

May 2014

SOLAR PRODUCT CATALOG

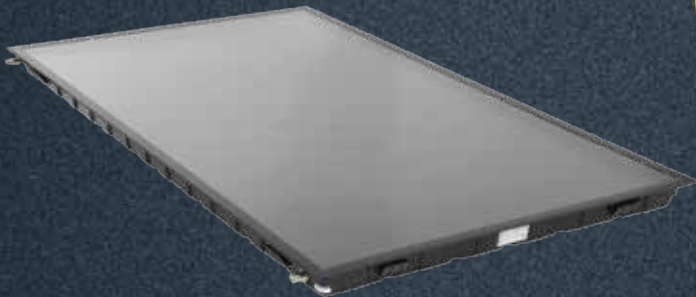




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SOLAR THERMAL



Harnessing solar energy for thermal heat production



Roth Electronic Controls
BW (domestic water)
BW/H (domestic water and heating)
and BW/H Comfort
Multifunctional and efficient regulation, simple control elements, large display.



Roth Solar Station
Individual connections for pre-insulated flexible stainless steel piping and 1/2" and 3/4" copper .



Roth Storage Tank
80 and 119 gallon, steel exterior with powder coat finish, internal coil heat with 4500W supplemental electric heating element and second coil heat exchanger.

FLAT COLLECTOR HELIOSTAR 252 S4

- Extremely durable, unbreakable, vacuum formed polycarbonate case (impact, temperature, wind, and UV-resistant, seamless and completely sealed), about 20-30% lighter than other collectors
- High quality coated glazing of absorber guarantees highest performance
- Compatible with drainback systems
- Full 2.5" rockwool back wall insulation
- Easy installation with few tools, optimal stability, attachment system not visible, installation friendly accessories
- 10 year Roth system guarantee



Hardware and brackets for easy installation



SOLAR PACKAGES

Package 1 for domestic water heating for 3-4 person household includes:

2 flat panel collectors, entire roof attachment components, solar station, domestic water heating control (BW) and 10 liters of solar fluid.

Package 2 for domestic water heating for 5-6 person household includes:

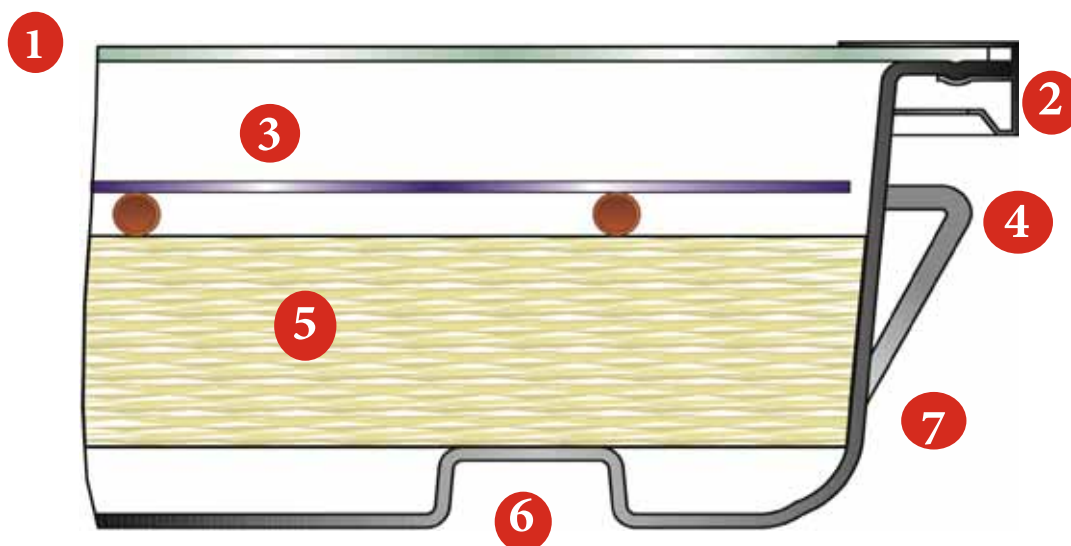
3 flat panel collectors, entire roof attachment components, solar station, domestic water heating control (BW) and 10 liters of solar fluid.

Package 3 for domestic water heating and heating support for 5-6 person household includes:

4 flat panel collectors, entire roof attachment components, solar station, domestic water heating and heating support control (BW/H) and 10 and 5 liters of solar fluid.

Package 4 for domestic water heating and heating support for 7-10 person household includes:

5 flat panel collectors, entire roof attachment components, solar station, domestic water heating and heating support control (BW/H) and 10 and 5 liters of solar fluid.

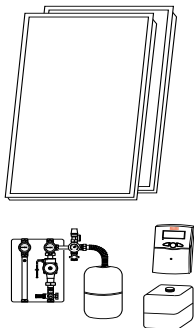
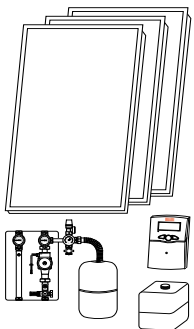
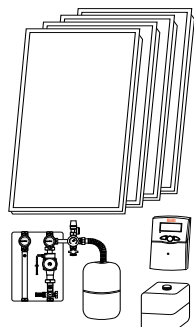
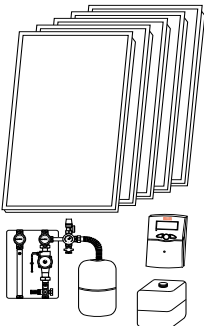


- 1-highly transparent safety glass
- 2-wrapped around profile
- 3-high selectively coated absorber plate
- 4-mounting points
- 5-2.5" insulation
- 6-grooves for slide-in mounting
- 7-collector case made out of polycarbonate

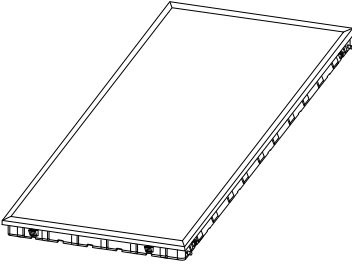
Length	82.7"
Width	47.3"
Height	4.3"
Gross Surface Area	27.2 ft
Weight	84 lbs

Solar Product Catalog

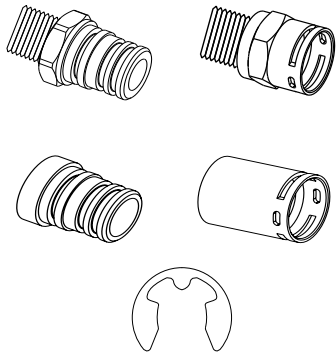


Roth Heliostar 252 S4 Solar Packages			
	Description	Part Number	List Price
	Roth Solar Package 1	2315008002	5361.42
	Contents: 2 - Heliostar 252 S4 Flat Panel Collectors 1 - On-roof Basic Attachment Set, Vertical 6 - Fast Jack Systems (Includes roof flashing and standoff bracket) 1 - Solar Pump Station 1 - Solar Expansion Tank, 18L (4.7 gal) 1 - Solar Control - BW 1 - Solar Fluid, 10L (2.64 gal) Domestic Hot Water for 1 - 2 person household; Collector surface area - 54.25 ft² (5.04m²)		
	Roth Solar Package 2	2315008003	6937.33
	Contents: 3 - Heliostar 252 S4 Flat Panel Collectors 1 - On-roof Basic Attachment Set, Vertical 1 - On-roof Extension Attachment Set, Vertical 8 - Fast Jack Systems (Includes roof flashing and standoff bracket) 1 - Solar Pump Station 1 - Solar Expansion Tank, 18L (4.7 gal) 1 - Solar Control - BW 1 - Solar Fluid, 10L (2.64 gal) Domestic Hot Water for 3 - 4 person household; Collector surface area - 81.38 ft² (7.56m²)		
	Roth Solar Package 3	2315008004	8745.94
	Contents: 4 - Heliostar 252 S4 Flat Panel Collectors 1 - On-roof Basic Attachment Set, Vertical 2 - On-roof Extension Attachment Sets, Vertical 10 - Fast Jack Systems (Includes roof flashing and standoff bracket) 1 - Solar Pump Station 1 - Solar Expansion Tank, 25L (6.6 gal) 1 - Solar Control - BW/H 1 - Solar Fluid, 10L (2.64 gal) 1 - Solar Fluid, 5L (1.32 gal) Domestic Hot Water for 5-6 person household; Collector surface area - 81.38 ft² (7.56m²)		
	Roth Solar Package 4	2315008005	10321.85
	Contents: 5 - Heliostar 252 S4 Flat Panel Collectors 1 - On-roof Basic Attachment Set, Vertical 3 - On-roof Extension Attachment Sets, Vertical 12 - Fast Jack Systems (Includes roof flashing and standoff bracket) 1 - Solar Pump Station 1 - Solar Expansion Tank, 25L (6.6 gal) 1 - Solar Control - BW/H 1 - Solar Fluid, 10L (2.64 gal) 1 - Solar Fluid, 5L (1.32 gal) Domestic Hot Water for 7-10 person household; Collector surface area - 81.38 ft² (7.56m²)		
Collector fittings, supply/return piping, hi-temperature air separator (Spirovent) and solar storage tanks sold separately.			

Heliostar 252 S4 Flat Panel Collector

	Description	Part Number	List Price
	Heliostar 252 S4	2315007443	1249.11
	<ul style="list-style-type: none"> Extremely durable, unbreakable, vacuum formed polycarbonate housing. Impact, temperature, wind and UV radiation resistant. Seamless and completely sealed. High quality low-iron safety glass. Absorber enhanced with high selective vacuum coating. (95% absorption factor) Full 2.5" rockwool insulation on back and side walls Compatible with drainback system 10 year Roth system guarantee <p> Length - 82 5/8" (2100mm) Gross surface area - 27.13ft² (2.52m²) Width - 47 1/4" (1200mm) Aperture surface area - 24.51ft² (2.29m²) Height - 4 1/4" (109mm) Fluid capacity - 0.3 gal (1.0 liter) Weight - 81 lbs (37kg) </p> <p>SRCC Certification # 2010069A</p>		

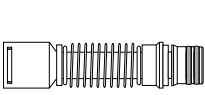
Heliostar 252 S4 Push Fittings

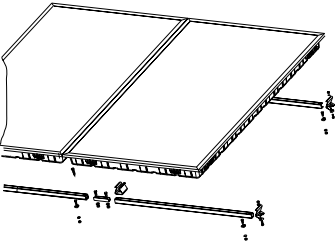
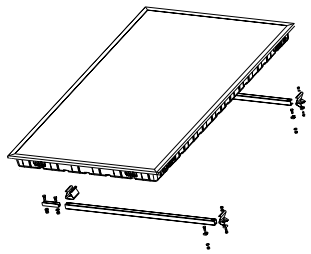
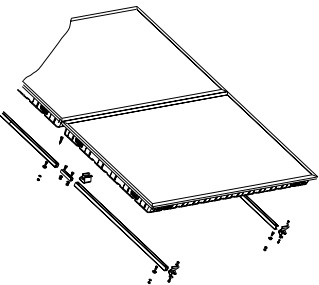
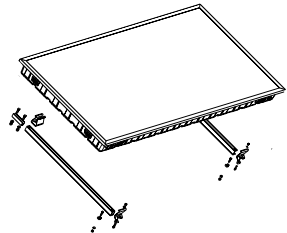
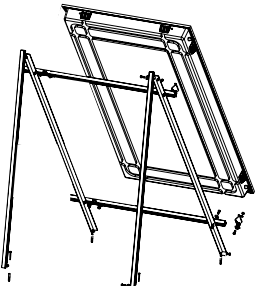
	Threaded Adapters		
	Push nipple x 1/2" male NPT	2315007454	31.83
	Push sleeve x 1/2" male NPT	2315007455	30.96
	Push nipple x 1/2" male BSPP	2315007444	22.54
	Push sleeve x 1/2" male BSPP	2315007449	20.83
	End Stops		
	Push nipple	2315007451	17.38
	Push sleeve	2315007450	16.47
	Snap Rings		
	Snap ring for push fittings	2315007452	3.53

Snap Ring Matrix

Number of collectors in array	1	2	3	4	5	6	7	8	9	10
Number of snap rings needed	4	6	8	10	12	14	16	18	20	22

Large Array Compensator (needed for arrays more than 5 collectors)*

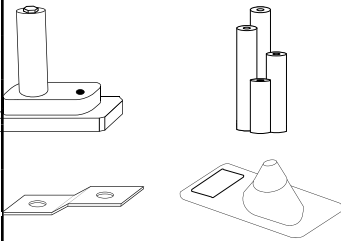
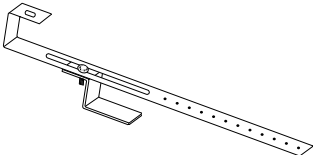
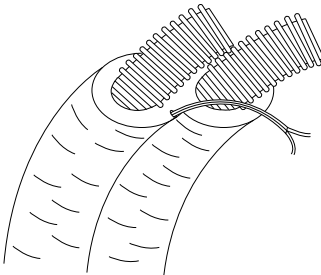
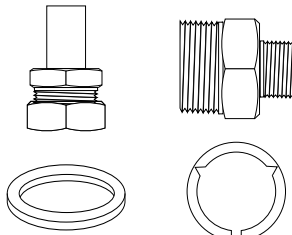
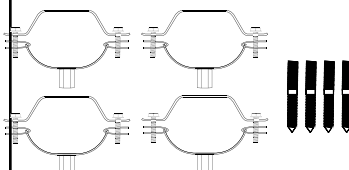
	Compensator (includes 2 snap rings) 2 Compensators needed per connection * See attachment set installation manual to determine large array components	2315007453	78.09
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Attachment Sets			
	Description	Part Number	List Price
	On-roof basic set, vertical	2315007446	455.30
	Designed to hold 2 collectors for vertical installation. Contains 4 aluminum horizontal rails, 2 horizontal rail connection kits, 2 double attachment brackets, 4 single attachment brackets, stainless steel nuts, bolts and washers and unique u-shaped rail washers.		
	On-roof extension set, vertical	2315007448	196.80
	Connects to basic set when adding additional collectors. Contains 2 aluminum horizontal rails, 2 horizontal rail connection kits, 2 double attachment brackets and stainless steel nuts, bolts and washers. (one set per additional collector)		
	On-roof basic set, horizontal	2315007445	451.90
	Designed to hold 2 collectors for horizontal installation. Contains 4 aluminum vertical rails, 2 vertical rail connection kits, 4 single attachment brackets, stainless steel nuts, bolts and washers and unique u-shaped rail washers.		
	On-roof extension set, horizontal	2315007447	205.90
	Connects to basic set when adding additional collectors. Contains 2 aluminum vertical rails, 2 vertical rail connection kits, 2 double attachment brackets and stainless steel nuts, bolts and washers. (one set per additional collector)		
	Freestanding basic set, vertical	2315007823	405.60
	Designed to hold 1 collector for a vertical installation on a flat roof or ground mount. Maximum slope angle = 50°. Contains 2 aluminum profile rails, 2 aluminum vertical rails, 2 aluminum horizontal mounting rails, 4 single attachment brackets, 4 T-brackets for anchoring, stainless steel nuts, bolts and washers and unique u-shaped rail washers.		

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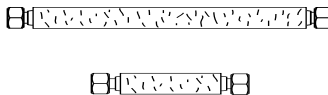
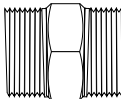
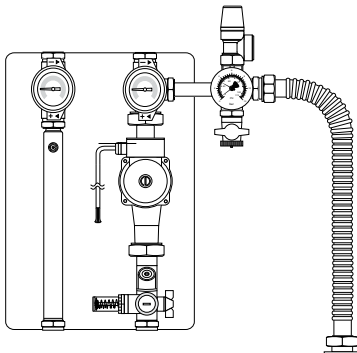
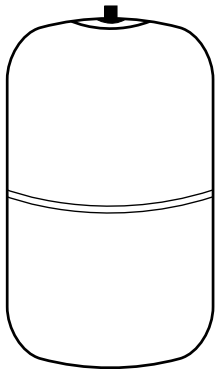


Attachment Sets (cont'd)			
	Description	Part Number	List Price
	Freestanding extension set, vertical	2315007822	328.20
	Connects to basic set when adding additional collectors. Contains 1 aluminum profile rail, 1 aluminum vertical rail, 2 horizontal mounting rails, 2 horizontal rail connection kits, 2 double attachment brackets, 2 T-brackets for anchoring and stainless steel nuts, bolts and washers. (one set per additional collector)		
	Freestanding basic set, horizontal	2315007824	292.00
	Designed to hold 1 collector for horizontal installation. Contains 2 aluminum profile rails, 2 aluminum vertical rails, 4 single attachment brackets, 4 T-brackets for anchoring and stainless steel nuts, bolts and washers and unique u-shaped rail washers.		
	Roof Elevation basic set	2315008102	536.60
	Designed to hold 1 collector for a vertical installation on a flat roof, ground mount or sloped roof. Can be used to achieve a greater altitude angle than the roof can provide. Maximum slope angle = 50°. Contains 2 aluminum profile rails, 2 aluminum vertical rails, 4 aluminum horizontal mounting rails, 4 single attachment brackets, 4 T-brackets for anchoring, stainless steel nuts, bolts and washers and unique u-shaped rail washers.		
	Roof Elevation extension set	2315008103	482.60
	Connects to basic set when adding additional collectors. Contains 1 aluminum profile rail, 1 aluminum vertical rail, 4 horizontal mounting rails, 4 horizontal rail connection kits, 2 double attachment brackets, 2 T-brackets for anchoring and stainless steel nuts, bolts and washers. (one set per additional collector)		
	FastJack® system	2315045000	65.00
	Contains base, 4 1/2" post, roof flashing, offset bracket, 5/16" x 3 1/2" lag bolt and washer, 3/8" x 3/4" hex bolt. 4 needed for basic set and 2 needed for each extension set.		

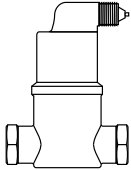
FastJack® Accessories			
	Description	Part Number	List Price
	FastJack® post - 3"	2315045017	30.27
	FastJack® post - 4 1/2"	2315045018	33.10
	FastJack® post - 6"	2315045019	36.72
	FastJack® post - 7 1/2"	2315045020	38.72
	Roof flashing	2315011859	13.22
	Offset bracket	2350006897	8.81
Clay Roof Tile Attachment Brackets			
	Attachment basic set - vertical	2335004083	252.40
	Attachment extension set - vertical	2335004084	88.50
	Basic set consists of 6 stainless steel attachment anchors including attachment screws. Extension set consists of 2 stainless steel attachment anchors including attachment screws. Used each additional collector in array.		
2 in 1 Solar Tubing and Accessories			
	2 in 1 solar tubing - DN16 x 15m (50')	2335004131	1593.90
	2 in 1 solar tubing - DN20 x 15m (50')	2335004132	1938.80
	DN 16 - 1/2" DN 20 - 3/4" Dual insulated corrugated stainless steel tubing (CSST) with integrated sensor wire. Can be cut to length using standard copper tubing cutter. Fitting sets and attachment collar sets sold separately.		
	2 in 1 basic fitting set - DN16	2335002623	69.50
	2 in 1 basic fitting set - DN20	2335002624	107.70
	Contains 2 brass threaded (BSPP) reducing adapters to couple tubing to collector whip or crossover piece, 2 CSST compression nuts, 2 compression x 22mm copper sweat fittings to adapt to solar pump station, 4 split retainer rings and 4 gaskets.		
	2 in 1 oval clip collar set - DN16	2335002621	48.80
	2 in 1 oval clip collar set - DN20	2335002622	50.60
	Contains 2 brass threaded (BSPP) reducing adapters to couple tubing to collector whip or crossover piece, 2 CSST compression nuts, 2 compression x 22mm copper sweat fittings to adapt to solar pump station, 4 split retainer rings and 4 gaskets.		

Solar Product Catalog

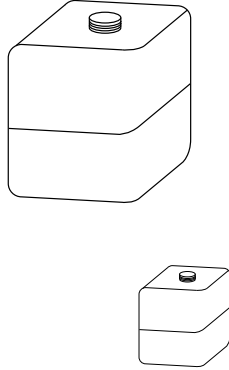


	Description	Part Number	List Price											
	Heliostar 252 Whip - 1000mm (3.28')	2350006891	185.38											
	Heliostar 252 Crossover - 300mm (1')	2350006892	110.00											
	Used to connect 1/2" BSPP push fitting to 2 in 1 tubing. (Gaskets included)													
	2 in 1 tubing threaded connector - DN16	2335002625	16.60											
	2 in 1 tubing threaded connector - DN20	2335002626	17.50											
	Used to couple two lengths of 2 in 1 tubing. (BSPP thread)													
Solar Pump Station														
	Solar Pump Station	2335002274	1105.10											
	<p>Designed for closed loop systems only. Controls ciculation of solar fluid through the primary solar loop. The circulator is activated by a signal from a separate differential temperature controller.</p> <p>Features:</p> <p>Steel wall bracket</p> <p>Grundfos 3-speed circulator</p> <p>Flow control valve and meter</p> <p>Temperature gauges on S/R - 32°F - 248°F (0°C - 120°C)</p> <p>Flow check, shut off valves on S/R</p> <p>Pressure relief valve - 87 psi (6 bar)</p> <p>Pressure gauge - 145 psi (10 bar)</p> <p>Fill/drain valves</p> <p>Air vent</p> <p>Connection tubing, fittings and bracket for expansion tank</p> <p>Copper compression x threaded adapters for 2 in 1 tubing</p> <p>EPP insulation housing</p>													
Solar Expansion Tanks														
	Solar expansion tank - 4.8 gal. (18L)	2335003144	213.90											
	Solar expansion tank - 6.6 gal. (25L)	2335002276	262.00											
	<p>Connects to solar pump station via CSST tubing and fittings included with solar pump station.</p> <table><tr><td></td><td>Weight</td><td>Diameter</td><td>Height</td></tr><tr><td>4.8 gal</td><td>10 lb (4.5 kg)</td><td>11 in (280 mm)</td><td>15 in (380 mm)</td></tr><tr><td>6.6 gal</td><td>12 lb (5.5 kg)</td><td>11 in (280 mm)</td><td>20 in (500 mm)</td></tr></table> <p>Pre-set pressure - 22 psi (1.5 bar)</p> <p>Maximum operating temperature (diaphragm) - 158°F (70°C)</p>				Weight	Diameter	Height	4.8 gal	10 lb (4.5 kg)	11 in (280 mm)	15 in (380 mm)	6.6 gal	12 lb (5.5 kg)	11 in (280 mm)
	Weight	Diameter	Height											
4.8 gal	10 lb (4.5 kg)	11 in (280 mm)	15 in (380 mm)											
6.6 gal	12 lb (5.5 kg)	11 in (280 mm)	20 in (500 mm)											

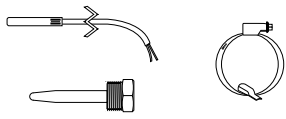
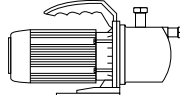
Solar Air Separators

	Description	Part Number	List Price
	Spirovent HT 3/4" FPT	2340094259	258.90
	Spirovent HT 1" FPT	2340094260	285.90
	High temperature micro-bubble air separators. Removes air bubbles and entrapped air in system fluid. 1/2" FPT tap on bottom .		

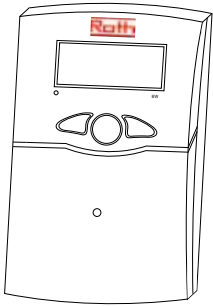
Solar Antifreeze

	Solar antifreeze - 2.64 gal (10 L)*	2335002277	187.20
	Solar antifreeze - 1.32 gal (5 L)	2335002278	104.20
	<p>*Provided in a 6.6 gal (25 L) container which when filled with water will create a 40% concentration.</p> <p>Propylene glycol based with additives to prevent corrosion, aging and deposits in tubing and equipment.</p> <p>Full protection up to 338°F (170°C)</p> <p>Freeze protection - 40% mixture -11°F (-24°C)</p> <p> - 50% mixture -22°F (-30°C)</p> <p> - 55% mixture -38°F (-47°C)</p>		

Solar Accessories

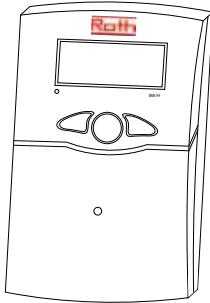
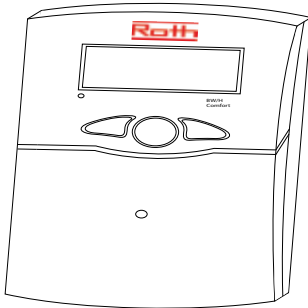
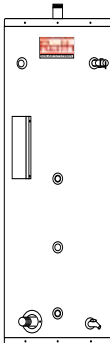
	Pt 1000 temperature sensor	2335002271	56.70
	Sensor Well	2335002272	34.90
	Pipe attachment adapter for sensor	2335002273	8.20
	Pump for system filling and purging	2335002279	1285.40
	110v centrifugal pump w/ hoses and filter. Max. filling height - 115ft (35m)		

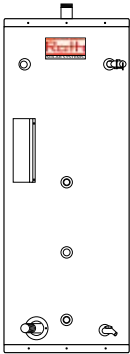
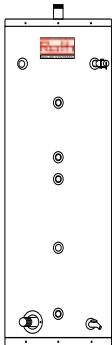
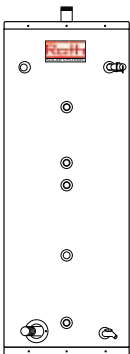
Solar Controls

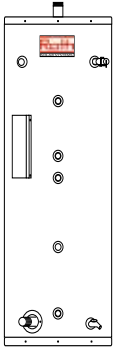
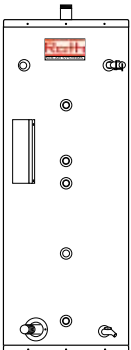
	BW solar control	2335003975	511.70
	<p>Differential temperature control for domestic hot water. LED screen display for system status, operating parameters and programming. Additional safety functions include maximum operating storage temperature setpoint, system cooling, recooling, sensor monitoring and minimum collector temperature set point.</p> <p>Technical data:</p> <p>Power supply - 110V</p> <p>Inputs - 4 for Pt1000 temperature sensors</p> <p>Output - 1 electromechanical relay for solar circulator. 110V</p>		

Solar Product Catalog



Solar Controls (cont'd)			
	Description	Part Number	List Price
	BW/H solar control	2335003976	592.10
	<p>Differential temperature control for domestic hot water and heating support. LED screen display for system status, operating parameters and programming. 9 pre-installed system schemes. Additional safety functions include maximum operating storage temperature setpoint, system cooling, recooling, sensor monitoring and minimum collector temperature set point.</p> <p>Technical data: Power supply - 110V Inputs - 4 for Pt1000 temperature sensors Output - 2 electromechanical relays for solar loop circulator and additional circulator or diverting valve. 110V</p>		
	BW/H Comfort	2335003977	1794.00
	<p>Differential temperature control for domestic hot water and heating support. LED screen display for system status, operating parameters and programming. 7 basic pre-installed system schemes. Additional safety functions include maximum operating storage temperature setpoint, system cooling, recooling, sensor monitoring and minimum collector temperature set point.</p> <p>Technical data: Power supply - 110V Inputs - 15 for Pt1000 temperature sensors Output - 9 relays for solar loop circulator and additional circulators and/or diverting valves. 110V</p>		
Solar Storage Tanks			
	80 gal single coil w/ electric backup	2315000080	3562.00
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 anode rods, 2 wells for temperature sensors and 1" MPT coil and domestic water ports.</p> <p>4.5Kw 240V electric backup coil w/ nonadjustable manual reset ECO (180°F (82°C))</p> <p>Dimensions: 24"d x 64"h (610mm x 1626mm)</p>		

Solar Storage Tanks (cont'd)			
	Description	Part Number	List Price
	119 gal single coil w/ electric backup	2335000085	4082.00
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 annode rods, 2 wells for temperature sensors and 1" MPT coil and domestic water ports.</p> <p>4.5Kw 240V electric backup coil w/ nonadjustable manual reset ECO (180°F (82°C))</p> <p>Dimensions: 28"d x 65"h (711mm x 1651mm)</p>		
	80 gal dual coil	2315000090	3684.70
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 annode rods, 3 wells for temperature sensors and 1" MPT primary and secondary coil and domestic water ports.</p> <p>Secondary coil can be used for boiler backup or supplemental heating supply.</p> <p>Dimensions: 24"d x 64"h (610mm x 1626mm)</p>		
	119 gal dual coil	2315000095	4209.90
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 annode rods, 3 wells for temperature sensors and 1" MPT primary and secondary coil and domestic water ports.</p> <p>Secondary coil can be used for boiler backup or supplemental heating supply.</p> <p>Dimensions: 28"d x 65"h (711mm x 1651mm)</p>		

Solar Storage Tanks			
	Description	Part Number	List Price
	80 gal dual coil w/ electric backup	2315000100	4021.70
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 annode rods, 3 wells for temperature sensors and 1" MPT primary and secondary coil and domestic water ports.</p> <p>Secondary coil can be used for boiler backup or supplemental heating supply.</p> <p>Dimensions: 24"d x 64"h (610mm x 1626mm)</p> <p>4.5Kw 240V electric backup coil w/ nonadjustable manual reset ECO (180°F (82°C))</p> <p>Dimensions: 24"d x 64"h (610mm x 1626mm)</p>		
	119 gal dual coil	2315000119	4545.80
	<p>Glass-lined steel</p> <p>Includes T&P relief valve (150 psi/ 210°F (10.3 bar/ 99°C)), drain valve, 2 annode rods, 3 wells for temperature sensors and 1" MPT primary and secondary coil and domestic water ports.</p> <p>Secondary coil can be used for boiler backup or supplemental heating supply.</p> <p>Dimensions: 24"d x 64"h (610mm x 1626mm)</p> <p>4.5Kw 240V electric backup coil w/ nonadjustable manual reset ECO (180°F (82°C))</p> <p>Dimensions: 28"d x 65"h (711mm x 1651mm)</p>		

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings present.



Generation

- > Solar
- > Geothermal Heat Pump

Storage

- > Septic
- > Cistern
- > Rainwater Collection
- > Oil Storage Tanks

Distribution

- > Radiant Floor Heating
- > Plumbing Systems



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