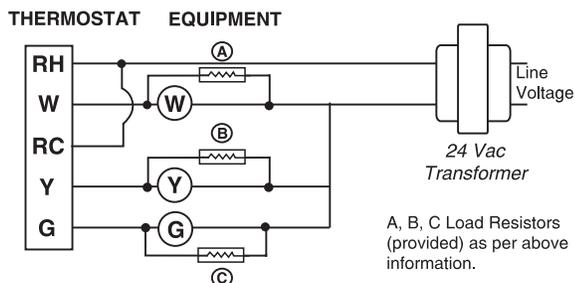
Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Application	Switch Action	Temperature Range / Accuracy	Anticipation	Fixed Cooling Anticipation	Electrical Rating
9200H	Mechanical, Horizontal model	1 Heat / 1 Cool, Gas, Electric Systems (System Switch and Fan Switch Included)	SPDT	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.2 to 1.6 Amps	4700 ohms	24V AC, 2 Amps max
9200V	Mechanical, Vertical model	1 Heat / 1 Cool, Gas, Electric Systems (System Switch and Fan Switch Included)	SPDT	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.2 to 1.6 Amps	4700 ohms	24V AC, 2 Amps max
9204H	Mechanical, Horizontal model	1 Heat, Gas, Electric Systems	SPST	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.2 to 1.6 Amps	4700 ohms	24V AC, 2 Amps max
9204V	Mechanical, Vertical model	1 Heat, Gas, Electric Systems	SPST	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.2 to 1.6 Amps	4700 ohms	24V AC, 2 Amps max

Product Drawings

Wiring Diagram



1 Year Limited Warranty



WALL THERMOSTATS

Robertshaw®



400-420



MECHANICAL

400 Series

The Robertshaw® 400 Series Mechanical Thermostats are mercury-free, so they require no leveling and no special disposal requirements. For flexibility on-site, the fully adjustable heat anticipator can be used on a wide range of heating equipment.

Used with a 400 Series Universal Switching Sub-base, the 400 Series Thermostats are compatible with most 24 Volt AC heating and cooling systems. A decorative wall plate is included to aid in covering previous thermostat mounting marks. To complement any decor, choose from beige or white.

Features and Benefits

- Heavy-duty adjustable heat anticipator - More anticipation settings to choose from allows use on wider range of heating equipment
- Mercury-free - No leveling required. Speeds up installation time
- Positive-off switch - Assured shutdown of HVAC system
- Fixed cooling anticipation - Maintains optimal cooling comfort
- Opens on temperature rise for heating, closes on temperature rise for cooling



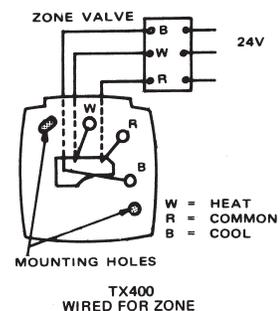
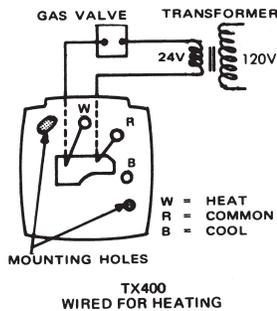
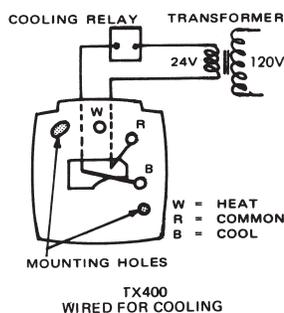
Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Application	Thermometer Range / Accuracy	Switch Action	Heat Anticipation Range	Fixed Cooling Anticipation	Electrical Rating
400-420	Mechanical with 490-400 Universal sub-base, Beige	Universal Heating / Cooling replacement	44°F to 96°F (7°C to 36°C) / +/-2°F (+/-1°C)	SPDT	0.18 to 1.0 Amp	4700 ohms	24V AC, 1.5 Amps max load (all terminals combined)
405-420	Mechanical with 495-400 Universal sub-base, White	Universal Heating / Cooling replacement	44°F to 96°F (7°C to 36°C) / +/-2°F (+/-1°C)	SPDT	0.18 to 1.0 Amp	4700 ohms	24V AC, 1.5 Amps max load (all terminals combined)

Product Drawings

Wiring Diagram



1 Year Limited Warranty

WALL THERMOSTATS



MECHANICAL

200 Series

The Robertshaw® 200 Series Mechanical Thermostats are decorator designed and engineered for outstanding performance. The 200 Series Thermostats are mercury-free and environmentally safe. Their unique hermetically sealed-in-glass switch design requires no leveling and provides optimum protection from contamination.

Models are available for 24 volt and millivolt applications. Models are also available for low temperature heating ranges, cooling only, and 3-wire zone applications. A decorative wall plate is included with all models to cover old thermostat mounting marks.

Features and Benefits

- Heavy-duty adjustable heat anticipator - More anticipation settings to choose from allows use on a wider range of heating equipment
- Mercury-free - No leveling required to speed up installation
- Positive-off switch - Assured shutdown of HVAC system
- Fixed cooling anticipation - Maintains optimal cooling comfort



200-401



Robertshaw[®]



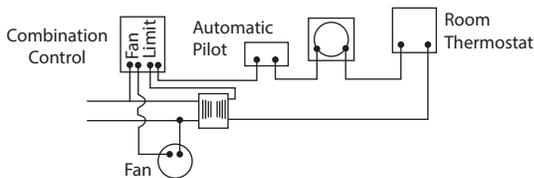
Scan for all models, literature and cross reference

Specifications

Part Numbers	Description	Application	Thermometer Range / Accuracy	Switch Action	Heat Anticipation Range	Fixed Cooling Anticipation	Electrical Rating
200-401	Mechanical	2 Wire, 24 Volt Heating	44°F to 96°F (7°C to 36°C) / +/-2°F (+/-1°C)	SPST	0.18 to 1.0 Amp	4700 ohms	24V AC, 1.0 Amp max

Product Drawings

Gas Valve or Two-Wire Oil Burner or Stoker Relay



1 Year Limited Warranty

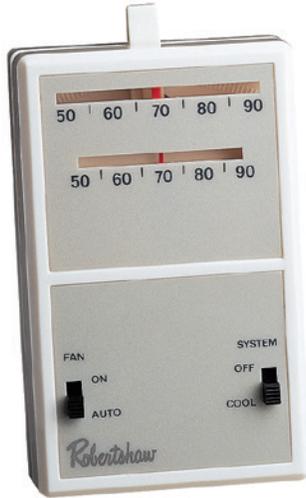


WALL THERMOSTATS

Robertshaw®



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988-1R

MECHANICAL

900 Series

The Robertshaw® 900 Series Mechanical Thermostats are low cost controls with highly reliable performance. The two-piece design is simple to install to save valuable time. The large display is easy-to-read and switches on the front cover are readily accessible to adjust for comfort. Wall plates are available to mask any unsightly marks left by previous thermostats.

Features and Benefits

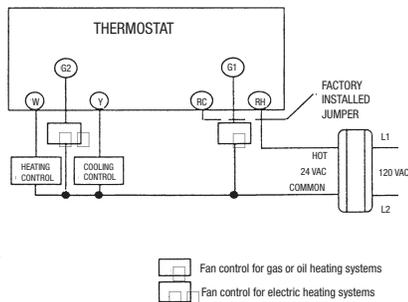
- Accurate room temperature - Built-in thermometer accurately displays room temperature
- Adjustable heat anticipation - Multiple anticipation settings supports a wide range of heating equipment
- No sub-base required - Base can be mounted on wall to free both hands for wiring
- Mercury-free - No leveling or special disposal required
- J-Box compatible - Code compatible to speed up installation
- Positive off Switch - Assured shutdown of HVAC system
- Fixed cooling anticipation - Optimal cooling comfort maintained

Specifications

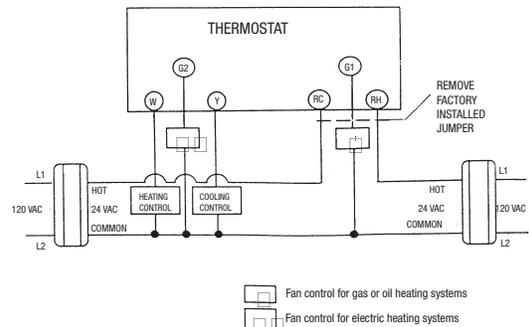
Part Numbers	Description	Application	Temperature Range / Accuracy	Anticipation	Electrical Rating
986-1R	Mechanical	Heat Only, Electric, Gas, Millivolt	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.1 to 1.2 Amps	24V AC and 250-750 mV, 1.5 Amps max load (all terminals combined)
988-1R	Mechanical	1 Heat / 1 Cool, Electric, Gas, Millivolt	50°F to 90°F (10°C to 30°C) / +/-2°F (+/-1°C)	0.1 to 1.2 Amps	24V AC and 250-750 mV, 1.5 Amps max load (all terminals combined)

Product Drawings

One Transformer - Models 986-1R, 988-1R



Two Transformers - Models 988-1R



1 Year Limited Warranty

WALL THERMOSTATS



Robertshaw[®]



Scan for all models, literature and cross reference

LINE VOLTAGE

800 Series

The Robertshaw® 800 Series Line Voltage Thermostats are universal replacements for many other brands and can be used to retrofit most existing electric heat thermostats. With models for heating that include single-line break and double-line break as well as a single-line break cooling model, there is one for every application.

Features and Benefits

- Convenient temperature display - View comfort level at-a-glance
- Bimetal temperature sensing - For improved thermal performance
- Mercury-free - No leveling or special disposal required
- J-Box compatible - Not only will it meet code, but it speeds up installation
- Positive-off switch - Assured shutdown of HVAC system
- Universal replacement - Can retrofit most existing electric heat thermostats



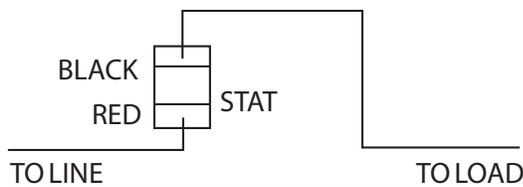
801

Specifications

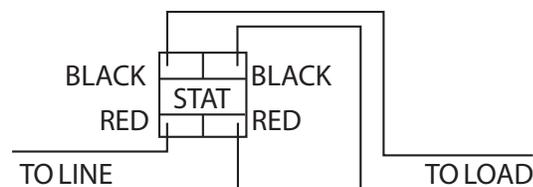
Part Numbers	Description	Application	Temperature Range / Accuracy	Switch Action	Electrical Rating
801	Line Voltage	Heating	50°F to 90°F (10°C to 32°C) / +/-2°F (+/-1°C)	SPST	120 / 240 / 277 Volts, Non-Inductive, 1/4 HP @ 120V AC, 1/3 HP @ 240V AC, 125 VA Pilot Duty
802	Line Voltage	Heating	50°F to 90°F (10°C to 32°C) / +/-2°F (+/-1°C)	DPST	120 / 240 / 277 Volts, Non-Inductive, 1/4 HP @ 120V AC, 1/3 HP @ 240V AC, 125 VA Pilot Duty
803	Line Voltage	Cooling	50°F to 90°F (10°C to 32°C) / +/-2°F (+/-1°C)	SPST	120 / 240 / 277 Volts, Non-Inductive, 1/4 HP @ 120V AC, 1/3 HP @ 240V AC, 125 VA Pilot Duty

Product Drawings

Single Pole Thermostat - Model 801,803



Double Pole Heating Thermostat - Model 802



1 Year Limited Warranty



WALL THERMOSTATS

RANCO



Scan for all models, literature and cross reference



E20

HUMIDITY CONTROLS



J10-808

J10 Series Humidistats

The Ranco® J10 Series Humidistats are designed to regulate the relative humidity of confined spaces by cycling humidifying equipment. They can be used either as internal components for portable humidifiers and dehumidifiers, or as mounted humidity controls for central systems.

The J10 is a relative humidity control, consisting of a humidity sensing element, adjustable set-point cam and electrical switch. The sensing element changes length in response to the exposed RH to move the switch mechanisms at appropriate switch points.

Features and Benefits

- Strong beige plastic frame with integral switch
- Improved woven nylon sensing element provides 12 times faster speed of response than film nylon elements
- Greater stability of setpoints over dramatic changes in relative humidity
- Switch grade plastic frame eliminates the need for grounding the control
- Choice of (2) SPST and (2) SPDT switches to better match applications
- Choice of fixed or adjustable setpoint
- Choice of dial shaft flat orientation
- Gold-plated contacts available for microprocessor load applications
- Available with case and cover for wall/duct mounting

Specifications

Part Numbers	Description	Application	Relative Humidity Range	Temperature Range	Differential	Control Cycle Rating	Electrical Rating
J10-808	Humidistat	Wall / Duct Mount	10 to 60%	32°F to 140°F (0°C to 60°C)	5% to 15% RH	Automatic switch cycles @ 140°F (60°C) 50000. Manual dial shaft cycles 6000.	24V AC / 60V AC
J10-809-W	Dehumidistat, White model	Wall Mount	20 to 80%	32°F to 140°F (0°C to 60°C)	5% to 15% RH	Automatic switch cycles @ 140°F (60°C) 50000. Manual dial shaft cycles 6000.	24V AC / 60V AC
J10-810	Dehumidistat, Vertical model	Wall Mount	20 to 80%	32°F to 140°F (0°C to 60°C)	5% to 15% RH	Automatic switch cycles @ 140°F (60°C) 50000. Manual dial shaft cycles 6000.	24V AC / 60V AC

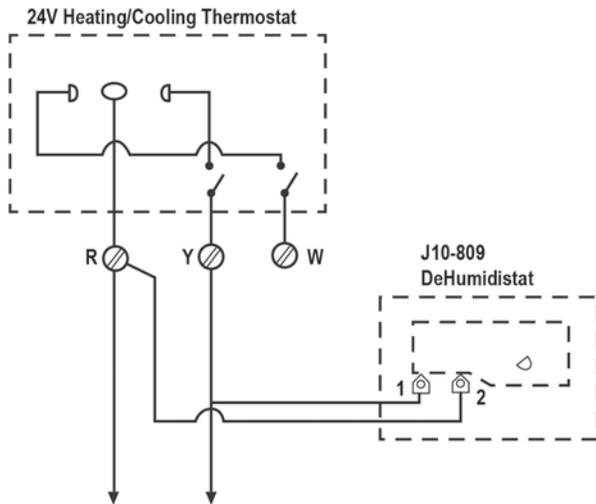
WALL THERMOSTATS



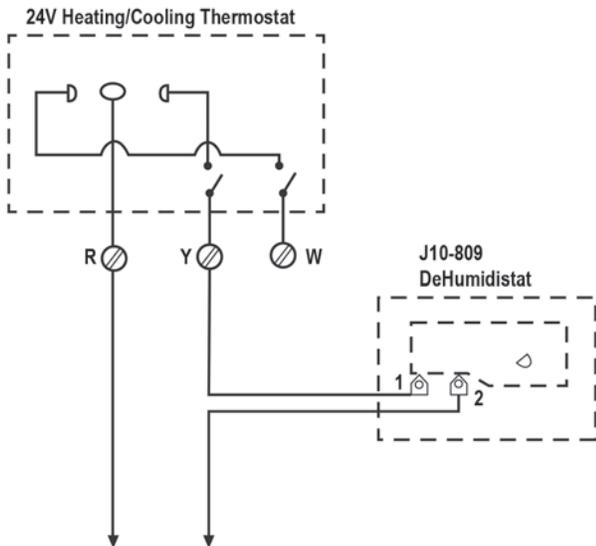
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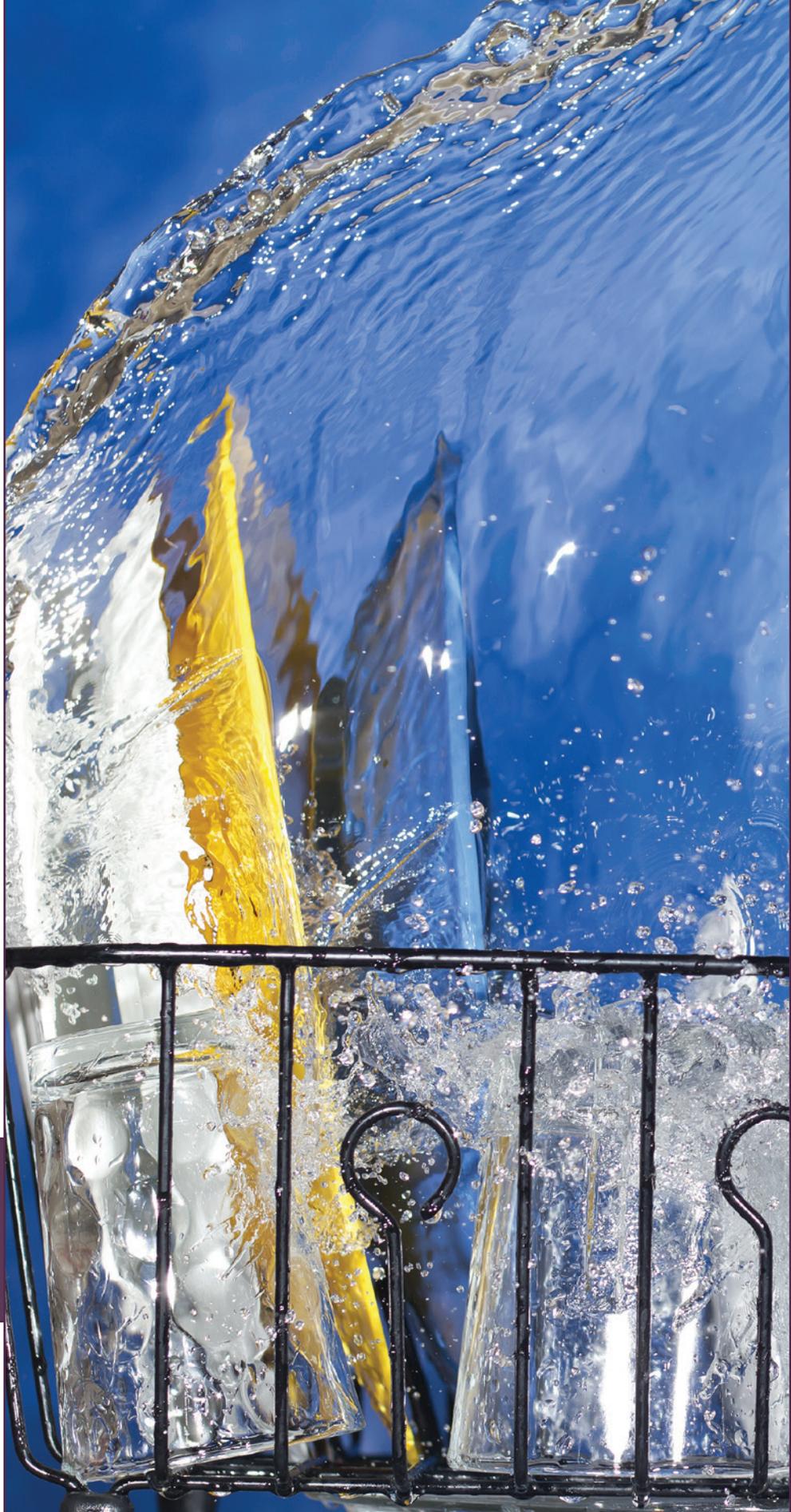
Product Drawings

Wiring Diagram - Parallel Installation



Wiring Diagram - Series Installation





Water valves are critical to the efficient operation of a variety of residential and commercial appliances.

Robertshaw® water valves are the industry standard for all applications. Whether single, dual or general purpose water valves are needed for refrigeration, laundry, dishwashing or small appliances, Robertshaw produces the products trusted by the leading global appliance manufacturers.

Mixing Water Valves.....	F2
Single Solenoid Water Valves	F8
Dual Water Valves	F14
Direct Acting Solenoid Water Valves	F18
Gravity-Fed Dump Water Valves.....	F20
General Purpose Water Valves	F22



WATER VALVES





WATER VALVES

Robertshaw®



Scan for all models, literature and cross reference



CW-164

MIXING WATER VALVES

E-1, E-2 and E-2T Series

The Robertshaw® E-1, E-2 and E-2T Mixing Water Valve Series is designed for laundry clothes washer applications. The E-1 models are non-regulated, the E-2 models have flow control in the outlet, and the E-2T models have an additional thermistor added for temperature monitoring.

Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Compact design compared to predecessor valves to allow more flexibility for applications
- Flange mounting with screw boss is molded into the body for ease of installation
- Design uses a staked coil L frame with drawn pole sleeves to eliminate loose or missing pole pieces
- Improved coil bobbin design reduces problems
- Slow closing operators reduce water hammer and extend valve life
- Spin-weld assembly minimizes problems caused by loose or missing screws
- Suitable for applications using liquids up to 160°F (71°C)
- Quiet operation
- Stainless steel inlet screens with 60 x 60 mesh (60 holes/inch in both x and y directions)

Replacement Information

Part Numbers	Replaces	Factory Number
CW-164	Whirlpool 3952164	K-69046
CW-347	Whirlpool 3979347	K-75398
CW-400	Electrolux 134211400	K-75712
CW-471	Whirlpool 461970229471	K-76422
CW-551	Whirlpool 461970201551	K-74969



WATER VALVES



Specifications

Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Thermistor	Electrical Rating	Power
CW-164	Residential Clothes Washer Mixing Water Valve E-1	1.0 GPM to 6.0 GPM	3/4" 11.5 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	NA	120V AC 60 Hz	5 Watts
CW-347	Residential Clothes Washer Mixing Water Valve E-2T	1.0 GPM to 6.0 GPM	3/4" 11.5 NHT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	50K Ohms at 25°C	120V AC 60 Hz	5 Watts
CW-400	Residential Clothes Washer Mixing Water Valve E-1	1.8 GPM to 14.6 GPM	3/4" 11.5 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	NA	120V AC 50/60 Hz	5 Watts
CW-471	Residential Clothes Washer Mixing Water Valve E-2	1.69 GPM to 2.54 GPM	3/4" 11.5 NHT	3/8" ID Hose	7.5 PSI to 147 PSI	1/4" Male	Polypro	NA	120V AC 50/60 Hz	5 Watts
CW-551	Residential Clothes Washer Mixing Water Valve E-2	1.69 GPM to 2.54 GPM	3/4" 11.5 NHT	3/8" ID Hose	7.5 PSI to 147 PSI	1/4" Male	Polypro	NA	120V AC 60 Hz	5 Watts

Robertshaw[®]

1 Year Limited Warranty

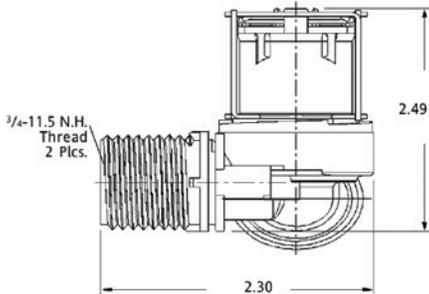
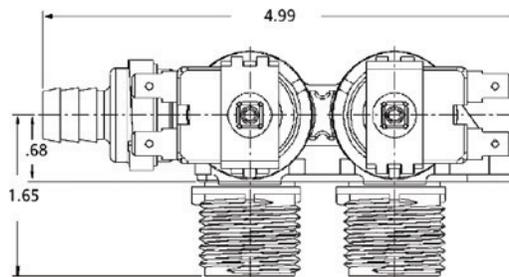
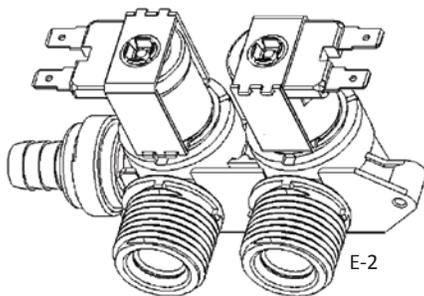
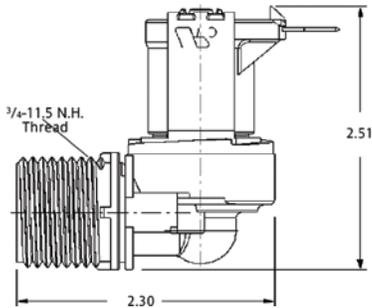
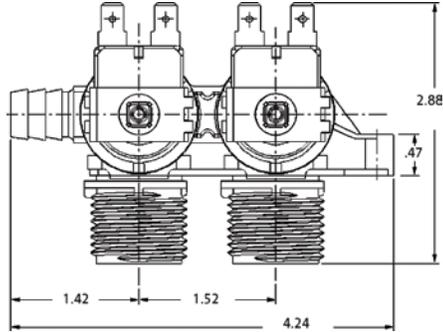
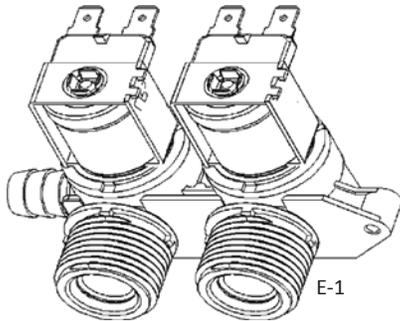




WATER VALVES

Robertshaw®

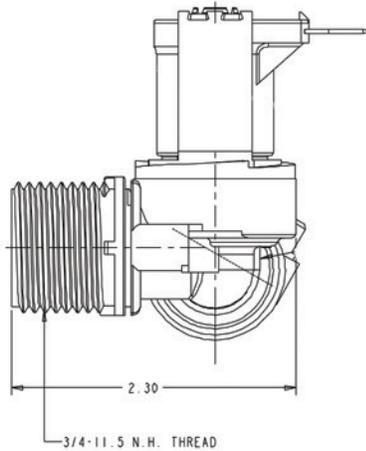
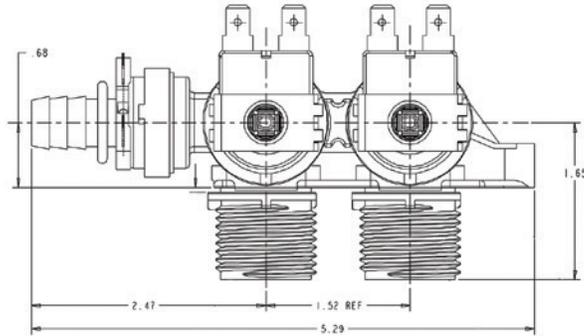
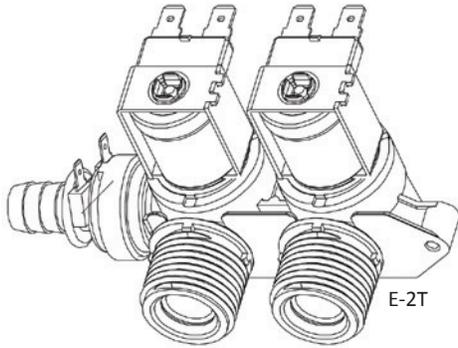
Product Drawings



WATER VALVES



Product Drawings



Robertshaw[®]





WATER VALVES

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Scan for all models, literature and cross reference



CW-300

MIXING WATER VALVES

N-51 Series

The Robertshaw® N-51 Mixing Water Valve Series is designed for laundry clothes washer applications where flow control is required.

Features and Benefits

- Dual solenoid valve with a pilot-operated diaphragm that provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances to minimize jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)
- Water hammer suppression
- Includes stainless steel inlet screens with 50 x 40 mesh (50 x 40 holes/inch in both x and y directions)

Replacement Information

Part Numbers	Replaces	Factory Number
CW-300	Electrolux	K-67914

Specifications

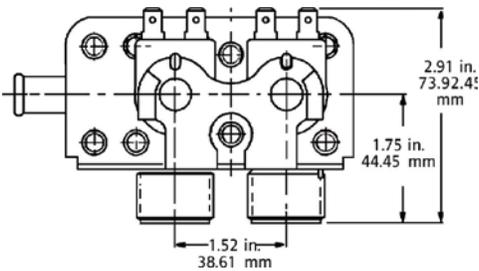
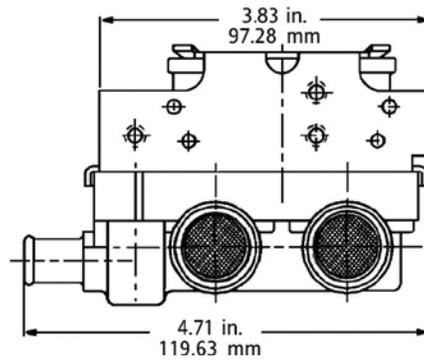
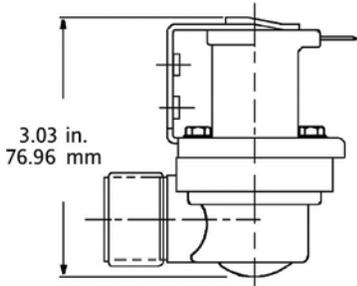
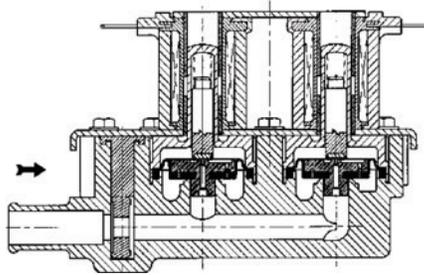
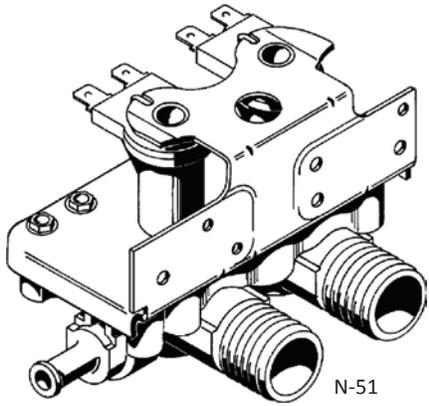
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CW-300	Residential Clothes Washer Mixing Water Valve N-51	3.0 GPM to 14.6 GPM	3/4" 11 NHT	1/2" ID Hose	30 PSI to 120 PSI	Plain Brass	Polypro (Brown)	120V AC 60 Hz	10 Watts



WATER VALVES



Product Drawings



Robertshaw[®]

1 Year
Limited
Warranty



WATER VALVES

Robertshaw®



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IMV-1304

SINGLE SOLENOID WATER VALVES

S-30 Series

The Robertshaw® S-30 Water Valve Series is designed for low flow applications in residential refrigerator icemakers, commercial ice machines, dishwashers, energy-conserving plumbing and heating applications.

Features and Benefits

- Single solenoid valve with a pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
IMV-529	Star - Wells Manufacturing 46529	K-63315-18
IMV-865	Hoshizaki 4A086501	K-63310-21
IMV-1304	Scotsman 12231304	K-63916-9

Specifications

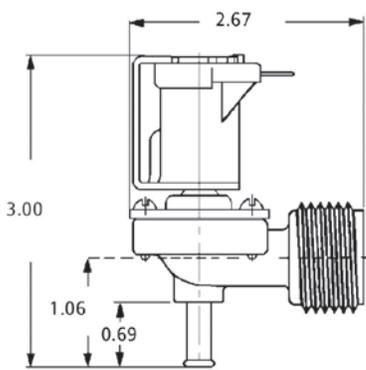
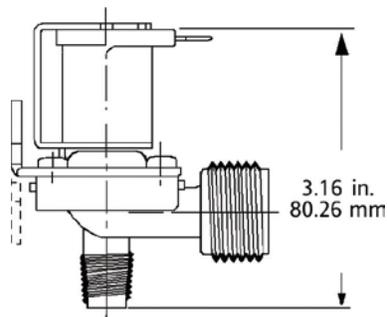
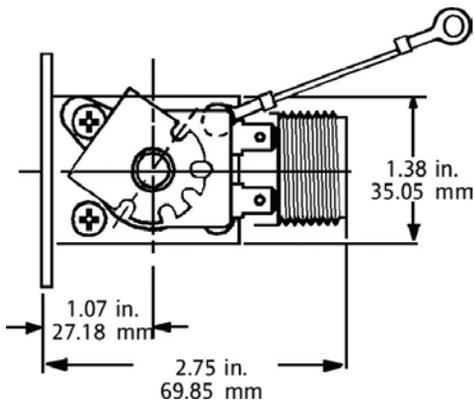
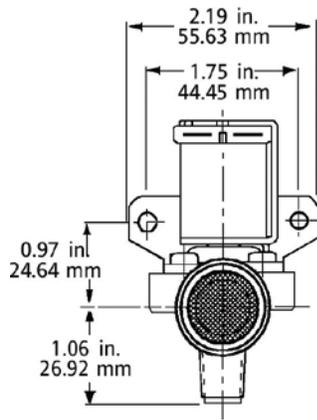
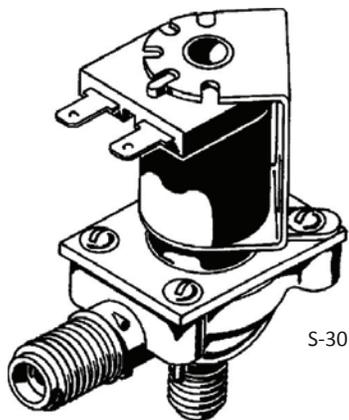
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-529	Commercial Ice Machine Water Valve S-30	0.75 GPM	3/4" 11 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-865	Commercial Ice Machine Water Valve S-30	0.75 GPM	3/4" 11 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	24V AC 50/60 Hz	7 Watts
IMV-1304	Commercial Ice Machine Water Valve S-30	0.75 GPM	3/4" 11 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	10 Watts



WATER VALVES



Product Drawings



(120V Valve Shown)

Robertshaw®

1 Year
Limited
Warranty

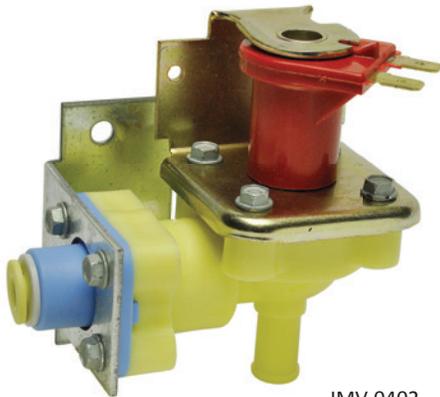


WATER VALVES

Robertshaw®



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IMV-0402

SINGLE SOLENOID WATER VALVES

S-53 Series

The Robertshaw® S-53 Water Valve Series is a single solenoid valve for dishwashing machines and commercial icemakers. The S-53 features the design combination of a brass inlet fitting and a mounting bracket, which allows direct connection to the supply plumbing without applying torque to the valve body.

Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Unique diaphragm design reduces unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
IMV-0402	Manitowoc 000000402	K-76167-10
IMV-2201	Scotsman 12292201	K-74118-27

Specification

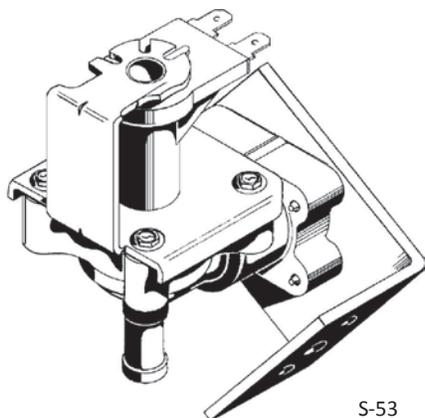
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-0402	Commercial Ice Machine Water Valve S-53	0.75 GPM to 3.00 GPM	3/8" 18 FNPT	3/8" ID Hose (Yellow)	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-2201	Commercial Ice Machine Water Valve S-53	1.25 GPM	3/8" 18 FNPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	10 Watts



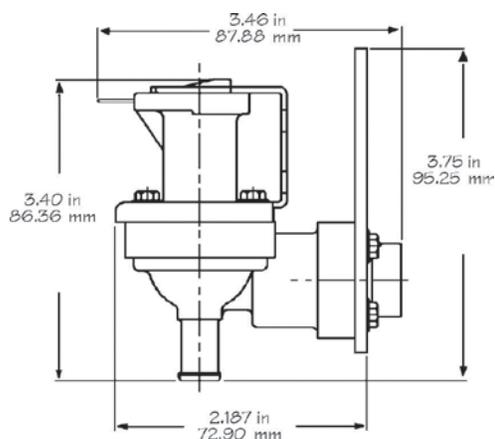
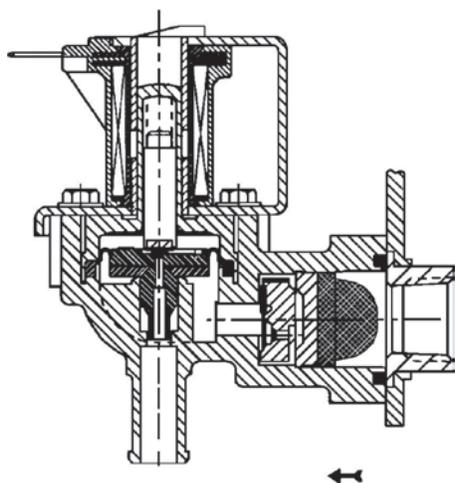
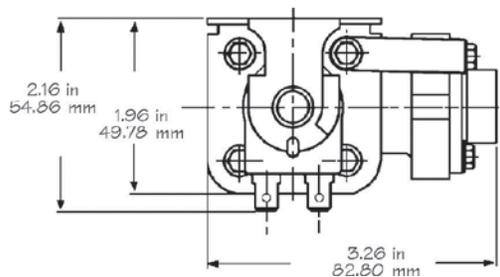
WATER VALVES



Product Drawings



S-53



Robertshaw[®]

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Limited
Warranty



WATER VALVES

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RoHS



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SINGLE SOLENOID WATER VALVES



DW-003

S-101 Series

The Robertshaw® S-101 Water Valve Series is a single solenoid valve for dishwashing machines and coffee brewers.

Features and Benefits

- Pilot-operated diaphragm provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
CB-826	Wilbur Curtis WC826L	K-78117
DW-003	GE Parts 165D5792G001	K-78325
DW-101	Electrolux 154476101	K-76076-1
DW-345	Whirlpool 8283345	K-74396
DW-534	Whirlpool 6920534	K-76466

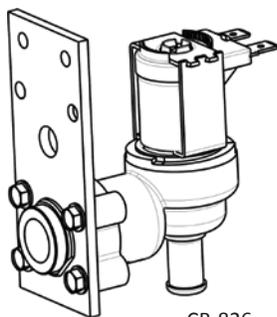
Specifications

Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CB-826	Commercial Coffee Brewer Water Valve S-101	1.00 GPM to 1.30 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro (Gray)	120V AC 50/60 Hz	5 Watts
DW-003	Residential Dish Washer Water Valve S-101	1.55 GPM to 2.05 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro (Blue)	120V AC 60 Hz	5 Watts
DW-101	Residential Dish Washer Water Valve S-101	0.83 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro (White)	120V AC 50/60 Hz	5 Watts
DW-345	Residential Dish Washer Water Valve S-101	1.08 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	5 Watts
DW-534	Residential Dish Washer Water Valve S-101	1.13 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	5 Watts

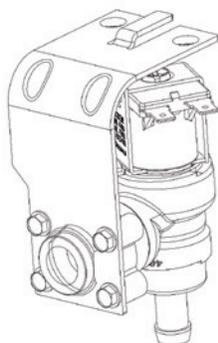
WATER VALVES



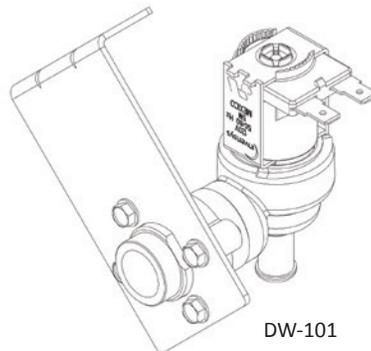
Product Drawings



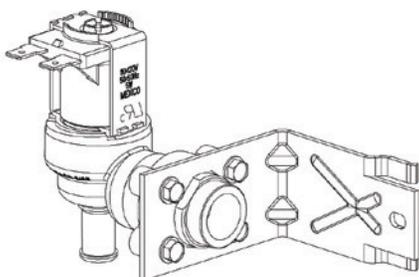
CB-826



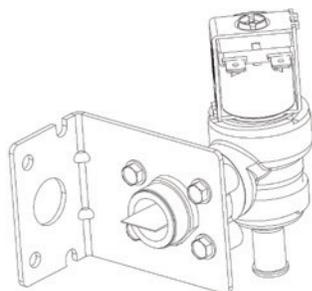
DW-003



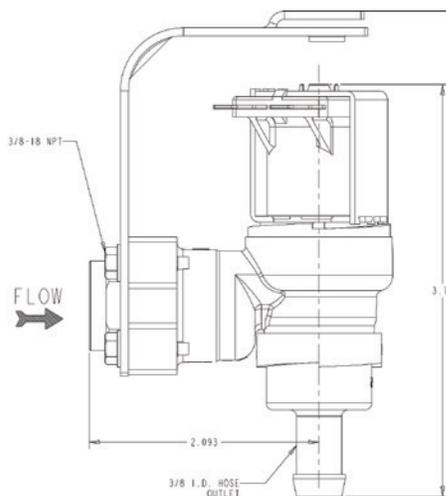
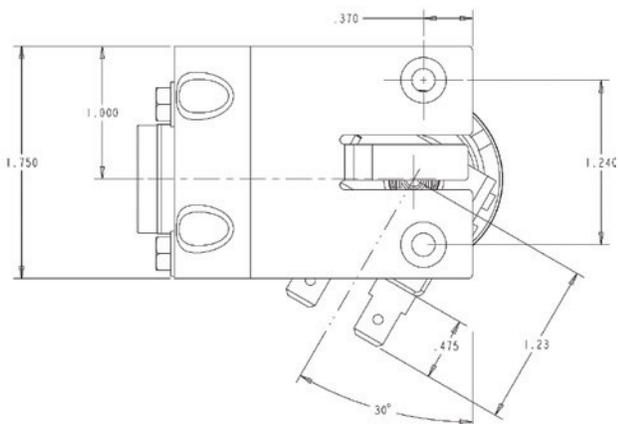
DW-101



DW-345



DW-534



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Limited
Warranty



WATER VALVES

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IMV-576

DUAL WATER VALVES

S-86 and N-86 Series

The Robertshaw® S-86 Single and N-86 Dual Water Valve Series are automatic icemaker valves for residential refrigerator icemakers. Both valve models feature an inlet fitting which connects directly to 1/4" (6.35mm) tubing without an additional adaptor. The N-86 valve allows individual control of water flow through two outlets by using a single inlet for water to the door and for water to fill the icemaker.

Features and Benefits

- Direct acting armature provides high flow capacity with minimum power requirements
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Unique armature and seat design reduce unwanted particles from entering the armature area
- Armature is designed with clearances which minimize the possibility of jamming due to foreign materials
- Bodies are made of polypro which provides high resistance to corrosion and mineral deposits
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
IMV-494	Whirlpool 2210494	K-75973
IMV-576	Whirlpool 2315576	K-78186
IMV-708	Whirlpool 2188708	K-75717



WATER VALVES



Specifications

Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-494	Residential Ice Machine Water Valve S-86	0.06 GPM to 0.60 GPM	1/4" flare, loxit or compression	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts
IMV-576	Residential Ice Machine Water Valve S-86	0.06 GPM to 0.60 GPM	1/4" flare, loxit or compression	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts
IMV-708	Residential Ice Machine Water Valve N-86 Dual	130 CC in 7.5 seconds, 22-38 CC per second	1/4" flare, loxit or compression	7/16" 20 UNF, 1/2" 20 UNF	20 PSI to 120 PSI	1/4" Male, 3/16" Male	Polypro	120V AC 50/60 Hz	35 Watts, 20 Watts

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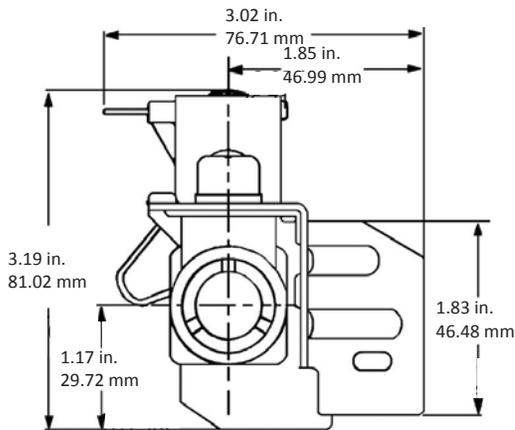
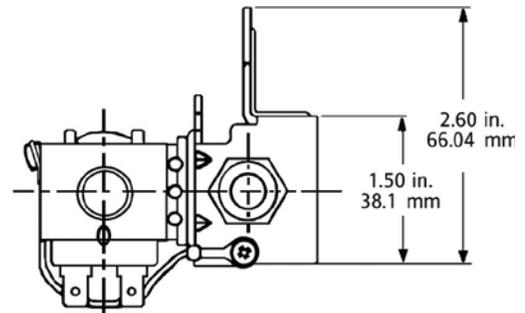
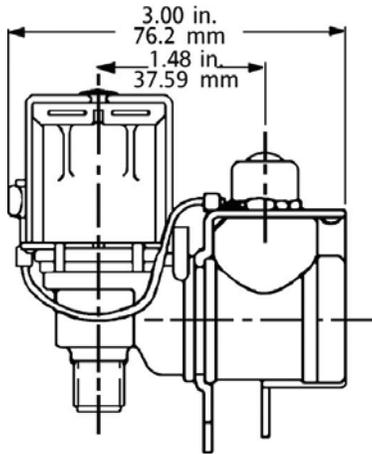
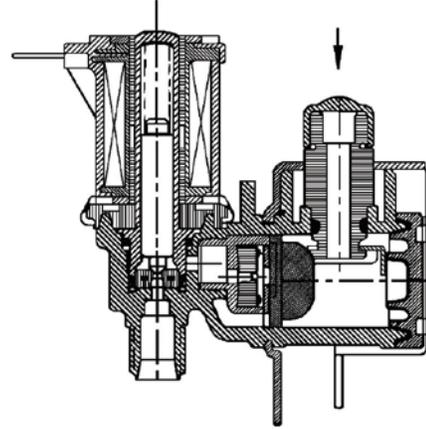
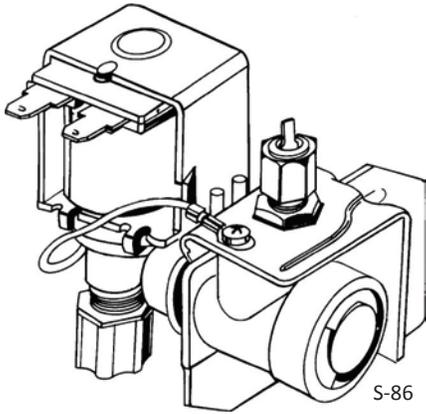




WATER VALVES

Robertshaw®

Product Drawings

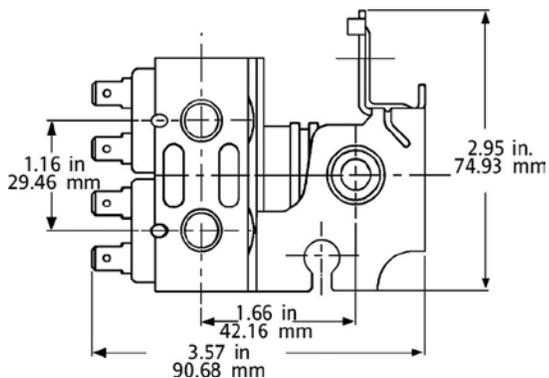
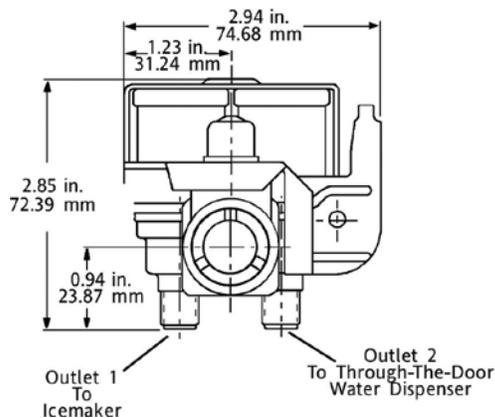
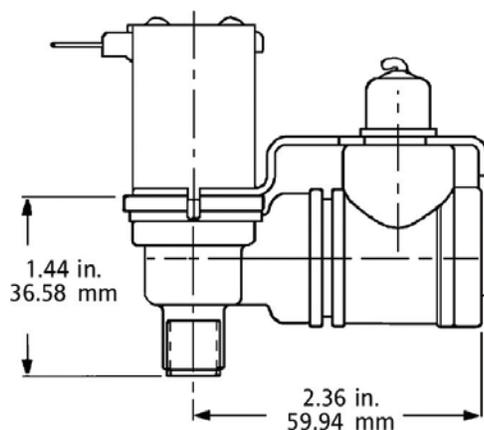
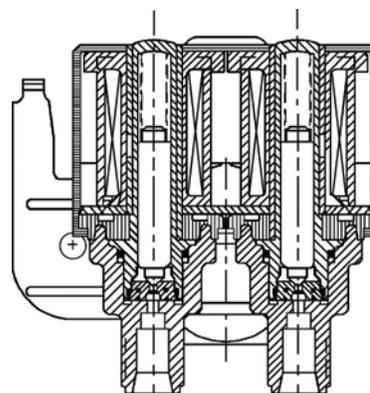
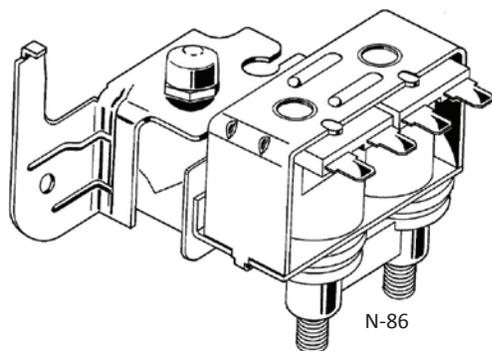


WATER VALVES



Robertshaw[®]

Product Drawings





WATER VALVES

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Scan for all models, literature and cross reference



IMV-1401

DIRECT ACTING SOLENOID WATER VALVES

S-55 Series

The Robertshaw® S-55 Water Valve Series is designed to prevent foreign material from interfering with the drain function in automatic dishwashers and commercial icemakers.

Features and Benefits

- Direct acting solenoid valves provide high flow at low head pressure
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- Bodies are made of polypro to withstand a variety of harsh water conditions
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
IMV-1401	Scotsman 11051401	K-55017-9
IMV-1402	Scotsman 11051402	K-55017-11

Specifications

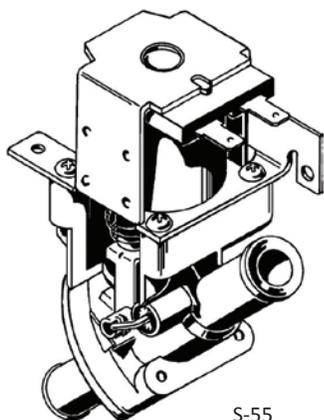
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-1401	Commercial Ice Machine Water Valve S-55	NA	11/16" ID Hose	5/8" ID Hose	0 PSI to 7 PSI	1/4" Male	Polypro	208/230V AC 60 Hz	38 Watts
IMV-1402	Commercial Ice Machine Water Valve S-55	NA	11/16" ID Hose	5/8" ID Hose	0 PSI to 7 PSI	1/4" Male	Polypro	120V AC 60 Hz	28 Watts



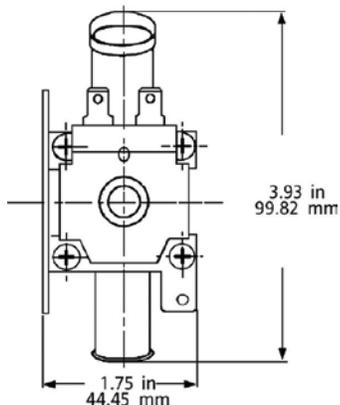
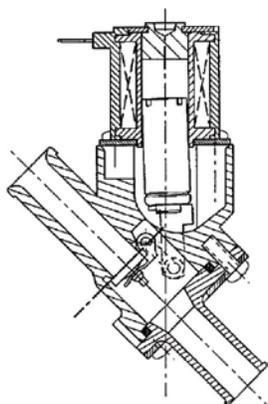
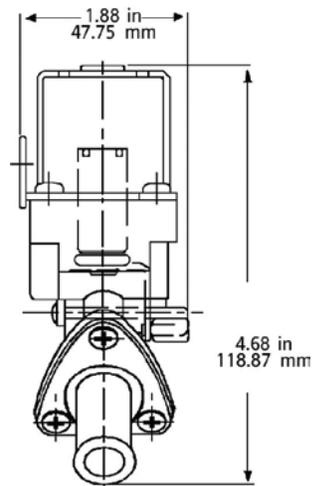
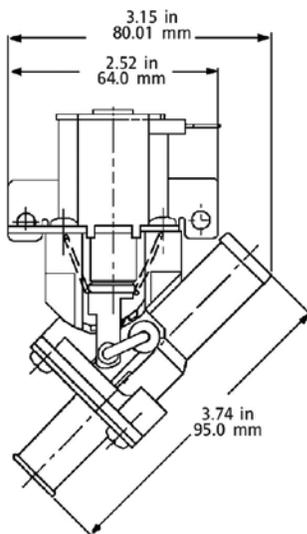
WATER VALVES



Product Drawings



S-55



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1 Year
Limited
Warranty



WATER VALVES

Robertshaw®



CB-880

GRAVITY-FED DUMP WATER VALVES

GS-56 Series

The Robertshaw® GS-56 Water Valve Series is designed to dispense water in coffee and other hot beverage vending machines. This direct acting, gravity-fed dump valve is capable of providing low volume liquid flow at a minimum head pressure and a water temperature of 200°F (93°C).

Features and Benefits

- Vent tube
- External flow adjustment screw slotted or hex
- Polysulfone body material for good chemical resistance and high temperature stability
- Maximum water temperature is 200°F (93°C)



Scan for all models, literature and cross reference

Replacement Information

Part Numbers	Replaces	Factory Number
CB-102	Grindmaster 61102	K-56778-41
CB-116	Bunn-O-Matic 26116002	K-56778-51
CB-880	Wilbur Curtis WC880E	K-56778-35

Specifications

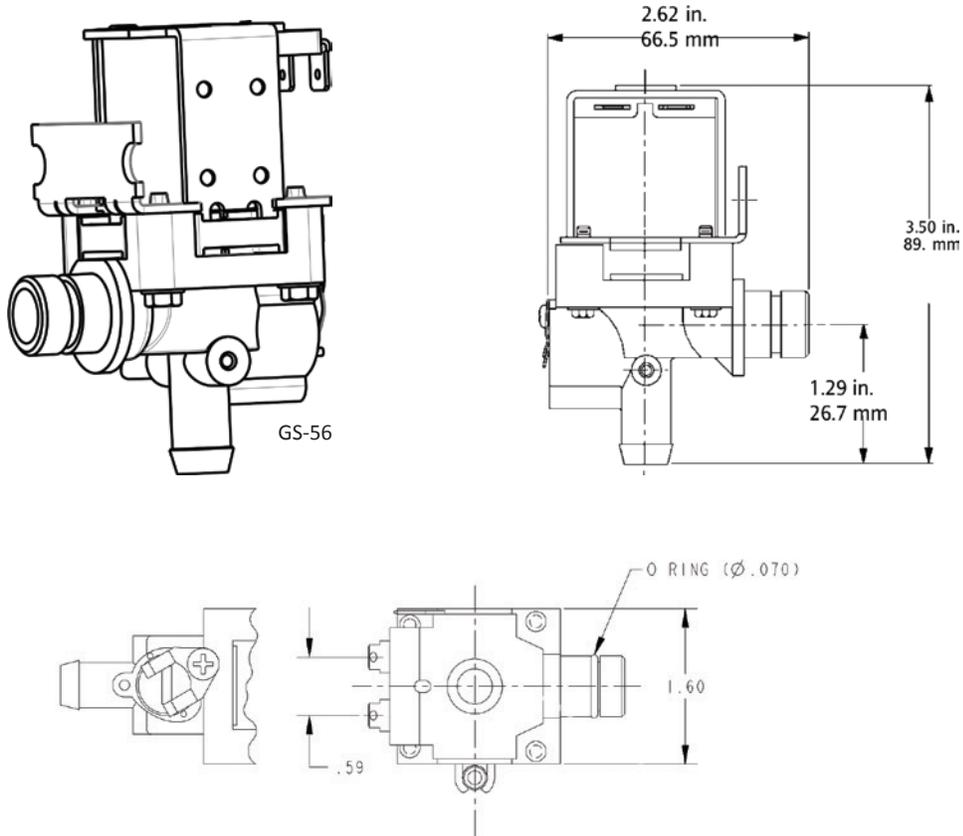
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CB-102	Commercial Coffee Brewer Water Valve GS-56 with Venting Elbow	1.43 GPM	5/8" OD with O ring groove	1/2" ID Hose	20" Head	1/4" Male	Polysulfone	120V AC 50/60 Hz	12 Watts
CB-116	Commercial Coffee Brewer Water Valve GS-56	1.43 GPM	5/8" OD with O ring groove	1/2" ID Hose	20" Head	1/4" Male, Bent Down 90°	Polysulfone	120V AC 50/60 Hz	12 Watts
CB-880	Commercial Coffee Brewer Water Valve GS-56	1.43 GPM	5/8" OD with O ring groove	1/2" ID Hose	20" Head	1/4" Male	Polysulfone	120V AC 50/60 Hz	12 Watts



WATER VALVES



Product Drawings



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1 Year
Limited
Warranty





WATER VALVES

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DW-952

GENERAL PURPOSE WATER VALVES

S-45 Series

The Robertshaw® S-45 Water Valve Series is designed as a general purpose valve for energy conserving plumbing and heating applications.

Features and Benefits

- Pilot-operated design provides flow capacity with minimum power requirements
- Serviceable strainer incorporated for the protection of both the valve and the appliance
- Encapsulated coil provides high mechanical and dielectric strength, and is moisture resistant
- UL requirements met for intermittent duty operation
- Suitable for applications using water at temperatures up to 160°F (71°C)

Replacement Information

Part Numbers	Replaces	Factory Number
DW-952	Moyer Diebel 504952	K-62687-44
PL-849	Sloan Valve 0305849	K-77634

Specifications

Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
DW-952	Commercial Dishwasher Water Valve S-45	Up to 5 GPM	3/8" 18 FNPT	3/8" 18 FNPT	20 PSI to 120 PSI	1/4" Male	Brass	120V AC 50/60 Hz	10 Watts
PL-849	Commercial Plumbing Water Valve S-45	NA	3/8" 18 FNPT	3/8" 18 FNPT	20 PSI to 120 PSI	1/4" Male	Low Lead Brass	24V AC 50/60 Hz	7 Watts

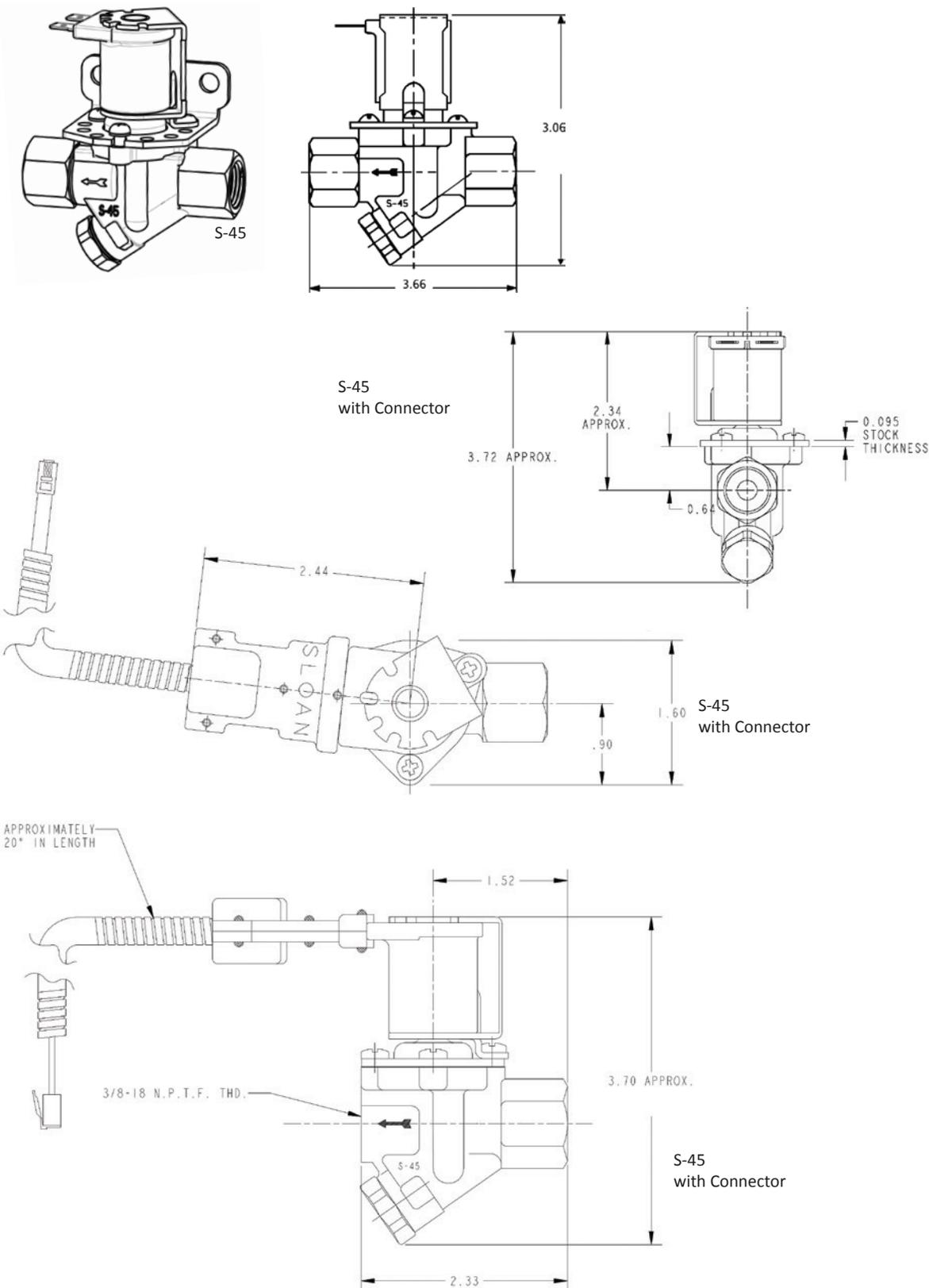


WATER VALVES



Robertshaw[®]

Product Drawings



TIPS ON SELECTING A REPLACEMENT GAS VALVE

Safety Warning: Any work on gas valves or equipment should be performed by a qualified service technician only. Please do not attempt any repairs or replacement if you are not qualified. Serious injury can occur from improper installation or usage.

Disclaimer: The cross references provided in this catalog are intended to be functional equivalents and not exact matches of products listed. Robertshaw assumes no liability in connection with the information contained herein and makes no representations regarding the accuracy of any such information. Final selection of a replacement product is the sole responsibility of the buyer.

GAS VALVE SELECTION CHECKLIST GUIDELINES

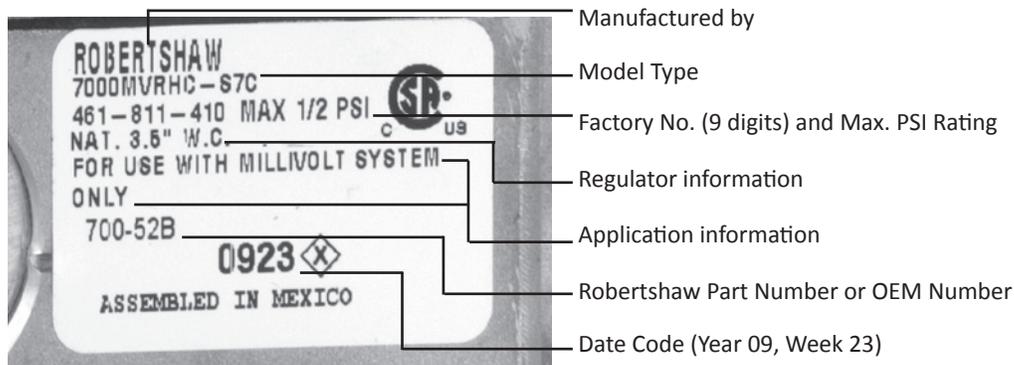
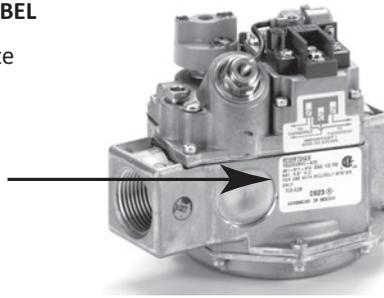
Always check the following with any gas valve retrofit application:

1. Check capacity
2. Check inlet and outlet sizes
3. Determine if the valve is non-regulated
 - a. Check if the pressure regulator requires adjusting
4. Determine if the replacement requires straight-thru
5. Determine if the application is LP or Natural Gas
 - a. For LP gas, a separate pressure regulator may be required
6. Determine if the pilot needs to be plugged
7. Determine if the valve is slow opening
8. Determine if a transformer is required
9. Determine if the replacement shaft and hub will require assembly
10. Check OEM and replacement manuals for proper installation instructions

HOW TO READ AND INTERPRET A GAS VALVE LABEL

To identify your valve type, locate the red or white factory label on the valve body.

Note: It is essential to write down the nine digit factory number correctly.



An OEM valve may have an OEM part number instead of the Robertshaw part number. The cross reference on the following pages will cross most nine digit factory numbers or OEM part numbers to the Robertshaw numbers.

Gas valves with white labels are usually manufactured to be used on natural gas applications. Red labels indicate the valves are usually manufactured to be used on LP gas applications.

Any additional characters after the nine digit factory number are used for shipping purposes and should be ignored when cross referencing.

FACTORY MODEL CODE IDENTIFICATION

Factory Model Number			DESCRIPTION
7000	2000	7200	
•			A Unitrol 7000 Body with small diameter valve seat. 100,000 BTU
•			B Unitrol 7000 Body with large diameter valve seat. 240,000 or 300,000 BTU
•			BB Unitrol 7000 Body with medium diameter valve seat - Intrinsicly "non-hunting"
•			7010 Unitrol 7000 Body without a gas cock
•			CSTR Convertible Hydraulic Actuator - From natural to LP gas
•	•	•	D Solenoid Valve - Pilot Gas - Single coil operated on AC
•	•	•	E Electric Actuator - 24VAC
•			E12 Electric Actuator - 12VAC
•	•	•	E120 Electric Actuator - 120VAC
•	•	•	E240 Electric Actuator - 240VAC
•			EH Electric Heat Motor Actuator (obsolete)
•			EM Electric Actuator with manual override (obsolete)
•			ESTR-SS Electric Solid-State Actuator (obsolete)
•			F Factory Fixed (not adjustable regulator setting) (3.5° to 5.0° W.C.)
•			GO Bleed Gas Operated Actuator
•			GS Gas Cock Safety - with gas cock and safety valve - no main valve
•			GV Gas Valve without a safety valve - No Safety Magnet
•			-1H Remote dual hydraulic type - dual bellows
•	•		HC High Capacity Body
•			HHC High Capacity Body AGA rated for side ways or vertical mounting. Can be replaced by HC model
•	•	•	IPER Intermittent Pilot Ignition Gas Valve - regulated
•			L Relight Interlock type. A European requirement
•	•		LC Low Capacity Body - 710 Series
•	•	•	LP For Liquefied Petroleum Gases
•			M Manual Actuator
•			MS Millivolt Safety Magnet - uses thermopile type safety
•			MV Millivolt Actuator
•	•		P Pulse Combustion
•	•	•	R Regulator Type
•		•	RS Adjustable (High - Low) pressure regulator adjusts percentage of output. -3 = 50% of full flow -4 = 60% of full flow -5 = 70% of full flow -6 = 80% of full flow

Factory Model Number			DESCRIPTION
7000	2000	7200	
•			RB High/Low
•	•	•	RC Convertible regulator from natural gas to LP and back
		•	RN Negative Pressure Regulator
•			R1 Class I and II Natural Gas Pressure Regulator
•	•	•	R2 Two-Stage pressure regulator valve opens to percentage of full flow as indicated by the number -1 = 30% of full flow -2 = 40% of full flow -3 = 50% of full flow -4 = 60% of full flow -5 = 70% of full flow -6 = 80% of full flow
•			S Hydraulic Snap-Acting Actuator - non regulated
		•	S0 Step-opening regulated with factory fixed setting 30 seconds max. To full flow: -1 = 30% of full flow -2 = 40% of full flow -3 = 50% of full flow -4 = 60% of full flow -5 = 70% of full flow
•			SR Hydraulic Regulated Snap-Acting Actuator
•			ST Hydraulic Snap - Throttle Actuator, but set-up for use on a specific gas; natural gas only or LP gas only. Non-regulated number indicates percentage of By-Pass flow. -1 = 30% of full flow -2 = 40% of full flow -3 = 50% of full flow -4 = 60% of full flow -5 = 70% of full flow
•			STR Hydraulic Snap-Throttle Actuator, regulator number indicates percentage of By-Pass flow. -2 = 40% of full flow -3 = 50% of full flow -4 = 60% of full flow -5 = 70% of full flow
•	•	•	S7 Slow Opening devices with either a plastic body or a metal body Orifice Valve Assembly A = 0 to 5 seconds to full flow B = 5 to 10 seconds to full flow C = 10 to 30 seconds to full flow
•			S13 Slow Opening Control with .0135 orifice in body, but no other "Slow Opening" device. 0 to 5 seconds to full flow.
•			S36 Slow Opening Control with two .018" orifices - one in Body and one in Cover, but no other Slow Opening device. 5 to 10 seconds to full flow.

GAS VALVE CROSS REFERENCE FOR UNI-LINE® PARTS

Factory Number	Uni-Line Number	Factory Number	Uni-Line Number	Factory Number	Uni-Line Number
110ER	120-402	7000BDER-S7A	700-056	7000BMSM	700-185
110ERCHC	120-407	7000BE	700-405	7000BMV	700-503
110ERCHC20-2E	120-472	7000BE	700-401	7000BMV	700-505
110ERCHCS0-2C	120-474	7000BE-120	700-451	7000BMVR	700-510
110ERCHCS0-2D	120-473	7000BE-120	700-453	7000BMVR	700-504
110S	120-204	7000BE-240	700-461	7000BMVR	700-508
110S	120-201	7000BE-240	700-463	7000BMVR	700-506
110S	120-200	7000BER	700-402	7000BMVR-LP	700-515
110SR	120-202	7000BER	700-400	7000BMVR-S7C	700-511
110SS	120-203	7000BER	700-404	7000BMVR-S7C	700-512
220RLPTS8P	110-286	7000BER	700-406	7000BMVR-S7C	700-507
220RLPTS8P	110-285	7000BER-120	700-454	7000DEHC-S7C	700-058
220RLPTS8P	110-280	7000BER-120	700-452	7000DER2-HC-3-LP-S7C	700-063
220RLPTSP	110-262	7000BER2-3-LP-S7C	700-445	7000DER2-HC-4-S7C	700-064
220RLPTSP	110-270	7000BER2-4	700-446	7000DERHC	700-057
220RLPTSP	110-267	7000BER-240	700-462	7000DERHC-S7C	700-059
220RLPTSP	110-266	7000BER-240	700-464	7000EHC-120-S7C	700-455
220RLPTSP	110-265	7000BER2-HC-3-LP-S7C	700-447	7000EHC-240-S7C	700-465
220RTSP	110-202	7000BER2-HC-4	700-448	7000EHC-S7C	700-441
7000AE	700-407	7000BERC	700-412	7000ELC	710-401
7000AER	700-408	7000BER-LP	700-411	7000ERHC	700-438
7000AERB-3-LP-S7C	700-435	7000BER-LP-S7C	700-429	7000ERHC-120	700-468
7000AERB-5-S7C	700-434	7000BER-S7A	700-426	7000ERHC-120-S7C	700-456
7000AERC	700-419	7000BER-S7C	700-428	7000ERHC-240-S7C	700-466
7000AGO	700-811	7000BGOR-S7B	700-804	7000ERHC-S7C	700-442
7000AGOR	700-812	7000BGO-S7B	700-803	7000ERLC	710-402
7000AM	700-101	7000BGVE	700-423	7000ERLC	710-404
7000AMR	700-102	7000BGVE	700-417	7000GOHC-S7B	700-823
7000AMSGO	700-881	7000BGVE	700-421	7000GORHC-S7B	700-824
7000AMSGOR	700-882	7000BGVE-120	700-457	7000GVEHC-120-S7C	700-459
7000AMSGOR-LP	700-888	7000BGVER	700-422	7000GVEHC-S7C	700-431
7000AMV	700-509	7000BGVER	700-424	7000GVERHC-120-S7C	700-458
7000AMV	700-501	7000BGVER	700-420	7000GVERHC-S7C	700-432
7000AMVR	700-502	7000BGVER-120	700-450	7000GVER-S7A	700-430
7000AS	700-215	7000BGVER2-3-LP-S7C	700-440	7000GVMVLC	710-513
7000AS	700-201	7000BGVER2-4	700-413	7000MHC-S7C	700-113
7000AS-1H	700-209	7000BGVER-S36	700-416	7000MLC	710-101
7000ASR	700-202	7000BGVMV	700-523	7000MRHC-S7C	700-114
7000ASR-1H	700-210	7000BGVMVR	700-524	7000MRLC	710-108
7000ASR-LP	700-216	7000BKER-S7A	700-062	7000MRLC	710-102
7000AST-3	700-203	7000BKER-S7A	700-066	7000MRLC	710-107
7000AST-3-1H	700-206	7000BKER-S7C	700-061	7000MVHC-S7C	700-521
7000AST-LP-3	700-204	7000BM	700-105	7000MVLC	710-501
7000AST-LP-3-1H	700-207	7000BMR	700-106	7000MVRB-5-LC	710-503
7000ASTR-3	700-205	7000BMSE-120-S7C	700-471	7000MVRB-5-LC	710-511
7000ASTR-3-1H	700-208	7000BMSER	700-409	7000MVRHC-S7C	700-522
7000ASTR-4	700-213	7000BMSER-120	700-472	7000MVRLC	710-508
7000ASTR-LP-4	700-212	7000BMSER-120	700-470	7000MVRLC	710-502
7000BDER2-3-LP-S7C	700-051	7000BMSER-LP-120	700-469	7000SLC	710-201
7000BDER2-4-S7A	700-053	7000BMSGO	700-885	7000SLC	710-218
7000BDER-LP-S7A	700-055	7000BMSGOR	700-886	7000SLC	710-203
7000BDER-S7A	700-052	7000BMSGOR	700-887	7000SRLC	710-205

Factory Number	Uni-Line Number	Factory Number	Uni-Line Number	Factory Number	Uni-Line Number
7000SRLC	710-204	7200DER-SO-3	720-054	7222DERC	722-053
7010BGVER	700-418	7200DER-SO-4-120	720-083	7222DER-S7A	722-052
7010BGVMV	700-517	7200E	720-401	7222IPER	722-079
7010BGVMV	700-514	7200ER	720-402	R103RCTSLP	110-506
7010BGVMV	700-513	7200ER	720-400	R103RCTSLPPA	110-503
7010BGVMV	700-513	7200ER	720-406	R103RVTSLP	110-507
7100DER	700-077	7200ER	720-404	R103RVTSLP	110-509
7100DERB-5-S02	700-078	7200ERC	720-007	R103RVTSLPP	110-502
7100DER-LP-S7C	700-073	7200ERCS-2	720-472	R103RVTSLPPA	110-505
7100DER-LP-S7C	700-071	7200ERCS-2	720-474	R103RVTSLPPA	110-501
7100DERN	700-074	7200ER-S7C	720-403	R103RVTSLPPA	110-504
7100DERP	700-076	7200IPER	720-079	R103RVTSLPPA	110-508
7100DER-S7C	700-070	7200IPER2-4	720-082	R110RCTS-PC	110-203
7100DER-S7C	700-072	7200IPER-LP	720-080	R110RCTS-PC	110-204
7200DER	720-051	7200IPER-LP-S7C	720-073	R110RTS	110-326
7200DERB-5-SO-2	720-078	7200IPER-LP-S7C	720-071	R110RTS8P	110-353
7200DERCS-1	720-055	7200IPER-S7C	720-072	R110RTSP	110-206
7200DERN	720-074	7200IPER-S7C	720-070	R65RRRTSP	110-268
7200DER-S7C	720-050	7200IPER-SO-4	720-081		
7200DER-S7C	720-052	7222DER	722-051		

COMMERCIAL COOKING CROSS REFERENCE FOR UNI-LINE® PARTS

Factory Number	Uni-Line Number	Factory Number	Uni-Line Number	Factory Number	Uni-Line Number
401XM	41-224	GS-C8-060-00-00	4290-008	S-234-36	5300-175
501A	41-204	GS-J1-036-00-00	4290-020	S-23-48	5300-041
501A	41-205	INF-120-1152	5500-134	S-384-36	5300-114
501A	41-209	INF-120-1152	5500-135	SA-245	5300-017
7000BGOR-S7B	700-804	INF-240-1153	5500-234	SA-382-36	5300-017
7000BMSGOR	700-886	INF-240-1153	5500-235	SJ-157-36	5300-146
7000BMSGOR	700-887	INF-240-597	5500-202	SJ-328-36	5300-146
BJWA25PB-02-48	4350-015	INF-240P-1047	5500-287	SM2	41-521
BJWA25PC-09-36	4350-028	INF-240P-1148	5500-212	SP-184-60	5300-612
BJWA25PD-10-48	4350-040	INF-240PX-803	5500-200	SP-186-60	5300-614
BJWA25PM-02-48	4350-127	KA-601-36	5300-015	SP-191-60	5300-618
BJWA25PM-03-48	4350-128	KA-601-72	5300-088	SP-192-36	5300-641
BJWA25PM-11-48	4350-027	KA-604-48	5300-027	SP-197-60	5300-651
BJWA44TC-12-36	4350-029	KNP-6-36	5300-502	SP-200-60	5300-671
D1-32-060-59-00	5000-851	KX-161-24	5300-766	SP-390-36	5300-219
D1-C5-060-59-00	5000-811	KX-299	5300-401	TS11J-1211-1-0	1720-008
EA3-44-36	5300-100	KX-396	5300-402	TS11J-1311-1-0	1720-005
FDH-1-06-48	4200-508	KX-87-36	5300-711	TS11J-3211-1-0	1720-004
FDO-1-04-48	4200-007	KXP-149-60	5300-735	TS11J-4211-1-0	1720-007
FDO-1-07-48	4200-005	LCC-36-060-00-00	5225-010	Z871470042	5210-125
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FDTH-1-05-48	4200-505	LCH-68-024-00-00	5225-047	Z950644100	1720-802
FDTH-1-06-48	4200-503	LCH-J6-024-00-00	5225-054		
FDTH-3-06-54	4200-026	LCHM-05-030-00-00	5225-112		
FDTO-1-05-48	4200-011	BJWA25PC-01-48	4350-027		
FJT-102-1040	4075-029	RX-1-36	5300-401		
FJTDO-13	4075-200	RX-2-24	5300-402		
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400-420	E16	1028UL/3S	C23	2230/4S	C25
405-420	E16	1064UL/3S	C23	2230/4SE	C25
695-101	B24	1064UL/4S	C23	2271/2S	C26
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Terms and Conditions of Sale

EFFECTIVE NOVEMBER 3, 2014

The following Terms and Conditions are the Terms and Conditions of Sale of the products ("Products") supplied by Robertshaw Controls Company, Robertshaw Canada, Inc., and their affiliates (each hereinafter "Company").

THE TERMS AND CONDITIONS PROVIDED BELOW AND IN ANY ATTACHMENTS HERETO ARE COMPANY'S EXCLUSIVE TERMS AND CONDITIONS OF SALE, SHALL APPLY TO ALL PRODUCTS PROVIDED HEREIN, AND SHALL SUPERSEDE ANY INCONSISTENT, ADDITIONAL OR PREPRINTED TERMS AND CONDITIONS CONTAINED IN DISTRIBUTOR'S PURCHASE ORDER OR ANY OTHER DISTRIBUTOR DOCUMENT. COMPANY DOES NOT AGREE TO ANY PROPOSED ADDITION, MODIFICATION OR DELETION BY DISTRIBUTOR, OR DISTRIBUTOR'S CUSTOMERS, OF THESE TERMS OR TO ANY TERMS OR CONDITIONS SET FORTH IN DISTRIBUTOR'S OR DISTRIBUTOR'S CUSTOMER'S ORDERS. ANY SUCH TERMS AND CONDITIONS ARE HEREBY REJECTED AND CONSIDERED NULL AND VOID.

THESE TERMS AND CONDITIONS CAN BE VARIED ONLY BY A WRITTEN DOCUMENT SIGNED BY COMPANY. COMPANY RESERVES THE RIGHT TO MODIFY THESE TERMS AND CONDITIONS OF SALE AT ANY TIME WITHOUT PRIOR NOTICE TO DISTRIBUTOR. ANY REVISED TERMS AND CONDITIONS, HOWEVER, WILL ONLY AFFECT THOSE ORDERS RECEIVED BY COMPANY AFTER THE EFFECTIVE DATE OF THE REVISION.

Distributor will ensure by its contract with the end user or ultimate owner or its buyer that Company is given the benefit of these Terms and Conditions of Sale, including the exclusions and limitations of liability set forth herein, or as hereafter modified by Company, by all such users, owners and buyers and Distributor will indemnify Company, its officers, directors, shareholders, employees, agents and representatives against any actions, claims, demands, liabilities, damages, losses, costs and expenses including, but not limited to, attorneys and expert witness fees, to the extent that Company would not be liable to Distributor under these Terms and Conditions of Sale if the claim had been made by Distributor. Distributor will ensure that these Terms and Conditions of Sale for the Products are transmitted to its end customer(s) upon resale or transfer of the Product. Accordingly, except as to those terms in Sections I, Distributor Recognition; II, Ordering Information; III, Pricing; IV, Payment Terms; V, Freight and Delivery Terms; VI, Inspection and Acceptance; and VIII, Return Material Authorization, which are exclusive to Distributor, any reference to "Distributor" in these Terms and Conditions shall also include Distributor's customers, transferees, assigns, affiliates, or whoever else takes control or possession of the Product.

I. DISTRIBUTOR RECOGNITION

- A. Recognition as a non-exclusive Company distributor is based upon market coverage, product knowledge, and general effectiveness in representing specific Products supplied by Company. Distributor acknowledges that Company may sell directly or to any third party that Company selects as and when Company so desires in its sole and absolute discretion. Distributor represents to Company that Distributor is engaged in business solely as a stocking distributor and its primary customers for Company's Products are HVACR contractors and others who directly engage in the installation and servicing of environmental controls, heating, ventilation and air conditioning controls and equipment. Distributor acknowledges that Company's Products are designed for specific applications and Distributor agrees it shall not market, resell, distribute, or recommend the use of any of Company's Products in any application where the use of the Product is not as intended or designed by Company or does not conform to Company's specifications for use, and shall indemnify Company, its officers, directors, shareholders, employees, agents and representatives for all such unauthorized use. Company shall have no responsibility, and/or liability and the Product Warranty set forth herein shall be void, if Distributor uses or recommends the use of any Product for any application for which it is not intended or designed.
- B. Distributor agrees that Company's arrangement with Distributor can be terminated by Company with or without cause, upon fourteen (14) days notice unless otherwise agreed in writing by Company and Distributor. In the event of termination, all of the goodwill and other proprietary and intellectual rights in and to Company's Products shall remain the sole property of Company. Distributor will not be entitled to any compensation or payments including, but not limited to, expenses, lost profits, sales or revenue, loss of goodwill or otherwise, as a result of Company's termination.
- C. Distributor agrees to provide a credit application and Tax Resale Certificate, if applicable, to Company's Credit Department to obtain credit approval in order to set up Distributor's account. Distributor also agrees to periodically furnish Company, at Company's request, updated financial information. Recognized distributors must maintain minimum annual net purchases of \$5,000 USD or CND, respectively.

II. ORDERING INFORMATION

- A. Company will only accept orders from its recognized Distributors, or the Distributor's recognized branches. Possession of Company's product catalog or Price Schedule does not constitute authority or right to purchase items directly from Company.
- B. To submit orders, please fax order to:

USA and Canada	800.426.0804
International	951.737.8261
- C. Orders must state Distributor's account number, ship to address, catalog part number, item description, quantity ordered and unit price. Orders will not be processed without this information confirmed in writing by Distributor.
- D. Order changes by Distributor must be made in writing, or verified in writing, before Company can complete processing of the order, and shall be subject to the terms of Section V below.
- E. All Products may be combined in a single order for best pricing and freight terms.
- F. Products carrying the footnote "@" are only available in the multiples shown. Some items are also noted with a required minimum purchase quantity that must be followed. Company reserves the right to increase the order quantity in compliance to item minimums and multiples without authorization by Distributor or to refuse to accept the order.
- G. A minimum net billing of \$100 USD or CND, respectively, per order, per branch drop shipment applies (excluding freight and/or applicable taxes).
- H. Orders will only be accepted for shipment to one destination. Portions of orders for shipment to other addresses will be considered separately for pricing, freight, and item minimum and multiple requirements.
- I. Drop shipments to destinations other than a recognized Distributor's address, or its recognized branch address, will require approval based solely at the discretion of Company. If approved, additional charges may apply. Standard order terms and requirements will apply.
- J. Nothing in these Terms and Conditions of Sale requires or is intended to require Company to accept any purchase order from Distributor, and Company shall have no liability to Distributor or to any third party in the event Company decides not to accept any order.
- K. All orders are final once shipped to Distributor.

Terms and Conditions of Sale

III. PRICING

- A. PRICES ON ALL ORDERS ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE AT ANY TIME. Written notification of pending price increases will be made in advance of the effective date of the price change, whenever practicable. Except where prices are specifically designated in Company's quotation as "Firm" for a specified period of time, all Products shipped on or after the effective date of a price change will be invoiced at the new price level. Company reserves the right to make price changes during the term of an existing Agreement (unless expressly agreed otherwise in such Agreement) or any blanket orders. Company's US HVACR and Appliance Wholesaler Policy and Distributor Price Schedule 157, literature number 150-2476, HVACR and Appliance Canadian Distributor Price Schedule C153, literature number 150-2477, and Canada HVACR and Appliance Distributor Price Schedule C153-BMS, literature number 150-2478 may be ordered online or electronically downloaded in their current versions through Company's online literature service at www.Robertshaw.com. International Distributors should contact their customer service representative for current Price Schedules.
- B. Prices do not include any applicable taxes, excises, duties, quotation fees or other government charges or surcharges that Company may be required to pay or collect under any existing or future law. Distributor agrees to pay or reimburse Company for any applicable taxes, charges or surcharges that Company or Company's agents or suppliers are required to pay. Prices may also be adjusted at any time, with or without notice, for changes in exchange rates.
- C. In the event any order submitted by Distributor to Company contains pricing not in accordance with the then-current Price Schedule, or its special quoted pricing, Company will notify Distributor of the discrepancy in price and Distributor shall correct the pricing in writing by either acknowledging the correction on a revised order confirmation, a pricing approval form, or by submitting a new order to Company. All orders shall be placed on hold until Distributor provides written acknowledgment of correct pricing.

IV. PAYMENT TERMS

- A. Subject to Company's Credit Department approval, standard invoice payment terms are Net 30 days from date of shipment.
- B. Payments can be made either via check, certified check, money order, wire transfer, or irrevocable and confirmed letter of credit, paid to the order of the remittance name specified on the respective invoice. All billings and payments shall be in United States Dollars (USD) or CND, respectively. International Distributor's billings and payments shall be in the agreed currency. Company may require check in advance, cash in advance, or a Letter of Credit (LOC) on international accounts, which Distributor shall furnish upon request.
- C. If Distributor's order requires check in advance, supplies and raw materials may not be purchased and Product may not be produced or shipped until payment is received and funds are cleared from the bank upon which they are drawn. In the event standard or non-standard Product is produced and funds do not clear Distributor's bank, Distributor is liable to Company for all associated costs and damages thereof including, but not limited to, price of Products already shipped (plus freight charges); finished goods; costs of work-in-progress, vendor items, raw materials and parts Company cannot return, vendor cancellation charges, if any and other costs related to the order or incurred therewith. Applicable Product lead-times will begin once funds clear.
- D. Invoices are due and payable in one installment and any portion of the price which is not paid on time shall be subject to a service charge at the lesser of one and one half percent (1-1/2%) per month (18% per annum), or the maximum rate permitted by law, from the due date until the amount is paid in full. Company shall be entitled to recover from Distributor all costs for collection, including reasonable attorneys fees and court costs, incurred by Company in connection with any amount due Company from Distributor. Company reserves the right to withhold shipments or require Distributor to provide prepayment or a check in advance if, in Company's judgment, Distributor presents a credit risk.
- E. Deductions are not allowed without prior written authorization from Company. Any invoice corrections or money owed Distributor will be issued in the form of a credit from Company to Distributor's account.

V. FREIGHT AND DELIVERY TERMS

- A. Unless otherwise agreed by Company in writing, the delivery terms for all orders are Ex works (Company's shipping point) (EXW, Incoterms 2010).
 - B. For US and Canada Distributors, regular ground freight will be prepaid by Company via carrier of Company's choice on individual orders with a minimum net value of \$2,500.00 USD or CND, respectively, before applicable taxes, and shipping at one time to any recognized Distributor or its branch. Orders less than \$2,500.00 USD or CND, respectively, will be prepaid by Company but will be at Distributor's expense and freight charges will be added to Distributor's invoice.
 - C. Unless otherwise agreed by Company in writing, international Distributor's freight will be prepaid by Company via carrier of Company's choice and freight charges will be added to Distributor's invoice.
 - D. If Distributor requests and Company agrees, in its sole discretion, to arrange for shipment of Products as an accommodation to Distributor, Distributor must furnish Company with Distributor's carrier account number and carrier information. All freight, storage, insurance or other costs of shipment shall be paid by Distributor and, if advanced by Company, shall be added to Distributor's invoice.
 - E. Distributor may request to pick up Product at Company's distribution facility site and Company may honor such request, in its sole discretion, provided Distributor notifies Company's Customer Service Department at least forty-eight (48) hours in advance of the pick-up date and Company confirms such request in writing within twenty-four (24) hours of Distributor's notice. In no event may Distributor pick up Product unless Distributor has received written confirmation from Company allowing such pick up.
 - F. Company agrees to use commercially-reasonable efforts to meet delivery schedules requested by Distributor, but shall have no liability for failure to do so for any reason.
 - G. Company reserves the right to select the manner in which the Product is packaged. Quoted prices include regular packing. Special requirements for packing will be subject to extra charges, unless otherwise agreed by Company in writing.
 - H. Orders acknowledged by Company may not be canceled or amended, or deliveries deferred by Distributor, except with Company's prior written consent, and then only upon such terms as shall be acceptable to Company. In the event of order cancellation, in whole or in part, Distributor shall be liable to Company for all costs and damages arising from or related to such cancellation including, but not limited to, price of Products already shipped (plus freight charges finished goods; costs of work-in-progress, including vendor items, raw materials and parts Company cannot return, vendor cancellation charges, if any and other documented costs related to the order.
 - I. Title and risk of loss to all Products shall pass to Distributor upon delivery by Company to a carrier at Company's shipping point.
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Terms and Conditions of Sale

- J. Export/Import and Code of Conduct Compliance. If Distributor distributes Company's Product outside the United States, Distributor shall be responsible for compliance with all applicable export, re-export and import control laws and regulations imposed on the Product; any related technical information by the United States government or by any foreign country; trade sanctions and embargo laws, regulations, rules, licenses, orders and requirements including, but not limited to, the U.S. Export Administration Regulations, rules and regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control, EU Regulation No. 428/2009, any regulations in force within any relevant territory, and any orders issued under the foregoing in force from time to time. Distributor shall obtain all validated governmental authorizations or licenses, as required. Upon Company's request, Distributor shall furnish statements certifying such compliance either annually or on a per-order basis and shall cooperate in any audit or inspection related to applicable export or import control laws or regulations. Distributor shall comply with the Robertshaw Supplier Code of Conduct and the Robertshaw Code of Conduct, including their Anti-Bribery provisions, copies of both of which are available upon request to Company. Distributor shall indemnify and hold Company and its directors, officers, shareholders, employees, agents and representatives harmless for any and all liability including, but not limited to, any and all fines, penalties, losses, costs, damages or expenses (including attorneys', expert and witness fees) incurred by Company as a result of, or relating to, Distributor's noncompliance with the terms herein.
- K. Harmonized Tariff Schedule (HTS) and export classification numbers such as Schedule B, ECCN, and the like, if provided by Company, represent solely an opinion of Company. Under no circumstances shall Company be liable whatsoever for the validity or any inaccuracies therein. Distributor shall be solely responsible for ensuring the proper classifications are declared on the shipment documents and to the relevant authorities. Company urges Distributor to consult with a subject matter expert, such as an attorney or a licensed Freight Forwarder, to review and determine the correct classification for the imported/exported Products.

VI. INSPECTION AND ACCEPTANCE

- A. Distributor shall inspect all deliveries within two (2) business days of receipt. In the event there is damage to Product or shortage of Product, Distributor shall notify the carrier and Company within the two (2) business-day period and provide a copy of the signed packing list noting the damage or shortage thereon. All other Products shall be deemed to have been finally inspected and accepted by Distributor within ten (10) days after date of invoice, unless a written notice of claim is given by Distributor to Company within the 10-day period. This ten (10) day period applies to all other discrepancies, including discrepancies in invoicing, shortage or damage, and excludes shortage in shipment caused by carrier or damaged shipment caused by carrier, as provided above, which requires two (2) business days notice. No Product subject to a claim may be returned without the prior authorization of Company. Authorized return shipments must be sent to Company accompanied by a packing slip, and include Company's Return Materials Authorization (RMA) Number, purchase order number, Company's invoice number, the number of cartons and items received, condition of cartons and any other relevant facts that would be helpful in tracing the cause of the discrepancy, and must have transportation charges prepaid.
- B. Company will verify all reports of shipping discrepancies and, where applicable, will issue a credit invoice. No prior debits will be accepted.

VII. WARRANTY

- A. Warranty
1. Company warrants its standard Products listed in the then-current Distributor Price Schedule to be free from defects in workmanship and material under normal use and service and to perform substantially in accordance with published Company specifications (subject to reasonable tolerances) in effect at the time of acceptance of Distributor's order, for a period of twelve (12) months from the date the Product is placed in use (proof of installation is required), or eighteen (18) months from the date of manufacture, whichever occurs first (the "Warranty Period").
 2. Exceptions from the Warranty stated above:

Some Products may contain extended warranties. Please refer to the Product's documentation for specific warranty coverage, if applicable.

 - Plastic items are not warranted for failure after installation in a machine or assembly.
 - Product subjected to abuse or damage is not warranted. Abuse or damage may be indicated by, but not limited to, one or more of the following:

Burned contacts	Abuse or tampering
Stripped threads	Missing parts
Water or fire damage	Improper installation or application
Split castings	
 3. Products that fail during the Warranty Period and otherwise qualify under the terms of Company's Warranty will, in Company's sole discretion, be (i) credited to Distributor's account at Distributor's lowest net invoice amount, (ii) repaired, or (iii) replaced provided that the Products are returned to Distributor pursuant to Section VIII(B) below. Payment deductions for warranty returns are not allowed. In no event shall the warranty claim exceed the Product price allocated to the Distributor's lowest net invoice price over either the previous twelve (12) months, or since inception of an Agreement between Company and Distributor, if any, whichever is less. If a returned Product is determined by the Company, in its sole discretion, to fall under the Warranty above, and if Distributor has requested on the packing list that a replacement Product be sent to Distributor, then Company will issue a replacement Product in lieu of issuing a credit to Distributor. Company reserves the right to supply suitable substitutes for Warranty Products that are not currently in production or otherwise available. Costs of Product removal or reinstallation, including labor, are not the responsibility of Company and not included in the Warranty.
 4. THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, OR REPRESENTATIONS, BY OPERATION OF LAW OR OTHERWISE INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND FITNESS FOR A PARTICULAR PURPOSE. COMPANY SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT OR PUNITIVE DAMAGES OF ANY NATURE WHATSOEVER INCLUDING, BUT NOT LIMITED TO, LOST SALES, LOST REVENUES OR PROFITS, LOSS OF USE, OR GOODWILL ARISING OUT OF OR RESULTING FROM THE USE OR INABILITY TO USE COMPANY'S PRODUCTS. ANY STATEMENTS OR REPRESENTATIONS MADE BY OTHER PERSONS, ENTITIES, OR ANY THIRD PARTIES ARE SPECIFICALLY DISCLAIMED AND SHALL BE NULL AND VOID.
 5. THE FOREGOING REMEDY SHALL BE THE DISTRIBUTOR'S SOLE AND EXCLUSIVE REMEDY AND COMPANY'S SOLE OBLIGATION FOR FAILURE OF PRODUCT TO CONFORM TO THE WARRANTY.
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Terms and Conditions of Sale

B. Return for Warranty Consideration

1. All Products to be considered for warranty must be returned to Company with freight and transportation charges prepaid.
2. Product returned to Company must be packaged in such a manner that will prevent any further damage to the Product during transit. The Warranty terms above shall not apply to any items damaged in transit.
3. An itemized packing slip, including Distributor's name and address, is required for each shipment to Company of Product(s) to be considered for warranty. The packing slip must contain a reference number, items and their quantities being returned, reason for warranty return, date of installation, date of failure, and a contact name at the Distributor in case further information is required.
4. For Distributors within North America (USA and Canada), all cartons must be clearly identified as WARRANTY PRODUCT and returned to:

USA Distributors:	Canada Distributors:
Warranty Department	Warranty Department
Robertshaw	Robertshaw
1921 Anei Circle	4060 Ridgeway Drive, Unit 14
Brownsville, TX 78521	Mississauga, ON L5L5X9

For International Distributors, please contact your customer service representative for return authorization and procedures.

C. Inspection of Product

1. Company will inspect each item to confirm that the returned Product qualifies for the Warranty in Section VII. If the inspection by Company does not disclose any defect covered by the Warranty, then Company shall notify Distributor accordingly and the Distributor has the option to request Company to scrap the Product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.
2. In the event Distributor sends Company goods that were not manufactured and/or distributed by Company, Company will notify Distributor. Distributor has the option to request Company to scrap the product or return it at Distributor's expense. AT COMPANY'S OPTION, COMPANY MAY SCRAP THE PRODUCT WITH NO FURTHER LIABILITY TO DISTRIBUTOR, UNLESS DISTRIBUTOR NOTIFIES COMPANY OTHERWISE WITHIN ONE (1) WEEK OF COMPANY'S NOTIFICATION.

- D. Final disposition of any warranty claim shall be determined solely by Company and shall be final and binding.

VIII. RETURN MATERIAL AUTHORIZATION (FOR NEW AND UNUSED PRODUCT RETURNS)

- A. Returns will not be accepted, nor credits given, without a factory authorized Return Materials Authorization (hereinafter "RMA"). RMAs are only issued to the original point of purchase location for current manufactured and/or distributed items that fall within the Warranty terms and have been purchased within the previous twelve months. Returns will not be accepted for special order or non-stock items (as indicated in the Price Schedule).
- B. In order to request an RMA number, Distributors must provide the invoice number, sales order number (or customer's purchase order number), the item numbers and quantities of Products they wish to return, and the reason for return to their Sales or Customer Service Representative.
- C. RMA Processing
 1. The RMA number is valid only if the Product it refers to is received at the address specified on the RMA form, freight and transportation charges prepaid, within fourteen (14) days from the date of Company's-issued authorization. Company may reject the request if Product is received after fourteen (14) days from the date of Company's-issued authorization.
 2. The Product must be received in its original saleable condition (including all accessories and inserts), in its original packaging, and undamaged. Damaged Product will not be accepted for return or replacement, even if a RMA number has been issued.
 3. Credit for the return will be based on the lowest net invoice amount for the Distributor over the last 12 months, or per the Agreement between Company and Distributor, if any, unless proof of purchase for the actual shipped Product is provided.
 4. All returns are subject to a minimum fifteen percent (15%) restock charge or \$15.00 USD, whichever is greater. Company will not accept returns that do not have a proper RMA or are sent to Company in error.

IX. DISCONTINUED PRODUCTS

- A. Company reserves the right to discontinue distribution of any Product without notice, or substitute material or complete devices, when items ordered are not currently in production or otherwise available.

X. PERMISSIBLE VARIATIONS

- A. Company may, prior to the delivery of Product to Distributor, make changes in the Product including, but not limited to, changes to the model, design, component parts or dimensions. In addition, Company may make any change or variation in the Product that is within industry, government or professional organization standards or specifications applicable at the time of manufacture, without notice to Distributor. Distributor hereby agrees to accept any Product that may incorporate any such changes or variations, and any increase in price resulting from such changes or variations will be for the account of Distributor.

XI. FORCE MAJEURE

- A. Company shall not be liable for any delay or failure in performance, or for any damages suffered by the Distributor by reason of such delay, if caused or arising directly or indirectly from any act beyond Company's reasonable control including, but not limited to, acts of God; vandalism; sabotage; accidents; fires; floods; strikes or other labor disputes; mechanical breakdowns; shortages or delays in obtaining suitable parts, equipment, material, labor, power or transportation; acts of suppliers; interruption of utility services; acts of terrorism, or acts of any unit or agency of government. Any delays so occasioned shall affect a corresponding extension of Company's performance dates that are, in any event, understood to be approximate.
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Terms and Conditions of Sale

XII. LIMITATION OF LIABILITY

Notwithstanding any other provision in these Terms and Conditions, Company's liability shall be limited as follows:

- A. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF SALES, PROFITS OR REVENUE, LOSS OF USE, LOSS OF GOODWILL OR INCREASE IN OPERATING COSTS.
- B. IN NO EVENT SHALL COMPANY'S LIABILITY EXCEED THE AMOUNT PAID TO COMPANY FOR THE PRODUCT FOR THE QUANTITIES OF COMPANY'S PRODUCTS GIVING RISE TO ANY SUCH LIABILITY, EXCEPT WITH RESPECT TO THIRD-PARTY CLAIMS FOR PERSONAL INJURY, WHICH SHALL BE LIMITED TO COMPENSATION FOR SUCH PERSONAL INJURY.
- C. COMPANY SHALL NOT BE LIABLE TO DISTRIBUTOR FOR ANY CLAIMS, DAMAGES, EXPENSES, FEES, COSTS, LOSSES, CAUSES OF ACTION, OR SUITS WHICH ARISE OUT OF OR RELATE TO THE SALE OF PRODUCT DUE TO THE DIRECTION, NEGLIGENCE, ACT, OMISSION, OR USE OF THE PRODUCT IN A MANNER NOT SPECIFICALLY AUTHORIZED, INTENDED OR DESIGNED BY COMPANY, WILLFUL MISCONDUCT, OR OTHER FAULT OF ANY NATURE WHATSOEVER OF DISTRIBUTOR, ITS EMPLOYEES, AGENTS, SERVANTS, CUSTOMERS, OR END USERS.
- D. THE ABOVE LIMITATIONS OF LIABILITY SHALL APPLY EVEN IF COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND REGARDLESS WHETHER THE CLAIM FOR RECOVERY IS BASED ON BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, INFRINGEMENT, STRICT LIABILITY OR OTHER TORT.
- E. THE RIGHT TO RECOVER DAMAGES WITHIN THE LIMITATIONS SPECIFIED ABOVE IS THE DISTRIBUTOR'S EXCLUSIVE ALTERNATIVE REMEDY IN THE EVENT THAT ANY OTHER CONTRACTUAL REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

XIII. CONFIDENTIALITY

- A. Company's Price Schedules, quotes and any discounts contained herein are considered confidential and/or proprietary information of Company and Distributor shall in no instance share any Price Schedules or discounts, business discussions, financial information, or other confidential and/or proprietary information of Company with any other person, group, entity, or third party.

XIV. GENERAL

- A. This document shall be governed by and interpreted in accordance with the laws of the State of Illinois, USA, regardless of the laws that might otherwise govern under Illinois principles of conflicts of laws and without regard to the United Nations Convention on Contracts for the International Sale of Goods. Venue for any dispute shall be exclusively in the Circuit Court of DuPage County, the Circuit Court of Cook County, or the US District Court for the Northern District of Illinois, Eastern Division.
 - B. Company and Distributor expressly agree that all terms and conditions, quotations, purchase orders and any related documents and correspondence be drafted and interpreted in the English language.
 - C. In the event that any of the provisions hereof shall be held invalid, illegal, void or unenforceable, the remaining provisions shall remain in full force and effect as written.
 - D. As used herein, the terms Distributor and Company include their respective heirs, executors, personal representatives, successors and assigns, including their corporate successors by purchase, merger and acquisition.
 - E. Distributor may not assign its rights or obligations, or any portion thereof, without the advance written consent of Company.
 - F. Paragraph headings are inserted for convenience of reference only and shall not be used in the construction or interpretation hereof.
 - G. Company's failure to assert any of its rights under these Terms and Conditions of Sale shall not be deemed a waiver of such rights and shall not extend to or affect any other right Company may possess or to any subsequent or dissimilar event.
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11/14 – 150-2390 RevB