

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continued Education for the HVAC/R Industry

“Better Service Through Knowledge”

October 2010

WWW.METRONYRSES.ORG



TEST YOUR KNOWLEDGE

1. With a reversal of power an A.C. ammeter in good condition will read:
a. zero b. the reactive current c. the correct current d. backwards

2. A milliampere is:
a. 1,000,000 amperes b. 1/1,000,000 ampere c. 1/1,000 ampere d. 1,000 amperes

3. A relay coil with a resistance in series is connected in parallel with a contactor coil to a battery. If the current is 5 amperes through the relay coil, 5 amperes through the resistor and 3 amperes through the contactor coil, the total battery current is:
a. 13 amperes b. 2 amperes c. 5 amperes d. 8 amperes

4. Three 20-ohm resistances are connected in wye across a 208 volt, 3-phase circuit. The line current in amperes is approximately:
a. 18 amperes b. 10.4 amperes c. 5.2 amperes d. 6 amperes

5. The current in amperes of a one horsepower, 120 volt, single-phase induction motor having an efficiency of 90% and operating at 0.8 power factor is approximately:
a. 6.9 amperes b. 7.8 amperes c. 8.6 amperes d. 6.2 amperes

6. The current input per phase under rated-load conditions for a 200 HP, three-phase, 2300 volt, 0.8 PF, induction motor which is 90% efficient is:
a. 52 amperes b. 90 amperes c. 41.6 amperes d. 46.8 amperes

7. Referring to problem #6, the power input under rated-load conditions is approximately:
a. 149 KW b. 96 KW c. 166 KW d. 332 KW

8. If a current transformer has a ratio of 100:5 and an ammeter connected to its secondary reads 1.5 amperes, the actual line current is:
a. 7.5 amperes b. 0.075 amperes c. 30 amperes d. 600 amperes

9. Three 30 ohm resistances are connected in delta across a 208 volt, three-phase circuit. The line current in amperes is approximately:
a. 6.93 amperes b. 12.86 amperes c. 120 amperes d. 12 amperes

10. A 100 watt, 120 volt lamp at normal voltage will draw about:
a. 2/3 ampere b. 5/6 ampere c. 1 ampere d. 1.2 amperes

11. A copper wire twice the diameter of another copper wire has a current carrying capacity:
a. four times as great b. twice as great c. half as great d. three times as great

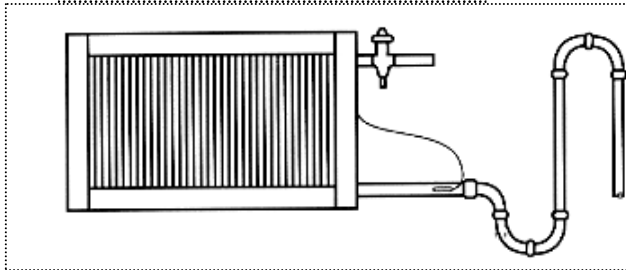
12. Four heaters, each having a resistance of 30 ohms, are connected in series across a 600-volt train circuit. The current taken by each heater is:
a. 5 amperes b. 17 amperes c. 20 amperes d. 34 amperes

13. True or False: The total current of three resistors connected in series is equal to the sum of each individual amperage through each resistor.

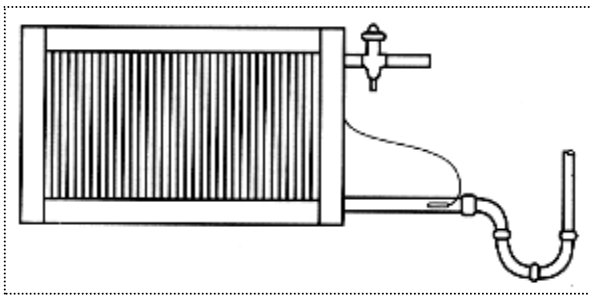
14. True or False: The maximum allowable current carrying capacity of a #14 rubber insulated BX cable is 15 amperes.

Recommended Suction Line Piping Arrangements

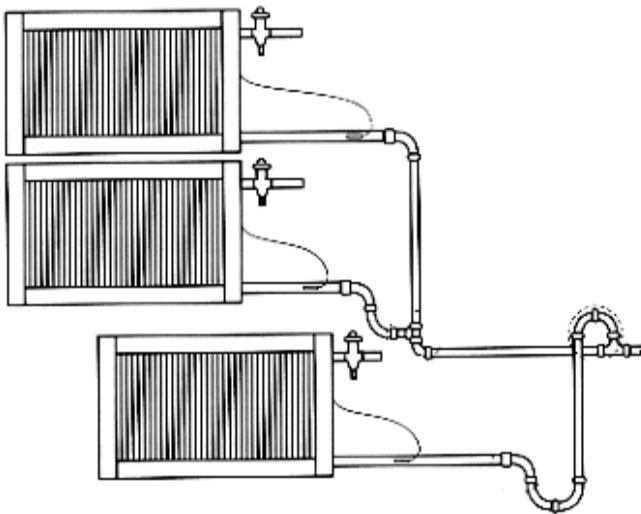
Compressor below the evaporator with no pump down controls



Compressor above the evaporator



Multiple evaporators



Measuring the Microfarad Rating of a Capacitor

An accurate method of determining the microfarads of a capacitor is to measure the current flow through it. Once the amperage has been determined use the following formula to determine its microfarad rating:

$$\text{Microfarad rating} = \frac{2650 \times \text{amps}}{\text{volts}}$$

HEAT GAIN FROM RESTAURANT EQUIPMENT

	Sensible heat (BTU)	Latent heat (BTU)
Coffee urns (steam) per gal capacity	800	800
Coffee urns (electric) per gal capacity	700	500
Coffee urns (gas) per gal capacity	800	800
Steam table per sq ft top surface	400	800
Steam table (electric) per sq ft top surface	200	350
Steam tables (gas burning) per sq. ft top surface	850	430
Gas toasters (640 slices per hr)	12,000	5,000
Gas toasters (360 slices per hr)	7,700	3,300
Gas toasters (small size)	5,750	830

HEAT GAIN FROM MOTORS

Nameplate rating (HP)	Heat gain in Btu per hr per horsepower	
	Connected load in same room	Connected load outside of room
1/8 to 1/2	4,250	1,700
1/2 to 3	3,700	1,150
3 to 20	2,950	400

Answers to Test Your Knowledge
 1.C 2.C 3.D 4.D 5.D 6.D 7.D 8.D
 9.D 10.B 11.A 12.A 13.F 14.T

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COMING EVENTS

Refrigeration Piping: Problems & Troubleshooting

Con Edison Rebate Program

Humidification & Indoor Air Quality

If you have any suggestions or requests for future programs, please let us know!

<p>SEE US 1st</p>  <p>WHOLESALE DISTRIBUTORS Refrigeration/AC/Heating</p> <p>BROOKLYN (718) 257-4039 99-03 Foster Ave.</p> <p>JAMAICA (718) 526-0330 139-29 Queens Blvd.</p> <p>MT. VERNON (914) 668-3631 551 S. Columbus Ave.</p> 	<p>Fire Ice Mechanical Inc.</p> <p>HVAC/R Service Contractors</p> <p>KURT J. EGGERT</p> <p>Vogt Tube-Ice Authorized Dealer/ Sales & Factory Certified Technicians Goldenrod Distributor; The Newest in Water Treatment Technology Air Conditioning & Refrigeration</p> <p>Tel (718) 631-1503 Fax (718) 279-4686</p>	<p>ThermatiX Supply</p> <p>Plumbing, Heating, and Air Conditioning Supplies</p> <p><i>"We keep you supplied"</i></p>  <p>Knowledge - Integrity - Reliability</p> <p>73 Broadway, Hicksville, NY 11801 toll free: (877) 390-9421 tel: (516) 513-0985 / 0986 fax: (516) 620-5942 email: sales@thermatixsupply.com</p>	 <p>49-70 31st STREET L.I.C., NY 11101 Phone: 718-937-9000 Fax: 718-392-1296 1-800-937-9000</p> 	 <p>WEDDINGS OUR SPECIALTY</p> <p><i>Special Attention Given To</i> Dinner Dances • Company Parties Cocktail Parties • Business Meetings Fund Raisers • Fashion Shows Engagement Parties • Christenings <i>Special Discounts Given to Senior Citizens</i></p> <p><i>Riccardo's by the bridge</i></p> <p>21-01 24th Avenue, Astoria, NY 11102 718 721-7777 ANTHONY M. CORBISIERO RICHARD F. CORBISIERO</p>
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METROPOLITAN NEW YORK CHAPTER, RSES

For Information Call: Stan Hollander, CMS (718) 232-6679

The History of BX Cable

The use of armored cable did not become widespread until 1910, and it did not achieve major popularity until the late 1920's or the early 1930's. In 1959, "BX" was never an NEC or UL or ANSI designation. As of 1932, armored cable was officially called "Type AC," although BX (the trademark of cable made by G.E.'s Sprague Electric Division) was then and still is the common term. Up to WWII, Washington, DC allowed no use of NM (Romex) type cable in any building construction, but they permitted the use of armored cable in basements as an experiment. This was done to determine the resistance of armored cable to rodents and nails. It is rumored that the name "BX" became a secret manufacturer's designation for "Cable, Basement Only, Experimental," hence the name BX

Wednesday October 13th, 2010 at 7:30pm

at

RICCARDO'S

21-01 24th Avenue, Astoria NY 11102

Humidification & Indoor Air Quality

By

Bill Gluckin & Dean Scheurich —GeneralAire

— PLACE LABEL HERE —

EDUCATIONAL PROGRAM
Wednesday October 13th, 2010
at 7:30pm
SEE DETAILS THIS PAGE

