Attachment #5 - YORK Chiller - 6 pages

YORK
BY JOHNSON CONTROLS

Project:
Engineer:
Customer:

Rating Program: LTS 1.0.5487
Software Version: YW 14.05d
Date: 02/25/2015 11:18:35

SALES REPORT

Unit Specifications			
Model	YMC2-S0914AA	**Refrigerant**	R134a
Specified Net Capacity (Tons)	260.0	**Refrigerant Charge (lb)**	609
Rated Net Capacity (Tons)	260.0	**Variable Orifice**	V2
Full Load (kW/Ton)	0.547	**Isolation Valve**	Y
NPLV 550/590 (kW/Ton)	0.333	**OptiSound Control**	Y
Input Power (kW)	142.2	**Voltage / Hz**	460 / 60
Starter Type	HYP490XH***-46	**FLA (Amps)**	187
Compressor	M1B-205FAB	**A-Weighted SPL (dBA)**	72
Evaporator	EA2510-371-CS*-2***	**Min Circuit Ampacity**	234
Condenser	CA2510-260-ES*-2***	**Max Circuit Breaker Amps**	400

Recommended Breaker = 250-300 Amps

	Evaporator	Condenser
Fluid	Water*	Water*
Tube MTI No.	371*	260* / 260
Passes	2*	2*
Fouling Factor (hr-ft²-°F/Btu)	0.00010*	0.00025*
Entering Fluid Temp (°F)	55.00*	85.00*
Leaving Fluid Temp (°F)	45.00*	94.33
Fluid Flow (gpm)	622.2	780.0*
Fluid Pressure Drop (ft)	12.4	5.5

(*) Designates User Specified Input

NPLV 550/590 CALCULATION:

$$\text{NPLV 550/590} = \frac{1}{\frac{0.01}{A} + \frac{0.42}{B} + \frac{0.45}{C} + \frac{0.12}{D}} \qquad \text{NPLV 550/590} = \frac{1}{3.003} \qquad 0.333$$

A = kW/Ton AT 100% NET CAPACITY
B = kW/Ton AT 75% NET CAPACITY
C = kW/Ton AT 50% NET CAPACITY
D = kW/Ton AT 25% NET CAPACITY

Certified in accordance with the AHRI Water-Cooled Water Chilling Packages Using Vapor Compressor Cycle Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org. Auxiliary components included in total kW: Chiller Controls.
Compliant with ASHRAE 90.1-2004.
Compliant with ASHRAE 90.1-2007.
Compliant with ASHRAE 90.1-2010.
Compliant with the requirements of the LEED Energy and Atmosphere Enhanced Refrigerant Management Credit (EAc4).
Materials and construction per mechanical specifications - Form 160.78-EG1.
Auxiliary components included in total kW - Chiller controls.

AHRI CERTIFIED
www.ahridirectory.org
Water-Cooled Chillers
AHRI Standards 550/590 and 551/591

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Partload Data (Full Load with IPLV/NPLV per Std. Condition Set)								
% Load	Net Capacity (Tons)	% Power	Input Power (kW)	EEFT (°F)	ELFT (°F)	CEFT (°F)	CLFT (°F)	kW/Ton
100	260	100	142.2	55.00	45.00	85.00	94.33	0.547
75	195	56	79.2	52.50	45.00	75.00	81.74	0.406
50	130	26	36.7	50.00	45.00	65.00	69.35	0.283
25	65	15	21.6	47.50	45.00	65.00	67.21	0.333

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Materials and construction per mechanical specifications - Form 160.78-EG1.
Auxiliary components included in total kW - Chiller controls.

YORK
BY JOHNSON CONTROLS

Project:
Engineer:
Customer:

Rating Program: LTS 1.0.5487
Software Version: YW 14.05d
Date: 02/26/2015 15:11:18

STANDARD SOUND REPORT

Unit Specifications			
Model	YMC2-S0914AA	Refrigerant	R134a
Specified Net Capacity (Tons)	260.0	Refrigerant Charge (lb)	609
Rated Net Capacity (Tons)	260.0	Variable Orifice	V2
Full Load (kW/Ton)	0.547	Isolation Valve	Y
NPLV 550/590 (kW/Ton)	0.333	OptiSound Control	Y
Input Power (kW)	142.2	Voltage / Hz	460 / 60
Starter Type	HYP490XH***-46	FLA (Amps)	187
Compressor	M1B-205FAB	A-Weighted SPL (dBA)	72
Evaporator	EA2510-371-CS*-2***	Min Circuit Ampacity	234
Condenser	CA2510-260-ES*-2***	Max Circuit Breaker Amps	400

	Evaporator	Condenser
Fluid	Water*	Water*
Tube MTI No.	371*	260* / 260
Passes	2*	2*
Fouling Factor (hr-ft²-°F/Btu)	0.00010*	0.00025*
Entering Fluid Temp (°F)	55.00	85.00*
Leaving Fluid Temp (°F)	45.00*	94.33
Fluid Flow (gpm)	622.2*	780.0*
Fluid Pressure Drop (ft)	12.4	5.5

(*) Designates User Specified Input

Chiller Sound Pressure Levels (Standard)									
Percent Load	Octave Band Center Frequency, Hz								A-Weighted (dBA)
	63	125	250	500	1000	2000	4000	8000	
100	62.0	62.0	66.0	66.0	64.0	66.0	64.0	58.0	72
75	62.0	62.0	65.0	64.0	63.0	66.0	61.0	55.0	70
50	60.0	61.0	64.0	61.0	61.0	64.0	56.0	51.0	68
25	61.0	62.0	64.0	61.0	59.0	63.0	53.0	51.0	67

The octave and A-weighted sound pressure levels are the levels expected to be obtained if measurements are performed in accordance with AHRI Standard 575-08, Method of Measuring Machinery Sound Within Equipment Rooms. Tolerances: The sound levels of identical unit selections can vary due to manufacturing tolerances and test repeatability. Variations of ±3 dBA on the A-weighted levels and ±5 dB on the octave band levels are possible.

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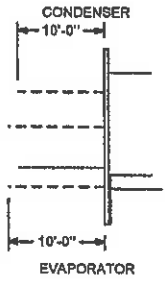
Compliant with ASHRAE 90.1-2007.
Compliant with ASHRAE 90.1-2010.
Compliant with the requirements of the LEED Energy and Atmosphere Enhanced Refrigerant Management Credit (EAc4).
Materials and construction per mechanical specifications - Form 160.78-EG1.
Auxiliary components included in total kW - Chiller controls.

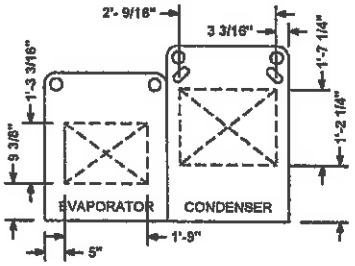
NOZZLE LEGEND

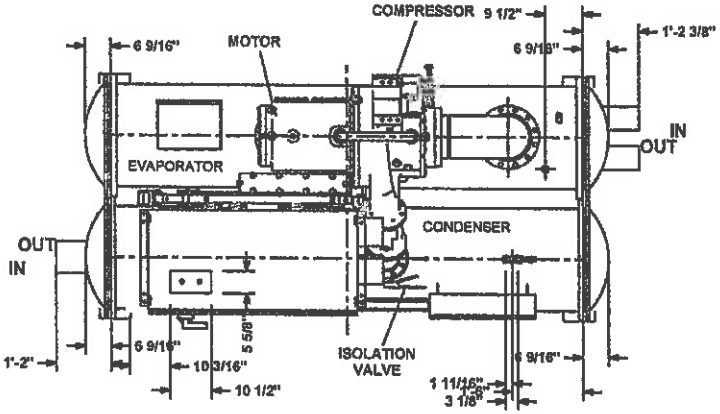
EVAPORATOR INLET	Right End	2 PASS	6 DIA. (150 Psig DWP)
EVAPORATOR OUTLET	Right End	2 PASS	6 DIA. (150 Psig DWP)
CONDENSER INLET	Left End	2 PASS	8 DIA. (150 Psig DWP)
CONDENSER OUTLET	Left End	2 PASS	8 DIA. (150 Psig DWP)

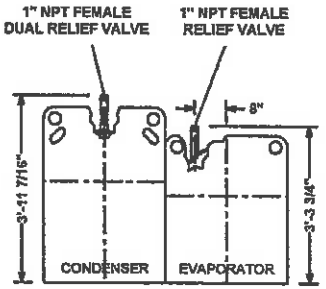
Victaulic Grooved Nozzles (per ANSI / AWWA C-606)

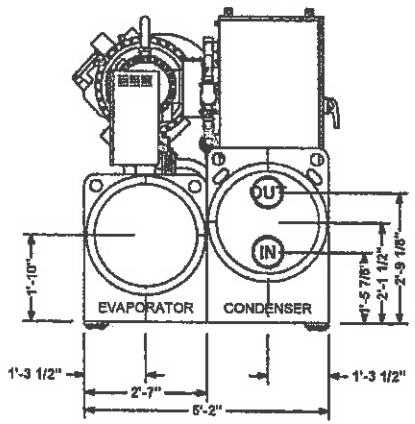
TUBE PULL AREA

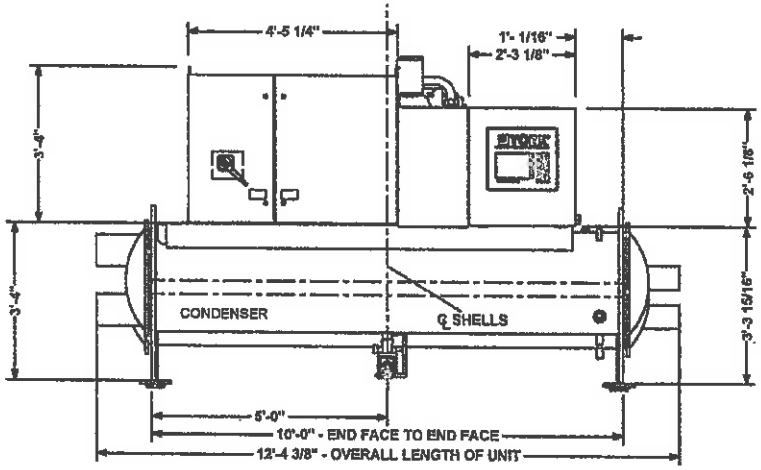


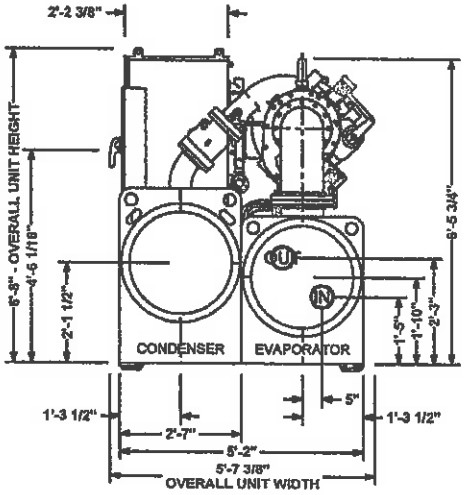












SHIPPING WT. OF HEAVIEST COMPONENT: 12021 LBS, OPERATING WT. 13298 LBS, LOAD PER ISOLATOR 3324 LBS
(SEE PERFORMANCE PAGE FOR ADDITIONAL SHIPPING WEIGHTS)

PRODUCT DRAWING

YORK Magnetic Centrifugal Chiller
MODEL YMC2-S0914AA
NOT FOR CONSTRUCTION

COMPRESSOR:	M1B-205FAB
EVAPORATOR:	EA2510-371-CS1-2GCR
CONDENSER:	CA2510-260-ES1-2GCL
VSD:	HYP490XH30B-46

Project Name : Jenkins VA Lake City

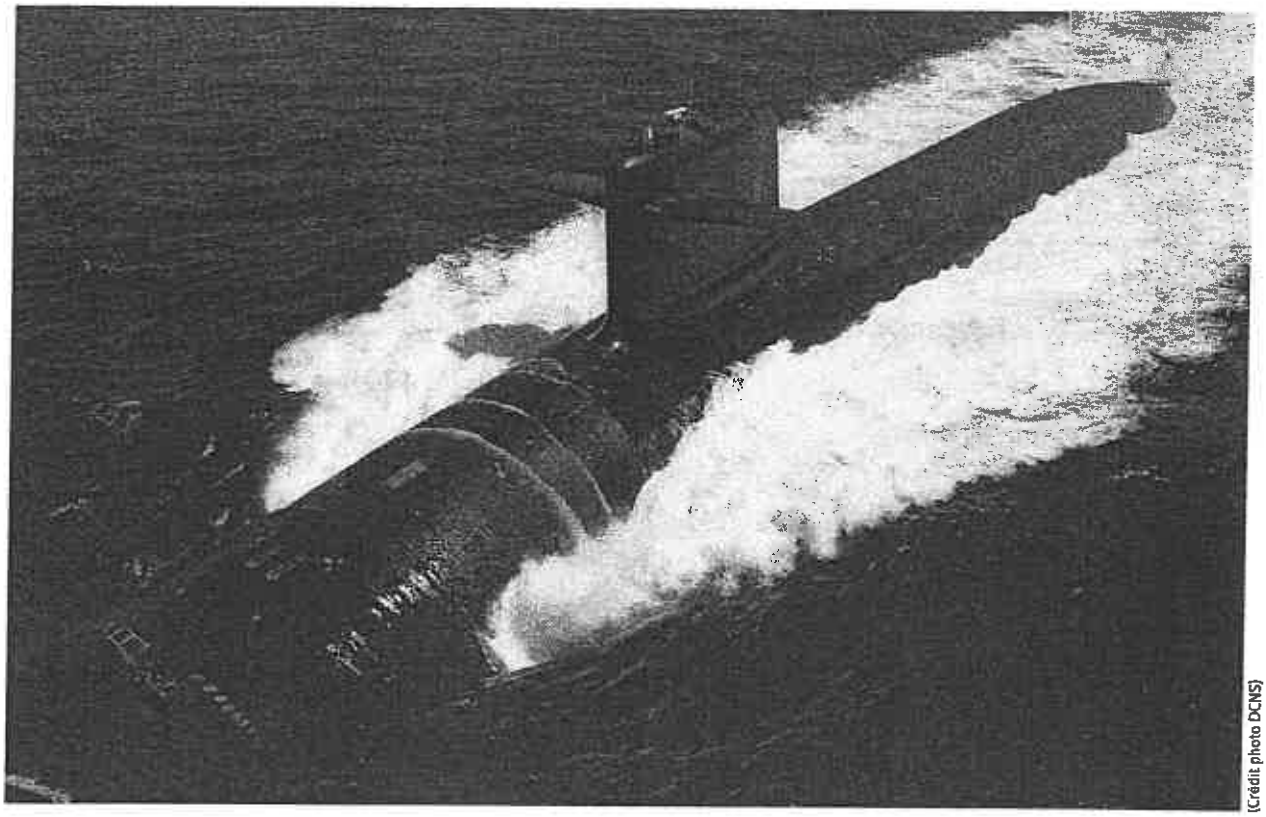
For :

UNIT TAG: CH-1

Date : 2/26/2015 14:23:32
Rev. Date : 2:23 PM
Form: 160.76-EG1
Dwg. Lev. : 0410
Dwg. Scale : NTS

YORK
A JOHNSON CONTROLS COMPANY

Proven reliability in the most critical application—naval vessels



(Crédit photo DCNS)

YORK® Navy Systems has supplied chillers with magnetic-bearing technology for over 115 critical naval applications, with many of them being nuclear submarines.

YORK® Navy Systems of Johnson Controls is dedicated to providing superior HVAC&R systems for warships and support ships of multiple fleets. Because you can't just open a window in these vessels, one of the biggest concerns for naval HVAC applications is reliability. Crews and their sensitive electronic equipment need first-class air-conditioning to stay cool in close quarters.

In 1998, YORK Navy Systems pioneered an innovative, magnetic-bearing technology for the centrifugal chillers used in onboard cooling plants. By offering this technology, YORK Navy Systems was able to provide quiet, safe, and reliable cooling for one of the most difficult environments on earth. Now we are introducing this technology for commercial chillers.

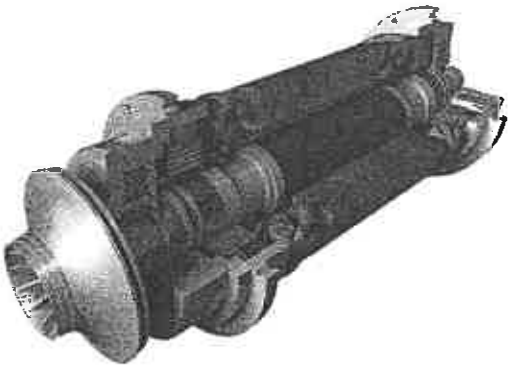
Johnson Controls

The magnetic-bearing technology used by YORK Navy Systems has now been applied to the new YORK Magnetic Centrifugal Chiller (YMC²), manufactured by Johnson Controls. A single moving assembly, suspended by a magnetic field, eliminates mechanical contact and delivers reliable operation. The elimination of mechanical contact results in the removal of traditional lubrication systems, further reducing parasitic losses and maintenance associated with lube systems. Chiller life is maximized by minimizing the number of moving parts.

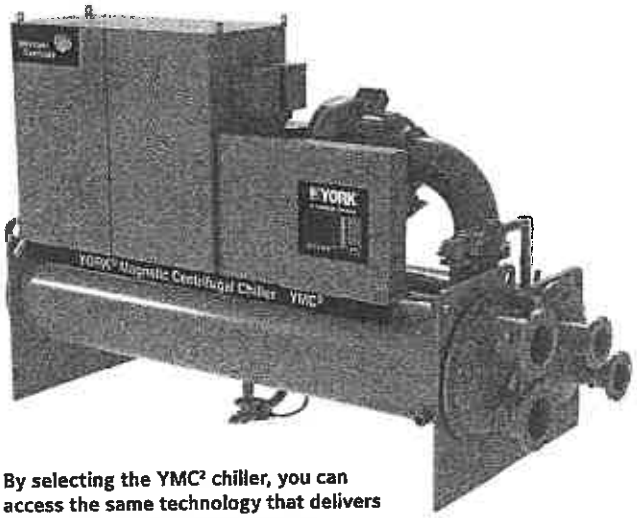
The YMC² chiller delivers improved efficiency at all operating points when compared to traditional induction motor and mechanical bearing technology typically used in hermetic chillers. This results from higher motor efficiency and lower parastitic losses. The YMC² chiller utilizes the OptiSpeed™ variable-speed drive, which slows down the motor when the chiller is operating at off-design conditions. The variable-speed drive also improves reliability during startup by insuring that inrush current never exceeds 100% of full load amps. And finally, due to almost undetectable vibration, noise is greatly minimized.

Our magnetic-bearing technology has been installed and tested in over 115 critical naval applications, including many nuclear submarines. This proven technology is featured on our new YMC² chiller and available to discriminating commercial and industrial customers. By selecting the YMC² chiller, you can access the same technology that delivers quiet, safe, and reliable operation demanded by navies around the world.

To learn more about the YMC² chiller, visit johnsoncontrols.com/ymc2 – or contact your nearest Johnson Controls branch office.



The proven permanent-magnet motor and active magnetic-bearing technology used in the YORK Navy Systems magnetic centrifugal chiller is also featured in the YMC² chiller.



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Printed on recycled paper.

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Johnson Controls