UNI-LINE®

GLOBAL

PRODUCT CATALOG

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.

Braeburn®

The Brighter Choice®

Braeburn® wall thermostats, zoning and sensor modules are The Brighter Choice® for flexible, easy to use and install, residential and commercial heating and air conditioning controls.

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Catalog Region Codes:

This Catalog includes a region code if a product is designed specifically for a region.
These codes are included in the Part Number column.

- ANZ = Australia and New Zealand
- EU = Europe
- MEX = Mexico
- CAN = Canada
- SA = South America
- NA = North America

Robertshaw® understands the latest industry-standard AC components as individual parts, and as elements in complex cooling systems that reach every corner of the building. Controls for temperature, refrigeration, heat pumps, and zones combine and interact to deliver comfort, and reduce energy consumption. Robertshaw solutions are engineered for cool, calm, and collected performance in today's interior environments.

Surge Protective Devices A2
Hard Start Kits A4
Electric Switches A6
Universal Air Conditioning Control Board and Remote A7

AIR CONDITIONING

MERSEN

SURGE PROTECTIVE DEVICES

STXH240S05

STXR480Y05 / STXR480Y05A

Surge-Trap® Series

The Mersen®, Surge-Trap® Series Surge Protection Devices (SPD) (distributed by Uni-Line®) safeguard residential air conditioning (A/C) units including mini-splits, furnaces, and air handlers from costly voltage surge events, such as fluctuations in power often generated from inside a home or building, and from an outside source like lightening. Compact in size, the Surge-Trap Series provides Type 1 and Type 2 surge protection to help maintain safe, reliable A/C and furnace performance.

The single phase model STXH240S05 safeguards residential A/C and furnace equipment, and the 3-phase models STXR480Y05 and STXR480Y05A are used for Commercial and Industrial applications. The STXR models are flexible in both line or load installation applications for branch panel or individual equipment protection.

Features and Benefits

- Designed with industry leading Mersen TPMOV technology
- Compact footprint designed to align easily with AC disconnect switches
- Easy to read LED status indicator; Green to show SPD is On; or the LED will be Out indicating SPD should be replaced
- NEMA 4X non-metallic enclosure for outdoor or indoor use
- For use with ANSI/UL Type 1 or 2 SPD installations
- Optional audible alarm and remote dry contacts (STXR480Y05A only)

Replacement Information

STXH240S05	STXR480Y05 / STXR480Y05A
Intermatic: AG3000 Ditek: D50-CM, DTK-120/240CM+, DTK-120HW Mars: 83904, 83905, 83915 Supco: LBK10 5-2-1 (CPS): SPD60, SPD150 ICM: ICM515, ICM516, ICM517	Ditek: DTK-4803CMXPLUS Intermatic: AG4803C3

RoHS COMPLIANT

Specifications

Part Numbers	STXH240S05	STXR480Y05	STXR480Y05A
Description	Surge Protective Device	Surge Protective Device	Surge Protective Device with Optional audible alarm and remote dry contacts
Electrical rating	120/240V AC, 50/60Hz	277/480V AC, 50/60Hz	277/480V AC, 50/60Hz
Phase	Single	3 Phase WYE	3 Phase WYE
Modes of Protection	3	10	10
Surge Capacity	50 kA	50 kA	50 kA
Nominal Discharge Current Rating (In)	20 kA	20 kA	20 kA
Short Circuit Current Rating (SCCR)	200 kA	200 kA	200 kA
Max. Continuous Operating Voltage (MCOV)*	L-L 300, L-N 150	L-L 640, L-N 320, L-G 470, N-G 150	L-L 640, L-N 320, L-G 470, N-G 150
Voltage Protection Rating (VPR)*	L-L 1000, L-N 600	L-L 2000, L-N 1200, L-G 1800, N-G 700	L-L 2000, L-N 1200, L-G 1800, N-G 700
Flammability	UL94-5VA	UL94-5VA	UL94-5VA
End-of-Life LED Indicator	Yes	Yes	Yes
Wiring	Pre-wired 18" 10 AWG	Pre-wired 3' (1m) 10 AWG	Pre-wired 3' (1m) 10 AWG
Mounting Type	1⁄2" – 14 threaded hub. Includes sealing locking washer, 1⁄2" knockouts with 18" leads	3⁄4" – 14 threaded hub includes locking washer, 3⁄4" knockouts with 3' leads, Optional mounting bracket for surface mount applications	3⁄4" – 14 threaded hub includes locking washer, 3⁄4" knockouts with 3' leads, Optional mounting bracket for surface mount applications
Operating Temperature	-40°F to 185°F (-40°C to 85°C)	-40°F to 185°F (-40°C to 85°C)	-40°F to 185°F (-40°C to 85°C)

*Note: L-N = Line to Neutral, L-L = Line to Line, L-G = Line to Ground, N-G = Neutral to Ground

Surge Protection Terms to Know

- **Surge** – The fluctuation in power that may cause damage to electrical equipment including HVAC equipment and appliances.
- **Metal Oxide Varistor (MOV)** – The most common SPD technology.
- **Thermally Protected Metal Oxide Varistor (TPMOV)** – Mersen's patented SPD technology; rated the best performing, most reliable surge suppression technology on the market.
- **Maximum Continuous Operating Voltage (MCOV)** – The maximum steady state voltage the SPD can withstand without becoming a fire or safety hazard. Also known as surge capacity or surge rating.
- **UL1449 4th Edition** – Meets Underwriter's Laboratory highest standard of testing for SPDs.
- **Nominal Discharge Current (IN)** – UL's test program term to measure peak current that can pass through a SPD and remains functional after 15 surges. The highest nominal discharge current rating by UL is 20kA.
- **Short Circuit Current Rating (SCCR)** – The amount of "available" current the SPD can be subjected to and also safely disconnect from the power source under short circuit conditions.
- **Voltage Protection Rating (VPR)** – The voltage allowed through the SPD after protecting a surge event. Similar to a golf score, the lower the rating, the better.
- **Type 1 Surge Protection** – Protect sensitive electronics from the damaging effects of electrical surges; installed before the main device in the load center.
- **Type 2 Surge Protection** – Protect sensitive electronics from thedamaging effects of electrical surges. Intended for the installation of AC power and cable at the point of entrance to the building.

5 Year Limited Warranty
STXR480Y05 / STXR480Y05A

3 Year Limited Warranty
STXH240S05

RANCO® ROCKET™

RSPP5

RSPP6

RSPP8E

RS0810

RS0410

HARD START KITS

RS Series

The Ranco® Rocket™ RS Series Hard Start Kits are designed to give your air conditioning and refrigeration units a boost! The Ranco Rocket Hard Start Kits help protect and extend the life of expensive compressors and components saving money and energy. When an air conditioning or refrigeration unit turns on, the compressor powers up to begin the cooling process. Starting a compressor requires 4–8 times more electric current, than running it. Over time, this jolt of power places wear and tear on the compressor and other important components. A hard start kit gives the compressor added power during system start-up and reduces the amount of electricity required. Adding a Ranco Rocket Hard Start to an air conditioning and refrigeration system increases energy efficiency up to 98%.

Features and Benefits

- Extends compressor and component life
- Prevents expensive repairs to compressor and components
- Reduces energy consumption up to 50% during start-up
- Includes combination relays and start capacitor
- Quick and easy installation

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E95218

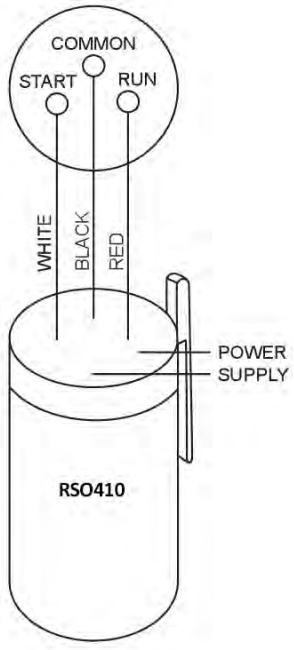
Specifications

Part Numbers	Description	Electrical Rating
RSPP5	Heavy-Duty Hard Start Kit increases torque up to 300%	1/2 - 5 HP, 115 to 288V
RSPP6	Heavy-Duty Hard Start Kit increases torque up to 500%	1/2 - 10 HP, 115 to 288V
RSPP8E	Heavy-Duty Hard Start Kit increases torque up to 690%	1 - 5 HP, 90 to 277V
RSO410	Hard Start Kit	120V AC, 243-292 µF, 1/4 - 1/3 HP
RSO810	Hard Start Kit	120V AC, 145-174 µF, 1/12 - 1/5 HP

Replacement Information

Part Numbers	Supco	Mars	Parts Connect	Diversitech	5-2-1
RSPP5	SPP5	32701	PSA5	DST-5	CSRU1
RSPP6	SPP6	32702	PSA6	DST-6	
RSPP8E	SPP8E	32708	PSA8		
RSO410	RCO410	32741	PCS410		
RSO810	RCO810	32781	PCS810		

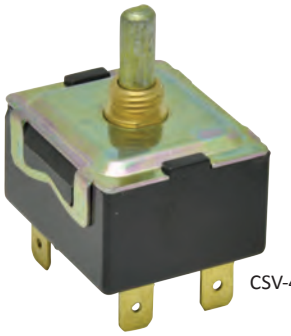
Wiring Diagrams



1 Year Limited Warranty

Robertshaw®

ELECTRIC SWITCHES



CSV-428-01U

CSV Series

The Robertshaw® CSV Series Electric Switch is a switch that allows electrical switching between connection terminals. It can have 3, 4, 5, 6 or 7 different positions which can be combined for use on various functions in ovens, saunas, etc.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Specifications

Part Numbers	Description	Application	Factory Part Numbers	Number of Positions	Mounting Type	Electrical Rating
CSV508-01U (SA)	Electric Switch	A/C Springer Carrier	06303011	5	Nut	1/2 HP - 1 HP - 2 HP @ 220V AC
CSV509-05U (SA)	Electric Switch	A/C Consul - Cold 30,000 BTU	00100919	5	Nut	1/2 HP - 1 HP - 2 HP @ 220V AC
CSV509-06U (SA)	Electric Switch	A/C Consul - Cold 12,000 BTU	NA	5	Nut	1/2 HP - 1 HP - 2 HP @ 220V AC
CSV601-01U (SA)	Electric Switch	Springer Carrier A/C - Hot/Cold - Long Stem	06303008	6	Nut	1/2 HP - 1 HP - 2 HP @ 220V AC
CSV601-02U (SA)	Electric Switch	Springer Carrier A/C - Hot/Cold - Short Stem	06303001	6	Nut	1/2 HP - 1 HP - 2 HP @ 220V AC
CSV716-10U (SA)	Electric Switch	Consul A/C - Hot/Cold - Air Master	001009141	7	2 screws x NC 8/32"	1/2 HP - 1 HP - 2 HP @ 220V AC

1 Year Limited Warranty

UNIVERSAL AIR CONDITIONING CONTROL BOARD AND REMOTE

Universal Air Conditioning Split Control Board and Universal Remote Control Series

The Ranco® Universal Air Conditioning Split Control Board Kit replaces many OEM control boards. The Ranco Universal Remote Control replaces over 1,000 different OEM remote controls for air conditioners.

Features and Benefits

- Three minutes protecting delay to restart compressor
- Mode: Auto, Cool, Dry, Fan and Heat
- Periodical defrost in heat mode
- Wind direction control
- Fan: high, medium and low
- Timer On / Off
- Keypad lock / unlock
- Sleep function
- Suitable for all kinds of air conditioners (URC)
- 2 configuration modes: Manual and automatic (URC)
- Easy to set-up (URC)

UBV03221-01

Specifications

Part Numbers	Description	Dimensions	Weight	Electrical Rating	Power
UBV03221-01 (SA, EU, ANZ)	Universal A/C Split Control Board and Remote Control Kit	1.6"H x 6.9"W x 5.3"D	15.0 ounces	220V AC	NA
UBV03221-01-NA (NA)	Universal A/C Split Control Board and Remote Control Kit	1.6"H x 6.9"W x 5.3"D	15.0 ounces	220V AC	NA

1 Year Limited Warranty

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.

Electronic Oven Timers.....B2
Electric Infinite Switches B4
Energy Regulators.....B6
Electric Thermostats.....B10
Gas Thermostats.....B24
Gas Valves.....B30
Gas Pressure Regulators.....B37
Oven Spark Ignition Modules B38
Hot Surface Ignitors.....B40

COOKING

Robertshaw®

ELECTRONIC OVEN TIMERS

A393-297201

B016-362013

A361-380501

LED Series

The Robertshaw® Electronic Oven Timer is a cooking control which uses colored LEDs to program various time durations with audible alarms. This control is installed in ranges which feature functions such as a minute timer, duration, end time, and time of day.

Features and Benefits

- Plug and play electronic technology
- Easy to read LCD display
- Full range of display colors
- Full range of buttons systems (3 - 5 - 6 knobs, 3 - 5 touch systems)
- Various programming functions (depending on model): minute timer, cooking duration, end time, time of day, meat probe, pyro function, temperature control
- Minus / plus settings
- Compact size
- Small or bigger standard housing
- Easy mounting / replacement
- Approved by main international certification agencies
- Made in EU (Slovakia)

Specifications

Part Numbers	Description	OEM	OEM Equivalent Part Code	Electrical Rating
B016-362013 (EU)	Electronic Timer LED193/013	Amica	8052646	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-362001 (EU)	Electronic Timer LED193/001	Amica	8053273 / 8028462	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-356301 (EU)	Electronic Timer TOUCH193/301	Amica	8053836	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-356201 (EU)	Electronic Timer TOUCH193/201	Amica	8050921	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-356204 (EU)	Electronic Timer TOUCH193/204	Amica	8052029	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-356915 (EU)	Electronic Timer TOUCH193/915	Amica	8053835	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B016-356715 (EU)	Electronic Timer TOUCH193/715	Amica	8052573	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B391-424001 (EU)	Electronic Timer TOUCH195/001	Arcelik	267100117	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B391-186257N (EU)	Electronic Timer EL145/257	Arcelik	267100054	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B391-186280N (EU)	Electronic Timer EL145/280	Arcelik	267100063	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B391-177803N (EU)	Electronic Timer EL2000/803	Arcelik	267920002	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B391-177819N (EU)	Electronic Timer EL2000/819	Arcelik	267100065	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A726-332005 (EU)	Electronic Timer LED143/005	Miele	06685518 / 06685516 / 6685515	230/250V AC, 50/60 Hz, 1 watt, 16 Amps

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Part Numbers	Description	OEM	OEM Equivalent Part Code	Electrical Rating
A726-366002 (EU)	Electronic Timer EZT 790/002	Miele	07028419 / 07028415 / 7028413	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A726-356401 (EU)	Electronic Timer TOUCH193/401	Miele	07523314 / 07523311	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A726-385001 (EU)	Electronic Timer EZT 736/001	Miele	07318827 / 07318826 / 07318823 / 7318820	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A726-300001 (EU)	Electronic Timer EZ 760/001	Miele	5723484	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B288-285008 (EU)	Electronic Timer LED198/008	Miele	05715974 / 05755914	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A393-297201 (EU)	Electronic Timer LED145/201	Smeg	816291317	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A393-297021 (EU)	Electronic Timer LED145/021	Smeg	816291316	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A393-304007 (EU)	Electronic Timer LED144/007	Smeg	816291324	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A393-190301 (EU)	Electronic Timer EL144/301	Smeg	816291219	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A393-297002 (EU)	Electronic Timer LED145/002	Smeg	816290735	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A231-362007 (EU)	Electronic Timer LED193/007	Whirlpool	400010383715	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A231-356205 (EU)	Electronic Timer TOUCH193/205	Whirlpool	400010530411	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-417003 (EU)	Electronic Timer LED194/003 - AQP	Indesit	W16200331001 / 16200331001 / 16200317300 / 16200331000	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-417005 (EU)	Electronic Timer LED194/005 - AQP	Indesit	W16200342000 / 16200342000 / 16200322200	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-186253N (EU)	Electronic Timer EL145/253	Indesit	W16200135201 / 16200135201 / 16200135200	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-204379N (EU)	Electronic Timer EL198/379	Indesit	W16200179400 / 16200179400	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-177801N (EU)	Electronic Timer EL2000/801	Indesit	W16200041803 / 16200041803	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-417002 (EU)	Electronic Timer LED194/002	Indesit	W16200342200 / 16200342200 / 16200308000	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-177306N (EU)	Electronic Timer EL2000/306	Indesit	W16200179000 / 16200179000	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A725-417006 (EU)	Electronic Timer LED194/006	Indesit	W16200342100 / 16200342100 / 16200322100	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A734-204215N (EU)	Electronic Timer EL198/215	Indesit	W16200027205 / 16200027205 / 16200027204	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B763-204419N (EU)	Electronic Timer EL198/419	Candy	42803541	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-437001 (EU)	Electronic Timer ICON LED	Gorenje	465250	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-380501 (EU)	Electronic Timer EPT3/501	Gorenje	264601	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-297024 (EU)	Electronic Timer LED145/024	Gorenje	323901	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-378201 (EU)	Electronic Timer EPT1/201	Gorenje	419243	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-289516 (EU)	Electronic Timer LED2000/516	Gorenje	323903	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-379501 (EU)	Electronic Timer EPT2/501	Gorenje	264599	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-203001G (EU)	Electronic Timer EL191/001	Gorenje	155811 / 618112 / 617761	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-337005 (EU)	Electronic Timer GAS345/005	Gorenje	263282	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A361-378601 (EU)	Electronic Timer EPT1/601	Gorenje	419244 / 264598 / 348236	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A730-289510 (EU)	Electronic Timer LED2000/510	Glendimplex UK	082876800	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A730-331008 (EU)	Electronic Timer LED720/008	Glendimplex UK	82998800	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
A730-289506 (EU)	Electronic Timer LED2000/506	Glendimplex UK	82840900	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B404-289503 (EU)	Electronic Timer LED2000/503	Gefest	led-2000-503-os9	230/250V AC, 50/60 Hz, 1 watt, 16 Amps
B404-356201 (EU)	Electronic Timer TOUCH193/201	Gefest	B404-356201	230/250V AC, 50/60 Hz, 1 watt, 16 Amps

Customer Service: See Page J21

Robertshaw®

ELECTRIC INFINITE SWITCHES

5500-103M

5500-234M

5500M Series

The Robertshaw® 5500 M Series Infinite Switch is a voltage sensing (parallel circuit) infinite switch designed to replace the current VSI (INF) switch.

The 5500 M series is the replacement control for the current model INF. This patented control has the smallest physical dimensions possible to adapt to common application specifications and maintains the highest level of quality and performance.

Features and Benefits

- Small compact design
- Varity of shaft lengths and configurations
- Push To Turn (PTT) and Non Push To Turn (Non-PTT) available
- Controllable range of output power with Low to High detents

Specifications

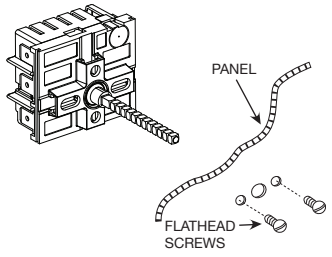
Part Numbers	Description	% Input at Low	Dial	Dial Shaft Type	Dial Shaft Length	Mounting Type	Electrical Rating
5500-102M	Residential 120V AC Uni-Kit®	5%	None	A	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-134M	Commercial 120V AC Uni-Kit	5%	Black	D	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-135M	Commercial 120V AC Uni-Kit	5%	White	D	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-200M	Residential 240V AC Uni-Kit Push-to-Turn	5%	None	A	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-202M	Residential 240V AC Uni-Kit	5%	None	A	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-234M	Commercial 240V AC Uni-Kit	5%	Black	D	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-235M	Commercial 240V AC Uni-Kit	5%	White	D	2" (50,8mm)	Universal	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5500-287M	Residential 240V AC PTT Uni-Kit - Whirlpool	5%	None	D	1-3/8" (34.925mm)	Screw	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-303M	240V AC Infinite Switch	5%	None	P	1" (25.4mm)	Palnut	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-350M	240V AC Infinite Switch	5%	None	P	1" (25.4mm)	Palnut	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-448M	240V AC Infinite Switch	5%	None	P	.812" (20.63mm)	Screw	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-468M	240V AC Infinite Switch	22.5%	None	P	.875" (22.23mm)	Palnut	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-915M	120V AC Infinite Switch	5%	None	P	.812" (20.63mm)	Screw	100 to 3600 Watts at 240V AC 15 Amps @ 200°F (93°C)
5502-927M	120V AC Infinite Switch	5%	None	K	.625" (15.9mm)	Universal	100 to 3600 Watts at 240V AC
812448	240V AC Infinite Switch	3% to 8%, 45°F CCW	None	D	.687" (17.4mm)	4 X 8-32	8.8 Amps to 10.8 Amps @ 240V AC, 2400 Watts
811612	240V AC Infinite Switch	2% to 7%, 45°F CCW	None	K	.781" (19.8mm)	4 X 8-32	4.4 Amps to 7.4 Amps @ 240V AC, 1560 Watts
812639	240V AC Infinite Switch	3% to 8%, 45°F CCW	None	K	.930"/.845" (23.6mm/21.5mm)	4 X 8-32	8.9 Amps to 11.0 Amps @ 240V AC, 2424 Watts
812653	240V AC Infinite Switch	3% to 8%, 45°F CCW	None	K	.781" (19.8mm)	4 X 8-32	8.9 Amps to 11.0 Amps @ 240V AC, 2592 Watts

CE

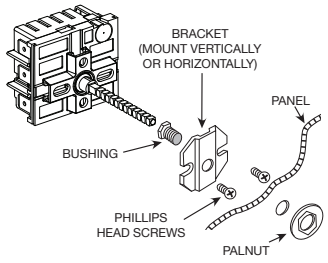
c UL us

Product Drawings

Screw Mount
VENTS UP

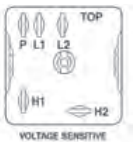


Palnut Mount
VENTS UP

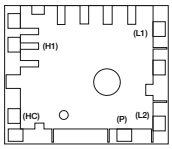


Wiring Robertshaw INF To Robertshaw 5500M Series

Connect wires from old switch to new switch as follows:

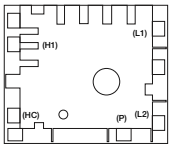


INF Switch Terminal #		5500 M (MPA) Switch Terminal #
L1	connect to	L1
L2	connect to	L2
P	connect to	P
H1	connect to	H1
H2	connect to	HC

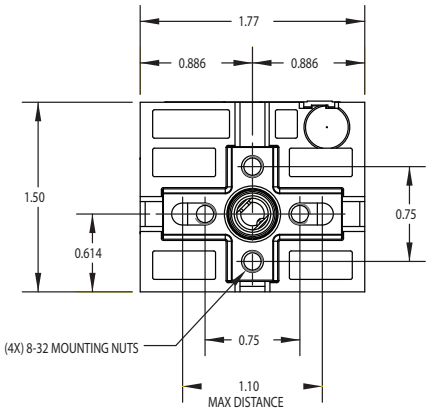


Wiring Ego To Robertshaw

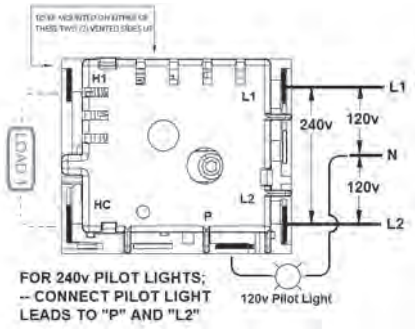
Old (EGO) Switch Terminal #		5500 M (MPA) Switch Terminal #
P1	connect to	L2
P2	connect to	L1
Pilot	connect to	P
4	connect to	H1
2	connect to	HC



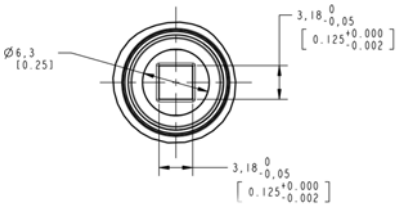
Mounting Dimensions



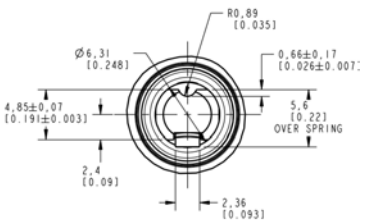
Wiring Schematic



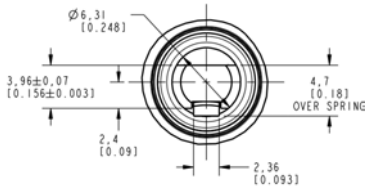
Dial Shaft Type A



Dial Shaft Type D



Dial Shaft Type P



1 Year Limited Warranty

Robertshaw®

ENERGY REGULATORS

M32314K

M Series

The Robertshaw® M 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
- Single, dual or triple outputs
- New and improved mounting
- Bushing mount design is also available on some models
- Double line break
- Clockwise or counterclockwise rotation
- Variety of shaft lengths and configurations
- Push-To-Turn (PTT) or Non-Push-To-Turn (Non-PTT)

Specifications

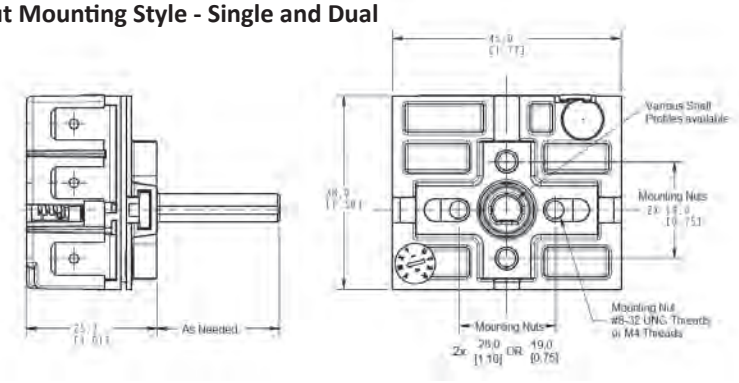
Part Numbers	Description	% Input at Low	Dial Shaft Type	Dial Shaft Length	Mounting Type	Voltage	Electrical Rating
M32314K (ANZ, EU)	Energy Regulator Universal Kit Single Load with Pilot and Neutral Break	2% to 9% (45° arc)	Plastic D	14mm + 8mm Bushing	M10 Bushing	230/240V AC 15 Amps	100 to 3600 Watts
M55314K (ANZ, EU)	Energy Regulator Universal Kit Single Load with Phase Break	2% to 9% (45° arc)	Metal Square	17.4mm + 8mm Bushing	M10 Bushing	230/240V AC 15 Amps	100 to 3600 Watts
M58314K (ANZ, EU)	Energy Regulator Universal Kit Single Load with Isolated Pilot	2% to 9% (45° arc)	Metal Square	17.4mm + 8mm Bushing	M10 Bushing	230/240V AC 15 Amps	100 to 3600 Watts
M82314K (ANZ, EU)	Energy Regulator Universal Kit Dual Load with Phase Break	2% to 9% (30° arc)	Metal Square	17.4mm + 8mm Bushing	M10 Bushing	230/240V AC 15 Amps	100 to 3600 Watts
MP101K (ANZ, EU)	Energy Regulator Universal Kit Single Load with Pilot Switch	2% to 9% (45° arc)	Plastic D	14mm + 8mm Bushing	M10 Bushing	230/240V AC 15 Amps	100 to 3600 Watts

Part Numbers	Replaces	Factory Number
M32314K	INF-32314	MPA-101-M
M55314K	INF-55314	M3-158-M
M58314K	INF-58314	MS-158-M
M82314K	INF-82314	MD3-157-M

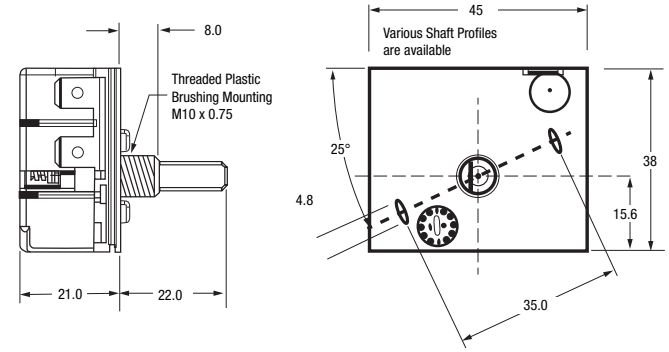
Part Numbers	Replaces	Factory Number
MP101K	NA	MP-101-M
M601	NA	MST-Z601-M
M602	NA	MSCT-Z601-M
M01	NA	MSA-V01-M

Product Drawings

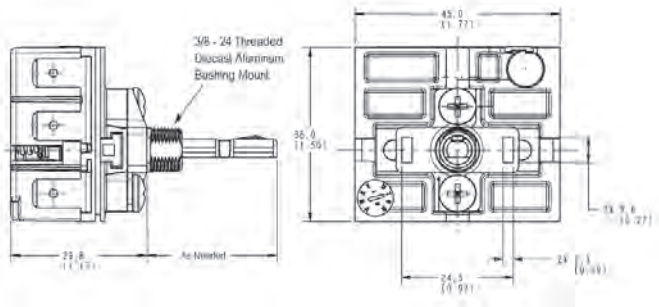
Nut Mounting Style - Single and Dual



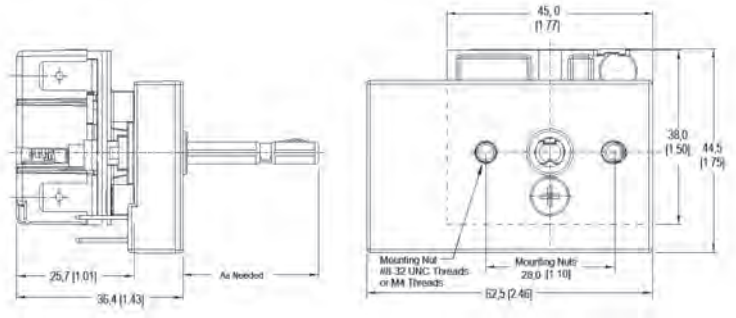
Bushing Mount Style - Single and Dual



Alternate Bushing Mount Style - Single and Dual



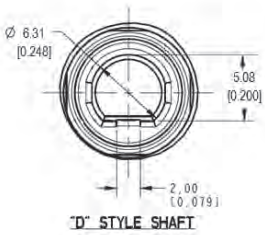
Nut Mounting Style - Triple

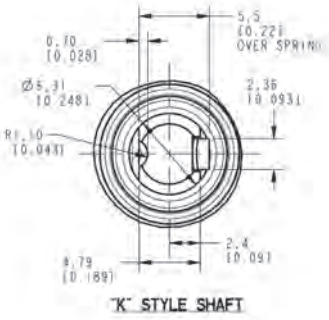


Robertshaw®

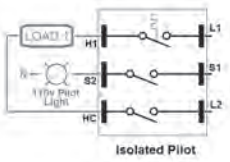
Product Drawings

Knob Shaft Styles

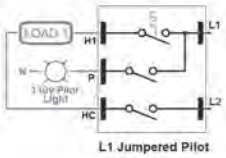




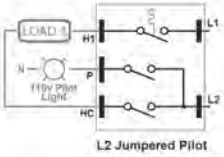
Single Load



Isolated Pilot

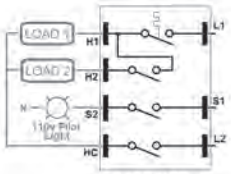


L1 Jumpered Pilot

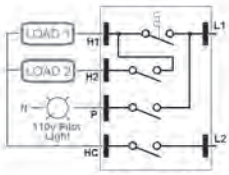


L2 Jumpered Pilot

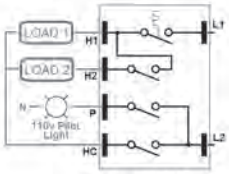
Dual Load



Isolated Pilot

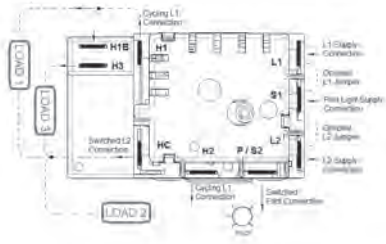


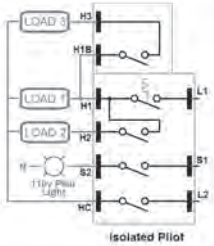
L1 Jumpered Pilot



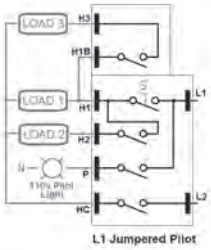
L2 Jumpered Pilot

Triple Load

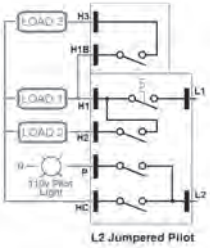




Isolated Pilot



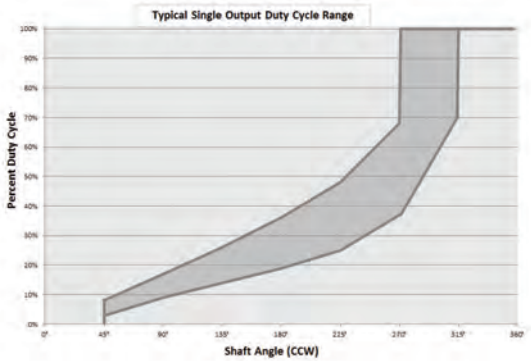
L1 Jumpered Pilot

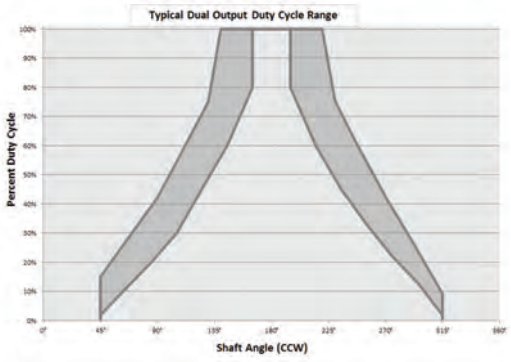


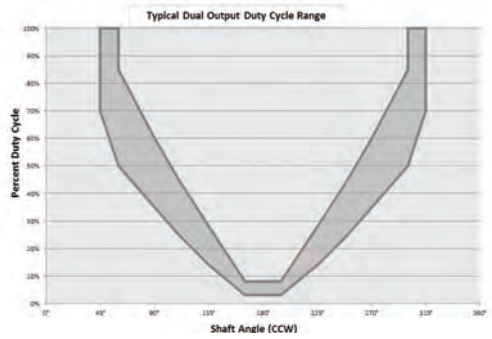
L2 Jumpered Pilot

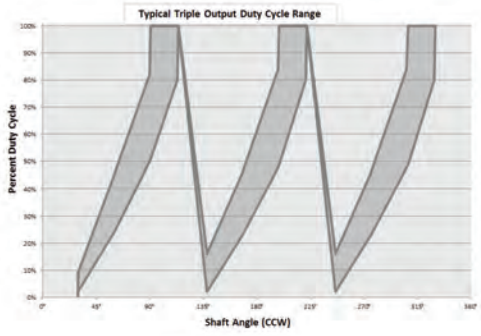
Product Drawings

Duty Cycle Output Curves

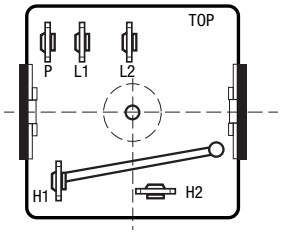




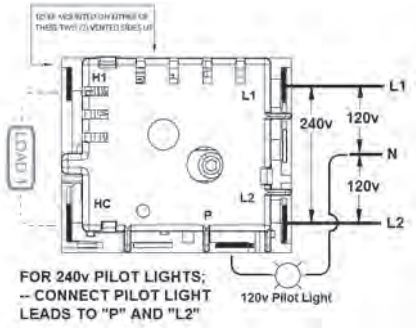




Wiring Diagrams



VSI Switch Series 5500 Terminal #		M series Switch Series 5500 M Terminal #
L1	connect to	L1
L2	connect to	L2
P	connect to	P
H1	connect to	H1
H2	connect to	HC



Robertshaw®

EA5-7-36U

ELECTRIC THERMOSTATS

EA/EX Series

The Robertshaw® EA/EX Series Electric Thermostats are designed to control the temperature for ovens, fryers, sterilizers, water or oil heating tanks, etc. used for heavy-duty service. The thermostat controls the electric resistor which activates and deactivates based on the temperature sensed by the oil capillary bulb. “EA” for basic version with Bakelite thermostat; “EX” for the special polyester version.

Specifications

Part Numbers	Description	Temperature Range	Differential	Capillary Length	Bulb Size	Contact	O-Ring	Electrical Rating
EA5-10-36U (SA)	Electric Thermostat	80°C to 200°C	4.5°C	914mm	9.55mm x 124mm	NC	No O-ring	250V AC, 30 Amps
EA5-10-36-1U (SA)	Electric Thermostat	80°C to 200°C	4.5°C	914mm	9.55mm x 124mm	NC	With O-ring 3/8” NPT	250V AC, 30 Amps
EX5-10-36-6U (SA)	Electric Thermostat	80°C to 200°C	4.5°C	914mm	9.55mm x 124mm	NC	No O-ring	250V AC, 30 Amps
EX5-10-36-7U (SA)	Electric Thermostat	80°C to 200°C	4.5°C	914mm	9.55mm x 124mm	NC	With O-ring 3/8” NPT	250V AC, 30 Amps
EA5-7-36U (SA)	Electric Thermostat	50°C to 300°C	7°C	914mm	4.80mm x 281mm	NC	No O-ring	250V AC, 30 Amps
EX5-7-36U (SA)	Electric Thermostat	50°C to 300°C	7°C	914mm	4.80mm x 281mm	NC	No O-ring	250V AC, 30 Amps
EA5-7-36-1U (SA)	Electric Thermostat	50°C to 300°C	7°C	914mm	9.55mm x 81mm	NC	With O-ring 3/8” NPT	250V AC, 30 Amps
EA5-7-36-3 (SA)	Electric Thermostat	50°C to 300°C	7°C	914mm	9.55mm x 81mm	NC	No O-ring	250V AC, 30 Amps
EA5-7-36-5 (SA)	Electric Thermostat	50°C to 300°C	7°C	914mm	4.80mm x 281mm	NC	No O-ring	250V AC, 30 Amps
EA5-7-36-8U (SA)	Electric Thermostat	50°C to 250°C	7°C	914mm	9.55mm x 81mm	NC	No O-ring	250V AC, 30 Amps
EA5-7-60U (SA)	Electric Thermostat	50°C to 300°C	7°C	1524mm	4.80mm x 281mm	NC	No O-ring	250V AC, 30 Amps
EA5-8-36U (SA)	Electric Thermostat	20°C to 120°C	4.5°C	914mm	9.55mm x 100mm	NC	With O-ring 3/8” NPT	250V AC, 30 Amps
EA5-8-36-1U (SA)	Electric Thermostat	20°C to 120°C	4.5°C	914mm	9.55mm x 100mm	NO	With O-ring 3/8” NPT	250V AC, 30 Amps

Specifications - continued

Part Numbers	Description	Temperature Range	Differential	Capillary Length	Bulb Size	Contact	O-Ring	Electrical Rating
EA5-8-36-2U (SA)	Electric Thermostat	20°C to 120°C	4.5°C	914mm	9.55mm x 100mm	NC	No O-ring	250V AC, 30 Amps
EA5-8-36-3U (SA)	Electric Thermostat	10°C to 70°C	4.5°C	914mm	9.55mm x 100mm	NC	No O-ring	250V AC, 30 Amps
EA5-8-36-6 (SA)	Electric Thermostat	20°C to 120°C	4.5°C	914mm	9.55mm x 100 mm	NC	With O-ring 3/8" NPT	250V AC, 30 Amps
EA5-8-60U (SA)	Electric Thermostat	20°C to 120°C	4.5°C	1524mm	9.55mm x 100mm	NC	With O-ring 3/8" NPT	250V AC, 30 Amps
EA5-9-36U (SA)	Electric Thermostat	20°C to 100°C	3.5°C	914mm	9.55mm x 134mm	NC	No O-ring	250V AC, 30 Amps

ELECTRIC THERMOSTATS

CSV Series

The Robertshaw® CSV Series Electric Switch is a switch that allows electrical switching between connection terminals. It can have 3, 4, 5, 6 or 7 different positions which can be combined for use on various functions in ovens, saunas, etc.

CSV415-01U

Specifications

Part Numbers	Description	Application	Number of Positions	Mounting Type	Electrical Rating
CSV402-01U (SA)	Electric Thermostat	Imequi 3 Temperatures (electric oven)	4	Nut	1 HP @ 220V AC
CSV414-03U (SA)	Electric Thermostat	Irmios Fisherbrand ovens 3 Temperatures	4	Nut	15 Amps @ 220V AC
CSV415-01U (SA)	Electric Thermostat	3 Temperatures Standard	4	Nut	1 HP @ 220V AC

1 Year Limited Warranty

Robertshaw®

HTV1201092-01U

ELECTRIC THERMOSTATS

HTV Series

The Robertshaw® HTV Series Electric Thermostats are temperature controls for ovens, fryers, sterilizers, water or oil heating tanks, etc. used in household or medium-sized facilities. The thermostat controls the electric resistor which activates or deactivates based on the temperature sensed by the oil capillary bulb.

Specifications

Part Numbers	Description	Temperature Range	Differential	Capillary Length	Bulb Size	Contact	O-Ring
HTV0381091-01U (SA, EU)	Electric Thermostats	Fixed 38°C	1.0°C to 2.0°C	900mm	6.00mm x 160mm	NC	No O-ring
HTV0402091-01U (SA, EU)	Electric Thermostats	10°C to 40°C	1.0°C to 2.0°C	900mm	6.00mm x 160mm	NO/NC	No O-ring
HTV0901091-01 (SA, EU)	Electric Thermostats	30°C to 90°C	4.0°C ± 1.0°C	900mm	6.00mm x 125mm	NC	No O-ring
HTV0901092-01U (SA, EU)	Electric Thermostats	30°C to 90°C	4.0°C ± 1.0°C	900mm	6.00mm x 125mm	NC	With O-ring NPT 3/8”
HTV1101091-01U (SA, EU)	Electric Thermostats	30°C to 110°C	4.5° ± 1.5°C	900mm	6.00mm x 109mm	NC	No O-ring
HTV1101092-01U (SA, EU)	Electric Thermostats	30°C to 110°C	4.5°C ± 1.5°C	900mm	6.00mm x 109mm	NC	With O-ring NPT 3/8”
HTV1101092-01 (SA, EU)	Electric Thermostats	30°C to 110°C	4.5°C ± 1.5°C	900mm	6.00mm x 109mm	NC	With O-ring NPT 3/8”
HTV1102092-01U (SA, EU)	Electric Thermostats	30°C to 110°C	4.5°C ± 1.5°C	900mm	6.00mm x 10 mm	NO/NC	With O-ring NPT 3/8”
HTV1201091-01U (SA, EU)	Electric Thermostats	10°C to 120°C	4.5°C ± 1.5°C	900mm	6.00mm x 86.5mm	NC	No O-ring
HTV1201092-01U (SA, EU)	Electric Thermostats	10°C to 120°C	4.5°C ± 1.5°C	900mm	6.00mm x 86.5mm	NC	With O-ring NPT 3/8”
HTV1201092-03U (SA, EU)	Electric Thermostats	10°C to 120°C	4.5°C ± 1.5°C	900mm	6.00mm x 86.5mm	NC	With O-ring NPT 3/8”
HTV2001091-01U (SA, EU)	Electric Thermostats	50°C to 200°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	No O-ring
HTV2001092-01U (SA, EU)	Electric Thermostats	50°C to 200°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	With O-ring NPT 3/8”
HTV2501091-01U (SA, EU)	Electric Thermostats	50°C to 250°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	No O-ring
HTV2801091-01U (SA, EU)	Electric Thermostats	50°C to 280°C	7.0°C ± 2.0°C	900mm	4.00mm x 162mm	NC	No O-ring
HTV3001071-01U (SA, EU)	Electric Thermostats	50°C to 300°C	7.0°C ± 2.0°C	700mm	4.00mm x 150mm	NC	No O-ring
HTV3001091-01U (SA, EU)	Electric Thermostats	50°C to 300°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	No O-ring
HTV3001091-01 (SA, EU)	Electric Thermostats	50°C to 300°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	No O-ring
HTV3002091-01U (SA, EU)	Electric Thermostats	50°C to 300°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NO/NC	No O-ring
HTV3002092-01U (SA, EU)	Electric Thermostats	50°C to 300°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NO/NC	With O-ring NPT 3/8”
HTV3201091-01U (SA, EU)	Electric Thermostats	50°C to 320°C	7.0°C ± 2.0°C	900mm	4.00mm x 150mm	NC	No O-ring

1 Year Limited Warranty

Robertshaw®

ELECTRIC THERMOSTATS

5300-614

5300-401

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

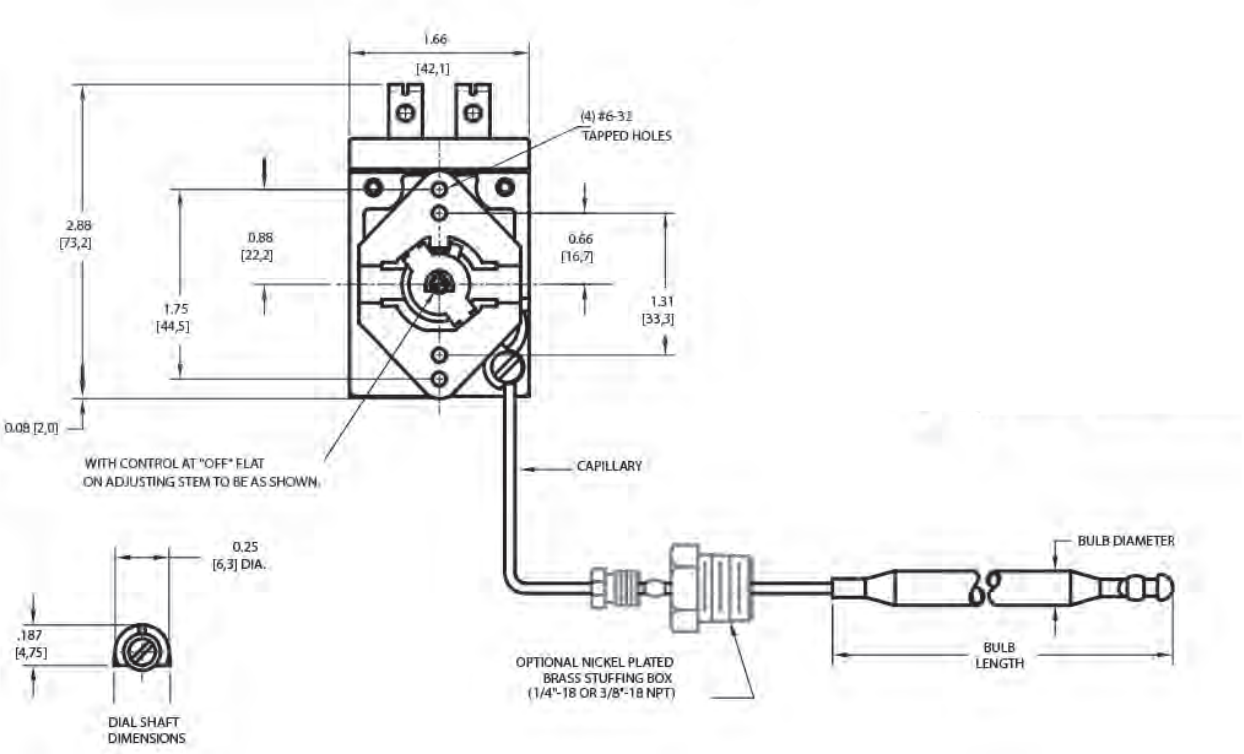
Part Numbers	Description	Temperature Range	Capillary Length	Bulb Size	Stem Length	Mounting Bracket	Dial Type	Mechanical Differential	Stuffing Box	Electrical Rating
5300-041	RX-1 Model	60°F to 250°F (15°C to 121°C)	48”	3/8” x 4-1/2”	3/16”	#1, 1-3/4”	4-Way	8°F	NA	0.67 Amp @ 5V DC
5300-146	SJ Pilot Duty Model with Auxiliary Switch	100°F to 493°F (38°C to 256°C)	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 (38°C to 163°C)	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 (15°C to 116°C)	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 (93°C to 204°C)	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
5300-414	RX Millivolt Model with Hermetically Sealed Reed Switch	175°F to 550°F (79°C to 287°C)	30”	3/16” x 4-7/16” Stainless Steel	13/16”	#1, 1-3/4”	4-Way	8°F	NA	0.67 Amp @ 5V DC

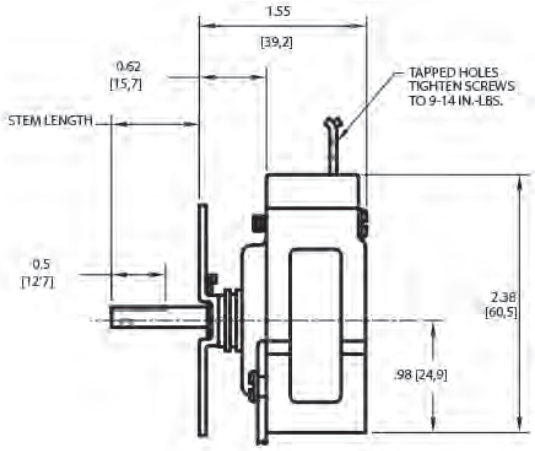
Specifications - continued

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 (93°C to 191°C)	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 (121°C to 516°C)	36"	5/32" x 8-3/4" Stainless Steel	1"	#5, 1-1/4"	4-Way	25°F	3/8" Nickel	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 (15°C to 121°C)	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 (15°C to 121°C)	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 (38°C to 232°C)	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
5300-641	SP Model Uni-Kit	200°F to 400°F (93°C to 204°C)	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 (79°C to 288°C)	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 (149°C to 371°C)	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 (93°C to 204°C)	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 (79°C to 288°C)	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 (93°C to 204°C)	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
KX-289-30	Electric Cooking Control	100°F to 450°F (38°C to 232°C)	30"	3/16" x 11.080"	0.812"	(2) #6-32 @1.750" (2) #6-32 @1.312"	"D" shape .250" x .186" flat	12°F	NA	50 VA Pilot Duty at 120/277 Volts
RX-34-60	Electric Cooking Control	175°F to 575°F (79°C to 302°C)	60"	3/16" X 11.250"	1"	(2) #6-32 @1.750" (2) #6-32 @1.312"	"D" shape .250" x .186" flat	12°F	NA	.67 Amp @ 5 V DC
Z346201560 (SA)	RX 2-24 Electric Thermostat Black Dial	212-392°F (100-200°C)	NA	NA	NA	NA	NA	NA	NA	NA

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

Specifications

Part Numbers	Description	Fixed Temperature	Capillary Length	Bulb Size	Mounting Bracket	Stuffing Box
5225-009	LCH Manual Reset Limit Control	450°F (232.222°C)	30”	5/16” x 3-5/8” Nickel	#1	NA
5225-010	LCC Automatic Reset Limit Control	450°F (232.222°C)	60”	3/16” x 4-7/8” Nickel	#1	3/8”
5225-047	LCH Manual Reset Limit Control	450°F (232.222°C)	24”	3/16” x 7-5/8” Nickel	#1	3/8”
5225-054	LCH Manual Reset Limit Control	440°F (226.667°C)	30”	1/4” x 4-7/8” Nickel	#7	Panel Nut
5225-112	LCH Manual Reset Limit Control	450°F (232.222°C	30”	1/4” x 4-7/8” Nickel	#3	1/4”
LCCM-33-036-00-00 (SA)	LC Series High Limit Safety Thermostat - Contacts NC SPDT	232°C (449.6°F)	1.524mm	4.76mm x 124mm	NA	NA

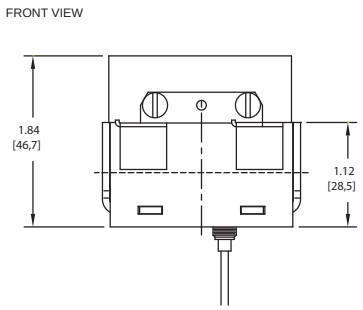
Model	Description	UL Rating	CSA Rating	European
LCH	SPST - Break on Temperature Rise Manual Reset. Type M2*	30 A, 250V AC @ 125-480 V AC 35 VA PD @ 24 V, 60 Hz	30 A @ 125-480V AC	30 A @ 480V AC
LCC	SPDT - Make and / or Break on Temperature Rise. Automatic Reset	25 A, 250 VA @ 125-480 V, 60 Hz 35 A @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

Robertshaw®

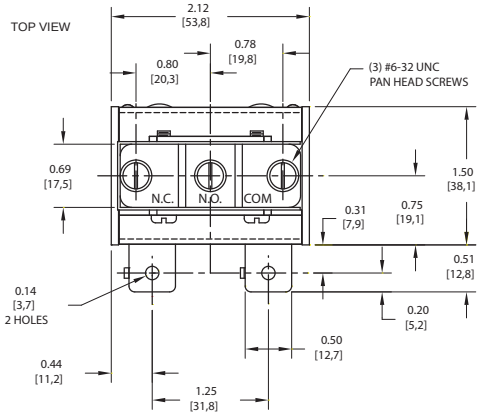
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

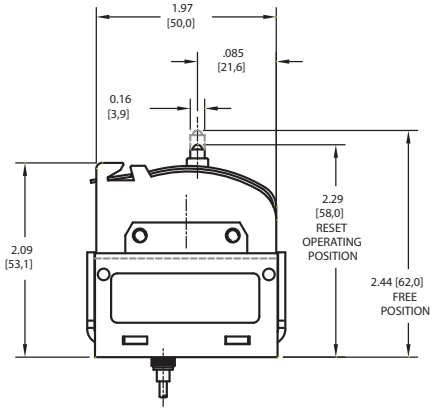
MODEL LCC



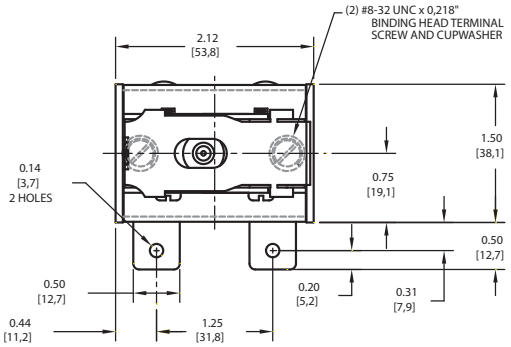
MODEL LCC



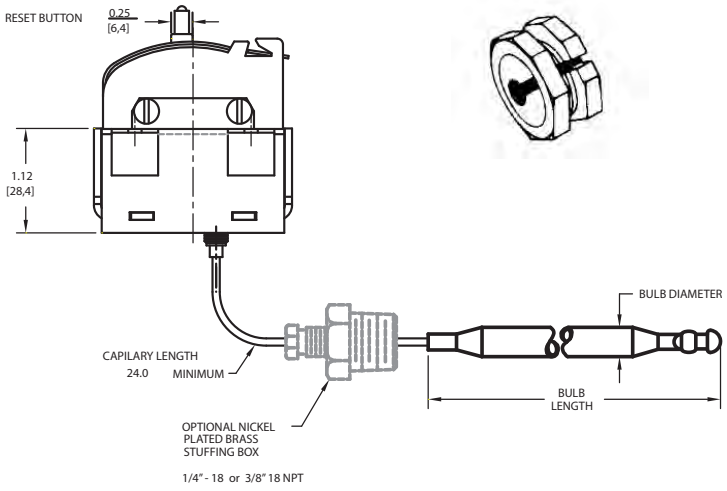
MODEL LCH



MODEL LCH

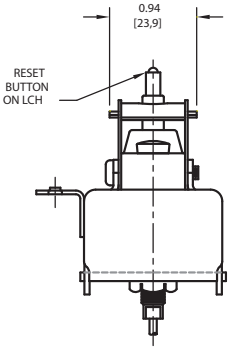


MODEL LCH



Panel Nut

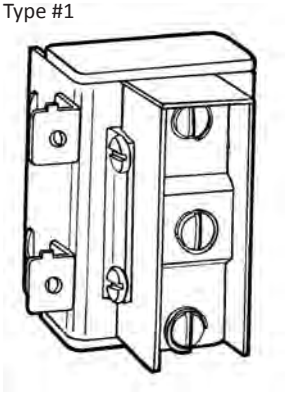
MODEL LCH



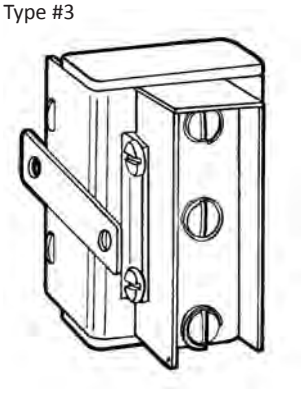
Product Drawings

Mounting Bracket Types

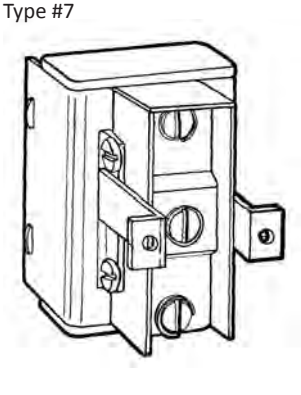
Type #1



Type #3



Type #7



Robertshaw®

ELECTRIC THERMOSTATS

5210-125

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

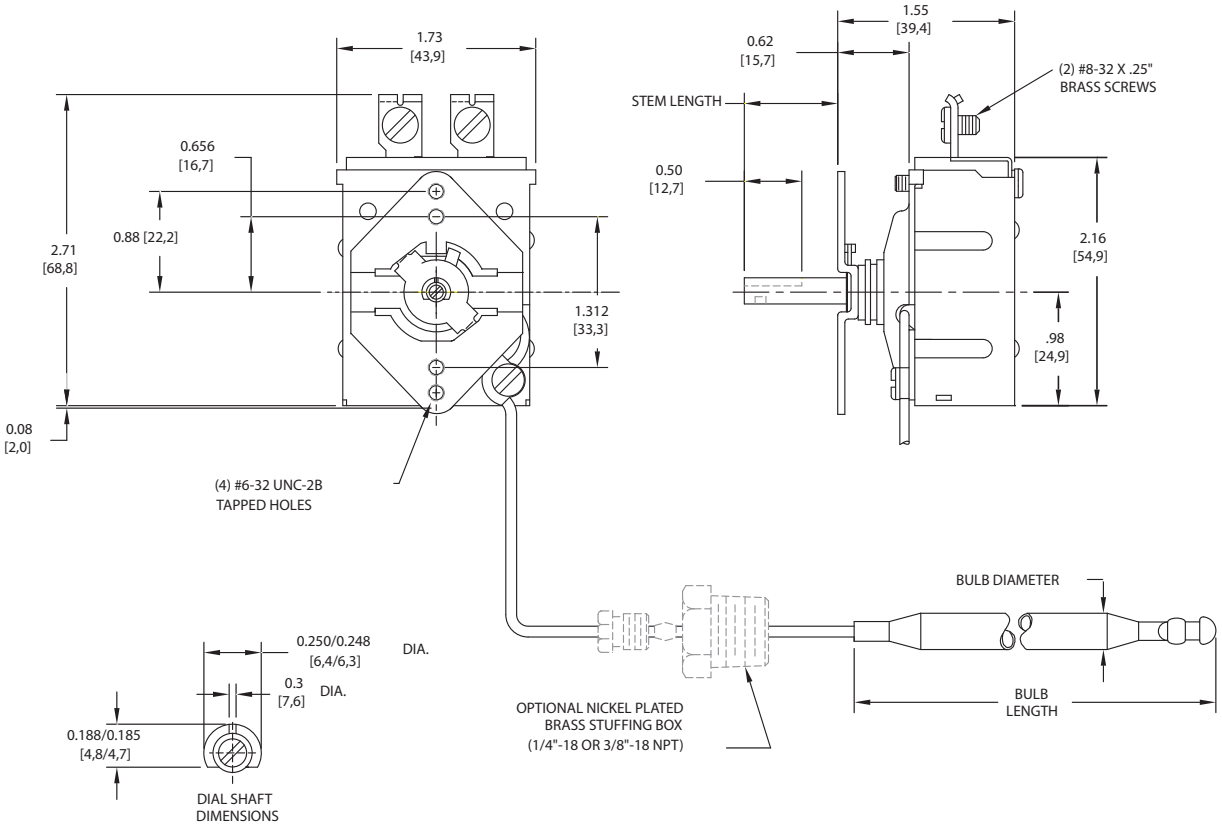
- Temperature ranges to 550°F (288°C)
- Single pole, slow make and break design
- Very sensitive to temperature change
- Small temperature differential between make and break
- Fine silver contacts to assure consistent switch action and long life
- Rugged and compact design for versatility of application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

Specifications

Part Numbers	Description	Dial Temperature Range	Ambient Temperature	Capillary Length	Bulb Size	Dial Type	Differential	Electrical Rating
5210-124	B-10 Commercial Electric Thermostat	60°F to 210°F (15°C to 98°C)	NA	36”	3/16” x 15-3/8” Nickel	Consider 40-463 dial 60-250° if needed	2°F (-16°C)	20 Amp @ 120V AC Resistive Load 15 Amp @ 240V AC Resistive Load
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	Consider 40-463 dial 60-250° if needed	NA	20 Amps @ 125V AC 15 Amps @ 250V AC 125VA PD @ 125V AC

Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



1 Year Limited Warranty

Robertshaw®

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

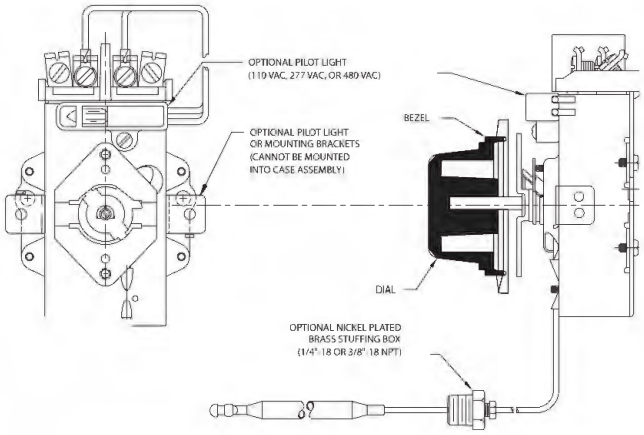
Part Numbers	Description	Dial Temperature Range	Capillary Length	Bulb Size	Dial Type	Mechanical Differential	Electrical Rating
5000-811	D1 Commercial Electric Thermostat with Pilot Light, 4-Way Dial, Bezel, Uni-Kit®	60°F to 250°F (15°C to 121°C)	60”	3/8” x 4-1/2”	4-Way	6°F (3°C)	120, 277V AC @ 30A 480V AC @ 21A
5000-851	D1 Commercial Electric Thermostat with Pilot Light, 4-Way Dial, Bezel, Uni-Kit	100°F to 550°F (38°C to 288°C)	60”	3/16” x 11-5/8” Nickel	4-Way	6°F (3°C)	120, 277V AC @ 30A 480V AC @ 21A

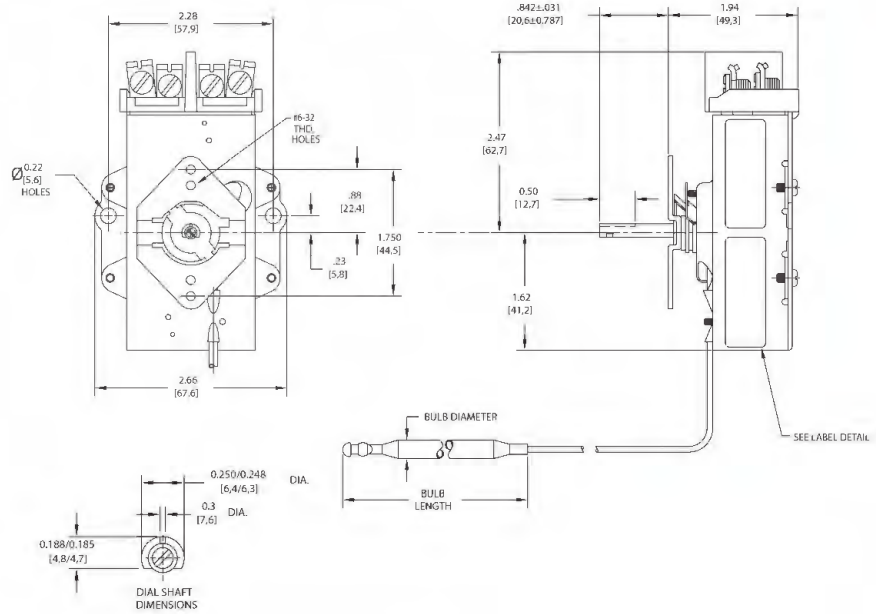
CE

c UL us

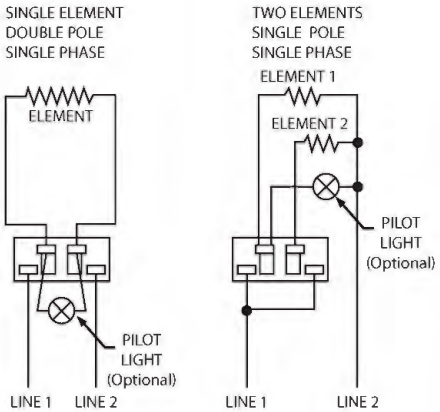
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].





Wiring Diagram



1 Year Limited Warranty

Robertshaw®

GAS THERMOSTATS

4350-028

4590-705

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

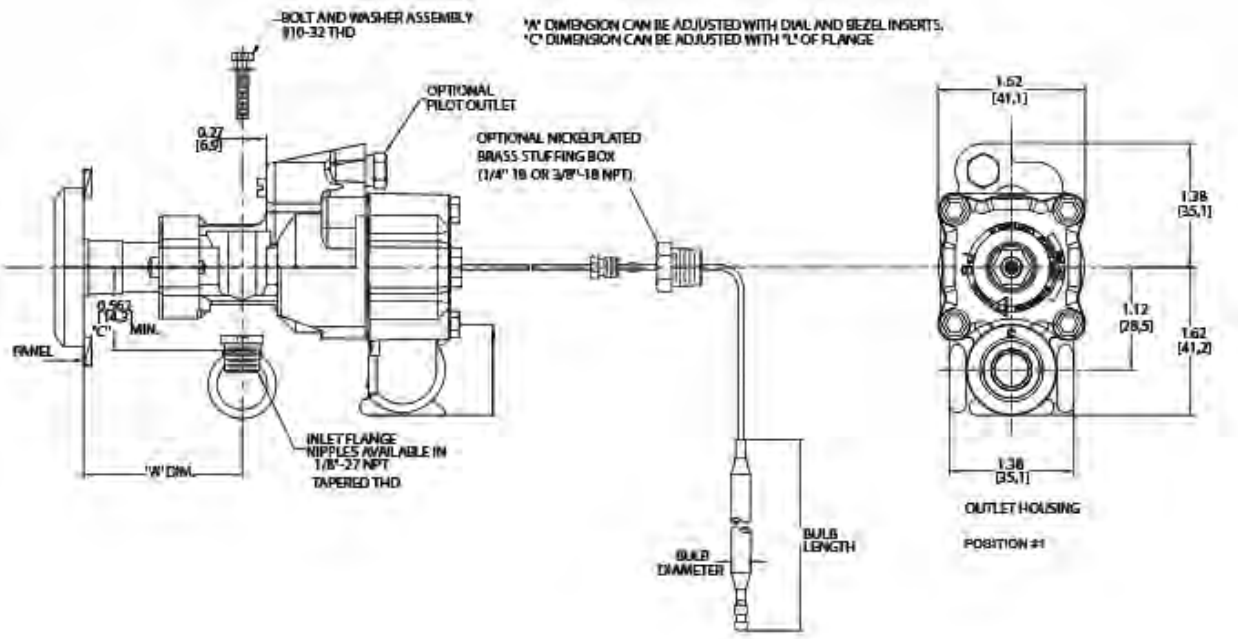
Part Numbers	Description	Max Inlet Pressure	Main Outlet Size	Main Outlet Position	Housing Rotated	Pilot Outlet	Flange Type	Capillary Length	Sensing Bulb	Capacity (Natural Gas)	Temperature Range
4350-015	BJWA Control for Ovens	0.5 PSI	1/4" Pipe	B	180°	Plug	Narrow	48"	3/16" x 11-3/16"	70,000 BTU/HR	250°F 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)
4350-02H	BJWA Series Gas Thermostat	0.5 PSI	1/4"	NA	NA	Yes	Wide	914mm	4.76mm x 219mm	70,000 BTU/HR	66°C to 205°C

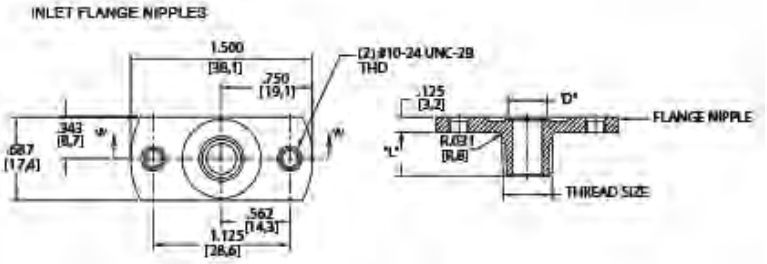
Accessories

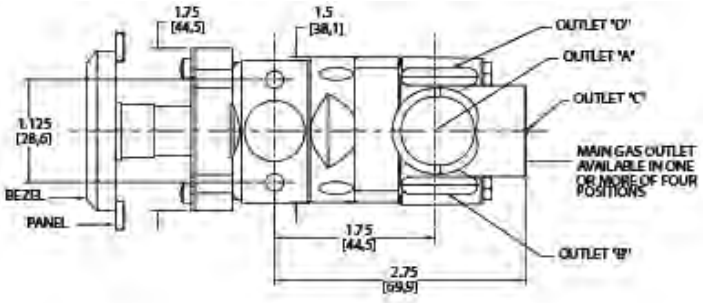
Part Numbers	Description
4590-705	BJ Stem Extension (Package of 6)

Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].



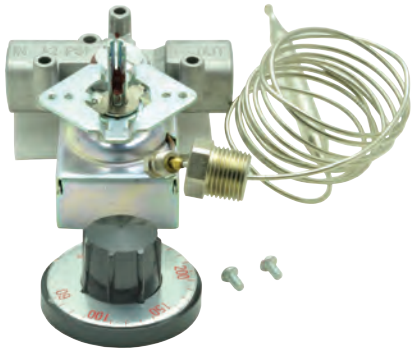




1 Year Limited Warranty

Robertshaw®

GAS THERMOSTATS



4290-008

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
- Applicable to use with high capacity gas operated diaphragm valves (700-800 Series) to reach 600,000 BTUs
- Available in various temperature ranges, with temperature control up to 500°F (288°C)
- Snap-acting from Off position to full gas flow
- 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 200°F (93°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)

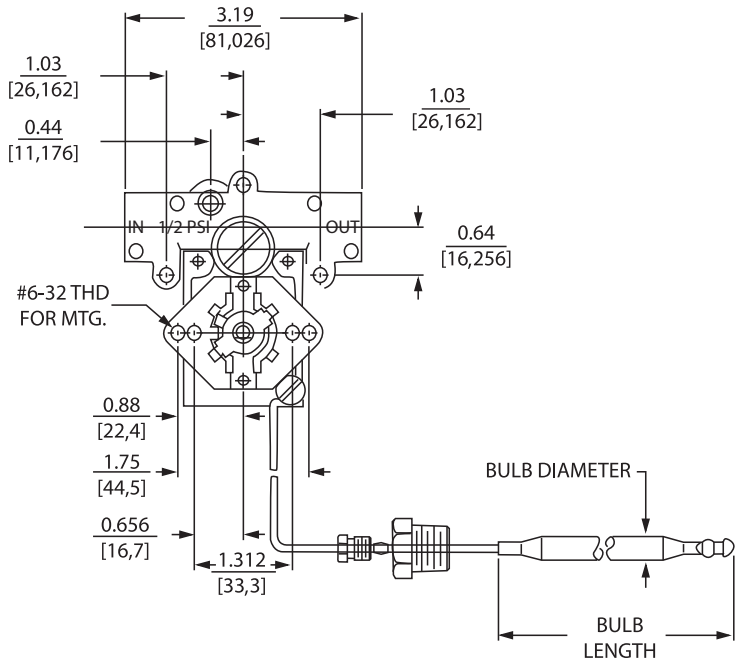
CE

C SA® US

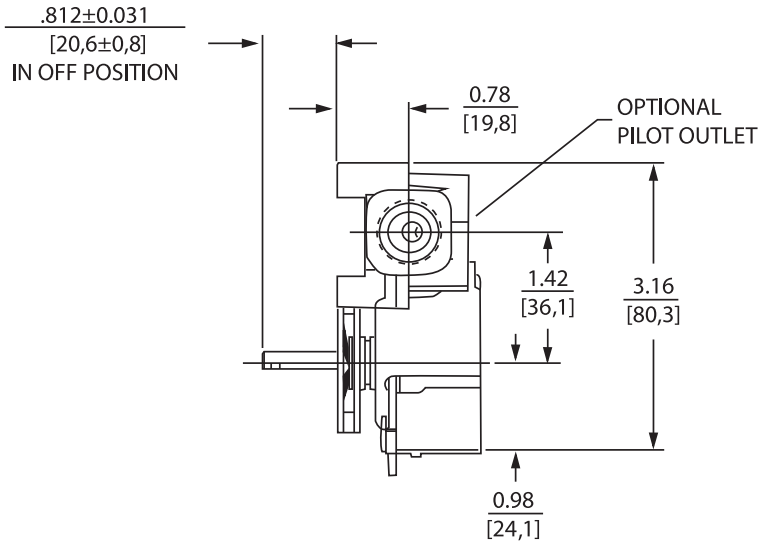
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Front View



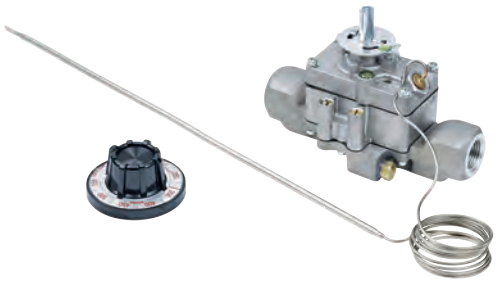
Right View



1 Year Limited Warranty

Robertshaw®

GAS THERMOSTATS



4200-005
Type #2 Body

4200-025
Type #1 Body

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 are nickel plated
- 4-Way dials included
- 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 500°F (93°C to 260°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 288°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)

RoHS

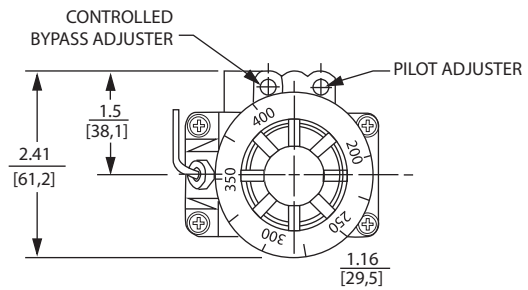
CE

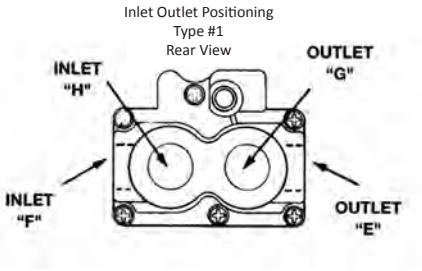
C SA® US

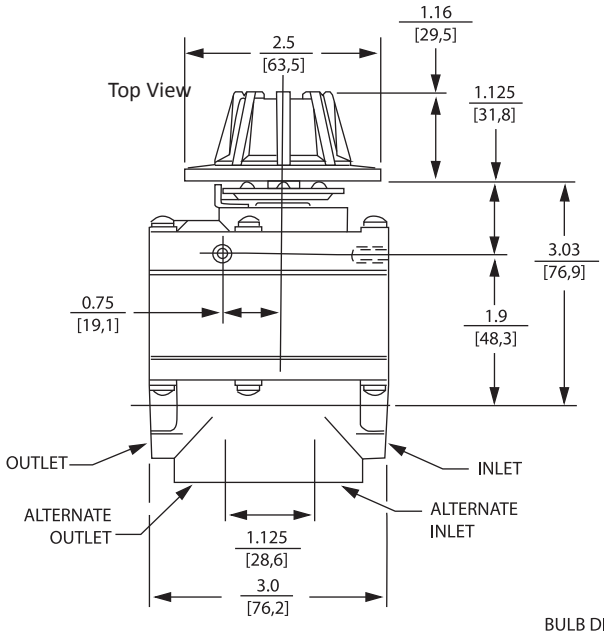
Product Drawings

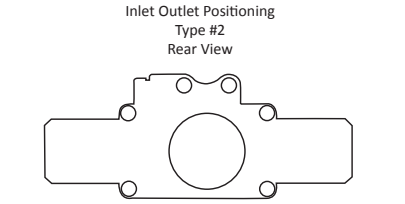
Product Dimensions - Dimensions are inches and [millimeters].

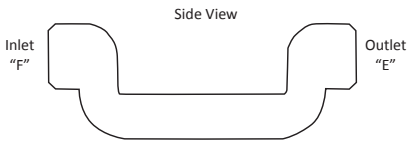
Front View

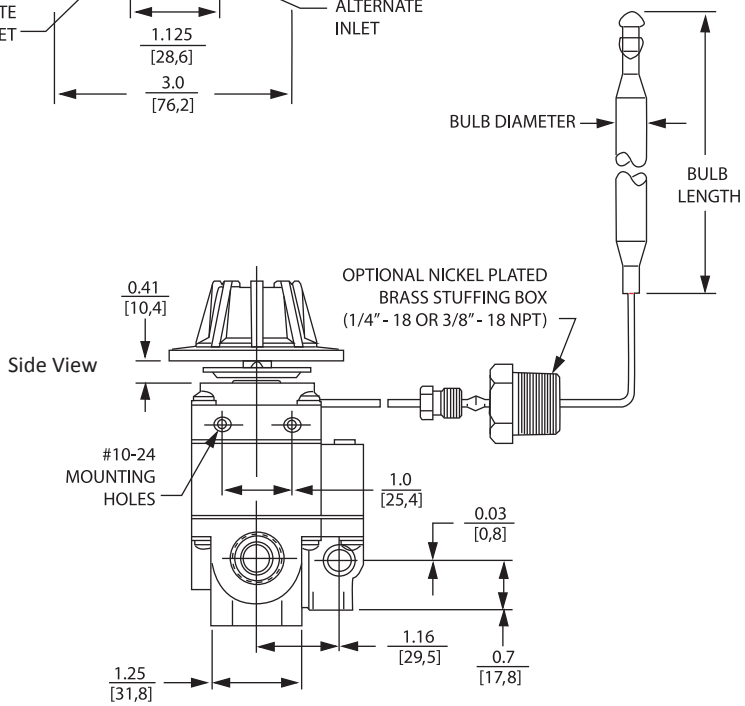








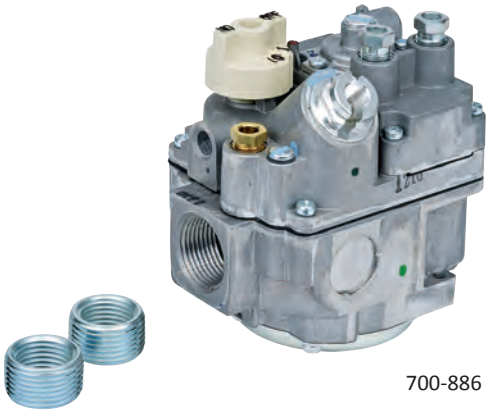




1 Year Limited Warranty

Robertshaw®

GAS VALVES - BLEED CONTROL



700-886

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
700-803	Bleed Control Gas Valve	305,000 BTU	3/4”	3/4”	NA	NA	Can be used on regulated LP systems and is Thermocouple driven
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

RoHS

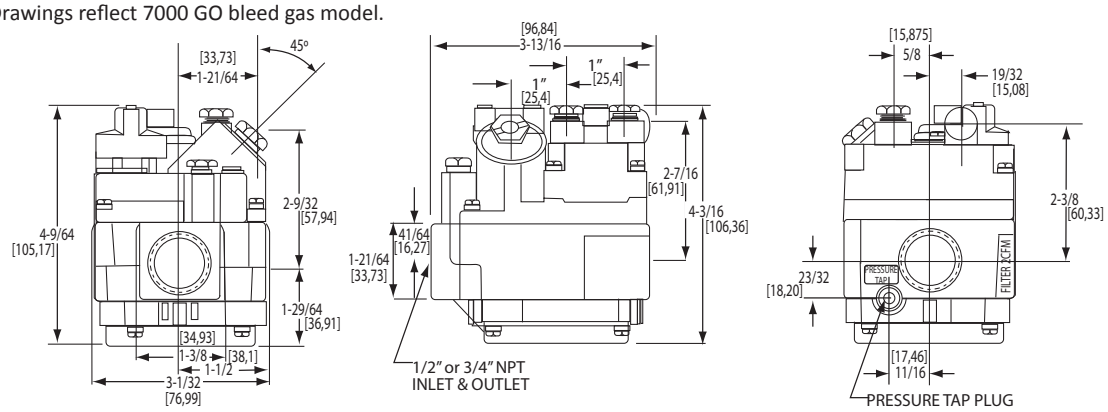
CE

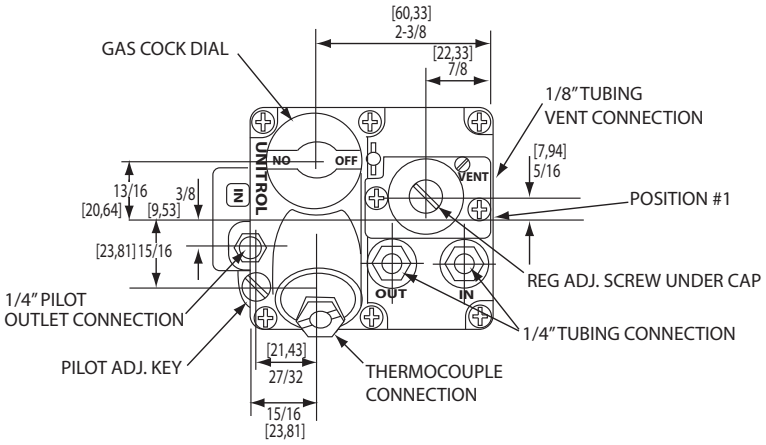
C SA® US

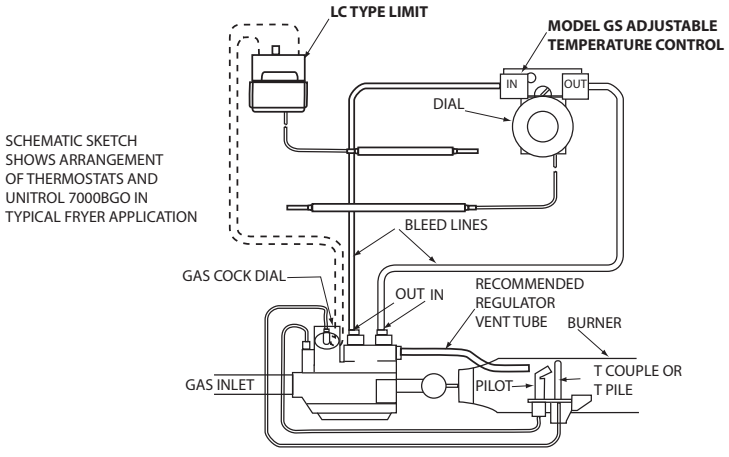
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Drawings reflect 7000 GO bleed gas model.







1 Year Limited Warranty

Robertshaw®

GAS VALVES - SOLENOID

4075-029

4075-200

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

RoHS

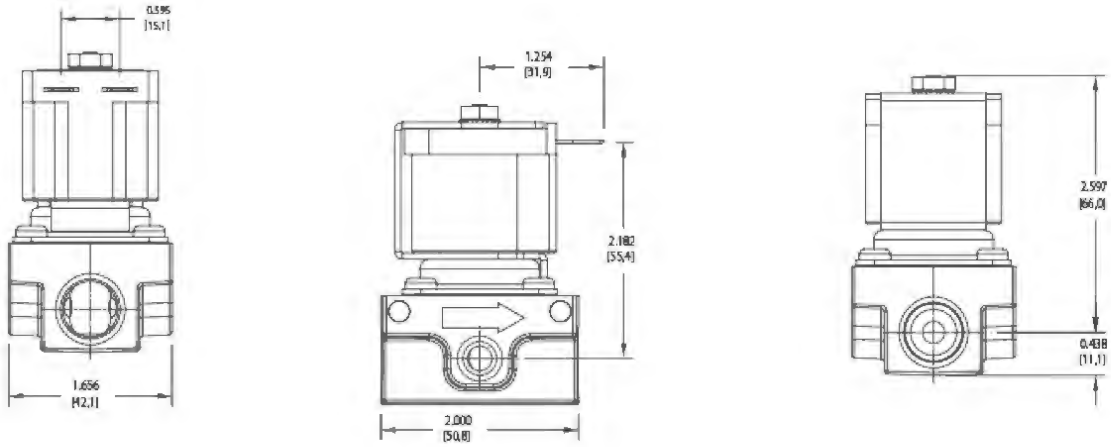
CE

C SA® US

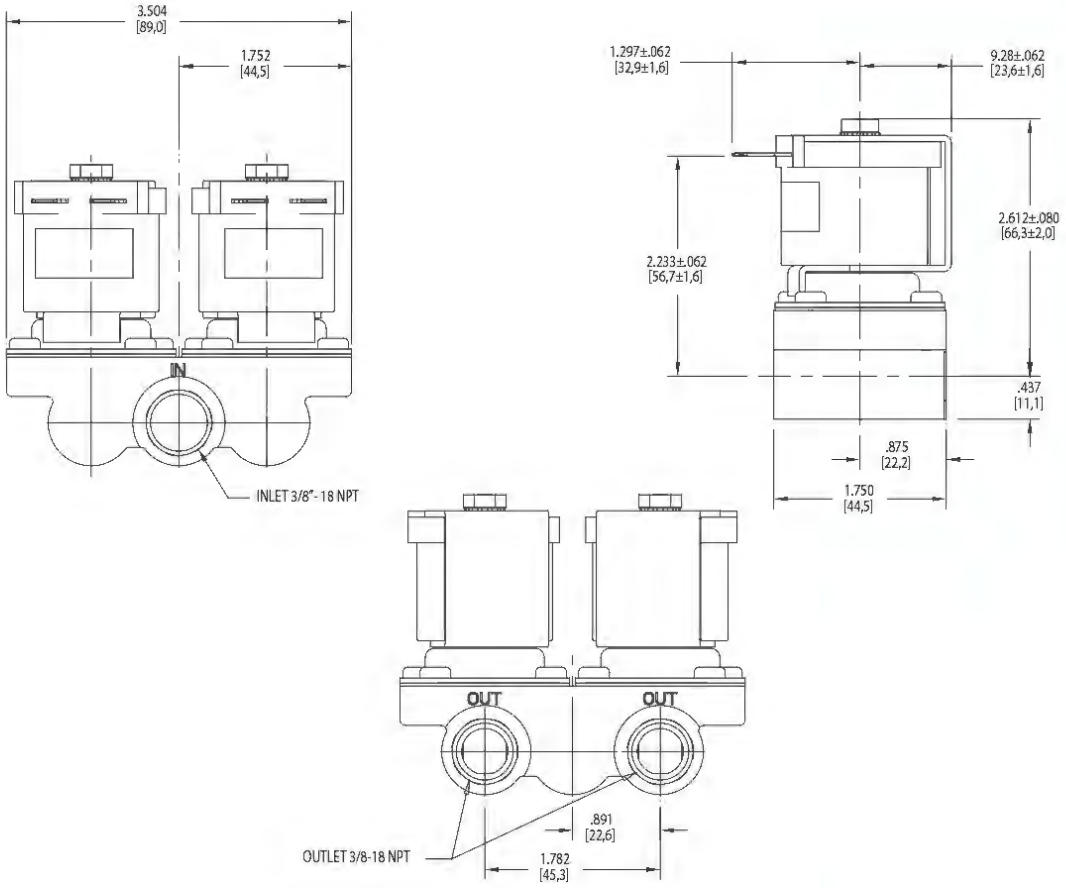
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

Single



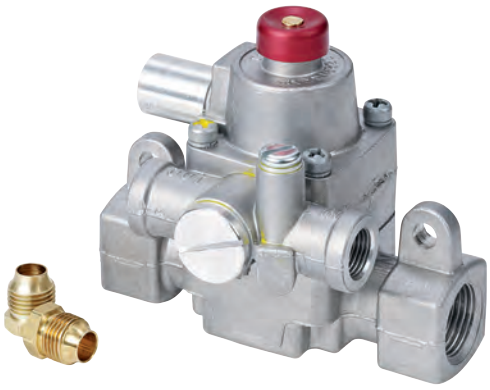
Dual



1 Year Limited Warranty

Robertshaw®

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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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
TS11K-4512-1-0	TS11K Complete Magnet and Body Assembly	1/2" Pipe	1/4" Tube	32°F to 300°F (0°C to 149°C)	0.5 PSI
1720-005	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
1720-010	TS11K K Magnet and Body Assembly	1/2" 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

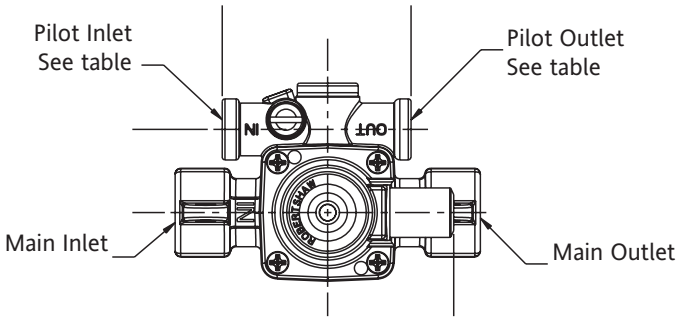
RoHS

C SA® US

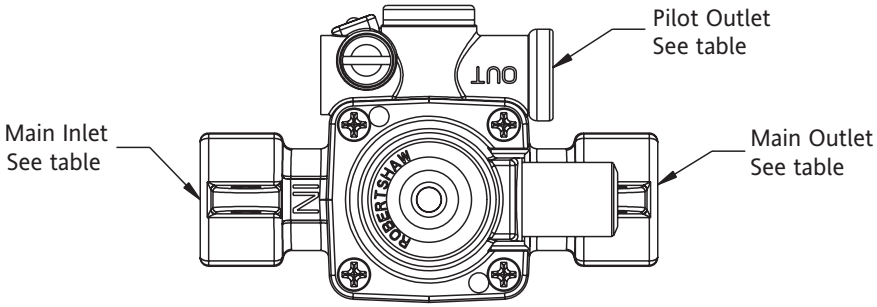
Product Drawings

Product Dimensions - Dimensions are inches and [millimeters].

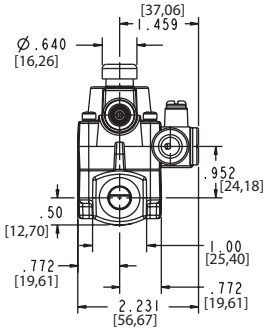
J Model Top with Pilot In and Out



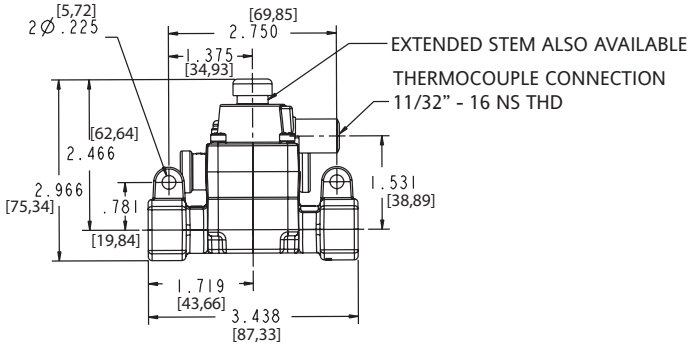
TS11 K Model Top with No Pilot Inlet



Side



Front



1 Year Limited Warranty

Robertshaw®

GAS VALVES

Y-30128-AF35

Single Series

The Robertshaw® Single Series Gas Valves are thermal bimetal gas control valves designed for efficient use in residential gas cooking appliances of various types. Valves with single outlets are used in conventional gas ovens.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

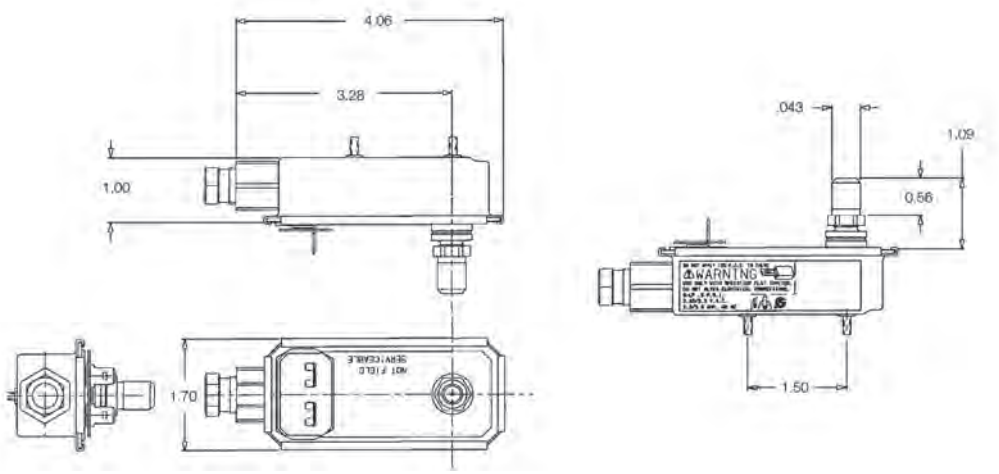
Features and Benefits

- Positive shut-off
- Normally closed
- Used with carbide ignitor
- Mounts in any position
- Ambient temperature compensated

Specifications

Part Numbers	Description	Model Number	Inlet Size	Outlet Size 1	Mounting Type	Terminals	Ignition System	Electrical Rating
Y-30128-AF35	Single Gas Valve	NC-4125-5	3/8" Loxit	Orifice	None	1/4" Male & 3/16" Male	Norton w/o fitting	3V AC @ 3.3-3.6 Amps
Y-76000-15	Dual Single Gas Valve	NC-4197-5 and NC-4125-5	3/8" Loxit	Orifice & 3/8" Loxit	Bracket	1/4" Male & 3/16" Male	Norton w/o fitting	3V AC @ 3.3-3.6 Amps
Y-30148-42	Dual Thermo Gas Valve	NC-4175-5	3/8" Loxit	3/8" Loxit	Bracket	1/4" Male & 3/16" Male	Norton w/o fitting	3V AC @ 3.3-3.6 Amps

Product Drawings



C SA® US

1 Year Limited Warranty

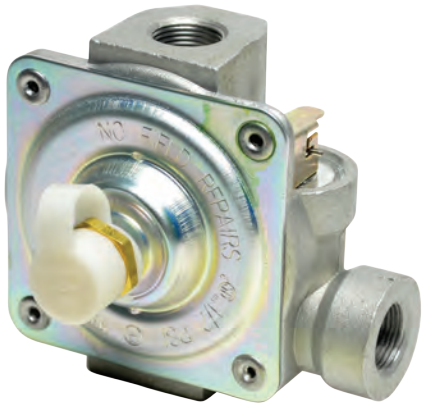
GAS PRESSURE REGULATOR

GPR Series

The Robertshaw® GPR Series Gas Pressure Regulator (GPR) is designed for use in any appliance to regulate the gas flow. This standard regulator can be set for 4", 5" or 6" Water Column (W.C.) Natural Gas or for 10" W.C. Liquid Propane (LP) gas outlet pressures.

Features and Benefits

- Integral manual valve for oven supply
- Convertible for Natural or LP gas
- Can be mounted in multiple positions
- Various inlet and outlet options available

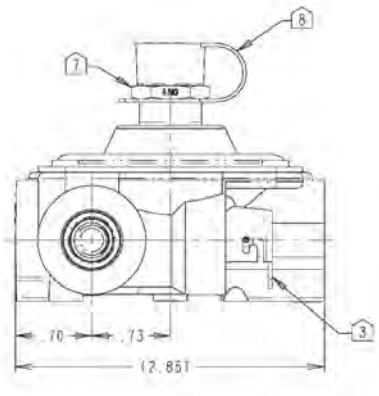


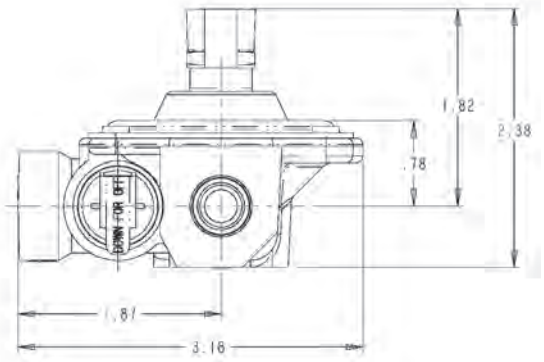
Y-68506-108

Specifications

Part Numbers	Description	Model Number	Inlet Size	Outlet Size 1	Mounting Type	Terminals	Ignition System	Electrical Rating
Y-68506-108	Gas Pressure Regulator	RR-23040	1/2" NPT	1/4" Loxit	8/32" Thread mounting holes	NA	NA	NA

Product Drawings





1 Year Limited Warranty

Robertshaw®

OVEN SPARK IGNITION MODULES

06671-045

Spark Module Series

The Robertshaw® Electronic Ignition Modules are designed to enable the lighting of oven, range and stove gas burners. The component works with alternating current (AC) and the internal circuit generates a series of sparks to ignite the gas. The plastic material used in the structure and internal parts is self-extinguishing, thereby preventing the spreading of fire in case of fire.

Specifications

Part Numbers	Description	Spark Frequency	Terminals	Electrical Rating
06671-045 (SA)	Electronic Ignition Module	1 DK outlet 20 Hz	2.8mm	100 to 242V AC - 50/60 Hz
06674-045 (SA)	Electronic Ignition Module	4 DK outlets 20 Hz	2.8mm	100 to 242V AC - 50/60 Hz
06674-085 (SA)	Electronic Ignition Module	4 DK outlets 7 Hz	2.8mm	100 to 242V AC - 50/60 Hz
IGV0521128-02U (SA)	Electronic Ignition Module	2 outlets 25 Hz	2.8mm	120/220V AC - 50/60 Hz
IGV0551128-02U (SA)	Electronic Ignition Module	5 outlets 25 Hz	2.8mm	120/220V AC - 50/60 Hz
IGV0551163-02U (SA)	Electronic Ignition Module	5 outlets 25 Hz	6.3mm	120/220V AC - 50/60 Hz
IGV0571128-02U (SA)	Electronic Ignition Module	7 outlets 25 Hz	2.8mm	120/220V AC - 50/60 Hz
IGV0571163-02U (SA)	Electronic Ignition Module	7 outlets 25 Hz	6.3mm	120/220V AC - 50/60 Hz

1 Year Limited Warranty

OVEN SPARK IGNITION MODULES

Spark Module Series

The Robertshaw® Spark Module Series are Oven Spark Ignition Modules 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

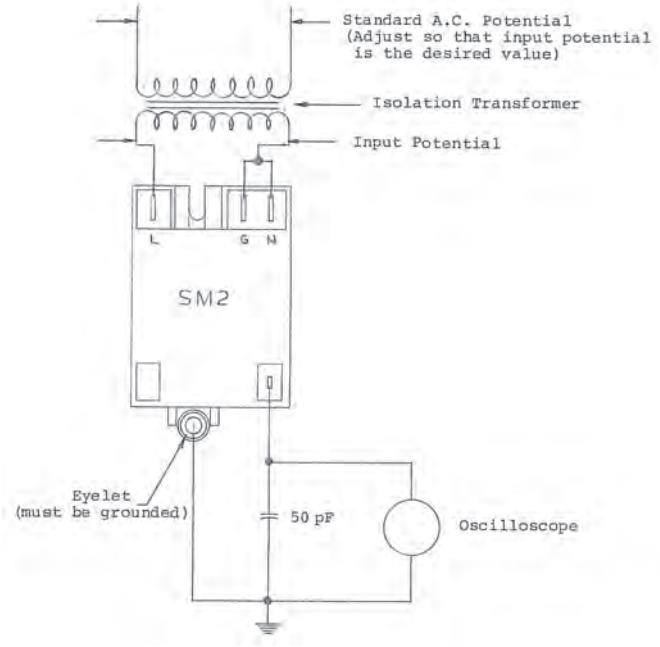
41-521

Specifications

Part Numbers	Description	Spark Frequency	Spark Gap	Ambient Temperature	Electrical Rating
41-521	SM2 0+1 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
U-67204-7	0+4 Spark Module	1 to 4 Sparks/ Second	0.16"	14°F to 248°F (-10°C to 120°C)	120V AC, 25 kV peak across 50 pF (picoFarad) capacitance load

Product Drawings

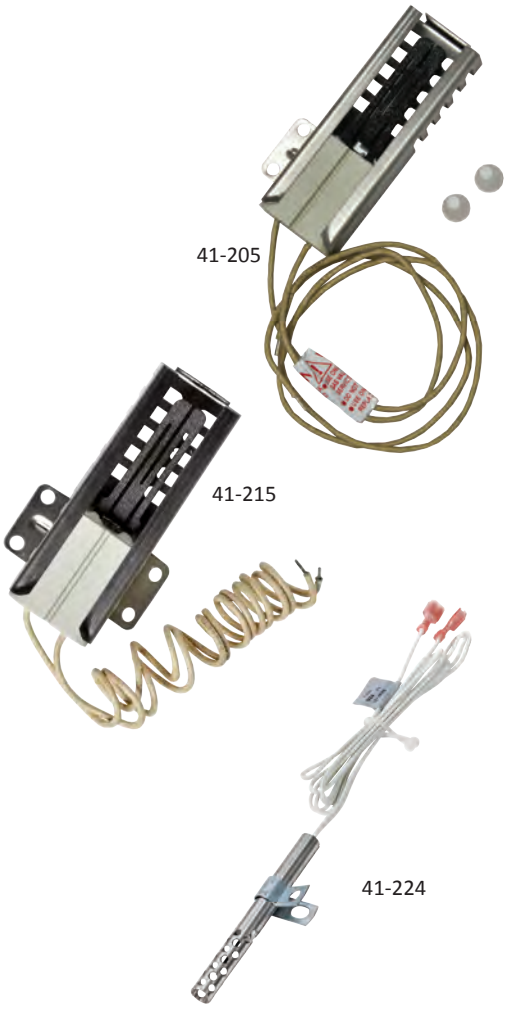
Product Dimensions - Dimensions are inches and [millimeters].



Specifications continued on next page

1 Year Limited Warranty

Robertshaw®



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 OEMs. In addition, these 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	Electrical Rating	Comments	Replacement Information
41-202	Hot Surface Ignitor	5-1/2" (140mm)	16-3/4" (426mm)	501A	3.2 to 3.6 Amps 120V AC	Molex Plug	
41-203	Hot Surface Ignitor	6-1/4" (159mm)	11-1/2" (292mm)	501A	3.2 to 3.6 Amps 120V AC		
41-204	Hot Surface Ignitor	4-1/2" (114mm)	14-1/2" (368mm)	501A	3.2 to 3.6 Amps 120V AC		
41-205	Hot Surface Ignitor	3-3/4" (89mm)	19" (483mm)	501A	3.2 to 3.6 Amps 120V AC		
41-206	Hot Surface Ignitor,	7-1/4" (184mm)	8-3/8" (213mm)	501	3.2 to 3.6 Amps 120V AC	No Shield, 5-1/2" (140mm) Lead Length, Ceramic	
41-207	Hot Surface Ignitor	7-1/2" (191mm)	12" (305mm)	501A	3.2 to 3.6 Amps 120V AC		
41-208	Hot Surface Ignitor	3-3/4" (114mm)	4-1/4" (108mm)	551A	2.5 to 3.0 Amps 120V AC		Replaces Round Carborundum Ignitors - Blue Ceramic

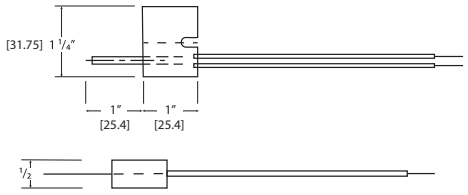
Specifications - continued

Part Numbers	Description	Length A	Lead Length	Type	Electrical Rating	Comments	Replacement Information
41-209	Hot Surface Ignitor	3-3/4" (89mm)	16-3/4" (426mm)	501A	3.2 to 3.6 Amps 120V AC	Plug Adaptor, Molex Plug	
41-210	Hot Surface Ignitor	3-7/8" (95mm)	8-3/8" (213mm)	501	3.2 to 3.6 Amps 120V AC	No Shield/Electrical Terminals	
41-213	Hot Surface Ignitor	3-7/8" (95mm)	16" (406mm)	501RB	3.2 to 3.6 Amps 120V AC	Mtg Bracket, No Shield, Molex Plug	Electrolux 316489403
41-214	Hot Surface Ignitor	3-7/8" (95mm)	7" (177mm)	501RB	3.2 to 3.6 Amps 120V AC	Mtg Bracket, No Shield, Molex Plug	Electrolux 316489404
41-215	Hot Surface Ignitor	3-3/4" (89mm)	19" (482mm)	501A	3.2 to 3.6 Amps 120V AC	Dual mounts	G.E. WB2X9998
41-216	Hot Surface Ignitor	3-3/4" (89mm)	10" (254mm)	501A	3.2 to 3.6 Amps 120V AC	Plug Adaptor with dual mounts	G.E. WB13K21
41-218	Hot Surface Ignitor	3-3/4" (89mm)	16" (406mm)	501A	3.2 to 3.6 Amps 120V AC	Molex Plug Adaptor	Electrolux 316489408
41-423	Hot Surface Ignitor	NA	37" (1016mm)	401N	1.4 to 2.1 Amps 24V AC		Southbend 4440385
41-224	Hot Surface Ignitor - Mini	NA	30" (762mm)	401XM	1.2 to 2.1 Amps 24V AC		Southbend 1183200
41-225	Hot Surface Ignitor - Mini	NA	36" (914mm)	401XBM	1.2 to 2.1 Amps 24V AC		Bakers Pride M2140A/X

Product Drawings - continued

Examples available.

TYPE 401N



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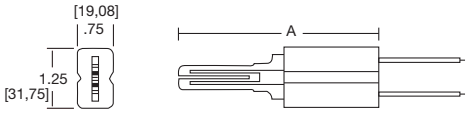
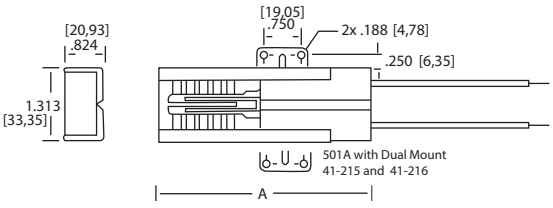
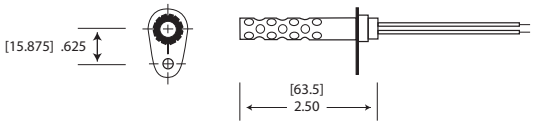


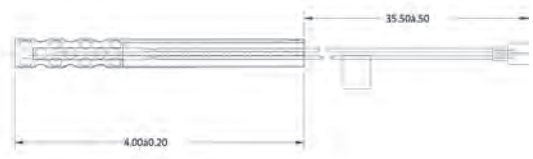
TYPE 501A & 551A (Blue Ceramic)



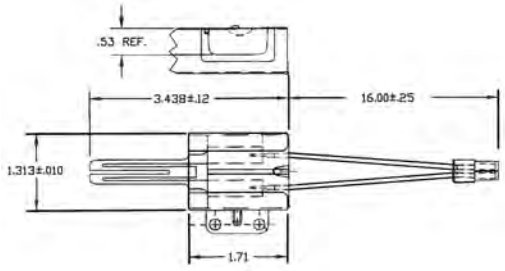
TYPE 401XBM



TYPE 401XM



TYPE 501RB



1 Year Limited Warranty

Timers, are essential for the longevity and energy saving functionality of important equipment.

Tork® and Theben® electric timers offer versatility and unbeatable quality to control power and compressor defrost cycles for commercial and residential applications.

Electric Timers - Analogue.....C2
Electric Timers - Digital.....C4
Electric Timers - Electronic.....C5
Electric Timers - Electromechanical.....C6

ENERGY

theben®

ELECTRIC TIMERS - ANALOGUE

THE-0027AU

THE Series

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

Features and Benefits

- Automatic operation for 24 Hour and 7 Day/24 Hour
- Dual Clock face 24 Hour or 7 day (THE-0029AU only)
- Basic defrost functions
- Air conditioning start/stop
- Removable pin setting
- Panel mount
- Screw terminals
- Control plant automatically
- One clock for multiple installations (THE-0029AU only)
- Maintain daily defrost times
- Enable commercial A/C function
- Ease of Set-Up
- Quick mount/replacement
- Secure connection

Specifications

Part Numbers	Description	Contact Ratings	Automatic Operation	Operating Temperature Range	Enclosure	Switch	Electrical Rating
THE-0027AU (ANZ)	WF64B Analogue Time Switch Automatic Operation 24 Hour Time Switch Synchronous	10 Amps (AC1) 2 Amps (AC3)	Yes	14°F to 131°F (-10°C to 55°C)	Plastic	SPDT 10 Amps (AC1) 2 Amps (AC3)	240V AC
THE-0029AU (ANZ)	WF64C Analogue Time Switch Automatic Operation 24 Hour/7 Day Clock Display	10 Amps (AC1) 2 Amps (AC3)	Yes	14°F to 131°F (-10°C to 55°C)	Plastic	SPDT 10 Amps (AC1) 2 Amps (AC3)	240V AC

1 Year Limited Warranty

ELECTRIC TIMERS - ANALOGUE

Electric Timers Series

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

Features and Benefits

- Automatic operation for 24 Hour and 7 Day/24 Hour
- Basic defrost functions
- Air conditioning start/stop
- Captive pin setting
- Din rail mount (1 module wide)
- Screw terminals
- Control plant automatically
- Maintain daily defrost times
- Enable commercial A/C function
- Quick set-up/No loss of pins
- Snap-on mounting on standard DIN rail
- Modern secure connection

THE-SUL180A

Specifications

Part Numbers	Description	Temperature Range	Switch	Electrical Rating	Contact Ratings	Enclosure
THE-SUL180A (ANZ)	Analogue Time Switch	14°F to 131°F (-10°C to 55°C)	SPST N/O 16 Amps (AC1) 4 Amps (AC3)	240V AC	16 Amps	Plastic
THE-SYN161D (ANZ)	Analogue Time Switch	-4°F to 131°F (-20°C to 55°C)	SPDT 16 Amps (AC1) 4 Amps (AC3)	240V AC	16 Amps	Plastic

1 Year Limited Warranty

theben®

ELECTRIC TIMERS - DIGITAL

THETR608TOP2

TOP2 Series

The Theben® TOP2 Series Digital Timers offer ease of setting through the "Text Orientated Programming Version 2" (TOP2).

Features and Benefits

- Digital time switch with weekly program
- One channel
- DuoFix Spring terminals
- Text-oriented user guidance in display
- 56 memory locations
- Ten year power reserve (exchangeable lithium battery)
- On/Off switching times
- Switching pre-selection
- Permanent switching On/Off
- PIN coding
- Automatic summer/winter time changeover
- Interface for OBELISK top2 memory card (PC programming)

Specifications

Part Numbers	Description	Programming	Contact	Temperature Range	Enclosure*	Automatic Operation	Material*	Switch	Voltage
THETR608TOP2 (ANZ)	Digital Programmable Timer with Defrost Endurance	Weekly	Changeover contact	13°F to 131°F (-25°C to 55°)	1 modules DIN rail mount	Automatic/ Manual	High-Temperature resistant, self-extinguishing thermoplastic	SPDT, 16 Amps (AC1), 4 Amps (AC3)	240V AC
THETR610TOP2 (ANZ)	Digital Set Time Switch	Weekly program, ON-OFF	Changeover contact	-22°F to 131°F (-30°C to 55°C)	2 Module Wide Din Rail Mount	Automatic/ Manual	High temperature resistant, self-extinguishing thermoplastic	SPDT, 16 Amps (AC1), 10 Amps (AC3)	240V AC

*For DIN rail mounted timers

1 Year Limited Warranty

ELECTRIC TIMERS - ELECTRONIC

E100B Series

The Tork® E100B Series multipurpose 1 channel control comes with 120 - 277V 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

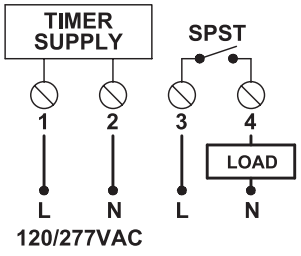
E101B

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
E103B	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	DPST	120-277V AC

Product Drawings

E101B Series - Wiring Diagram



TORK®

c UL us LISTED Listed Product

1 Year Limited Warranty

TORK®

1102B

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

UL LISTED
Listed Product

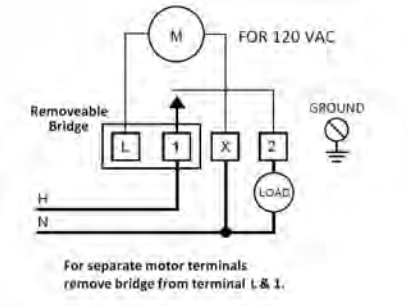
Specifications

Part Numbers	Description	Contact Ratings	Automatic Operation	Operating Temperature	Enclosure	Switch	Voltage
1101B	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
1102B	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
1109A	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
P47	Accessory trippers for 1100 Series Timers	NA	NA	NA	NA	NA	NA

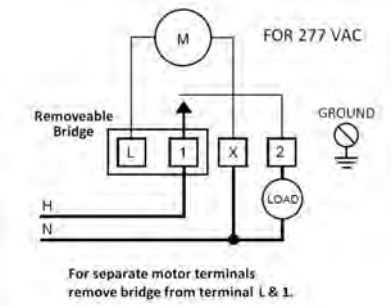
Product Drawings

Single Pole - Wiring Diagrams

1101B



1102B



1 Year Limited Warranty

TORK®

ELECTRIC TIMERS - ELECTROMECHANICAL

TU40

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

Specifications

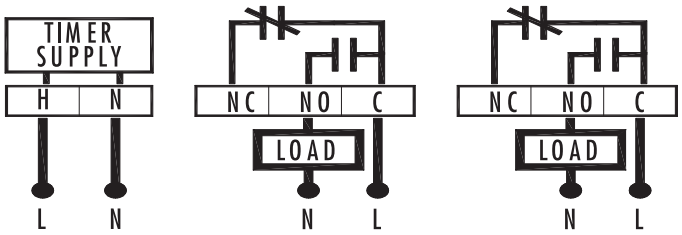
Part Numbers	Description	Contact Ratings (Normally Open)	Automatic Operation	Temperature Range	Enclosure	Switch	Voltage
TU40	24 Hour Electromechanical Timer	40 A Resistive 30 A Inductive 720 VA Pilot Duty 1HP 120V AC 2HP 240V AC	Minimum setting: 15 minutes	-31°F to 116°F (-35°C to 47°C)	Plastic	4 in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

c UL us LISTED Listed Product

Product Drawings

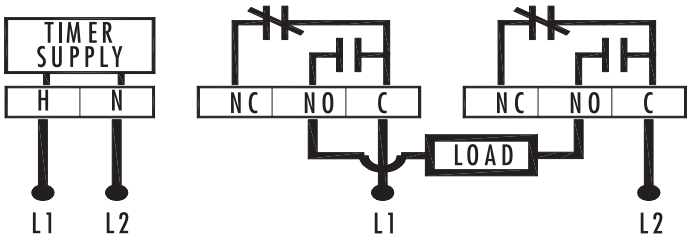
TU40 - 120/277V AC Application - Wiring Diagram

120/277V AC Application



TU40 - 208/240V AC Application - Wiring Diagram

208/240V AC Application



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 D2
Water Heating Gas Valves D15
Electric Water Heating Thermostats D16
Electric Thermostats D18
Thermostatic Antifreeze Valves D19
Heating Kits D20
Ignition Controls D23
Ignitors D30
Pilots D34
Thermocouples D36
Thermopiles D38
Air Pressure Sensing Switches D40
Heating Accessories D42
Pressure Independent Balancing and Control Valves D46
Motorized Actuators D48
Flare Fittings D48
Zone Valves D49
Valve Accessories D49

HEATING

Robertshaw®

GAS VALVES

700-059

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
700-049	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.

RoHS

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

700-506

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
700-501	Millivolt Nonregulated	100,000 BTU	1/2"	1/2"	1/2"	2	NA	250mV to 750mV	NA
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
700-503	Millivolt	240,000 BTU	1/2"	3/4"	1/2"	1	NA	250mV to 750mV	NA
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
700-509	Millivolt	100,000 BTU	1/2"	1/2"	Straight-thru	2	4.0" 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 L.P. 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
359811491A (SA)	Gas Valve 7000MVRNAT	300,000 BTU	3/4"	NA	3/4" (FPT)	2 NPT	3.5" WC Natural Gas	250mV to 750mV	Coaxial and two lead thermopile
359-812-490A (SA)	Gas Valve 7000BMVRLP	485,000 BTU	3/4"	NA	3/4" (FPT)	2 NPT	LP Gas 10" WC	250mV to 750mV	NA

RoHS

1 Year Limited Warranty

Robertshaw®

GAS VALVES

700-402

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	NA
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	NA
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	NA
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

RoHS

C US

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
700-453	Line Voltage Valve	300,000 BTU	3/4"	3/4"	Straight-thru	2	None	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

RoHS

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Robertshaw®

GAS VALVES

700-513

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

RoHS

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.

RoHS

1 Year Limited Warranty

Robertshaw®

GAS VALVES

700-205

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
700-204	Snap-Throttle Hydraulic	160,000 BTU	1/2”	1/2”	None	36”	1/4”	8”	58°F to 90°F	45°F to 95°F
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

RoHS

C SA® US

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GAS VALVES

700 Series - Actuators

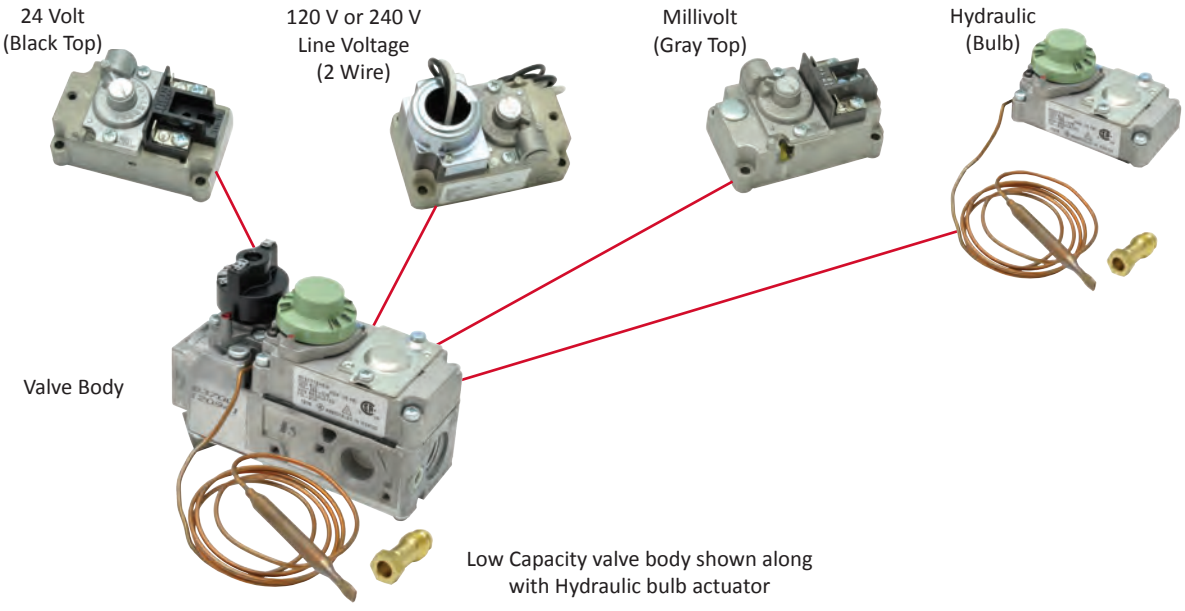
The Robertshaw® 700 Series Gas Valves are the industry standard with capacity ranges from 5,000 to 1,150,000 BTUs. Several actuator types are available depending upon the application such as 24 Volts, Line Voltage, Millivolt and Hydraulic.

Standard 700 shown with Millivolt gray top actuator

Specifications

Part Numbers	Description	Gas Valve Model	Pressure Regulator Setting	Ambient Temperature Rating	Thermostat Temperature Range	Electrical Rating	NEC
705-401	12V DC/24V AC Actuator	7000E	NR	-40°F to 175°F (-40°C to 80°C)	NA	12V DC, 0.18 Amps 24V AC, 0.2 Amps	Class 2
705-402	12V DC/24V AC Actuator	7000ER	3.5" WC	-40°F to 175°F (40°C to 80°C)	NA	12V DC, 0.18 Amps 24V AC, 0.2 Amps	Class 2
705-452	12V AC Actuator	7000ER-120	3.5" WC	-40°F to 175°F (-40°C to 80°C)	NA	120V AC, 0.034 Amps	Class 1
705-461	24V AC Actuator	7000E-240	NR	-40°F to 175°F (-40°C to 80°C)	NA	240V AC, 0.017 Amps	Class 1
705-462	24V AC Actuator	7000ER-240	3.5" WC	-40°F to 175°F (-40°C to 80°C)	NA	240V AC, 0.017 Amps	Class 1

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



Low Capacity valve body shown along with Hydraulic bulb actuator

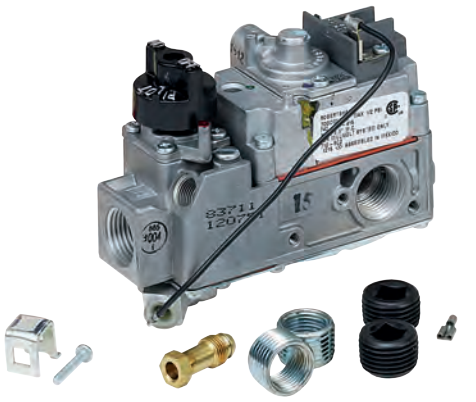
RoHS

1 Year Limited Warranty

Customer Service: See Page J21

Robertshaw®

GAS VALVES



710-502

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

RoHS

C SP® US

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
710-508	Millivolt Low Capacity	Fireplace control	70,000 BTU	3/8"	3/8" Straight-thru	NA	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	Hydraulic Valve
710-205	36"	NA	Hydraulic Valve
710-402	NA	24V DC @ 0.2 Amps, 12V AC @ 0.18 Amps	Use standard thermocouple
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
710-508	NA	250mV to 750mV	Special dropout safety magnet to meet Canadian specifications used with quick-dropout pilot assembly 1819-100.
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.

Robertshaw®

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Robertshaw®

GAS VALVES

720-402

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	NA
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	NA
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	NA
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

RoHS

C SA® US

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.

720-079

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

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	Use on surface, spark pilot or direct spark ignition

RoHS

1 Year Limited Warranty

Robertshaw®

GAS VALVES

722-079

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
- 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

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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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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

Specifications

Part Numbers	Description	Flow Setting	Inlet Size	Outlet Size	Shank Length	Pressure Regulator Setting	Temperature	Sensing Element
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)	NA
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)	NA
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)	NA
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)	NA

1 Year Limited Warranty

Robertshaw®

ST12-80K

ST10-80K

ELECTRIC WATER HEATING THERMOSTATS

ST Series

The Robertshaw® ST Series Electric Water Heating Thermostats are designed for replacement on domestic and commercial water heaters.

Features and Benefits

- Automatic cycling
- High limit manual reset
- Compact design assures firm clamp to tank
- Snap-action operation controls
- Fast and easy wiring
- Adjustable temperature ranges

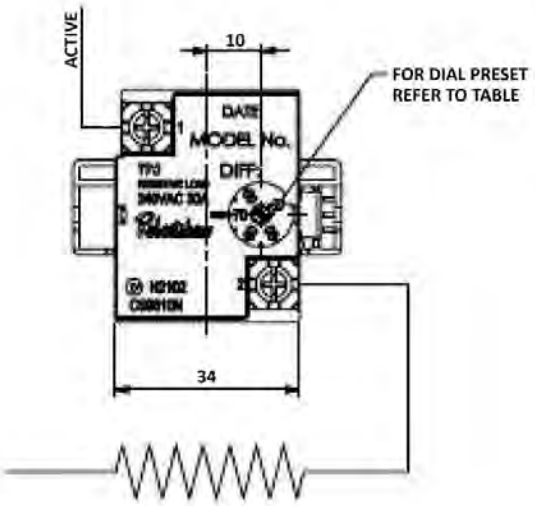
Specifications

Part Numbers	Description	Replaces	Typical Application	Switch Type	Temperature Range	High Limit	Differential	Electrical Ratings	Power
ST10-80K (ANZ, EU)	Hot Water Surface Thermostat	EWT-1	Single	SPST	60°C to 80°C	NA	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST10-90K (ANZ, EU)	Hot Water Surface Thermostat	EWT-1	Single	SPST	60°C to 90°C	NA	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST12-70K (ANZ, EU)	Hot Water Surface Thermostat with High Limit	EWT-1L2	Single	SPST/DPST	50°C to 70°C	84°C ± 5°C	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST12-80K (ANZ, EU)	Hot Water Surface Thermostat with High Limit	EWT-1L2	Single	SPST/DPST	60°C to 80°C	84°C ± 5°C	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST13-70K (ANZ, EU)	Hot Water Surface Thermostat with High Limit	EWT-1L2S	Single	SPST/DPST	50°C to 70°C	84°C ± 5°C	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST22-60K (ANZ, EU)	Hot Water Surface Thermostat with High Limit	EWT-2L2	Double /Off Peak*	SPDT/DPST	50°C to 70°C	84°C ± 5°C	8°C (± 4°C)	240V AC 30 Amps	7200 Watts
ST22-80K (ANZ, EU)	Hot Water Surface Thermostat with High Limit	EWT-2L2	Double /Off Peak*	SPDT/DPST	50°C to 70°C	84°C ± 5°C	8°C (± 4°C)	240V AC 30 Amps	7200 Watts

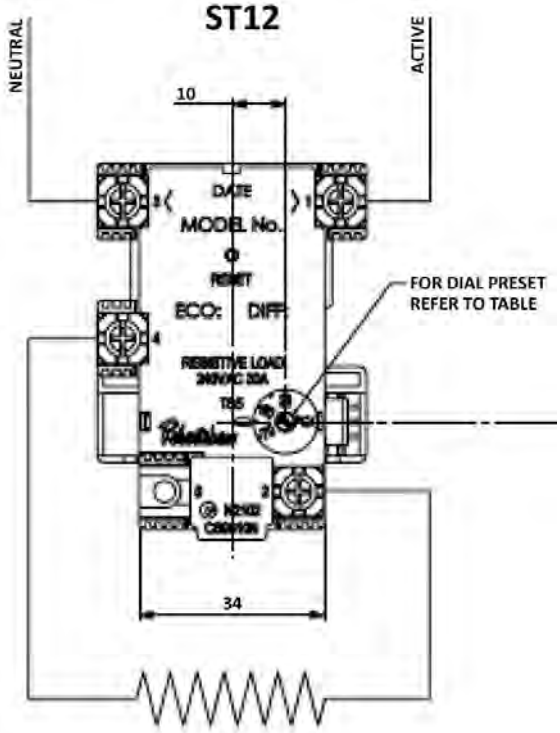
* Off Peak power in Australia ST22 coupled to ST12 for two element system.

Product Drawings

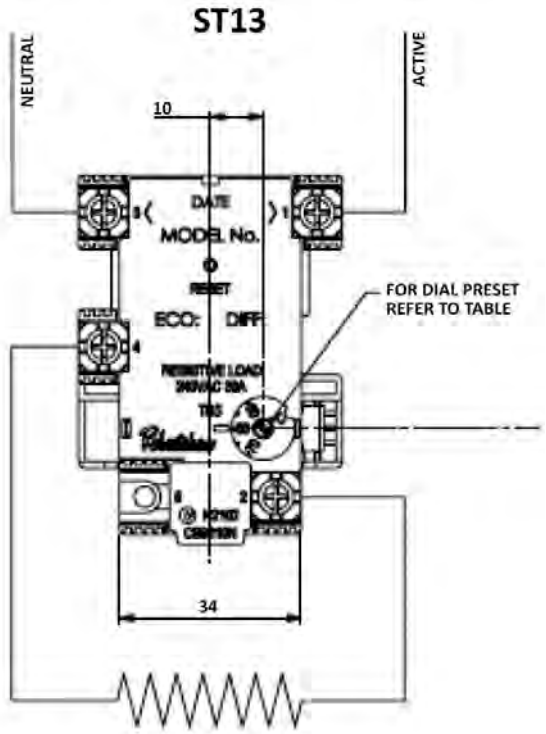
ST10



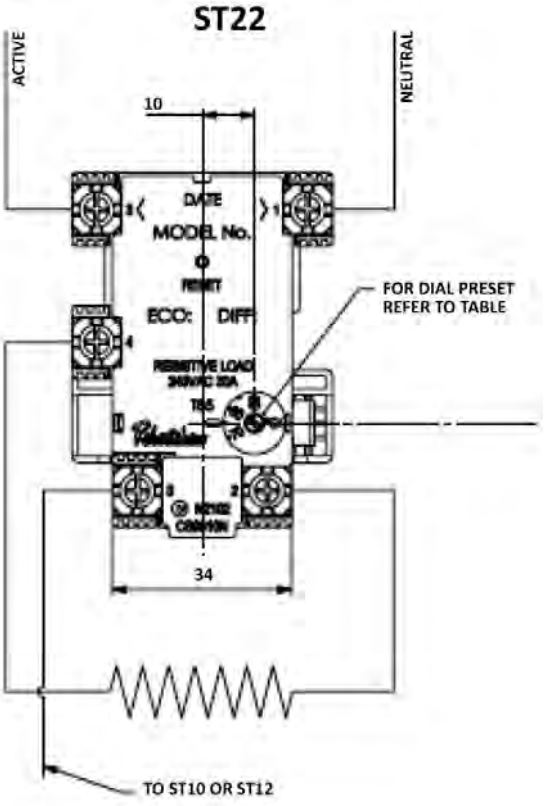
ST12



ST13



ST22



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Robertshaw®

WH9

ELECTRIC THERMOSTATS

WH9 Series

The Robertshaw® WH9 Electric Thermostat is a surface contact temperature control device for water tanks heated by electric heaters (boilers) and solar heated tanks. It is placed next to the tank's metal wall and has a bimetallic strip that is triggered in case of overheating.

Specifications

Part Numbers	Description	Temperature Range	Reset
WH9 (SA)	Bimetallic Contact Thermostat	43°C to 66°C	No Reset
WH9WL6 (SA)	Bimetallic Contact Thermostat	43°C to 66°C	With Reset

1 Year Limited Warranty

THERMOSTATIC ANTIFREEZE VALVES

FP Series

The Robertshaw® FP-45 Antifreeze Valve uses a reliable, self-contained power element that is sensitive to temperature and operates without electrical power or sensors. In solar applications, the gate of the valve typically opens as temperatures decrease, allowing the liquid to spill and to be replaced by warmer water when the water is near the freezing point in solar panels. When warmer water enters, the gate of the valve is closed and the removal of water is interrupted.

FP-45

Features and Benefits

- Protect solar collectors and exposed piping from freezing
- Easily installed on existing systems
- 125 P.S.I. maximum operating pressure
- Corrosion resistant
- Tamper resistant
- Anti-siphon and alternate discharge port
- Discharge port for 1/4” plastic pipe or 5/8” I.D. hose
- 1/2” Brass male pipe thread inlet port for positive seal
- Nominal start to open water temperature of FP-45 is 43°F
- High temperature U.V. stabilized body material
- Ideal for back-up freeze protection
- Actual size is 5” high
- Available in standard and lead-free versions upon request.

Specifications

Part Numbers	Description	Temperature Range
FP-45	FP Series Thermostatic Antifreeze Valve	6°C

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Robertshaw®

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.

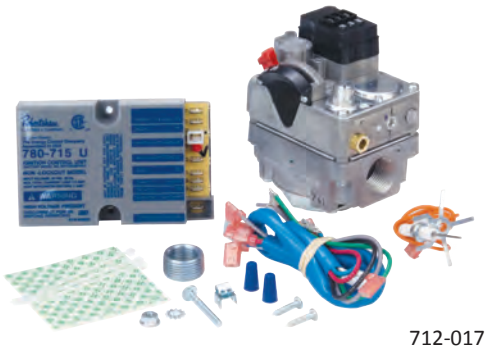
Features and Benefits

- 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	505 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
712-008	Intermittent Pilot Ignition System Kit	720-070	1/2"	3/4"	150,000 BTU	3 Try Lockout	Uni-Kit® Natural Gas	780-845 (Lockout)
712-016	Intermittent Pilot Ignition System Kit	700-056	3/4"	3/4"	350,000 BTU	Restart Nonlockout	3.5" Natural Gas	Nonlockout - Caution: Do not use on L.P. Gas Applications.
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)
712-022	Intermittent Pilot Ignition System Kit	722-079	1/2"	1/2"	170,000 BTU	Restart Nonlockout	Uni-Kit Natural Gas	780-715 (Nonlockout)

1 Year Limited Warranty

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

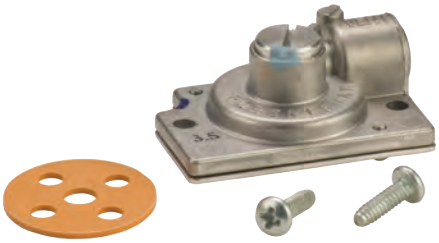
UNI-KIT360

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	ICM-283	2374-510

1 Year Limited Warranty

Robertshaw®



1751-003

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

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"

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.

780-715

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

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

Robertshaw®

IGNITION CONTROLS

780-001

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	Trans-former	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

C SP® US

1 Year Limited Warranty

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.

780-785

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

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, 277V AC
780-785	24V AC @ 50/60 Hz	120, 208/240, 277V AC
780-790	24V AC @ 50/60 Hz	120, 208/240, 277V AC

1 Year Limited Warranty

Robertshaw®

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.

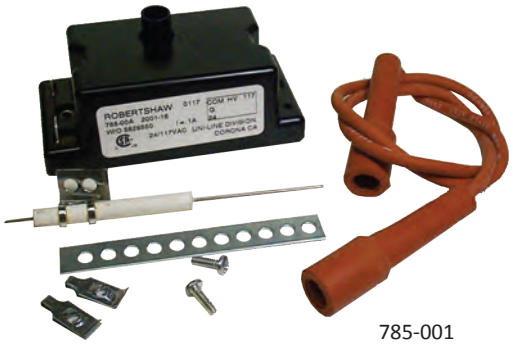
Features and Benefits

- 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



785-001

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 pi-lot-safety control system.

Features and Benefits

Kit Includes:

- Ignitor assembly
- Mounting bracket

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	24/120V AC, 0.1 Amp

C SP® US

1 Year Limited Warranty

FENWAL®

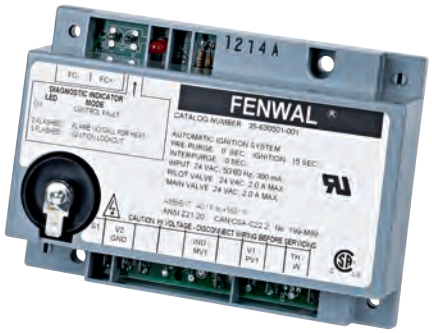
IGNITION CONTROLS

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

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 - 30V AC	24V AC @ 300mA

IGNITION CONTROLS

RAM®

790 Series Ignition Controls

The RAM hot surface ignition controls are 24V AC. When the thermostat calls for heat, RAM's HSI control simultaneously energizes the hot surface ignitor and initiates current sensing function. Gas valve(s) remain closed until current sense threshold is reached. Once the current draw threshold has been reached or exceeded, the gas valve(s) and flame rectification circuits are energized. Upon proof of flame, the hot surface ignitor is shut off. Main burner flame is continuously monitored. Loss of flame detection results in cycling to check the current draw of the hot surface ignitor. If the hot surface ignitor is below the current draw threshold, the gas valve(s) will remain off and the hot surface ignitor will remain on until the current threshold is reached.

790-015

Specifications

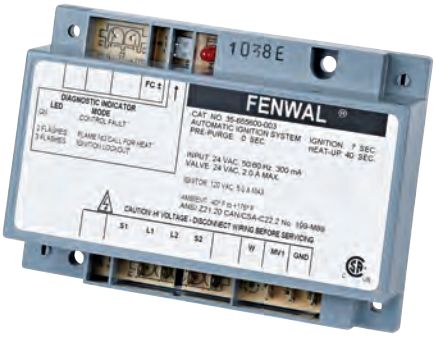
Part Numbers	Description	Type	Temperature Range	Ignition Tries Before Lockout	Gas Valve Relay Rating	Ignitor Relay Rating	Electrical Rating
790-015	Hot Surface Ignition Control	Pre-Purge, Remote	-40°F to 175°F	3	5.0 Amps	10.0 Amps	24V AC

C SA® US

1 Year Limited Warranty

FENWAL®

IGNITION CONTROLS



35-655800-003

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, 120/240V AC, 5 Amps Max	2.0 Amps @ 24V AC	18 - 30V AC 50/60 Hz	24V AC @ 300mA, 120 or 240V 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, 120/240V AC, 5 Amps Max	2.0 Amps @ 24V AC	18 - 30V AC 50/60 Hz	24V AC @ 300mA, 120 or 240V AC (L1 and L2 only)

C US

1 Year Limited Warranty

FENWAL®

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

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 - 30V 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 - 30V 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 138V AC, 50/60 Hz	120V AC @ 350mA

C SA® US

1 Year Limited Warranty

Robertshaw®

IGNITORS

41-401

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 Ignitor	A	4-1/2”	A	Includes a gasket
41-402	Hot Surface Carbide Ignitor	B	19”	NA	
41-403	Hot Surface Carbide Ignitor	C	5-1/2”	NA	
41-404	Hot Surface Carbide Ignitor	C	4-1/2”	D	Includes special mounting adaptors
41-405	Hot Surface Carbide Ignitor	D	5-1/2”	NA	
41-406	Hot Surface Carbide Ignitor	E	10-1/2”	NA	Includes a gasket
41-407	Hot Surface Carbide Ignitor	C	4-1/2”	B	
41-408	Hot Surface Carbide Ignitor	B	5”	C	
41-409	Hot Surface Carbide Ignitor	C	4-1/2”	D	
41-410	Hot Surface Carbide Ignitor	B	4-1/2”	B	
41-411	Hot Surface Carbide Ignitor	B	4-1/2”	C	Includes special mounting adaptors
41-412	Hot Surface Carbide Ignitor	F	5-1/4”	D	
41-414	Hot Surface Carbide Ignitor	F	5-1/4”	D	Includes special mounting adaptors
41-418	Hot Surface Carbide Ignitor	B	5-1/4”	C	Includes bracket
41-419	Hot Surface Carbide Ignitor	G	5”	D	

Product Drawings

41-402

41-403

41-404

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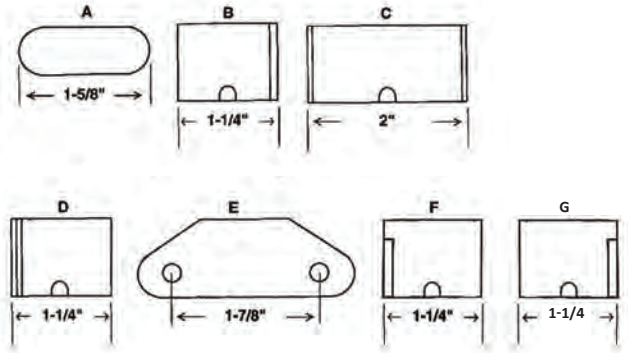
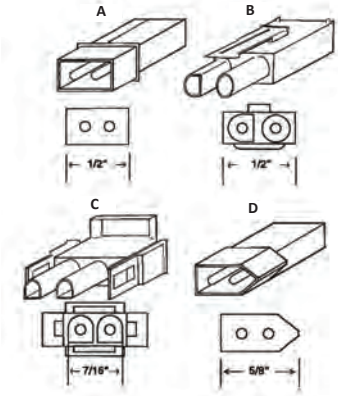
Ceramic Block Styles



Terminal Block Styles



1 Year Limited Warranty

Robertshaw®

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 five-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
41-602	Hot Surface Furnace Mini-Ignitor with bracket and connector	None	Amana 20165702 White-Rodgers 767A-378
41-603	Hot Surface Furnace Mini-Ignitor	2.5"	York International 025-33421-000 White-Rodgers 767A-378
41-604	Hot Surface Furnace Mini-Ignitor	4"	Armstrong #44744-2
41-605	Hot Surface Furnace Mini-Ignitor with bracket and connector	2.5"	York Conversion Kit #473-20937-001

1 Year Limited Warranty

IGNITORS

Universal Ignitor Series

The Robertshaw® IgnitorPro™ Universal Ignitors are the perfect truck stock item. All universal ignitors replace over 150 ignitors currently used in the field. To allow for universal applications, mounting brackets and hardware are included.

Robertshaw IgnitorPro 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.

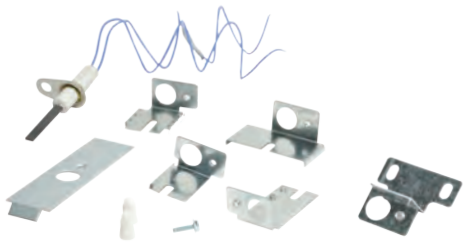
Features and Benefits

41-802N

- The ultimate in silicon nitride with technology from Kyocera™ for the best durability
- Flat blade heating element for best heat dissipation

41-803

- High density silicon carbide for good physical strength and durability
- Flat blade heating element for best heat dissipation



41-802N

41-803

Specifications

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

Robertshaw IgnitorPro

1 Year Limited Warranty

3 Year Limited Warranty

Robertshaw®

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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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

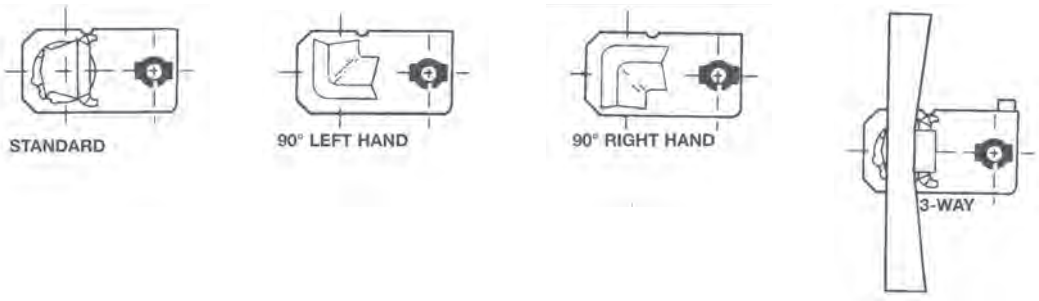
Part Numbers	Description	Hood Type	Mounting Bracket Type	Flame Pattern Type	Lead Lengths	Includes
1820-009	PG9 Replacement Pilot Uni-Kit®	NA	NA	90° Right Hand	36"	1950-532 Thermopile and Orifices
1820-019	PG9 Replacement Pilot Uni-Kit	NA	NA	90° Left Hand	36"	1950-532 Thermopile and Orifices
1830-001	2CH & 2C Incinerator -Target Pilot Uni-Kit	2	6	Standard	NA	Orifices
1830-113	9B Replacement Pilot Uni-Kit®	180 STD	NA	NA	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
1830-702	9B Replacement Pilot Uni-Kit®	STD	NA	NA	NA	Orifices
66705 (SA)	LP pilot, 6CH14-10	6	NA	3-Way	NA	Orifices

Product Drawings

Hood Type

Mounting Bracket Type

Flame Pattern Type



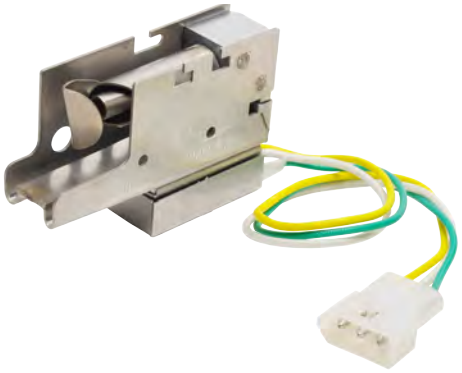
ELECTRONIC PILOT BURNER SAFETY SWITCH

1830 Series

The Robertshaw® 1830 Series Pilot Burner Safety Switch is an ignition control with an embedded safety switch. The control's sensing technology automatically detects when a flame is not present and shuts off gas flow to help prevent an unsafe condition. This hard-to-find part is a key replacement component for over 1,700 Carrier, Payne, Bryant and Daynight (BPD) furnace models.

Features and Benefits

- Differential expansion pilot with a 3-lead SPDT switch for use with a hot surface ignitor or spark ignition
- Yellow, white and green wires with Molex plug adaptor
- Pilot includes flame sensing, heat activated relay at base of pilot module



1830-620

Specifications

Part Numbers	Description	Switch	Orifice Size	Inlet Pressure	Input Rating	Dimensions	Electrical Rating
1830-620	Pilot Burner Safety Switch	SPDT	.017	7.0" W.C.	950 BTU/Hr	4.7"L x 3"W x .7"H	30V AC, 60 Hz, 1 Amp

Replacement Information

Part Numbers	Replaces
1830-620	740A, 535-740A, LH680005, 535-740, P671-1406, CARL38999, CAR1830620

1 Year Limited Warranty

Robertshaw®

THERMOCOUPLES

1960 Series

1970 Series

1980 Series

Thermocouple Series

The Robertshaw® Thermocouple Series includes the 1900, 1960-027, 1970 and 1980 models. The 1960-027 thermocouple is a special low-mass or quick dropout thermocouple. The 1960-027 is usually used on applications that require an oxygen depletion system on the thermo safety. It is also used on many LP gas applications that require a quick dropout of the thermo safety if there is a loss of pilot flame.

The Robertshaw 1900 Series and 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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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

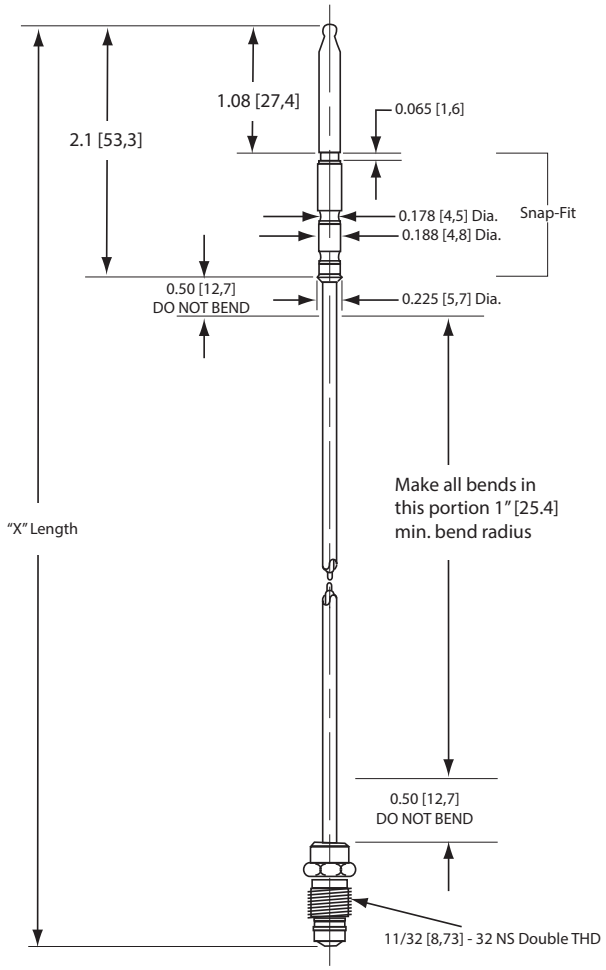
Part Numbers	Description	"inches" Length (cm)
1900-018	T-46 Thermocouple	18" (45cm)
1900-024	T-46 Thermocouple	24" (60cm)
1900-030	T-46 Thermocouple	30" (76cm)
1900-036	T-46 Thermocouple	36" (91cm)
1900-048	T-46 Thermocouple	48" (120cm)
1900-072	T-46 Thermocouple	72" (182cm)
1960-027	Low Mass Thermocouple	27" (68cm)
1970-018	Uni-Couple® 20 to 30 Millivolts	18" (45cm)
1970-024	Uni-Couple 20 to 30 Millivolts	24" (60cm)
1970-030	Uni-Couple 20 to 30 Millivolts	30" (76cm)
1970-036	Uni-Couple 20 to 30 Millivolts	36" (91cm)
1970-048	Uni-Couple 20 to 30 Millivolts	48" (120cm)
1970-060	Uni-Couple 20 to 30 Millivolts	60" (152cm)
1970-072	Uni-Couple 20 to 30 Millivolts	72" (182cm)
1980-012	Snap-Fit Thermocouple	12" (30cm)

Specifications - continued

Part Numbers	Description	"inches" Length (cm)
1980-018	Snap-Fit Thermocouple	18" (45cm)
1980-024	Snap-Fit Thermocouple	24" (60cm)
1980-030	Snap-Fit Thermocouple	30" (12cm)
1980-036	Snap-Fit Thermocouple	36" (91cm)
1980-048	Snap-Fit Thermocouple	48" (120cm)
1980-060	Snap-Fit Thermocouple	60" (152cm)
1980-072	Snap-Fit Thermocouple	72" (182cm)
1980-818 (CAN)	Snap-Fit Thermocouple	18" (45cm)
1980-824 (CAN)	Snap-Fit Thermocouple	24" (60cm)
1980-830 (CAN)	Snap-Fit Thermocouple	30" (12cm)
1980-836 (CAN)	Snap-Fit Thermocouple	36" (91cm)

Product Drawings

1980 Series



1 Year Limited Warranty

Robertshaw®

THERMOPILES

1950-001

1951-001

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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Features and Benefits

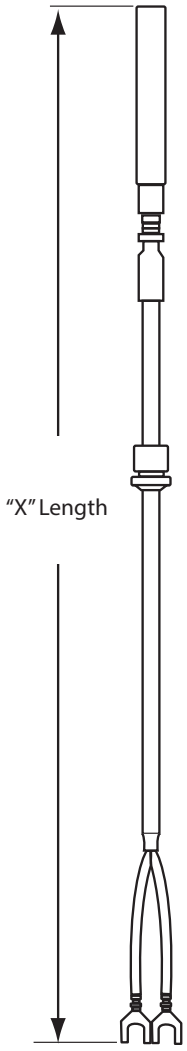
- Easy burner installation with attached threaded nut
- Stainless steel outer jacket for long life and resistance to heat blistering
- Combination of copper and nickel alloys for good electrical conductivity
- Mica washer to insulate from shorting conditions
- Tinnerman clip included
- Various lengths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

Specifications

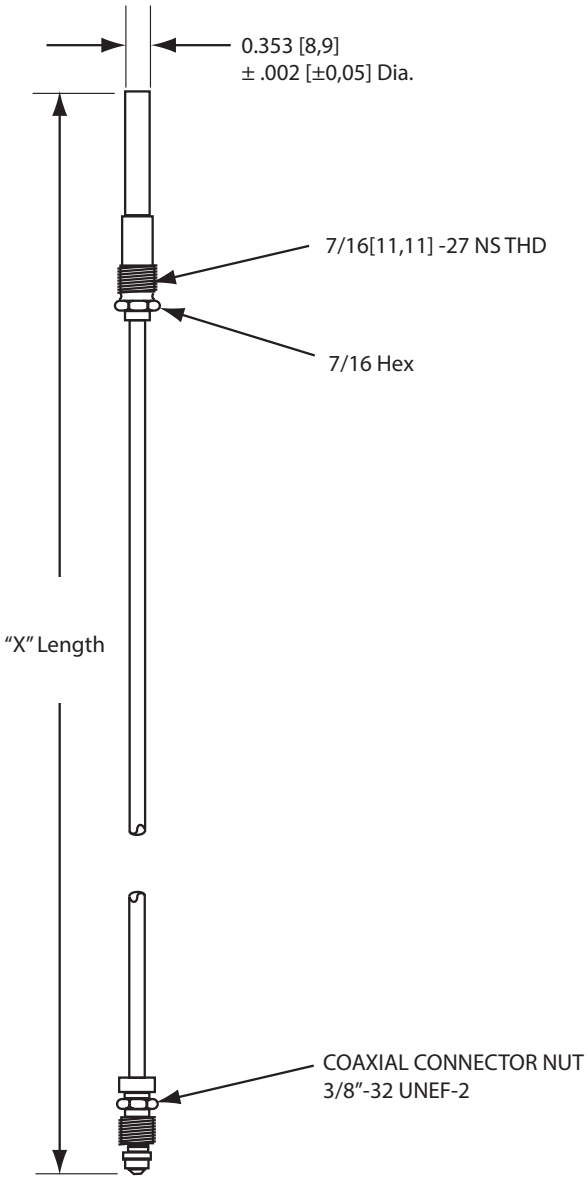
Part Numbers	Description	"X" Length	Includes	Connection Type	Open Circuit Output
1950-001	Thermopile	36" (91cm)	PG9 Pilot Adaptor	Two Lead	250-750 mV
1950-002	Thermopile	48" (120cm)	PG9 Pilot Adaptor	Two Lead	250-750 mV
1950-532	Thermopile	36" (91cm)	NA	Two Lead	250-750 mV
1951-001	Thermopile	36" (91cm)	PG9 Pilot Adaptor	Coaxial	250-750 mV
1951-536	Thermopile	36" (91cm)	NA	Coaxial	250-750 mV
21424 (SA)	Unitrol® 110 Thermopile	914mm	NA	Two Lead	NA

Product Drawings

1950 Series



1951 Series



Robertshaw®

1 Year Limited Warranty

Robertshaw®

AIR PRESSURE SENSING SWITCHES

2374-510

10-650

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

CE

C SP® US

2 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 adjustable ranges. Both models are provided 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.

2374-495

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

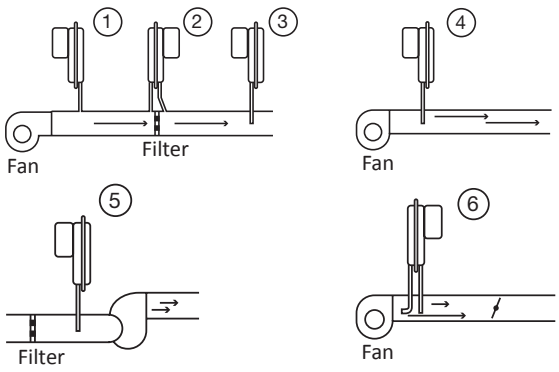
Specifications

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°C to 88°C)	5 Amps @ 120-277V 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°C to 88°C)	5 Amps @ 120-277V AC, 5 Amps @ 28V DC, 1 Amp Pilot Duty 120 VA
2374-499	Adjustable Air Sensing Switch	SPDT	0.05" to 12" WC	0.5 PSI	-40°F to 190°F (-40°C to 88°C)	5 Amps @ 120-277V 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

10-227

10-760

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
10-681	Flame Sensor	NA
10-760	Flame Sensor Assembly	Full assembly

HEATING ACCESSORIES

1751-729

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" (60cm)	Includes ignitor/sensor assembly, mounting bracket and hardware
1751-749	Universal Pilot Mounting Ignitor Sensor	72" (182cm)	Includes ignitor/sensor assembly, mounting bracket and hardware

1 Year Limited Warranty

HEATING ACCESSORIES

Pilot Orifices

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

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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"
10-066	Pilot Orifice for Heating or Cooking	Natural Gas	3/16"	0.018"
10-067	Pilot Orifice for Heating or Cooking	LP	3/16"	0.010"
10-114	Pilot Orifice for Heating or Cooking	LP	3/16" or 1/4"	0.010"
10-166	Pilot Orifice for Heating or Cooking	LP	1/4"	0.011"
10-168	Pilot Orifice for Heating or Cooking	Natural Gas	1/4"	0.018"
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 ASTMB 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"

1 Year Limited Warranty

Robertshaw®

HEATING ACCESSORIES

1751-012

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.robertshaw.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
82020 (SA)	Beige knob dial

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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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
4590-170	Male Compression Nut and Ball Sleeves	1/4" to 3/16" Reducer	Package of 12
4590-816	Extended Breakaway Ferrules	1/4" Extended	Package of 15

1 Year Limited Warranty

Schneider Electric™

VP229E-25S-L75-S101

PRESSURE INDEPENDENT BALANCING AND CONTROL VALVES

SmartX PIBCV Valves and Actuators Series

Schneider Electric™ Smart Pressure Independent Balancing and Control Valves (PIBCV) and Actuators Series are automatic balancing and control valves that provide flow limitation with full control authority over hydronic regulation. Typical applications include temperature control of chillers, air handling units, heat exchangers and terminal units such as fan coils, induction units and radiant panels.

Features and Benefits

- Compact design integrates the valve, flow limiter and pressure regulator
- Selection is based on coil flow rate, eliminating the need for Cv calculations
- Modular design enables straightforward installation
- Performs a continual balancing function to maintain system performance at varying loads
- Predictable flow throughout valve travel eliminates over-pumping and saves energy
- Constant flow performance reduces actuator movement, hunting, and wear on the valve assembly
- Allows simple troubleshooting during system operation

Specifications

Part Numbers	Description	Temperature Range	Electrical Rating	Size	Flow Rate	Valve Design
VP229E-25S-L75-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	1”	7.5 GPM	PR (Proportional)
VP229E-32S-014-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	1.25”	14 GPM	PR (Proportional)
VP229E-15HN-L25-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5”	2.5 GPM	PR (Proportional
VP228E-15S-L15-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5”	1.5 GPM	PR (Proportional)
VP228E-15SN-L20-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5”	2 GPM	PR (Proportional)
VP228E-15S-L20-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5”	2 GPM	PR (Proportional)
VP228E-15SN-L15-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5”	1.5 GPM	PR (Proportional)
VP228E-20S-L40-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.75”	4 GPM	PR (Proportional)
VP229E-15HN-L35-U301 (CAN)	Valve Assembly	32°F to 55°F (0°C to 131°C)	24V AC	.5”	3.5 GPM	FLPR (Floating and Proportional)
VP228E-15LN-L10-U301 (CAN)	Valve Assembly	32°F to 55°F (0°C to 131°C)	24V AC	.5”	1 GPM	FLPR (Floating and Proportional)
VP228E-20S-L40-U201 (CAN)	Valve Assembly	32°F to 55°F (0°C to 131°C)	24V AC	.75”	4 GPM	FLPR (Floating and Proportional)

Specifications - continued

Part Numbers	Description	Temperature Range	Electrical Rating	Size	Flow Rate	Valve Design
VP228E-15LN-L10-S101 (CAN)	Valve Assembly	-40°F to 158°F (-40°C to 70°C)	24V AC	.5"	1 GPM	PR (Proportional)
VP220E-40S-018-U231 (CAN)	Valve Assembly	-13°F to 149°F (-25°C to 65°C)	24V AC, 24V DC	1.5"	18 GPM	FLPR (Floating and Proportional)
VP228E-15SN-L20-U301 (CAN)	Valve Assembly	32°F to 55°F (0°C to 131°C)	24V AC	.5"	1.5 GPM	FLPR (Floating and Proportional)
VP229E-32S-014-U201 (CAN)	Valve Assembly	32°F to 55°F (0°C to 131°C)	24V AC	1.25"	14 GPM	FLPR (Floating and Proportional)

Schneider Electric™

1 Year Limited Warranty

Schneider Electric™

MOTORIZED ACTUATOR

Erie® PopTop™ Two-Position Zone Valves and Actuators Series

Erie® PopTop™ Motorized Valves and Actuators are suitable for the control of hot and chilled water in terminal unit applications such as fan coil units and baseboard heating.

Features and Benefits

- One-handed engagement or removal of the motorized actuator to the valve body
- Valve actuator can be easily attached after the valve body has been installed into the system
- Mounts quickly and easily without the need of linkages or calibration
- Available in 2-way and 3-way port configurations
- Available factory coupled, or as individual bodies and actuators
- Direct replacement for all existing PopTop™ applications
- Rugged 300 PSG rated brass forged body design for long life

Specifications

Part Numbers	Description	Temperature Range	Lead Wire Length	Electrical Rating	Comments
AG13A02A (CAN)	Motorized Actuator	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)	18" (45.7cm)	24V AC, 50/60 Hz	Includes auxiliary end switch
AG13A020 (CAN)	Motorized Actuator	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)	18" (45.7cm)	24V AC, 50/60 Hz	
AG23A020 (CAN)	Motorized Actuator	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)	18" (45.7cm)	24V AC, 50/60 Hz	
AG13B020 (CAN)	Motorized Actuator	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)	18" (45.7cm)	110-120V AC, 60 Hz	
AG23A02A (CAN)	Motorized Actuator	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)	18" (45.7cm)	24V AC, 50/60 Hz	

FLARE FITTINGS

Erie® PopTop™ Two-Position Zone Valves and Actuators Series

The Erie® PopTop™ Inverted Flare Fitting is used for attaching tubing to Erie PopTop zone valves. The fittings are compatible with zone valve bodies with 3/4" inverted flare connections.

Specifications

Part Numbers	Description	Diameter Size	Length
436-252 (CAN)	Sweat Female Tube & Nut Assembly	3/4" Tubing	1-27/32"
436-220 (CAN)	Sweat Female Tube & Nut Assembly	1/2" Tubing	1-1/16"

1 Year Limited Warranty

ZONE VALVES

Erie® PopTop™ Two-Position Zone Valves and Actuators Series

Erie® PopTop™ Motorized Valves and Actuators are suitable for the control of hot and chilled water in terminal unit applications such as fan coil units and baseboard heating.

Features and Benefits

- One-handed engagement or removal of the motorized actuator to the valve body
- Valve actuator can be easily attached after the valve body has been installed into the system
- Mounts quickly and easily without the need of linkages or calibration
- Available in 2-way and 3-way port configurations
- Available factory coupled, or as individual bodies and actuators
- Direct replacement for all existing PopTop™ applications
- Rugged 300 PSG rated brass forged body design for long life

Specifications

Part Numbers	Description	Body Style	Size	Connection Type	Flow Setting	Temperature Range
VT2343 (CAN)	Zone Valve	2-Way	3/4"	Inverted Flare	3.5 Cv (3 Kv)	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)
VT3343 (CAN)	Zone Valve	3-Way	3/4"	Inverted Flare	4 Cv (3.5 Kv)	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)
VT2323 (CAN)	Zone Valve	2-Way	3/4"	Threaded NPT	3.5 Cv (3 Kv)	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)
VT2427 (CAN)	Zone Valve	2-Way	1"	Threaded NPT	8 Cv (7 Kv)	32°F to 200°F (Fluid) @ 104°F (Ambient) (0°C to 93°C @ 40°C)

VALVE ACCESSORIES

Erie® Valve Accessory Series

The Erie® Valve Motor is a replacement motor for Erie Classic G and L Dampers. Class "F" Rated.

The Erie® T200 Series thermostats provide temperature control on a variety of heating, cooling and single stage heat pump applications.

Specifications

Part Numbers	Description	Application	Dial Temperature	Electrical Rating	Size	Termina-tions	Comments
30-118-A (CAN)	Motor Valve	NA	NA	24V AC, 50/60 Hz	NA	NA	NA
30-118-B (CAN)	Motor Valve	NA	NA	110/120V AC, 50/60 Hz	NA	NA	NA
KEL-31-100 (CAN)	Mechanical Thermostats	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	50°F to 90°F +/- 2°F (10°C to 32°C) +/- 1°C	24-30V AC, 1 Amp maximum	4.50" x 2.75" x 1.25" (11.4cm x 7cm x 3.2cm)	W, Y, R	Celcius model

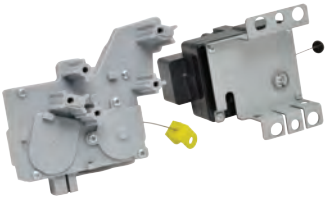
Schneider Electric™

1 Year Limited Warranty

Cleanliness is important in all areas of life. Robertshaw® controls keep clothes washing and dishwashing equipment running smoothly to assist you in the quest for cleanliness. Turn to quality Robertshaw controls for all your commercial and residential laundry appliance needs.

Pressure Sensors E2
Accessories E3

LAUNDRY



Robertshaw®

F301C

PRESSURE SENSOR

F3 Series

The Robertshaw® F3 Linear Pressure Sensor is a transducer engineered to measure the level of water in a washing machine tank. The sensor continuously informs the main electronic control about the water level to control it during all phases of the wash program. The F3 sensor is designed to improve energy efficiency and water consumption constantly.

Features and Benefits

- Class II insulated sensor
- Tolerances calibrated around one preferred working point (0-700 Pa)
- Analog frequency output (Hz)
- High pressure accuracy along all the calibrated pressure range
- No offset, zero drift, low hysteresis
- Allows for use by main electronic control units of washing machines by being PEC (Protective Electronic Circuit)
- Strong immunity from internal and external interference like EMI and induced magnetic fields
- Conforms to EC Standard IEC 60730-1 and IEC 60730-2-6
- Life time 100,000 cycles in active mode
- Made in EU

Specifications

Part Numbers	Description	Calibrated Pressure Range	Frequency	Resolution	Pressure Range	Temperature Range	Current Consumption	Electrical Rating
F301C (EU)	Pressure Sensor	0-3000 Pa	625 Hz	8 Pa	30 Pa up to 800 Pa	68°F to 176°F (-20°C to 80°C)	10 mA	5V DC

Replacement information

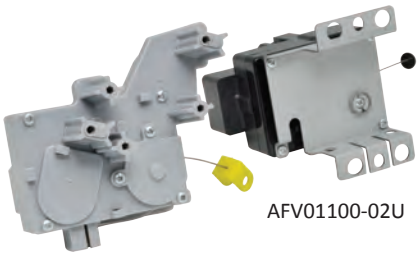
OEM Brand	OEM Equivalent Part Code
Bosch	BSH 9000605830 BOSCH-SIEMENS 00622474

CE

ACCESSORIES

Laundry Accessories Series

The Robertshaw® Laundry Acessories Series includes a Brake Actuator which functions as a safety device to block the washing machine's drum as per the programmed commands or on opening a vertical washing machine's lid.



AFV01100-02U

Specifications

Part Numbers	Description	Application	OEM Code	Electrical Rating
AFV01100-02U (SA)	Brake Actuator	Brastemp/Consul	326.055.533	127V AC/60 Hz
AFV01200-02U (SA)	Brake Actuator	Brastemp/Consul	326.055.534	220V AC/60 Hz
AFV09100-02U (SA)	Brake Actuator	Electrolux	64.484.603	127V AC/60 Hz
AFV09200-02U (SA)	Brake Actuator	Electrolux	64.484.604	220V AC/60 Hz

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®, Paragon® and AKO brands are trusted in commercial refrigeration for ease-of-use, performance, reliability and innovation.

Defrost Timers - Auto Voltage F2
Defrost Timers - Electromechanical F8
Defrost Timers - Electronic F12
Defrost Modules F16
Residential and Light Commercial Defrost Timers F17
Electronic Controls F18
Temperature Controls - Cold Controls F20
Temperature Controls - Specialty Applications F32
Lube Oil Controls F35
Temperature Controls - Wide Range F36
Pressure Controls F38
Mini Pressure Sensors F42
Refrigeration Accessories F43
Reversing Valves F44
Copper Products F46
Reversing Valves - Solenoid Coils F48
Low Temperature Limit Controls F49
Refrigeration Regulators F50
Refrigerator Air Dampers F51
AKO Electronic Controls F52
AKO Accessories F57

REFRIGERATION

PARAGON®

DEFROST TIMERS - AUTO VOLTAGE

8145-AV

8000 Series

The Paragon® 8000 Series Auto Voltage Defrost Timer is designed for commercial freezers and refrigerators. Paragon Defrost Controls have provided reliable automatic defrost capability for decades. They accommodate various types of defrost systems including electric defrost heaters, hot gas, and compressor off cycle.

This all-in-one auto voltage defrost timer replaces over 40 competitive voltage-specific mechanical defrost timers, eliminating the need for a separate short cycle timer and single-phase voltage monitor. The 8145-AV will become a mainstay in any contractor's truck. The 8145-AV reduces installation time, and minimizes the number of SKUs to stock.

Features and Benefits

- Replaces over 40 competitive models
- Now available in 50 Hz and 60 Hz models
- Auto voltage automatically adjusts for 120-277V AC
- Compressor contacts 3HP
- Heater/fan contacts 2HP
- LED indicators for defrost and refrigeration cycles
- Built-in permanent housing protects components from damage
- Mounts into existing enclosures, no tools required
- Real-time clock face for easy accurate settings
- Defrost times programmable in 15-minute intervals with captive trippers
- Heavy-duty steel enclosure with knockouts (on the bottom, back and side) and hasp
- Mechanism only models also available 8145-AV-M (60 Hz model) and 8145-AV50M (50 Hz model)

Replacement Information

Supco	Grasslin/Intermatic	Precision	Paragon
S804100	DTAV40	6041-0	8041-00
S804120	DTAV40IM	6045-0	8041-20
S804500	DTAV40M	6045-20	8043-00
S804520	G8045-00	6141-0	8043-20
S814100	G8045-20	6141-20	8045-00
S814120	G8145-00	6145-20	8045-20
S814500	G8145-20		8045-21
S814520			8046-00
M814520			8046-20
			8047-00
			8047-20
			8141-00
			8141-20
			8141-21
			8143-00
			8143-20
			8145-00
			8145-20
			8145-21
			8243-20
			8245-20
			8247-20

Ratings Terminal 3 and 5

40A	Resistive	120-277V AC
3HP	Motor	240V AC
1.5HP	Motor	120V AC
720VA	Pilot Duty	120-240V AC

Ratings Terminal F and 2

30A	Resistive	120-277V AC
2HP	Motor	240V AC
1/4HP	Motor	120V AC
290VA	Pilot Duty	120-240V AC

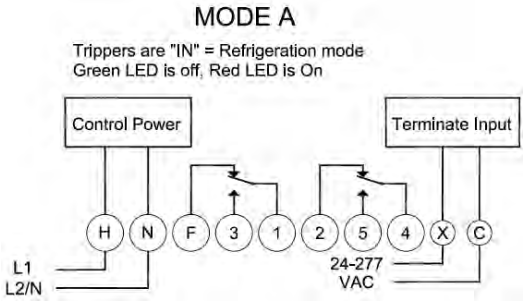
c UL us LISTED
Listed Product

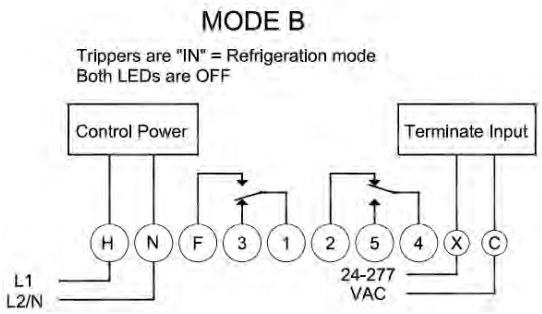
Specifications - for all models

Part Numbers	Description	Normally Open Contact Terminal 3 and 5	Normally Closed Contact Terminal F and 2
8145-AV 8145-AV-M	Auto Voltage Defrost Timer in Metal Casing 60 Hz Auto Voltage Defrost Timer Mechanism Only 60 Hz	40A Resistive 120-240V AC 3HP Motor 240V AC 1.5HP Motor 120V AC 720VA Pilot Duty 120-240V AC	30A Resistive 120-240V AC 2HP Motor 240V AC 1/4HP Motor 120V AC 290VA Pilot Duty 120-240V AC
8145-AV50 8145-AV50M	Auto Voltage Defrost Timer in Metal Casing 50 Hz Auto Voltage Defrost Timer Mechanism Only 50 Hz	40A Resistive 120-240V AC 3HP Motor 240V AC 1.5HP Motor 120V AC 720VA Pilot Duty 120-240V AC	30A Resistive 120-240V AC 2HP Motor 240V AC 1/4HP Motor 120V AC 290VA Pilot Duty 120-240V AC

Product Drawings

8145-AV

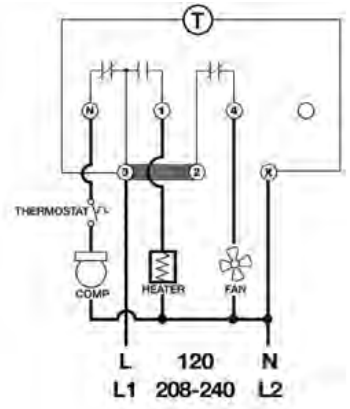


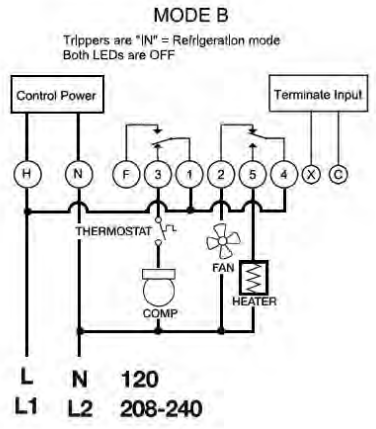


Applying power (24-277V AC) between Terminate Input terminals "X" and "C" causes the unit to return to Refrigeration Mode. If the Terminate input voltage is removed while the trippers are ON, the unit remains in the Refrigeration Mode. The unit remains in Refrigeration until both the Terminate input voltage is removed and the trippers cycle OFF then ON again.

8041-00 and 8041-20

Electric Heat Defrosting





8145-AV	H (L/L1)	N (N/L2)	F	3 COMP	1 (L/L1)	2 FAN	5 HEATER	4 (L/L1)	X	C
8041-00 8041-20	3 (L/L1)	X (N/L2)		N	3 (L/L1)	4	1	3 (L/L1)		
DTAV40	3 (L/L1)	X (N/L2)		4	2 (L/L1)	N	1	3 (L/L1)		

1 Year Limited Warranty

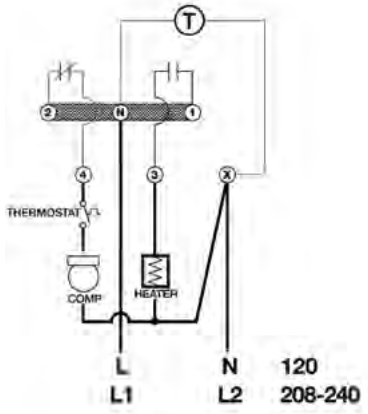
Customer Service: See Page J21

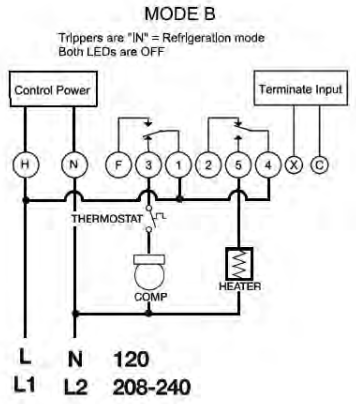
PARAGON®

Product Drawings

8045-00 and 8045-20

Electric Heat Defrosting

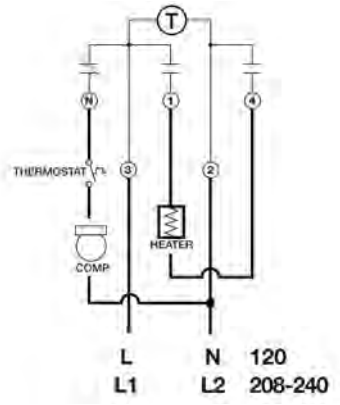


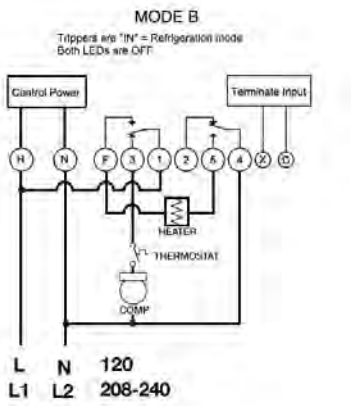


8145-AV	H (L/L1)	N (N/L2)	F	3 COMP	1 (L/L1)	2	5 HEATER	4 (L/L1)	X	C
8045-00 8045-20	N (L/L1)	X (N/L2)		4	N (L/L1)		3	N (L/L1)		
DTAV40	1-N (L1)	X (L2)		4	1-N (L1)		3	2 (L1)		

8047-00 and 8047-20

Electric Heat Defrosting



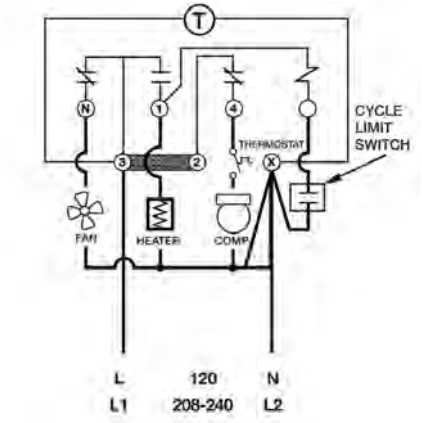


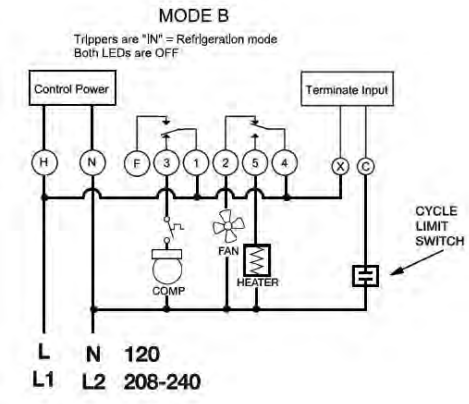
8145-AV	H (L/L1)	N (N/L2)	F HEATER	3 COMP	1 (L/L1)	2	5 HEATER	4 (N/L2)	X	C
8047-00 8047-20	3 (L/L1)	2 (N/L2)	1 HEATER	N COMP	3 (L/L1)		4 HEATER	2 (N/L2)		
DTAV40	3 (L/L1)	2 (N/L2)	1 HEATER	N COMP	3 (L/L1)		4 HEATER	2 (N/L2)		

Product Drawings

8141-00 and 8141-20

Electric Heat Defrosting (Cycle Limit Switch)

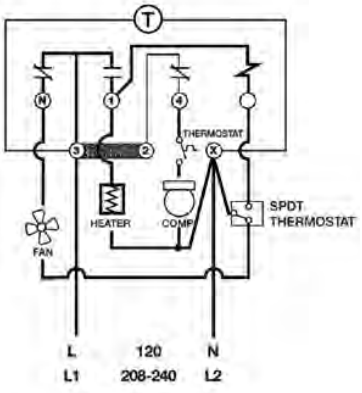


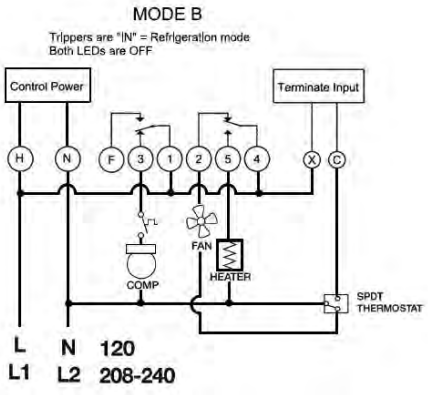


8145-AV	H (L/L1)	N (N/L2)	F	3 COMP	1 (L/L1)	2 FAN	5 HEATER	4 (L/L1)	X (L/L1)	C LIMIT
8141-00 8141-20	3 (L/L1)	X (N/L2)		4 COMP	3 (L/L1)	N FAN	1 HEATER	3 (L/L1)	3 (L/L1)	INPUT LIMIT

8141-00 and 8141-20

Electric Heat Defrosting (SPDT Thermostat)





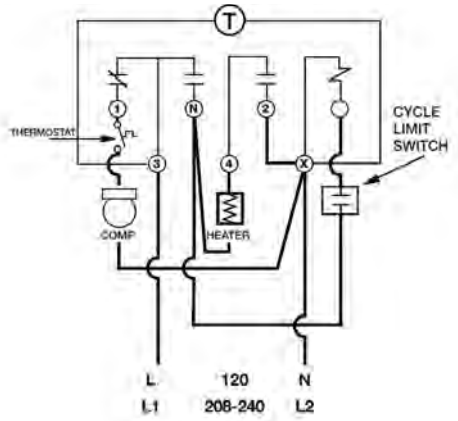
8145-AV	H (L/L1)	N (N/L2)	F	3 COMP	1 (L/L1)	2 FAN	5 HEATER	4 (L/L1)	X (L/L1)	C SPDT
8141-00 8141-20	3 (L/L1)	X (N/L2)		4 COMP	3 (L/L1)	N FAN	1 HEATER	3 (L/L1)	3 (L/L1)	INPUT SPDT
DTAV40	3 (L/L1)	X (N/L2)		4 COMP	2 (L/L1)	N FAN	1 HEATER	3 (L/L1)	3 (L/L1)	INPUT SPDT

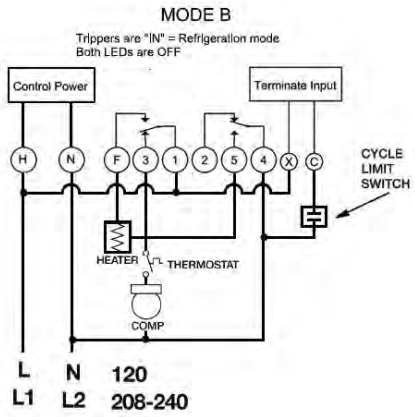
PARAGON®

Product Drawings

8143-00 and 8143-20

Electric Heat Defrosting (Cycle Limit Switch)

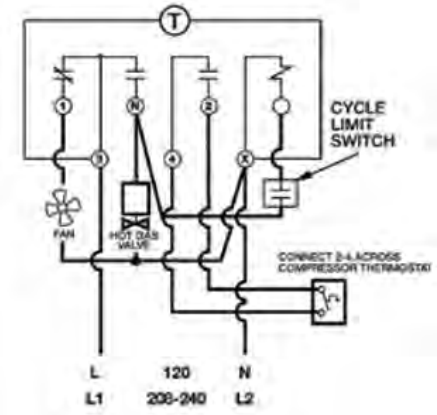


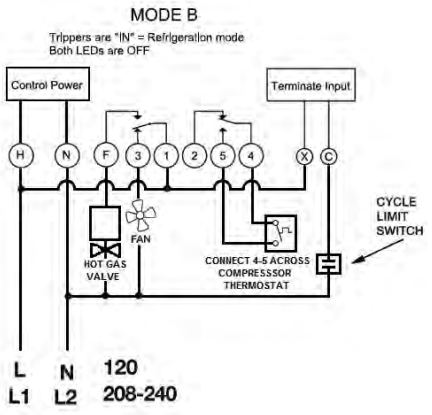


8145-AV	H (L/L1)	N (N/L2)	F HEATER	3 COMP	1 (L/L1)	2	5 HEATER	4 (N/L2)	X (L/L1)	C LIMIT
8143-00 8143-20	3 (L/L1)	X (N/L2)	N HEATER	1 COMP	3 (L/L1)		4 HEATER	X (N/L2)	3 (L/L1)	INPUT LIMIT
DTAV40	3 (L/L1)	X (N/L2)	N HEATER	1 VALVE	3 (L/L1)		4 HEATER	2 (N/L2)	3 (L/L1)	INPUT STAT

8143-00 and 8143-20

Hot Gas Defrosting (Cycle Limit Switch)



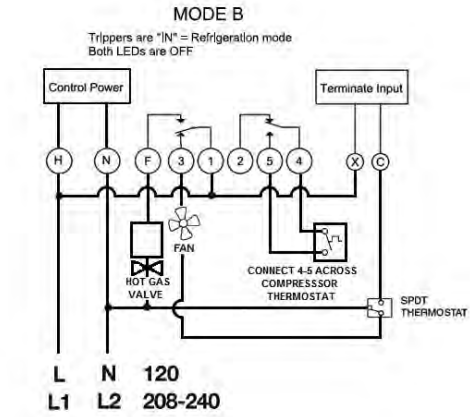


8145-AV	H (L/L1)	N (N/L2)	F H GAS	3 FAN	1 (L/L1)	2	5 TSTAT	4 TSTAT	X (L/L1)	C LIMIT
8143-00 8143-20	3 (L/L1)	X (N/L2)	N H GAS	1 FAN	3 (L/L1)		2 TSTAT	4 TSTAT	3 (L/L1)	INPUT LIMIT

Product Drawings

8143-00 and 8143-20

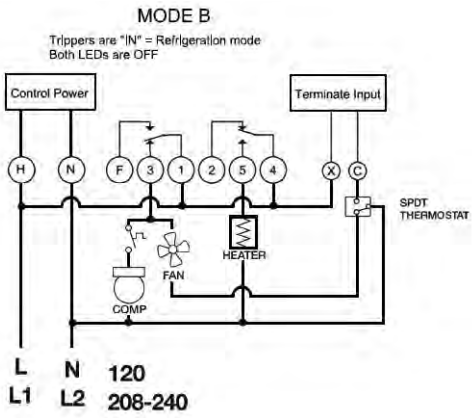
Hot Gas Defrosting (SPDT Thermostat)



8145-AV	H (L/L1)	N (N/L2)	F H GAS	3 FAN	1 (L/L1)	2	5 TSTAT	4 TSTAT	X (L/L1)	C SPDT
DTAV40	3 (L/L1)	X (N/L2)	N H GAS	1 FAN	3 (L/L1)		2 TSTAT	4 TSTAT	3 (L/L1)	INPUT SPDT

8145-00 and 8145-20

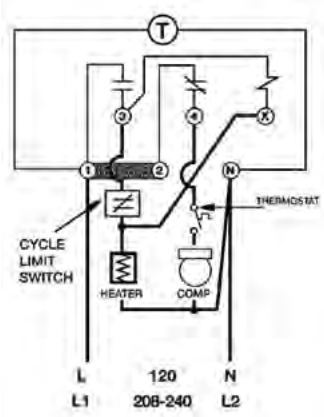
Electric Heat Defrosting (SPDT Thermostat)

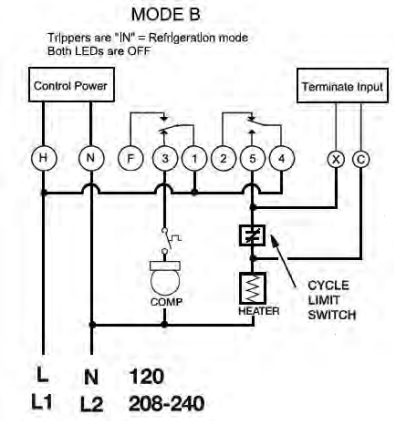


8145-AV	H (L/L1)	N (N/L2)	F	3 COMP FAN	1 (L/L1)	2	5 HEAT-ER	4 (L/L1)	X (L/L1)	C SPDT
DTAV40	1 (L/L1)	N (N/L2)		4 COMP FAN	2 (L/L1)		3 HEAT-ER	1 (L/L1)	1 (L/L1)	X SPDT

8145-00 and 8145-20

Electric Heat Defrosting (Cycle Limit Switch)





8145-AV	H (L/L1)	N (N/L2)	F	3 COMP	1 (L/L1)	2	5 LIMIT	4 (L/L1)	X 5/LIMIT	C HEATER/ LIMIT
8145-00 8145-20	1 (L/L1)	N (N/L2)		4 COMP	1 (L/L1)		3 LIMIT	1 (L/L1)		X HEATER/ LIMIT

PARAGON®

DEFROST TIMERS - ELECTROMECHANICAL

8045-00

8245-20

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 contaminates
- 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 6cycles per day with a minimum of 4 hours between successive operations
- Adjustable back-up defrost termination from 4 to 110minutes 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

c UL us LISTED Listed Product

c UL us Recognized Component

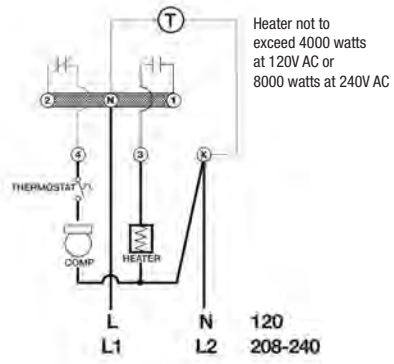
Specifications

Part Numbers	Description	Switch Arrangement Contacts 2-4	Switch Arrangement Contacts 1-3	Switch Arrangement Contacts 3-N	Termination Type	Electrical Rating
8041-00	Electric Heat	Closed	Open	Closed	Time	120V AC 60 Hz
8045-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Time	120V AC 60 Hz
8045-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Time	208-240V AC 60 Hz
8045-21	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Time	208-240V AC 50 Hz
8141-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	Closed	Temperature or Pressure	120V AC 60 Hz
8141-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	Closed	Temperature or Pressure	208-240V AC 60 Hz
8145-00	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	120V AC 60 Hz
8145-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	208-240V AC 60 Hz
8145-20M	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	208-240V AC 60 Hz
8145-20B	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	208-240V AC 60 Hz
8245-21	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Pressure	208-240V AC 50 Hz
8245-20	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Pressure	208-240V AC 60 Hz
D81-8145-00EX (ANZ, EU, MEX, SA)	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	120V AC 60 Hz
D81-8145-20EX (ANZ, EU, MEX, SA)	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	208-240V AC 60 Hz
D81-8145-21EX (ANZ, EU, MEX, SA)	Electric Heat, Hot Gas or Compressor Shutdown	Closed	Open	None	Temperature or Pressure	208-240 AC 50 Hz

Product Drawings

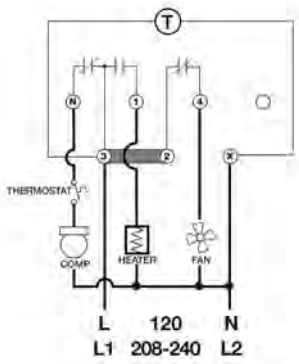
Electric Heat Defrosting

Models 8045-00 and 8045-20 - Wiring Diagram

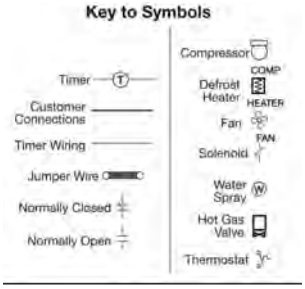


Heater not to exceed 4000 watts at 120V AC or 8000 watts at 240V AC

Models 8041-00 and 8041-20 - Wiring Diagram



Fan and compressor loads not to exceed 2 hp. Heater not to exceed 4000 watts at 120V AC or 8000 watts at 240V AC



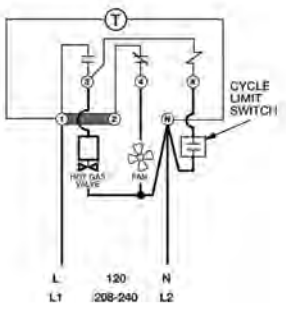
1 Year Limited Warranty

PARAGON®

Product Drawings

Hot Gas Defrosting

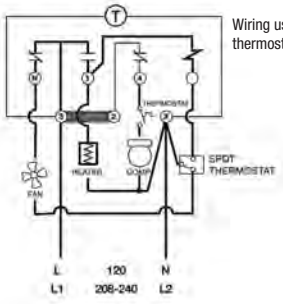
Models 8145-00, 8145-20, E357-00, D81-8145-ZIEX Wiring Diagram



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

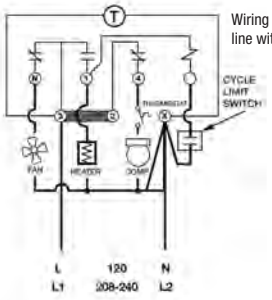
Electric Heat Defrosting

Models 8141-00 and 8141-20 - Wiring Diagram



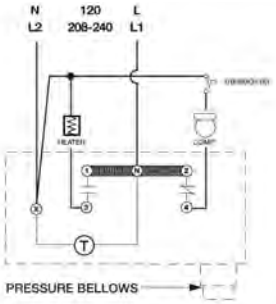
Wiring using differential of SPDT thermostat to delay fan after defrosting

Models 8141-00, 8141-20 - Wiring Diagram

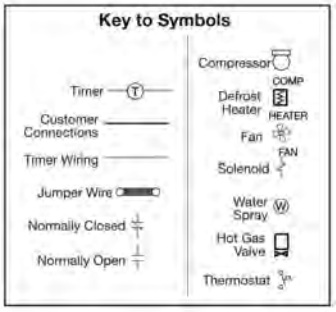


Wiring using 120V or 240V single phase line with auxiliary fan circuit

Models 8245-00 and 8245-20 - Wiring Diagram



Wiring for electric heat system without magnetic starter



DEFROST TIMERS - ELECTROMECHANICAL

632 Series

The Paragon® 632 Series Defrost Timers provide an adjustable cycle, time initiated, with one to 8 On/Off operations daily with a minimum of three hours between operations.

Features and Benefits

- Adjustable delay or pump down cycle
- Drain or fan delay cycle adjustable
- Defrost initiation and length adjustable

632-20

Specifications

Part Numbers	Description	Switch Rating	Enclosure	Adjustable Defrost Initiation	Adjustable Delay or Pump Down Cycle	Adjustable Drain or Fan Delay Cycle	Adjustable Length of Defrost	Sequence Switching	High Pressure (Open High) Cut-Out	Electrical Rating
632-00	Defrost Timer	120-240V AC, 10 Amps, 245 VA Switches 2-4 and 3-4 carry 1/2 HP rating	Heavy-Duty Steel	1-8 cycles per day; minimum 3 hours between successive cycles	0-30 minutes; 3 minute graduation: for stopping fans, reducing refrigerant pressure, or hot gas pump down cycle	3-15 minutes; 3 minute graduation	3-45 minutes; 3 minute graduation	2 NO 2 NC	4.75 (2.2)	120V AC
632-20	Defrost Timer	120-240V AC, 10 Amps, 245 VA Switches 2-4 and 3-4 carry 1/2 HP rating	Heavy-Duty Steel	1-8 cycles per day; minimum 3 hours between successive cycles	0-30 minutes; 3 minute graduation: for stopping fans, reducing refrigerant pressure, or hot gas pump down cycle	3-15 minutes; 3 minute graduation	3-45 minutes; 3 minute graduation	2 NO 2 NC	4.75 (2.2)	240V AC

C US

C US Recognized Component

1 Year Limited Warranty

PARAGON®

DEFROST TIMERS - ELECTRONIC

9045-00

9045-00M

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

c UL us LISTED
Listed Product

c RU us
Recognized Component

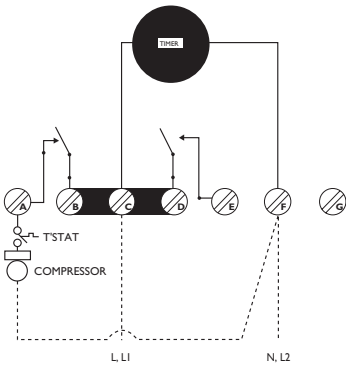
Specifications

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

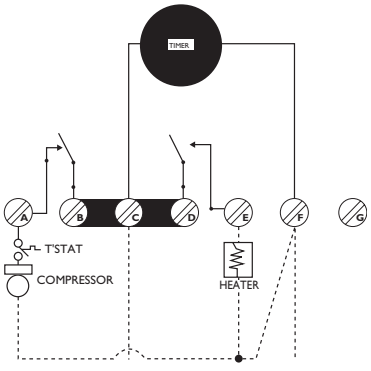
9045 Terminal Data	A	B	C	D	E	F	G
Relay Contact	SPST #1 NC Contact	SPST #1 Common Contact	L1 Power in to Timer	SPST #2 No Contact	SPST #2 Common Contact	L2/N Power in to timer	No Connection
Relay Rating	30 A resistive @ 120 to 240V AC 1 HP @ 120V AC, 2 HP @ 208 to 240V AC				30 A resistive @ 120 to 240V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

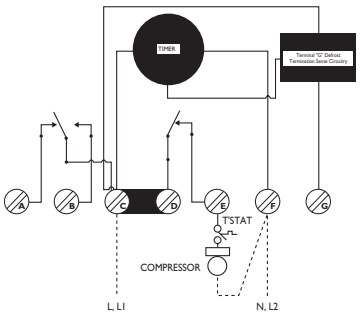


9045 ELECTRIC DEFROST - Time Initiated Time Terminated - Wiring Diagram

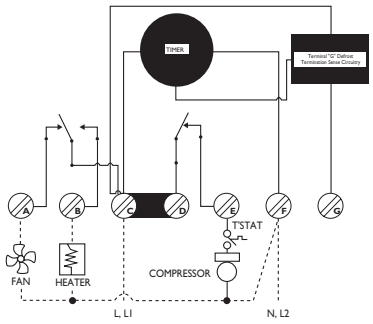
1 Year Limited Warranty

PARAGON®

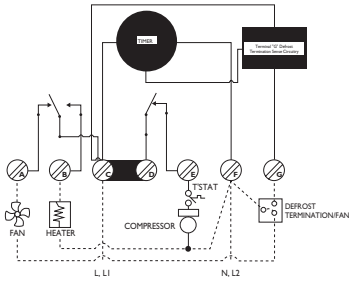
Product Drawings



9145 AIR DEFROST - Time Initiated
Time Terminated - Wiring Diagram



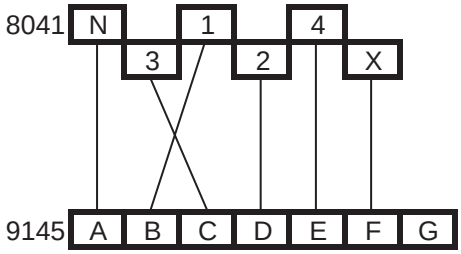
9145 ELECTRIC DEFROST - Time Initiated
Time Terminated - Wiring Diagram



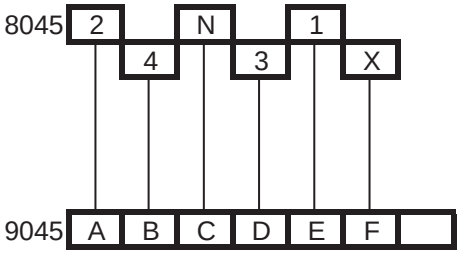
9145 ELECTRIC DEFROST - Time Initiated
Temperature Terminated - Wiring Diagram

Conversion Diagrams for Paragon Mechanical Controls

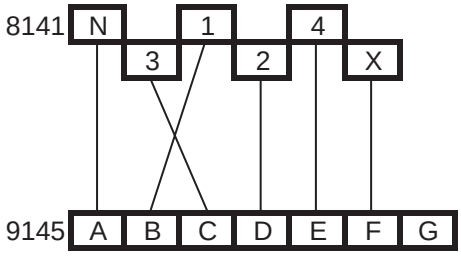
Convert 8041 to 9145



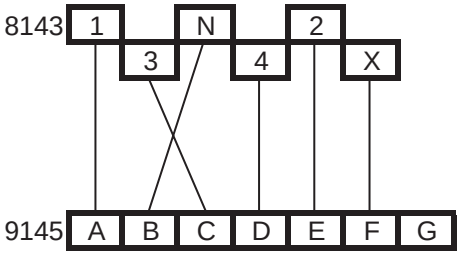
Convert 8045 to 9045



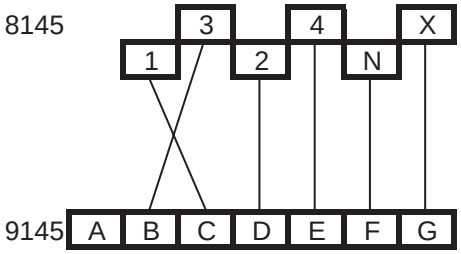
Convert 8141 to 9145



Convert 8143 to 9145



Convert 8145 to 9145



DEFROST TIMERS - ELECTRONIC

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 120-240V 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

ERC2-212111-370

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)	120/208/240V 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

NSF

c UL us LISTED Listed Product

CSA c US

c TÜV us Recognized Component

1 Year Limited Warranty

PARAGON®

RM Series

DEFROST MODULES

RM Series

The Paragon® RM Series includes program and motor modules. Defrost initiation is adjustable from 1-12 operations per circuit, per day; minimum 2 hours required between successive operations. Mechanical defrost termination is adjustable from 6-106 minutes in one-minute increments. Solenoid termination is optional. Instantaneous transfer if solenoid is energized at time of defrost initiation. Two SPDT snap switches per module. 3/16" male push-on switch terminals. Switch rating: 10 Amps, 1/3 HP, 120-240V AC; 345 VA pilot duty.

Features and Benefits

- Extra trippers, part number X-7248 (12 per bag)
- UL Listed and CSA Approved

Specifications

Part Numbers	Description	Circuit	Hour	High Pressure (Open High) Cut-Out	Comments	Electrical Rating
A877-20	RM Series Program Module	Circuit Module	Even Hour	1 (0.5)	With solenoid	208-240V AC, 60 Hz
A878-20	RM Series Motor Module	NA	Drive Module	1 (0.5)	NA	208-240V AC, 60 Hz

C US

c UL us Recognized Component

1 Year Limited Warranty

RESIDENTIAL AND LIGHT COMMERCIAL DEFROST TIMERS

Residential and Light Commercial Defrost Timers Series

The Paragon® Residential and Light Commercial Defrost Timer Series is 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 designs and the newer designs installed for residential as well as light commercial applications.

Features and Benefits

- 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
- Brass contacts for better corrosion protection
- Approved for use in propane based systems

A1401-00

Specifications

Part Numbers	Description	Bulk Quantity	Timing	Electrical Rating
A1400-00	Defrost Timer in Refrigerator	12	6 hours 21 minutes	120V AC 60 Hz 15 Amp 1/2 HP
B1400-00	Defrost Timer in Refrigerator	12	8 hours 20 minutes	120V AC 60 Hz 15 Amp 1/2 HP
A1401-00	Defrost Timer in Refrigerator	12	6 hours 21 minutes	120V AC 60 Hz 15 Amp 1/2 HP
B1401-00	Defrost Timer in Refrigerator	12	8 hours 20 minutes	120V AC 60 Hz 15 Amp 1/2 HP
G1401-00	Defrost Timer in Refrigerator	12	6 hours 25 minutes	120V AC 60 Hz 15 Amp 1/2 HP
A1401-20	Defrost Timer in Refrigerator	12	6 hours 21 minutes	240V AC 60 Hz 8 Amp 1/2 HP
B1401-20	Defrost Timer in Refrigerator	12	8 hours 20 minutes	240V AC 60 Hz 8 Amp 1/2 HP
A1401-21	Defrost Timer in Refrigerator	12	6 hours 21 minutes	240V AC 50 Hz 8 Amp 1/2 HP
B1401-21	Defrost Timer in Refrigerator	12	8 hours 20 minutes	240V AC 50 Hz 8 Amp 1/2 HP
A1402-00	Defrost Timer in Refrigerator	12	8 hours 21 minutes	120V AC 60 Hz 15 Amp 1/2 HP
DJ2000-00	Defrost Timer in Refrigerator	12	4 hours 20 minutes	120V AC 60 Hz 10 Amp 1/3 HP
G1400-00	Defrost Timer in Refrigerator	12	6 hours 25 minutes	120V AC 60 Hz 15 Amp 1/2 HP
G1401-21	Defrost Timer in Refrigerator	12	6 hours 25 minutes	240V AC 50 Hz 8 Amp 1/2 HP
GV3001-00	Defrost Timer in Refrigerator	12	12 hours 21 minutes	120V AC 60 Hz 9 Amp 1/2 HP
GX3001-00	Defrost Timer in Refrigerator	12	10 hours 21 minutes	120V AC 60 Hz 15 Amp 1/2 HP
GY3001-00	Defrost Timer in Refrigerator	12	10 hours 25 minutes	120V AC 60 Hz 15 Amp 1/2 HP
NK2001-21	Defrost Timer in Refrigerator	12	8 hours 7 minutes	208-240V AC 50 Hz 8 Amp 1/2 HP
AF2001-00	Defrost Timer in Refrigerator	NA	12 hours 21 minutes	127V AC 60 Hz 15 Amps
AF2001-20	Defrost Timer in Refrigerator	NA	12 hours 21 minutes	240V AC 60 Hz 5 Amp 1/3 Hp
AF2001-21	Defrost Timer in Refrigerator	NA	12 hours 21 minutes	240V AC 50 Hz 15 Amps
DL2001-21	Defrost Timer in Refrigerator	NA	12 hours 30 minutes	240V AC 50 Hz
EB2001-21	Defrost Timer in Refrigerator	NA	12 hours 30 minutes	240V AC 50Hz
K1400-00	Defrost Timer in Refrigerator	12	10 hours 25 minutes	120V AC 60 Hz 10 Amp 1/3 HP
LJ2001-21	Defrost Timer in Refrigerator	NA	8 hours 7 minutes	240V AC 50Hz
OA1401-00	Defrost Timer in Refrigerator	12	6 hours 21 minutes	120V AC 60 Hz 15 Amp 1/2 HP
OE1401-00	Defrost Timer in Refrigerator	12	8 hours 20 minutes	120V AC 60 Hz 15 Amp 1/2 HP
OA1400-21	Defrost Timer in Refrigerator	NA	6 hours 21 minutes	230V AC 50 Hz 15 Amps
OA1401-21	Defrost Timer in Refrigerator	NA	6 hours 21 minutes	208-240V AC 50 Hz 15 Amps
PF2001-00	Defrost Timer in Refrigerator	NA	8 hours 21 minutes	127V AC 60 Hz 15 Amps
PF2001-20	Defrost Timer in Refrigerator	NA	8 hours 21 minutes	220V AC 60 Hz 15 Amps
PF2001-21	Defrost Timer in Refrigerator	NA	8 hours 21 minutes	240V AC 50 Hz 15 Amps
QE2001-21	Defrost Timer in Refrigerator	NA	6 hours 15 minutes	240V AC 50 Hz 15 Amps
RZ2001-21	Defrost Timer in Refrigerator	NA	4 hours 15 minutes	240V AC 50 Hz
SJ2001-20	Defrost Timer in Refrigerator	NA	8 hours 21 minutes	240V AC 50 Hz 8 Amp 1/2 HP
TX2001-00	Defrost Timer in Refrigerator	NA	12 hours 21 minutes	127V AC 60 Hz 15 Amps
TX2001-20	Defrost Timer in Refrigerator	NA	12 hours 25 minutes	127V AC 60 Hz 15 Amps
WB2001-00	Defrost Timer in Refrigerator	NA	8 hours 8 minutes	127V AC 60 Hz 15 Amps
WB2001-20	Defrost Timer in Refrigerator	NA	8 hours 8 minutes	220V AC 60 Hz 15 Amps
WV2001-59	Defrost Timer in Refrigerator	NA	6 hours 21 minutes	240V AC 50/60 Hz
XC2001-21	Defrost Timer in Refrigerator	NA	8 hours 20 minutes	240V AC 50 Hz
XH2001-21	Defrost Timer in Refrigerator	NA	12 hours 45 minutes	240V AC 50 Hz

RoHS

c UL us Recognized Component

1 Year Limited Warranty

RANCO®

ETC-111000-000

ELECTRONIC CONTROLS

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 120/208/240V AC and 24V AC.

Features and Benefits

- Anti-short cycle compressor delay for cooling applications
- Wide temperature range -30°F to 220°F (-34,4°C to 104,4°C)
- Wide differential adjustment 1°F to 30°F (-17°C to -1°C)
- LCD read-out for sensor temperature, control settings, and relay status
- High Amp output relay (FLA 16 Amps @ 120V AC and 8 Amps @ 208/240V 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
- White backlight on display
- Sensor rated IP67 for dust and water (<1m) resistance

c UL us LISTED
Listed Product

c RU us
Recognized Component

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)	120/208/240V AC	No
ETC-111100-000	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 V 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 V 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 V 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
ETC-241000-000	Electronic Temperature Control	Two	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 V 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	**208/240V AC**	**NO Contact**	**120V AC**	**208/240V 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	**208/240V AC**	**NC Contact**	**120V AC**	**208/240V 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

1 Year Limited Warranty

Customer Service: See Page J21

RANCO®

TEMPERATURE CONTROLS - COLD CONTROLS

A12-701

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 (-12.7°C)	15°F (-9.4°C)	22°F (-5.5°C)	38°F (3.3°C)	39" x 3/8" x 1-3/8"
A12-1560	Constant Cut-In Control	19°F (-7.2°C)	24°F (-4.4°C)	29°F (-1.6°C)	38°F (3.3°C)	72"
A12-700	Constant Cut-In Control	11.5°F (-11°C)	18°F (-7.7°C)	22°F (-5.5°C)	37°F (2.7°C)	84"
A12-701	Constant Cut-In Control	15°F (-9.4°C)	23.5°F (-4.7°C)	31°F (-0.5°C)	41°F (5°C)	84"
9531N320	Constant Cut-In Control	11°F (-11°C)	16°F (-8°C)	21°F (-6°C)	40°F (-4°C)	20.5"
9531N395	Constant Cut-In Control with Pigtail	12°F (-11°C)	19°F (7°C)	25°F (-3°C)	38°F (-3°C)	48.5"
9531N251	Constant Cut-In Control	14°F (-10°C)	18°F (-7.7°C)	22°F (-5.5°C)	40°F (-4°C)	42.5"
9531N388	Constant Cut-In Control with Pigtail	15.8°F (-9°C)	20°F (-6.6°C)	26.6°F (-3°C)	37°F (2.7°C)	33.5"

c UL us 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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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

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 (-11°C)	19°F (-7°C)	27°F (-2°C)	35°F (1°C)	51°F (10°C)	8°F (-13°C)	66"
A22-1112	Adaptable Constant Differential Control	SPST	No	25°F (-3°C)	30°F (-1°C)	34°F (1°C)	39°F (3°C)	44°F (6°C)	5°F (-15°C)	72"
A22-1129	Ice Bin Level and Harvest Control	SPDT	NA	NA	NA	35°F (1°C)	51°F (10°C)	NA	6°F (-14°C)	48"
A30-180	Adaptable Constant Differential Control	SPST	Yes	-4°F (-20°C)	9°F (-12°C)	9° F (-12°C)	22°F (-5°C)	38° F (3°C)	13°F (-10°C)	42"
A30-182	Constant Differential Control	SPST	Yes	0,5°F (-17.5°C)	5.5°F (-14°C)	16°F (-8°C)	22°F (-5.5°C)	30°F (-1°C)	6°F (-14°C)	42"
A30-260	Adaptable Constant Differential Control	SPST	Yes	0.5°F (-17.5 °C)	5.5°F (-14°C)	16°F (-8 °C)	22°F (-5.5°C)	30°F (-1°C)	6°F (-14°C)	72"
A30-261	Adaptable Constant Differential Control	SPST	Yes	32°F (0°C)	38°F (3.3°C)	NA	NA	61°F (16°C)	6°F (-14°C)	84"
A30-262	Adaptable Constant Differential Control	SPST	Yes	0.5°F (-17.5°C)	23°F (-5°C)	11°F (-11°C)	33,5°F (0.83°C)	47°F (8°C)	22.5°F (-5°C)	84"
A30-263	Adaptable Constant Differential Control	SPST	Yes	-24°F (-31°C)	NA	-3°F (-19°C)	5.5°F (-14°C)	20.5°F (-6°C)	8.5°F (-13°C)	84"
A30-301	Adaptable Constant Differential Control	SPST	No	-24°F (-31°C)	NA	-3°F (-19°C)	5.5°F (-14°C)	20°F (-6°C)	8.5°F (-13°C)	84"
A30-313	Constant Differential Control	SPST	Yes	-20°F (-28°C)	NA	-10°F (-23°C)	2°F (-16°C)	21°F (-6°C)	8°F (-13°C)	42"
A30-2209	Constant Differential Control with Dial	SPST	Yes	35°F (1.5°C)	NA	36.5°F (2.5°C)	44.5°F (6.9°C)	NA	8°F (-13°C)	48"
A30-2210	Constant Differential Control with Dial	SPST	Yes	12°F (-11°C)	NA	16°F (-8°C)	40°F (4.4°C)	43°F (6°C)	24°F (-4.4°C)	48"
A30-2311	Fixed	SPST	NA	NA	NA	30°F	56°F	NA	26°F	30"
9530N814	Constant Differential Control with Dial	SPST	Yes	12°F	NA	16°F	40°F	43°F	24°F	30"

c UL us Recognized Component

1 Year Limited Warranty

RANCO®

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	17.06°F (-8.3°C)	23.54°F (-4.7°C)	NA	30.56°F (-0.8°C)	41.9°F (5.5°C)	2130mm
K50P-1125-001	Cold Control International Models	Czech Republic	SPST	15.8°F (-9°C)	64.4°F (-18°C)	NA	48.2°F (9°C)	NA	NA	1200mm
K50P-1126-001	Cold Control International Models	Czech Republic	SPST	-0.4°F (-18°C)	75.2°F (-24°C)	NA	15.8°F (-9°C)	NA	NA	1200mm
K50P-1127-001	Cold Control International Models	Czech Republic	SPST	41°F (5°C)	35.6°F (2°C)	NA	55.4°F (13°C)	NA	NA	1200mm
K50P-6063-001	Cold Control International Models	Czech Republic	SPST	41°F (5°C)	42.8°F (-6°C)	NA	51.8°F (11°C)	NA	NA	1200mm
K50Q-1125-001	Cold Control International Models	China	SPST	15.8°F (-9°C)	64.4°F (-18°C)	NA	48.2°F (9°C)	NA	NA	1200mm
K50Q-1126-001	Cold Control International Models	China	SPST	-0.4°F (-18°C)	75.2°F (-24°C)	NA	15.8°F (-9°C)	NA	NA	1200mm
K50Q-1127-001	Cold Control International Models	China	SPST	41°F (5°C)	35.6°F (2°C)	NA	55.4°F (13°C)	NA	NA	1200mm
K50P1110005 (EU)	Cold Controls International Models	Czech Republic	SPST	-14.5°C	-23°C	NA	2°C	-3.4°C	NA	1200mm
K50P1115002 (EU)	Cold Controls International Models	Czech Republic	SPST	4°C	1.5°C	NA	11°C	8.9°C	NA	2000mm
K52L4510001 (EU)	Cold Controls International Models	Czech Republic	SPST	3.5°C	-16.5°C	NA	3.5°C	-3.5°C	NA	1000mm
K59H2840001 (EU)	Cold Controls International Models	Czech Republic	SPST	2.3°C	-25.4°C	NA	2.3°C	-15.8°C	NA	900mm
K59L1821000 (EU)	Cold Controls International Models	Czech Republic	SPST	2.5°C	-25°C	NA	2.5°C	-15.5°C	NA	900mm

1 Year Limited Warranty

TEMPERATURE CONTROLS - COLD CONTROLS

R Series

The Ranco® R Series Cold Controls are used to control the temperature in commercial and residential 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

R-302

Specifications

Part Numbers	Description	Temperature Range	Warm Cut-In	Warm Cut-Out	Normal Cut-In	Normal Cut-Out	Cold Cut-In	Cold Cut-Out	Capillary Length
R-302 (NA)	Cold Control	Thermostat 16°F to 50°F	50°F	NA	40.1°F	21.7°F	NA	13.3°F	32" (81.28mm)
R-323 (NA)	Cold Control	Thermostat -25°F to 50°F	49.5°F	NA	39°F	34°F	NA	24.3°F	30" (76.2mm)
R-289 (NA)	Cold Control	Thermostat 18°F to 48°F	48.9°F	NA	39°F	23.9°F	NA	15.6°F	30" (76.2mm)
R-290 (NA)	Cold Control	Thermostat 11.4°F to 50.6°F	50°F	NA	40.1°F	18.7°F	NA	9.7°F	30" (76.2mm)
R-111 (NA)	Cold Control	Thermostat -12°F to 18°F	15.6°F	NA	10°F	5.1°F	NA	-13.2°F	18" (45.72mm)
R-140 (NA)	Cold Control	Thermostat 16°F to 44°F	43.5°F	NA	36.7°F	22.8°F	NA	13.1°F	30" (76.2mm)
R-353 (NA)	Cold Control	Thermostat 16.4°F to 45°F	44.2°F	30°F	38.7°F	22.8°F	32.4°F	14.9°F	31" (78.74mm)

Replacement Information

Part Numbers	Bev-Air Part Numbers	Used In
R-302 (NA)	502-302B	WTR27, MT27, SP, UCR27
R-323 (NA)	502-323B	
R-289 (NA)	502-289B	
R-290 (NA)	502-290B	
R-111 (NA)	502-111A	
R-140 (NA)	502-140A	DP119, DP41, DP46, DP67, DP93
R-353 (NA)	502-353B	UCR20

1 Year Limited Warranty

RC15000-2PI

TEMPERATURE CONTROLS - COLD CONTROLS

RC Series

The Robertshaw® and Ranco® RC Series Cold Controls are thermostats for refrigeration applications. Models include the RC, TSV and TXV Series which are designed for controlling temperature in refrigerators, freezers, air conditioners, water coolers and other applications requiring operation cutoff by temperature. The RC Controls are a traditional design which offer ease of use and versatility, in a wide range of models. The TSV Controls incorporate a low-noise electrical switch, and the TXV Controls include explosion-proof models.

RC Thermostat Codes - see page J11

Specifications

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
RC02601-4U	Cold Control	Consul - Refrigerator with semi-automatic defrost - Push Button (defrosting button)	5.4°C	-4.7°C	-13.5°C	-11.8°C	-23.2°C
RC02636-2P	Cold Control	CCE/Dako - 1-Door refrigerator with semi- automatic defrosting (Push Button)	5.7°C	-2.6°C	-13.1°C	-12.5°C	-26.7°C
RC03009-2P	Cold Control	Electrolux - 1-Door refrigerator with semi-automatic defrosting Push-Button (Defrosting button)	5.4°C	-0.8°C	-6.5°C	-14.0°C	-23.0°C
RC03672-2E	Cold Control	Briket S/A (Argentina)	5.3°C	-1.7°C	NA	NA	-20.1°C
RC04509-2P	Cold Control	1-Door refrigerator with semi-automatic defrosting Push-Button (Defrosting button)	NA	-4.0°C	-15.5°C	-12.1°C	-26.9°C
RC11375-2E	Cold Control	Indurama (Ecuador)	NA	12.4°C	7.7°C	-3.7°C	-10.5°C
RC-1201-4P	Cold Control	Consul - Door refrigerator/compact (replaces RC12601-2P)	2.8°C	-3.8°C	-13.1°C	-9.2°C	-12.4°C
RC-12473-8	Cold Control		NA	3.6°C	-4.1°C	-6.3°C	-17.2°C
RC12636-4P	Cold Control	CCE/Dako - 1-Door refrigerator 280L R31 Blue Sky	NA	-0.9°C	-8.9°C	-7.8°C	-18.0°C
RC12709-5P	Cold Control	Prosdócimo - 1-Door refrigerator	2°C	-2.7°C	-8.8°C	-10.7°C	-18.3°C
RC13309-2P	Cold Control	Prosdócimo - 1-Door refrigerator	2°C	-2.7°C	-8.8°C	-10.7°C	-18.3°C
RC-13312-4	Cold Control	Refrigeration Thermostat	NA	2.8°C	-2.4°C	-2.9°C	-9.0°C
RC-13312-4U	Cold Control	Refrigeration Thermostat	NA	2.8°C	-2.4°C	-2.9°C	-9.0°C
RC13509-2P	Cold Control	Electrolux - 1-Door refrigerator, "Magical" defrosting 250/280L	NA	-3.0°C	-13.0°C	-10.5°C	-23.7°C
RC-13600-3U	Cold Control	Standard - 1-Door Refrigerator / Refrigerated Counter	3.8°C	-0.9°C	-6.8°C	-7.8°C	-15.4°C
RC-13646-2	Cold Control	Robertshaw (Argentina)	NA	-1.7°C	NA	NA	-20.1°C
RC13646-2S	Cold Control	Robertshaw (Argentina)	NA	-1.7°C	NA	NA	-20.1°C
RC14001-2P	Cold Control	Consul 1-Door refrigerator Slim 230/240L	1.5°C	-4.9°C	-16.2°C	-10.0°C	-23.9°C
RC14825-2F	Cold Control	Export Resale (Ecuador)	NA	7.2°C	NA	-10.5°C	-19.4°C
RC-15000-2	Cold Control	Standard - Refrigerated Counter	3.1°C	-1.7°C	-7.7°C	-8.8°C	-16.7°C

Specifications - continued

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
RC15000-2P	Cold Control	Standard - Refrigerated Counter	3.1°C	-1.7°C	-7.7°C	-8.8°C	-16.7°C
RC15067-2E	Cold Control	Cold Import (Peru)	2.3°C	-2.5°C	-8.7°C	-9.8°C	-18.5°C
RC-22027-2	Cold Control	Kronen International (Argentina)	NA	3.5°C	-9.1°C	3.5°C	-25.1°C
RC22036-4P	Cold Control	CCE/Dako - Duplex Refrigerator C35 - National	NA	3.5°C	-9.1°C	3.5°C	-25.1°C
RC-22336-2U	Cold Control	CCE/Dako - Duplex Refrigerator	NA	3.5°C	-9.9°C	3.5°C	-26.1°C
RC-22867-4	Cold Control		NA	3.0°C	-12.0°C	3.0°C	-26.1°C
RC23626-2S	Cold Control	Oscos Lima (Argentina)	NA	4.8°C	-14.2°C	4.8°C	-20.4°C
RC23669-2S	Cold Control	Salvo Phillips (Argentina)	NA	4.2°C	-13.6°C	4.2°C	-16.6°C
RC23669-4E	Cold Control	Salvo Phillips (Argentina)	NA	4.2°C	-16°C	4.2°C	-27°C
RC23670-2S	Cold Control	Piraguas (Argentina)	NA	6.4°C	-9.2°C	6.4°C	-19.3°C
RC24001-2P	Cold Control	Consul - Refrigerator Biplex Constant-on (replaces RC23301-2)	NA	5.7°C	-19.0°C	5.7°C	-25.4°C
RC24001-2S	Cold Control	Consul - Refrigerator Biplex Constant-on (replaces RC23301-2)	NA	5.7°C	-19.0°C	5.7°C	-25.4°C
RC24001-6P	Cold Control	Consul - Refrigerator Biplex Constant-on 330L	NA	5.7°C	-21.8°C	5.7°C	-29.1°C
RC24001-7P	Cold Control	Consul - Refrigerator Biplex Constant-on 351/360/370/383/390/400 L	NA	3.5°C	-18.9°C	3.5°C	-33.8°C
RC-24001-9	Cold Control	Consul - Refrigerator Biplex Constant-on	NA	3.5°C	-15.6°C	3.5°C	-29.7°C
RC24001-9P	Cold Control	Consul - Refrigerator Biplex Constant-on	NA	3.5°C	-15.6°C	3.5°C	-29.7°C
RC24522-2S	Cold Control	Helametal (Argentina)	NA	3°C	-19°C	3°C	-28.4°C
RC31209-2P	Cold Control	Electrolux - A/C Cold 7,500 to 12,000 BTU	NA	30.4°C	28.3°C	17.1°C	14°C
RC-32010-5	Cold Control	Springer - A/C Cold 7,000-21,000 BTU - 25 A (without mounting thread)	NA	31.7°C	NA	18.8°C	16°C
RC32010-5P	Cold Control	Springer - A/C Cold 7,000-21,000 BTU - 25 A (without mounting thread)	NA	31.7°C	NA	18.8°C	16°C
RC-32010-6	Cold Control	Springer - A/C Cold - Silentia 7,500-12,000 BTU	NA	28.6°C	NA	19.5°C	16.7°C
RC32010-6P	Cold Control	Springer - A/C Cold - Silentia 7,500-12,000 BTU	NA	28.6°C	NA	19.5°C	16.7°C
RC33610-2P	Cold Control	Springer - Duplo Ar - Climazon	NA	18.4°C	15°C	0.5°C	-5.5°C
RC-33647-2U	Cold Control	Double Air A/C for automobiles/ cabins/tractors (encapsulated thermostat /attached with nut M10)	NA	18.4°C	15°C	0.5°C	-5.5°C
RC-42040-2	Cold Control	Mastefrio - Water Cooler with Adjustable Temperature	NA	14.9°C	10.9°C	7.6°C	2.6°C
RC-42600-2U	Cold Control	Refrigeration Thermostat	NA	15.4°C	12.3°C	7.5°C	3.6°C
RC42648-2P	Cold Control	Metalfrio - Commercial Chest Refrigerator	NA	10°C	7°C	-10.0°C	-16.5°C
RC-42655-4	Cold Control	Tria (Argentina)	NA	6.5°C	3.6°C	1°C	2.4°C
RC-43048-2	Cold Control	Metalfrio - Medium temperature display case (replaces a RC42948-2P)	NA	11.3°C	4.2°C	3°C	-6.0°C
RC43048-2P	Cold Control	Metalfrio - Medium temperature display case (replaces a RC42948-2P)	NA	11.3°C	4.2°C	3°C	-6.0°C

1 Year Limited Warranty

Customer Service: See Page J21

Specifications - continued

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
RC-43600-2U	Cold Control	Standard - Water Cooler/Juice Dispenser	NA	15.5°C	12.5°C	6.9°C	3°C
RC-44827-2	Cold Control	Juice Dispenser Hielomatic (Ecuador), FEMSA/Alpunto (Brazil)	NA	10.9°C	NA	2.7°C	-1.1°C
RC44827-2F	Cold Control	Juice Dispenser Hielomatic (Ecuador), FEMSA/Alpunto (Brazil)	NA	10.9°C	NA	2.7°C	-1.1°C
RC-45000-2U	Cold Control	Standard - Water Cooler/Juice Dispenser	NA	15.5°C	12.5°C	6.9°C	3°C
RC-45070-2	Cold Control	Frimetal - Refrigerators/Juice Dispenser	NA	8.6°C	1.7°C	2.3°C	-5.9°C
RC45070-2S	Cold Control	Frimetal - Refrigerators/Juice Dispenser	NA	8.6°C	1.7°C	2.3°C	-5.9°C
RC45070-4S	Cold Control	Frimetal S/A (Argentina) - Juice Dispenser	NA	6°C	-0.4°C	-0.7°C	-8.6°C
RC-46040-2	Cold Control	Everest - Ice machine	NA	11.3°C	8.8°C	4°C	1°C
RC-52601-2	Cold Control	Consul - Compact Upright Freezer 90/100L	NA	-16.1°C	-26.0°C	-24.2°C	-37.3°C
RC52609-2P	Cold Control	Electrolux - Upright freezer	NA	-15.6°C	-20.8°C	-27°C	-34°C
RC-53600-2	Cold Control	Standard - Freezer	NA	-11.5°C	-16.3°C	-20.2°C	-26.8°C
RC-53600-2U	Cold Control	Standard - Freezer	NA	-11.5°C	-16.3°C	-20.2°C	-26.8°C
RC53626-2S	Cold Control	Frare Freezer (Argentina)	NA	12.9°C	-19.4°C	-20.8°C	-29.1°C
RC53648-6P	Cold Control	Metalfrio - Freezer (for ice cream)	NA	-13.3°C	-16.7°C	-22.0°C	-26.8°C
RC53670-4S	Cold Control	Frimetal S/A (Argentina) - Freezer	NA	-11.3°C	NA	NA	-29.1°C
RC-54001-2	Cold Control	Consul - Freezer Slim Line (RB 23) 157/170/200L	NA	-18.1°C	-25.7°C	-25.7°C	-35.7°C
RC-55001-2	Cold Control	Brastemp - Freezer	NA	-18.1°C	-25.8°C	-25.8°C	-35.8°C
RC-72040-6	Cold Control	Masterfrio - Water cooler with fixed temperature	NA	7.3°C	3.3°C	NA	NA
RC72609-2P	Cold Control	Prosdócimo - Upright freezer 180/220/260L	NA	-21.5°C	-26.5°C	NA	NA
RC72640-2P	Cold Control	Acqua Gelata/Bellieri/Everest/ Geltec/Lider -Water cooler	NA	11°C	4.9°C	NA	NA
RC-72640-9	Cold Control	Everest - Water cooler	NA	6.7°C	2.6°C	NA	NA
RC93301-2P	Cold Control	Consul - Duplex Refrigerator (old)	NA	5.7°C	-19.0°C	5.7°C	-25.4°C
RC93600-2E	Cold Control	Export resale (Ecuador) - Standard constant-on	NA	3.1°C	-20.6°C	3.1°C	-27.5°C
RC-93609-4	Cold Control	Electrolux - Duplex Refrigerator DC 360	NA	4°C	-5.7°C	4°C	-15°C
RC93609-4P	Cold Control	Electrolux - Duplex Refrigerator DC 360	NA	4°C	-5.7°C	4°C	-15°C
RC93670-2S	Cold Control	Constant-on Adzen (Argentina)	NA	4.3°C	-15.1°C	4.3°C	-25.7°C
RC94012-4S	Cold Control	Brastemp - Duplex Refrigerator 300/340/430/440L (Argentina)	NA	6.5°C	-18.0°C	6.5°C	-29.0°C
RC-94012-6	Cold Control	Brastemp - Duplex Refrigerator 300/340/430/440L	NA	6.5°C	-18.0°C	6.5°C	-29.0°C
RC-94012-6U	Cold Control	Brastemp - Duplex Refrigerator 300/340/430/440L	NA	6.5°C	-18.0°C	6.5°C	-29.0°C
RC-94072-4U	Cold Control	Constant-on RC Fribe (Argentina)	NA	4.2°C	-15.4°C	4.2°C	-28.5°C
RC-94072-5	Cold Control	Briket (Argentina) - Constant-on with switch	NA	5°C	-12.5°C	5°C	-21.6°C

Customer Service: See Page J21

Specifications - continued

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
RC94522-4S	Cold Control	Briket (Argentina) - Constant-on with switch	NA	3°C	-17.6°C	3°C	-26.8°C
RC-95009-4	Cold Control	Electrolux - 2-Door refrigerator, automatic defrosting 470L	NA	3.5°C	-20.7°C	3.5°C	-28.0°C
RC95019-2P	Cold Control	Climax/Electrolux - D33/D45 White-Westinghouse -Duplex Refrigerator (replaces RC-94319-2)	NA	3.6°C	-20.7°C	3.6°C	-27.5°C
RC95509-2P	Cold Control	Electrolux - 2-Door refrigerator, automatic defrosting 470L (replaces RC-95009-2)	NA	3.5°C	-20.7°C	3.5°C	-28.0°C
RCV-1601-2	Cold Control	Air Conditioning Thermostat	NA	29.9°C	26.9°C	15.5°C	12.7°C
RCV-1601-4	Cold Control	Consul - A/C Cold, with semi-automatic switch	NA	28.8°C	26.8°C	19.1°C	16.6°C
RFR-2601-2	Cold Control	Consul - Dual action chest freezer	NA	4.5°C	-0.5°C	-17.0°C	-26.2°C
RFR-2601-2U	Cold Control	Consul - Dual action chest freezer	NA	4.5°C	-0.5°C	-17.0°C	-26.2°C
RFR2601-6P	Cold Control	Consul - Dual action chest freezer	NA	6.1°C	1.8°C	-18.6°C	-28.0°C
RFR-3001-2	Cold Control	Consul - Dual action chest freezer	NA	4.8°C	1.3°C	-24.0°C	-32.3°C
RFR3648-2P	Cold Control	Metalfrio - Dual Action Chest Preserving Freezer (old) (replaces RFR3609)	NA	4°C	0.3°C	-16.8°C	-23.4°C
RFR-4000-4	Cold Control	Metalfrio - Dual Action Chest Preserving Freezer	NA	5.2°C	0.6°C	-17.8°C	-27.0°C
RFR-4000-4U	Cold Control	Dual Action Chest Preserving Freezer	NA	5.2°C	0.6°C	-17.8°C	-27.0°C
RFR-4009-2	Cold Control	Prosdócimo - Dual action chest freezer 220/310L	NA	5.3°C	0.5°C	-17.3°C	-26.6°C
RFR4009-2P	Cold Control	Prosdócimo - Dual action chest freezer 220/310L	NA	5.3°C	0.5°C	-17.3°C	-26.6°C
RFR-4009-5	Cold Control	Electrolux - Dual action chest freezer 220/310L	NA	5°C	0.1°C	-17.8°C	-27.0°C
RFR4009-5P	Cold Control	Electrolux - Dual action chest freezer 220/310L	NA	5°C	0.1°C	-17.8°C	-27.0°C
RFR4009-8P	Cold Control	Electrolux - Double action chest freezer H300	NA	6°C	3°C	-20.5°C	-28.5°C
RFR-4056-2	Cold Control		NA	6°C	3°C	-20.5°C	-28.5°C
RFR-4070-2	Cold Control	Briket/Frimetal (Argentina) - Dual action	NA	8.2°C	2.9°C	-17.8°C	-28.6°C
RFR4070-2S	Cold Control	Briket/Frimetal (Argentina) - Dual action	NA	8.2°C	2.9°C	-17.8°C	-28.6°C
RFR4070-4S	Cold Control	Bambi (Argentina) - Dual action	NA	6°C	1.5°C	-16°C	-25°C
RFR-7272-2	Cold Control	Fribe (Argentina) - Dual action	NA	6°C	1.5°C	-16°C	-25°C
RFR7272-2S	Cold Control	Fribe (Argentina) - Dual action	NA	6°C	1.5°C	-16°C	-25°C
TSV-0001-48U	Cold Control	BSH Continental - 1-Door refrigerator Semiautomatic (Push Button) 270/300/370L (old)	5.5°C	-3.8°C	-11.6°C	-13.0°C	-24.0°C
TSV0002-01	Cold Control	Consul - 1-Door refrigerator dry defrosting	6.7°C	-3.2°C	-12.4°C	-11.1°C	-23.1°C
TSV-0002-01U	Cold Control	Consul - 1-Door refrigerator dry defrosting	6.7°C	-3.2°C	-12.4°C	-11.1°C	-23.1°C

1 Year Limited Warranty

Specifications - continued

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
TSV0005-01	Cold Control	Consul - 1-door Frevo refrigerator with semi- automatic defrosting Push-Button (Defrosting button) CRA28	6.7°C	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV0005-01P	Cold Control	Consul - 1-door Frevo refrigerator with semi- automatic defrosting Push-Button (Defrosting button) CRA28	6.7°C	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV0007-09P	Cold Control	Electrolux - 1-Door semiautomatic refrigerator 320/340/370L	8.5°C	-4.0°C	-15.5°C	-12.1°C	-26.9°C
TSV0008-09	Cold Control	Electrolux - 1-door semiautomatic refrigerator, "Magical" defrosting 250/280L	5°C	-4.8°C	-14.1°C	-11.6°C	-23.6°C
TSV0008-09P	Cold Control	Electrolux - 1-door semiautomatic refrigerator, "Magical" defrosting 250/280L	5°C	-4.8°C	-14.1°C	-11.6°C	-23.6°C
TSV0011-09	Cold Control		5.1°C	-4.6°C	-13.9°C	-11.4°C	-23.3°C
TSV0011-09P	Cold Control		5.1°C	-4.6°C	-13.9°C	-11.4°C	-23.3°C
TSV0013-01	Cold Control	Brastemp 2-Door refrigerator	6.7°C	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV1003-01P	Cold Control	Brastemp - Upright Freezer 240/260/380/300L	NA	-16.4°C	-23.6°C	-21.4°C	-30.0°C
TSV1005-01	Cold Control	Consul - 1-Door Frevo Refrigerator	NA	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV1005-01P	Cold Control	Consul - 1-Door Frevo Refrigerator	NA	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV1008-01	Cold Control	Consul - Minibar glass door 80 (BZA08)	0.2°C	-4.1°C	-17.8°C	-7.4°C	-23.0°C
TSV1009-01	Cold Control	Consul / Brastemp - 1-Door refrigerator 80 / 120L, CRC08/CRC12/ BRC12X (replaces a RC1201-2)	2.8°C	-3.8°C	-13.1°C	-9.2°C	-20.4°C
TSV1009-01P	Cold Control	Consul / Brastemp - 1-Door refrigerator 80 / 120L, CRC08/CRC12/ BRC12X (replaces a RC1201-2)	2.8°C	-3.8°C	-13.1°C	-9.2°C	-20.4°C
TSV1017-01	Cold Control	Consul - 1-Door refrigerator 280L	6.5°C	-2.8°C	-11.0°C	-10.9°C	-21.9°C
TSV1017-01P	Cold Control	Consul - 1-Door refrigerator 280L	6.5°C	-2.8°C	-11.0°C	-10.9°C	-21.9°C
TSV1020-40	Cold Control	Brasilter - Water cooler	NA	15°C	12.1°C	9°C	4.4°C
TSV1021-01	Cold Control	Brastemp - 1-Door refrigerator (Salsa)	NA	-2.6°C	-10.5°C	-11.4°C	-22.4°C
TSV1022-01	Cold Control	Brastemp - 1-Door refrigerator (Salsa) - Export	NA	-3.3°C	-12.3°C	-10.9°C	-23.0°C
TSV2004-01	Cold Control	Brastemp - 2-Door refrigerator 330/350L, BRH33/ WRH35 (replaces RC-24001-6)	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV2004-01P	Cold Control	Brastemp - 2-Door refrigerator 330/350L, BRH33/ WRH35 (replaces RC-24001-6)	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV2005-01	Cold Control	Brastemp - 2-Door refrigerator 350/360/370/380/390/470 L (replaces RC-24001-7)	NA	3.5°C	-19.5°C	3.5°C	-32.9°C
TSV2005-01P	Cold Control	Brastemp - 2-Door refrigerator 350/360/370/380/390/470 L (replaces RC-24001-7)	NA	3.5°C	-19.5°C	3.5°C	-32.9°C
TSV2006-01	Cold Control	Brastemp/Consul 2-Door refrigerator 360/450/470L (replaces RC-23001-6)	NA	3.5°C	-19.5°C	3.5°C	-32.9°C
TSV2006-01P	Cold Control	Brastemp/Consul 2-Door refrigerator 360/450/470L (replaces RC-23001-6)	NA	3.5°C	-19.5°C	3.5°C	-32.9°C

Specifications - continued

Part Numbers	Description	Application	Defrosting On	Hot On	Hot Off	Cool On	Cool Off
TSV2007-01	Cold Control	Brastemp - 2-Door refrigerator 320/330/340L (replaces RC-24001-6)	NA	5.7°C	-22.1°C	5.7°C	-28.4°C
TSV2007-01P	Cold Control	Brastemp - 2-Door refrigerator 320/330/340L (replaces RC-24001-6)	NA	5.7°C	-22.1°C	5.7°C	-28.4°C
TSV2011-01	Cold Control	Brastemp 2-Door refrigerator	NA	3.5°C	-17.8°C	3.5°C	-28.1°C
TSV2012-01	Cold Control	Brastemp/Consul - Refrigerator Constant-on CRD36FB/CRD36FC	NA	5.5°C	-21.6°C	5.5°C	-29.1°C
TSV2012-01P	Cold Control	Brastemp/Consul - Refrigerator Constant-on CRD36FB/CRD36FC	NA	5.5°C	-21.6°C	5.5°C	-29.1°C
TSV2013-01	Cold Control	Brastemp - Refrigerator 2-door Constant-on	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV2013-01P	Cold Control	Brastemp - Refrigerator 2-door Constant-on	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV2014-01	Cold Control	Brastemp - Refrigerator 2-door Constant-on	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV2014-01P	Cold Control	Brastemp - Refrigerator 2-door Constant-on	NA	3.5°C	-22.8°C	3.5°C	-33.2°C
TSV5002-09P	Cold Control	Electrolux - Chest freezer 400L, H400	NA	7.6°C	-3.3°C	-2.0°C	-17.1°C
TSV9003-09	Cold Control	Electrolux - Chest Freezer	NA	4.5°C	-20.5°C	4.5°C	-31.0°C
TSV9003-09P	Cold Control	Electrolux - Chest Freezer	NA	4.5°C	-20.5°C	4.5°C	-31.0°C
TSV9004-09P	Cold Control	Electrolux - Chest Freezer	NA	4.1°C	-5.6°C	4.1°C	-14.8°C
TSV9011-09P	Cold Control	Electrolux - 2-Door refrigerator	NA	4°C	-17.2°C	4°C	-30.0°C
TSV9012-09P	Cold Control	Electrolux - 2-Door refrigerator 02322DBA	NA	4°C	-17.2°C	4°C	-30.0°C
TSV9013-22	Cold Control	Finpak, Helametal (Argentina), 2 Cold Philco / Saiar 380	NA	3°C	-15.3°C	3°C	-23.5°C

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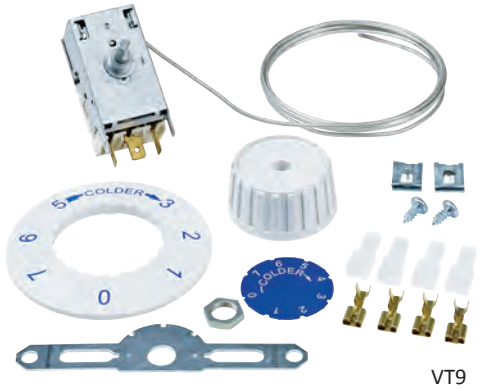

VT9

TEMPERATURE CONTROLS - COLD 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

Specifications

Part Numbers	Description	Application	Cold Cut-Out	Cold Cut-In	Warn Cut-Out	Warm Cut-In	Capillary Length(mm)
VC1	Cold Control	Refrigerator one-door	-23.5°C (-10.3°F)	-14.5°C (5.9°F)	2°C (35.6°F)	NA	1200mm
VC101	Cold Control	Refrigerator one-door	-22.5°C (-8.5°F)	NA	-5°C (23°F)	2°C (35.6°F)	1200mm
VC110	Cold Control	Bottle Cooler	-12°C (10.4°F)	-4°C (24.8°F)	NA	4°C (39.2°F)	2000mm
VA21	Cold Control	Absorption Refrigerator with Auxiliary Contact	-11.2°C (11.84°F)	-5.7°C (21.74°F)	-1.2°C (29.84°F)	3.3°C (37.94°F)	1500mm
VA2	Cold Control	Absorption Refrigerator	-18°C (-0.4°F)	-14.5°C (5.9°F)	NA	3.5°C (38.3°F)	2000mm
VA102	Cold Control	Absorption Refrigerator	-18°C (-0.4°F)	-14.5°C (5.9°F)	NA	3.5°C (38.3°F)	1200mm
VF3	Cold Control	Freezer without signal, ice cream cabinet	-34°C (-29.2°F)	NA	-16.5°C (2.3°F)	-12°C (10.4°F)	2000mm
VF103	Cold Control	Freezer without signal, ice cream cabinet	-32°C (-25.6°F)	NA	-16.5°C (2.3°F)	-12°C (10.4°F)	2000mm
VP4	Cold Control	Refrigerator one-door, manual defrost	-25°C (-13°F)	NA	-10°C (14°F)	-4°C (24.8°F)	1200mm
VP104	Cold Control	Refrigerator one-door, manual defrost	-19°C (-2.2°F)	NA	-11°C (12.2°F)	-1°C (30.2°F)	1600mm
VP111	Cold Control	Refrigerator two-door, manual defrost	-31°C (-23.8°F)	NA	-13°C (8.6F)	-5°C (23°F)	1500mm
VS5	Cold Control	Freezer, with active signal	-34°C (-29.2°F)	NA	-16.5°C (2.3°F)	-12°C (10.4°F)	2000mm
VS105	Cold Control	Freezer, with active signal	-34°C (-29.2°F)	NA	-16.5°C (2.3°F)	-12°C (10.4°F)	2000mm
VR6	Cold Control	Freezer, with passive signal	-34°C (-29.2°F)	NA	-16.5°C (2.3°F)	-12°C (10.4°F)	2000mm
VR106	Cold Control	Freezer, with passive signal	-32°C (-25.6°F)	NA	-20°C (-4°F)	-15°C (5°F)	2000mm
VB7	Cold Control	Bottle and Liquid Cooler	-3°C (26.6°F)	2°C (38.3°F)	NA	12.5°C (54.5°F)	1200mm
VB107	Cold Control	Bottle and Liquid Cooler	-3°C (26.6°F)	2°C (38.3°F)	NA	12.5°C (54.5°F)	2000mm
VB110	Cold Control	Fridge Freezer	-3°C (26.6°F)	2°C (38.3°F)	NA	13°C (55.4°F)	400mm
VT72	Cold Control	Fridge Freezer	-20.3°C (-4.54°F)	2.9°C (38.3°F)	-11.2°C (11.84°F)	7.9°C (46.22°F)	2000mm
VT9	Cold Control	Refrigerator two-door	-26°C (-14.8°F)	3.5°C (38.3°F)	-11°C (12.2°F)	3.5°C (38.3°F)	1200mm
VT9E	Cold Control	Refrigerator two-door Egypt	-26°C (-14.8°F)	3.5°C (38.3°F)	-11°C (12.2°F)	3.5°C (38.3°F)	1200mm
VT92	Cold Control	Refrigerator two-door	-26°C (-14.8°F)	3.5°C (38.3°F)	-11°C (12.2°F)	3.5°C (38.3°F)	2000mm
VT93	Cold Control	Refrigerator two-door	-26°C (-14.8°F)	3.5°C (38.3°F)	-11°C (12.2°F)	3.5°C (38.3°F)	3000mm
VTD9	Cold Control	Fridge/freezer with heat assisted defrost	-26.9°C (-16.42°F)	NA	-14.3°C (6.26°F)	4.8°C (40.64°F)	1000mm

Specifications - continued

Part Numbers	Description	Application	Cold Cut Out	Cold Cut In	Warn Cut Out	Warm Cut In	Capillary Length(mm)
VT9R	Cold Control	Refrigerator two-door, with resistor	-20°C (-4°F)	3.5°C (38.3°F)	-8°C (17.6°F)	3.5°C (38.3°F)	1200mmm
VI109	Cold Control	Refrigerator two-door	-21°C (-5.8°F)	4.5°C (40.1°F)	-6.5°C (20.3°)	4.5°C (40.1°F)	2000mm
VI 112	Cold Control	Refrigerator two-door	-28°C (-18.4°F)	5°C (41°F)	-11°C (12.2°F)	5°C (41°F)	1500mm
VW8	Cold Control	Air Conditioning	15°C (15°F)	3.6°C (38.48°F) max diff	NA	34°C (93.2°F)	1200mm
VX0	Cold Control	Refrigerator two-door	-15°C (5°F)	3.5°C (38.3°F)	-5°C (23°F)	3.5°C (38.3°F)	1500mm
VX03	Cold Control	Refrigerator two-door, with resistor	-15°C (5°F)	3.5°C (38.3°F)	-5°C (23°F)	3.5°C (38.3°F)	3000mm
VG7	Cold Control	Bottle Cooler, positive temperature	1.5°C (34.7°F)	4°C (39.2°F)	NA	11°C (51.8°F)	2000mm

1 Year Limited Warranty

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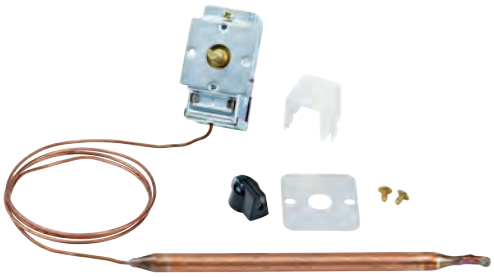

C12-5010

TEMPERATURE CONTROLS - SPECIALTY APPLICATIONS

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

1 Year Limited Warranty

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

1 Year Limited Warranty

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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.

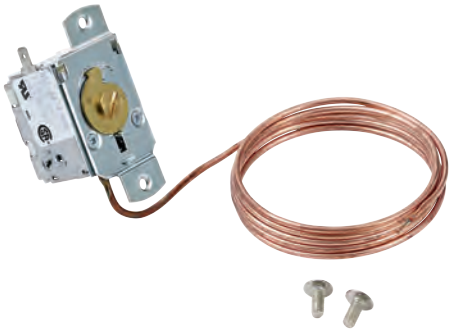
Features and Benefits

- 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	Universal Replacement Water Cooler Control	Ice Equipment, Thermal Storage and Water Cooler Controls	37°F	46°F	53°F	61°F	7°F	48"

1 Year Limited Warranty

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.

P30-5826

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
P30-3701	Lube Oil Protection Control	36” Capillary with Flare Nut	90 seconds	8-60 PSI Adjustable	120V AC or 240V AC, Pilot Duty 720VA
P30-3801	Lube Oil Protection Control	36” Capillary with Flare Nut	120 seconds	8-60 PSI Adjustable	120V AC or 240V AC, Pilot Duty 720VA
P30-5826	Lube Oil Protection Control	36” Capillary with Flare Nut	120 seconds	9 PSID Fixed	120V AC or 240V AC, Pilot Duty 720VA
P30-5856-080 (ANZ, EU, SA)	Lube Oil Protection Control	36” Capillary with Flare Nut	120 seconds	9 PSID Fixed	120V AC or 240V AC, Pilot Duty 720VA

c UL us LISTED Listed Product

1 Year Limited Warranty

RANCO®

O10-1409
with Coil Capillary

O10-1418
with Air Coil

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)
- Cap included on all Australia temperature controls. Optional for all other regions.

c UL us LISTED
Listed Product

c UL us
Recognized Component

Specifications

Part Numbers	Description	Switch	Temperature Range	Differential	Capillary Length	Bulb/Coil	Replaces
010-1408 (NA)	Low Temperature Control	SPST	-15°F to 40°F (-26.11°C to 4.4°C)	3°F to 20°F (-16.11°C to -6.67°C)	72" (182.88cm)	Remote	
010-1409 (NA)	Medium Temperature Control	SPST	0°F to 55°F (-17.78°C to 12.78°C)	3°F to 20°F (-16.11°C to -6.67°C)	72" (182.88cm)	Remote	
010-1410 (NA)	High Temperature Control	SPST	25°F to 75°F (-25°C to 23.88°C)	3°F to 20°F (-16.11°C to -6.67°C)	72" (182.88cm)	Remote	
010-1416 (NA)	Medium Temperature Control	SPST	0°F to 55°F (-17.77°C to 12.78°C)	3°F to 20°F (-16.11°C to -6.67°C)	72" (182.88 cm	Cross Ambient	
010-1418 (NA)	Medium Temperature Control	SPST	0°F to 55°F (-17.77°C to 12.78°C)	3°F to 20°F (-16.11°C to -6.67°C)	Air Coil	Remote	
060-100 (NA)	Extra Low-Wide Range Temperature Control	SPDT	-35°F to 95°F (-37.22°C to 35°C)	4°F to 50°F (-15.55°C to 10°C)	96" (243.84cm)	3/8" x 6" Cross Ambient	
016-930 (ANZ)	Extra Low Temperature Control	SPDT	-34°C to 32°C (-29.2°F to 89.6°F)	2°C to 28°C (35.6°F to 82.4°F)	1.8m (5.90')	Cross Ambient with Capillary and Bulb 9.5mm diameter x 152mm length	016-6930 016-641
016-950 (ANZ)	Extra Low Temperature Control	SPDT	-35°C to -7°C (-31°F to 19.4°F)	1.7°C to 12°C (35.06°F to 53.6°F)	2m (6.56')	Cross Ambient with capillary and coiled end 9.5mm diameter x 38mm length	016-6950 016-639
016-951 (ANZ)	Low Temperature Control	SPDT	-18°C to 13°C (-0.4°F to 55.4°F)	1.7°C to 12°C (35.06°F to 53.6°F)	1.8m (5.90')	Cross Ambient with capillary and coiled end 9.5mm diameter x 38mm length	016-636 016-6951
016-954 (ANZ)	Medium Temperature Control	SPDT	-5°C to 25°C (23°F to 77°F)	1.7°C to 12°C (35.06°F to 53.6°F)	2m (6.56')	Cross Ambient with capillary and coiled end 9.5mm diameter x 38mm length	016-6954 016-637
016-980 (ANZ)	Low Temperature Control	SPDT	-18°C to 13°C (-0.4°F to 55.4°F)	1.7°C to 12°C (35.06°F to 53.6°F)	2m (6.56')	Cross Ambient with Capillary and Bulb 12.7mm diameter x 102mm length	016-6980 016-640
016-981 (ANZ)	Medium Temperature Control	SPDT	-5°C to 25°C 23°F to 77°F	1.7°C to 12°C (35.06°F to 53.6°F)	1.8m (5.90')	Cross Ambient with Capillary and Bulb 14.5mm diameter x 140mm length	016-6981 016-642
016-900 (ANZ)	Low Temperature Control	SPDT	-18°C to 13°C (-0.4°F to 55.4°F)	4°C to 30°C (39.2°F to 86°F)	2m (6.56')	Cross Ambient with capillary and coiled end 9.5mm diameter x 38mm length	016-8900 016-643
016-983 (ANZ)	High Temperature Control	SPDT	10°C to 40°C (50°F to 104°F)	1.7°C to 12°C (35.06°F to 53.6°F)	1.8m (5.90')	Cross Ambient with Capillary and Bulb 14.5mm diameter x 140mm length	016-6983 016-644

1 Year Limited Warranty

RANCO®

PRESSURE CONTROLS

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
- Cap included on all Australia temperature controls. Optional for all other regions.

Specifications

Part Numbers	Description	Reset	Switch	Pressure Range	Differential	Pressure Connection	Capillary Length	Replaces
010-1402 (NA)	Low Pressure Control	Auto	SPST	12" Hg to 50 PSI (0.4 to 3.5 bar)	5 to 35 PSI (0.3 to 2.4 bar)	1/4" SAE Flare Nut	36" (0.9m)	
010-1483 (NA)	Low Pressure Control	Auto	SPST	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-107 (NA) 016-107-057 (EU, SA)	Low Pressure Control	Auto	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	1/4" SAE Flare Nut	NA	Johnson P70AB-1
016-527 (NA)	Low Pressure Control	Auto	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-528 (NA) 016-528-081 (EU, SA)	Low Pressure Control	Auto	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Male Connnection 7/16" - 20 UNF for a 1/4" Female Flare	NA	016-H6703-101
016-706 (ANZ)	Low Pressure Control	Auto	SPDT	-30 to 700 kPa	60 to 275 kPa	1/4" SAE Flare Male (color dark)	NA	016-528 016-6706 016-8706
016-713 (ANZ)	Low Pressure Control	Auto	SPDT	-30 to 700 kPa	60 to 300 kPa	1/4" SAE Flare Female (color gold)	36" (0.9m)	016-529 016-8713 016-6713
016-585-000 (EU, SA)	Low Pressure Control	Manual	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	10 PSI (1 bar) Fixed	1/4" SAE Flare Nut	NA	
016-624 (NA)	Low Pressure Control	Auto	SPDT	12" Hg to 80 PSI (0.4 to 5.5 bar)	5 to 38 PSI (0.3 to 2.6 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-638 (NA) 016-638-081 (EU, SA)	Low Pressure Control	Manual	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	9 PSI (0.6 bar) Fixed	Male Connnection 7/16" - 20 UNF for a 1/4" Female Flare	NA	016-H6705-101
016-705 (ANZ)	Low Pressure Control	Manual	SPDT	-30 to 700 kPa	60 kPa Fixed	1/4" SAE Flare Male	NA	016-638 016-8705 016-6705

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1 Year Limited Warranty

PRESSURE CONTROLS

O Series - Single High and Ultra High Pressure Controls

The Ranco® O Series Single High and Ultra 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
- Cap included on all Australia temperature controls. Optional for all other regions.

The O16-6201-070 control has additional features:

- Suitable for 404A, 407A 410A, and R507 applications

O16-200

Specifications

Part Numbers	Description	Reset	Switch	Pressure Range	Differential	Pressure Connection	Capillary Length	Replaces
016-6201-070	Ultra High Pressure Control	Auto	SPDT	200 to 700 PSI (14 to 48 bar)	50 to 150 PSI (3 to 10 bar)	¼" flare nut with 7/16-20 UNF straight thread	36" (0.9m)	Johnson Controls P70CA-400C, P70AA-400C, P70CA-3C, Danfoss 060-5245, 060-5242
010-2054 (NA)	Single High Pressure Control	Auto	SPST	100 to 400 PSI (7 to 27 bar)	40 to 150 PSI (3 to 10 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-108 (NA)	Single High Pressure Control	Auto	SPDT	100 to 400 PSI (7 to 27 bar)	40 to 150 PSI (3 to 10 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-200 (NA)	Single High Pressure Control	Manual	SPDT	150 to 450 PSI (10 to 31 bar)	40 PSI (3 bar) Fixed	1/4" SAE Flare Nut	48" (1.2m)	
020-7006 (NA)	Single High Pressure Control	Auto	DPST	100 to 400 PSI (7 to 27 bar)	40 to 150 PSI (3 to 10 bar)	1/4" SAE Flare Nut	36" (0.9m)	
016-209-000 (EU, SA)	Single High Pressure Control	Manual	SPDT	10" Hg to 100 PSI (0.3 to 7 bar)	40 PSI (3 bar) Fixed	1/4" SAE Flare Nut	NA	
016-530 (NA) 016-530-081 (EU, SA)	Single High Pressure Control	Auto	SPDT	100 to 400 PSI (7 to 27 bar)	40 to 150 PSI (3 to 10 bar)	Male Connection 7/16" - 20 UNF	NA	016-H6750-101
016-750 (ANZ)	Single High Pressure Control	Auto	SPDT	700 to 2800 kPa	300 to 1000 kPa	1/4" SAE Flare Male (color silver)	NA	016-530 016-8750 016-6750
016-531 (NA) 016-531-081 (EU, SA)	Single High Pressure Control	Manual	SPDT	150 to 450 PSI (10 to 31 bar)	40 PSI (3 bar) Fixed	Male Connection 7/16" - 20 UNF	NA	016-H6751-101
016-751 (ANZ)	Single High Pressure Control	Manual	SPDT	1000 to 3000 kPa	350 kPa Fixed	1/4" SAE Flare Male (color silver)	NA	016-531 016-8751 016-6751

Listed Product

Recognized Component

1 Year Limited Warranty

RANCO®

PRESSURE CONTROLS

O12-1506

O12-1550-081

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)
- Cap included on all Australia temperature controls. Optional for all other regions.

Specifications

Part Numbers	Description	Switch	Low Reset	Low Cut-In	Low Differential	High Reset	High Cut-Out	Pressure Connection	Capillary Length	Replaces
012-1502 (NA)	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI (0.4 to 3.5 bar)	5 to 35 PSI (0.3 to 2.4 bar)	Auto	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	36" (0.9m)	
012-1506 (NA)	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI (0.4 to 3.5 bar)	5 to 35 PSI (0.3 to 2.4 bar)	Auto	100 to 250 PSI (7 to 1 7bar)	1/4" SAE Flare Nut	36" (0.9m)	
012-1549 (NA) 012-1549-000 (EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Auto	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	36" (0.9m)	
012-1549-080 (ANZ, EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Auto	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	36" (0.9m)	
012-1550-081 (EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	11 to 40 PSI	Auto	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	NA	

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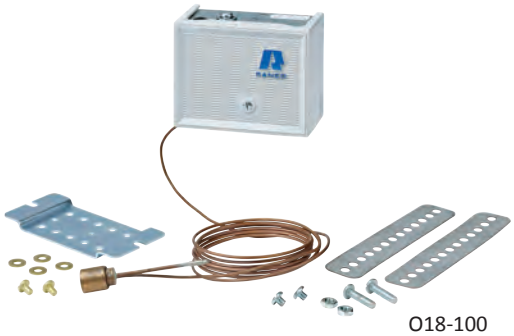
Specifications

Part Numbers	Description	Switch	Low Reset	Low Cut-In	Low Differential	High Reset	High Cut-Out	Pressure Connection	Capillary Length	Replaces
012-4154 (NA) 012-4154-081 (EU, SA)	Dual Pressure Control	SPST	Manual	10" Hg to 100 PSI (0.3 to 7 bar)	10 PSI (1 bar) Fixed	Manual	150 to 450 PSI (10 to 31 bar)	Male Connnection 7/16" - 20 UNF for a 1/4" Female Flare	NA	017-H6703-101 017-H4703-101
017-703 (ANZ)	Dual Pressure Control	SPDT	Manual	-30 to 700 kPa	60 kPa Fixed	Manual	1000 to 3000 kPa	1/4" SAE Flare Male Low-color dark High-color silver	NA	Low: 017-8703 012-5002 High: 017-H6703 012-4154
012-4833 (NA)	Dual Pressure Control	SPST	Auto	12" Hg to 50 PSI (0.4 to 3.5 bar)	5 to 35 PSI (0.3 to 2.4 bar)	Convertible	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	48" (1.2m)	
012-4834 (NA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Convertible	150 to 450 PSI (10 to 31 bar)	1/4" SAE Flare Nut	48" (1.2m)	
012-4860 (NA) 012-4860-081 (EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Convertible	150 to 450 PSI (10 to 31 bar)	Male Connnection 7/16" - 20 UNF for a 1/4" Female Flare	NA	017-H4705-101 017-H6705-101
017-705 (ANZ)	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	60 to 300 kPa	Auto/Con-vertible	1000 to 3000 kPa	1/4" SAE Flare Male Low-color dark High-color silver	NA	Low: 017-8705 012-5003 High: 017-H6705 012-4860
012-4900 (NA) 012-4900-081 (EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Auto	150 to 450 PSI (10 to 31bar)	Male Connnection 7/16" - 20 UNF for a 1/4" Female Flare	NA	017-H6701-101
017-701 (ANZ)	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	60 to 300 kPa	Auto	1000 to 3000 kPa	1/4" SAE Flare Male Low-color dark High-color silver	NA	Low: 017-8701 012-5502 High: 017-H6701 012-4900
012-4902 (NA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	10 to 40 PSI (1 to 3 bar)	Auto	145 to 435 PSI (10 to 30 bar)	1/4" SAE Flare Nut	36" (0.9m)	017-8711
017-711 (ANZ)	Dual Pressure Control	SPDT	Auto	-30 to 700 kPa	60 to 300 kPa	Auto	1000 to 3000 kPa	1/4" SAE Flare Male Low-color dark High-color silver	36" (0.9m)	Low: 017-8711 012-5503 High: 017-H6711 012-4902
012-5501-080 (EU, SA)	Dual Pressure Control	SPST	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	9 to 57 PSI (0.6 to 3.9 bar)	Auto	100 to 435 PSI (7 to 30 bar)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA	206-00231-003
012-5500-080 (EU, SA)	Dual Pressure Control	SPDT	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	9 to 57 PSI (0.6 to 3.9 bar)	Auto	100 to 435 PSI (7 to 30 bar)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA	206-00231-003
012-5001-080 (EU, SA)	Dual Pressure Control	SPDT	Manual	10" Hg to 100 PSI (0.3 to 7 bar)	9 PSI (0.6 bar) Fixed	Manual	100 to 435 PSI (7 to 30 bar)	Male Connection 7/16" - 20 UNF for a 1/4" Female Flare	NA	206-00231-002
012-5000-080 (EU, SA)	Dual Pressure Control	SPDT	Auto	10" Hg to 100 PSI (0.3 to 7 bar)	9 to 57 PSI (0.6 to 3.9 bar)	Manual	100 to 435 PSI (7 to 30 bar)	1/4" SAE Male Flare Fitting	NA	206-00231-001

1 Year Limited Warranty

RANCO®

PRESSURE CONTROLS



O18-100

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
018-100	Ice Bank Control	SPST	34.5°F	27.5°F	Fixed 32°F	76”	Bulb
018-100-080 (ANZ, EU, SA)	Ice Bank Control	SPST	34.5°F	27.5°F	Fixed 32°F	76”	Bulb

MINI PRESSURE SENSORS

MPV0121-02U

MPV Series

The Ranco® Mini Pressure Sensors are electromechanical pressure microswitches with fixed settings. It is compact and easy to install. These pressure microswitches are used to protect refrigeration systems that work under critical conditions by programming the high- and low-pressure limit values. Thanks to the innovative technology used in its manufacture, the Ranco® pressure microswitches offer the best solutions to the refrigeration and air conditioning industry.

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Specifications

Part Numbers	Description	Refrigerant Gas That is Normally Applied	Off	On	Electrical Connection	Pressure Connection
MPV0121-02U	Mini Pressure Sensor Low Pressure	R22/R407C/R134A/ R404A/R507	3 PSI (0.2 bar)	20 PSI (1.4 bar)	Appendage 1m	1/4” SAE
MPV0221-02U	Mini Pressure Sensor Medium Average Pressure	R410A	34.8 PSI (2.4 bar)	59.5 PSI (4.1 bar)	Appendage 1m	1/4” SAE
MPV0321-02U	Mini Pressure Sensor High Pressure	R22/R407C/R404A/ R507	385.3 PSI (26.5 bar)	261 PSI (18.0 bar)	Appendage 1m	1/4” SAE
MPV0421-02U	Mini Pressure Sensor Low Pressure	R410A	75 PSI (5.2bar)	100 PSI (6.9 bar)	Appendage 1m	1/4” SAE
MPV0521-02U	Mini Pressure Sensor High Pressure	R410A	600 PSI (41.4 bar)	475 PSI (32.8 bar)	Appendage 1m	1/4” SAE

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

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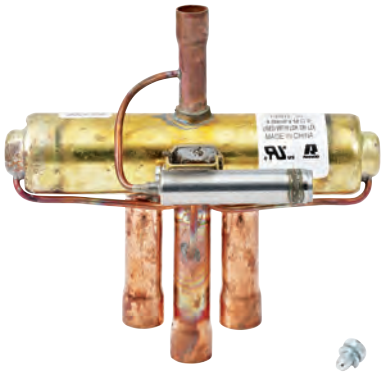
RANCO®



V2-408060-170

REVERSING VALVES

V Series

The Ranco® 4-Way Reversing Valves (Generation 4) 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.

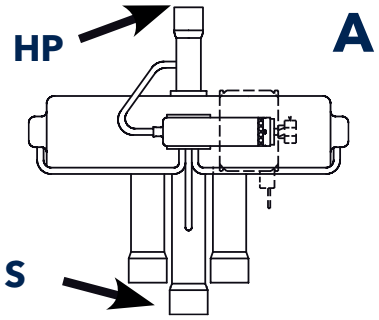
These solenoid operated valves are slide type with a 4-way pilot valve, and operate under the full pressure of the heat pump system.

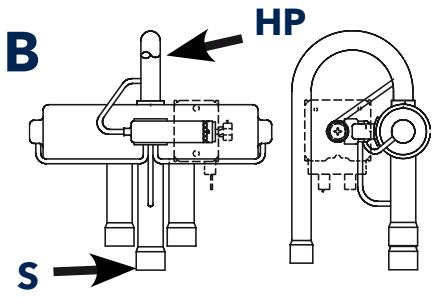
Note: Solenoid coils are not included. Generation 4 type Ranco Reversing Valves work with LDK Series Solenoid Coils.

Specifications

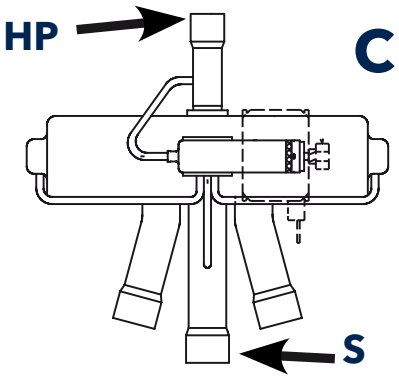
Part Numbers	Description	Capacity Nominal	Capacity R-22	Capacity R-410A	Tube Size Suction	Tube Size Discharge	Style
V2-408060-170	4-Way Reversing Valve	1 ton	0.75 to 2.0 tons	0.9 to 2.2 tons	1/2”	3/8”	A
V2-408060-270	4-Way Reversing Valve	2 tons	0.75 to 2.0 tons	0.9 to 2.2 tons	1/2”	3/8”	B
V2-410060-470	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

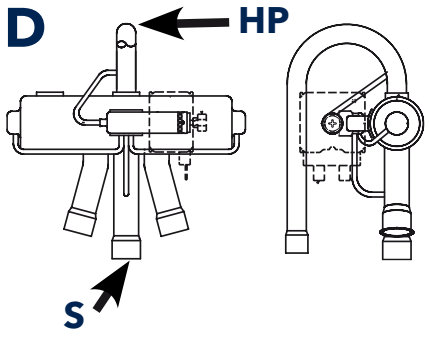
Product Drawings

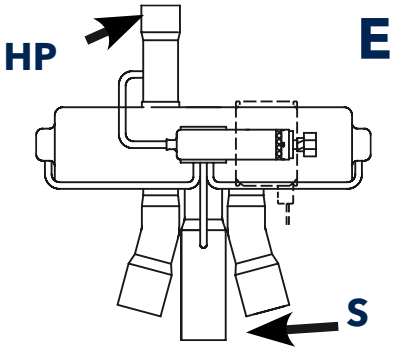


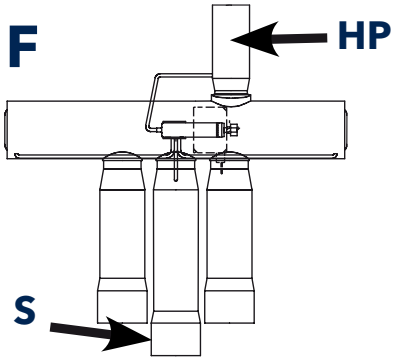


Product Drawings









Legend
HP: High Pressure
S: Suction

1 Year Limited Warranty

RANCO®

COPPER PRODUCTS

Copper Products

The Ranco® CT Series Capillary Tubes and the ST Series Strainers are designed for copper replacement on air conditioning and commercial refrigeration installations.

The Copper Capillary Tubes are used in air conditioning systems with small capacity (split and window) equipment. They are used along with expansion elements to create pressure drops in the coolant circuit to balance the thermodynamic of these units. Capillary tubes are available in individual packages of 10' (3 meters) lengths with various inner diameters (ID) sizes.

The Copper Strainer Filters are copper spun and designed to trap particulates found within refrigerant systems. Various inlet and outlet sizes are available with stainless steel mesh.

The Copper Access Valves, which are also known as "Schrader", are valves installed to measure the pressure in the high or low side of the refrigeration system. This valve also facilitates the charging and extraction and refrigeration into and from refrigeration systems. The valve has an extension with a copper tube for welding, and it provides an excellent finish to the seal cap.

The Copper Service Valve is designed to block or open the circuit of the cooling system. This valve allows the extraction of the system element without losing the refrigerant gas and eliminates the possibility of contaminating the system.

Features and Benefits

- Quality and Engineering Excellence
  - Experts on copper processes for over 50 years
  - Bending, end forming, collaring, swaging, cold drawing, brazing, burr free cutting, bright annealing and stamping
- Trusted brand for over 100 years
- Fast delivery
- Many sizes available

Specifications

Capillary Tubes

Part Numbers	Description	Inner Diameter	Length
24-001U	Copper Capillary Tube	0.031" (0,79mm)	10' (3m)
24-005U	Copper Capillary Tube	0.070" (1,80mm)	10' (3m)
24-010U	Copper Capillary Tube	0.080" (2,03mm)	10' (3m)

Strainer Filters

Part Numbers	Description	Body	Length	Input Inner Diameter	Output Inner Diameter
14-015	Copper Strainer Filter	3/4" (19,05mm)	2-3/4" (70mm)	3/8" (9,53mm)	3-1/8" (80mm)
14-016	Copper Strainer Filter	3/4" (19,05mm)	2-3/4" (70mm)	1/4" (6,35mm)	1-3/16" (30mm)

Access Valves

Part Numbers	Description	Diameter	Size
16-136	Liquid Accumulator Access Valve	1" (25,4mm)	100mm

Service Valves

Part Numbers	Description	Application	Connection Type	Size of Extender Tube	Attachment Holes
01-VA-012	Service Valve	Split Type Air Conditioner	1/4"	60mm	2 x 7.0mm
01-VA-013	Service Valve	Split Type Air Conditioner	3/8"	60mm	2 x 7.0mm
01-VA-014	Service Valve	Split Type Air Conditioner	1/2"	60mm	2 x 7.0mm
01-VA-015	Service Valve	Split Type Air Conditioner	5/8"	60mm	2 x 7.0mm
01-VA-022	Service Valve	Split Type Air Conditioner	3/4"	41.5mm	2 x 7.0mm

1 Year Limited Warranty

RANCO®

REVERSING VALVES - SOLENOID COILS

LDK-110000-070

LDK and SHF 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.

The Ranco® SHF Series Solenoid Coils are designed for use with current production (Generation 5) 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" (120cm)	24V AC	5 Watts at 50 Hz, 4 Watts at 60 Hz
LDK-310000-070	Solenoid Coils for Reversing Valves	Black	48" (120cm)	120V AC	5 Watts at 50 Hz, 4 Watts at 60 Hz
LDK-410000-070	Solenoid Coils for Reversing Valves	Green	48" (120cm)	208/240V AC	5 Watts at 50 Hz, 4 Watts at 60 Hz
SHF-110000-070	Solenoid Coils for Reversing Valves	NA	48" (120cm)	24V AC	6 Watts at 50 Hz, 5 Watts at 60 Hz
SHF-310000-070	Solenoid Coils for Reversing Valves	NA	48" (120cm)	120V AC	6 Watts at 50 Hz, 5 Watts at 60 Hz
SHF-410000-070	Solenoid Coils for Reversing Valves	NA	48" (120cm)	208/240V AC	6 Watts at 50 Hz, 5 Watts at 60 Hz
SHF-510000-070	Solenoid Coils for Reversing Valves	NA	48" (120cm)	277V AC	6 Watts at 50 Hz, 5 Watts at 60 Hz

1 Year Limited Warranty

LOW TEMPERATURE LIMIT CONTROLS

Evaporator Low Temperature Limit Controls

The Ranco® Evaporator Coil Low Temperature Limit Control is attached to the suction line of the evaporator coil wired in series with the Y connection to the compressor. Its normally closed contact will shut down the refrigeration compressor when it senses the evaporator coil freezing up. The control has a preformed clip to secure it to the evaporator suction line.

Features and Benefits

- Performed clip
- Normally closed contact

PS2703-022

Specifications

Part Numbers	Description	Factory Part Number
PS2703-022	Evaporator Low Temperature Limit Control	ECL-35

1 Year Limited Warranty

RANCO®

DCV0100-01

REFRIGERATION REGULATORS

DCV Series

The Ranco® DCV Series of flow controllers for refrigeration is specially designed to allow the control of the temperature in refrigerators by opening and closing a flow passage for the cooled air from the equipment's cooler environment, normally the freezer.

Specifications

Part Numbers	Description	Application	Hot On	Hot Off	Cool On	Cool Off
DCV0100-01 (SA)	Refrigeration Regulators	Consul/Brastemp - Duplex Refrigerator 330/340/430/440L (BRM43A)	10.1°C	3.6°C	2.3°C	-6.2°C
DCV0400-09 (SA)	Refrigeration Regulators	Electrolux - Refrigerator	13°C	2°C	-1.0°C	-12.0°C
DCV0600-01 (SA)	Refrigeration Regulators	Consul/Brastemp - Duplex Refrigerator BRB44/BRB48	7.5°C	0.5°C	-2.5°C	-10.2°C
DCV1300-01 (SA)	Refrigeration Regulators	Consul/Brastemp - Refrigerator	10.2°C	3.6°C	2.3°C	-6.2°C
DCV1400-01 (SA)	Refrigeration Regulators	Consul/Brastemp - Refrigerator	6.5°C	0.5°C	0°C	-9.0°C
DCV1800-64 (SA)	Refrigeration Regulators	Mabe - Refrigerator	10°C	-2.5°C	-3.0°C	-15.0°C
DCV2500-01 (SA)	Refrigeration Regulators	Consul/Brastemp - Duplex Frost Free Refrigerator (DC45/DC47/DF36)	9.4°C	2.8°C	1.5°C	-7.0°C

RoHS

1 Year Limited Warranty

REFRIGERATOR AIR DAMPERS

RAD Series

The Ranco® RAD Series Refrigerator Air Dampers allow cold air to flow from the freezer to the refrigerator. The damper is controlled by a thermostat, which triggers the damper to open and close depending on the temperature of the air in the refrigerator. In some cases, the damper is triggered by a timer, or a combination of the thermostat and timer.

Features and Benefits

- Highest output force for ice breakage
- Unidirectional door motion allows for positive sealing
- Motorized

MD40-1011

Specifications

Part Numbers	Description	Bulk Quantity	Replaces	Electrical Rating
RAD-1011	Refrigerator Air Damper Control, Motorized	1 piece	Whirlpool WP67003903	115V AC
RAD-5021	Refrigerator Air Damper Control, 6 Terminals, Motorized	1 piece	Electrolux 241600902	115V AC
RAD-7001	Refrigerator Air Damper Control, 2 Terminals, Motorized	1 piece	Electrolux 241600906	115V AC
MD20-5021	Refrigerator Air Damper Control, 6 Terminals, Motorized	144	Electrolux 241600902	115V AC
MD20-7001	Refrigerator Air Damper Control, 2 Terminals, Motorized	144	Electrolux 241600906	115V AC
MD40-1011	Refrigerator Air Damper Control, Motorized	200	Whirlpool WP67003903	115V AC

RANCO®

1 Year Limited Warranty

AKO

AKO-D14112

AKO-D14123

AKO ELECTRONIC CONTROLS

1510 Series

The AKO 1510 Series Temperature Controller is a family of electronic controllers engineered to manage various refrigeration and cooking commercial applications. With its wide temperature range, NTC and PTC probe inputs, and ambient storage humidity range, the AKO 1510 Series can be used in commercial refrigeration display cases, incubators and even vehicles.

This series has intelligent menus and easy browsing for quick and intuitive configurations. Key shortcuts provide direct access to the most common functions to speed up typical operations. Plus, AKO's proprietary algorithms are tested to achieve greater energy efficiency.

In addition, HACCP and installation status information is stored in memory to help maintain the control settings.

The AKO-D14918 Copy Card Device for AKO Refrigeration Temperature and Compressor Controllers is an easy to use plug-in tool to copy digital controller parameters device-to-device. This device allows an installer to load pre-programmed settings quickly.

Features and Benefits

- Maximum flexibility, with a large number of electronic, mechanical and appearance combinations
- Built-in universal power supply for installation anywhere in the world
- Copy Card accessory – copies configuration from one controller to another
- Configurable PTC/NTC temperature sensor inputs
- Ability to integrate Modbus communications
- Standard panel format with white display (in addition to monochrome green and blue)
- One-relay controller up to 2 HP with 5mm terminals for all inputs and outputs
- Automated processes for the configuration, calibration and verification of the entire controller in approximately 20 minutes

AKO

Specifications

Part Numbers	Description	Electrical Rating	Temperature Range	Defrost Cycles	Display Dimensions	Switch
AKO-D14112	Medium Temperature Controller	12/24V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	1 Compressor Relay SPDT 16 Amp max
AKO-D14120	Medium Temperature Controller	120V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	1 Compressor Relay SPDT 16 Amp max
AKO-D14123	Medium Temperature Controller	230V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	1 Compressor Relay SPDT 16 Amp max
AKO-D14123-2	Medium Temperature Controller	230V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	1 Compressor Relay SPDT 2CV
AKO-D14223	Medium Temperature Controller	230V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	2 Compressor Relay SPDT 16 Amp max; 1 Auxiliary Relay SPDT 8 Amp max
AKO-D14320	Medium Temperature Controller	120V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	3 Compressor Relays SPDT 16 Amp max; 1 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max
AKO-D14323	Low Temperature Controller	230V AC	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	3 Compressor Relays SPDT 16 Amp max; 2 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max
AKO-D14323-C	Universal Temperature Control	90-240V	-58°F to 212°F (-50°C to 100°C)	Compressor shutdown	Panel cut-out dimensions 71mm x 29mm; Front panel dimensions 79mm x 38mm	3 Compressor Relays SPDT 16 Amp max; 2 Auxiliary Relay SPDT 8 Amp max; 1 Fan Relay SPST 6 Amp max

RoHS

1 Year Limited Warranty

AKO

AKO-15490

AKO-D14918

AKO ELECTRONIC CONTROLS

1535 Series

The AKO 1535 Series Temperature Controller is a versatile electronic control engineered to manage various refrigeration and cooking commercial applications. With its wide temperature range, NTC and PTC probe inputs, and ambient storage humidity range, the AKO 1535 Series can be used in ovens, industrial panels, and electrical panels for refrigeration applications.

This series has intelligent menus and easy browsing for quick and intuitive configurations. Key shortcuts provide direct access to the most common functions to speed up typical operations. Plus, AKO's proprietary algorithms are tested to achieve greater energy efficiency.

In addition, HACCP and installation status information is stored in memory to help maintain the control settings.

The 1580 Series AKO Copy Card Device for AKO Refrigeration Temperature and Compressor Controllers is an easy to use plug-in tool to copy digital controllers parameters device to device. This device allows an installer to quickly load pre-programmed settings. Maximum operating temperature is 14°F to 122°F (-10°C to 50°C).

Features and Benefits

- Maximum flexibility, with a large number of electronic, mechanical and appearance combinations
- Built-in universal power supply for installation anywhere in the world
- Copy Card accessory – copies configuration from one controller to another
- Configurable PTC/NTC temperature sensor inputs
- Ability to integrate Modbus communications
- Standard panel format with white display (in addition to monochrome green and blue)
- Two outputs allow the controller to be used as a stage plus alarm
- Automated processes for the configuration, calibration and verification of the entire controller in approximately 20 minutes

Specifications

Part Numbers	Description	Electrical Rating	Temperature Range	Defrost Cycles	Display Dimensions	Switch
AKO-15490	Electronic Control	100V AC to 240V AC	-58°F to 212°F (-50°C to 100°C) Pt100 probe -99.9°C to 850°C; Thermocouple J -99.9°C to 800°C Thermocouple K -99.9°C to 1370°C	Compressor shutdown	48mm x 48mm	R1 SPST Relay 6 Amp (250V) R2 SPDT Relay 5 Amp (250V)
AKO-D14918	Copy Card	NA	NA	NA	NA	NA

1 Year Limited Warranty

AKO

AKO ELECTRONIC CONTROLS

Cam Regis Series

The AKO Temperature and Humidity Data Logger is designed for industrial and commercial refrigeration installations requiring a high degree of accuracy over a broad temperature range. Installation is simple through the set-up wizard tool and text menus in multiple languages plus on-screen help.

Features and Benefits

- Large, bright graphic display
- Five input logger with five NTC probes
- Quick print button
- Internal memory up to three years with a recording frequency of 15 minutes
- Recording interval of 5, 15 or 30 minutes available

AKO-15752

Specifications

Part Numbers	Description	Accuracy	Temperature Range	Switch	Electrical Rating
AKO-15752	Temperature and Humidity Data Logger	+/-34°F (+/-1°C)	-238°F to 1094°F (-150°C to 590°C)	Two relays, SPDT, 8 Amps, 250V AC	100V AC to 240V AC

1 Year Limited Warranty

AKO

AKO-80025

AKO ELECTRONIC CONTROLS

Thermometer Series

The AKO Thermometer Series is ideal for monitoring the temperature in a variety of refrigeration and heating applications for industrial and commercial displays.

Features and Benefits

- Easy to read LCD display
- Extensive temperature range
- High degree of accuracy
- Probe up to three meters long

Specifications

Part Numbers	Description	Length	Temperature Range	Power
AKO-80025	Thermometer	1.8"H x 1.3"W x .55"D	-58°F to 158°F (-50°C to 70°C)	Battery power, 1.5 Volts

1 Year Limited Warranty

AKO

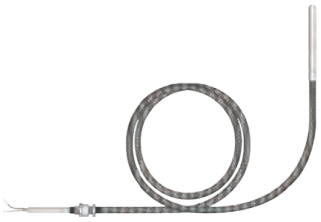
AKO ACCESSORIES

Probes

The AKO Probe Series are designed to cover a range of temperatures. PTC, NTC, and Pt100 probes are available in a variety of lengths.

AKO-14901

AKO-15601
AKO-15602



AKO-155801

Specifications

Part Numbers	Description	Length	Temperature Range
AKO-14901	NTC Probe Sensor	4' 11"	23°F to 212°F (-5°C to 100°F)
AKO-155801	PTC Probe	4' 11"	23°F to 212°F (-5°C to 100°F)
AKO-15601	J Probe	9' 10"	32°F to 1112°F (0°C to 600°C)
AKO-15602	K Probe	9' 10"	32°F to 1112°F (0°C to 600°C)

1 Year Limited Warranty

Installers need a manufacturer who can deliver specialized controls for unique applications. Uni-Line® offers a variety of specialized controls designed to integrate seamlessly into almost any system.

Motorized Diverter Valves G2
Heating Cables..... G4
Mini-Tek Liquid Level Detectors G8
Overflow Safety Valves..... G10
Smoke Alarms..... G12
Carbon Monoxide Alarms..... G14
Smoke and Carbon Monoxide Combination Alarms..... G16
Safety Products..... G18
Contractor Wipes G22

SPECIALTY

Robertshaw®

MOTORIZED DIVERTER VALVES

MDV8201A

MDV8231B

MDV0106A

8200 Series

The Robertshaw® Motorized Diverter Valve is a device that controls the distribution of water in different zones inside an appliance.

Designed specifically for dishwashers, the 8200 Series Motorized Diverter Valve controls the water pressure between upper and lower spray arms, allowing for a higher rinsing pressure and lower water consumption.

With its rotating shaft the motorized diverter moves a distribution disc into position so the disc can direct water flow through the designated spray arms. Existing models can perform a full rotation of the disk in 26 or 32 seconds.

The motorized diverter valve also incorporates an electronic timer that keeps track of the distribution disc position and sends the signal to the electronic control board. If the diverter fails, the dishwasher stops and displays an error code.

The motorized diverter valve is secured to the appliance housing through two hooks, two screws and a grommet seal to ensure a watertight joint in the connection interface.

Features and Benefits

- Proven high quality motor reliability
- Cam position detection with tact switch
- Position detection through Hall effect sensor
- Models with three or four different positions
- Low consumption motor
- Life time: 3500 hours for 400,000 turnings
- Compact design
- Connector system: RAST 2,5
- Compliant with the EU RoHS Directive 2002/95/EC and EC REACH Regulation No 1907/2006
- Made in EU (Czech Republic) - Robertshaw Integrated Motor Manufacturing Centre of Excellence

REACH COMPLIANT

CE

RoHS COMPLIANT

Specifications

Part Numbers	Description	Shaft Commutation Positions	Total Commutation Timing	Working Temperature	Motor Voltage - Frequency	Tact Switch Nominal Voltage/Max. Current	OEM Equivalent Part Code
MDV8201A	Motorized Diverter Valve	3	26 sec.	32°F to 167°F (0°C to 75°C)	220V AC, 50 Hz	5V DC/50mA	Whirlpool 486081500365 / 481010745146 480140102678 / 400010526930
MDV8221A	Motorized Diverter Valve	4	32.6 sec.	32°F to 167°F (0°C to 75°C)	220V AC, 50 Hz	5V DC/50mA	Whirlpool 486081500366 / 461972580441
MDV8231B	Motorized Diverter Valve	4	26.1 sec.	32°F to 167°F (0°C to 75°C)	220V AC, 50 Hz	5V DC/50mA	Whirlpool U86081500428 / 400010457476
MDV0106A*	Motorized Diverter Valve Rubber Seal	NA	NA	NA	NA	5V DC/50mA	Whirlpool 481253029121 / 261908090054

* Optional rubber seal fits all diverter models

Robertshaw®

1 Year Limited Warranty

AKO

HEATING CABLES

AKO-5LT1-TJ

AKO Heating Cables Series

AKO Heating Cables Series are built with quality tinned copper to provide accurate heating performance. AKO-5LT1-TJ and AKO-5LT2-TJ self-regulating heating cables are suitable for freeze protection and process temperature control, up to 150°F (65°C). They may be applied on metal or plastic surfaces. The modified polyolefin over jacket is appropriate when the heating cable is exposed to aqueous inorganic chemicals. The heat cables are approved for use in ordinary and hazardous areas. The cables can be cut to size using the AKO-LT-ICPE sizing kit.

Features and Benefits

- Tinned copper protective braid
- Outer and Inner insulator
- Timer On/Off
- Typical Application are freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks
- Polyolefin insulation

Specifications

Part Numbers	Description	Voltage	Temperature	T-Rating	Nominal Output
AKO-5LT1-TJ (NA, SA, EU)	Low Temperature Heating Cable for Freeze Protection	120V AC	150°F (65°C)	T5	5 Watts/ft. at 50°F (5 Watts/m at 20°C)
AKO-5LT2-TJ (NA, SA, EU)	Low Temperature Heating Cable for Freeze Protection	230V AC	150°F (65°C)	T6	5 Watts/ft. at 50°F (5 Watts/m at 20°C)
AKO-LT-ICPE (NA, SA, EU)	Sizing Kit with1 Direct Connection and 1 Termination Kit	NA	NA	NA	NA

1 Year Limited Warranty

HEATING CABLES

AKO Self-Regulating Heating Cables

AKO Self-Regulating Heating Cables are built with quality tinned copper to provide accurate heating performance. Designed for electric heating of pipes and tanks, the cables help maintain temperature when steam cleaning is not available. Cables are available in either polyolefin or fluoropolymer insulation. Termination Kits are also available for proper installation of the cables.

Features and Benefits

- Adjusts power output in line with the temperature in the pipes
- Available in multiple lengths for any size job
- Applications include freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks

AKO-71214T3

Specifications

Part Numbers	Description	Voltage	Temperature	T-Rating (Max.)	Nominal Output	Length
AKO-12213 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	25Watts/m @ 10°C	3 Meter
AKO-12215 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	25Watts/m @ 10°C	5 Meter
AKO-122110 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	25Watts/m @ 10°C	10 Meter
AKO-122130 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	25Watts/m @ 10°C	30 Meter
AKO-71214T3 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	15Watts/m @ 10°C	3 Meter
AKO-71214T5 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	15Watts/m @ 10°C	5 Meter
AKO-71214T10 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	15Watts/m @ 10°C	10 Meter
AKO-71214T30 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	15Watts/m @ 10°C	30 Meter
AKO-71218T3 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	30Watts/m @ 10°C	3 Meter
AKO-71218T5 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	30Watts/m @ 10°C	5 Meter
AKO-71218T10 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	30Watts/m @ 10°C	10 Meter
AKO-71218T30 (ANZ)	Self-regulating heating cable Sizing Kit Meter	230V AC	40°C	65°C	30Watts/m @ 10°C	30 Meter

Termination Kits

Part Numbers	Description	Length
AKO-5239	Heat-Shrink Sleeve	3 x 20mm, 2 x 130mm, 1 x 50mm
AKO-12292	Heat-Shrink Sleeve and Gland and Lock Ring	4 x 20mm, 2 x 130mm, 1 x 50mm 1 x 25mm

1 Year Limited Warranty

Customer Service: See Page J21

AKO

HEATING CABLES

AKO-71863

AKO Crankcase Heating Cables

AKO Crankcase Heating Cables are designed to provide universal resistance for hermetic compressors and heating resistances for refrigerator compressors. They are suitable for any type of cylindrical or oval shape boiler or tank.

Features and Benefits

- Adjusts power output in line with the temperature in the pipes
- Available in multiple lengths for any size job
- Applications include freeze protection, chemical and petrochemical industries, pipe heating, vessel and tanks

Specifications

Part Numbers	Description	Voltage	Nominal Output	Length
AKO-71863 (ANZ)	Crankcase Heating Cables	230V AC	35 Watts	120mm x 175mm (min x max)
AKO-71864 (ANZ)	Crankcase Heating Cables	230V AC	45 Watts	150mm x 280mm (min x max)
AKO-71866 (ANZ)	Crankcase Heating Cables	230V AC	65 Watts	220mm x 320mm (min x max)
AKO-71867 (ANZ)	Crankcase Heating Cables	230V AC	75 Watts	245mm x 370mm (min x max)

1 Year Limited Warranty

ACCESSORIES

AKO Sticker Kit

AKO Safety Sticker Kits provide highly visible labels to alert users to the use of power or other hazardous circumstances.

AKO-717445K

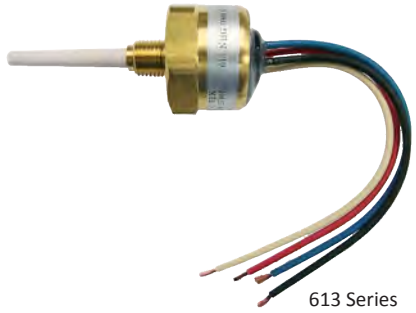
Specifications

Part Numbers	Description
AKO-717445K (ANZ)	Safety Sticker Kit includes 5 pieces in assorted sizes

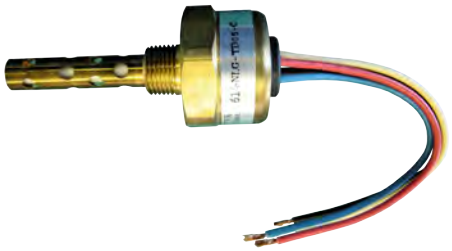
1 Year Limited Warranty

Robertshaw®

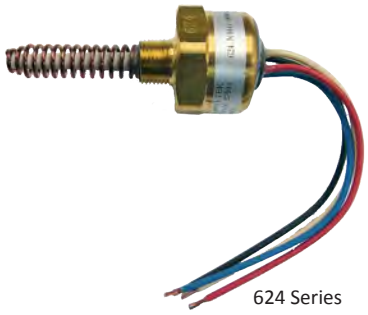
MINI-TEK
LIQUID LEVEL DETECTORS



613 Series



614 Series



624 Series

Mini-Tek Liquid Level Detector Series

The Robertshaw® Mini-Tek Liquid Level Detector is used to detect the levels of liquids in major diesel engines. The Robertshaw Mini-Tek operates on the electrostatic or "capacitance" sensing principle. The probe portion of the unit, extending into the liquid, produces a change in electrical "capacitance" when liquid displaces the air immediately surrounding the probe. The Robertshaw Mini-Tek detector will provide warning when liquid levels reach approximately 50% of capacity. This provides time to take action before damage is done to the engine. The Robertshaw Mini-Tek comes in three different models. Model 613 Coolant level Detector, 614 hydraulic oil or fuel detector, Model 624 Motor or gear fuel or oil detector.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Features and Benefits

- Voltage protected
- Rugged construction
- All solid state with no moving parts
- Reverse polarity protection
- Self-test capability

REACH COMPLIANT

Specifications

Part Numbers	Description	Alarm Mode	Load Configuration	Time Delay	Terminal Configuration
613-NHG-0000-C	Coolant Level Detector	High Liquid Level	Grounded	None	C
613-NHU-0000-B	Coolant Level Detector	High Liquid Level	Ungrounded	None	B
613-NLG-0000-0	Coolant Level Detector	Low Liquid Level	Grounded	None	0
613-NLG-0000-C	Coolant Level Detector	Low Liquid Level	Grounded	None	C
613-NLG-TD12-0	Coolant Level Detector	Low Liquid Level	Grounded	12 seconds	0
613-NLG-TD12-C	Coolant Level Detector	Low Liquid Level	Grounded	12 seconds	C
613-NLU-0000-0	Coolant Level Detector	Low Liquid Level	Ungrounded	None	0
613-NLU-0000-B	Coolant Level Detector	Low Liquid Level	Ungrounded	None	B
613-NLU-TD07-B	Coolant Level Detector	Low Liquid Level	Ungrounded	7 seconds	B
613-NLU-TD12-0	Coolant Level Detector	Low Liquid Level	Ungrounded	12 seconds	0
613-NLU-TD12-C	Coolant Level Detector	Low Liquid Level	Ungrounded	12 seconds	C
614-NHG-0000-C	Hydraulic Oil or Fuel Level Detector	High Liquid Level	Grounded	None	C
614-NHU-0000-C	Hydraulic Oil or Fuel Level Detector	High Liquid Level	Ungrounded	None	C
614-NLG-0000-0	Hydraulic Oil or Fuel Level Detector	Low Liquid Level	Grounded	None	0
614-NLG-0000-C	Hydraulic Oil or Fuel Level Detector	Low Liquid Level	Grounded	None	C
614-NLG-TD07-B	Hydraulic Oil or Fuel Level Detector	Low Liquid Level	Grounded	7 seconds	B
614-NLG-TD12-0	Hydraulic Oil or Fuel Level Detector	Low Liquid Level	Grounded	12 seconds	0
624-NHG-0000-C	Motor or Gear Oil Level Detector	High Liquid Level	Grounded	None	C
624-NHU-0000-B	Motor or Gear Oil Level Detector	High Liquid Level	Ungrounded	None	B
624-NHU-0000-C	Motor or Gear Oil Level Detector	High Liquid Level	Ungrounded	None	C
624-NLG-0000-0	Motor or Gear Oil Level Detector	Low Liquid Level	Grounded	None	0
624-NLG-0000-B	Motor or Gear Oil Level Detector	Low Liquid Level	Grounded	None	B
624-NLG-0000-C	Motor or Gear Oil Level Detector	Low Liquid Level	Grounded	None	C
624-NLG-TD12-0	Motor or Gear Oil Level Detector	Low Liquid Level	Grounded	12 seconds	0
624-NLU-0000-0	Motor or Gear Oil Level Detector	Low Liquid Level	Ungrounded	None	0
624-NLU-0000-B	Motor or Gear Oil Level Detector	Low Liquid Level	Ungrounded	None	B
624-NLU-0000-C	Motor or Gear Oil Level Detector	Low Liquid Level	Ungrounded	None	C
624-NLU-TD12-B	Motor or Gear Oil Level Detector	Low Liquid Level	Ungrounded	12 seconds	B
624-NLU-TD12-C	Motor or Gear Oil Level Detector	Low Liquid Level	Ungrounded	12 seconds	C

Part Number Legend 6XX-NXX-XXXX-X

6XX Model Number	N Polarity	X Alarm Mode	X Load Configuration	XXXX Time Delays	X Terminal Configurations
613 = Coolant Level Detector	Negative	L = Low Liquid Level	U = Ungrounded	0000 = No Time Delay	0 = Three Spade Terminals
614 = Hydraulic Oil or Fuel Detector		H = High Liquid Level	G = Grounded	TD12 = 12 Seconds	B = Four Spade Terminals
624 = Motor or Gear Oil Detector				TD07 = 7 Seconds	C = Four Wire Leads
				TD10 = 10 Seconds	

1 Year Limited Warranty

Robertshaw®

OSV-001 OSVR-001

OSV-002 OSVR-002

OVERFLOW SAFETY VALVE

OSV Series

The Robertshaw® Overflow Safety Valve provides fully automatic hands-free flood prevention by stopping excessive water flow of an appliance before damage can occur. The Overflow Safety Valve operates as an independent flow-meter valve by measuring the water volume passing through it for each cycle of an appliance. The Overflow Safety Valve will shut off the water supply when the maximum set volume is exceeded. The valve resets itself after each cycle when no overflow occurs, and is ready for the next cycle. If the overflow safety valve does exceed the set volume, and stops the flow of water, it must be reset manually.

An External Reset device is available as an optional component (Order part number OSVR-001 or OSVR-002.) It allows for easy reset of the Overflow Safety Valve with the push of a button after safe conditions have been reestablished.

The Overflow Safety Valve and optional External Reset component are available for European and North American markets. Both versions are made of suitable materials to address water conditions specific for these regions.

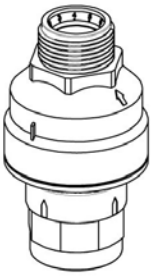
Features and Benefits

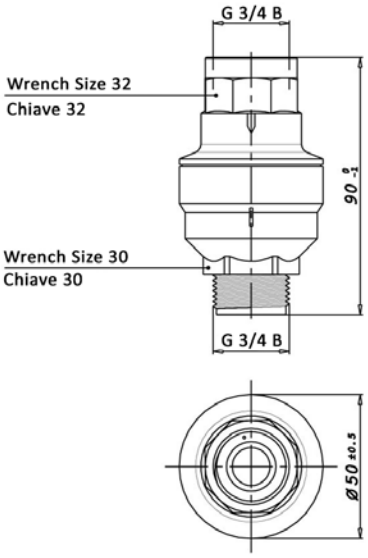
- Fully integrated mechanical flow-meter control
- Controls and measures flow volume between 5 and 50 liters (1.3 and 13.2 gallons)
- Provides protection when the appliance is off
- Features a 10-position dial to set desired maximum flow volume
- Prevents backflow pollution
- Resistant to bursting >50 Bar at 25˚C (725.19 PSI at 77˚F)
- Rated lifespan over 300,000 liters (79,000 gallons)
- Approved WRAS food grade compliant
- 2002/95/EC Directive (RoHS) compliant, TUV approved
- Material is Pb, Cd, Cr VI, Hg, PBD, PBDE free according to RoHS Directive 2002/95/EC
- Does not require an external energy source; water simply flows through the device
- Resists chlorine and chloramines damage
- Works with hot and cold water

Specifications

Part Numbers	Description	Inlet	Outlet	Operating Pressure	Flow Rate	Fluid Temperature	Color
OSV-001 (EU, ANZ, SA)	Overflow Safety Valve Europe	3/4" threaded female BSP	3/4" threaded male BSP	0.7 to 8.6 bar	2 to 30 LPM	2°C to 70°C	Grey
OSVR-001 (EU, ANZ, SA)	Overflow Safety Valve External Reset Europe	3/4" threaded female BSP	3/4" threaded male BSP	Max. 10 bar	NA	Up to 70°C	Grey
OSV-002 (NA)	Overflow Safety Valve North America	3/4" threaded female GHT	3/4" threaded male GHT	10 to 125 PSI	0.53 to 7.9 GPM	35°F to 158°F	Black
OSVR-002 (NA)	Overflow Safety Valve External Reset North America	3/4" threaded female GHT	3/4" threaded male GHT	Max. 146 PSI	NA	Up to 158°F	Black

Product Drawings





1 Year Limited Warranty

Kidde

21010064

SMOKE ALARMS

Smoke Alarm Series

The Kidde Smoke Alarm models are sealed-in lithium battery devices available with either photoelectric or ionization sensing technology. Photoelectric sensing alarms are designed to detect visible particles (associated with smoldering fires) sooner than ionization alarms. Ionization sensing alarms are designed to detect invisible fire particles (associated with flaming fires) sooner than photoelectric alarms. This series includes models for living areas, bedrooms, and hallways. All models offer worry-free features to make installation easy and to help users aware of replacement requirements.

Features and Benefits

- Sealed-In Lithium Battery – Sealed-in lithium power supply to reduce the need for battery replacement over the 10 year life of the alarm
- Alarm automatically activates when attached to the mounting bracket
- Rapidly flashing LED alerts user if the alarm has sounded since the last time the test/reset button was used
- Test/Hush Button tests alarm circuitry and activates Hush features
- Smart Hush™ – Button to temporarily silence nuisance alarm for approximately 10 minutes and will not allow hush mode unless the unit is in alarm mode
- End of life warning - Alarm chirps every 30 seconds to indicate the unit is in need of replacement
- End of Life Hush® - Alarm can be silenced three days at a time up to 30 days to allow for alarm replacement at a more convenient time

UL LISTED
Listed Product

Specifications

Part Numbers	Factory Number	Description	Humidity Range	Power	Sensor Type	Size	Standard LED	Temperature Range
21010064	P3010L	Smoke Alarm	10%-85% non-condensing relative humidity (RH)	Sealed Lithium Battery	Photoelectric	5.22" in diameter x 1.6" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21010067	P3010B	Smoke Alarm	10%-85% non-condensing relative humidity (RH)	Sealed Lithium Battery	Photoelectric	5.22" in diameter x 1.6" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21010069	P3010H	Smoke Alarm	10%-85% non-condensing relative humidity (RH)	Sealed Lithium Battery	Photoelectric	5.22" in diameter x 1.6" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21010407	i120105	Smoke Alarm AC Powered	10%-85% non-condensing relative humidity (RH)	120V AC Sealed Lithium Battery Back-up	Ionization	5.22" diameter x 1.6" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21008697	i9010	Smoke Alarm Battery Powered	10%-85% non-condensing relative humidity (RH)	Sealed Lithium Battery	Ionization	5.6" diameter x 1.55" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21006374	i12020	Smoke Alarm AC Powered	10%-85% non-condensing relative humidity (RH)	120V AC, 80mA max	Ionization	5.6" diameter x 1.55" depth	Green for normal operation, Red for alarm	40°F to 100°F (4.4°C to 37.8°C)
21006378	i2040	Smoke Alarm AC/DC Powered	10%-85% non-condensing relative humidity (RH)	120V AC with 9V Battery Back-up	Ionization	5.6" diameter x 1.55" depth	Green for normal operation, Red for alarm	40°F to 100°F (4.4°C to 37.8°C)
0916E	i9060	Smoke Alarm Battery Powered	10%-85% non-condensing relative humidity (RH)	9V Battery	Ionization	5" diameter x 1.5" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)

Kidde

10 Year Limited Warranty

Kidde

CARBON MONOXIDE ALARMS

21010073

Carbon Monoxide Alarm Series

The Kidde Carbon Monoxide (CO) Alarms are sealed-in lithium battery devices that use electrochemical sensing technology to monitor CO levels. Each alarm automatically activates when it is attached to the mounting bracket, eliminating the need for pull tags or switches to activate the alarm. At the end of alarm life, the unit will chirp, indicating the alarm is in need of replacement. These alarms are suitable for all living areas.

Features and Benefits - all models

- Test/Reset Button tests the unit for proper operation and resets the Carbon Monoxide Alarm
- Loud 85 decibel alarm alerts of deadly CO gas
- Low Battery Hush – Silences low battery chirp warning for up to 12 hours in order to maintain protection without having to replace the batteries at an inconvenient time

Specifications

Part Numbers	Factory Number	Description	Humidity Range	Power	Sensor Type	Size	Standard LEDs	Temperature Range
21010073	C3010	Carbon Monoxide Alarm	10%-95% non-condensing relative humidity (RH)	Sealed Lithium Battery	Electrochemical	4.5"L x 2.75" H x 1.5"D	LED Lights - Green for normal operation, Red for alarm, Amber for Error	40°F to 100°F (4.4°C to 37.8°C)
21010075	C3010-D	Carbon Monoxide Alarm with Digital display	10%-95% non-condensing relative humidity (RH)	Sealed Lithium Battery	Electrochemical	4.5"L x 2.75" H x 1.5"D	LED Lights - Green for normal operation, Red for alarm, Amber for Error	40°F to 100°F (4.4°C to 37.8°C)
21025761	KN-COB-DP2	AC Powered Carbon Monoxide Alarm with Battery Back-Up	10%-95% non-condensing relative humidity (RH)	120V AC, 60 Hz, 60mA max; 2-AA battery back-up	Electrochemical	2.75"W x 4.5"H x 1.5"D	Two LEDs : Red - Illuminates when in alarm mode. Green – AC power is present, normal operation.	40°F to 100°F (4.4°C to 37.8°C)
21025788	KN-COB-LP2	Battery Powered Carbon Monoxide Alarm	10%-95% non-condensing relative humidity (RH)	2 AA Batteries	Electrochemical	4.5"L x 2.75" H x 1.5"D	Two LEDs : Red - Illuminates when in alarm mode. Green – AC power is present, normal operation.	40°F to 100°F (4.4°C to 37.8°C)
21006406	KN-COP-1C	AC/DC Powered Carbon Monoxide Alarm with Battery Back-Up	10%-95% non-condensing relative humidity (RH)	120V AC, 60 Hz; 9V battery back-up	Electrochemical	5.75" diameter x 1.8" depth	LED Lights - Green for normal operation. Red for alarm. Amber for CO initiated alarm.	40°F to 100°F (4.4°C to 37.8°C)
21026344	KN-COP-DP-B	Plug in Carbon Monoxide Alarm with Digital Display	10%-95% non-condensing relative humidity (RH)	120V AC, 60 Hz, 90mA max; 2-AA battery back-up	Electrochemical	3.0"L x 5.6"H x 1.5"D	LED Lights - Green for normal operation. Red for alarm. Amber for CO initiated alarm.	40°F to 100°F (4.4°C to 37.8°C)

UL LISTED
Listed Product

10 Year Limited Warranty

KIDDE NIGHTHAWK GENERAL PURPOSE CARBON MONOXIDE ALARM

900 Series

The Kidde 900 Series Nighthawk Carbon Monoxide Alarm are devices that use electrochemical sensing technology to monitor CO levels for all living areas. The specification chart highlights the unique features of each model. The unit incorporates two LEDs. A red LED illuminates when in alarm mode and a green LED illuminates when power is present.

Features and Benefits

- Test / Reset Button tests the unit for proper operation and resets the Carbon Monoxide Alarm
- Loud 85 decibel alarm alerts of deadly CO gas
- Tamper Resistant Feature – If activated, unit goes into constant alarm mode if it has been unplugged or has come loose from the outlet
- End of life warning – Ten years after unit is first powered, this alarm will chirp two times every 30 seconds to indicate it is time to replace the alarm
- Multiple mounting options for 900-0230 and 900-0233 allow installation on a wall or tabletop
- Manufactured for Canadian installations

900-0233

900-0230

900-0263CO-CA

Specifications

Part Number	Factory Number	Description	Humidity Range	Power	Sensor Type	Size	Standard LEDs	Temperature Range
900-0233 (CAN)	KN-COB-B-LS-CA	Battery Powered Carbon Monoxide Alarm	10% - 95% relative humidity (RH)	Battery Operated (3 AA Batteries included)	Electrochemical	13cm x 7.5cm x 4cm	Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation	4.4°C to 37.8°C (40°F to 100°F)
900-0230 (CAN)	KN-COPP-B-LS-CA	Battery Powered Carbon Monoxide Alarm with Digital Display	10% - 95% relative humidity (RH)	Battery Operated (3 AA Batteries included)	Electrochemical	13cm x 7.5cm x 4cm	Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation	4.4°C to 37.8°C (40°F to 100°F)
900-0263CO-CA (CAN)	KN-COB-DP-2CA	120V AC Plug-in Carbon Monoxide Alarm with Battery Back-Up	10% - 95% relative humidity (RH)	120V AC, 60 Hz, 90 mA max; battery back-up (2 AA Batteries included)	Electrochemical	7.2cm x 4.0cm x 11.9cm	Two LEDs: Red – illuminates when in alarm mode. Green – AC power is present, normal operation	4.4°C to 37.8°C (40°F to 100°F)

10 Year Limited Warranty

Kidde

SMOKE AND CARBON MONOXIDE COMBINATION ALARMS

21010071

Smoke and Carbon Monoxide Combination Alarm Series

The Kidde Smoke and Carbon Monoxide (CO) Combination Alarm Series are devices that use smoke and CO sensing technologies together to detect fires and to monitor CO levels. Each alarm automatically activates when it is attached to the mounting bracket, eliminating the need for pull tags or switches to activate the alarm. At the end of alarm life, the unit will chirp, indicating the alarm is in need of replacement.

Features and Benefits

- Photoelectric sensor smoke alarms contain advanced photoelectric sensing technology that may detect visible particles (associated with smoldering fires) sooner than ionization alarms that detect less visible fire particles like those produced by flaming fires
- Electrochemical CO sensor
- Rapidly flashing LED alerts user if the alarm has sounded since the last time the test/reset button was used
- Smart Hush™ temporarily silences nuisance alarms for approximately nine (9) minutes and will not allow hush mode unless the unit is in alarm mode
- Test/Hush Button tests alarm circuitry and activates Hush features
- Alarm chirps every 30 seconds to indicate the unit is in need of replacement
- End of Life Hush® indication can be silenced three days at a time up to 30 days to allow for alarm replacement at a more convenient time

UL LISTED
Listed Product

Specifications

Part Numbers	Factory Number	Description	Humidity Range	Power	Sensor Type	Size	Standard LEDs	Temperature Range
21010071	P3010K-CO	Smoke and Carbon Monoxide Combination Alarm	10%-85% non-condensing relative humidity (RH)	Sealed Lithium Battery	Smoke: Photoelectric CO: Electrochemical	5.22" diameter x 1.6" depth	Red LED blinks in conjunction with the alarm sound	40°F to 100°F (4.4°C to 37.8°C)
21010408	i12010SCO	Smoke and Carbon Monoxide Combination Alarm AC Powered with Sealed Lithium Battery Back-up	10%-95% non-condensing relative humidity (RH)	120V AC 60Hz, 45mA max per alarm; Sealed Lithium Battery	Smoke: Ionization CO: Electrochemical	5.5" diameter x 1.75" depth	LED Lights-Green for normal operation, Red for alarm	40°F to 100°F (4.4°C to 37.8°C)
21006974	KN-COSM-BA	Smoke and Carbon Monoxide Combination Alarm AC Powered	10%-95% non-condensing relative humidity (RH)	120V AC 60Hz, 45mA max 2-AA Battery Back-up	Smoke: Ionization CO: Electrochemical	5.6" diameter x 1.8" depth	LED Lights-Green for normal operation, Red for alarm	40°F to 100°F (4.4°C to 37.8°C)
21006377	KN-COS-IBA	Smoke and Carbon Monoxide Combination Alarm AC Powered	10%-95% non-condensing relative humidity (RH)	120V AC 60Hz, 45mA max 2-AA Battery Back-up	Smoke: Ionization CO: Electrochemical	5.6" diameter x 1.8" depth	LED Lights-Green for normal operation, Red for alarm	40°F to 100°F (4.4°C to 37.8°C)

Kidde

10 Year Limited Warranty

UNI-LINE®

UL-SS-0500

UL-SS-0501

CONTRACTOR LIGHTING PROTECTION

Lighting

The Contractor Lighting Protection products from Uni-Line® offer unique features in a powerful headlamp and spotlight.

Features and Benefits

- 90-degree vertical tilt directs light exactly where needed
- Water and impact resistant
- Lightweight and compact

Technician Pro-Grade 250+ Headlamp

- Four light modes for varying conditions:
  - 250+ lumen hi-power intense white
  - Dimmed white
  - Dual green LEDs
  - Dual red LEDs
- Powered by three AAA batteries (included)
- Top-positioned On/Off button

Big Cryket Compact Work/Spotlight

- Incredible LED lighting output across three settings:
  - High power intense white spotlight
  - High power intense white flood light
  - Low power red light
- Fully dimmable
- Work hands-free! Powerful magnetic base secures to metal surfaces and surroundings
- Powered by two AA batteries (included)

Specifications

Part Numbers	Description	Minimum Purchase
UL-SS-0500	Technician Pro Grade 250+ Headlamp	6 Lights
UL-SS-0501	Big Cryket Work / Spot Light	6 Lights

CONTRACTOR EYE PROTECTION AND SURFACE PROTECTION

Eye Protection and Surface Protection

The Contractor Eye and Surface Protection products from Uni-Line® include three safety glass models and super grip cover cloths.

Features and Benefits

Safety Glasses

- These glasses are made with a sleek wraparound design to maintain excellent peripheral vision
- Lightweight and comfortable for extended wear
- Wide temple protects eyes from airborne dust, debris and particles
- UL tested to meet ANSI Z87.1+
- Scratch and fog resistant
- Available in Clear, Gray Smoke and Silver Mirror* lens color
- The glasses are available in three tints for indoor and outdoor installation needs

  *Silver mirror is not anti-fog

CoverGrip Protective Drop Cloths

- Quickly and easily deploy on job sites and work zone areas
- Ideal for use on flat surfaces and stairways
- Durable canvas with pressure sensitive rubberized dots to grip surfaces without leaving behind blemishes or sticky residue
- Machine washable

UL-SS-0301

UL-SS-0302

UL-SS-0300

UL-SS-0201

Specifications

Part Numbers	Description	Size	Color	Minimum Purchase
UL-SS-0300	Clear Wraparound Safety Glasses	NA	Clear	1 Carton (10 pair per carton)
UL-SS-0301	Gray Smoke, Anti-Fog Wraparound Safety Glasses	NA	Grey Smoke	1 Carton (10 pair per carton)
UL-SS-0302	Gray, Silver Mirror Wraparound Safety Glasses	NA	Grey, Silver Mirror	1 Carton (10 pair per carton)
UL-SS-0200	CoverGrip Drop Cloth, 8 oz wt.	3.5' x 12' Runner	Beige	2 Cloths
UL-SS-0201	CoverGrip Drop Cloth, 8 oz wt.	5' x 8' Rectangle	Beige	2 Cloths

UNI-LINE®

UL-SS-0100

UL-SS-0102

UL-SS-0103

UL-SS-0104

CONTRACTOR SLIP PROTECTION

Slip Prevention

The Contractor Slip Protection products from Uni-Line® include disposable and reusable shoe covers.

Features and Benefits

Grip-Max Disposable Shoe Covers

- Innovative coating provides maximum, non-slip traction on carpet, concrete, tile, synthetic and wood surfaces
- Seamless water-proof laminated exterior keeps footwear dry
- Fits easily over work shoes and boots
- Recommended for quick service and preventive maintenance calls
- Blue color. Available in sizes Large (Men's 8-12) and Extra-Large (Men's 13-15)
- Latex-free

Grip-Max Reusable Shoe Covers

- Reusable and machine washable
- Recommended for long-term projects and high-volume service techs and contractors
- Heavy-duty nylon upper with rugged double stitch reinforced skid resistant sole
- Hand-crafted in the USA
- Available in black, blue or red
- Available in Medium (Men's 7-10), Large (Men's 10.5-13), and Extra-Large (Men's 13.5-17)

Specifications

Part Numbers	Description	Size	Color	Minimum Purchase
UL-SS-0100	Grip-Max Disposable Shoe Covers	L (Fits Men's Shoe Size 8-12)	Blue	1 Carton (3 Pkgs. of 50)
UL-SS-0101	Grip-Max Disposable Shoe Covers	XL (Fits Men's Shoe Size 13-15)	Blue	1 Carton (3 Pkgs. of 50)
UL-SS-0102	Grip-Max Reusable Shoe Covers	M (Fits Men's Shoe Size 7-10)	Black (Red or Blue also available)	6 Pairs
UL-SS-0103	Grip-Max Reusable Shoe Covers	L (Fits Men's Shoe Size 10.5-13)	Black (Red or Blue also available)	6 Pairs
UL-SS-0104	Grip-Max Reusable Shoe Covers	XL (Fits Men's Shoe Size 13.5-17)	Black (Red or Blue also available)	6 Pairs

CONTRACTOR HAND PROTECTION

Hand Protection Products

The Contractor Hand Protection products from Uni-Line® include two types of nitrile gloves.

Features and Benefits

- Easy on and off
- Chemical resistant and latex-free/powder-free
- Available in sizes Medium, Large, and Extra-Large
- 9” length protects wrist

Contractor Grade Black Nitrile Gloves

- Premium protection while maintaining excellent dexterity for handling parts, tools and equipment
- Ultra-stretch comfort formulation for superior dexterity
- 6 mil thickness - 50% stronger than standard nitrile gloves
- Micro-texture palm for added grip

Contractor Grade Tread Grip Nitrile Gloves

- Innovative tire-tread palm grip delivers unmatched gripping power in wet and dry conditions
- Extra thick 7 mil for maximum protection

UL-SS-0400

UL-SS-0403

Specifications

Part Numbers	Description	Size	Color	Quantity	Minimum Purchase
UL-SS-0400 UL-SS-0401 UL-SS-0402	Contractor Grade Nitrile Gloves, 6 mil thickness	M L XL	Black	100 Gloves / Carton	2 Cartons
UL-SS-0403 UL-SS-0404 UL-SS-0405	Contractor Grade Tread Grip Gloves, 7 mil thickness	M L XL	Black	100 Gloves / Carton	2 Cartons

Customer Service: See Page J21

CONTRACTOR WIPES

UL-90150

UL-90100

Wipe Series

The Grab N' Scrub Wipes™ distributed by Uni-Line® are ideal for cleaning up messy work areas, hands, and tools in an instant. Packed in convenient tubs, these wipes are premoistened with a citrus scented degreasing cleaner to cut through oil, lubricants, adhesives and much more. Grab N' Scrub wipes are perfect to keep on hand for on-the-go contractors and repair technicians.

Features and Benefits

- A powerful hand and surface degreasing cleaner that's gentle on your skin
- Pre-moistened; no need for soap and water
- Infused with citrus scented degreasing cleaner
- Unique scratch resistant scrubbing texture
- Cut thru oil, tar, grease, paint, lubricants, ink, wax and adhesives with ease
- Water resistant packaging
- Made in the USA

Specifications

Part Numbers	Description	Sheet Color	Sheet Size	Quantity / Dispenser	Dispensers / Case
UL-90150	Grab N' Scrub Wipes	Red / White	10" x 12.25"	72	6
UL-90100	Grab N' Scrub Wipes	Red / White	10" x 12.25"	130	4

CONTRACTOR WIPES

Wipe Series

The Big Grip® Bucket of Red Rags™ distributed by Uni-Line® are heavy-duty wipes in an easy-to-handle bucket. These ultra-tough disposable rags are packaged in a versatile and refillable dispensing pail. The Bucket slides into a wall-mount bracket (included) to store in service trucks or work areas, and quickly slides out for on-the-go cleaning needs. Order UL-70150 for Red Rag Refills to reuse the Bucket.

Features and Benefits

- Ideal for heavy-duty wiping applications
- Easy-to-handle Big Grip Bucket dispenses center-pull rags with ease
- Bucket slides into wall-mount bracket (included) for convenient storage on service trucks and workshops
- Durable water-resistant container keeps rags dry and ready to use
- Up to 400% more absorbent than red cloth rags
- UL-70140 – includes Big Grip Bucket, wipers, wall/truck mount bracket and hardware
- UL-70150 – refill rags slide into Big Grip Bucket for reuse
- Made in the USA

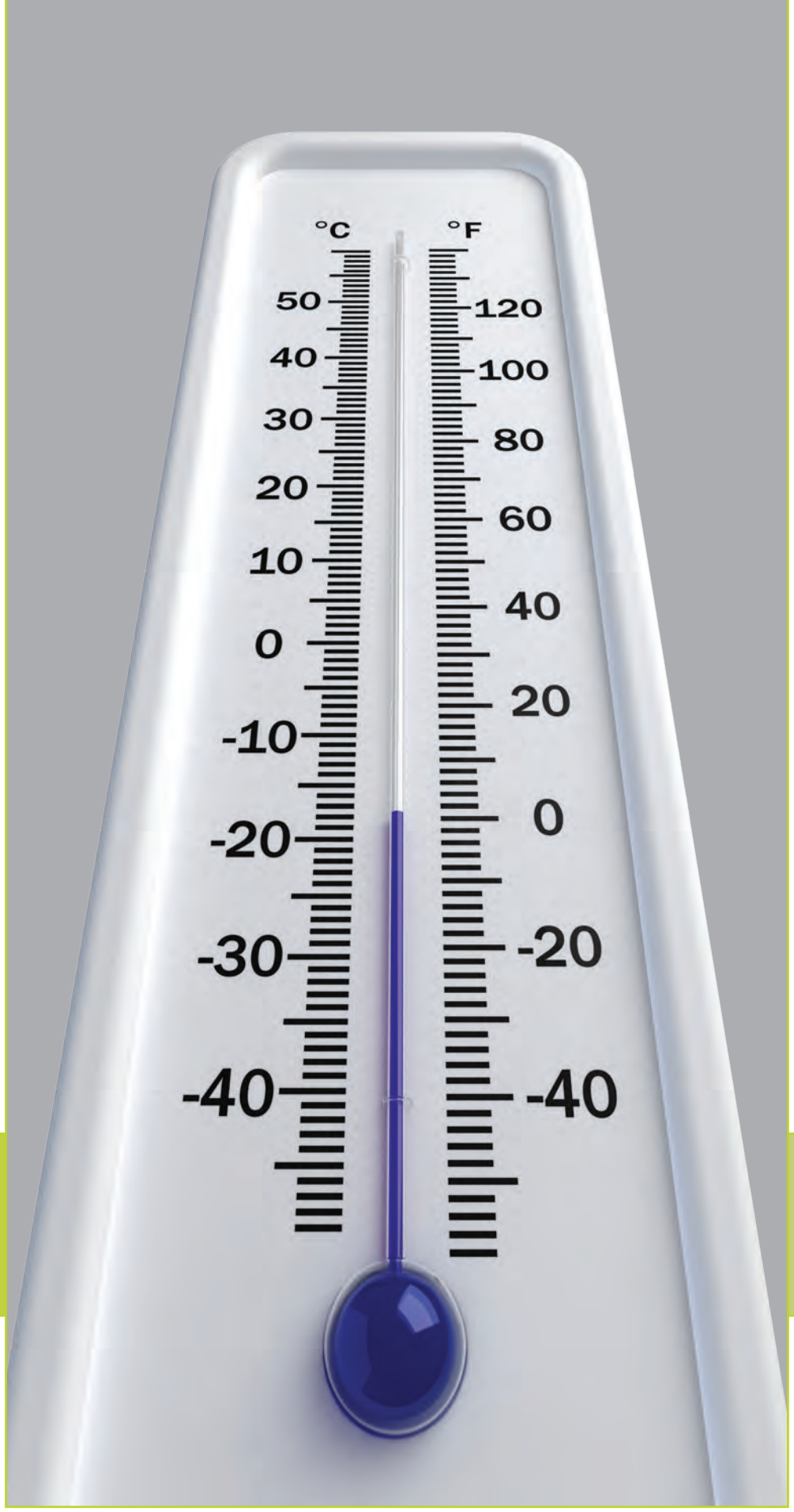
UL-70140

UL-70150

Specifications

Part Numbers	Description	Sheet Color	Sheet Size	Quantity / Bucket	Buckets / Case
UL-70140	Big Grip Bucket Rags	Red	10" x 12"	140	2
UL-70150	Big Grip Rags - Refill	Red	10" x 12"	140	6

Customer Service: See Page J21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Contractors appreciate smooth HVAC installations while consumers look for a fine balance between temperature comfort and energy savings.

The Braeburn® by Robertshaw® wall thermostats, zoning and accessories are The Brighter Choice® for flexible, easy to use and install, residential and commercial heating and air conditioning controls. Wall thermostats also deliver intuitive, feature-rich and efficient solutions for homeowners and commercial customers.

Smart Wi-Fi Thermostat Series H2
Deluxe Touchscreen Thermostat Series H6
Premier Thermostat Series H9
Economy Thermostat Series H15
Builder Thermostat Series H19
Mechanical Thermostat Series H28
Construction Thermostat Series H31
Humidistats and Dehumidistats H32
Accessories - Wireless Sensors H34
Accessories - Sensors H35
Accessories - Universal Guards and Wall Plates H36
Zone Control Panel Series H38
Zoning System Accessories H44
Motorized Damper Series H48
Bypass Damper Series H56

WALL THERMOSTATS

Braeburn®

7500 Kit

SMART WI-FI UNIVERSAL WIRELESS THERMOSTAT KIT

7500 Series

The Braeburn® BlueLink™ 7500 Wireless 7 Day, 5-2 Day or Non-Programmable Thermostat Kit includes thermostat, control module and plenum sensor for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 5 square inch display, auto changeover and wireless remote sensing.

Thermostat Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Residential or commercial modes
- Battery operated for total installation flexibility
- SpeedBar® multi-function button
- Compatible with 2 or 3 wire hydronic zone systems
- Adjustable balance points
- Auxiliary heat fossil fuel option
- Programmable fan control
- R and C terminals for optional 24V operation
- Adjustable temperature units
- Multi-level keypad lockout
- Free color contractor branding on quick reference instruction card

Control Module Features and Benefits

- Superior wireless range
- Battery life exceeds virtually all competitive models
- Includes return air sensor for default temperature control even if batteries are drained
- Connect to 4 optional wireless indoor sensors for remote temperature sensing*
- Optional wireless outdoor sensing for outdoor temperature display or balance point control*
- Optional wireless humidity plenum sensor for whole-house humidification control*
- Affordable solution for most thermostat applications

* Up to 4 wireless sensors can be connected

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
7500	Smart Thermostat	Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 5 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- .5°C)	Control Module S1, S2, P1, P2, L, C, Y2, Y1, O/B/V3, W2/AUX, W1/E, Rh, Rc, G Thermostat R, C	3.86" x 5.11" x 1.42" (9.8cm x 13cm x 3.6cm)	Blue	Yes	Yes	Complete kit to add or relocate a thermostat

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RoHS COMPLIANT

5 Year Limited Warranty

SMART WI-FI TOUCHSCREEN UNIVERSAL THERMOSTATS

7320 Series

The Braeburn® BlueLink™ 7320 Smart Wi-Fi Touchscreen Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 3 stages of heat and 2 stages of cool with a 6.5 square inch display, auto changeover and wireless remote sensing.

7320

Phone not included

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- Auxiliary heat fossil fuel option
- Heat pump balance points
- Auxiliary "A" terminal for economizer, fresh air or output control
- Wireless remote sensor capability - indoor, outdoor or humidity
- Humidification and dehumidification control with 7330 wireless sensor (sold separately)
- "C" common wire required for Wi-Fi operation
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
7320	Smart Touchscreen Thermostat	Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C)	Rh, Rc, C, W2/ AUX, W1/E, L, A, O/B, G, Y2, Y1, K, S2, S1	3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm)	Blue	Yes	Yes	Remote access from Smartphone, tablet, or PC

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7305

Phone not included

7205

SMART WI-FI UNIVERSAL THERMOSTATS

7305 and 7205 Series

The Braeburn® BlueLink™ 7305 and 7205 Smart Wi-Fi Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 3 stages of heat and 2 stages of cool. The 7305 has a 5 square inch display, auto changeover and wired remote sensing. The 7205 has a 3 square inch display and requires no C wire.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- Auxiliary heat fossil fuel option
- Heat pump balance points
- Auxiliary "A" terminal for economizer, fresh air or output control
- Humidification and dehumidification control for the 7305 model with 7330 wireless sensor (sold separately)

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
7305	Smart Thermostat	Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C)	Rh, Rc, C, W2, W1/E/W3, L, A, O/B/V3, G, Y2, Y1, K, S2, S1	3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm)	Blue	Yes	Yes	Requires "C" common wire for WiFi Remote access from Smartphone, tablet, or PC
7205	Smart Thermostat	Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 6 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C)	Rh, Rc, C, W2, W1/E/W3, L, A, O/B/V3, G, Y2, Y1, K, S2, S1	3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm)	Blue	Yes	Yes	Remote access from Smartphone, tablet, or PC

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RoHS COMPLIANT

5 Year Limited Warranty

SMART WI-FI UNIVERSAL THERMOSTATS

7300 Series

The Braeburn® BlueLink™ 7300 Smart Wi-Fi Thermostat is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 5 square inch display, auto changeover and wired remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Residential or commercial modes
- Auto or manual changeover
- Adjustable temperature limits
- Hardwire or battery powered
- SpeedBar® multi-function button
- Programmable and circulating fan modes
- Wired remote sensor capability
- "C" common wire required for Wi-Fi operation
- Free color contractor branding on quick reference instruction card

7300

Phone not included

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
7300	Smart Thermostat	Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C)	G, Rh, Rc, K, W1, O/B/V3, Y1, C, S1, S2	3.94" x 5.56" x 1.19" (10cm x 14.1cm x 3cm)	Blue	Yes	Yes	Remote access from Smartphone, tablet, or PC

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6425

DELUXE TOUCHSCREEN UNIVERSAL THERMOSTAT WITH HUMIDIFICATION CONTROL

6425 Series

The Braeburn® 6425 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat with humidification control for conventional or heat pump systems with up to 4 stages of heat and 2 stages of cool with a 12 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Residential or commercial modes
- Separate user and installer reset buttons
- Economizer control
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Humidification and dehumidification control
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
6425	Touchscreen Programmable Thermostat	Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 3 Amp maximum load per terminal, 7 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	A/D, H, G, Rc, Rh, W2/ AUX2, W3/O/B, Y1, Y2, W1/E/AUX1, C, L, S1, S2	4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm)	Blue	Yes	Yes

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RoHS COMPLIANT

5 Year Limited Warranty

DELUXE TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

6300

6300 Series

The Braeburn® 6300 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems with up to 4 stages of heat and 2 stages of cool with a 12 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential or commercial modes
- Economizer control
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
6300	Touchscreen Programmable Thermostat	Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 3 Amps maximum load per terminal, 7 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	A, G, Rc, Rh, W2/AUX2, W3/O/B, Y1, Y2, W1/E/ AUX1, C, L, S1, S2	4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm)	Blue	Yes	Yes

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6100

DELUXE TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

6100 Series

The Braeburn® 6100 Deluxe Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 12 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential or commercial modes
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
6100	Touchscreen Programmable Thermostat	Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 3 Amps maximum load per terminal, 7 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, O/B, Y, W, G, C, S1, S2	4.13" x 6.13" x 1.38" (10.5cm x 15.6cm x 3.5cm)	Blue	Yes	Yes

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PREMIER TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

5320

5320 Series

The Braeburn® 5320 Premier Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 4 stages of heat and 2 stages of cool with a 6.5 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Multi-level keypad lockout
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential and commercial modes
- Auxiliary heat fossil fuel option
- Adjustable balance points
- Economizer control
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
5320	Touchscreen Programmable Thermostat	Universal, Up to 4 Heat / 2 Cool Heat Pump, Up to 3 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amps maximum load per terminal, 7 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	A, G, Rc, Rh, W2/AUX2, W3/O/B, Y1, Y2, W1/E/AUX1, C, L, S1, S2	3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm)	Blue	Yes	Yes

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5310

PREMIER TOUCHSCREEN UNIVERSAL PROGRAMMABLE THERMOSTATS

5310 Series

The Braeburn® 5310 Premier Touchscreen is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 6.5 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Hardwire or battery powered
- SpeedBar® multi-function button
- SpeedSet® programming mode
- Circulating fan mode
- Programmable fan mode
- User selectable service monitors
- Multi-level keypad lockout
- Indoor or outdoor remote sensing
- Adjustable temperature limits
- Separate user and installer reset buttons
- Residential and commercial modes
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
5310	Touchscreen Programmable Thermostat	Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, O/B, Y1, W1, G, C, S1, S2	3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm)	Blue	Yes	Yes

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5 Year Limited Warranty

PREMIER UNIVERSAL PROGRAMMABLE THERMOSTATS

5220 Series

The Braeburn® 5220 Premier Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 5 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day of Non-Programmable
- Auto or manual changeover
- Speedbar® multi-function button
- Adjustable temperature limits
- Indoor or outdoor remote sensing
- SpeedSet® programming mode
- User selectable service monitors
- Hardwire or battery powered
- Multi-level keypad lockout
- Separate user and installer reset button
- Programmable and circulating fan modes
- Temporary override limits
- Residential and commercial modes
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging instructions
- Free color contractor branding on quick reference instruction card

5220

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
5220	Programmable Thermostat	Universal, Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 5 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- .5°C)	G, Rc, Rh, W2, O/B/V3, Y1, Y2, W1/E/W3, C, L, S1, S2	3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm)	Blue	Yes	Yes	Heat pump systems with up to two compressors and one auxiliary stage

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5020

PREMIER UNIVERSAL PROGRAMMABLE THERMOSTATS

5020 Series

The Braeburn® 5020 Premier Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heat and 1 stage cool with a 5 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Auto or manual changeover
- Speedbar® multi-function button
- Adjustable temperature limits
- Indoor or outdoor remote sensing
- Speedset® programming mode
- Use selectable service monitors
- Hardwire or battery powered
- Multi-level keypad lockout
- Separate user and installer reset buttons
- Programmable and circulating fan modes
- Temporary override limits
- Residential and commercial modes
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable
5020	Programmable Thermostat	Universal, 2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, O/B/V3, Y1, W1, G, C, S1, S2	3.94" x 5.56" x 1.19" (10cm x 14.12cm x 3.02cm)	Blue	Yes	Yes

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5 Year Limited Warranty

PREMIER NON-PROGRAMMABLE THERMOSTATS

3220

3220 Series

The Braeburn® 3220 Premier Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 3 stages of heat and 2 stages of cool with a 4 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- Auto or manual changeover
- Speedbar® multi-function button
- Indoor or outdoor remote sensing
- User selectable service monitors
- Separate user and installer reset buttons
- Multi-level keypad lockout
- Adjustable temperature limits
- Hardwire or battery powered
- Circulating fan mode
- Set point adjustment limits
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
3220	Non-Programmable Thermostat	Up to 3 Heat / 2 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	G, Rc, Rh, W2, O/B/V3, Y1, Y2, W1/E/W3, C, L, S1, S2	3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm)	Blue	Yes	Yes	Heat pump systems with up to 2 compressors and 1 auxiliary stage

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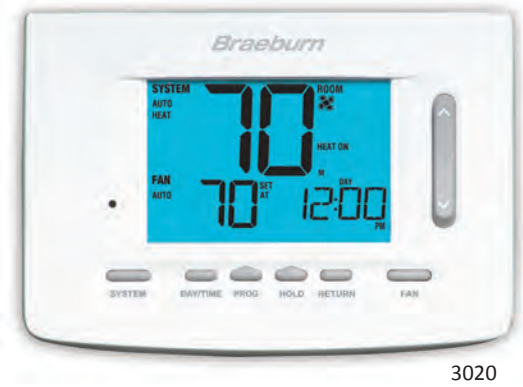

3020

PREMIER NON-PROGRAMMABLE THERMOSTATS

3020 Series

The Braeburn® 3020 Premier Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 4 square inch display, auto changeover and optional remote sensing.

Features and Benefits

- Auto or manual changeover
- Speedbar® multi-function button
- Indoor or outdoor remote sensing
- User selectable service monitors
- Separate use and installer reset buttons
- Multi-level keypad lockout
- Adjustable temperature limits
- Hardwire or battery powered
- Circulating fan mode
- Set point adjustment limits
- Auxiliary heat fossil fuel option and adjustable balance points
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Auto Changeover	Remote Sensor Capable	Comments
3020	Non-Programmable Thermostat	2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, O/B/V3, Y1, W1, G, C, S1, S2	3.86" x 5.11" x 1.42" (9.8cm x 12.97cm x 3.60cm)	Blue	Yes	Yes	Single stage conventional or single stage heat pumps with auxiliary heat

RoHS COMPLIANT

5 Year Limited Warranty

ECONOMY UNIVERSAL PROGRAMMABLE THERMOSTATS

2220

2220 Series

The Braeburn® 2220 Economy Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 2 stages of cooling with a 3 square inch display and adjustable temperature limits.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive Recovery Mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Auxiliary heat indicator
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
2220	Programmable Thermostat	Universal, Up to 2 Heat / 1 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rh, Rc, Y1, Y2, G, W1/E, W2, O, B, C	3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm)	Blue	Conventional systems up to 2H / 2C

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5 Year Limited Warranty

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2020

ECONOMY UNIVERSAL PROGRAMMABLE THERMOSTATS

2020 Series

The Braeburn® 2020 Economy Series is a 7 Day, 5-2 Day or Non-Programmable Thermostat for single stage conventional or heat pump systems with a 3 square inch display and adjustable temperature limits.

Features and Benefits

- 7 Day, 5-2 Day or Non-Programmable
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive Recovery Mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
2020	Programmable Thermostat	Universal, 1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rh, Rc, Y1, G, W1, O, B, C	3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm)	Blue	Single stage conventional or heat pump systems

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5 Year Limited Warranty

ECONOMY NON-PROGRAMMABLE THERMOSTATS

1220 Series

The Braeburn® 1220 Economy Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 2 stages of cooling with a 3 square inch display and adjustable temperature limits.

Features and Benefits

- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° switch
- Gas / Electric fan switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

1220

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight
1220	Non-Programmable Thermostat	Up to 2 Heat / 1 Cool Heat Pump, Up to 2 Heat / 2 Cool Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rh, Rc, O, B, C, Y1, Y2, E/W1, G, W2	3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm)	Blue

RoHS COMPLIANT

5 Year Limited Warranty

Braeburn®

1020

ECONOMY NON-PROGRAMMABLE THERMOSTATS

1020 Series

The Braeburn® 1020 Economy Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 3 square inch display and adjustable temperature limits.

Features and Benefits

- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1020	Non-Programmable Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rh, Rc, Y1, G, W1, O, B, C	3.70" x 5.16" x 1.38" (9.39cm x 13.10cm x 3.50cm)	Blue	Single stage conventional or heat pump systems

RoHS COMPLIANT

5 Year Limited Warranty

BUILDER PROGRAMMABLE THERMOSTATS

2220NC Series

The Braeburn® 2220NC Builder Series is a 5-2 Day Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 2 square inch display and adjustable temperature limits.

2220NC

Features and Benefits

- 5-2 Day Programming
- Adjustable temperature differential
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adaptive recovery mode (ARM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Programmable extended hold mode
- Front access reset button
- F° / C° switch
- Auxiliary heat indicator
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
2220NC	Programmable Thermostat	2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic System	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, B, O, Y1, E/W1, G, C, W2	3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm)	Blue	Single stage conventional or heat pump systems

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RoHS COMPLIANT

5 Year Limited Warranty

Braeburn®

2020NC

BUILDER PROGRAMMABLE THERMOSTATS

2020NC Series

The Braeburn® 2020NC Builder Series is a 5-2 Day Programmable Thermostat for single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits.

Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Filter check monitor
- Adjustable temperature differential
- Adaptive Recovery Mode (ATM™)
- Low battery indicator
- ESD Guard™ electronic circuitry
- Compressor short cycle protection
- Temporary program override
- Front access reset button
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
2020NC	Programmable Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, O, B, Y1, W1, G, C	3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm)	Blue	Single stage conventional or heat pump systems

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RoHS COMPLIANT

5 Year Limited Warranty

BUILDER PROGRAMMABLE THERMOSTATS

2200NC

2200NC Series

The Braeburn® 2200NC Builder Value Series is a 5-2 Day Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 1 square inch display and adjustable temperature limits.

Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differentials
- Programmable extended hold mode
- Adaptive recovery mode (ARM™)
- Separate O and B terminals
- Auxiliary heat status
- Front access reset button
- Filter check monitor
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
2200NC	Programmable Thermostat	2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	R, O, B, C, Y1, E/W1, G, W2	3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm)	Blue	Coventional or heat pump systems with a 1 square inch display and adjustable temperature limits

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RoHS COMPLIANT

2 Year Limited Warranty

Braeburn®

2000NC

BUILDER PROGRAMMABLE THERMOSTATS

2000NC Series

The Braeburn® 2000NC Builder Value Series is a 5-2 Day Programmable Thermostat for single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits.

Features and Benefits

- 5-2 Day Programming
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Adjustable temperature differential
- Programmable extended hold mode
- Adaptive recovery mode (ARM™)
- Separate O and B terminals
- Auxiliary heat status
- Front access reset button
- Filter check monitor
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight
2000NC	Programmable Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- .5°C)	Rc, Rh, B, O, Y, W, G, C	3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm)	Blue

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RoHS COMPLIANT

2 Year Limited Warranty

BUILDER NON-PROGRAMMABLE THERMOSTATS

1220NC

1220NC Series

The Braeburn® 1220NC Economy Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 2 square inch display and adjustable temperature limits.

Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1220NC	Non-Programmable Thermostat	2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 4 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rh, Rc, O, B, Y, E/W1, G, C, W2	3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm)	Blue	Conventional systems up to 2H / 1C with a 2 square inch display and adjustable temperature limits

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RoHS COMPLIANT

5 Year Limited Warranty

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1025NC

BUILDER NON-PROGRAMMABLE THERMOSTATS

1025NC Series

The Braeburn® 1025NC Builder Series is a Non-Programmable heat only thermostat with a 2 square inch display and adjustable temperature limits.

Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

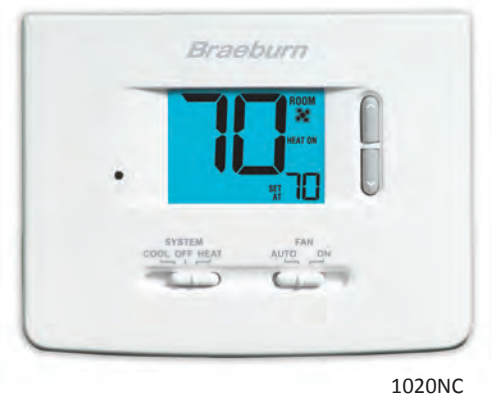
Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1025NC	Non-Programmable Thermostat	1 Heat Only Conventional, Electric, Gas, Oil or Millivolt, 2/3 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	R, G, W1, V3, C	3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm)	Blue	Conventional heat only systems with a 2 square inch display and adjustable temperature limits

RoHS COMPLIANT

5 Year Limited Warranty

BUILDER NON-PROGRAMMABLE THERMOSTATS



1020NC

1020NC Series

The Braeburn® 1020NC Builder Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits.

Features and Benefits

- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Low battery indicator
- ESD Guard™ electronic circuitry
- Front access reset button
- F° / C° Switch
- Gas / Electric fan switch
- Adjustable Temperature Differential
- Trilingual packaging and instructions
- Free color contractor branding on quick reference instruction card

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1020NC	Non-Programmable Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps total maximum load (all terminals)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, B, O, Y1, W1, G, C	3.62" x 4.72" x 1.38" (9.19cm x 11.98cm x 3.50cm)	Blue	Single stage conventional or heat pump systems with a 2 square inch display and adjustable temperature limits

Braeburn®

RoHS COMPLIANT

5 Year Limited Warranty

Braeburn®

1200NC

BUILDER NON-PROGRAMMABLE THERMOSTATS

1200NC Series

The Braeburn® 1200NC Builder Value Series is a Non-Programmable Thermostat for conventional or heat pump systems up to 2 stages of heating and 1 stage of cooling with a 1 square inch display and adjustable temperature limits.

Features and Benefits

- Blue backlight display
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Front access reset button
- Gas / Electric fan switch
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1200NC	Non-Programmable Thermostat	2 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	R, O, B, C, Y1, E/W1, G, W2	3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm)	Blue	Heat pump systems with a single compressor and up to one auxiliary stage

RoHS COMPLIANT

2 Year Limited Warranty

BUILDER NON-PROGRAMMABLE THERMOSTATS

1000NC Series

The Braeburn® 1000NC Builder Value Series is a Non-Programmable Thermostat for single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits.

Features and Benefits

- Blue backlight display
- Adjustable temperature limits
- Hardwire or battery powered
- Permanent memory retains settings
- Compressor short cycle protection
- Separate O and B terminals
- Front access reset button
- Gas / Electric fan switch
- Low battery indicator
- F° / C° Switch
- Trilingual packaging and instructions
- Free color contractor branding

1000NC

Specifications

Part Numbers	Description	Application	Electrical Rating	Temperature Range	Terminations	Size	Backlight	Comments
1000NC	Non-Programmable Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC with battery back-up OR 3V DC battery powered, 1 Amp max load per terminal, 3 Amps max load (all terminals combined)	45°F to 90°F (7°C to 32°C) +/- 1°F (+/- 0.5°C)	Rc, Rh, B, O, Y, W, G, C	3.72" x 4.75" x 1.12" (9.44cm x 12.06cm x 2.84cm)	Blue	Single stage conventional or heat pump systems with a 1 square inch display and adjustable temperature limits

Braeburn®

RoHS COMPLIANT

2 Year Limited Warranty

Braeburn®

505

BUILDER MECHANICAL THERMOSTATS

505 Series

The Braeburn® 505 Series is a Mechanical Thermostat for heat only.

Features and Benefits

- Heavy-duty ball-type system and fan switches
- Environmentally safe - mercury free
- Front mounted wiring terminals
- Heavy-duty anticipator
- Integrated sub-base for easy installation
- Electro-plated wiring terminals
- No-leveling required during installation
- System Lever OFF/HEAT
- Free contractor branding

Specifications

Part Numbers	Description	Application	Electrical Rating	Terminations	Dial Temperature	Size
505	Mechanical Thermostat	1 Heat Only Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC, or 3V DC battery powered, 1 Amp maximum load per terminal, 3 Amps maximum load (all terminals combined	Rh, W	50°F to 90°F (10°C to 32°C)	4.60" x 3.13" x 1.25" (11.7cm x 8cm x 3.2cm)

RoHS COMPLIANT

1 Year Limited Warranty

BUILDER MECHANICAL THERMOSTATS

500 Series

The Braeburn® 500 Series is a Mechanical Thermostat for single stage conventional or heat pump systems.

Features and Benefits

- Heavy-duty ball-type system and fan switches
- Environmentally safe - mercury free
- Front mounted wiring terminals
- Heavy-duty anticipator
- Integrated sub-base for easy installation
- Electro-plated wiring terminals
- No-leveling required during installation
- System Lever COOL/OFF/HEAT
- Free contractor branding

500

Specifications

Part Numbers	Description	Application	Electrical Rating	Terminations	Dial Temperature	Size
500	Mechanical Thermostat	1 Heat / 1 Cool Heat Pump or Conventional, Electric, Gas, Oil or Millivolt, 2 Wire Hydronic Systems	24V AC, and 3 Amps maximum load (all terminals combined)	O, G, Rc, Rh, B, Y, W	50°F to 90°F (10°C to 32°C)	4.60" x 3.13" x 1.25" (11.7cm x 8cm x 3.2cm)

Braeburn®

RoHS COMPLIANT

1 Year Limited Warranty

PERFECTsense™

PS801

PERFECTSENSE MECHANICAL THERMOSTATS

PS800 Series

The PerfectSense™ PS800 Series Line Voltage Thermostats offer performance and accuracy in an easy to install, low voltage control with models available for 120/208/240/277 Volts. The PS800 Series is J-Box compatible allowing it to be mounted directly to a 2" x 4" vertical electrical outlet box to speed up installation time. The simple modern design mounts flush to t he wall, with a large knob for easy temperature adjustments. These universal replacements can be used to retrofit most existing electric heat thermostats. Models for heating include single-line break and double-line break as well as single-line break application.

Features and Benefits

- Bimetal temperature sensing for improved thermal performance
- Both °F and °C control dials included
- Single or Double Pole Available
- J-Box compatible speeds up installation by mounting directly to an electrical outlet box
- Universal replacement to retrofit most existing electric heat thermostats

Specifications

Part Numbers	Description	Application	Electrical Rating	Dial Temperature	Accuracy	Maximum Power
PS801	Line Voltage Thermostat	Heating, SPST Switch Action	120-277V AC	41°F to 90°F (5°C to 32°C)	±3°F (1.6°C)	2640W @ 120V AC (22A) 4576W @ 208V AC (22A) 5280W @ 240V AC (22A) 4986W @ 277V AC (22A)
PS802	Line Voltage Thermostat	Heating, DPST Switch Action	120-277V AC	41°F to 90°F (5°C to 32°C)	±3°F (1.6°C)	2640W @ 120V AC (22A) 4576W @ 208V AC (22A) 5280W @ 240V AC (22A) 4986W @ 277V AC (22A)

Replacement Information

Robertshaw*	801, 802
White-Rodgers*	1A65-641, 1A66-641
Honeywell*	T498A1810, T498A1778, T410A1013, T4398A1021, T498B1553, T498B1512, T410B1004, T4398B1029

*Verify specific application requirements before substitution.

1 Year Limited Warranty

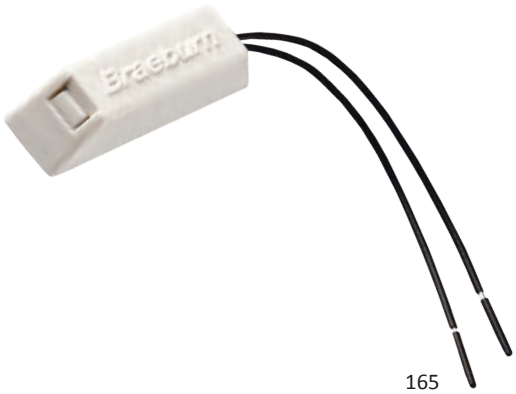
CONSTRUCTION THERMOSTATS

165 Series

The Braeburn® 165 Construction Thermostat is a heat only thermostat that maintains a fixed temperature set point of 65°F (18.3°C).

Features and Benefits

- Install in place of standard 24V AC thermostat during construction
- Maintains fixed temperature set point of 65°F (18.3°C)
- Tamper-proof design prevents temperature adjustment
- Sturdy enclosure protects switch from drywall dust, paint and mudding



165

Specifications

Part Numbers	Description	Application	Electrical Rating
165	Construction Thermostat	Heat Only	24V AC

Braeburn®

1 Year Limited Warranty

RANCO®

J10-809W

J10-821

HUMIDISTATS AND DEHUMIDISTATS

J10 Series

The Ranco® J10 Series Humidistats and Dehumidistats are designed to regulate the relative humidity of confined spaces by cycling humidifying or dehumidifying equipment. Designed for central systems, the J10 controls are made from high impact plastic with a brushed finish dial plate. The J10's nylon sensing element provides long life and accurate humidity control. The J10-821 humidistat can be wall mounted or installed directly in a cold air return duct. The J10-809W dehumidistat is designed to be wall mounted and can be wired in series or parallel with a 24 volt nonelectric thermostat.

Features and Benefits

- Strong plastic frame with integral switch eliminates the need to ground the control
- Improved woven nylon sensing elements provides a response time 12 times faster than nylon elements
- Greater stability in set points over dramatic changes in relative humidity
- Improved differential allowing 5% relative humidity

Specifications

Part Numbers	Description	Humidity Range	Electrical Rating	Temperature Range	Differential
J10-808	Humidistat – Wall or Duct Mount	10% to 60% RH	24V AC/60V AC	Switch Head 32°F to 140°F (0°C to 60°C)	5% or 15% Relative Humidity
J10-809W	Dehumidistat – Wall Mount	20% to 80% RH	24V AC/60V AC	Switch Head 32°F to 140°F (0°C to 60°C)	5% or 15% Relative Humidity
J10-810	Dehumidistat – Wall Mount (vertical)	20% to 80% RH	24V AC/60V AC	Switch Head 32°F to 140°F (0°C to 60°C)	5% or 15% Relative Humidity
J10-821	Humidistat – Wall Mount (horizontal)	20% to 80% RH	24V AC/60V AC	Switch Head 32°F to 140°F (0°C to 60°C)	5% or 15% Relative Humidity

1 Year Limited Warranty

DIGITAL HUMIDISTAT

229150 Series

The Braeburn® 229150 Automatic Digital Humidistat with large blue backlight display.

Features and Benefits

- Automatically adjusts humidity to outdoor air temperature
- Free outdoor sensor included
- Non-volatile memory retains user settings
- Built-in test mode
- Manual mode available
- Adjustable offset
- Wall mount or plenum mount with air stream sensing

229150

Specifications

Part Numbers	Description	Humidity Range	Electrical Rating	Remote Sensor Capable	Temperature Range	Terminations	Size
229150	Automatic digital humidistat	5% to 95% RH	24V AC (18-30 Volts AC)	Yes, to distance of 200ft (60.96m)	14°F to 140°F (-10°C to 60°C) +/- 1°F (+/- .5°C)	ACL, ACN, HYN2, HUM1, SNSR2, SNSR1	3" x 4.88" x 2" (7.6cm x 12.4cm x 5.1cm)

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ACCESSORIES - WIRELESS SENSORS

7390

7490

7330

7340

Wireless Sensor Series

The Braeburn® Wireless Sensors offer many application options to suit a variety of installation needs. Remote sensors allow the thermostat to monitor temperature or humidity in more than one room of your home or business, or to monitor the outdoor temperature. Adding remote sensors provides a simple way to increase the efficiency of your heating and cooling system, as well as added comfort.

Remote Modules can provide more control of HVAC systems. The use of a Wi-Fi module through a smart phone or internet connection allows settings to be changed at anytime from any location.

Features and Benefits

7390 Wireless Remote Indoor Sensor

- Sense temperature at remote location or combine with thermostat
- Up to 4 wireless remote indoor sensors can be connected
- Front LED light shows sensor status
- Requires 2 “AA” alkaline batteries (included)

7490 Wireless Remote Outdoor Sensor

- Display outdoor temperature
- Use for heat pump balance point control
- 1 wireless remote outdoor sensor can be connected (with a maximum of 4 wireless sensors can be connected)
- Requires 2 “AA” alkaline batteries (included)

7330 Wireless Remote Humidity Sensor

- Controls humidifier or dehumidifier
- Mounts directly to return air plenum
- 1 wireless remote outdoor sensor can be connected (with a maximum of 4 wireless sensors can be connected)
- 24V AC powered

7340 Share-a-Wire™ Module

- For use with BlueLink Smart Connect™ Wi-Fi Thermostats
- Provides a common “C” wire connection on a 4 wire system

Specifications

Part Numbers	Description	Size (LxWxH)	Compatible
7330	Wireless Humidity Plenum Sensor	3" x 3.6" x 2.5" (7.6cm x 9.1cm x 6.35cm)	7320, 7500
7390	Wireless Remote Indoor Sensor	3.4" x 3.2" x 1.5" (8.6cm x 8.1cm x 3.8cm)	7320, 7500
7490	Wireless Remote Outdoor Sensor	5" x 4" x 1.5" (12.7cm x 10.2cm x 3.8cm)	7320, 7500
7340	Share-A-Wire	2.4” x 3.6” x 1.25” (6.1cm x 9.1cm x 3.2cm)	7300, 7305, 7320

5 Year Limited Warranty

ACCESSORIES - SENSORS

Sensor Series

The Braeburn® Sensors offer many application options to suit a variety of installation needs. Remote sensors allow the thermostat to monitor temperature or humidity in more than one room of your home or business, or to monitor the outdoor temperature. Adding remote sensors provides a simple way to increase the efficiency of your heating and cooling system, as well as added comfort.

Features and Benefits

5390 Remote Indoor Sensor

- Contemporary style for any decor
- For use with compatible Braeburn thermostats
- Sensing range of -40°F to 99°F (-40°C to 37.2°C)

5490 Remote Outdoor Sensor

- Mounts outdoors up to 200 feet away
- Auto detected by Braeburn thermostats
- Enables outdoor control functions on compatible Braeburn thermostats
- Sensing range of -40°F to 120°F (-40°C to 48.8°C)

5390

5490

Specifications

Part Numbers	Description	Size (LxWxH)	Compatible
5390	Remote Indoor Sensor	3.06" x 2.63" x 1" (7.8cm x 6.7cm x 2.5cm)	2220NC, 3020, 3220, 5020, 5220, 5310, 5320, 6100, 6300, 6400, 7300, 7305, 7320
5490	Remote Outdoor Sensor	3.06" x 2.63" x 1" (7.8cm x 6.7cm x 2.5cm)	2220NC, 3020, 3220, 5020, 5220, 5310, 5320, 6100, 6300, 6400, 7300, 7305, 7320

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ACCESSORIES - UNIVERSAL THERMOSTAT GUARD

5970

5970 Series

The Braeburn® 5970 Universal Thermostat Guard protects against tampering, damage and unauthorized adjustment of thermostat settings.

Features and Benefits

- Universal - fits virtually all thermostats
- Replaces over 100 competitive models
- Tamper resistant design
- For new and existing thermostat applications
- Slim contemporary style
- Strong durable clear plastic
- Two keys included
- Fits thermostats 7.3” x 5.25” x 1.8” (18.5cm x 13.3cm x 4.6cm)

Specifications

Part Numbers	Description	Size
5970	Universal Thermostat Guard	7.3” x 5.25” x 1.8” (18.5cm x 13.3cm x 4.6cm)

1 Year Limited Warranty

ACCESSORIES - THERMOSTAT WALL PLATES

Wall Plates

The Braeburn® 2920 Vertical Wall Plate and the 2950 Universal Wall Plate are durable and make replacing an old thermostat easy.

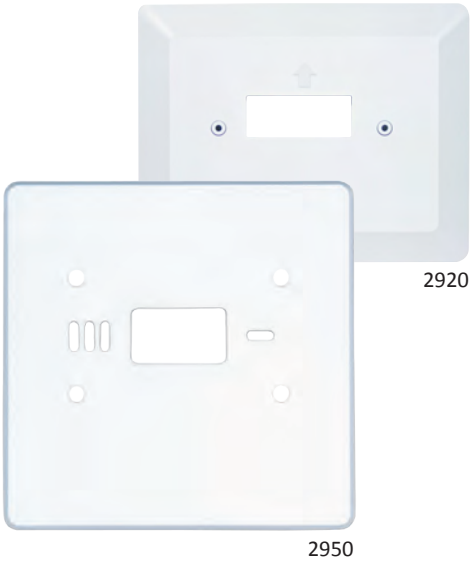
Features and Benefits

2920 Vertical Wall Plate

- Adapts vertical J Box to horizontal mount
- Sturdy two piece construction
- 6.5” x 5.125” (16.5cm x 13cm)

2950 Universal Wall Plate

- Covers mounting marks from old thermostats
- Use with all Braeburn® digital thermostats
- 6.5” x 6.5” (16.5cm x 16.5cm)



2920

2950

Specifications

Part Numbers	Description	Size
2920	Vertical Wall Plate	6.5” x 5.125” (16.5cm x 13cm)
2950	Universal Wall Plate	6.5” x 6.5” (16.5cm x 16.5cm)

ACCESSORIES - THERMOSTAT WALL PLATES

Thermostat Cover Plate

The Uni-Line® 10-531A Thermostat Cover Plate is ideal to mount to a 2” x 4” junction box or to mount directly to the drywall to cover marks left from an old thermostat, eliminating the need to repaint or apply new wallpaper. The durable plastic wall plate comes in white with mounting screws. The Uni-Line Thermostat Cover Plate can be used with many thermostat brands on the market.

Features and Benefits

- Durable, sturdy white cover plate
- Kit includes mounting screws
- J-Box compatible

10-531A

Specifications

Part Numbers	Description	Size
10-531A	White Thermostat Cover Plate	7” x 5.25”

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140202

ZONE CONTROL PANELS

140202 Two Zone Control Panel Series

The Braeburn® Residential 2 Zone Control Panel 140202 - 2 Heat/1 Cool offers an economical zone control solution.

Features and Benefits

- Works with Conventional 4 or 5 Wire Thermostats
- Works with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Installs on Conventional, Heat Pump, Electric and Dual Fuel Systems
- Compact housing for stud or plenum mounting
- Multiple wire exit and wire knockouts
- Heavy-duty damper relays for long life
- Power and damper status LEDs for quick diagnosis
- Selectable priority for one zone or all zones
- Requires dedicated 40 VA, 24V AC transformer
- Can be used with virtually all low voltage dampers from other manufacturers
- 30 VA damper capacity

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Switch	Terminals
140202	Residential 2 Zone Control Panel	6" x 6" (15.2cm x 15.2cm) housing	2 Zone 2 Heat/1 Cool	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40°F to 150°F (-40°C to 65°C)	-20°F to 125°F (-30°C to 50°C)	Non HP/HP, dual fuel, reversing valve B active/O active, fan control plenum/ system, opposite mode call timer 20/15, 2nd stage lockout none/active, priority all/ zone 1	Rh, Rc, Y1, G, W1/E/ W3, W2/O-B, C, E-Heat; panel power (2) and R, Y, G, W, C, PO, C, PC for each zone

RoHS COMPLIANT

5 Year Limited Warranty

ZONE CONTROL PANELS

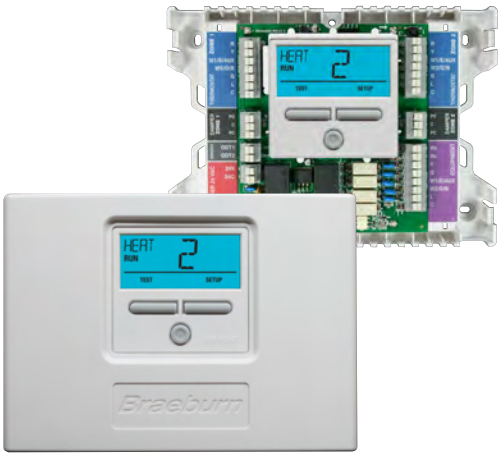
140221 Two Zone Control Panel Series

The Braeburn® Two Zone Control Panels feature a compact 8”W x 6”H housing and a large 3 sq. in. backlit display for set-up, checkout and operation.

Quick and Easy Installation features include push-in terminal blocks to lock in wires without a screwdriver. LEDs indicate equipment and zone calls while the display keeps you up to date with panel operation. Plus, wire guides and a small footprint allow for a quick and professional installation.

Features and Benefits

- Controls up to 2 heating and 1 cooling stage
- Compatible with electric, gas, oil and heat pump equipment–including dual fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Large 3 sq. in. display shows system status
- Dual fuel operation with Braeburn outdoor sensor
- LEDs show all calls at a glance
- Push-in terminals for easy wiring – no screwdriver needed
- Flexible staging controlled by panel or thermostat
- Push button set-up without dip switches
- High/low limit protection with optional supply air sensor



140221

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Terminals
140221	Residential 2 Zone Control Panel	8” x 6” (20.3cm x 20.3cm) housing	Conventional and Heat Pump equipment Up to 2 Heat / 1Cool	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40˚F to 167˚F (-40˚C to 75˚C)	-40˚F to 167˚F (-40˚C to 75˚C)	Equipment: Rh, Rc, Y, G, W1/E/ AUX, W2/O/B, L, C Thermostats (2 each): R, Y, W1/E/AUX, W2/O/B, G, L, C

Braeburn®

140303

ZONE CONTROL PANELS

140303 Three Zone Control Panel Series

The Braeburn® Residential 3 Zone Control Panel 140303 - 3 Heat / 2 Cool offers an economical zone control solution.

Features and Benefits

- Works with Conventional 4 or 5 Wire Thermostats
- Works with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Installs on Conventional, Heat Pump, Electric and Dual Fuel Systems
- Compact housing for stud or plenum mounting
- Multiple wire exit and wire knockouts
- Heavy-duty damper relays for long life
- Power and damper status LEDs for quick diagnosis
- Selectable priority for one zone or all zones
- Requires dedicated 40 VA, 24V AC transformer
- Can be used with virtually all low voltage dampers from other manufacturers
- 30 VA damper capacity

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Switch	Terminals
140303	Residential 3 Zone Control Panel	8" x 8" (20.3cm x 20.3cm) housing	3 Zone 3 Heat / 2 Cool	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40°F to 150°F (-40°C to 65°C)	-20°F to 125°F (-30°C to 50°C)	Non HP/HP, dual fuel no/yes, reversing valve B active/O active, fan control plenum/system, opposite mode call timer 20/15, 2nd stage lockout none/active, priority all/zone 1, second stage for 2 zones/2 stages	Rh, Rc, Y1, Y2, G, G2, W1/E/W3, W2/O-B, C, E-Heat, SA1, SA2 panel power (2) and R, Y, G, W, C, PO, C, PC for each zone

RoHS COMPLIANT

5 Year Limited Warranty

ZONE CONTROL PANELS

140332 Three Zone Control Panel Series

The Braeburn® Three Zone Control Panel feature a compact 8”W x 10”H housing and a large 5.5 sq. in. backlit display for set-up, checkout and operation.

Quick and Easy Installation features include push-in terminal blocks to lock in wires without a screwdriver. LEDs indicate equipment and zone calls while the display keeps you up to date with panel operation. Plus, wire guides and a small footprint allow for a quick and professional installation.

Features and Benefits

- Controls up to 3 heating and 2 cooling stages
- Compatible with electric, gas, oil and heat pump equipment including dual fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Large 5.5 sq. in. display shows system status
- Dual fuel operation with Braeburn outdoor sensor
- LEDs show all calls at a glance
- Push-in terminals for easy wiring – no screwdriver needed
- Flexible staging controlled by panel or thermostat
- Push button set-up without dip switches
- High/Low Limit protection with optional supply air sensor

140332

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Terminals
140332	Residential 3 Zone Control Panel	8” x 10” (20.3cm x 20.3cm) housing	Conventional and Heat Pump equipment Up to 3 Heat / 2 Cool	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40˚F to 167˚F (-40˚C to 75˚C)	-40˚F to 167˚F (-40˚C to 75˚C)	Rh, Rc, Y1, Y2, G, G2, W1/E/AUX, W2/O/B, L, C Thermostats (3 each): R, Y1, Y2, W1/E/AUX, W2/O/B, G, L, C

Braeburn®

140404

ZONE CONTROL PANELS

140404 Four Zone Control Panel Series

The Braeburn® Expandable 4 Zone Control Panel 140404 - 4 Heat / 2 Cool is expandable up to 32 zones.

Features and Benefits

- Compatible with Electric, Gas, Oil and Heat Pump Equipment - including Dual Fuel
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Compatible with BlueLink™ Wireless Technology (requires Braeburn® 7500 Universal Wireless Thermostat Kit)
- Dual Fuel Operation with Braeburn® Outdoor Sensor
- Push-in terminals for easy wiring - no screwdriver needed
- LEDs show all calls and damper status at a glance
- Flexible staging controlled by panel or thermostat
- Large 5.5 square inch backlit display
- Plenum sensor included

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Sensor Type	Terminals
140404	Expandable 4 Zone Control Panel	8" x 10" (20.3cm x 15.4cm) housing	4 Zone 4 Heat / 2 Cool	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40°F to 167°F (-40°C to 75°C)	-22°F to 167°F (-30°C to 75°C)	Plenum Sensor	Panel Power: 24V AC; Equipment: Rh, Rc, Y1, Y2, G, G2, W1/E/AX1, W2/AX2, O/B/W3, L, C; Thermostats (4 each): R, Y1, Y2, W1/E/AX1, W2/AX2, O/B/W3, G, L, C; Dampers (4 each): PO, COMM, PC; Supply Air Inputs: SA1, SA2; Outdoor Air Inputs: ODT1, ODT2; Fire Alarm Inputs: FA1, FA2 Communication: (2 each) COM1, COM2, GND, COM3, COM4

RoHS COMPLIANT

5 Year Limited Warranty

ZONE CONTROL PANELS

140424 Two Zone Expander Control Panel Series

The Braeburn® 2 Zone Expander Control Panel 140424 - 4 Heat / 2 Cool adds zones in affordable 2 zone increments. Use with 140404 Zone Panel.

Features and Benefits

- Compact 8” x 5” (20.3cm x 12.7cm) foot print stacks neatly with main panel
- Add up to 28 additional zones (32 total)
- Can be used with virtually all low-voltage thermostats and dampers from other manufacturers
- Push-in terminals for easy wiring - no screwdriver needed
- Easy setup and configuration
- LEDs show all calls and damper status at a glance
- Installs up to 500 ft. (152.4m) from main panel

140424

Specifications

Part Numbers	Description	Size	Configuration	Power	Mounting Type	Construction	Storage Temperature	Operating Temperature	Sensor Type	Terminals
140424	2 Zone Expander Control Panel	8” x 5” (20.3cm x 12.7cm) housing	2 Zone Expander (for use with 140404 zone panel)	24V AC	Wall or Return Air Plenum Mount	PC Board in High Impact Housing	-40°F to 167°F (-40°C to 75°C)	-22°F to 167°F (-30°C to 75°C)	Plenum Sensor	Panel Power: 24V AC; Thermostats (2 each): R, Y1, Y2, W1/E/AX1, W2/AX2, O/B/W3, G, L, C; Dampers: (2 each): PO, C, PC; Communication (2 each): COM1, COM2, GND, COM3, COM4

RoHS COMPLIANT

5 Year Limited Warranty

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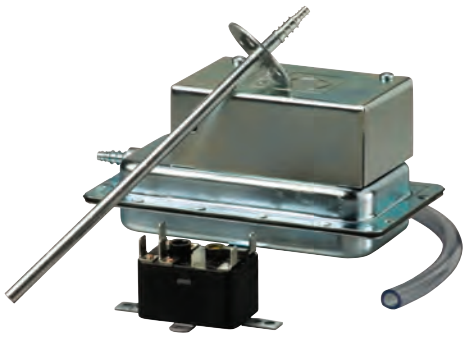

149020

ZONING SYSTEM ACCESSORIES

149020 Static Pressure Control Series

The Braeburn® Static Pressure Control is designed to mount on vertical surfaces. Powered from the zone panel transformer, this unit automatically controls the plenum bypass damper by monitoring system pressure as zones close and open.

Features and Benefits

- Used to control plenum bypass air volume
- Reduces bypass problems in mismatched zones
- Includes relay and measuring pilot tube

Specifications

Part Numbers	Description
149020	Static Pressure Control

1 Year Limited Warranty

ZONING SYSTEM ACCESSORIES

149040 Zoning System Transformer Series

The Braeburn® Zoning System Transformer has 120V AC input and 24V AC output. The transformer is UL listed and offers convenient mounting features for easy installation.

Features and Benefits

- 40 VA, 120V AC
- Includes mounting plate

149040

Specifications

Part Numbers	Description
149040	Zoning System Transformer

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1 Year Limited Warranty

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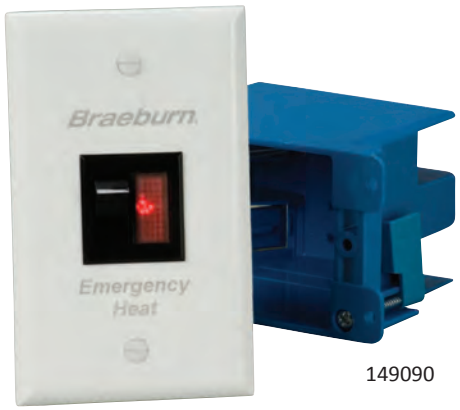


149090

ZONING SYSTEM ACCESSORIES

149090 Emergency Heat Switch Kit Series

The Braeburn® Emergency Heat Switch Kit is the finishing touch to any zoning system installation.

Features and Benefits

- More convenient than the remote switch on the zone panel, kit includes a laser engraved wall plate and handy box
- The 149090 is a commercial quality lighted rocker switch

Specifications

Part Numbers	Description
149090	Emergency Heat Switch Kit with a commercial quality lighted rocker switch

1 Year Limited Warranty

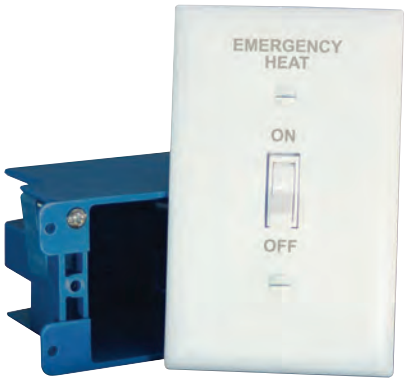
ZONING SYSTEM ACCESSORIES

149091 Emergency Heat Switch Kit Series

The Braeburn® Emergency Heat Switch Kit is the finishing touch to any zoning system installation.

Features and Benefits

- More convenient than the remote switch on the zone panel, kit includes a laser engraved wall plate and handy box
- The 149091 is a standard switch



149091

Specifications

Part Numbers	Description
149091	Emergency Heat Switch Kit with a standard switch

Braeburn®

1 Year Limited Warranty

Braeburn®

RECTANGULAR MOTORIZED DAMPERS

100808

Rectangular Zone Damper - Power Open / Power Close Series

The Braeburn® Rectangular Zone Damper - Power Open / Power Close Series with open and close LED indicators will control air distribution in zoned areas that use rectangular ducts. The dampers are made from precision formed aluminum to ensure quick installation. All dampers feature low friction bearings to ensure long life and quiet operation. Braeburn rectangular dampers come complete and ready for installation. All motors are mounted on the height dimension. For bottom mount application, choose a damper like 101014 that will fit in a 10 inch tall duct mounted between 16 inch center floor joists.

Features and Benefits

- Solid precision cut aluminum frame
- Parallel blade design for quieter airflow
- Easy slip in design for quick installation
- Advance design with very low leakage
- Long life quiet bushings
- Excellent for use as a bypass damper with a static pressure control (Braeburn 149020)

Specifications

Part Numbers	Description	Dimensions	Terminals	Electrical Rating
100808	Power Open / Power Close Rectangular Damper	8" x 8" (20,3cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101008	Power Open / Power Close Rectangular Damper	10" x 8" (25,4cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101010	Power Open / Power Close Rectangular Damper	10" x 10" (25,4cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
101012	Power Open / Power Close Rectangular Damper	10" x 12" (25,4cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
101014	Power Open / Power Close Rectangular Damper	10" x 14" (25,4cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
101208	Power Open / Power Close Rectangular Damper	12" x 8" (30,48cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101210	Power Open / Power Close Rectangular Damper	12" x 10" (30,48cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
101212	Power Open / Power Close Rectangular Damper	12" x 12" (30,48cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
101214	Power Open / Power Close Rectangular Damper	12" x 14" (30,48cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
101408	Power Open / Power Close Rectangular Damper	14" x 8" (35,56cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101410	Power Open / Power Close Rectangular Damper	14" x 10" (35,56cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101412	Power Open / Power Close Rectangular Damper	14" x 12" (35,56cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
101414	Power Open / Power Close Rectangular Damper	14" x 14" (35,56cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
101608	Power Open / Power Close Rectangular Damper	16" x 8" (40,64cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
101610	Power Open / Power Close Rectangular Damper	16" x 10" (40,64cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
101612	Power Open / Power Close Rectangular Damper	16" x 12" (40,64cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
101614	Power Open / Power Close Rectangular Damper	16" x 14" (40,64cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
101616	Power Open / Power Close Rectangular Damper	16" x 16" (40,64cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
101808	Power Open / Power Close Rectangular Damper	18" x 8" (60,96cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation

Part Numbers	Description	Dimensions	Terminals	Electrical Rating
101810	Power Open / Power Close Rectangular Damper	18" x 10" (45,72cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
101812	Power Open / Power Close Rectangular Damper	18" x 12" (45,72cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
101814	Power Open / Power Close Rectangular Damper	18" x 14" (45,72cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
101816	Power Open / Power Close Rectangular Damper	18" x 16" (45,72cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
102008	Power Open / Power Close Rectangular Damper	20" x 8" (50,8cm x x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
102010	Power Open / Power Close Rectangular Damper	20" x 10" (50,8cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
102012	Power Open / Power Close Rectangular Damper	20" x 12" (50,8cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
102014	Power Open / Power Close Rectangular Damper	20" x 14" (50,8cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
102016	Power Open / Power Close Rectangular Damper	20" x 16" (50,8cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
102208	Power Open / Power Close Rectangular Damper	22" x 8" (55,88cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
102210	Power Open / Power Close Rectangular Damper	22" x 10" (55,88cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
102212	Power Open / Power Close Rectangular Damper	22" x 12" (55,88cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
102214	Power Open / Power Close Rectangular Damper	22" x 14" (55,88cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
102216	Power Open / Power Close Rectangular Damper	22" x 16" (55,88cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
102408	Power Open / Power Close Rectangular Damper	24" x 8" (60,96cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
102410	Power Open / Power Close Rectangular Damper	24" x 10" (60,96cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
102412	Power Open / Power Close Rectangular Damper	24" x 12" (55,88cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
102414	Power Open / Power Close Rectangular Damper	24" x 14" (55,88cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
102416	Power Open / Power Close Rectangular Damper	24" x 16" (55,88cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
102608	Power Open / Power Close Rectangular Damper	26" x 8" (66,04cm x 20,3cm)	Three terminals, push button type	24V AC 4 VA universal operation
102610	Power Open / Power Close Rectangular Damper	26" x 10" (66,04cm x 25,4cm)	Three terminals, push button type	24V AC 4 VA universal operation
102612	Power Open / Power Close Rectangular Damper	26" x 12" (66,04cm x 30,48cm)	Three terminals, push button type	24V AC 4 VA universal operation
102614	Power Open / Power Close Rectangular Damper	26" x 14" (66,04cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
102616	Power Open / Power Close Rectangular Damper	26" x 16" (66,04cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
102814	Power Open / Power Close Rectangular Damper	28" x 14" (71,12cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
102816	Power Open / Power Close Rectangular Damper	28" x 16" (71,12cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation
103014	Power Open / Power Close Rectangular Damper	30" x 14" (76,2cm x 35,56cm)	Three terminals, push button type	24V AC 4 VA universal operation
103016	Power Open / Power Close Rectangular Damper	30" x 16" (76,2cm x 40,64cm)	Three terminals, push button type	24V AC 4 VA universal operation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

Braeburn®

5 Year Limited Warranty

Braeburn®

110808

RECTANGULAR MOTORIZED DAMPERS

Rectangular Zone Damper - Power Close / Spring Return Series

The Braeburn® Rectangular Zone Damper - Power Close / Spring Return Series is the solution to power close/spring return applications. With economical 2 wire installation, this damper will control air distribution in zone areas that use rectangular ducts. The dampers are made from precision formed aluminum to ensure quick installation. All dampers feature low friction bearings to provide long life and quiet operation. Braeburn® rectangular dampers come complete and ready for installation. All motors are mounted on the height dimension. For bottom mount applications, choose a damper like 111014 that will fit in a 10 inch tall duct mounted between 16 inch center floor joists.

Features and Benefits

- Solid precision cut aluminum frame
- Parallel blade design for quieter air flow
- Easy slip-in design for quick installation
- Advance design with very low leakage
- Long life quiet bushings

Specifications

Part Numbers	Description	Dimensions	Electrical Rating
110808	Power Close / Spring Return Rectangular Damper	8" x 8" (20,3cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
111008	Power Close / Spring Return Rectangular Damper	10" x 8" (25,4cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
111010	Power Close / Spring Return Rectangular Damper	10" x 10" (25,4cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
111012	Power Close / Spring Return Rectangular Damper	10" x 12" (25,4cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
111014	Power Close / Spring Return Rectangular Damper	10" x 14" (25,4cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
111208	Power Close / Spring Return Rectangular Damper	12" x 8" (30,48cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
111210	Power Close / Spring Return Rectangular Damper	12" x 10" (30,48cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
111212	Power Close / Spring Return Rectangular Damper	12" x 12" (30,48cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
111214	Power Close / Spring Return Rectangular Damper	12" x 14" (30,48cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
111408	Power Close / Spring Return Rectangular Damper	14" x 8" (35,56cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
111410	Power Close / Spring Return Rectangular Damper	14" x 10" (35,56cm x 25.4cm)	24V AC 8 VA universal operation, 2 wire installation
111412	Power Close / Spring Return Rectangular Damper	14" x 12" (35,56cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
111414	Power Close / Spring Return Rectangular Damper	14" x 14" (35,56cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
111608	Power Close / Spring Return Rectangular Damper	16" x 8" (40,64cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
111610	Power Close / Spring Return Rectangular Damper	16" x 10" (40,64cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
111612	Power Close / Spring Return Rectangular Damper	16" x 12" (40,64cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
111614	Power Close / Spring Return Rectangular Damper	16" x 14" (40,64cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
111616	Power Close / Spring Return Rectangular Damper	16" x 16" (40,64cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
111808	Power Close / Spring Return Rectangular Damper	18" x 8" (45.7cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation

Part Numbers	Description	Dimensions	Electrical Rating
111810	Power Close / Spring Return Rectangular Damper	18" x 10" (45,72cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
111812	Power Close / Spring Return Rectangular Damper	18" x 12" (45,72cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
111814	Power Close / Spring Return Rectangular Damper	18" x 14" (45,72cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
111816	Power Close / Spring Return Rectangular Damper	18" x 16" (45,72cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
112008	Power Close / Spring Return Rectangular Damper	20" x 8" (50,8cm x x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
112010	Power Close / Spring Return Rectangular Damper	20" x 10" (50,8cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
112012	Power Close / Spring Return Rectangular Damper	20" x 12" (50,8cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
112014	Power Close / Spring Return Rectangular Damper	20" x 14" (50,8cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
112016	Power Close / Spring Return Rectangular Damper	20" x 16" (50,8cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
112208	Power Close / Spring Return Rectangular Damper	22" x 8" (55,88cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
112210	Power Close / Spring Return Rectangular Damper	22" x 10" (55,88cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
112212	Power Close / Spring Return Rectangular Damper	22" x 12" (55,88cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
112214	Power Close / Spring Return Rectangular Damper	22" x 14" (55,88cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
112216	Power Close / Spring Return Rectangular Damper	22" x 16" (55,88cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
112408	Power Close / Spring Return Rectangular Damper	24" x 8" (60,96cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
112410	Power Close / Spring Return Rectangular Damper	24" x 10" (60,96cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
112412	Power Close / Spring Return Rectangular Damper	24" x 12" (60,96cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
112414	Power Close / Spring Return Rectangular Damper	24" x 14" (60,96cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
112416	Power Close / Spring Return Rectangular Damper	24" x 16" (60,96cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
112608	Power Close / Spring Return Rectangular Damper	26" x 8" (66,04cm x 20,3cm)	24V AC 8 VA universal operation, 2 wire installation
112610	Power Close / Spring Return Rectangular Damper	26" x 10" (66,04cm x 25,4cm)	24V AC 8 VA universal operation, 2 wire installation
112612	Power Close / Spring Return Rectangular Damper	26" x 12" (66,04cm x 30,48cm)	24V AC 8 VA universal operation, 2 wire installation
112614	Power Close / Spring Return Rectangular Damper	26" x 14" (66,04cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
112616	Power Close / Spring Return Rectangular Damper	26" x 16" (66,04cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
112814	Power Close / Spring Return Rectangular Damper	28" x 14" (71,12cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
112816	Power Close / Spring Return Rectangular Damper	28" x 16" (71,12cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation
113014	Power Close / Spring Return Rectangular Damper	30" x 14" (76,2cm x 35,56cm)	24V AC 8 VA universal operation, 2 wire installation
113016	Power Close / Spring Return Rectangular Damper	30" x 16" (76,2cm x 40,64cm)	24V AC 8 VA universal operation, 2 wire installation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

Braeburn®

5 Year Limited Warranty

Braeburn®

109005

ROUND MOTORIZED DAMPERS

Round Zone Damper - Power Open / Power Close Series

The Braeburn® Round Zone Dampers - Power Open / Power Close Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed and built to ensure easy installation and years of trouble free use.

Features and Benefits

- Each damper is formed from heavy-duty steel
- Dual LED indicators

Specifications

Part Numbers	Description	Diameter	Length	Electrical Rating
109005	Power Open / Power Close Round Damper	5" (12,7cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109006	Power Open / Power Close Round Damper	6" (15,2cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109007	Power Open / Power Close Round Damper	7" (17,8cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109008	Power Open / Power Close Round Damper	8" (20,3cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109009	Power Open / Power Close Round Damper	9" (22,9cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109010	Power Open / Power Close Round Damper	10" (25,4cm)	11.25" (28,57cm)	24V AC 4 VA 3-wire universal operation
109012	Power Open / Power Close Round Damper	12" (30,5cm)	11.75" (29,8cm)	24V AC 4 VA 3-wire universal operation
109014	Power Open / Power Close Round Damper	14" (35,6cm)	13.75" (34,9cm)	24V AC 4 VA 3-wire universal operation
109016	Power Open / Power Close Round Damper	16" (40,6cm)	15.75" (40cm)	24V AC 4 VA 3-wire universal operation
109018	Power Open / Power Close Round Damper	18" (45,7cm)	17.75" (45,1cm)	24V AC 4 VA 3-wire universal operation
109020	Power Open / Power Close Round Damper	20" (50,8cm)	19.75" (50,2cm)	24V AC 4 VA 3-wire universal operation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

5 Year Limited Warranty

ROUND MOTORIZED DAMPERS

Round Zone Damper - Power Close / Spring Return Series

The Braeburn® Round Zone Damper - Power Close / Spring Return Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed and built to ensure easy installation and years of trouble free use.

Features and Benefits

- Power close spring return with power fail open operation
- Long life full stall capable motor provides years of trouble free operation
- Virtually silent clock drive motor
- Heavy-duty galvanized construction with precision rolled stiffening ribs

119004

Braeburn®

Specifications

Part Numbers	Description	Diameter	Length	Electrical Rating
119004	Power Close / Spring Return Round Damper	4" (10,2cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119005	Power Close / Spring Return Round Damper	5" (12,7cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119006	Power Close / Spring Return Round Damper	6" (15,2cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119007	Power Close / Spring Return Round Damper	7" (17,8cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119008	Power Close / Spring Return Round Damper	8" (20,3cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119009	Power Close / Spring Return Round Damper	9" (22,9cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119010	Power Close / Spring Return Round Damper	10" (25,4cm)	9.75" (24,8cm)	24V AC 8 VA 2-wire universal operation
119012	Power Close / Spring Return Round Damper	12" (30,5cm)	11.75" (29,8cm)	24V AC 8 VA 2-wire universal operation
119014	Power Close / Spring Return Round Damper	14" (35,6cm)	13.75" (34,9cm)	24V AC 8 VA 2-wire universal operation
119016	Power Close / Spring Return Round Damper	16" (40,6cm)	15.75" (40cm)	24V AC 8 VA 2-wire universal operation
119018	Power Close / Spring Return Round Damper	18" (45,7cm)	17.75" (45,1cm)	24V AC 8 VA 2-wire universal operation
119020	Power Close / Spring Return Round Damper	20" (50,8cm)	19.75" (50,2cm)	24V AC 8 VA 2-wire universal operation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

5 Year Limited Warranty

Braeburn®

ROUND MOTORIZED DAMPERS

128004

Round Zone Damper - Retrofit (Power Open / Power Close) Series

The Braeburn® Round Zone Dampers - Retrofit Power Open / Power Close Series is used to control the volume of air that will be distributed to a zoned area. With three wire installation and a high torque motor, Braeburn zone dampers are designed for quick and easy installation. Simply cut a one inch slot along the length of the duct, slide the damper in and secure with screws. Resiliant gasket helps provide a positive seal.

Features and Benefits

- Power open, power close operation
- Heavy-duty galvanized construction
- Dual LEDs for positive indication of open to close
- Slip-in design for quick installation

Specifications

Part Numbers	Description	Diameter	Electrical Rating
128004	Power Open / Power Close Round Retrofit Damper	4" (10,2cm)	24V AC 4 VA 3-wire universal operation
128005	Power Open / Power Close Round Retrofit Damper	5" (12,7cm)	24V AC 4 VA 3-wire universal operation
128006	Power Open / Power Close Round Retrofit Damper	6" (15,2cm)	24V AC 4 VA 3-wire universal operation
128007	Power Open / Power Close Round Retrofit Damper	7" (17,8cm)	24V AC 4 VA 3-wire universal operation
128008	Power Open / Power Close Round Retrofit Damper	8" (20,3cm)	24V AC 4 VA 3-wire universal operation
128010	Power Open / Power Close Round Retrofit Damper	10" (25,4cm)	24V AC 4 VA 3-wire universal operation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

5 Year Limited Warranty

ROUND MOTORIZED DAMPERS

Round Zone Damper - Power Open / Spring Return Series

The Braeburn® Round Zone Damper - Power Open / Spring Return Series is used to control the volume of air that will be distributed to a zone area. With easy two wire installation, a stall and backlash protected motor, the power open spring return dampers are designed and built to ensure years of trouble free use.

Features and Benefits

- Power open spring return with power fail open operation
- Long life full stall capable motor provides years of trouble free operation
- Virtually silent clock drive motor
- Heavy-duty galvanized construction with precision rolled stiffening ribs

129004

Specifications

Part Numbers	Description	Diameter	Length	Electrical Rating
129004	Power Open / Spring Return Round Damper	4" (10,2cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129005	Power Open / Spring Return Round Damper	5" (12,7cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129006	Power Open / Spring Return Round Damper	6" (15,2cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129007	Power Open / Spring Return Round Damper	7" (17,8cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129008	Power Open / Spring Return Round Damper	8" (20,3cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129009	Power Open / Spring Return Round Damper	9" (22,9cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129010	Power Open / Spring Return Round Damper	10" (25,4cm)	9,75" (24,8cm)	24V AC 8 VA 2-wire universal operation
129012	Power Open / Spring Return Round Damper	12" (30,5cm)	11,75" (29,8cm)	24V AC 8 VA 2-wire universal operation
129014	Power Open / Spring Return Round Damper	14" (35,6cm)	13,75" (34,9cm)	24V AC 8 VA 2-wire universal operation
129016	Power Open / Spring Return Round Damper	16" (40,6cm)	15,75" (40cm)	24V AC 8 VA 2-wire universal operation
129018	Power Open / Spring Return Round Damper	18" (45,7cm)	17,75" (45,1cm)	24V AC 8 VA 2-wire universal operation
129020	Power Open / Spring Return Round Damper	20" (50,8cm)	19,75" (50,2cm)	24V AC 8 VA 2-wire universal operation

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

Braeburn®

5 Year Limited Warranty

Braeburn®

ROUND BYPASS DAMPERS

119107

Round Zone Damper – Static Bypass Series

The Braeburn® Round Zone Damper - Static Bypass Series is used to maintain proper static pressure at the system plenum. When air flow conditions permit, the static damper is an economical alternative to an electrically controlled bypass damper. System pressure is controlled without the use of sensors or wiring by using a field adjusted sliding weight. Precision cut, heavy gauge steel is galvanized to help ensure long life.

Features and Benefits

- Can be mounted vertically or horizontally
- Fully adjustable control allows for damper to be installed in many mounting positions
- Long life precision bushings
- Heavy-duty galvanized construction with precision rolled stiffening ribs
- No wiring or sensors required
- High visibility damper position indicator

Specifications

Part Numbers	Description	Diameter	Length	Electrical Rating
119107	Round Static Pressure Bypass Damper	7" (17.8cm)	9.75" (24.8cm)	No Power required
119108	Round Static Pressure Bypass Damper	8" (20.3cm)	9.75" (24.8cm)	No Power required
119109	Round Static Pressure Bypass Damper	9" (22.9cm)	9.75" (24.8cm)	No Power required
119110	Round Static Pressure Bypass Damper	10" (25.4cm)	9.75" (24.8cm)	No Power required
119112	Round Static Pressure Bypass Damper	12"(30.5cm)	11.75" (29.8cm)	No Power required
119114	Round Static Pressure Bypass Damper	14" (35.6cm)	13.75" (34.9cm)	No Power required
119116	Round Static Pressure Bypass Damper	16" (40.6cm)	15.75" (40cm)	No Power required
119118	Round Static Pressure Bypass Damper	18" (45.7cm)	17.75" (45.1cm)	No Power required
119120	Round Static Pressure Bypass Damper	20" (50.8cm)	19.75" (50.2cm)	No Power required

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

5 Year Limited Warranty

RECTANGULAR BYPASS DAMPERS

Rectangular Zone Damper – Static Bypass Series

The Braeburn® Rectangular Zone Damper - Static Bypass Series is used to maintain proper static pressure at the system plenum. The static damper is an economical alternative to an electrically controlled bypass damper. System pressure is controlled without the use of wiring by using a field adjusted sliding weight. Precision cut, heavy gauge steel is galvanized to ensure long life.

Features and Benefits

- Fully adjustable control allows for precision adjustment of arm and weight position to help ensure proper balance and air flow
- Long life precision bushings
- No wiring or sensors required
- High visibility damper position indicator

131208

Specifications

Part Numbers	Description	Dimensions	Electrical Rating
131208	Rectangular Static Pressure Bypass Damper	12" x 8" (30.5cm x 20.3cm)	No Power required
131210	Rectangular Static Pressure Bypass Damper	12" x 10" (30.5cm x 25.4cm)	No Power required
131212	Rectangular Static Pressure Bypass Damper	12" x 12" (30.5cm x 30.5cm)	No Power required
132008	Rectangular Static Pressure Bypass Damper	20" x 8" (50.8cm x 20.3cm)	No Power required
132010	Rectangular Static Pressure Bypass Damper	20" x 10" (50.8cm x 25.4cm)	No Power required
132012	Rectangular Static Pressure Bypass Damper	20" x 12" (50.8cm x 30.5cm)	No Power required

Damper Replacement Parts

Part Numbers	Description
149100	Braeburn® Syncron Motor for Round Power Open / Spring Return Dampers
149125	Braeburn® Syncron Motor for all Power Open / Power Close Dampers (except retrofit)
149145	Braeburn® Motor for all Power Open / Spring Return Dampers
149156	Braeburn® Supply Air Sensor
149160	Braeburn® Barometric Bypass Damper Counterweight
149162	Braeburn® Barometric Bypass Damper Arm Assembly

Braeburn®

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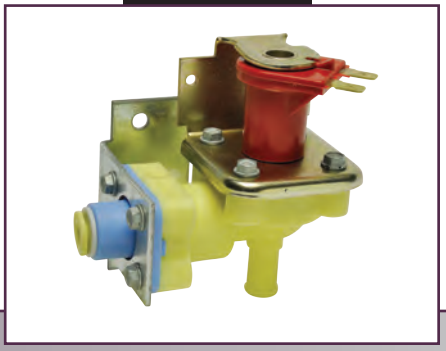
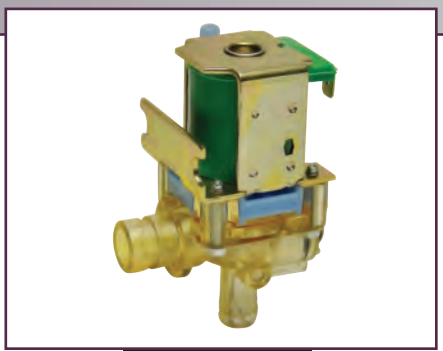
Water valves are critical to the efficient operation of a variety of residential and commercial appliances.

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 I2
Single Solenoid Water Valves I8
Dual Water Valves I14
Direct Acting Solenoid Water Valves I18
Gravity-Fed Dump Water Valves I20
General Purpose Water Valves I22



WATER VALVES



Robertshaw®

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 clotheswasher 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

Replacement Information

Part Numbers	Replaces	Factory Number
CW-001	GE 189D1664G001, Whirlpool 13X86, Whirlpool 13X10024, 175D2937P001	K-76249
CW-164	Whirlpool 3952164	K-69046
CW-333	Whirlpool 22004333	K-76103
CW-346	Whirlpool 3979346	K-75161
CW-347	Whirlpool 3979347	K-75398
CW-349	Whirlpool W10337349	K-77684-2
CW-400	Electrolux 134211400	K-75712
CW-402	Alliance 201402	K-72626
CW-468	Alliance 201468	K-75933
CW-471	Whirlpool 461970229471, Whirlpool 8182862	K-76422
CW-551	Whirlpool 461970201551, Whirlpool 8181694	K-74969
CW-600	Electrolux 134890600	K-76755
CW-673	Whirlpool 3955673	K-75180
CW-751	Whirlpool 8540751	K-75806
CW-932	Maytag 35-6693, Maytag 21001932	K-76373
CW-E2	Whirlpool 3952163	K-72633

Specifications

Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Thermistor	Electrical Rating	Power
CW-001	Residential Clotheswasher Mixing Water Valve E-1	4 GPM to 7.3 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-164	Residential Clotheswasher 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-333	Residential Clotheswasher Mixing Water Valve E-2	2 GPM to 8.2 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-346	Residential Clotheswasher Mixing Water Valve E-2T	2 GPM to 2.8 GPM	3/4" 11.5 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	50K Ohms at 25°C	120V AC 60 Hz	5 Watts
CW-347	Residential Clotheswasher 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-349	Residential Clotheswasher Mixing Water Valve E-1	8 GPM	3/4" 11.5 NHT	1/2" ID Hose	21 PSI to 120 PSI	1/4" Male	Polypro	NA	120V AC 60 Hz	5 Watts
CW-400	Residential Clotheswasher 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-402	Residential Clotheswasher Mixing Water Valve E-1	11 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-468	Residential Clotheswasher Mixing Water Valve E-1	2.4 GPM to 4.5 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-471	Residential Clotheswasher 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 Clotheswasher 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
CW-600	Residential Clotheswasher Mixing Water Valve E-2T	1.3 GPM to 14.6 GPM	3/4" 11.5 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	50K Ohms at 25°C	120V AC 60 Hz	5 Watts
CW-673	Residential Clotheswasher Mixing Water Valve E-1	1.9 GPM to 3.5 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-751	Residential Clotheswasher Mixing Water Valve E-2	0.8 GPM to 2.2 GPM	3/4" 11.5 NHT	1/2" ID Hose	14.5 PSI to 145 PSI	RAST 2.5	Polypro	NA	120V AC 60 Hz	5 Watts
CW-932	Residential Clotheswasher Mixing Water Valve E-2	2.5 GPM to 3.8 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-E2	Residential Clotheswasher Mixing Water Valve E-2	2.2 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
K-78280	Residential ClothesWasher Mixing Valve E-1	4 GPM to 6.4 GPM	3/4" 11.5 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	NA	121V AC 50/60 Hz	7 Watts

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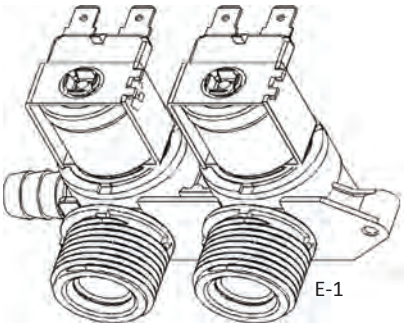
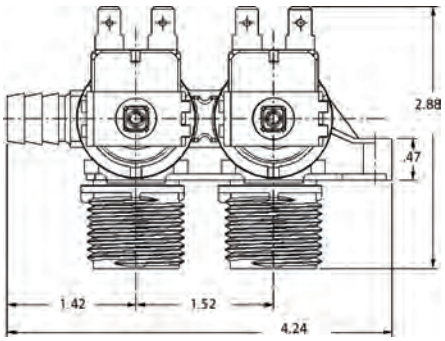
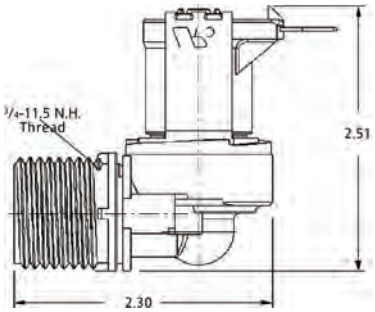
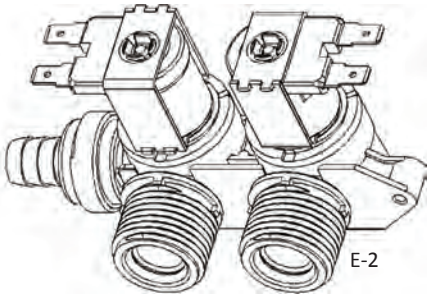
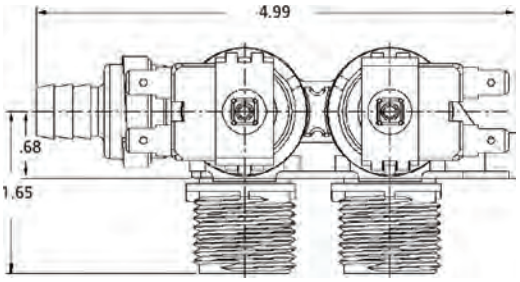
Product Drawings

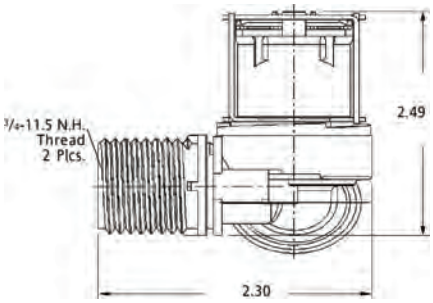






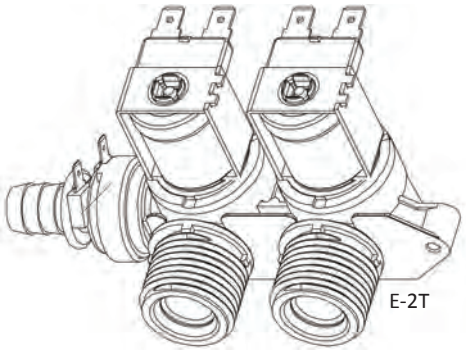


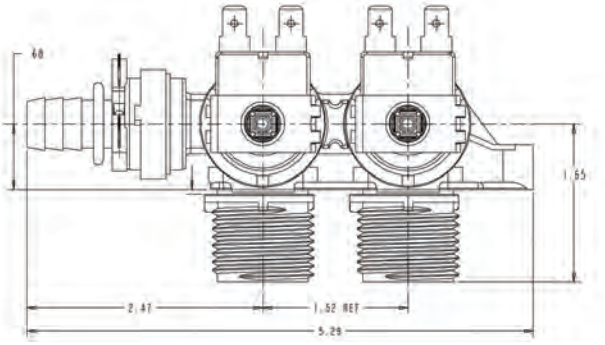


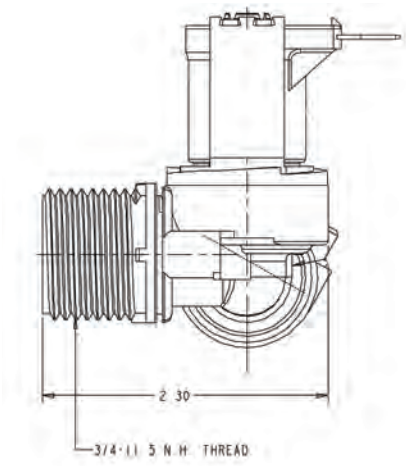


Robertshaw®

Product Drawings

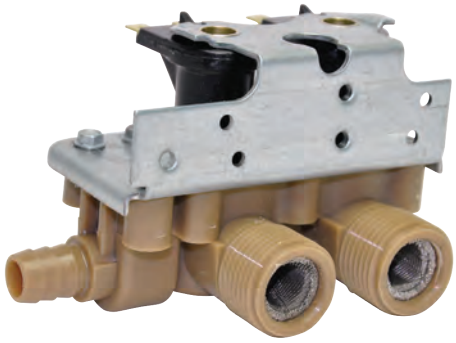






Robertshaw®

MIXING WATER VALVES



CW-300

N-51 Series

The Robertshaw® N-51 Mixing Water Valve Series is designed for laundry clotheswasher 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

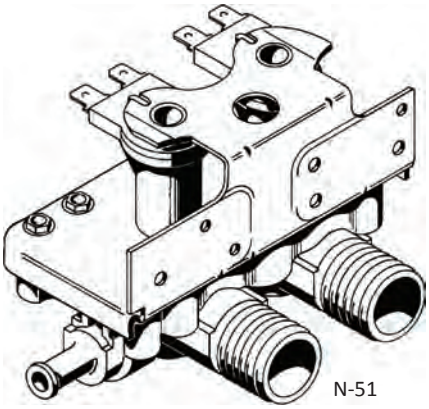
Replacement Information

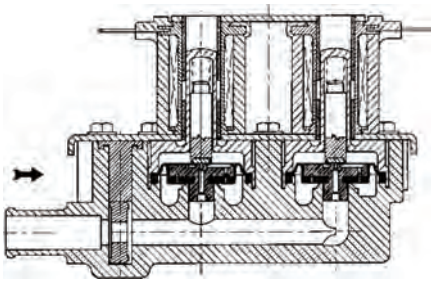
Part Numbers	Replaces	Factory Number
CW-300	Electrolux	K-67914
CW-531	GE WH00X531	K-66575
CW-1300	Electrolux 131461300	K-62464

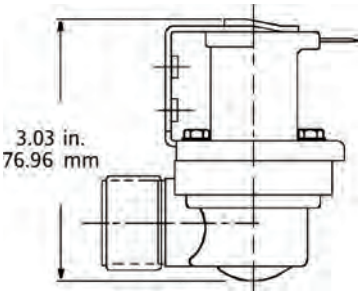
Specifications

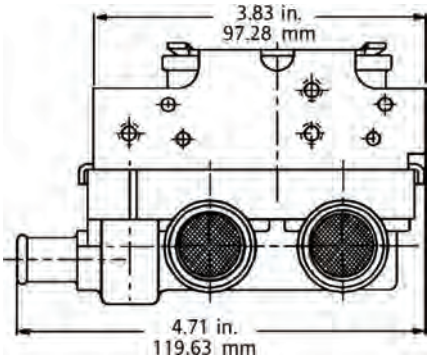
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CW-300	Residential Clotheswasher Mixing Water Valve N-51	3.0 GPM to 14.6 GPM	3/4" 11 NHT	1/2" ID Hose	30 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts
CW-531	Residential Clotheswasher Mixing Water Valve N-51	5 GPM to 7.5 GPM	3/4" 11.5 NHT	.375 ID Hose	30 PSI to 175 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts
CW-1300	Residential Clotheswasher Mixing Water Valve N-51	4.5 GPM to 6.2 GPM	3/4" 11.5 NHT	1/2'' ID Hose	30 PSI to 120 PSI	1/4" Male	Polypro	230V AC 50/60 Hz	7 Watts

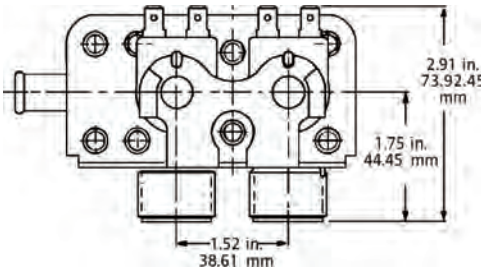
Product Drawings











1 Year Limited Warranty

Robertshaw®

SINGLE SOLENOID WATER VALVES

IMV-1304

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)

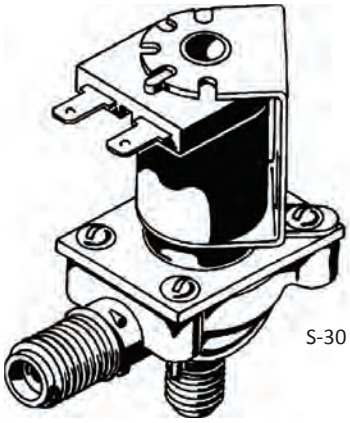
Replacement Information

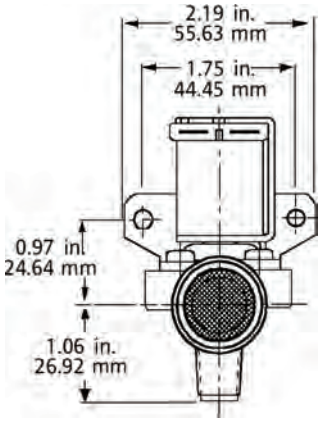
Part Numbers	Replaces	Factory Number
CB-104	Grindmaster 61104	K-63310-28
IMV-529	Star - Wells Manufacturing 46529	K-63315-18
IMV-604	Scotsman 12-1646-04	K-63314-12
IMV-605	Scotsman 12-1646-05	K-63314-13
IMV-865	Hoshizaki 4A086501	K-63310-21
IMV-1304	Scotsman 12-2313-04	K-63916-9
IMV-3404	Scotsman 12-1434-04	K-63314-14

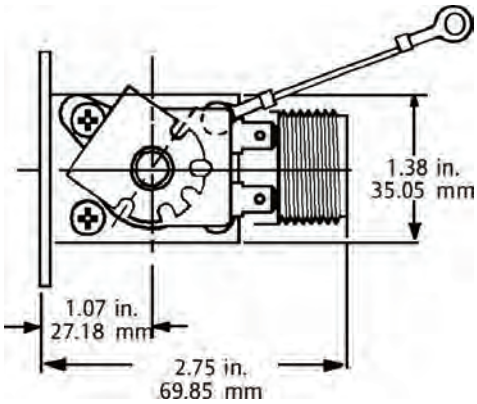
Specifications

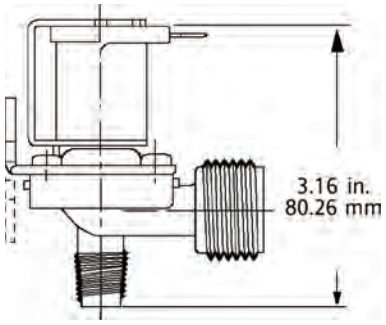
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CB-104	Coffee Brewer Inlet Valve S-30	1 GPM	3/4" 11.5 NHT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts
IMV-529	Commercial Ice Machine Water Valve S-30	0.75 GPM	1/4" 18 NPT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-604	Commercial Ice Machine Water Valve S-30	1 GPM	1/4" 18 NPT	1/4" 18 NPT	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 60 Hz	10 Watts
IMV-605	Commercial Ice Machine Water Valve S-30	1 GPM	1/4" 18 NPT	1/4" 18 NPT	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 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	1/4" 18 NHT	1/2" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	10 Watts
IMV-3404	Commercial Ice Machine Water Valve S-30	.5 GPM	1/4" 18 NPT	1/4" 18 NPT	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts

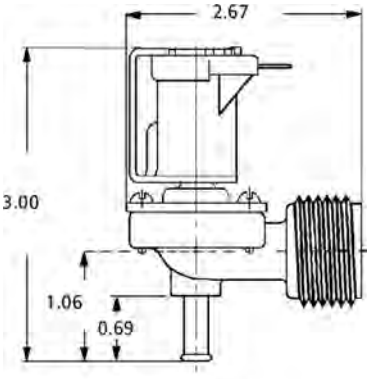
Product Drawings











(120V Valve Shown)

1 Year Limited Warranty

Robertshaw®

SINGLE SOLENOID WATER VALVES

IMV-0402

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 or quick connect fitting and a mounting bracket, which allows direct connection to the supply plumbing without applying torque to the valve body.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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)

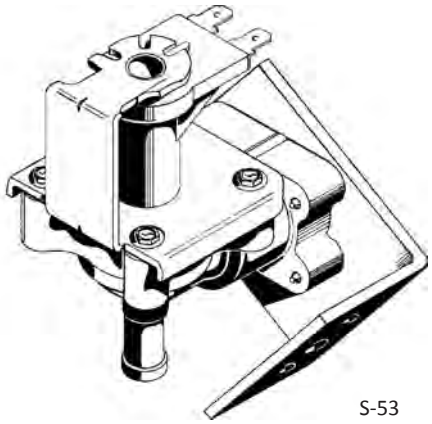
Replacement Information

Part Numbers	Replaces	Factory Number
DW-721	GE WD00X721	K-56869-8
IMV-003	Manitowoc 2400003	K-74118-13
IMV-0400	Manitowoc 400	K-76167-8
IMV-0402	Manitowoc 000000402	K-76167-10
IMV-202	Scotsman 12-2922-02	K-74118-28
IMV-373	Manitowoc 373	K-76167-4
IMV-399	Manitowoc 399, Manitowoc 375	K-76167-7
IMV-2201	Scotsman 12-2922-01	K-74118-27

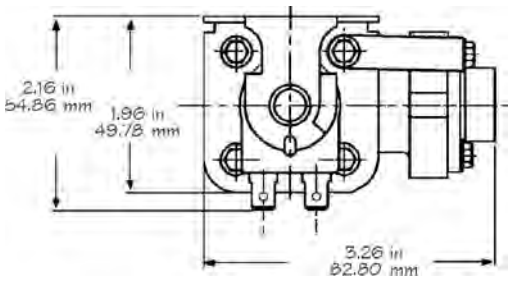
Specification

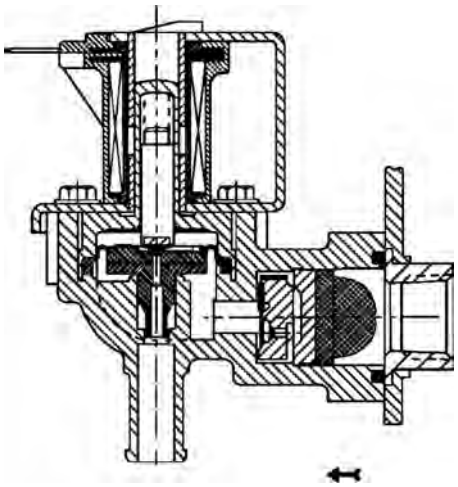
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
DW-721	Residential Dishwasher Water Valve S-53	1.55 GPM to 2.05 GPM	3/8" 18 FNPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts
IMV-003	Commercial Ice Machine Water Valve S-53	1.7 GPM	3/8" 18 FNPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	10 Watts
IMV-0400	Commercial Ice Machine Water Valve S-53	0.50 GPM	1/4" quick connect	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-0402	Commercial Ice Machine Water Valve S-53	0.75 GPM to 3.00 GPM	1/4" quick connect	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-202	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	230V AC 50/60 Hz	10 Watts
IMV-373	Commercial Ice Machine Water Valve S-53	1.7 GPM	1/4" quick connect	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	240V AC 50/60 Hz	10 Watts
IMV-399	Commercial Ice Machine Water Valve S-53	0.50 GPM	1/4" quick connect	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 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

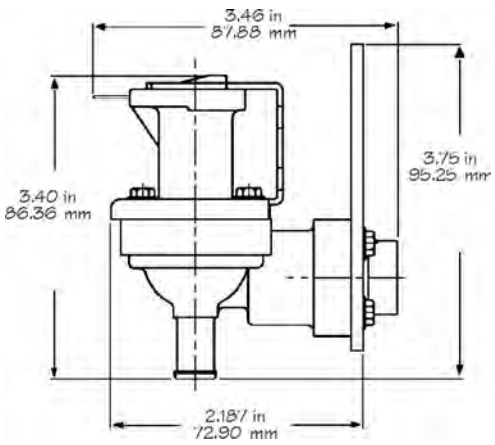
Product Drawings



S-53







Robertshaw®

1 Year Limited Warranty

Robertshaw®

DW-003

SINGLE SOLENOID WATER VALVES

S-101 Series

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

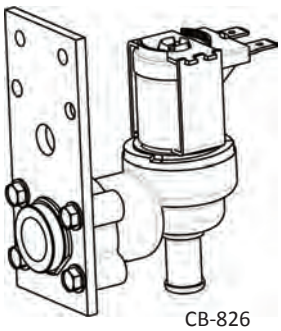
Part Numbers	Replaces	Factory Number
CB-826	Wilbur Curtis WC826L	K-78117
DW-003	GE WD15X10003, GE 165D5792G001	K-78325
DW-101	Electrolux 154476101	K-76076-1
DW-249	Maytag 6918249	K-75634
DW-345	Whirlpool 8283345	K-74396
DW-534	Whirlpool 6920534	K-76466

Specifications

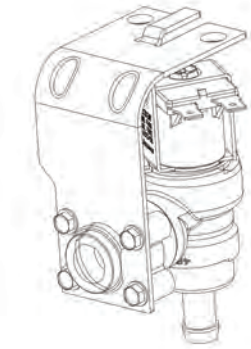
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
CB-826	Commercial Coffee Brewer Water Valve S-101	1.00 GPM to 1.30 GPM	3/8" 18 NPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 50/60 Hz	5 Watts
DW-003	Residential Dishwasher 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	120V AC 60 Hz	5 Watts
DW-101	Residential Dishwasher Water Valve S-101	0.83 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-249	Residential Dishwasher Water Valve S-101	1.13 GPM	3/8" 18 FNPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	5 Watts
DW-345	Residential Dishwasher 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 Dishwasher 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

RoHS

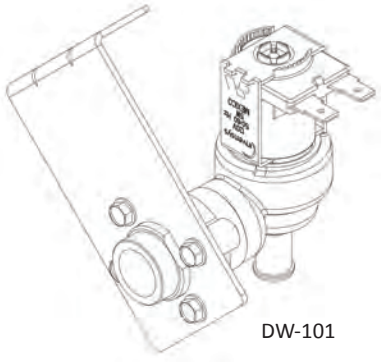
Product Drawings



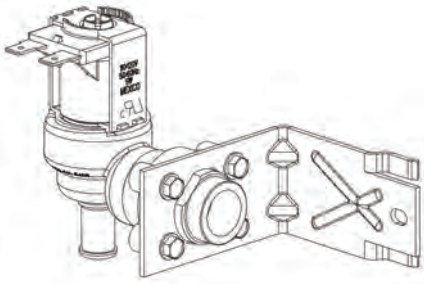
CB-826



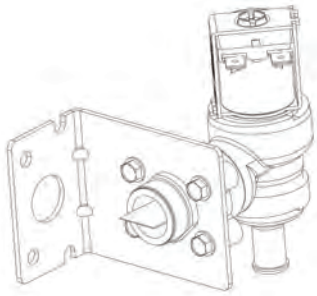
DW-003



DW-101



DW-345



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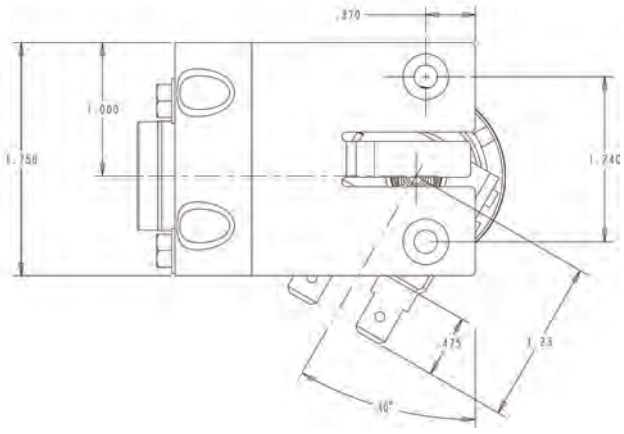
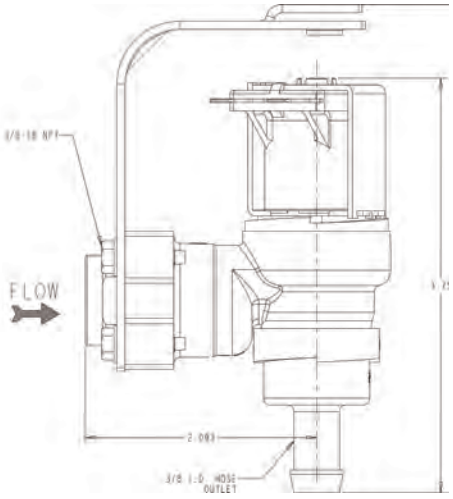




1 Year Limited Warranty

Robertshaw®

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. 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-114	Whirlpool 12544114 Whirlpool 67005154	K-75985
IMV-124	Whirlpool 12544124	K-77198
IMV-201	Electrolux 40493201	K-74945
IMV-322	Whirlpool 12956102 Whirlpool 67006322	K-76376
IMV-494	Whirlpool 2210494	K-75973
IMV-542	Whirlpool 2188542	K-74982
IMV-576	Whirlpool 2315576 Whirlpool W10498974	K-78186
IMV-696	Whirlpool W10312696	K-77623
IMV-701	Electrolux 218859701	K-75425
IMV-708	Whirlpool 2188708	K-75717
IMV-716	Whirlpool 10219716	K-77205
IMV-782	Whirlpool 2188782	K-75978
IMV-990	Whirlpool W10342318 Whirlpool 10498990	K-77999
IMV-1101	Electrolux 240531101 Electrolux 2403218A Electrolux 241734301	K-75206
IMV-2401	Electrolux 218832401	K-75423
IMV-8100	Whirlpool 10238100	K-77473

Specifications

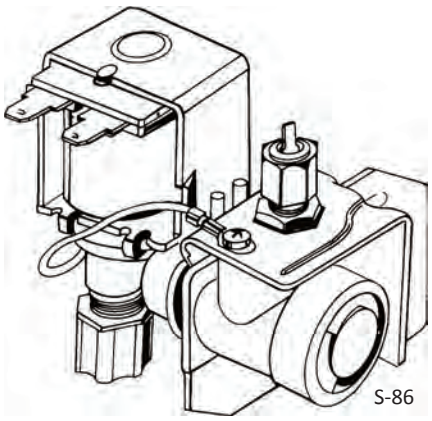
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-114	Residential Ice Machine Water Valve N-86 Dual	115-154 CC in 7.5 seconds, 40-80 CC per second	5/16" quick connect	1/4" quick connect, 5/16" quick connect	20 PSI to 120 PSI	1/4" Male 3/16" Male	Polypro	120V AC 60 Hz	35 Watts 20 Watts
IMV-124	Residential Ice Machine Water Valve N-86 Dual	115-154 CC in 7.5 seconds, 40-80 cc per second	5/16" quick connect	1/4" quick connect, 5/16" quick connect"	20 PSI to 120 PSI	1/4" Male 3/16" Male	Polypro	120V AC 60 Hz	35 Watts 20 Watts
IMV-201	Residential Ice Machine Water Valve S-86	140 CC in 7.5 seconds	7/16" 24 UNS	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts
IMV-322	Residential Ice Machine Water Valve N-86 Dual	115-154 CC in 7.5 seconds, 40-80 CC per second	5/16" quick connect	1/4" quick connect, 5/16" quick connect	20 PSI to 120 PSI	1/4" Male 3/16" Male	Polypro	120V AC 60 Hz	35 Watts 20 Watts
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-542	Residential Ice Machine Water Valve N-86 Dual	113-141 CC in 7.5 seconds, 24-58 CC per second	7/16" 20 UNF	7/16" 20 UNF, 1/2" 20 UNF	20 PSI to 120 PSI	1/4" Male 3/16" Male	Polypro	120V AC 60 Hz	35 Watts 20 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-696	Residential Ice Machine Water Valve N-86 Dual	70 CC in 7.5 seconds, 40-80 CC per second	5/16" quick connect	1/4"quick connect, 5/16" quick connect	20 PSI to 120 PSI	1/4" Male 3/16" Male	Polypro	120V AC 60 Hz	35 Watts 20 Watts
IMV-701	Residential Ice Machine Water Valve S-86	No flow control	7/16" 24 UNS	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	15 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
IMV-716	Residential Ice Machine Water Valve S-86	140 CC in 7.5 seconds	7/16" 24 UNS	1/4" quick connect	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts
IMV-782	Residential Ice Machine Water Valve S-86	140 CC in 7.5 seconds	7/16" 24 UNS	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts
IMV-990	Residential Ice Machine Water Valve S-86	180-600 CC in 7.5 seconds	7/16" 24 UNS	5/16" quick connect	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	20 Watts
IMV-1101	Residential Ice Machine Water Valve Triple NS-86	140 CC in 7.5 seconds 180-600 CC in 7.5 seconds	7/16" 20 UNS	7/16" 20 UNF, 1/2" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	15 Watts , 35 Watts
IMV-2401	Residential Ice Machine Water Valve N-86 Dual	116 CC in 7.5 seconds	7/16" 20 UNF	7/16" 20 UNF	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	35 Watts 15 Watts
IMV-8100	Residential Ice Machine Water Valve S-86	180-600 CC in 7.5 seconds	7/16" 24 UNS	5/16" quick connect	20 PSI to 120 PSI	1/4" Male	Polypro	120V AC 60 Hz	20 Watts
K-77148	Residential Ice Machine Water Valve N-86 Dual	70 CC in 7.5 seconds, 237 CC in 7.5 seconds	1/4" Quick Connect	5/16" Quick Connect, 1/4" Quick Connect	20 PSI to 120 PSI	1/4" Male, 3/16" Male	Polypro	120V AC 50/60 Hz	35 Watts 20 Watts

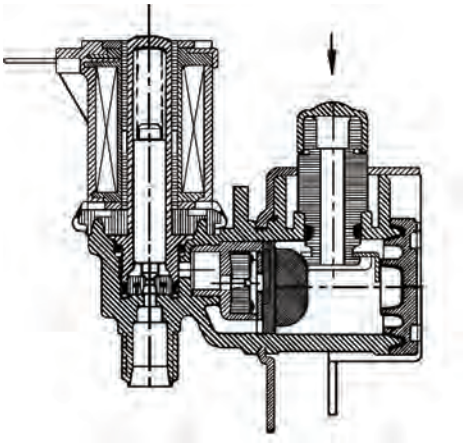
1 Year Limited Warranty

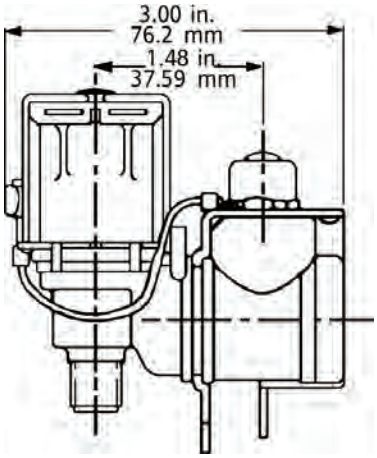
Customer Service: See Page J21

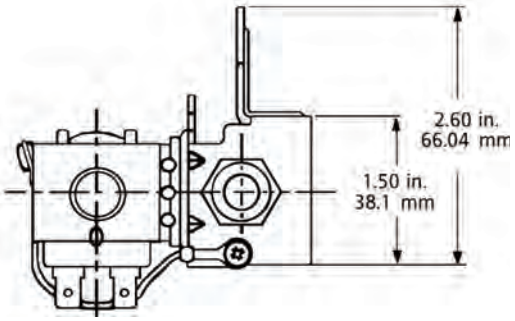
Robertshaw®

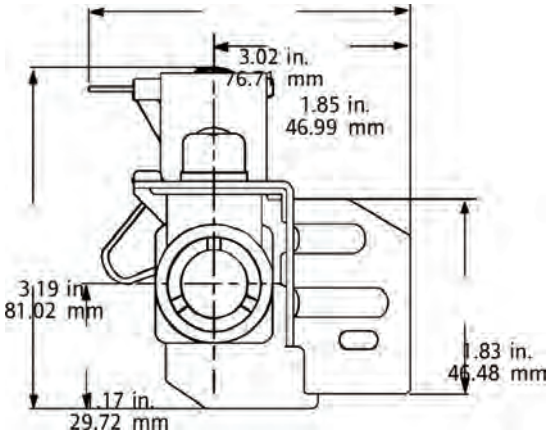
Product Drawings



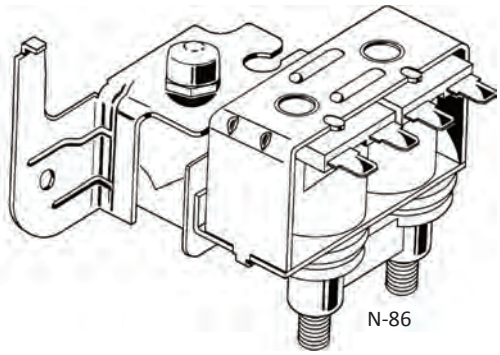


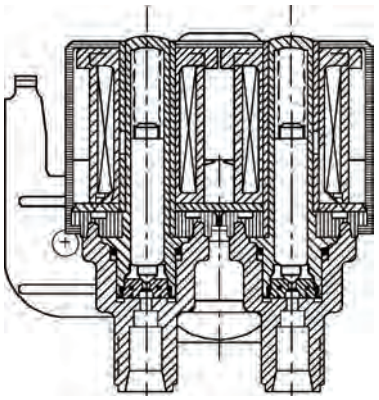


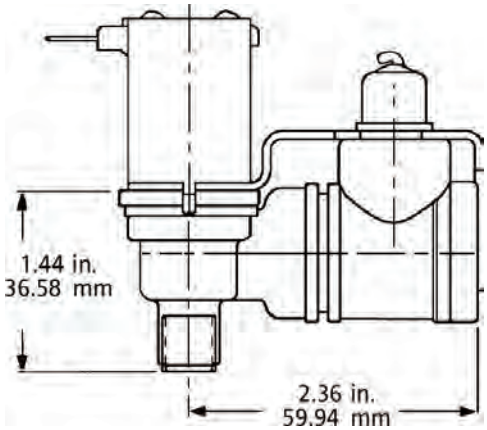


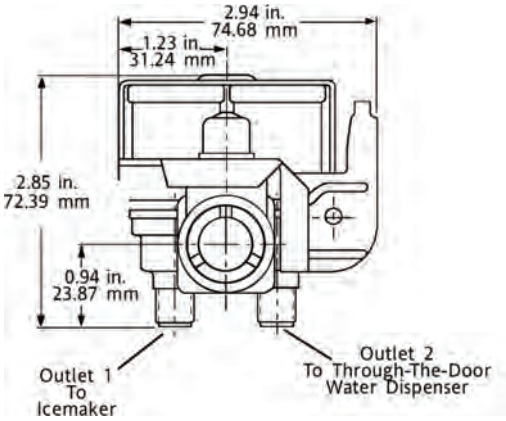


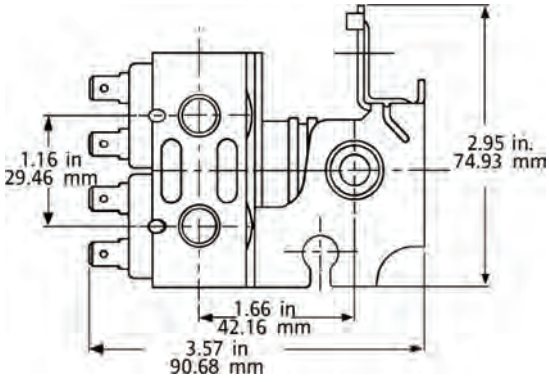
Product Drawings











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)

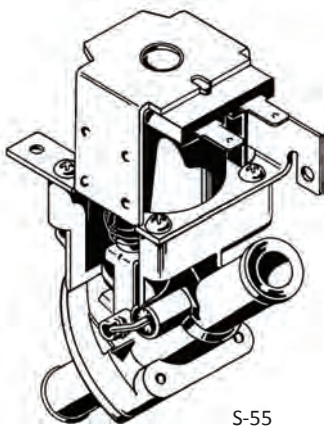
Replacement Information

Part Numbers	Replaces	Factory Number
IMV-1401	Scotsman 11-0514-01	K-55017-9
IMV-1402	Scotsman 11-0514-02	K-55017-11

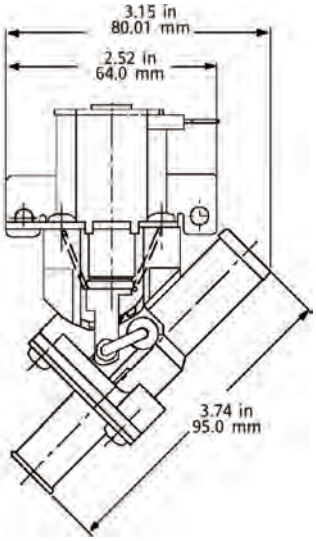
Specifications

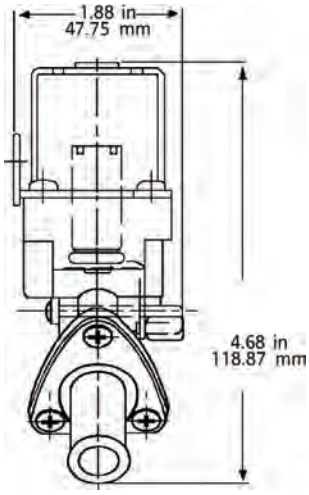
Part Numbers	Description	Flow Rate	Inlet	Outlet	Operating Pressure	Terminals	Body Material	Electrical Rating	Power
IMV-1401	Commercial Ice Machine Water Valve S-55	NA	11/16" ID Hose	5/8" ID Hose	0 PSI to 7 PSI	1/4" Male	Polypro	208/230V AC 60 Hz	38 Watts
IMV-1402	Commercial Ice Machine Water Valve S-55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

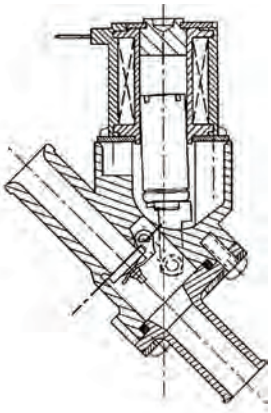
Product Drawings

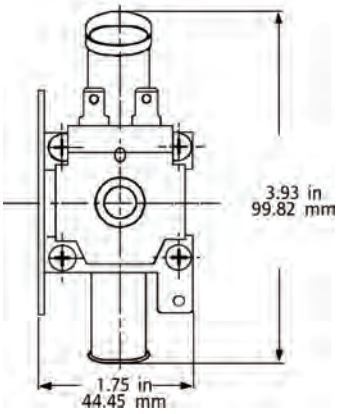


S-55









Robertshaw®

1 Year Limited Warranty

Robertshaw®

CB-116

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)

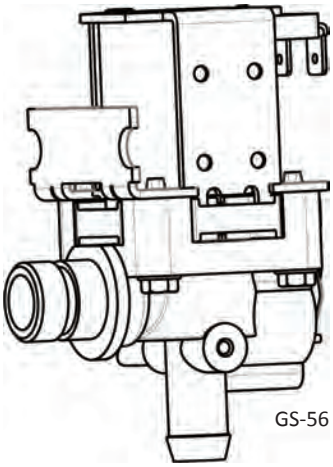
Replacement Information

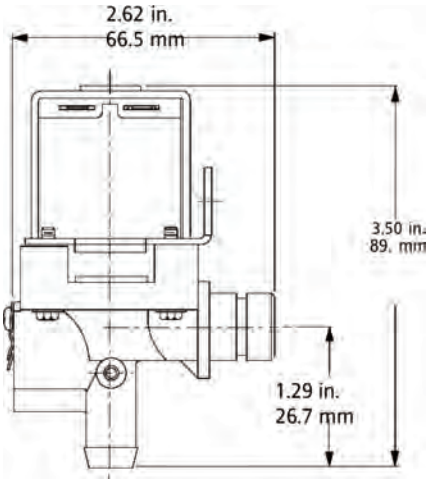
Part Numbers	Replaces	Factory Number
CB-102	Grindmaster 61102	K-56778-41
CB-116	Bunn-O-Matic 26116002	K-56778-51
CB-880	Wilbur Curtis WC880E	K-56778-35

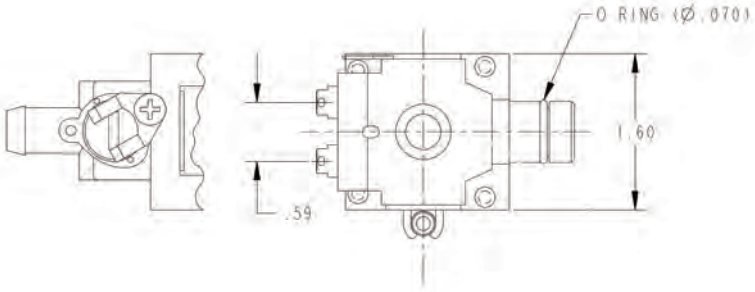
Specifications

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

Product Drawings







1 Year Limited Warranty

Robertshaw®

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.

⚠ **WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

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)

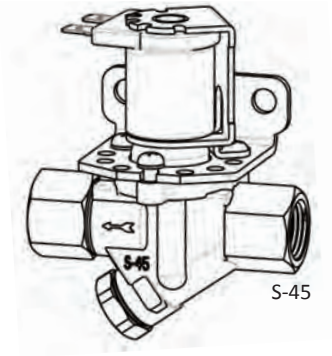
Replacement Information

Part Numbers	Replaces	Factory Number
DW-952	Moyer Diebel 504952	K-62687-44
IMV-001	Scotsman 12-2990-01	K-62687-128
PL-849	Sloan Valve 0305849	K-77634

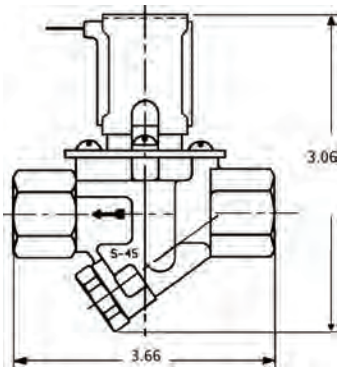
Specifications

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
IMV-001	Commercial Ice Maker Water Valve S-45	0.19 GPM	3/8" 18 FNPT	3/8" ID Hose	20 PSI to 120 PSI	1/4" Male	Brass	120V AC 60 Hz	15 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

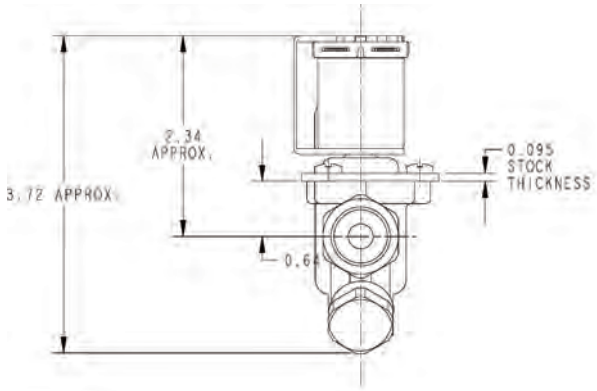
Product Drawings

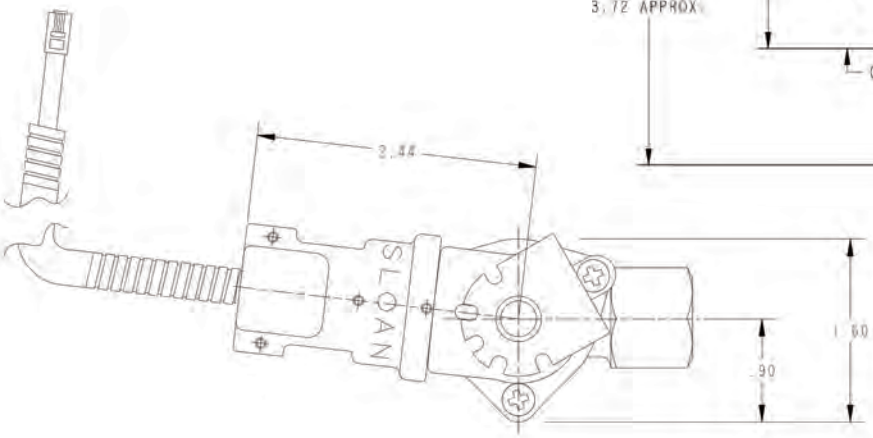


S-45

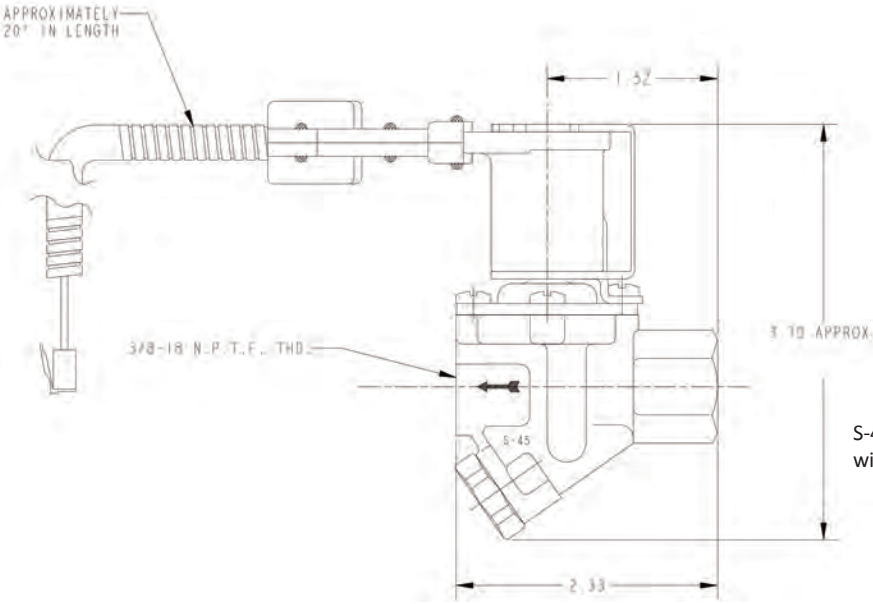


S-45
with Connector





S-45
with Connector



S-45
with Connector

1 Year Limited Warranty

Robertshaw®

12604060

12602630

1261950

GENERAL PURPOSE WATER VALVES

V Series

The Robertshaw® Water Valve V Series is designed for use in clotheswashers, dishwashers, showers, air conditioning systems and other domestic or commercial applications.

Flexible and designed and produced to meet the stringent requirements of the markets of today and the future.

Features and Benefits

- Easy to rotate, coil to match OEM application
- Flexible mounting with four different positions
- Hose connection
- Conversion kit with bracket, screen, popular flow controls, and terminals
- Body material: Polyammide
- Insulation: Class II to water. No grounding required
- Coil insulation: Class F (140°C wire operating temperature)
- Ambient Temperature: 85°C maximum according to water temperature and duty cycle
- Water Temperature: 90°C maximum according to water temperature and duty cycle
- Internal leakage: Maximum 1 drop/min. on pressure 0.2 to 10 bar
- IEC certified
- Made in EU

Specifications - Water Valve Kits

Part Numbers	Description	Flow Regulator	Inlet	Outlet	Operating Pressure	Terminals	Type	Outlet Orientation	Electrical Rating
12604060 (EU)	Clotheswasher and Dishwasher inlet water valve kit V18 model	2.5L/min, 8.0L/min, 10.0L/min	Thread ISO 228 G 3/4 B	10mm	0.2 to 10 bar	6.35mm Male	Single	180°	230V AC 50/60 Hz, 6 Watts
12604050 (EU)	Clotheswasher and Dishwasher inlet water valve kit V19 model	2.5L/min, 8.0L/min, 10.0L/min	Thread ISO 228 G 3/4 B	10mm	0.2 to 10 bar	6.35mm Male	Single	90°	230V AC 50/60 Hz, 6 Watts
12701090 (EU)	Clotheswasher and Dishwasher inlet water valve, dual kit V28 model	2.5L/min, 8.0L/min, 10.0L/min	Thread ISO 228 G 3/4 B	10mm	0.2 to 10 bar	6.35mm Male	Double	180°	230V AC 50/60 Hz, 6 Watts
12701100 (EU)	Clotheswasher and Dishwasher inlet water valve, dual kit V29 model	2.5L/min, 8.0L/min, 10.0L/min	Thread ISO 228 G 3/4 B	10mm	0.2 to 10 bar	6.35mm Male	Double	90°	230V AC 50/60 Hz, 6 Watts

Specifications - Water Valves

Part Numbers	Description	Flow Regulator	Inlet	Outlet	Type	Operating Pressure	Outlet Orientation	Coil Type	Electrical Rating
1273321	Clotheswasher Water Valve	10L/min	Thread ISO 228 G 3/4 B	10mm	Double	0.2 to 10 bar	180°	FASTON	230V AC 50 Hz, 6 Watts
1273640	Clotheswasher Water Valve	10L/min	Thread ISO 228 G 3/4 B	10mm	Double	0.2 to 10 bar	180°	FASTON	230V AC 50 Hz, 6 Watts
1273451	Clotheswasher Water Valve	10L/min	Thread ISO 228 G 3/4 B	10mm custom	Double	0.2 to 10 bar	90°	FASTON	230V AC 50 Hz, 6 Watts
12602630	Dishwasher Water Valve	2.5L/min	Thread ISO 228 G 3/4 B	10mm	Single	0.2 to 10 bar	90°	RAST 2.5	230V AC 50 Hz, 6 Watts
1273890	Clotheswasher Water Valve	6L/min	Thread ISO 228 G 3/4 B	10mm	Double	0.2 to 10 bar	180°	RAST 5	230V AC 50 Hz, 6 Watts
1275140	Clotheswasher Cold Inlet Water Valve	6L/min	Thread ISO 228 G 3/4 B	10mm	Double	0.2 to 10 bar	180°	RAST 2.5	230V AC 50 Hz, 6 Watts
1263660	Clotheswasher Inlet Water Valve	6L/min	Thread ISO 228 G 3/4 B	10mm	Single	0.2 to 10 bar	180°	RAST 5	230V AC 50 Hz, 6 Watts
1268690	Clotheswasher, Hot Inlet Water Valve	6L/min	Thread ISO 228 G 3/4 B	10mm	Single	0.2 to 10 bar	180°	RAST 2.5	230V AC 50 Hz, 6 Watts
1268400	Clotheswasher Water Valve	5.5L/min	Thread ISO 228 G 3/4 B	10mm thread	Single	0.2 to 10 bar	90°	RAST 5	230V AC 50 Hz, 6 Watts
1266010	Dishwasher Water Valve	4L/min	Thread ISO 228 G 3/4 B	10mm thread	Single	0.2 to 10 bar	180°	RAST 5	230V AC 50 Hz, 6 Watts
1261950	Clotheswasher Water Valve	8L/min	Thread ISO 228 G 3/4 B	10mm	Single	0.2 to 10 bar	180°	FASTON	230V AC 50 Hz, 6 Watts
1263880	Water, Inlet Valve	8L/min	Thread ISO 228 G 3/4 B	10mm	Single	0.2 to 10 bar	180°	RAST 2.5	230V AC 50 Hz, 6 Watts

Replacement Information

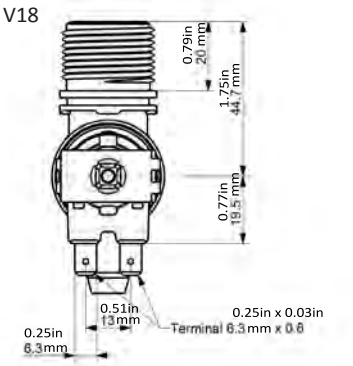
Part Numbers	OEM Application	Equivalent OEM Part / Service Code
1273321	BSH EUROWASHER	9000047096 / 9000533540 / 9000047098 / 9000544930 / 5500001761
1273640	BSH AK SLIM LINE	9000047121 / 9000047121 / 9000554967 5550000160
1273451	BSH TOP LOADER	9000047123 / 5550006024
12602630	BSH STR INLET VALVE	9000805871 / 9001155850
1273890	Indesit V D VERROUILLAGE	1617202802 / 16172028 / D389001 / D389000
1275140	Indesit V D VERROUILLABLE	16001754900
1263660	Indesit V S VERROUILLAGE	1617201502
1268690	Indesit V S VERROUILLABLE	16001755000
1268400	Electrolux V19STRZ	146203011
1266010	Electrolux V18STRZ	111532001 / 1115320010
1261950	Fagor Brandt V180	XMSR00068 / XMSR00068
1263880	Gorenje V180	269222 / 8083315

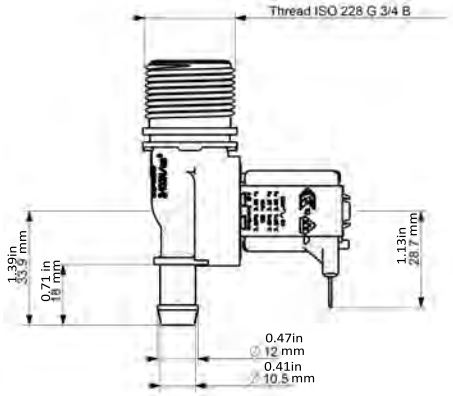
1 Year Limited Warranty

Robertshaw®

Product Drawings

V18





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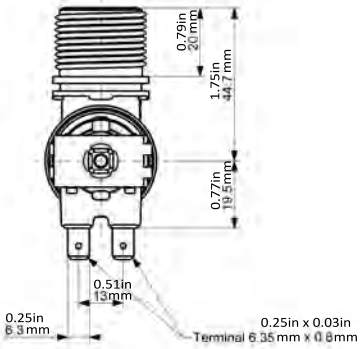
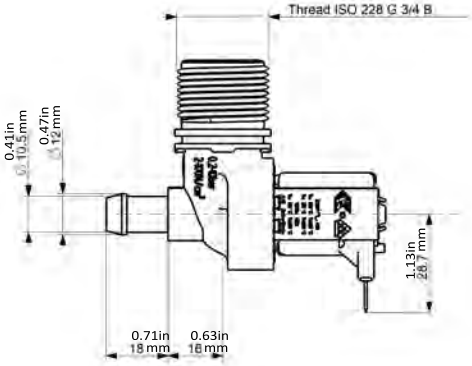
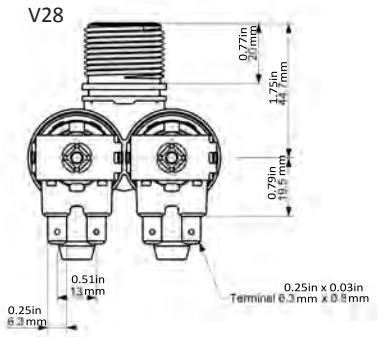
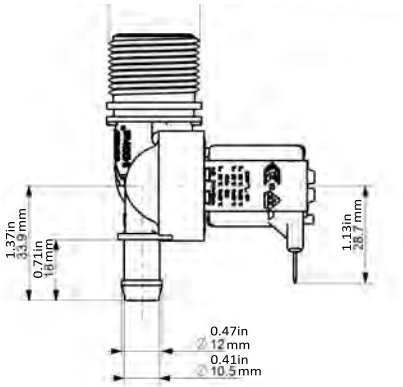


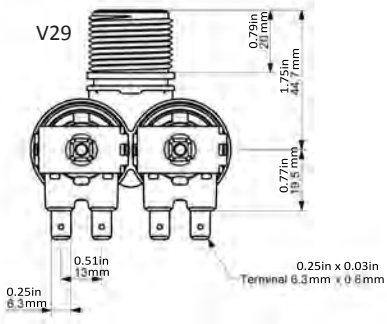


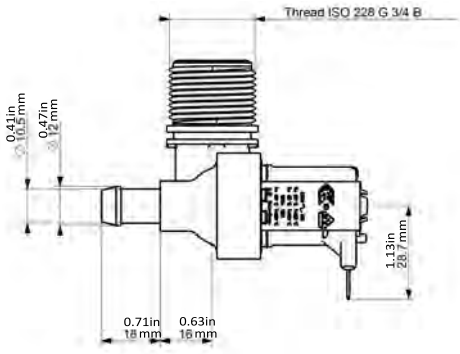
V28





V29





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TIPS ON SELECTING A REPLACEMENT GAS VALVE

Safety Warning: Any work on gas valves or equipment should be preformed 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

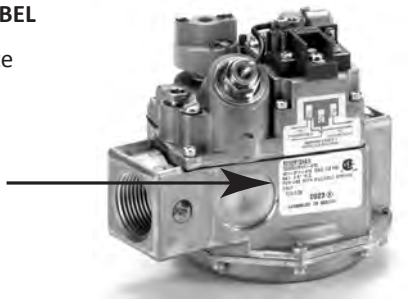
Always check the following with any gas valve retrofit application:

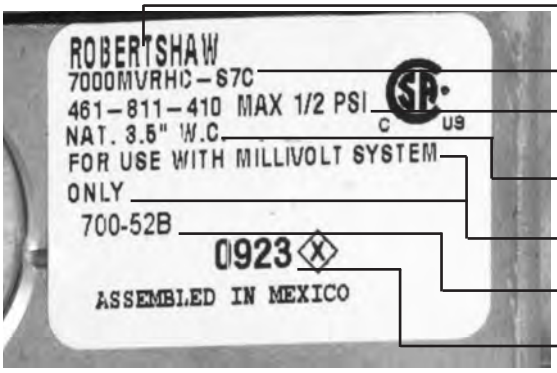
1. Check capacity
2. Check inlet and outlet sizes
3. Determine if the valve is non-regulated
    a. Check if the pressure regulator requires adjusting
4. Determine if the replacement requires straight-thru
5. Determine if the application is LP or Natural Gas
    a. For LP gas, a separate pressure regulator 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	7000LC	7000HC		
•			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 - Intrinsically "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 - 24V AC
•	•	•	E12	Electric Actuator - 12V DC
•	•	•	E120	Electric Actuator - 120V AC
•	•	•	E240	Electric Actuator - 240V AC
•	•	•	F	Factory Fixed (not adjustable regulator setting 3.0" to 7.0" 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 CSA rated for limited horizontal 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	Regulator Pressure Range (1.4" to 3.6" W.C.)
•	•	•	R	Regulator Type
•		•	RB	Adjustable (High - Low) pressure regulator adjusts percentage of output. -4 = 60% of full flow -5 = 70% of full flow -6 = 80% of full flow

Factory Model Number			DESCRIPTION	
7000	7000LC	7000HC		
•	•	•	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
•			SR	Hydraulic Snap-Acting Actuator - Regulated
•		•	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. -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
•		•	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

GAS VALVE CROSS REFERENCE FOR UNI-LINE® PARTS

Factory Number	Uni-Line Number
220RLPTS8P	110-285
220RLPTS8P	110-280
220RLPTSP	110-262
220RLPTSP	110-265
220RTSP	110-202
7000AERB-3-LP-S7C	700-435
7000AERB-5-S7C	700-434
7000AM	700-101
7000AMSGO	700-881
7000AMSGOR-LP	700-888
7000AMV	700-501
7000AMVR	700-502
7000AS	700-201
7000ASR	700-202
7000AST-3	700-203
7000AST-LP-3	700-204
7000ASTR-3	700-205
7000ASTR-4	700-213
7000BDER2-3-LP-S7C	700-051
7000BDER2-4-S7A	700-053
7000BDER-LP-S7A	700-055
7000BDER-S7A	700-056
7000BE	700-401
7000BE-120	700-453
7000BER	700-402
7000BER	700-400
7000BER	700-406
7000BER-120	700-454
7000BER-120	700-452
7000BER-240	700-464
7000BER-S7A	700-426
7000BER-S7C	700-428
7000BGOR-S7B	700-804
7000BGO-S7B	700-803
7000BGVE	700-417
7000BGVER	700-422
7000BGVER	700-424
7000BGVER2-4	700-413
7000BGVER-S36	700-416
7000BM	700-105
7000BMR	700-106
7000BMSER	700-409
7000BMSER-120	700-470
7000BMSGOR	700-886
7000BMSGOR	700-887
7000BMV	700-503
7000BMV	700-505
7000BMVR	700-504
7000BMVR	700-508
7000BMVR	700-506
7000BMVR-LP	700-515
7000BMVR-S7C	700-511
7000BMVR-S7C	700-507
7000DEHC-S7C	700-058
7000DER2-HC-4-S7C	700-064
7000DERHC	700-057
7000DERHC-S7C	700-059
7000EHC-120-S7C	700-455
7000EHC-S7C	700-441
7000ERHC-120-S7C	700-456
7000ERHC-S7C	700-442
7000ERLC	710-402
7000GORHC-S7B	700-824
7000MLC	710-101
7000MRHC-S7C	700-114
7000MRLC	710-102
7000MVLC	710-501
7000MVRB-5-LC	710-503
7000MVRB-5-LC	710-511
7000MVRHC-S7C	700-522
7000MVRLC	710-508
7000MVRLC	710-502
7000SLC	710-201
7000SLC	710-218
7000SLC	710-203
7000SRLC	710-205
7010BGVMV	700-514
7010BGVMV	700-513
7010BGVMV	700-513
7200DER	720-051
7200DERCS-1	720-055
7200DER-S7C	720-050
7200DER-SO-3	720-054
7200ER	720-402
7200ER	720-400
7200ER	720-406
7200ER	720-404
7200ERC	720-007
7200ERCS-2	720-472
7200ERCS-2	720-474
7200ER-S7C	720-403
7200IPER	720-079
7200IPER2-4	720-082
7200IPER-S7C	720-072
7200IPER-S7C	720-070
7200IPER-SO-4	720-081
7222DER	722-051
7222DERC	722-053
7222IPER	722-079
R103RCTSLPPA	110-503
R103RVTSLP	110-507
R103RVTSLP	110-509
R103RVTSLPPA	110-501
R103RVTSLPPA	110-504
R103RVTSLPPA	110-508
R110RCTS-PC	110-203
R110RCTS-PC	110-204
R110RTS	110-326
R110RTS8P	110-353
R110RTSP	110-206

COMMERCIAL COOKING CROSS REFERENCE FOR UNI-LINE® PARTS

Factory Number	Uni-Line Number
401XM	41-224
501A	41-204
501A	41-205
501A	41-209
7000BGOR-S7B	700-804
7000BMSGOR	700-886
7000BMSGOR	700-887
BJWA25PB-02-48	4350-015
BJWA25PC-09-36	4350-028
BJWA25PD-10-48	4350-040
BJWA25PM-02-48	4350-127
BJWA25PM-03-48	4350-128
BJWA25PM-11-48	4350-027
BJWA44TC-12-36	4350-029
D1-32-060-59-00	5000-851
D1-C5-060-59-00	5000-811
EA3-44-36	5300-100
FDH-1-06-48	4200-508
FDO-1-04-48	4200-007
FDO-1-07-48	4200-005
FDO-3-05-54	4200-025
FDTH-1-05-48	4200-505
FDTH-1-06-48	4200-503
FDTH-3-06-54	4200-026
FDTO-1-05-48	4200-011
FJT-102-1040	4075-029
FJTDO-13	4075-200
GS-A6-030-18-00	4290-006
GS-C8-060-00-00	4290-008
GS-J1-036-00-00	4290-020

Factory Number	Uni-Line Number
INF-120-1152	5500-134M
INF-120-1152	5500-135M
INF-240-1153	5500-234M
INF-240-1153	5500-235M
INF-240-597	5500-202M
INF-240P-1047	5500-287M
INF-240P-1148	5500-212M
INF-240PX-803	5500-200M
KA-601-36	5300-015
KA-601-72	5300-088
KA-604-48	5300-027
KNP-6-36	5300-502
KX-161-24	5300-766
KX-299	5300-401
KX-396	5300-402
KX-87-36	5300-711
KXP-149-60	5300-735
LCC-36-060-00-00	5225-010
LCH-37-030-00-00	5225-009
LCH-68-024-00-00	5225-047
LCH-J6-024-00-00	5225-054
LCHM-05-030-00-00	5225-112
BJWA25PC-01-48	4350-027
RX-1-36	5300-401
RX-2-24	5300-402
RX-6-36	5300-406
S-234-36	5300-175
S-23-48	5300-041
S-384-36	5300-114
SA-245	5300-017

Factory Number	Uni-Line Number
SA-382-36	5300-017
SJ-157-36	5300-146
SJ-328-36	5300-146
SM2	41-521
SP-184-60	5300-612
SP-186-60	5300-614
SP-191-60	5300-618
SP-192-36	5300-641
SP-197-60	5300-651
SP-200-60	5300-671
SP-390-36	5300-219
TS11J-1211-1-0	1720-008
TS11J-1311-1-0	1720-005
TS11J-3211-1-0	1720-004
TS11J-4211-1-0	1720-007
Z871470042	5210-125
Z950641100	1720-801
Z950644100	1720-802
MPA-V112-1-UXM	5500-102M
MPA-V114-1-UNM	5500-134M
MPA-W108-UXM	5500-200M
MPA-V116-UXM	5500-202M
MPA-V119-UNM	5500-234M
MPA-W123-UNM	5500-287M
MPA-V135-1-UNN	5502-303M
MPA-V441-UNM	5502-350M
MPA-V162-UNM	5502-448M
MPA-V154-UNM	5502-468M
MPA-V152-1-UNM	5502-915M

RC THERMOSTAT CODES

Example: Code RC13600-2P
Example: Code RCR2000-2P

RC RCR	1	36 20	00 00	2 2	P P
Model / Model and Switch RCR – Heating and Cooling Air Conditioner (Reverse cycle) RCV – Cooling Air Conditioner with fan switch PAR – Heating and Cooling Air Conditioner (cross-environment – bulb) RFR – Double Action Freezer (Freezer and Cooler) RH – Duplex/Biplex Refrig. (Thermostat with in-built resistance) RCE – Twin Refrigerator (Thermostat with special switch) RCA – Refrigerator with auxiliary switch	0 – Semiautomatic defrosting refrigerator (Push Button) 1 – Residential and commercial refrigerators (Constant differential) 2 – Duplex/Biplex x Always On Refrigerators (2 terminals) 3 – Air Conditioner (cooling only) 4 – Drinking fountains and Coolers 5 – Freezers and cooling displays 6 – Absorption Refrigerators 7 – Any temperature range with a fixed position (Pole-free thermostat) 8 – Cooling Air Conditioner (Cross-environment – bulb) 9 – Duplex/Biplex x Always On Refrigerator with auxiliary switch (3 terminals)	Capillary length in inches (")	Product Manufacturer Code (00 = Standard)	Serial Number	(P) Individual packaging

TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

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 - NA, SA, ANZ

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 Policy and Distributor Price Schedule may be 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.

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 and 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.

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.

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.

TERMS AND CONDITIONS OF SALE - NA, SA, ANZ

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.

H. These Terms and Conditions of Sale supersede any and all previously published versions issued by Company. Except where there exists a fully executed agreement between Distributor and Company, these Terms and Conditions of Sale constitute the entire agreement between Distributor and Company and supersede all previous and/or contemporaneous understandings and agreements, whether verbal or written, express or implied, relating to the subject matter herein. Any changes to these Terms and Conditions of Sale must be in writing and signed by an authorized representative of Company.

TERMS AND CONDITIONS OF SALE - EUROPE

EFFECTIVE JANUARY 1, 2015

The following are the Terms and Conditions of Sale of Robertshaw s.r.o., a Czech Republic company (the "Company"), for those of its products it may agree to sell for distribution ("Products").

THESE TERMS AND CONDITIONS ARE COMPANY'S EXCLUSIVE TERMS AND CONDITIONS OF SALE BETWEEN COMPANY AND DISTRIBUTOR, AND SHALL APPLY TO ALL PRODUCTS ILLUSTRATED HEREIN AND SUPERSEDE ANY INCONSISTENT, ADDITIONAL, PREPRINTED OR OTHER TERMS AND CONDITIONS CONTAINED IN DISTRIBUTOR'S PURCHASE ORDER OR ANY OTHER DISTRIBUTOR DOCUMENT OR ANY DOCUMENTS DERIVED FROM THE DISTRIBUTOR'S CUSTOMERS AND COMPANY DOES NOT AGREE TO ANY ADDITION, MODIFICATION OR DELETION OF THESE TERMS AND CONDITIONS. ANY OTHER 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 of the Products, 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, legal 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. 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, transferee's, 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, at Company's 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 (or Company's gain of) goodwill or otherwise, as a result of Company's termination.

C. Distributor agrees to provide a credit application 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.

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: +420 587 805 241

C. Orders must state Distributor's account number, ship to address, catalogue 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 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 or shall be construed by Distributor as requiring 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.

III. PRICING

A. PRODUCT PRICES ON ALL ORDERS ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE AT ANY TIME. Company reserves the right to make price changes during the term of any blanket orders unless prices are specifically designated in Company's quotation as "firm" for a specified period of time. Company's Policy and Distributor Price Schedule may be 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.

C. In the event any order submitted by Distributor to Company contains pricing not in accordance with Company's 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 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 Euros (EUR) or such other currency as Company's Sales Order Acknowledgment may provide for. Company may require cash in advance or an irrevocable letter of credit, which Distributor shall furnish upon request.

C. Distributor's order requires payment 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 equal to 2% above the EURIBOR rate from time to time in force, from the due date until the amount is paid in full (before and after judgment). Company shall be entitled to recover from Distributor all costs for collection, including reasonable legal fees and court costs incurred by Company in connection with any amount due to the Company from Distributor. Company reserves the right to withhold shipments or require Distributor to provide payment 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 shipment terms for all orders are Ex works (Company's premises) (EXW, Incoterms 2010).

B. All freight, storage, insurance or other costs of shipment arising outside of an EXW arrangement shall be paid by Distributor and, if advanced by Company, shall be added to Distributor's invoice.

C. Company agrees to use commercially-reasonable efforts to meet delivery schedules requested by Distributor and agreed to in Company's Sales Order Acknowledgment, but shall have no liability for failure to do so for any reason and time for delivery shall not be of the essence.

D. 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.

E. 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 for 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.

F. Title and risk of loss to all Products shall pass to Distributor upon delivery.

G. Code of Conduct Compliance. 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 legal, expert and witness fees) incurred by Company as a result of, or relating to, Distributor's non-compliance with the terms therein.

H. Harmonized Commodity Descriptions and Codes and export classification numbers 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. It is incumbent on Distributor to consult with a trade compliance expert 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 any 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. 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.

TERMS AND CONDITIONS OF SALE - EUROPE

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 twenty-four (24) months from the date the Product is manufactured (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 re-installation, 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.

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. All cartons must be clearly identified as WARRANTY PRODUCT and returned to:

   Warranty Department
   Robertshaw
   Dlouhá 4
   785 01 Sternberk, Czech Republic

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 products 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 Products 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

TERMS AND CONDITIONS OF SALE - EUROPE

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 unless proof of purchase for the a ctual shipped Product is provided.
4. All returns are subject to a minimum fifteen percent (15%) restock charge or €15.00, 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 or failure, 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.

XII. LIMITATION OF LIABILITY

A. Subject to clause XII (C), Company shall not in any circumstances be liable for any loss of use, production, profit, business, contracts, revenues or anticipated savings, any increase in operating costs, any product recall or corrective action costs or any other financial or economic loss or any indirect or consequential loss or damage whatsoever whether suffered by Distributor or by any third party.

EMEA

CUSTOMER SERVICE - EMEA

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Customer Service Facsimile: +420.587.805.244
CustomerService.STB@robertshaw.com

TECHNICAL SERVICE - EMEA

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Jan Hub – Manufacturing Engineering
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NORTH AMERICA

CUSTOMER SERVICE – NORTH AMERICA

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customer.services@robertshaw.com

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