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PRODUCT DRAWING

YORK INTERNATIONAL CORPORATION
P.O. Box 1592, York, PA 17405

Supersedes: Nothing

Form 160.48-PA17 (696)

WIRING DIAGRAM, MILLENNIUM MODEL YT CHILLERS FIELD CONNECTIONS WITH SOLID STATE STARTER

CONTRACTOR _____
ORDER NO. _____
YORK CONTRACT NO. _____
YORK ORDER NO. _____

PURCHASER _____
JOB NAME _____
LOCATION _____
ENGINEER _____

☐ REFERENCE DATE _____ ☐ APPROVAL DATE _____ ☐ CONSTRUCTION DATE _____

For use with York Centrifugal Liquid Chilling Units shown below.

MODELS YT G0 A1 B1 thru YT L6 D8 F2 (STYLE H)

JOB DATA:

CHILLER MODEL NO. YT _____ NUMBER OF UNITS _____
SOLID STATE STARTER, MODEL NO. SSS — _____ L _____ A
MOTOR/STARTER POWER _____ VOLTS, 3-PHASE, _____ HERTZ
OPTIONAL FACTORY INSTALLED DISCONNECT SWITCH _____ AMPS

NOTES:

1. All field wiring shall be in accordance with the current edition of the National Electrical Code (N.E.C.) as well as all other applicable codes and specifications.

2. Solid State Starter shall be grounded in accordance with the N.E.C. (Paragraph 250-91(b)) for equipment grounding. Flexible conduit is required for final connection to the starter. When a separate grounding conductor is required, it must be a copper conductor only and sized per the N.E.C. (Table 250-95). Per N.E.C. (Paragraph 250-95), where multiple (parallel) conduits are used each must contain a grounding conductor. See Note 8 for grounding lug wire range.

3. Wiring, electrical conduit, junction boxes, fused disconnect switches (FDS), or circuit breakers, starters (M), push-button stations (PB), manual-off-automatic switch (S), flow switch (FLS), and control relays furnished by others unless otherwise specified.

4. Items marked * furnished by YORK International Corporation.

5. Items marked ** available from YORK International Corporation at additional cost.

6. Control power supply 115V – 50/60 Hz, 1.5 KVA capacity for control center only, is supplied by a control power transformer (5T) mounted on the side of the Solid State Starter as shown. It is factory wired.

7. Starter power conduit connection (cut holes to suit) locations, motor full load amperes (FLA), locked rotor amperes and inrush amperes per Product Drawing. Flexible conduit must be used for final connections to starter. Multiple conduits shall contain an equal number of wires from each phase in each conduit to prevent overheating per N.E.C. (Paragraph 300-20(a)). Use copper conductors only; DO NOT USE aluminum conductors. See Note 8 for factory furnished starter terminal lug wire ranges.

8. The following terminal lugs are factory furnished for field wiring connections when a factory-installed disconnect switch is not supplied. All lugs are rated AL9CU.

Starter Model No. w/o Disconnect Option	Line Side Lugs		Grounding Lug Wire Range Quantity
	Quan. Per Terminal	Wiring Range	
SSS 7L	1	#2-500 kcmil	#6 AWG to 350 kcmil, one bbl.
SSS 14L	2		
SSS 26L	3	#2-600 kcmil	#6 AWG to 250 kcmil, four bbl.
SSS 33L	4		

The following terminal lugs are factory furnished for field wiring connections when a factory-installed disconnect switch is supplied.

Starter Model No. & Available Disconnect Amp Rating (See Note 17(a))	Line Side Lugs			Grounding Lug Wire Range, Quantity AL9CU
	Quan. Per Terminal	Wire Range	Lug Rating	
SSS 7L, 250A	1	#4-350 kcmil	AL7CU	#6 AWG to 350 kcmil, one bbl.
SSS 7L, 400A	2	3/0-250 kcmil	AL9CU	
SSS 14L, 600A	2	250-500 kcmil	AL9CU	
SSS 26L, 1000A	4	1/0-350 kcmil	AL7CU	#6 AWG to 250 kcmil, four bbl.

9. Condenser water pump motor starter (3M) holding coil to be furnished for 115V – 50/60 Hz. The power requirements for the water pump starter (3M) must be a max. of 1 Amp holding and 10 Amps inrush. If power requirements exceed this value, furnish coil for line voltage, and control relay with 115V coil.

10. Units shipped knocked down require field connection of harnesses to control panel, power wiring between compressor motor and starter, oil pump starter to Solid State Starter. These harnesses and power wiring are furnished by YORK International Corporation for field assembly and consist of proper lengths of flexible conduit with necessary connectors, and contain the wires (shown in Note 13) properly terminated and marked.

11. Wire #14 AWG copper for one way distance of less than 175 feet. Wire #12 AWG copper for one way distance of more than 175 feet, but less than 300 feet.

12. Wiring diagram for YORK MicroComputer Control Center, Form 160.48-PA20. Field wiring modifications per Form 160.48-PA14. Wiring diagram for YORK Solid State Starter, Form 160.48-PA8.

13. The following interconnecting wires are factory supplied when a YORK Solid State Starter is used. (See Forms 160.48-PA8 and 160.48-PA20.)

    (a) Starter to control center – L, 2, 110, 111, 112, 113, 114, and 115; conductor shielded cable.

    (b) Starter to oil pump motor starter – 101, 102, 103.

    (c) Starter to cooling pump – 2, 108, GRD.

14. 60 Hz oil pump motor for compressor codes B, C & E are 3/4 HP, and compressor code F is 1HP. 50 Hz oil pump motor is 1HP for all compressor codes. Full load amperes for oil pump motor (furnished by YORK International Corporation with starter factory wired) and 1.5 KVA control power transformer (furnished by YORK International Corporation and factory wired) to be used with Notes 15, 16 and 17 are:

3-Phase Voltage	Hz.	Oil Pump Motor (Amps)		Control Power (5T) Transformer (Amps)
		3/4	1 HP	
200/208	60	3.2	N/A	7.5
220/230/240	60	3.4	N/A	6.8
440/460/480	60	1.8	2.3	3.4
550/575/600	60	1.3	1.6	2.7
380/400/415	50	—	2.2	3.9

15. The branch circuit overcurrent protection device(s) for the YORK Solid State Starter must be a time delay type with a rating which is the smaller of the two values listed below (a) or (b):

    (a) The next standard fuse/breaker rating above:

    1.5 (Compressor-Motor FLA + Oil Pump Motor Amps + Control Transformer Amps)

    (b) A rating limited by the starter size as follows:

Starter Model No.	Max. Fuse/Breaker Size (Amps)
SSS 7L	450
SSS 14L	800
SSS 26L	1600
SSS 33L	1600

    Where 150% factor is per UL Standard 465 (7th Edition), Para. 45.1; FLA is per Note 7; oil pump motor and control power transformer Amps per Note 14.

16. The YORK Solid State Starter power wiring ampacity shall be calculated as follows:

    Model YT minimum circuit ampacity:

    Ampacity = 1.25 (Compressor-Motor FLA) + Oil Pump Motor Amps + Control Transformer Amps

    Where 125% factor per N.E.C. (Para. 440-33); FLA is per Note 7; oil pump and control power transformer Amps per Note 14.

17. If the fused disconnect switch (FDS2) is not located in sight (N.E.C. Para. 440-14) of the YORK Solid State Starter, a non-fused disconnect switch (not shown) shall be located in sight of the Solid State Starter; between FDS2 and Solid State Starter. The ampere rating shall be determined as follows for the disconnect switch or FDS2: The larger of

    (a) Amp rating = 1.15 (Compressor-Motor FLA + Oil Pump Motor Amps + Control Transformer Amps)

    or

    (b) The size required to mount the fuses determined in Note 15 (if a fused disconnect is employed).

    Where 115% factor is per N.E.C. (Para. 440-12b(2)); FLA is per Note 7; oil pump motor and control power transformer Amps per Note 14. An optional factory mounted and wired disconnect switch within the SSS is available. (See Note 8.)

18. Control circuit wiring for 3M condenser water pump motor starter is shown for cooling only application; for heat recovery modifications may be required.

19. The main transformer should be adequately sized such that the transformer voltage drop does not exceed 10% during unit start-up. The supply voltage, at starter input terminals, during start-up must be maintained above the minimum value specified in the table. Note that while YORK chiller will perform acceptable during start-up with this amount of voltage drop, the performance of other equipment connected to the supply transformer could be adversely affected.

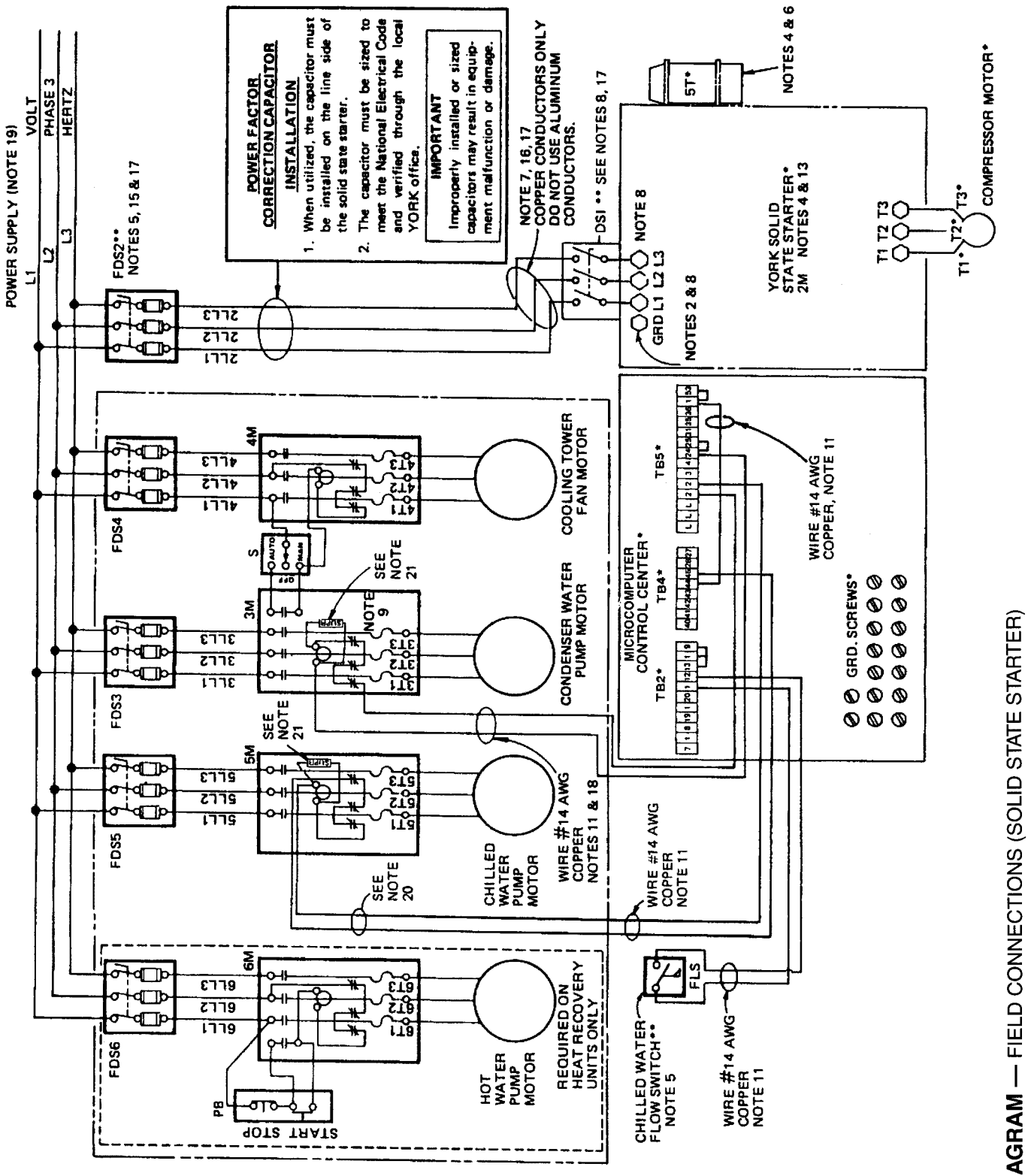
3-Phase Voltage	HZ	Minimum Voltage At Starter Input Terminals During Start-up
200/208	60	170
230/240	60	196
440/460/480	60	391
575/600	60	489
380	50	323
400	50	340
415	50	353

20. Automatic control of the chilled water pump by the Control Center is shown. Chilled water pump motor starter (5M) holding coil to be furnished for 115V – 50/60 Hz. The power requirements for the water pump starter (5M) must be a maximum of 1 Amp holding and 8 Amps inrush. If power requirements exceed this value, furnish coil for line voltage, and control relay with 115V coil.

    The pumps operate during oil pump prerun, during compressor operation and during cycling shutdown.

    For manual chilled water pump control, connect a manual start/stop switch as shown for the Hot Water Pump Motor in the Field Connections diagram on page 3.

21. Each 115 VAC field-connected inductive load, i.e., relay coil, motor starter coil, etc. shall have a transient suppressor wired (by others) in parallel with its coil, physically located at the coil. Spare transient suppressors are factory supplied in a bag attached to the top of the hinged panel in the MicroComputer Control Center.



WIRING DIAGRAM — FIELD CONNECTIONS (SOLID STATE STARTER)

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