



OG-300 Internal Coil Solar Hot Water Systems Schematics and Parts Lists

(Revision 1.3 - July 2011)

IMPORTANT INFORMATION

Diagrams are conceptual only and not to scale. Final system design must adhere to all relevant codes, regulations and guidelines and may require the approval and stamp of a licensed engineer. It is the responsibility of the installer/contractor to ensure that the system design meets all relevant standards, regulations and guidelines and is safe and operating correctly. Any installer/contractor must be legally certified to install solar water heating systems and have attended an accredited Apricus training session before completing the installation of any Apricus products.

The installation of Apricus products must be in accordance with guidelines outlined in the latest version of the Apricus installation manual. For the latest version of the manual contact your local Apricus agent or email office-usa@apricus.com.

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Naming Convention Overview

Apricus uses the following format coding to describe the systems in this document:

NAME_TYPE_EXHE_TUBE_1STTANK_2NDTANK_EXTBOOST

The following information describes the different options.

NAME: This describes the type of system

APSS - Apricus solar system

TYPE: This describes the type of system being installed

DIRECT - Direct flow solar thermal system
CLOSED - Closed loop solar thermal system

EXHE₁: This describes the type of external heat exchanger

BPHE - Dual wall brazed plate heat exchanger with leak detection

TUBE: This describes the number of tubes installed

AP-30 - One AP-30 collector with 30 tubes total
AP-60 - Two AP-30 collectors with 60 tubes total

1stTANK: This describes the type of tank the solar thermal system is connected to

FTD - Direct flow tank (no heat exchanger)
FTB - Internal coil tank
FTB-# - Designates that there are multiple models with different tanks.
FTW - Dual internal coil tank
DT-XXX - Tank has a dip tube solar connection
XXX-E - Tank has an electric element

2ndTANK₁: This describes the second tank in series in the solar thermal system

STD-E - Standard electric water heater
STD-G - Standard gas water heater

EXTBOOST₁: This describes the type of external auxiliary heating

PBGT - Tankless water heater
TBGT - Top boosted by pumped tankless water heater
TBGB - Top boosted by indirect boiler

Example:

APSS_CLOSED_AP30_FTb-1-E:

Apricus closed loop solar thermal system with one AP-30 and an internal coil tank chosen from tank group 1 with an electric element back up

Notes:

1. Depending on the type of system this position may not be filled.


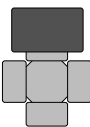



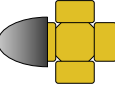
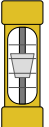
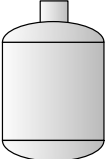


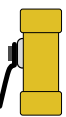


FTB-# Systems Tank List

Model Designation	AP-30, 80 Gallon Systems	2x AP-30, 119 Gallon Systems
None	Caleffi SolarCon NAS20083 Rheem RSID-80 Bock 80SKE	Caleffi SolarCon NAS20123 Rheem RSID-120 Bock 119SKE
1	A.O. Smith SUNX-80 State Premier SB6 80 SOTX	A.O. Smith SUNX-120 State Premier SB6 120 SOTX
2	Bradford White Ecostor S-SW2-75R6DS Niles Steel Tanks N-SW2-75R5DS	Bradford White Ecostor S-SW2-115R6DS Niles Steel Tanks N-SW2-115R5DS
3*	Vaughn S80SRW20145	Vaughn S120SRW20145

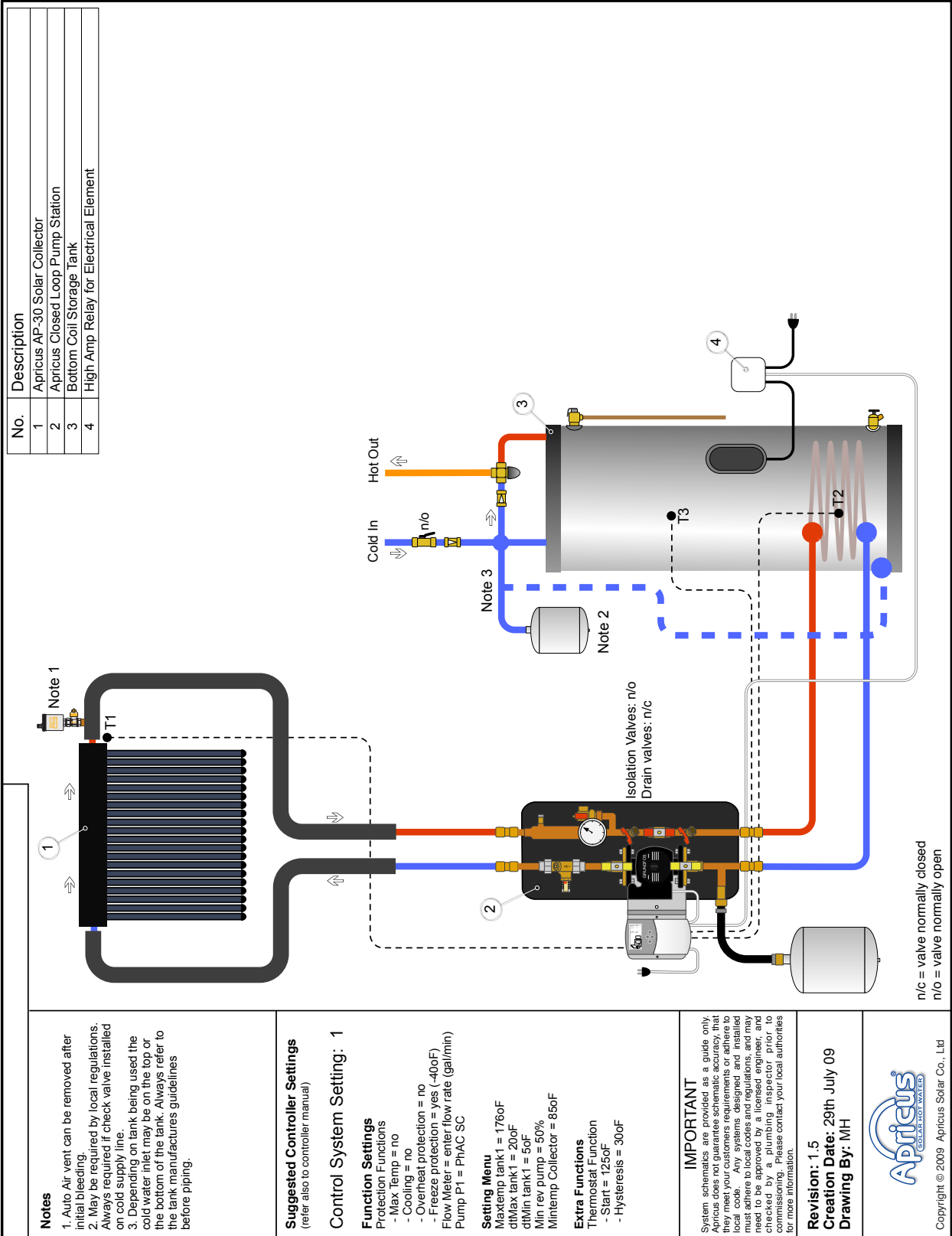
* - Models using the Vaughn tanks are not currently SRCC certified. For up to date certification status please visit solar-rating.org

Symbol Guide

System Symbols used in Diagrams

	Air Vent		3 Way Solenoid Valve
	Drain Valve		Circulation Pump
	Drain Valve (on tank)		Anti-scald Valve
	Flow Meter		Expansion Tank
	Check Valve		Quick-connect Fitting
	Ball Valve		Temperature & Pressure Relief Valve
			Pressure Relief Valve

System Schematic: APSS_CLOSED_AP30_FT#-E
System Schematic: APSS_CLOSED_AP60_FT#-E

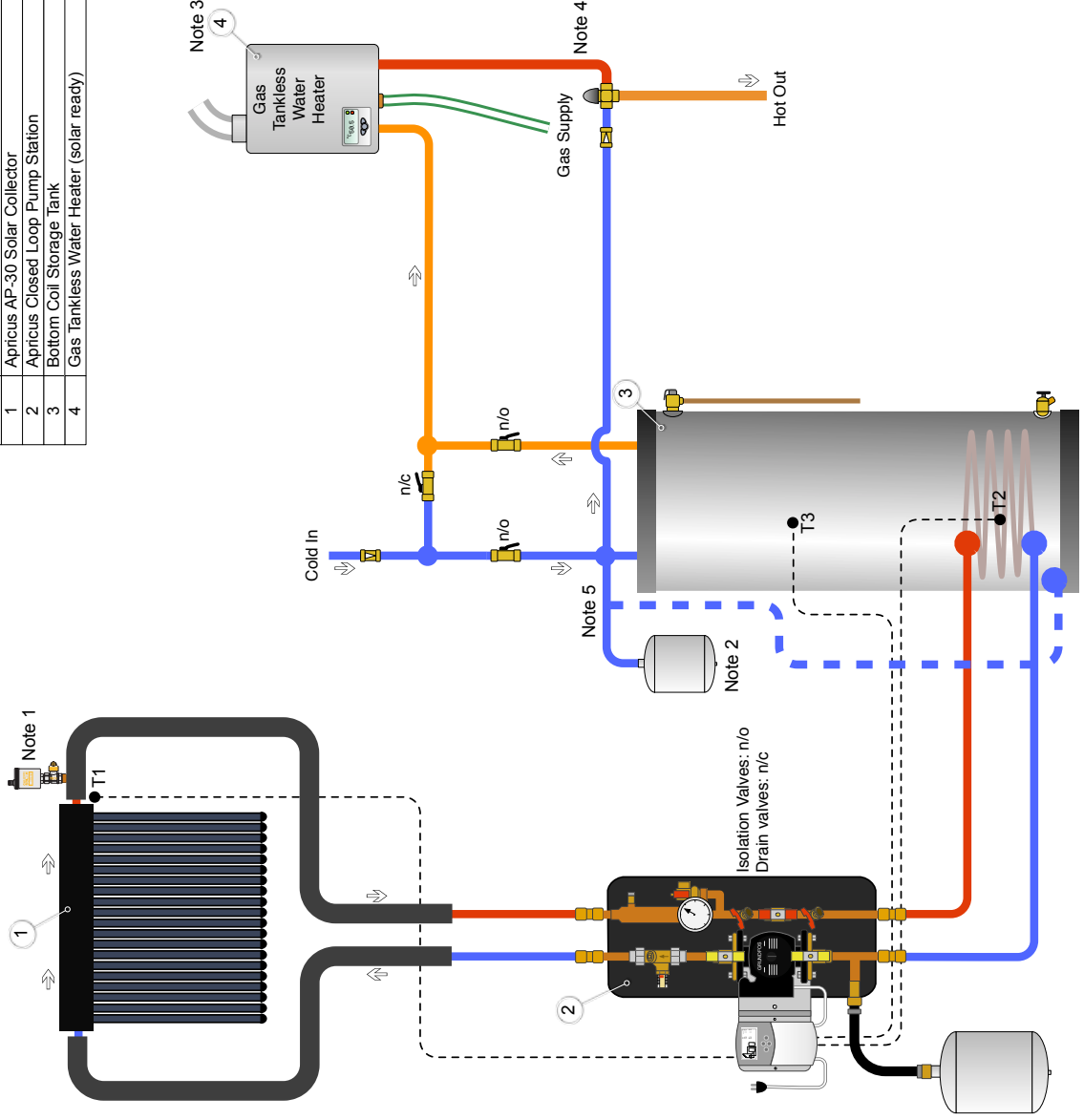


OG300 Parts List

System	APSS_CLOSED_AP30_FTB-#-E	APSS_CLOSED_AP60_FTB-#-E
Collector	Apricus AP-30	2x Apricus AP-30
Pump	Grundfos UPS 15-58FC	Grundfos UPS 15-58FC
Controller	Watts Radiant Solar Control	Watts Radiant Solar Control
Tank	See tank options on page 2	See tank options on page 2
Expansion Tank	Watts Radiant ETX 30	Watts Radiant ETX 30
Expansion Tank	Watts PLT-12 (Potable Water)	Watts PLT-12 (Potable Water)
Heat Exchanger	Tank specified internal coil	Tank specified internal coil
Heat Transfer Fluid	Whitlam Solar Hi-Temp Dowfrost	Whitlam Solar Hi-Temp Dowfrost
Piping	Copper or Stainless Steel	Copper or Stainless Steel
Check Valve	NSF/CSA Approved 3/4" Valve	NSF/CSA Approved 3/4" Valve
Mixing Valve	NSF/CSA Approved 3/4" Anti-Scaled Valve	NSF/CSA Approved 3/4" Anti- Scaled Valve
Pressure Relief Valve	Watts 3/4" Pressure Relief Valve, 75psi	Watts 3/4" Pressure Relief Valve, 75psi
Insulation	Outdoor: UV protected 7/8x1" Closed Cell EPDM Insulation >R-3.6 Indoor: 7/8x1" Closed Cell EPDM Insulation >R3.6	Outdoor: UV protected 7/8x1" Closed Cell EPDM Insulation >R-3.6 Indoor: 7/8x1" Closed Cell EPDM Insulation >R3.6
Air Vent	Watts Regulator HAV Air Vent	Watts Regulator Air Vent
Isolation Valve	Watts 600/800 WOG	Watts 600/800 WOG
Drain Valve	Watts Radiant Drain Valve	Watts Radiant Drain Valve
Flow Control Valve	Watts Radiant Flow Guard	Watts Radiant Flow Guard
Instrumentation	Watts Radiant DPTG-3 Temperature & Pressure Gauge	Watt Radiant DPTG-3 Temperature & Pressure Gauge

System Schematic: APSS_CLOSED_AP30_FTB_PBGT
System Schematic: APSS_CLOSED_AP60_FTB_PBGT

No.	Description
1	Apricus AP-30 Solar Collector
2	Apricus Closed Loop Pump Station
3	Bottom Coil Storage Tank
4	Gas Tankless Water Heater (solar ready)



n/c = valve normally closed
n/o = valve normally open

Notes
1. Auto Air vent can be removed after initial bleeding.
2. May be required by local regulations. Always required if check valve installed on cold supply line.
3. Tankless water heater should be set to 140oF, and must be able to accept hot water up to 160oF.
4. Must be Anti-scald, not just mixing valve and must be NSF certified.
5. Depending on tank being used the cold water inlet may be on the top or the bottom of the tank. Always refer to the tank manufactures guidelines before piping.

Suggested Controller Settings
(refer also to controller manual)

Control System Setting: 1

Function Settings
Protection Functions
- Max Temp = no
- Cooling = no
- Overheat protection = no
- Freeze protection = yes (-40oF)
Flow Meter = enter flow rate (gal/min)
Pump P1 = PhAC SC

Setting Menu
Maxtemp tank1 = 176oF
dMax tank1 = 20oF
dMin tank1 = 5oF
Min rev pump = 50%
MinTemp Collector = 85oF

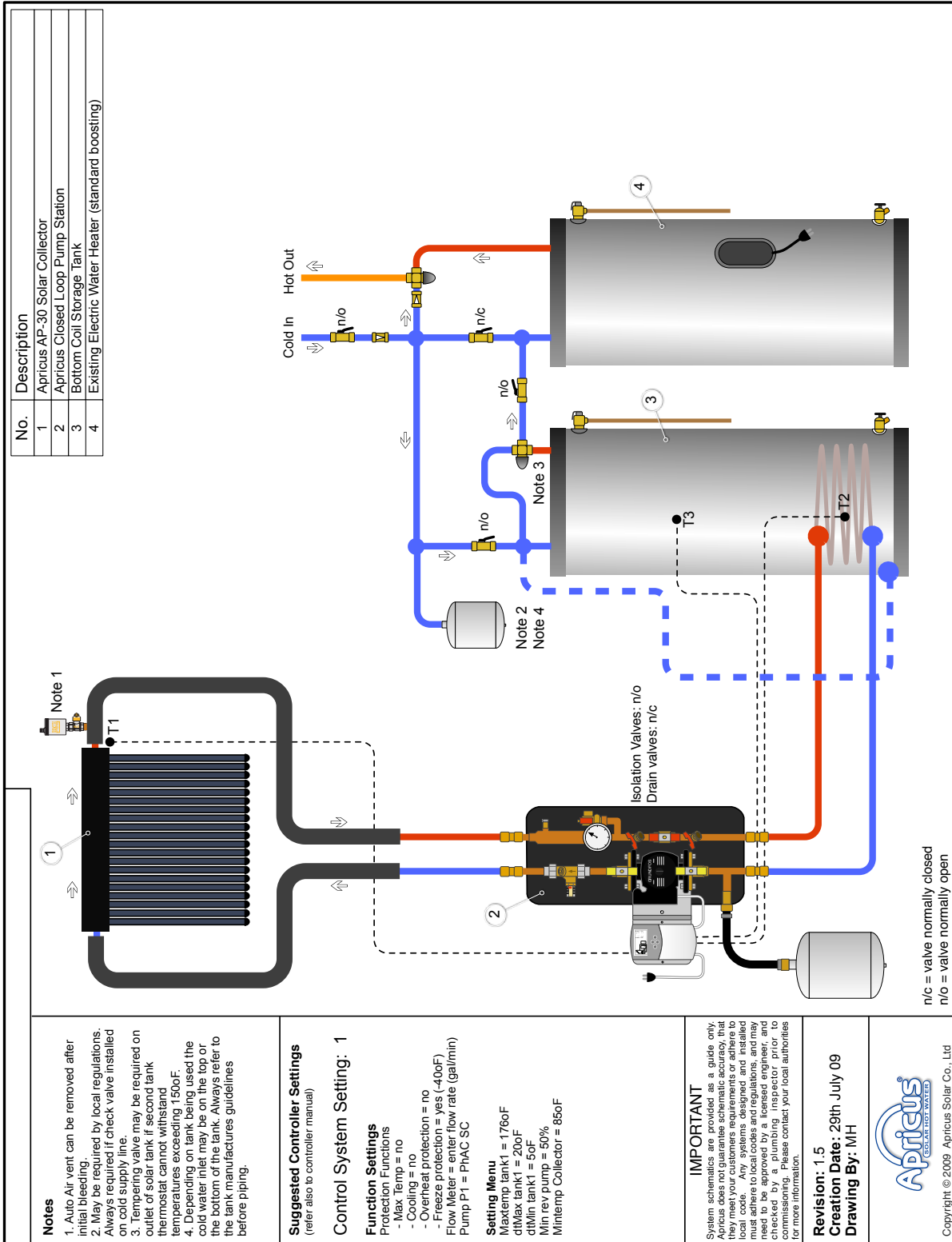
IMPORTANT
System schematics are provided as a guide only. Apricus does not guarantee schematic accuracy, that they meet your customers requirements or adhere to local codes and regulations, and may need to be approved by a licensed engineer, and checked by a plumbing inspector prior to commissioning. Please contact your local authorities for more information.

Revision: 1.5
Creation Date: 29th July 09
Drawing By: MH

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Collector	Apricus AP-30	2x Apricus AP-30
Pump	Grundfos UPS 15-58FC	Grundfos UPS 15-58FC
Controller	Watts Radiant Solar Control	Watts Radiant Solar Control
Tank	Caleffi SolarCon NAS20082 Rheem RSID-80 Bock 80SKE	Caleffi SolarCon NAS20123 Rheem RSID-120 Bock 119SKE
Tankless Heater	Quietside ODW-99A Takagi T-Kjr.	Takagi T-H1 Takagi T-K3-SP
Expansion Tank	Watts Radiant ETX 30	Watts Radiant ETX 30
Expansion Tank	Watts PLT-12 (Potable Water)	Watts PLT-12 (Potable Water)
Heat Exchanger	Tank specified internal coil	Tank specified internal coil
Heat Transfer Fluid	Whitlam Solar Hi-Temp Dowfrost	Whitlam Solar Hi-Temp Dowfrost
Piping	Copper or Stainless Steel	Copper or Stainless Steel
Check Valve	NSF/CSA Approved 3/4" Valve	NSF/CSA Approved 3/4" Valve
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System Schematic: APSS_CLOSED_AP30_FTB#_STD-E
System Schematic: APSS_CLOSED_AP60_FTB#_STD-E



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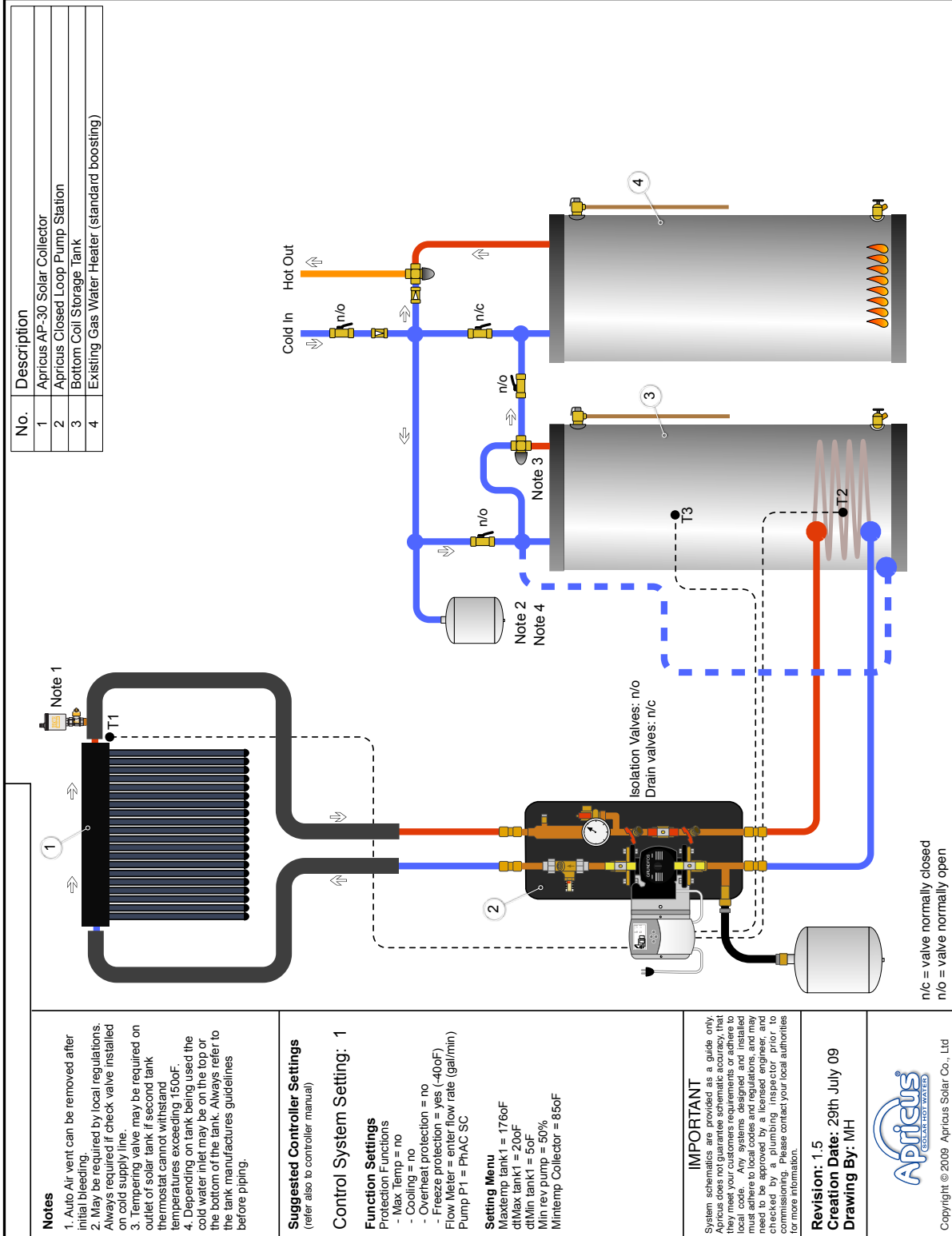
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Tank	See tank options on page 2	See tank options on page 2
Expansion Tank	Watts Radiant ETX 30	Watts Radiant ETX 30
Expansion Tank	Watts PLT-12 (Potable Water)	Watts PLT-12 (Potable Water)
Heat Exchanger	Tank specified internal coil	Tank specified internal coil
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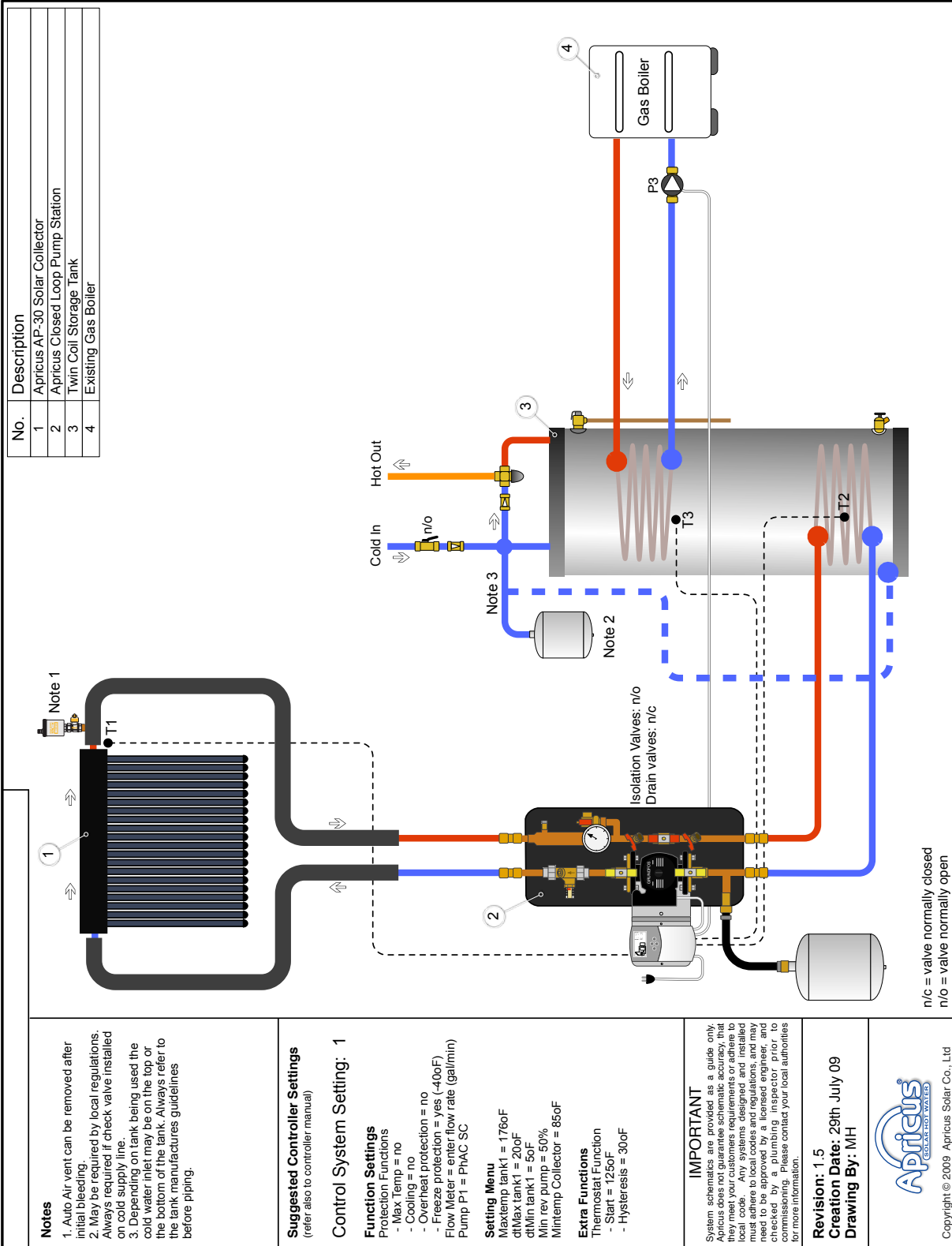
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Collector	Apricus AP-30	2x Apricus AP-30
Pump	P1: Grundfos UPS 15-58FC P3: Grundfos UP 15-100F	P1: Grundfos UPS 15-58FC P3: Grundfos UP 15-100F
Controller	Watts Radiant Solar Control	Watts Radiant Solar Control
Tank	Stiebel Eltron SBB 300 Plus	Stiebel Eltron SBB 400 Plus
Expansion Tank	Watts Radiant ETX 30	Watts Radiant ETX 30
Expansion Tank	Watts PLT-12 (Potable Water)	Watts PLT-12 (Potable Water)
Heat Exchanger	n/a	n/a
Heat Transfer Fluid	Whitlam Solar Hi-Temp Dowfrost	Whitlam Solar Hi-Temp Dowfrost
Piping	Copper or Stainless Steel	Copper or Stainless Steel
Check Valve	NSF/CSA Approved 3/4" Valve	NSF/CSA Approved 3/4" Valve
Mixing Valve	NSF/CSA Approved 3/4" Anti-Scaled Valve	NSF/CSA Approved 3/4" Anti- Scaled Valve
Pressure Relief Valve	Watts 3/4" PRV 75psi	Watts 3/4" PRV 75psi
Insulation	Outdoor: UV protected 1/2" Insulation Indoor: 1" Insulation	Outdoor: UV protected 1/2" Insulation Indoor: 1" Insulation
Air Vent	Watts Regulator HAV Air Vent	Watts Regulator Air Vent
Isolation Valve	Watts 600/800 WOG	Watts 600/800 WOG
Drain Valve	Watts Radiant Drain Valve	Watts Radiant Drain Valve
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