



Hydronic Radiant and Snowmelt

Product Catalog

- Tubing
- Panel Systems
- Manifold and Mixing Stations
- Fittings and Tools
- Valves and Controls



Living full of energy

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Tubing

X-PERT S5®



- Five Layer PE-RT tubing (Polyethylene of Raised Temperature)
- DOWLEX™ 2344 Polyethylene Copolymer Resin
- Layers: PE-RT - Adhesive - EVOH oxygen diffusion barrier - Adhesive - PE-RT
- Used for all radiant and hydronic heating applications
- Unsurpassed flexibility and recyclable
- Compatible with standard PEX fittings, cold expansion fittings, and mechanical fastening systems
- Cold bending radius – 6 x diameter

Custom Lengths in 25' Increments Available - 30,000' or \$10,000 Min. Order

5/16" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352309000	5/16" Coil x 250'	1 Coil	10 (4.6)
2352309300	5/16" Coil x 1000'	1 Coil	40 (18.2)

3/8" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352129000	3/8" Coil x 300'	1 Coil	14 (5.5)
2352129300	3/8" Coil x 1000'	1 Coil	44 (20.0)

1/2" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352159000	1/2" Coil x 300'	1 Coil	18 (8.2)
2352159300	1/2" Coil x 1000'	1 Coil	56 (25.4)
2352159301	1/2" Coil x 2000'	1 Coil	110 (49.9)

5/8" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352199100	5/8" Coil x 500'	1 Coil	40 (18.2)
2352199300	5/8" Coil x 1500'	1 Coil	117 (53.1)

3/4" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352229000	3/4" Coil x 100'	1 Coil	12 (5.5)
2352229301	3/4" Coil x 300'	1 Coil	32 (14.5)
2352229100	3/4" Coil x 600'	1 Coil	64 (29.0)
2352229300	3/4" Coil x 1000'	1 Coil	105 (47.7)
2352229101	3/4" x 20' sticks	Bag of 10 sticks	25 (12.0)

1" X-PERT S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2352289000	1" Coil x 100'	1 Coil	19 (8.6)
2352289100	1" Coil x 500'	1 Coil	86 (39.0)
2352289101	1" x 20' sticks	Bag of 10 sticks	40 (18)

Tubing

DuoPex S5



- Five layer PEX-c tubing
- Integrated EVOH (Ethylene vinyl alcohol) oxygen diffusion barrier - not susceptible to damage and removal during installation as is the case for tubing with the oxygen diffusion barrier applied to the exterior of the tubing
- Natural milky white color with two red stripes
- Easily repaired if kinked
- Cold bending radius – 6 x diameter

3/8" DuoPex S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342129000	3/8" Coil x 300'	1 coil	14 (6.4)
2342129300	3/8" Coil x 1,000'	1 coil	46 (20.9)

1/2" DuoPex S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342159000	1/2" Coil x 300'	1 coil	18 (8.2)
2342159100	1/2" Coil x 600'	1 coil	35 (15.9)
2342159300	1/2" Coil x 1,000'	1 coil	57 (25.9)
2342159301	1/2" Coil x 2,000'	1 coil	120 (54.5)

5/8" DuoPex S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342199100	5/8" Coil x 450'	1 coil	36 (16.4)
2342199101	5/8" Coil x 600'	1 coil	48 (21.8)
2342199300	5/8" Coil x 1,600'	1 coil	134 (60.8)

3/4" DuoPex S5

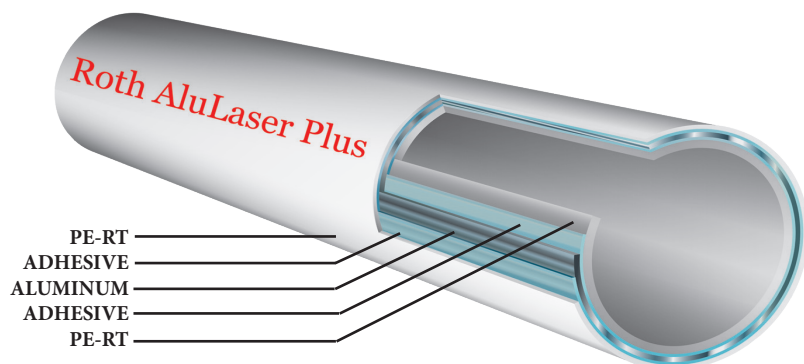
<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342229000	3/4" Coil x 300'	1 coil	34 (15.5)
2342229100	3/4" Coil x 500'	1 coil	56 (25.4)
2342229300	3/4" Coil x 1,000'	1 coil	115 (52.2)

1" DuoPex S5

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342289000	1" Coil x 300'	1 coil	53 (24.1)

Tubing

AluLaser Plus



- Five layer tubing consisting of:
 1. Inner layer of extruded PE-RT (Polyethylene raised temperature)
 2. Inner layer of adhesive
 3. Center layer of laser welded aluminum tubing
 4. Outer layer of adhesive
 5. Outer layer of PE-RT
- Aluminum layer provides an oxygen diffusion barrier
- Tubing retains shape after bending
- Maintains rigid shape when heated by distribution fluid
- Reduced expansion and contraction as compared to PEX only tubing
- Easily repaired if kinked
- Cold bending radius – 6x the diameter

3/8" AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2347130200	3/8" Coil x 200'	1 coil	9 (4.1)

1/2" AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2347150300	1/2" Coil x 300'	1 coil	19 (8.6)
2347151000	1/2" Coil x 1,000'	1 coil	70 (31.8)

5/8" AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2347190300	5/8" Coil x 300'	1 coil	31 (14.1)
2347191000	5/8" Coil x 1,000'	1 coil	100 (45.4)

3/4" AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2347220300	3/4" Coil x 300'	1 coil	45 (20.4)
2347221000	3/4" Coil x 500'	1 coil	77 (34.9)

1" AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2347280100	1" Coil x 100'	1 coil	25 (11.4)
2347280020	1" x 20' sticks	Bag of 7 sticks	35 (15.9)

Tubing

Large Diameter PEX-c Tubing with Oxygen Diffusion Barrier

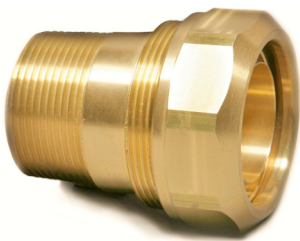
- Oxygen diffusion barrier (EVOH) is applied to outside of tubing
- Used primarily as supply and return piping
- Can be used on large commercial snowmelt projects
- Tubing Dimensions:

OD - 1.97" (50 mm)
 ID - 1.60" (40.8 mm)



50 mm (1 1/2") PEX-c Tubing with Oxygen Diffusion barrier

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2342501000	50 mm x 4.6 mm; coil of 330'	1 coil	156 (70.8)



Large Diameter PEX-c Transition Fittings

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>
2340013017	40 mm (1 1/4") PEX-c to 1 1/4" male NPT	2	2 (0.9)
2340013018	50 mm (1 1/2") PEX-c to 1 1/2" male NPT	2	2 (0.9)

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Radiant Installation Systems

Radiant Panel System

Master Panel



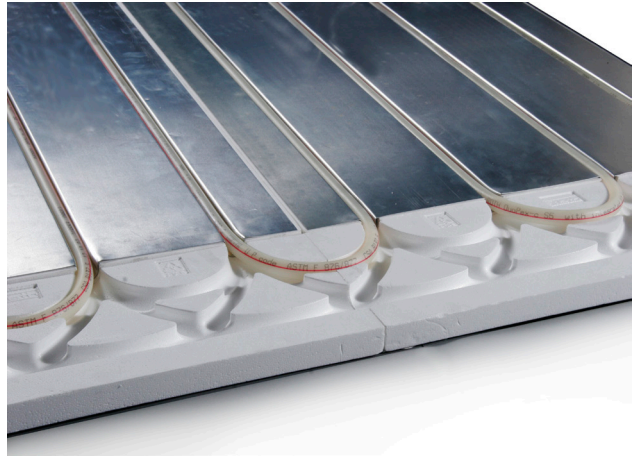
Roth's versatile, lightweight panel system has the insulation on the bottom and the aluminum heat transfer sheet on the top - The way it should be!

- Can be installed over any new or existing subfloor
- Used with a variety of floor coverings
- Ideal for wall and ceiling radiant installations
- Easily installed over an existing concrete floor
- Lightweight - Easy to transport and install
- Two pipe sizes: 3/8" & 1/2"
- Quick recovery time allows for night time setback
- Panel height: 3/8" - .75" (19 mm) 1/2" - 1" (25 mm)
- Insulation R-values: 3/8" - R -3.7 1/2" - R -4.5
- Tubing centers: 6" (15.24 cm) (Can use 12" center if desired)
- Aluminum Sheet: 24 ga
- Insulation: High density EPS (Expanded Polystyrene)
60 psi (6.3 kg/cm²)
- Normal Operating Temperatures: 60° F - 140° F (15° C - 60° C)

Radius Panel



Transition Panel

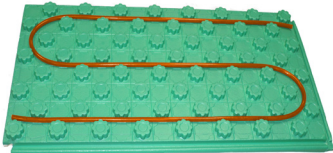


<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight w/ box lbs (kg)</i>
2371000009	Radiant Panel System For 3/8" Tubing	1 Box consists of the following parts (will cover 96 sq.ft.): 10 Master Panels (4' x 2') 6 Radius Panels (8" x 2') 12 Transition Panels (4" x 2')	49 (22.3)
2371000010	Radiant Panel System For 1/2" Tubing	1 Box consists of the following parts (will cover 96 sq.ft.): 10 Master Panels (4' x 2') 6 Radius Panels (8" x 2') 12 Transition Panels (4" x 2')	58 (26.3)
2371000008	Radius Panel for 3/8" Tubing	1 Box consists of 10 Radius Panels	2 (0.9)
2371000011	Radius Panel for 1/2" Tubing	1 Box consists of 10 Radius Panels	3 (1.4)

Radiant Installation Systems

Insulated Floor Panel Systems

by **CRETE-HEAT**, LLC



- Simplifies installation of concrete or gypsum based radiant floor heating systems
- Cuts installation time by as much as 2/3
- Insulation, vapor barrier and radiant tube holding grid in one product
- UV protected packaging for outdoor storage
- Board size - 25" x 49" Effective area - 24" x 48"
- Radiant tubing spacing - 3" centers

Crete-Heat - CH-1

- Total thickness (including 1" insulation) - 1 7/8"
- Thermal resistance - R-6
- For use with 3/8", 1/2" & 5/8" tubing
- 96 sq. ft. (12 boards) per bag

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2379000001	Crete-Heat CH-1 Bag of 12	1	30 (13.6)

Crete-Heat - CH-2

- Total thickness (including 2" insulation) - 2 7/8"
- Thermal resistance - R-10
- For use with 3/8", 1/2" & 5/8" tubing
- 64 sq. ft. (8 boards) per bag



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2379000002	Crete-Heat CH-2 Bag of 8	1	30 (13.6)

Crete-Heat - CH-2 Melt

- Total thickness (including 2" insulation) - 2 7/8"
- Thermal resistance - R-10
- For use with 3/4" and 1" tubing
- 64 sq. ft. (8 boards) per bag

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2379000004	Crete-Heat CH-2 Melt Bag of 8	1	30 (13.6)

Crete-Heat - CH-3

- Total thickness (including 3" insulation) - 3 7/8"
- Thermal resistance - R-14
- For use with 3/8", 1/2" & 5/8" tubing
- 48 sq. ft. (6 boards) per bag

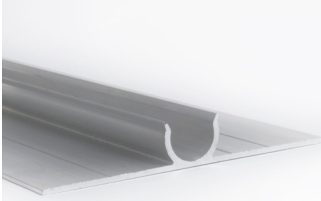


<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2379000003	Crete-Heat CH-3 Bag of 6	1	30 (13.6)

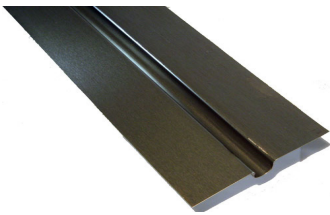
Radiant Installation Systems

Thermo-Fin Plates

- Heavy duty, 16 gauge - .05”(1.29 mm) extruded aluminum
- Use with X-PERT S5, DuoPex S5 and AluLaser Plus
- Pre-punched holes



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg) w/ box</i>	<i>Dimensions inches (mm)</i>
2340034333	Thermo-Fin Plates - 1/2” Tubing	20	25 (11.4)	3.5” x 48” (88.9 x 1219.2)
2340034332	Thermo-Fin Plates - 3/8” Tubing	20	25 (11.4)	3.5” x 48” (88.9 x 1219.2)



Heat Transfer Plates – Single Groove

- 26 gauge (0.46 mm) aluminum, single groove - for 3/8”, 1/2” & 5/8” tubing
- Use with X-PERT S5, DuoPex S5 and AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches (mm)</i>
2340034133	Single Groove	50	15 (6.8)	5” x 24” (127 x 609.6)



Heat Transfer Plates - Double Groove

- 26 gauge (0.46 mm) aluminum, double groove - for 3/8”, 1/2” & 5/8” tubing
- Use with X-PERT S5, DuoPex S5 and AluLaser Plus

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches (mm)</i>
2340034233	Double-Groove	50	30 (13.6)	13” x 24” (330.2 x 609.6)

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Manifolds



NP Manifolds Sets

- Nickel plated brass trunks - 1" & 1 1/4"
- System includes supply and return manifolds with isolation ball valves, temperature gauges, fill/drain valves, automatic air vents and mounting brackets.
- Supply manifold includes adjustable flowmeters and flow valves.
- Return manifold includes valve assemblies for isolation or electronic actuator attachment.
- Isolation ball valves and drain/fill and vent assemblies can be mounted on either side of manifold
- Compatible with Unibloc fittings for attachment of PEX and PE-RT tubing sizes 3/8", 1/2", 5/8" and 3/4"
- Maximum flow rate: 1" - 12 gpm and 1 1/4" - 19.2 gpm

1" NP Manifolds

<i>Part #</i>	<i>Description</i>	<i>Stations/ Loops</i>	<i>Shipping Length (in)</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315031002	Manifold 1" x 2-loops complete	2	15x9x4	1	10 (4.6)
2315031003	Manifold 1" x 3-loops complete	3	15x9x4	1	12 (5.5)
2315031004	Manifold 1" x 4-loops complete	4	15x9x4	1	15 (6.8)
2315031005	Manifold 1" x 5-loops complete	5	15x14x4	1	17 (7.8)
2315031006	Manifold 1" x 6-loops complete	6	15x14x4	1	19 (8.7)
2315031007	Manifold 1" x 7-loops complete	7	15x17x4	1	21 (9.6)
2315031008	Manifold 1" x 8-loops complete	8	15x17x4	1	23 (10.5)
2315031009	Manifold 1" x 9-loops complete	9	15x19x4	1	25 (11.4)
2315031010	Manifold 1" x 10-loops complete	10	15x23x4	1	27 (12.3)
2315031020	Manifold 1" x 11-loops complete	11	15x23x4	1	28 (12.8)
2315031021	Manifold 1" x 12-loops complete	12	15x23x4	1	30 (13.7)

1-1/4" NP Manifolds

<i>Part #</i>	<i>Description</i>	<i>Stations/ Loops</i>	<i>Shipping Length (in)</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315031011	Manifold 1-1/4" x 4-loops complete	4	15x9x4	1	15 (6.8)
2315031012	Manifold 1-1/4" x 5-ways complete	5	15x14x4	1	17 (7.8)
2315031013	Manifold 1-1/4" x 6-loops complete	6	15x14x4	1	19 (8.7)
2315031014	Manifold 1-1/4" x 7-loops complete	7	15x17x4	1	21 (9.6)
2315031015	Manifold 1-1/4" x 8-loops complete	8	15x17x4	1	23 (10.5)
2315031022	Manifold 1-1/4" x 9-loops complete	9	15x19x4	1	25 (11.4)
2315031023	Manifold 1-1/4" x 10-loops complete	10	15x23x4	1	27 (12.3)
2315031024	Manifold 1-1/4" x 11-loops complete	11	15x23x4	1	28 (12.8)
2315031025	Manifold 1-1/4" x 12-loops complete	12	15x23x4	1	30 (13.7)

Manifolds

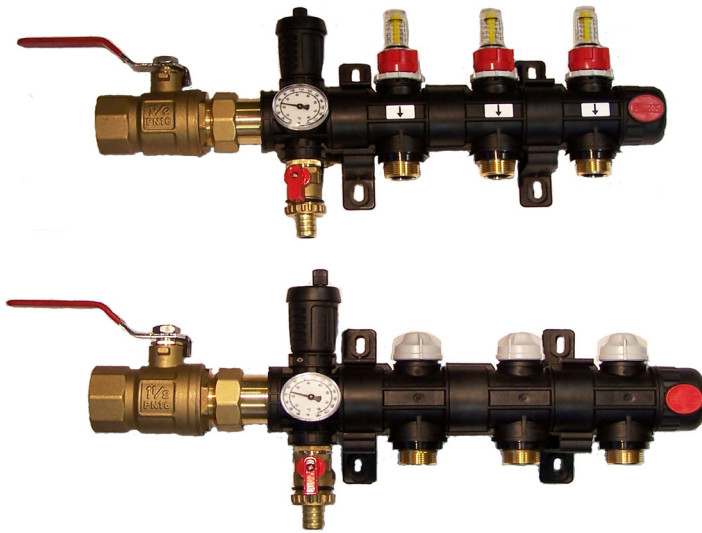
NP Unibloc Fittings

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs</i>
2315031016	3/8" Unibloc fitting (sold individually)	1	1 (.5)
2315031017	1/2" Unibloc fitting (sold individually)	1	1 (.5)
2315031018	5/8" Unibloc fitting (sold individually)	1	1 (.5)
2315031019	3/4" Unibloc fitting (sold individually)	1	1 (.5)

NP Manifold Accessories

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs</i>
2315031026	Straight thermometer ball valve 1"	1	1 (.5)
2315031027	Straight thermometer ball valve 1 1/4"	1	1 (.5)
2315031028	Rt. angle thermometer ball valve 1"	1	1 (.5)
2315031029	Rt. angle thermometer ball valve 1 1/4"	1	1 (.5)
2315031030	Thermo. repl. kit 24x19 for 1" manifold	1	1 (.5)
2315031031	Thermo. repl. kit 24x19 for 1 1/4" manifold	1	1 (.5)
2315031032	Flow meter kit 0-1.6 gpm/0-6 lpm	1	1 (.5)
2315031033	Flow meter seat, 24x19 for 1" manifold	1	1 (.5)
2315031034	Flow meter seat, 24x19 for 1 1/4" manifold	1	1 (.5)
2315031035	Float air vent valve 1/2 inch	1	1 (.5)
2315031036	Drain tee 1/2 inch	1	1 (.5)
2315031037	24x19 loop cap, Unibloc	1	1 (.5)
2315031038	1" M trunk cap, 1" manifold	1	1 (.5)
2315031039	1 1/4" M trunk cap, 1 1/4" manifold	1	1 (.5)
2315031040	Thermometers, 32-176F, 0-80C	1	1 (.5)
2315031041	1" M x 1" M manifold conn. dbl nipple	1	1 (.5)
2315031042	1 1/4" M x 1 1/4" M conn. dbl nipple	1	1 (.5)
2315031043	1" M to 1" NPT adapter	1	1 (.5)
2315031044	1 1/4" M to 1 1/4" NPT adapter	1	1 (.5)
2315031045	1" M to 1/2" F Reducing bushing	1	1 (.5)
2315031046	1 1/4" M to 1/2" F Reducing bushing	1	1 (.5)
2315031047	DP bypass kit, 1/2"	1	1 (.5)
2315031048	Flow meter kit 0-1.0 gpm/0-4 lpm	1	1 (.5)
2315031049	Lockshield kit w/ flowmeter	1	1 (.5)

Manifolds



CM Manifolds Sets

- Modular, large bore manifolds (1 1/2") constructed of glass-fibre reinforced polyamide. (PA66 GF30 black)
- System includes supply and return manifolds with 1 1/2" ball valves, temperature gauges, fill/drain valves, automatic air vents and mounting brackets.
- Supply manifolds include adjustable flowmeters and flow valves. (5 gpm max)
- Return manifolds include manual shut off valves and assemblies for electronic actuator attachment.
- Optional pressure gauge available when required.
- Supply and return manifold segments can be easily added or removed in the field.

CM Manifolds

<i>Part #</i>	<i>Description</i>	<i>Stations/ Loops</i>	<i>Shipping Length (in) (mm)</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315005102	CM Manifold Set 1 1/2" x 2 Loop	2	16x16x16	1	6 (2.3)
2315005103	CM Manifold Set 1 1/2" x 3 Loop	3	16x16x16	1	6 (2.3)
2315005104	CM Manifold Set 1 1/2" x 4 Loop	4	16x16x16	1	6 (2.3)
2315005105	CM Manifold Set 1 1/2" x 5 Loop	5	16x16x16	1	8 (3.7)
2315005106	CM Manifold Set 1 1/2" x 6 Loop	6	16x16x16	1	12 (5.5)
2315005107	CM Manifold Set 1 1/2" x 7 Loop	7	16x16x16	1	15 (6.9)
2315005108	CM Manifold Set 1 1/2" x 8 Loop	8	16x16x16	1	15 (6.9)
2315005109	CM Manifold Set 1 1/2" x 9 Loop	9	16x16x16	1	18 (8.2)
2315005110	CM Manifold Set 1 1/2" x 10 Loop	10	16x16x16	1	20 (9.1)
2315005111	CM Manifold Set 1 1/2" x 11 Loop	11	16x16x16	1	20 (9.1)
2315005112	CM Manifold Set 1 1/2" x 12 Loop	12	16x16x16	1	23 (10.5)
2315005113	CM Manifold Set 1 1/2" x 13 Loop	13	16x16x16	1	23 (10.5)
2315005114	CM Manifold Set 1 1/2" x 14 Loop	14	16x16x16	1	25 (11.4)
2315005115	CM Manifold Set 1 1/2" x 15 Loop	15	26x20x12	1	25 (11.4)
2315005116	CM Manifold Set 1 1/2" x 16 Loop	16	26x20x12	1	28 (12.8)
2315005117	CM Manifold Set 1 1/2" x 17 Loop	17	26x20x12	1	28 (12.8)
2315005118	CM Manifold Set 1 1/2" x 18 Loop	18	26x20x12	1	30 (13.7)
2315005119	CM Manifold Set 1 1/2" x 19 Loop	19	26x20x12	1	30 (13.7)
2315005120	CM Manifold Set 1 1/2" x 20 Loop	20	26x20x12	1	30 (13.7)

Manifolds

CM Manifold Accessories

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315005001	Manifold kit 1, supply & return, w/ flow	1	1 (.5)
2315005002	Manifold kit 2, supply & return, w/ flow	1	1 (.5)
2315005003	Manifold kit 3, supply & return, w/ flow	1	2 (1)
2315005004	Manifold kit 4, supply & return, w/ flow	1	2 (1)
2315005005	Manifold kit 5, supply & return, w/ flow	1	3 (1.5)
2315005006	Manifold kit 6, supply & return, w/ flow	1	3 (1.5)
2315005007	Bracket expansion kit (1) Tall (1) Short	1	3 (1.5)
2315005008	CM Manifold Set Pressure Gauge	1	1 (.5)
2315005009	Ball Valve Set G 1-1/2BSP M x 1-1/2NPT F	1	1 (.5)
2315005010	Thermometer set	1	1 (.5)
2315005011	Purge/drain valve set	1	1 (.5)
2315005012	End cap set	1	1 (.5)
2315005013	Plastic hydronic air vent set, G ½	1	1 (.5)
2315005014	Cross piece set w/ fittings, gasket, nut	1	1 (.5)
2315005000	Basic Kit (includes (1) tall bracket expansion kit, (1) short bracket expansion kit, (2) end caps, (2) purge drain valves, (2) thermometers, (2) cross pieces w/ fittings, flat gaskets and swivel nuts, (8) screw and plastic anchor sets	1	2 (1)

Roth HK / HKV Manifold Tubing Fitting Assemblies (Can be used with CM Manifolds)

- R20 (Nominal 3/4") threaded euroconical brass compression fittings
- Attaches various types and size tubing to manifold branch outlets

Tubing Fitting Assemblies for PERT/PEX Tubing

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335001410	for 3/8" PE-RT/PEX Tubing	10	1 (0.5)
2350003021	for 1/2" PE-RT/PEX Tubing	10	1.5 (0.7)
2350003022	for 5/8" PE-RT/PEX Tubing	10	2 (0.9)
2335001034	for 3/4" PE-RT/PEX Tubing	2	1 (0.5)

Tubing Fitting Assemblies for AluLaser Tubing

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347131300	For 3/8" AluLaser Tubing	10	1 (0.5)
2347002331	For 1/2" AluLaser Tubing	10	1.5 (0.7)
2347002332	For 5/8" AluLaser Tubing	10	2 (0.9)

Manifolds



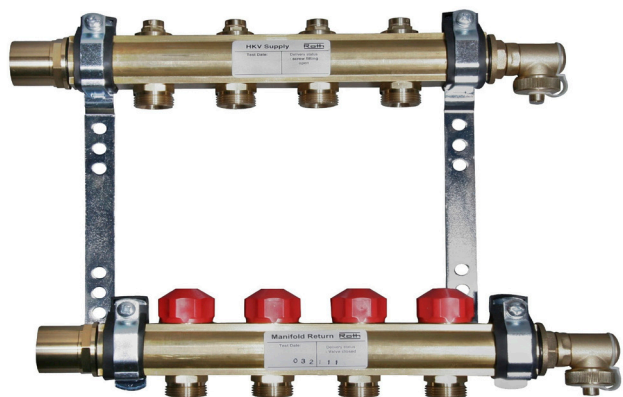
HK Brass Manifold Sets

- Heavy-walled, corrosion resistant brass
- Supply manifold has flow meters with built in adjustment and stop valves
- Flow meters adjust from 0.02 gpm – 1.5 gpm (0.1 lpm – 6.0 lpm)
- Return manifold has valve assemblies for isolation or for mounting thermostat controlled valve actuators (see page 16)
- Drain, fill and vent valves can be mounted on either end of manifold and rotated in the upward position for air purging
- Interchangeable, galvanized steel mounting brackets with rubber vibration isolator pads, supply & return manifolds are offset
- Supply and return fitting – 1” BSPP x 3/4” female/1” male copper sweat; can be mounted on either side of manifold
- Height – 15” (380 mm)
- Depth – 3 1/2” (89 mm)
- Maximum flow rate – 10 gpm (37.9 lpm)
- Maximum operating temperature - 180° F (82° C) continuous
- Maximum operating pressure - 150 psi (10.3 bar) continuous
- Recommended test pressure – 45 - 60 psi (3.1 - 4.1 bar)
- Can accommodate 3/8”, 1/2”, 5/8” and 3/4” X-PERT S5, DuoPex S5 or Alulaser Plus tubing

Manifold tubing fitting assemblies not included (must be ordered separately). (See page 15)

<i>Part #</i>	<i>Description</i>	<i>Stations/ Loops</i>	<i>Length inches (mm)</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315006872	HK Manifold Set 2 Loops w/Flowmeter	2	10 1/4” (261)	1	5.1 (2.3)
2315006873	HK Manifold Set 3 Loops w/Flowmeter	3	12 1/2” (318)	1	6.6 (3)
2315006874	HK Manifold Set 4 Loops w/Flowmeter	4	14 1/2” (369)	1	8.2 (3.7)
2315006875	HK Manifold Set 5 Loops w/Flowmeter	5	16 3/4” (426)	1	9.7 (4.4)
2315006876	HK Manifold Set 6 Loops w/Flowmeter	6	18 3/4” (477)	1	11.3 (5.2)
2315006877	HK Manifold Set 7 Loops w/Flowmeter	7	21” (533)	1	12.8 (5.8)
2315006878	HK Manifold Set 8 Loops w/Flowmeter	8	23” (585)	1	14.4 (6.5)
2315006880	HK Manifold Set 10 Loops w/Flowmeter	10	27 1/4” (693)	1	17.5 (7.9)

Manifolds



HKV Brass Manifold Sets

- Heavy-walled, corrosion resistant brass
- Supply manifold has internal flow setter and isolation valve
- Return manifold has valve assemblies for isolation or for mounting thermostat controlled valve actuators (see page 16)
- Drain, fill and vent valves can be mounted on either end of manifold and be rotated in the upward position for air purging
- Interchangeable, galvanized steel mounting brackets with rubber vibration isolator pads, supply & return manifolds are offset
- Supply and return fittings – 1” BSPP x 3/4” female /1” male copper sweat which can be mounted on either side of manifold
- Height – 15” (380 mm)
- Depth – 3 1/2” (89 mm)
- Maximum flow rate – 10 gpm (37.9 lpm)
- Maximum operating temperature - 180° F (82° C) continuous
- Maximum operating pressure - 150 psi (10.3 bar) continuous
- Recommended test pressure – 45 - 60 psi (3.1-4.1 bar)
- Can accommodate 3/8”, 1/2”, 5/8” and 3/4” X-PERT S5, DuoPex S5 or Alulaser Plus tubing

Manifold tubing fitting assemblies not included (must be ordered separately). (See page 15)

<i>Part #</i>	<i>Description</i>	<i>Stations/ Loops</i>	<i>Length inches (mm)</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315006883	HKV Manifold Set 2 Loops	2	10 1/4” (261)	1	6.6 (3)
2315006884	HKV Manifold Set 3 Loops	3	12 1/2” (318)	1	9.5 (4.3)
2315006885	HKV Manifold Set 4 Loops	4	14 1/2” (369)	1	11.9 (5.4)
2315006886	HKV Manifold Set 5 Loops	5	16 3/4” (426)	1	14.1 (6.4)
2315006887	HKV Manifold Set 6 Loops	6	18 3/4” (477)	1	16.5 (7.5)
2315006888	HKV Manifold Set 7 Loops	7	21” (533)	1	18.7 (8.5)
2315006889	HKV Manifold Set 8 Loops	8	23” (585)	1	21.2 (9.6)
2315006891	HKV Manifold Set 10 Loops	10	27 1/4” (693)	1	26.3 (12)

Manifolds

Roth HK / HKV Manifold Tubing Fitting Assemblies

- R20 (Nominal 3/4") threaded euroconical brass compression fittings
- Attaches various types and size tubing to manifold branch outlets

Tubing Fitting Assemblies for PERT/PEX Tubing



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335001410	for 3/8" PE-RT/PEX Tubing	10	1 (0.5)
2350003021	for 1/2" PE-RT/PEX Tubing	10	1.5 (0.7)
2350003022	for 5/8" PE-RT/PEX Tubing	10	2 (0.9)
2335001034	for 3/4" PE-RT/PEX Tubing	2	1 (0.5)

Tubing Fitting Assemblies for AluLaser Tubing



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347131300	For 3/8" AluLaser Tubing	10	1 (0.5)
2347002331	For 1/2" AluLaser Tubing	10	1.5 (0.7)
2347002332	For 5/8" AluLaser Tubing	10	2 (0.9)

Brass Transition Fittings using Manifold Tubing Fitting Assemblies

Double Threaded Nipple for Couplings

- Creates standard, reducing or transition coupling



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000930	Double Threaded Nipple, R20 (Nominal 3/4")	1	0.12 (0.05)

Copper Sweat Transition Couplings

- Connects X-PERT S5, DuoPex S5, or AluLaser Plus to copper tubing



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340013285	R20 (Nominal 3/4") Threaded Nipple x 1/2" Female Sweat or 3/4" Male Sweat	1	0.5 (0.03)

Manifold Supply/Return PE-RT/PEX Transition Fitting

- Connects X-PERT S5, DuoPex S5, or AluLaser Plus to supply and/or return of HK and HKV manifolds



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335001028	Supply/Return Manifold Transition Fitting, R20 (Nominal 3/4") x 1" BSPP	1	0.11 (0.05)

Manifolds

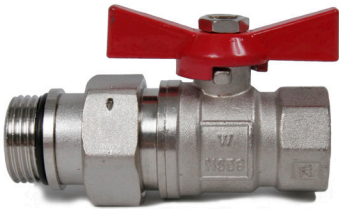
HK and HKV Manifold Accesories



Valve Actuator

- Allows one manifold set to supply multiple zones
- Attaches to return manifold
- Thermostat controlled
- 24 V
- 4 wire: 2 - power, 2 - end switch
- Multiple actuators can be wired together
- Normally closed - pop up indicates activation
- Cycle time - 3 minutes

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340055354	Valve Actuator	1	1 (0.5)



Manifold Supply / Return Shut-off Valves

- Ball Valve – 1” BSPP Union x 1” Female BSPP
- Can be installed on either side of supply / return manifold

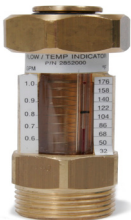
<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000294	Manifold Supply / Return Shut off Valve	1	1 (0.5)



Manifold Loop Cap

- Attaches to unused loop nipples on manifold for complete shut off

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000354	Manifold Loop Cap	1	0.07 (0.03)



Temperature / Flow Gauge for HKV Manifolds

- Attaches to Manifold Loop Fitting and Manifold Tubing Fittings
- Temperature Range: 32° F - 176° F (0° C - 80° C)
- Flow Range: 0.5 gpm – 1.0 gpm (1.9 lpm – 3.8 lpm)

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335001011	Temperature and Flow Gauge	1	0.4 (0.2)

Manifolds

HK / HKV Manifold Accessories



Manifold Connector Double Nipple

- Used to connect two manifolds together
- 1" BSPP x 1" BSPP threaded nipple with lock nut
- Can be installed on either side of supply/return manifold

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335001562	1"BSPP Double Nipple with Lock Nut	1	0.84 (0.4)



Pressure Tester

- 0 - 100 psi Gauge
- 3/4" Copper Male Adaptor
- 1/4" Schrader Valve

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340045214	Pressure Tester	1	1 (0.5)



Manifold Fitting Wrench

- Easily tightens/loosens Manifold Tubing Fitting Assemblies

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340020023	Fitting Wrench	1	1 (0.5)

Manifolds

Manifold Cabinets

Surface Mount Manifold Cabinet



- Designed to enclose Roth manifold sets
- Constructed of 18 gauge steel
- Gray primer coating
- Adjustable leveling feet
- Bottom (or top) is open to allow tubing leaders to enter cabinet
- Knockouts on sides to allow supply/return piping
- Locking door with 2 keys

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Dimension (in) W x H x D</i>	<i>Weight lbs (kg)</i>
2315032004	Surface Mount 30" W (up to 6 loops)	1	31x27x5	20 (9.1)
2315032006	Surface Mount 41.7" W (up to 12 loops)	1	44x27x5	25 (11.4)

Recessed Manifold Cabinet



- Designed to enclose Roth manifold sets within a wall
- Constructed of 18 gauge steel
- Grey primer coating
- Cabinet can be inverted - top or bottom open for tubing insertion
- Knockouts on sides to allow supply/return piping
- Locking door with 2 keys

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Dimension (in) W x H x D</i>	<i>Weight lbs (kg)</i>
2315032000	Recessed 27.5" W (up to 6 loops)	1	31x27x5	15 (6.9)
2315032002	Recessed 39.4" W (up to 12 loops)	1	44x27x5	20 (9.1)

Manifolds

HK / HKV Manifold Set Replacement Parts

Drain/Vent Valve



- Can be used to fill or drain system
- R20 threaded connection - use with Manifold Tubing Fitting Assemblies
- Invert to upward position for venting

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2325004532	Drain/Vent Valve	1	0.55 (0.3)

Manifold Supply/Return Sweat Adaptor



- Used to connect copper pipe / fitting to manifold supply and return

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2350003020	1" BSPP x 3/4" Female Sweat or 1" Male Sweat	2	1.0 (4.5)

Return Flow Control Valve Nipple



- Attaches to return manifold
- Accepts Flow Control Valve

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2350006151	Return Flow Control Valve Nipple	1	0.1 (0.05)

Return Flow Control Valve



- Attaches to Return Flow Control Valve Nipple
- Accepts Red Cap or Actuator
- Shuts off and adjusts flow

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2350006153	Return Flow Control Valve	1	1 (0.5)

Manifolds

HK / HKV Manifold Set Replacement Parts



HK Flowmeter Nipple

- Attaches to Supply Manifold Branch
- Accepts Flowmeter Indicator Body

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350006753	HK Flowmeter Nipple	1	1 (0.5)



HK Flowmeter Indicator Body

- Attaches to Flowmeter Nipple on Supply Manifold Branch
- Indicates Flow in Loop
- Adjusts flow from 0.02 gpm – 1.5 gpm (0.1 lpm – 6.0 lpm)

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350006872	HK Flowmeter Indicator Body	1	1 (0.5)



HK Flowmeter Cover

- Attaches to Flowmeter
- Inscribed with graduated scale to show loop flow

<i>Part</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350006874	HK Flowmeter Cover	1	1 (0.5)



Flowmeter Adjustment Wheel

- Attaches to top of HK Flowmeter Indicator Body
- Used to manually adjust flow on individual loops

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350006754	Flowmeter Adjustment Wheel	1	0.03 (0.002)

Manifolds

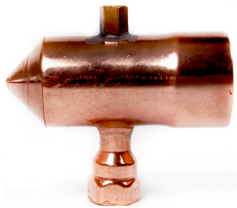
Copper Manifolds and Accessories - Commercial



Manifold

- Type L Copper
- One end is copper male; other end is flared for copper female
- Can be combined to make longer manifolds
- 6 - 3/4" copper branches 3" on center
- Maximum Flow Rates @ 4 ft./sec.:
1 1/2" – 22 gpm; 2" – 38.5 gpm; 3/4" – 6 gpm

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340012419	1 1/2" Manifold w/ 6 Branches	1	2 (0.9)
2340012429	2" Manifold w/ 6 Branches	1	3 (1.4)



End Cap for Manifold Trunk

- Type L Copper
- Designed to work with copper manifolds
- One end flared for copper female; other end spun closed
- 1/8" tap for Vent*, 1/2" tap for Drain Valve* (*Field Supplied)

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340012329	1 1/2" End Cap with Taps for Vent and Drain	1	1 (0.5)
2340012339	2" End Cap with Taps for Vent and Drain	1	1 (0.5)

Mini-Ball Valves for Copper Branches



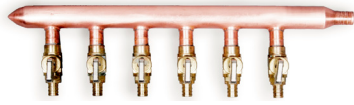
- For use with PE-RT/ PEX tubing
- Plated brass body
- Zinc coated handle
- Teflon, Viton & EDPM seals



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
Without balancing valves			
2340015213	3/4" Female Sweat x 1/2" Compression	1	1 (0.5)
2340015214	3/4" Female Sweat x 5/8" Compression	1	1 (0.5)
2340015215	3/4" Female Sweat x 3/4" Compression	1	1 (0.5)
With balancing valves			
2340015113	3/4" Female Sweat x 1/2" Compression	1	1 (0.5)
2340015114	3/4" Female Sweat x 5/8" Compression	1	1 (0.5)
2340015115	3/4" Female Sweat x 3/4" Compression	1	1 (0.5)

Manifolds

Copper Manifolds - Residential



Copper Manifold; 1" Trunk; 3/4" PE-RT/PEX Supply; spun closed end

With ball valves

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
4, 6 branches with 1/2" PE-RT/PEX crimp barbs			
2350463040	4 branches with 1/2" ball valves and 1/2" PE-RT/PEX crimp barbs	1	3 (1.4)
2350463060	6 branches with 1/2" ball valves and 1/2" PE-RT/PEX crimp barbs	1	3 (1.4)

Without ball valves



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
4, 6, 8 branches with 1/2" PE-RT/PE-RT/PEX crimp barbs			
2350453040	4 branches with 1/2" PE-RT/PEX crimp barbs	1	1 (0.5)
2350453060	6 branches with 1/2" PE-RT/PEX crimp barbs	1	1 (0.5)
2350453080	8 branches with 1/2" PE-RT/PEX crimp barbs	1	1 (0.5)

Copper Manifold; 1" Trunk; male and female sweat ends; without ball valves



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
3, 4, 5 branches with 1/2" PE-RT/PEX crimp barbs			
2350553035	3 branches with 1/2" PE-RT/PEX crimp barbs	1	1 (0.5)
2350553045	4 branches with 1/2" PE-RT/PEX crimp barbs	1	2 (0.9)
3250553055	5 branches with 1/2" PE-RT/PEX crimp barbs	1	2 (0.9)

Section 4 - Mixing Stations

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Mixing Stations

Thermostatic Manifold Mixing Station



- Used together with the HK or HKV Manifold Sets to provide a preset mixed temperature to a radiant zone in a pre-piped package.
- Thermostatic valve controls high temperature supply fluid from primary system to achieve a preset lower supply temperature to secondary (radiant) system.
- Components:
 - Grundfos UPS 15-58 UC 3-speed circulator with power cord
 - Thermostatic control valve with capillary sensor on manifold supply
 - Shut off valves on system supply & return
 - Flowmeter for adjustment of primary system flow to shunt
 - Manual air vent
 - Drain valves (2)
 - Temperature gauges on manifold supply & return

Connects to the main system with 3/4" R20 Tubing Fitting Assembly. (See page 15)

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2371000004	Thermostatic Mixing Station	1	17 (7.7)

Mini Mixing Station



- Self contained radiant zone system for a 1 or 2 loop radiant installation
- Can be used to provide low temperature radiant heat to a small space from a high temperature system such as baseboard
- Components:
 - 1 Loop supply and return header
 - Optional adaptor to increase to 2 loops
 - Circulator, 120 V, with plug in cord
 - Remote capillary bulb room temperature sensor
 - Mixing Valve
 - Non-Electric Thermostatic Controller
- Connects to main system using 1/2" copper compression fittings
- Connects to radiant tubing using Manifold Tubing Fitting Assemblies (not included)(see page 15)



<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2375000103	Mini Mixing Station for 1 loop 1/2" connections	1	6 (2.7)
2372100020	2 loop adaptor	1	0.5 (0.3)

Section 5 - AluLaser Plus Fittings and Tools

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AluLaser Plus Fittings and Tools

AluLaser Plus Press Fittings

- Designed for use with Alulaser tubing
- Equipped with synthetic isolation shield to prevent destructive galvanic current between the tubing's aluminium layer and the brass fitting
- Viewing port in stainless steel sleeve to ensure proper insertion of fitting into tubing
- Includes double o-rings on each fitting insert for proper, leak-free connection

Precautions:

- Be sure tubing is cut at a right angle for complete insertion of fitting into pipe
- Always use Roth Reaming Tool to ensure ease of insertion and proper connection
- Be sure tubing is seen in viewing port on sleeve before pressing
- Check press tool adjustments before each job and frequently on large jobs



Press Coupling

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347151100	1/2" Press Coupling	10	1 (0.5)
2347191100	5/8" Press Coupling	10	1 (0.5)
2347221100	3/4" Press Coupling	10	2 (0.9)
2347280200	1" Press Coupling	10	3 (1.4)



Press 90° Elbow

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347151800	1/2" Press 90° Elbow	10	2 (0.9)
2347191900	5/8" Press 90° Elbow	10	2 (0.9)
2347221800	3/4" Press 90° Elbow	10	2 (0.9)
2347280800	1" Press 90° Elbow	10	3 (1.4)



Press Tee

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347343038	Press Tee 1/2" x 1/2" x 1/2"	10	2 (0.9)
2347443035	Press Tee 3/4" x 1/2" x 1/2"	10	2 (0.9)
2347443037	Press Tee 3/4" x 3/4" x 1/2"	10	2 (0.9)
2347444036	Press Tee 3/4" x 3/4" x 3/4"	10	3 (1.4)
2347444037	Press Tee 3/4" x 3/4" x 1"	10	2 (0.9)
2347544035	Press Tee 1" x 3/4" x 3/4"	10	3 (1.4)
2347545036	Press Tee 1" x 1" x 1/2"	10	3 (1.4)
2347545037	Press Tee 1" x 1" x 3/4"	10	3 (1.4)
2347545038	Press Tee 1" x 1" x 1"	10	4 (1.8)

AluLaser Plus Fittings and Tools

AluLaser Plus Press Fittings

Press to Male NPT



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347151200	1/2" Press x 1/2" MPT	10	1 (0.5)
2347191200	5/8" Press x 1/2" MPT	10	1 (0.5)
2347191300	5/8" Press x 3/4" MPT	10	2 (0.9)
2347221200	3/4" Press x 1/2" MPT	10	2 (0.9)
2347221300	3/4" Press x 3/4" MPT	10	2 (0.9)
2347221400	3/4" Press x 1" MPT	10	3 (1.4)
2347280300	1" Press x 3/4" MPT	10	3 (1.4)
2347280400	1" Press x 1" MPT	10	3 (1.4)
2347280400	1" Press x 1" MPT	10	3 (1.4)

Press to Female NPT



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347191600	5/8" Press x 3/4" FPT	10	2 (0.9)
2347221900	3/4" Press x 3/4" FPT	10	2 (0.9)
2347222000	3/4" Press x 1" FPT	10	3 (1.4)
2347280900	1" Press x 3/4" FPT	10	3 (1.4)
2347281000	1" Press x 1" FPT	10	3 (1.4)

Press to Male Sweat



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347150700	1/2" Press x 1/2" Male Sweat	10	2 (0.9)
2347150600	1/2" Press x 3/4" Male Sweat	10	2 (0.9)
2347191700	5/8" Press x 3/4" Male Sweat	10	2 (0.9)
2347221700	3/4" Press x 3/4" Male Sweat	10	2 (0.9)
2347280600	1" Press x 3/4" Male Sweat	10	3 (1.4)
2347280700	1" Press x 1" Male Sweat	10	3 (1.4)

Press to Female Sweat



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347151700	1/2" Press x 1/2" Female Sweat	10	1 (0.5)
2347191800	5/8" Press x 3/4" Female Sweat	10	1 (0.5)
2347222100	3/4" Press x 1/2" Female Sweat	10	1 (0.5)
2347222110	3/4" Press x 3/4" Female Sweat	10	1 (0.5)
2347222200	3/4" Press x 1" Female Sweat	10	2 (0.9)
2347281100	1" Press x 3/4" Female Sweat	10	3 (1.4)
2347281200	1" Press x 1" Female Sweat	10	3 (1.4)

AluLaser Plus Fittings and Tools

AluLaser Plus Press Fittings

Press to Male NPT 90° Elbow



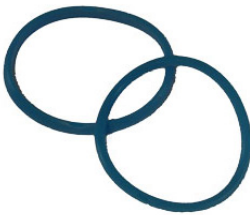
<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347151300	1/2" Press x 1/2" Male NPT Elbow	10	1 (0.5)
2347191400	5/8" Press x 1/2" Male NPT Elbow	10	1 (0.5)
2347191500	5/8" Press x 3/4" Male NPT Elbow	10	2 (0.9)
2347221500	3/4" Press x 1" Male NPT Elbow	10	4 (1.8)
2347280500	1" Press x 1" Male NPT Elbow	10	5 (2.2)

Press to Female Sweat 90° Elbow



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347152110	1/2" Press x 3/4" Female Sweat Elbow	10	4 (1.8)
2347192200	5/8" Press x 3/4" Female Sweat Elbow	10	4 (1.8)
2347220400	3/4" Press x 3/4" Female Sweat Elbow	10	4 (1.8)

O-rings Sets



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347158100	Press O-rings 1/2" (set)	100	1 (0.5)
2347198100	Press O-rings 5/8" (set)	100	1 (0.5)
2347228100	Press O-rings 3/4" (set)	100	1 (0.5)
2347288100	Press O-rings 1" (set)	100	1 (0.5)

Replacement SS Press Sleeves



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335002320	1/2" SS Press Sleeve	10	1 (0.5)
2335002321	5/8" SS Press Sleeve	10	1 (0.5)
2335002322	3/4" SS Press Sleeve	10	1 (0.5)

AluLaser Plus Fittings and Tools

AluLaser Plus Compression Fittings

Couplings Using Tubing Fitting Assemblies

- Use Double Threaded Nipple with two Tubing Fitting Assemblies below (same as on page 19) to create a standard or reducing coupling.



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000930	Double Threaded Nipple	1	1 (0.5)

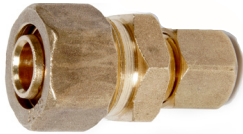
Tubing Fitting Assemblies (same as on page 19)

- R20 (Nominal 3/4") Euroconical brass compression fittings



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347131300	3/8" AluLaser Plus	10	2 (0.9)
2347002331	1/2" AluLaser Plus	10	1 (0.5)
2347002332	5/8" AluLaser Plus	10	1 (0.5)

Compression Reducing Coupling



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347021100	1/2" Compression x 3/4" Compression Coupling	10	1 (.5)

3/8" Compression Coupling



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347131000	3/8" Compression Coupling (for repairs)	10	1 (.5)

AluLaser Plus Fittings and Tools

Roth AluLaser Plus Press Tools

AluLaser Plus Deluxe 24" Press Tool Kit



Includes:

- 24" Press Tool
- 2 - 12" Extension Arms*
- Press Tool Jaws for 1/2", 5/8", 3/4" & 1"
- Reamer Tool
- Plastic Carry Case*

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335002500	AluLaser Plus Deluxe 24" Press Tool Kit	1	13.1 (6.2)

AluLaser Plus Deluxe 18" Press Tool Kit



Includes:

- 18" Press Tool*
- Press Tool Jaws for 1/2", 5/8", 3/4" & 1"
- Reamer Tool
- Plastic Carry Case*

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347002340	AluLaser Plus Deluxe 18" Press Tool Kit	1	8.4 (3.8)

AluLaser Plus Standard 15" Press Tool Kit



Includes:

- 15" Press Tool*
- Press Tool Jaws for 1/2", 5/8" & 3/4"
- Plastic Carry Case*

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2347002400	AluLaser Plus Standard 15" Press Tool Kit	1	8.0 (3)

AluLaser Plus Fittings and Tools

Roth AluLaser Plus Press Tools

AluLaser Plus Reaming Tool

- Used to re-round the end and place a bevel on the inside edge of AluLaser Plus tubing after it has been cut.
- Use on 1/2", 5/8", 3/4" & 1" tubing.

Note: It is very important to cut tubing squarely and use the reaming tool before inserting the fitting to ensure a leak proof connection!



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335004741	AluLaser Plus Reaming Tool	1	2 (0.9)

Tubing Cutter



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350505380	For 3/8" - 1" PEX or AluLaser Plus	1	1 (0.5)
2350505390	Spare blade	1	0.5 (0.3)

Section 6 - PE-RT/PEX Fittings and Tools

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PE-RT/PEX Fittings and Tools

PE-RT/PEX Compression fittings

Couplings



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335003238	3/4" PE-RT/PEX x 3/4" PE-RT/PEX	1	0.7 (0.3)
2335003236	1" PE-RT/PEX x 1" PE-RT/PEX	1	2 (0.9)

Couplings Using Tubing Fitting Assemblies (see page 15)

- Use with two Tubing Fitting Assemblies to create a standard or reducing coupling.



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000930	Double Threaded Nipple	1	0.2 (0.1)

Copper Transition Couplings Using Tubing Fitting Assemblies

- Connect any size* PE-RT/PEX tubing to 1/2" or 3/4" copper with use of Tubing Fitting Assemblies (see page 15). * 3/8", 1/2", 5/8" or 3/4"



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340013285	R20 (Nominal 3/4") Euroconical compression fittings x 1/2" female sweat/ 3/4" male sweat	1	0.5 (0.3)

Transition Couplings to Copper Sweat



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335002334	3/4" PE-RT/PEX x 3/4" female sweat/ 1" male sweat	2	1 (0.5)
2335002333	1" PE-RT/PEX x 1" female sweat/ 1 1/4" male sweat	2	1 (0.5)

Baseboard Fittings



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340009000	1/2" PE-RT/PEX x 1/2" Female Sweat	2	1 (0.5)
2340009001	1/2" PE-RT/PEX x 3/4" Female Sweat	2	1 (0.5)
2340009002	5/8" PE-RT/PEX x 3/4" Female Sweat	2	1 (0.5)
2340009003	3/4" PE-RT/PEX x 3/4" Female Sweat	2	1 (0.5)
2340009005	1/2" PE-RT/PEX x 1/2" Male Sweat	2	1 (0.5)
2340009006	5/8" PE-RT/PEX x 3/4" Male Sweat	2	1 (0.5)
2340009007	3/4" PE-RT/PEX x 3/4" Male Sweat	2	1 (0.5)
2340009004	5/8" PE-RT/PEX x 3/4" Female Sweat 90° Elbow	2	1 (0.5)

PE-RT/PEX Fittings and Tools

Barbed Fittings

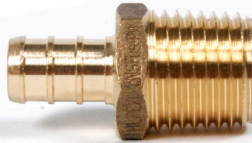
Barbed fittings meet ASTM F1807 standards

Female Threaded Adaptors



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350335663	1/2" barb x 1/2" FPT	10	1 (0.5)
2350335673	1/2" barb x 3/4" FPT	10	1 (0.5)
2350335684	3/4" barb x 3/4" FPT	10	1 (0.5)
2350335694	1" barb x 1" FPT	10	1 (0.5)

Male Threaded Adaptors



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350535755	3/8" barb x 1/2" MPT	10	1 (0.5)
2350535756	1/2" barb x 1/2" MPT	10	1 (0.5)
2350535757	1/2" barb x 3/4" MPT	10	1 (0.5)
2350535765	3/4" barb x 1/2" MPT	10	1 (0.5)
2350535766	3/4" barb x 3/4" MPT	10	1 (0.5)
2350535767	3/4" barb x 1" MPT	10	1 (0.5)
2350535775	1" barb x 3/4" MPT	10	1 (0.5)
2350535776	1" barb x 1" MPT	10	1 (0.5)

Female Sweat Adaptors



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350534550	1/2" barb x 1/2" Female Sweat	10	1 (0.5)
2350534560	3/4" barb x 3/4" Female Sweat	10	1 (0.5)
2350834570	1" barb x 1" Female Sweat	10	1 (0.5)
2350324664	1/2" barb to 3/4" Female Sweat	10	1 (0.5)

Male Sweat Adaptors



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350534437	3/8" barb x 1/2" Male Sweat	10	1 (0.5)
2350534438	1/2" barb x 1/2" Male Sweat	10	1 (0.5)
2350534539	3/4" barb x 3/4" Male Sweat	10	1 (0.5)
2350534540	1" barb x 1" Male Sweat	10	1 (0.5)
2350324674	1/2" barb to 3/4" Male Sweat	10	1 (0.5)

PE-RT/PEX Fittings and Tools

Couplings



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350242023	3/8" barb	10	1 (0.5)
2350343024	1/2" barb	10	1 (0.5)
2350454025	5/8" barb	10	2 (.09)
2350444023	3/4" barb x 1/2" barb	10	2 (0.9)
2350444025	3/4" barb	10	2 (0.9)
2350545024	1" barb x 3/4" barb	10	2 (0.9)
2350545026	1" barb	10	2 (0.9)



90° Elbows

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350262023	3/8"x 3/8" barb	10	1 (0.5)
2350363024	1/2"x 1/2" barb	10	1 (0.5)
2350464025	3/4" x 3/4" barb	10	2 (0.9)
2350565026	1" x 1" barb	10	2 (0.9)



PEX/PE/RT x MPT Elbows 90°

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350364026	1/2" barb x 1/2" MPT	10	2 (0.9)
2350363027	1/2" barb x 3/4" MPT	10	2 (0.9)
2350464026	3/4" barb x 3/4" MPT	10	2 (0.9)

Plugs



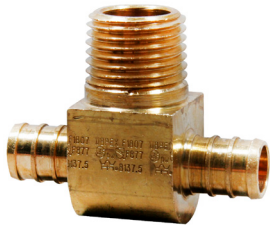
<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350202210	3/8" barb	10	1 (0.5)
2350202220	1/2" barb	10	1 (0.5)
2350202230	3/4" barb	10	1 (0.5)
2350202240	1" barb	10	2 (0.9)

PE-RT/PEX Fittings and Tools

Tees



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350242033	3/8" x 3/8" x 3/8" barb	10	1 (0.5)
2350242034	3/8" x 3/8" x 1/2" barb	10	1 (0.5)
2350343035	1/2" x 3/8" x 3/8" barb	10	1 (0.5)
2350343036	1/2" x 3/8" x 1/2" barb	10	1 (0.5)
2350343037	1/2" x 1/2" x 3/8" barb	10	2 (0.9)
2350343038	1/2" x 1/2" x 1/2" barb	10	2 (0.9)
2350343039	1/2" x 1/2" x 3/4" barb	10	2 (0.9)
2350443035	3/4" x 1/2" x 1/2" barb	10	2 (0.9)
2350443036	3/4" x 1/2" x 3/4" barb	10	2 (0.9)
2350443037	3/4" x 3/4" x 1/2" barb	10	2 (0.9)
2350444036	3/4" x 3/4" x 3/4" barb	10	2 (0.9)
2350444037	3/4" x 3/4" x 1" barb	10	3 (1.4)
2350544035	1" x 3/4" x 3/4" barb	10	3 (1.4)
2350545036	1" x 1" x 1/2" barb	10	3 (1.4)
2350545037	1" x 1" x 3/4" barb	10	3 (1.4)
2350545038	1" x 1" x 1" barb	10	3 (1.4)



Transition Tees

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350545133	1/2" barb x 1/2" barb X 1/2" MPT	10	2 (0.9)
2350545144	3/4" barb x 3/4" barb X 1/2" MPT	10	3 (1.4)



PE-RT/PEX in-line Ball Valves

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350373273	1/2" PE-RT/PEX in-line ball valve	10	3 (1.4)
2350474274	3/4" PE-RT/PEX in-line ball valve	10	3 (1.4)

PEX/PE-RT Fittings and Tools

HDSS PE-RT/PEX Clamps

- HDSS PE-RT/PEX Clamps meet ASTM F2098 standards



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350303373	3/8" HDSS PE-RT/PEX Clamp	100	1 (0.5)
2350303371	1/2" HDSS PE-RT/PEX Clamp	100	1 (0.5)
2350303375	5/8" HDSS PE-RT/PEX Clamp	100	1 (0.5)
2350303372	3/4" HDSS PE-RT/PEX Clamp	100	1 (0.5)
2350303374	1" HDSS PE-RT/PEX Clamp	100	1 (0.5)

Standard HDSS PE-RT/PEX Clamp Tool - 12"



- Use with 3/8" - 3/4" HDSS PE-RT/PEX Clamps

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350505771	Standard HDSS PE-RT/PEX Clamp Tool	1	2 (0.9)

Large Diameter HDSS PE-RT/PEX Clamp Tool - 14.5"



- Use with 3/8" - 1" HDSS PE-RT/PEX Clamps

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350505772	Large Diameter HDSS PE-RT/PEX Clamp Tool	1	3 (1.4)

Tubing Cutter



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2350505380	For 3/8" - 1" PE-RT/PEX	1	1 (0.5)
2350505390	Spare blade	1	0.5 (.3)

Section 7 - Installation Accessories

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Installation Accessories

Compact Tubing Uncoiler



- Dispenses Roth tubing without twists or kinks
- Greatly reduces installation labor needs
- Adjustable reel to accommodate different coil widths
- Reel tension adjustment for smooth operation
- Pneumatic tires allow easy transportation over rough terrain
- Sturdy base prevents tipping during use
- Holds up to: 2000' coil of 1/2" tubing; 1600' coil of 5/8" tubing; 1000' coil of 3/4" tubing; 300' coil of 1" tubing (Not for use with X-PERT)

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340095316	Compact Tubing Uncoiler	1	75 (34.1)

Fireman Battalion 61 Tubing Uncoiler



- 603 Aluminum channel, Zinc chromate plated steel
- Stainless steel; upper and lower needle roller bearings
- Hardened steel washers
- 1/2" solid 6061 reinforcement bars at all center channel sections
- Neoprene lower bearing seal/friction brake (factory preset)
- Compatible with all Roth tubing products

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340095317	Battalion Tubing Uncoiler	1	27 (12.3)

Plastic Cable Ties



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000364	Plastic Cable Ties 8"	100	0.5 (0.3)

Plastic Sleeve Elbows



- Used to protect tubing when transitioning in and out of concrete or gypsum based slab

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340032104	Plastic Sleeve Elbows for 3/8" - 5/8"	10	1 (0.5)
2350464411	Plastic Sleeve Elbows for 3/4" - 1"	10	6 (2.8)

Metal Bend Supports

- Used to hold tubing in place on a 90° bend. Protects tubing from kinking



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340032302	Metal Bend Support for 3/8"	10	1 (0.5)
2340032303	Metal Bend Support for 1/2"	10	2 (0.9)
2340032304	Metal Bend Support for 5/8"	10	1 (0.5)

Installation Accessories

Heat Shrink Sleeve

- Used to protect repair couplings in concrete



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340090020	Heat Shrink Sleeve-length of 4' - for up to 10 couplings	1	1 (0.5)

Foam Board Stapler

- Used to attach tubing to foam board insulation
- Loads with plastic staples on paper strips
- Works in a similar manner as a standard hand-held paper stapler



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2315001344	Foam Board Stapler w/ Counter Weight	1	8 (3.6)
2340021033	Replacement Counter Weight	1	2 (0.9)

Foam Board Plastic Staples

- Designed to accommodate tubing sizes from 3/8" to 5/8"
- Features arrow - like ends which firmly hold the tubing in place



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2335000254	Foam Board Plastic Staples 1-1/2" long for 1/2" or 5/8" tubing	300	1.5 (0.7)
2335000255	Foam Board Plastic Staples 1" long for 1/2" or 5/8" tubing	300	1.3 (0.6)

Pneumatic Staple Gun and Staples

- Used to attach tubing to top or bottom of sub-flooring
- Includes front and rear blocks and extension handle



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340098314	Pneumatic Staple Gun	1	10 (4.5)
2340025124	Staples; 1-1/4"	10,000	30 (13.6)
2340025224	Staples, 1-1/4"	1,650	5 (2.3)

Installation Accessories

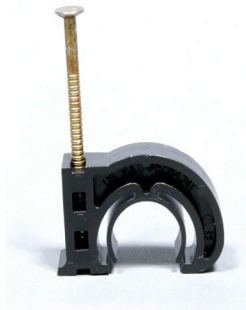
Octa Rail



- Plastic strip designed to hold PE-RT, PEX and AluLaser Plus tubing in place during a concrete or gypsum based pour
- Strip size – 3.3' (1 m) l x 1.25" (3.2 cm) h
- Strips interlock end to end
- Alternating tubing sockets of 1/2" or 3/8" and 5/8" or 3/4" on 4" centers
- Fastened to wood or concrete by use of appropriate nails, screws or adhesive
- Pour must be a minimum of 3"
- Formula for determining project quantity: Square footage of floor divided by 11

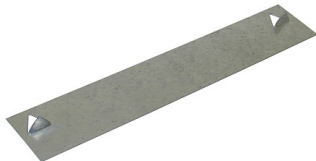
<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340030123	Octa Rail for 3/8", 1/2", 5/8", 3/4" Tubing	30	15 (6.8)

Tubing Fasteners with pre-loaded nail



<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2350206840	For 3/8" Tubing	100	1 (0.5)
2350307840	For 1/2" Tubing	100	1 (0.5)
2350408840	For 3/4" Tubing	100	1 (0.5)
2350509845	For 1" Tubing	50	1 (0.5)
2350304850	Twin 1/2 & 3/4" Tubing	100	1 (0.5)

Stud guards



<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2350896003	1 1/2" x 3" - 18 gauge Steel Guard	10	2 (0.9)
2350896006	1 1/2" x 6" - 18 gauge Steel Guard	10	2 (0.9)

Infrared Thermometer



- °F or °C display
- Used for determining ΔT, surface temperatures, supply fluid temperatures, etc.
- May not provide accurate results on materials with low emissivity. i.e. copper, aluminum

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340001000	Infrared Thermometer	1	1 (0.5)

Thermo-Fin Hole Punch Kit



- Used to punch holes in Thermo-fin aluminum plates

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340031111	Hole Punch Kit (use on T-Fin)	1	4 (1.8)

Section 8 - Hydronics Specialties

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Air Eliminators - Spirovent.....	47
Differential Pressure By-Pass Valve.....	47

Hydronics Specialties

Automatic Air Vent-Spirotop



- Maintenance free
- Continuous air venting
- 150 psig standard working pressure
- 270° F maximum temperature
- Sized to fit almost anywhere
- Dirt resistant.
- Leak resistant
- 1/2" male thread at vent point for pressure testing or remote venting of unwanted gases
- Quick removal of large air bubbles
- Reliable vacuum breaker for system draining

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340094253	1/2" Spiro Top	1	2 (0.9)

Air Eliminators-Spirovent



- Unlike conventional air eliminators or air scoops, the Spirovent completely eliminates 100% of the free air, 100% of the entrained air, and up to 99.6% of the dissolved air in the system
- Consisting of woven copper wire soldered to a copper tube, the patented Spirotube® creates a low velocity area in the Spirovent that scrubs the bubbles from the water
- The air bubbles rise and collect in the air chamber before they are vented from the system via an integral automatic valve

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340094255	Spirovent Junior 3/4" Female NPT	1	2 (0.9)
2340094256	Spirovent Junior 1" Female NPT with 1/2" Tank Mount	1	2 (0.9)
2340094257	Spirovent Junior 1-1/4" Female NPT with 1/2" Tank Mount	1	2 (0.9)
2340094258	Spirovent Junior 1-1/2" Female NPT with 1/2" Tank Mount	1	2 (0.9)

Differential Pressure By-Pass Valve



- Self-acting automatic by-pass control primarily used to control the differential pressure in a heating system using zone valves.
- Opens on rising differential pressure
- Setting range of 0.725 - 7.25 psi (0.05 - 0.5 bar)
- Max. Pressure - 145 psi (10 bar)
- Max. Temperature - 248 °F (120° C)

The differential pressure by-pass valve is used in systems with a fixed speed circulating pump supplying several zones controlled by two way zone valves. As zone valves begin to close, the head pressure created by the circulating pump will increase in the remaining open zones. This valve is piped between the supply and return headers and will open to reduce the excess pressure, thus protecting the zone valves from damage and eliminating water hammer noise.

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340052155	Differential Pressure By-Pass Valve; (3/4" Union Male NPT)	1	2 (0.9)
2340052156	Differential Pressure By-Pass Valve; (1" Union Male NPT)	1	3 (1.4)

Section 9 - Hydronic Valves

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Hydronics Valves

Thermostatic Mixing Valve



- Dual-purpose mixing or diverting valve
- Fail-safe on hot or cold supply failure
- Delivers stable mixed water temperature
- ASSE 1017 Certified
- High flow – Cv – 3.8; max. flow – 24 gpm
- Low head loss
- Lockable handle
- Extended temperature range: 85° - 150° F
- 1" copper female sweat union connectors

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2340073356	Thermostatic Mixing Valve 1" Sweat	1	2 (0.9)

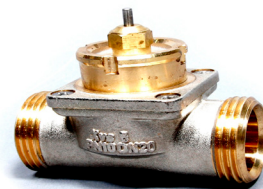


Injection Valve Controller

- Used with injection valve body (below) to inject a specific flow rate of high temperature fluid to be mixed with return fluid from a radiant zone to provide required supply temperature to zone.
- Operating Range: 104°F - 158°F (40°C - 70°C)

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2340084016	Injection Valve Controller with Capillary Sensor	1	1 (0.5)

Injection Valve Body



- Used with controller (above) to inject a specific flow rate of high temperature fluid to be mixed with return fluid from a radiant zone to provide required supply temperature to zone.
- An easy, cost effective way to design and operate a radiant system

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340053075	Injection Valve Body 3/4" NPT	1	2(0.9)
2340053076	Injection Valve Body 1" NPT	1	3 (1.4)

Hydronics Valves



Zone Valves

- Valve includes Actuator, Valve body and Adaptor as described below
- 24 V, normally closed
- End switch (4 - wire)
- Pop-up indicator
- Open/close interval - 3 min.

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340955215	Zone Valve 3/4" Sweat	1	2(1.0)
2340955216	Zone Valve 1" Sweat	1	2(1.0)



Zone Valve Actuator

- Same as Manifold Set Actuator on page 16
- 24 V, normally closed
- End switch (4 - wire)
- Pop-up indicator
- Open/close interval - 3 min.

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340055354	Zone Valve Actuator with End Switch	1	1 (0.5)

Zone Valve Body

- Works with actuator to regulate flow to a zone.
- Brass



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340055215	Zone Valve Body 3/4" Sweat	1	1 (0.5)
2340055216	Zone Valve Body 1" Sweat	1	1 (0.5)

Zone Valve Adaptor

- Used to attach actuator to valve body



<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340055454	Zone Valve Adaptor	1	0.5(0.3)

Hydronics Valves

3-Way Mixing Valves



- Special Alloy Brass (DZR)
- Easy manual operation
- Slender, compact design
- Easily automated with valve actuators listed below

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340084165	3-Way Mixing Valve 3/4" FPT Cv - 7.3	1	1 (0.50)
2340084166	3-Way Mixing Valve 1" FPT Cv - 14	1	1 (0.50)
2340085167	3-Way Mixing Valve 1/4" FPT Cv - 21	1	2 (0.9)

4 - Way Mixing Valves



- Special Alloy Brass (DZR)
- Easy manual operation
- Used when boiler protection is required
- Slender, compact design
- Easily automated with valve actuators listed below

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340074165	4-Way Mixing Valve 3/4" Sweat Cv - 7.3	1	1 (0.5)
2340074166	4-Way Mixing Valve 1" Sweat Cv - 14	1	1 (0.5)
2340075167	4-Way Mixing Valve 1 1/4" Sweat Cv - 21	1	2 (0.9)
2340075168	4-Way Mixing Valve 1 1/2" NPT Cv - 35	1	7 (3.2)
2340075169	4-Way Mixing Valve 2" NPT Cv - 50	1	12 (5.5)

3-Way and 4-Way Mixing Valve Actuators



Mixing Valve Actuator

- Floating 3-point signal
- Power Consumption – 2VA
- 24V
- Run Interval – 96 sec.

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340085288	3 & 4-way Mixing Valve Actuator	1	2 (0.9)

Mixing Valve Outdoor Reset Controller Kit



Kit Includes:

VM663 Valve Actuator

TC204-2S Outdoor Reset Controller w/ Digital Readout

- LCD Display
- Read and set values from a PC
- Permanent memory – no battery needed
- 3 sensor inputs
- Adaptive reset curve
- Multi-functional Control

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340085188	TC204-2S-M Outdoor Reset Controller Kit	1	4 (2.0)

Section 10 - Hydronic Controls

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Hydronic Controls

System Controls

T1050 Hydronic System Control



- General purpose reset control for hydronic and snow melt systems
- Boiler, reset and mixing controls in a single unit
- Operates a two temperature hydronic system
- Output contacts for primary loop pump, secondary loop pump, DHW pump or valve, mixing device, mixing system pump and a single boiler
- Intelligent DHW operation and priority
- Mixing output for a variable speed injection pump or a floating action mixing valve
- Mixed water temperature can be used to supply a space heating system or a single zone snow melting system.
- Outdoor sensor, universal sensors (2) and complete technical information included

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2340085070	Hydronic System Control T1050	1	4 (1.8)

T150 One Stage Set Point Control



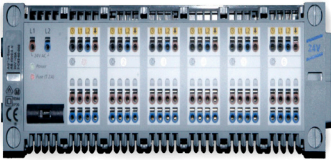
- A microprocessor-based control that can be programmed to maintain a fixed set point temperature by cycling a heating or cooling device using either a complete on-off or pulse width modulated (PWM) output control.
- Wide set point range, adjustable differential and time delay that makes it useable in many different applications.
- Digital LCD window normally shows the actual sensor temperature and can be used to view the set point as well as the other programmed settings.
- Universal sensor included

<i>Part #</i>	<i>Description</i>	<i>Pkg</i>	<i>Weight</i>
		<i>Qty</i>	<i>lbs (kg)</i>
2340086374	One Stage Set-Point Control T150	1	1 (0.5)

Hydronic Controls

Zone Controls - Alpha Zone Control Modular System

Alpha 6 Zone Relay Module



- 24 V
- Provides operational power to connected devices. (thermostats, actuators)
- Controls up to 6 zone thermostats
- Designed for a maximum of 14 actuators
- Operating mode indicators (voltage, supply, fuse)
- Function indicator (operating condition of thermostats)
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Functionally expandable with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches L x W x H (mm)</i>
2340077771	Alpha 6 Zone Relay Module	1	1 (0.5)	9.25 x 3 x 2.75 (234 x 75 x 70)

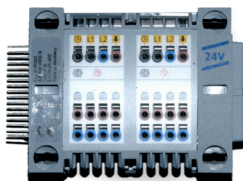
Alpha 1 Zone Relay Module



- 24 V
- Provides operational power to connected devices. (thermostats, actuators)
- Controls 1 zone thermostat
- Designed for a maximum of 4 actuators
- Operating mode indicators (voltage, supply, fuse)
- Function indicator (operating condition of thermostats)
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Functionally expandable with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches L x W x H (mm)</i>
2340077773	Alpha 1 Zone Relay Module	1	.5 (0.2)	3.5 x 3 x 2.75 (87 x 75 x 70)

Alpha Zone Expansion Module



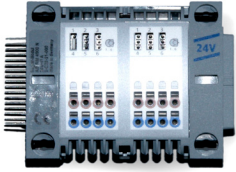
- Plug-in connection to Alpha 6 or 1 Zone relay modules
- Adds two zones with up to four actuators per zone
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Clear arrangement of connection wires with cable grips
- Allows further expansion with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches L x W x H (mm)</i>
2340077772	Alpha Zone Expansion Module	1	0.5 (0.2)	3.5 x 3 x 2.75 (87 x 75 x 70)

Hydronic Controls

Zone Controls - Alpha Zone Control Modular System

Alpha Actuator Expansion Module



- Plug-in connection to Alpha 6 or 1 Zone relay modules or other expansion modules
- Adds up to 8 actuators on either 1 or 2 zone thermostats
- Allows up to 12 actuators to be controlled by one thermostat
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Allows further expansion with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight</i>		<i>Dimensions inches</i>		
			<i>lbs</i>	<i>(kg)</i>	<i>L</i>	<i>x W</i>	<i>x H (mm)</i>
2340077774	Alpha Actuator Expansion Module	1	0.5	(0.2)	3.5	x 3	x 2.75 (87 x 75 x 70)

Alpha End Switch Module



- The potential free relay contact allows a circulator or other electrical device to be switched on and off
- Can be controlled by all thermostats or a single designated thermostat
- Post purge option
- Circulator protection function – circulator will run for 5 minutes every 24 hours if no switching signal is received
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Allows further expansion with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight</i>		<i>Dimensions inches</i>		
			<i>lbs</i>	<i>(kg)</i>	<i>L</i>	<i>x W</i>	<i>x H (mm)</i>
2340077776	Alpha End Switch Module	1	0.5	(0.2)	3.5	x 3	x 2.75 (87 x 75 x 70)

Alpha Dual End Switch with Delay Module



- The potential free relay contact allows a circulator and an additional electrical device to be switched on and off concurrently
- Controlled by all thermostats
- Features a 2 minute switch-on delay
- Post purge option
- Circulator protection function – circulator will run for 5 minutes every 24 hours if no switching signal is received
- Color coded, screwless spring/clamp terminal connections for quick, easy installation
- Allows further expansion with integrated expansion modules

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight</i>		<i>Dimensions inches</i>		
			<i>lbs</i>	<i>(kg)</i>	<i>L</i>	<i>x W</i>	<i>x H (mm)</i>
2340077775	Alpha Dual End Switch with Delay Module	1	0.5	(0.2)	3.5	x 3	x 2.75 (87 x 75 x 70)

Hydronic Controls

Zone Controls - Alpha Zone Control Modular System

Alpha Timer Module

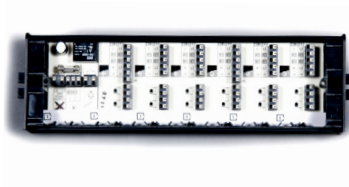


- Connects directly to Alpha Zone relays or at extreme end of expansion modules
- 2 channel digital clock – allows 2 individual zone or zone group programming
- 42 time memory locations
- Automatic switching between summer and winter time
- Power reserve: approximately 30 days

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>	<i>Dimensions inches L x W x H (mm)</i>
2340077780	Alpha Timer Module	1	.5 (0.2)	2.5 x 2.8 x 2.75 (65 x 72 x 70)

Zone controls - Basic Zone Control

Basic 6 Zone Relay Control



- 24 V
- Provides operational power to connected devices. (thermostats, actuators)
- Controls up to 6 zone thermostats
- Designed for a maximum of 12 actuators – 2 actuators/thermostat with ability to expand to 4 actuators
- Pump end switch
- Simple spring clamp connections

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340077781	Basic 6 Zone Relay Control	1	2 (0.9)

Hydronic Controls

Snowmelt Controls

Automatic Snowmelt Control T664



- Microprocessor-based two zone snow melting control capable of providing priority
- Operates either a floating action output, variable speed output or a modulating output (4 - 20 mA) to provide slab and boiler protection.
- Capable of staging and / or rotating either a single two stage boiler or two single stage boilers.
- Separate melting and idling setpoints for each zone
- Accommodates different slab construction types.

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340087575	Automatic Snowmelt Control T664	1	4 (1.8)

Snowmelt Enable Kit T092



- Used together with the Snow Detector & Melting Control 664
- Remotely enables and disables the snow melting system
- Adjustable run time
- LED provides visual indication of operation

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340083000	Snowmelt Enable Kit T092	1	1 (0.5)

Snow/Ice Sensor T090



- Installs flush on slab surface when mounted into the Sensor Socket
- Measures slab temperature, sensor surface temperature and sensor surface moisture level.

<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340046120	Snow/Ice Sensor T090	1	2 (0.9)

Snow/Ice Sensor Socket T091

The socket is designed to house the Snow / Ice Sensor and is installed directly into the snow melt slab halfway between the heating elements or pipes. An opening at the bottom of the socket is provided for wiring conduit.



<i>Part #</i>	<i>Description</i>	<i>Pkg Weight</i>	
		<i>Qty</i>	<i>lbs (kg)</i>
2340035150	Snow/Ice Sensor Socket T091	1	2 (0.9)

Hydronic Controls

Snowmelt Controls



Snowmelt Control 654

- Designed to operate electric or hydronic equipment
- Residential and small commercial applications
- 24V
- Automatic snow / ice detection
- Supports both inslab & retrofit aerial sensors
- Idling
- Manual start with timer
- Snow melt zoning with priority
- Programmable schedule
- Tandem snow / ice detection
- Warm weather shut down
- EconoMelt
- Cold weather cut out
- Storm
- Slab protection
- Snow melt zone tracking

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340080000	Performance Snowmelt Control T654	1	2 (1)



Snowmelt Control 680

- BAS Capable
- 115V
- Designed to operate electric or hydronic equipment
- Automatic snow/ice detection
- Supports both inslab & retrofit
- Aerial sensors
- BACnet or Modbus
- Energy monitoring
- Tandem snow/ice detection
- Idling
- Storm
- EconoMelt
- Warm weather shut down
- Cold weather cut out
- Slab protection
- Exercising

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340088001	Designer Snowmelt Control T680	1	2 (1)

Hydronic Controls

Thermostats - Electronic Thermostats - Programmable

Programmable Thermostat w/ Floor Sensor



- Large back lit LCD display
- 24 V
- Heat only
- Field selectable 12 or 24 hour clock / °C or °F
- 7 - day, 4 time periods / day
- 2 temperature settings - pre-programmed or personalized schedule
- Early Start function – calculates optimum time to start heating to achieve desired temperature at set time.
- Temporary bypass enables temperature override without changing programming
- Battery free back up means no re-programming your schedule after a black out
- 3 control modes – Ambient air, floor, and ambient air & floor

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340077783	Programmable Thermostat with Floor Sensor Heat Only	1	1 (0.5)

Thermostats - Electronic Thermostats - Non-programmable

Thermostats - Basic Thermostat - Non-programmable



Basic Thermostat - Heat Only

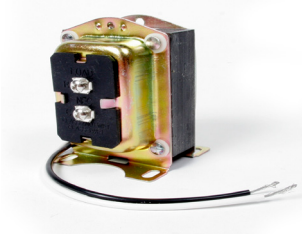
- 24 V
- Single set point

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340077782	Basic Thermostat - Heat only	1	1 (0.5)

Hydronic Controls

Control Accessories

Transformer



- 120 V to 24 V
- 40 VA

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340067162	Transformer - 40 VA	1	2 (0.9)

Universal Temperature Sensor T071



- Brass sleeve
- 12" (300 mm) 20 AWG XLPE wire
- Operating range — -60° to 255° F (-50° to 125° C)
- Sensor — NTC thermistor, 10 k Ω @ 77° F (25° C \pm 0.2° C), β =3892

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340043125	Universal Temperature Sensor T071	1	1 (0.5)

Slab Temperature Sensor T072



- 316 stainless steel sleeve
- 10' (3 m) 24 AWG, 300 volt PVC insulated zip cord
- Operating range — -60° to 255° F (-50° to 125° C)
- Sensor — NTC thermistor, 10 k Ω @ 77° F (25° C \pm 0.2° C), β =3892

<i>Part #</i>	<i>Description</i>	<i>Pkg Qty</i>	<i>Weight lbs (kg)</i>
2340044125	Slab Temperature Sensor T072	1	1 (0.5)



Roth Industries
Roth North America Corporate Office
PO Box 245
Syracuse, NY 13211
P: 866-943-7256
F: 315-475-0200
www.roth-usa.com

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