



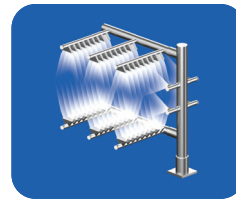
Project _____
 Item _____
 Quantity _____
 CSI - 11400 _____
 Approval _____
 Date _____



Defender

Double Tank Rackless Conveyor Dishwasher

- Automatic conveyor, flight type two tank dishwasher with recirculating prewash and wash zones; and fresh water final rinse.
- 306 gallons hour final rinse consumption
- Capacity is 8,861 dishes per hour
- Conveyor speed of 7.1 feet per minute
- Error proof replacement with color-coded curtains
- Designed for left or right hand conveyor travel, as specified



CrossFire Wash System power sprays water horizontally, as well as, from above and below, cleaning and sanitizing the dirtiest of ware.

STANDARD FEATURES

- Tank heat: 40.0 kW electric immersion heaters or steam injectors
- Capillary thermometers for pre-wash, wash, rinse and final rinse
- Final rinse pressure gauge
- Vacuum breaker on all incoming water lines
- Manifold clean-out brush
- Inspection and clean-out doors
- S/S frame, legs and feet
- S/S front enclosure panel
- Automatic tank fill
- Low water protection
- Detergent connection provision
- Top mounted NEMA 12 control panel
- Simplified scrap screen design
- Door safety switch
- Standard frame drip proof motors
- Single point electrical connection: motors, controls and heaters
- Polypropylene belt with removable rack sections
- Conveyor reversing switch
- Conveyor switch for de-liming
- Interior work lights
- Override switch for de-liming
- End caps/pipe plugs secured to prevent loss
- Color-coded curtains

OPTIONS

- Stainless steel steam coil tank heat
- Steam booster
- Electric booster
- Pressure reduction valve and line strainer
- Single point electrical connection: motors, controls and heaters
- S/S panels on all sides
- Security package
- Totally enclosed motors
- Insulated hood and door
- Stainless steel belt with removable rack sections



Additional Information

Capacity Per Hour	8861 dishes 600-1000 meals
Tank Capacity	20 gals. (pre-wash) 39 gals. (wash)
Motor Size	2 hp (pre-wash) 3 hp (wash) 1/2 hp (conveyor)
Electric Usage	40.0 kW wash tank *36.0 kW booster 40° rise *54.0 kW booster 70° rise
Steam Consumption at 20 psi min.	145 lbs./hour tank 109 lbs./hour booster 40° rise 190 lbs./hour booster 70° rise
Final Rinse Peak Flow at 20 psi min.	5.1 gallons/minute
Final Rinse Consumption at 20 psi min.	306 gallons/hour
Exhaust Hood Requirement	500 CFM Load 1000 CFM unload
Peak Rate Drain Flow	15 gallons/minute
Shipping Weight	2500 lbs.

Machine Electrical		
Motors, Controls Tank Heat	Steam	Electric
208/3/60	21.5	137.5
240/3/60	19.5	120.0
480/3/60	9.7	60.0
380/3/50	11.8	72.6

*Booster requires separate electrical connection

SPECIFICATIONS

CONSTRUCTION- Hood and tank all welded seamless construction using 16 gauge 18-8 type 304 S/S. S/S frame, legs and feet. All internal castings are non-corrosive nickel alloy, bronze or S/S.

DOORS- Three extra large die formed 18-8 type 304 S/S front inspection doors riding in all S/S channels. A triple ply leading edge on the door channels made of S/S with no plastic or nylon sleeves or liners used. Two intermediate S/S door-safety stops on each door.

CONVEYORS- Removable polypropylene or S/S rack section on S/S belt with polyethylene rollers. Conveyor drive system includes large speed reducer with cut gears operating in oil bath and frictionless, trouble-free overload release system. Conveyor transports dishware automatically through all washing and rinsing systems and is driven by an independent 1/2 hp motor. A trip bar at the end of the unload section stops the conveyor if any ware reaches the bar. A reversing switch is provided to assist in removing jams in the belt.

PUMPS- Centrifugal type "packless" pump with a brass petcock drains. Construction includes ceramic seal and a balanced cast impeller on a precision ground stainless steel shaft, extension or sleeve. All working parts mounted as an assembly and removable as a unit without disturbing pump housing. Two 2 hp motors wash and rinse and 1/2 hp pre-wash, all standard horizontal C-face frame, drip-proof, internally cooled with ball-bearing construction.

CONTROLS- Top mounted control cabinet, NEMA 12 rated with heat insulation provided between hood and control cabinet, housing motor controls and overload protection, transformer, contactors and all dishwasher integral controls. All controls safe low voltage 24 VAC.

ENERGY SAVER- Electric photo eye automatically operates the final rinse solenoid only when ware passes, saving water and energy. The photo eye also activates an adjustable timer control. If no ware passes during the set time, the machine shuts down.

SPRAY SYSTEM- Spray arms made of type 304 stainless steel pipe. Spray assemblies removable without the use of tools.

PRE-WASH- Upper and lower manifolds. One manifold above with 3 power pre-wash nozzles, one manifold below with 3 power pre-wash nozzles.

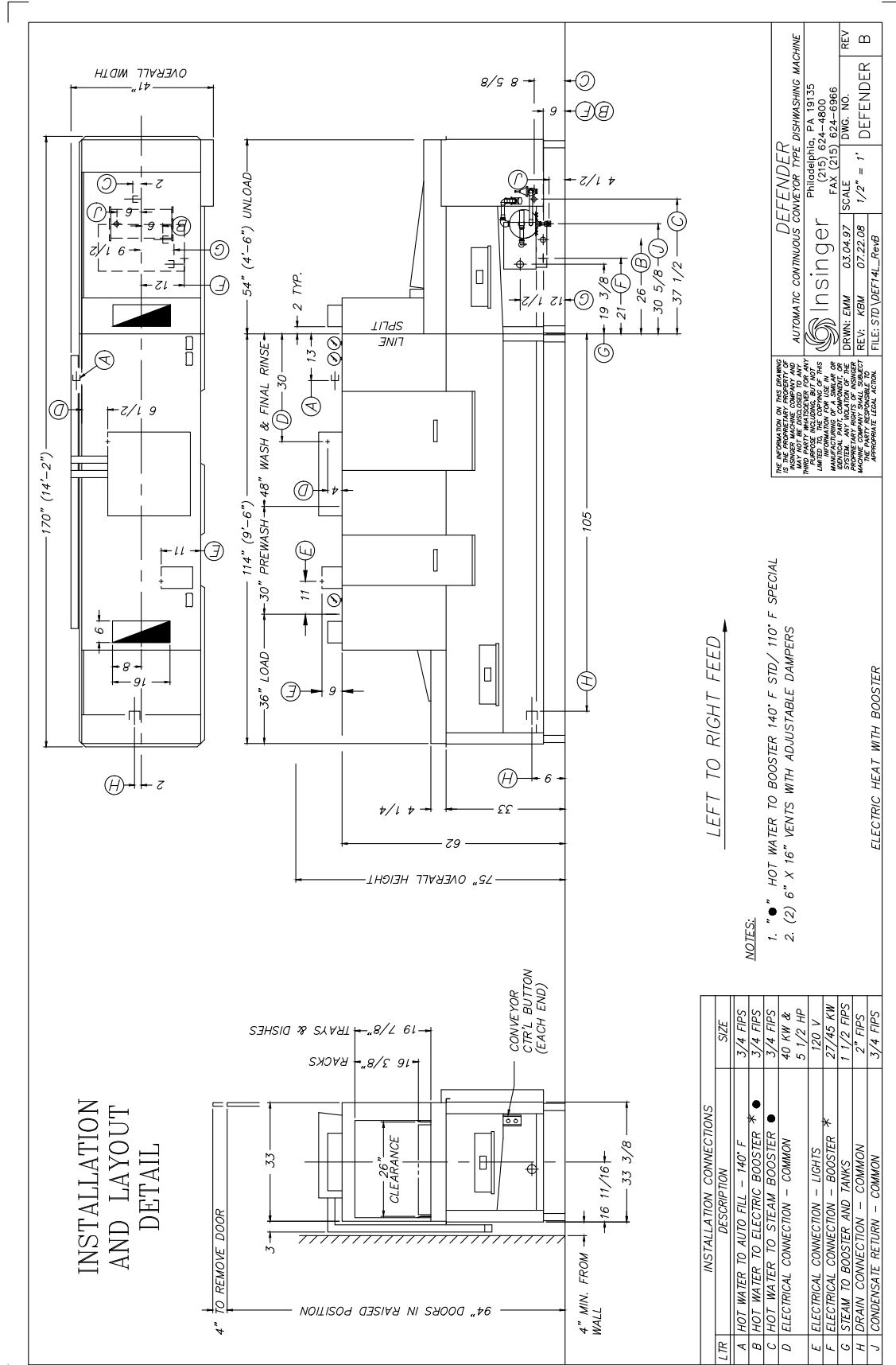
WASH- Upper and lower manifolds with the patented CrossFire® Wash System. Each manifold has 3 upper and 4 lower power wash arms designed with pressure action cleansing slots. The slots are precision milled for water control producing a fan spray. Wash arms are fillet welded to the S/S manifold. The CrossFire system provides 2 horizontally spraying high pressure nozzles.

RINSE- Upper and lower manifolds. Each manifold has 3 upper and 4 lower power rinse arms designed with pressure action fan spray reducing water consumption, maximizing heat retention.

FINAL RINSE- Eight nozzle assemblies above and four nozzles below threaded into S/S schedule 40 pipes. Nozzle assemblies produce a fan spray reducing water consumption, maximizing heat retention.

DRAIN- Drain valve externally controlled. Overflow assembly with skimmer cap is removable without the use of tools for drain line inspection. Heater is protected by low water level control.

Technical Drawings



LEFT TO RIGHT FEED

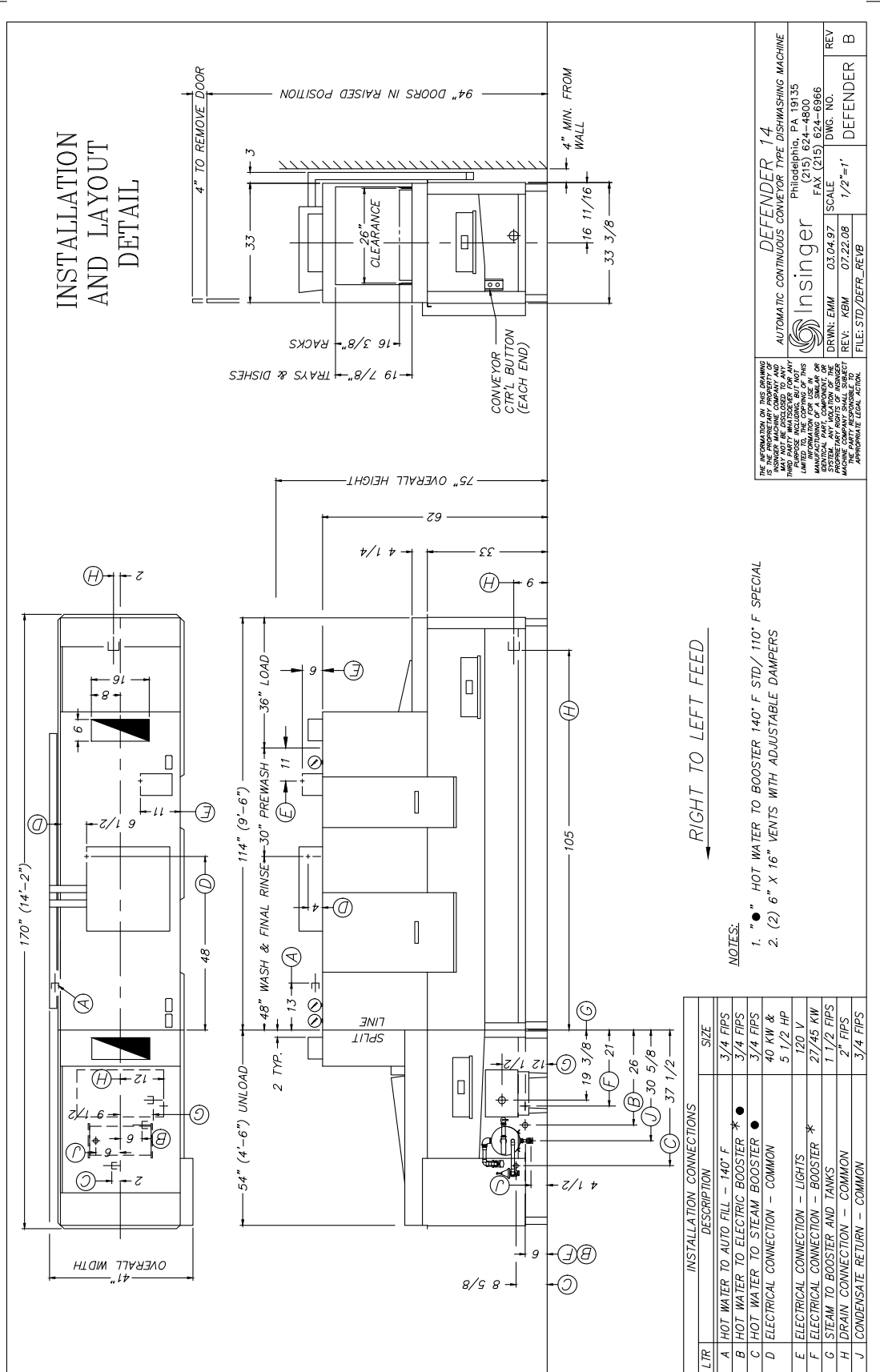
NOTES:

1. "•" HOT WATER TO BOOSTER 140° F STD./ 110° F SPECIAL
2. (2) 6" X 16" VENTS WITH ADJUSTABLE DAMPERS

INSTALLATION CONNECTIONS	
LTR	SIZE
A HOT WATER TO AUTO-FILL — 140° F	3/4 FIPS
B HOT WATER TO ELECTRIC BOOSTER *	3/4 FIPS
C HOT WATER TO STEAM BOOSTER	3/4 FIPS
D ELECTRICAL CONNECTION — COMMON	40 KW & 5 1/2 HP
F ELECTRICAL CONNECTION — LIGHTS	120 V
F ELECTRICAL CONNECTION — BOOSTER *	27/45 KW
G STEAM TO BOOSTER AND TANKS	1 1/2 FIPS
H DRAIN CONNECTION — COMMON	2" FIPS
J CONDENSATE RETURN — COMMON	3/4 FIPS

DEFENDER
 AUTOMATIC CONTINUOUS CONVEYOR TYPE DISHWASHING MACHINE
 Philadelphia, PA 19135
 (215) 624-4800
 InSinger
 (215) 624-6966
 FAX (215) 624-6966
 DRWN: EMM 03.04.97 SCALE 1/2" = 1'
 REV: KBM 07.22.08 1/2" = 1'
 DEFENDER B
 FILE: STD\DEF14L_RevB

Technical Drawings



LTR	DESCRIPTION	SIZE
A	HOT WATER TO AUTO FILL - 140° F	3/4 FIPS
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F	ELECTRICAL CONNECTION - BOOSTER *	27/45 KW
G	STEAM TO BOOSTER AND TANKS	1 1/2 FIPS
H	DRAIN CONNECTION - COMMON	2" FIPS
J	CONDENSATE RETURN - COMMON	3/4 FIPS

RIGHT TO LEFT FEED

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DEFENDER 14
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