

# **MULTISTACK**<sup>®</sup>

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This is a preliminary copy of this catalog and is in the process of being updated. Please contact your Multistack representative with any questions, at 608-366-2400.



## **Air Cooled Split**

**Product Data Catalog  
R410A Refrigerant**

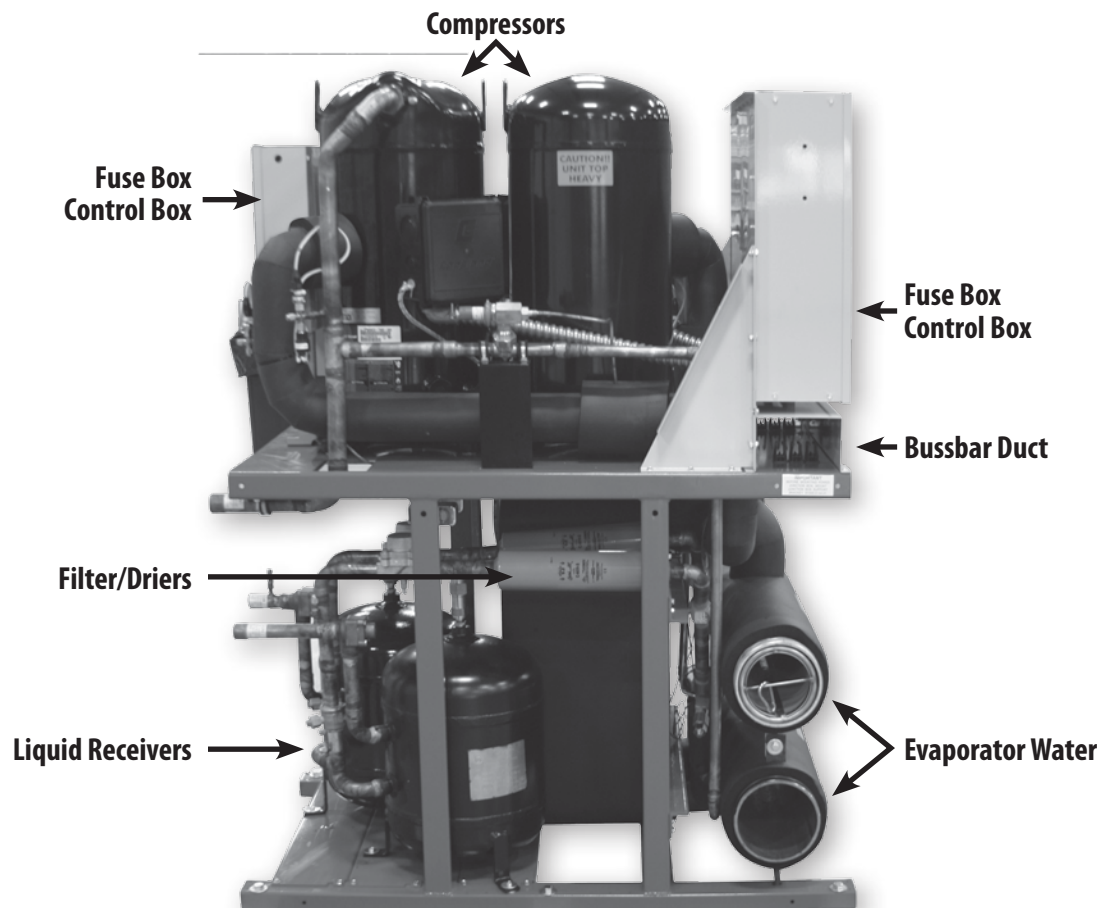
**For Modules:**

**MS010XN\_A, MS015XN\_A, MS020XN\_A, MS030XN\_A,  
MS050XN\_A, MS070XN\_A, MS085XN\_A**





# Air Cooled Split



## Highly Dependable

- Multiple independent systems for built-in standby
- Comprehensive computer monitoring of operations
- Automatic diagnostic recording of fault conditions
- Rotates lead compressor every 24 hours

## Simple To Operate

- Large LCD screen displays information in plain English
- Simple keypad provides control of unit operations

## Easy To Install

- Compact modules fit through standard doorways and into elevators
- Modules interconnect easily and quickly
- All refrigeration systems are evacuated and shipped with a holding charge of nitrogen
- Each compressor is charged with oil. (Additional oil may be required at the time of start-up to accommodate the air cooled condenser and interconnecting lines.)

## Computer Control System

- Operates only the capacity required by the load
- Provides local and remote monitoring control of the chiller
- Operates at peak efficiency at any given load
- Provides operating load profile

## Design Flexibility

- Wide array of module combinations
- Install only the capacity required at the time

## Simple To Service

- Does not require unique proprietary training
- Service can often be performed on a convenient, non-emergency basis
- Most components are standard, off the shelf design

## Optional

- Vertical discharge and liquid connections available upon request.

## Air Cooled Split

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS010XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°	9.9	9.3	12.8	9.2	10.4	10.6	8.4	11.6	8.7
42°	10.3	9.3	13.3	9.6	10.3	11.2	8.8	11.5	9.2
44°	10.7	9.2	14.0	10.0	10.3	11.7	9.2	11.5	9.6
45°	11.0	9.2	14.3	10.2	10.3	11.9	9.4	11.5	9.8
46°	11.2	9.2	14.6	10.5	10.2	12.4	9.6	11.4	10.1
48°	11.6	9.2	15.1	10.9	10.2	12.8	10.1	11.4	10.6
50°	12.1	9.1	16.0	11.3	10.1	13.4	10.5	11.3	11.2

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS015XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°	14.4	13.1	13.2	13.5	14.6	11.1	12.6	16.4	9.2
42°	15.0	13.2	13.6	14.1	14.7	11.5	13.1	16.4	9.6
44°	15.6	13.2	14.2	14.7	14.7	12.0	13.7	16.4	10.0
45°	15.9	13.2	14.5	14.9	14.7	12.2	13.9	16.4	10.2
46°	16.2	13.2	14.7	15.2	14.7	12.4	14.2	16.4	10.4
48°	16.9	13.2	15.4	15.8	14.7	12.9	14.8	16.4	10.8
50°	17.6	13.2	16.0	16.5	14.7	13.5	15.4	16.4	11.3

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS020XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°	20.0	16.8	14.3	18.6	18.9	11.8	17.0	21.4	9.5
42°	20.8	16.8	14.9	19.3	18.9	12.3	17.8	21.4	10.0
44°	21.6	16.8	15.4	20.1	18.9	12.8	18.6	21.4	10.4
45°	22.0	16.9	15.6	20.6	18.9	13.1	19.0	21.4	10.7
46°	22.4	16.9	15.9	21.0	18.9	13.3	19.3	21.4	10.8
48°	23.3	16.9	16.5	21.8	18.9	13.8	20.2	21.4	11.3
50°	24.2	16.9	17.2	22.7	18.9	14.4	21.0	21.4	11.8

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS030XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°	30.0	25.2	14.3	28.1	27.9	12.1	26.1	31.1	10.1
42°	31.1	25.3	14.8	29.2	28.0	12.5	27.1	31.1	10.5
44°	32.3	25.4	15.3	30.4	28.1	13.0	28.2	31.2	10.8
45°	32.9	25.4	15.5	30.9	28.1	13.2	28.8	31.3	11.0
46°	33.6	25.5	15.8	31.5	28.2	13.4	29.3	31.3	11.2
48°	34.8	25.6	16.3	32.7	28.3	13.9	30.5	31.4	11.7
50°	36.1	25.8	16.8	34.0	28.4	14.4	31.7	31.5	12.1

All performance data is based on a 10°F chilled water temperature drop through the evaporator. For total chiller performance, multiply above outputs (TONS) and input (KW) by the number of modules. For selection procedure see selection example.

# Air Cooled Split

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS050XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°F	48.2	40.7	14.2	45.1	45.2	12	41.9	50.4	10
42°F	50.1	40.8	14.7	46.9	45.4	12.4	46.9	45.4	12.4
44°F	52.1	41	15.2	48.8	45.5	12.9	48.8	45.5	12.9
45°F	53.1	41	15.5	49.8	45.5	13.1	49.8	45.5	13.1
46°F	54.1	41.1	15.8	50.7	45.6	13.3	50.7	45.6	13.3
48°F	56.3	41.2	16.4	52.7	45.7	13.8	52.7	45.7	13.8
50°F	58.4	41.4	16.9	54.8	45.8	14.4	54.8	45.8	14.4

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS070XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°F	63.2	52.7	14.4	59.2	58.6	12.1	55.0	65.4	10.1
42°F	65.7	52.9	14.9	61.6	58.8	12.6	57.3	65.5	10.5
44°F	68.2	53.1	15.4	64.0	59.0	13.0	59.6	65.7	10.9
45°F	69.5	53.2	15.7	65.3	59.1	13.3	60.7	65.8	11.1
46°F	70.9	53.4	15.9	66.5	59.2	13.5	61.9	65.9	11.3
48°F	73.6	53.6	16.5	69.1	59.4	14.0	64.3	66.1	11.7
50°F	76.4	53.9	17.0	71.7	59.7	14.4	66.8	66.3	12.1

PERFORMANCE DATA									
SINGLE MODULE	Saturated Discharge Temperature								
MS085XN_A	105°F			115°F			125°F		
Leaving Chilled Water °F	Output Tons	KW	EER	Output Tons	KW	EER	Output Tons	KW	EER
40°									
42°									
44°									
45°									
46°									
48°									
50°									

All performance data is based on a 10°F chilled water temperature drop through the evaporator. For total chiller performance, multiply above outputs (TONS) and input (KW) by the number of modules. For selection procedure see selection example.

# Air Cooled Split

Figure 3. Ethylene Glycol Adjustment Factor

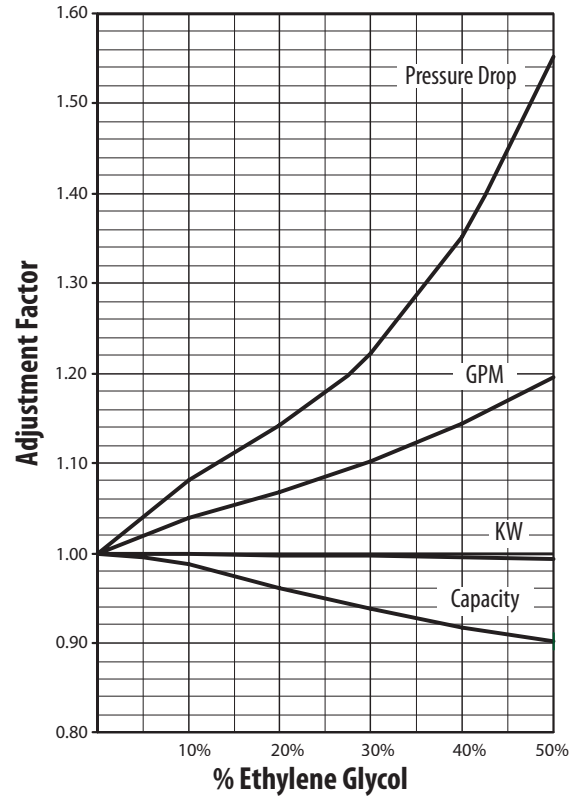


Figure 2. Water Pressure Drop

- |   |           |   |           |
|---|-----------|---|-----------|
| A | MS010XN_A | E | MS050XN_A |
| B | MS015XN_A | F | MS070XN_A |
| C | MS020XN_A | G | MS085XN_A |
| D | MS030XN_A |   |           |

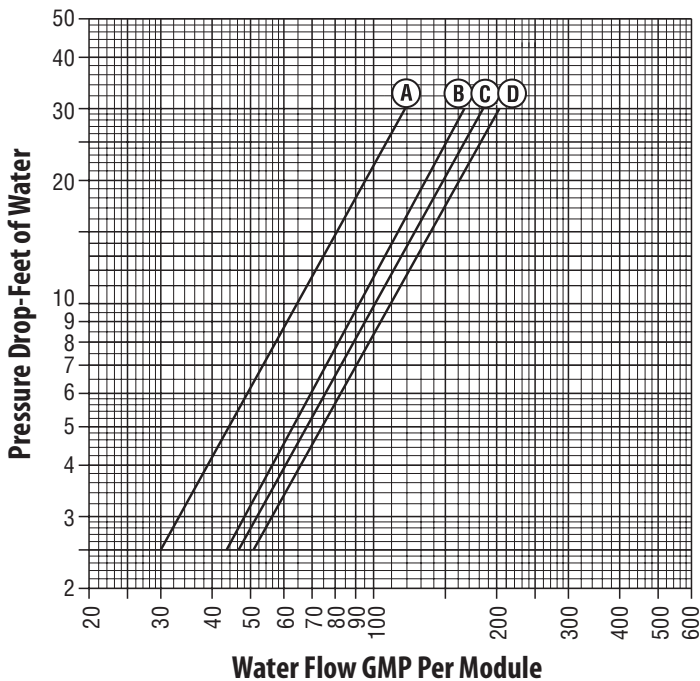
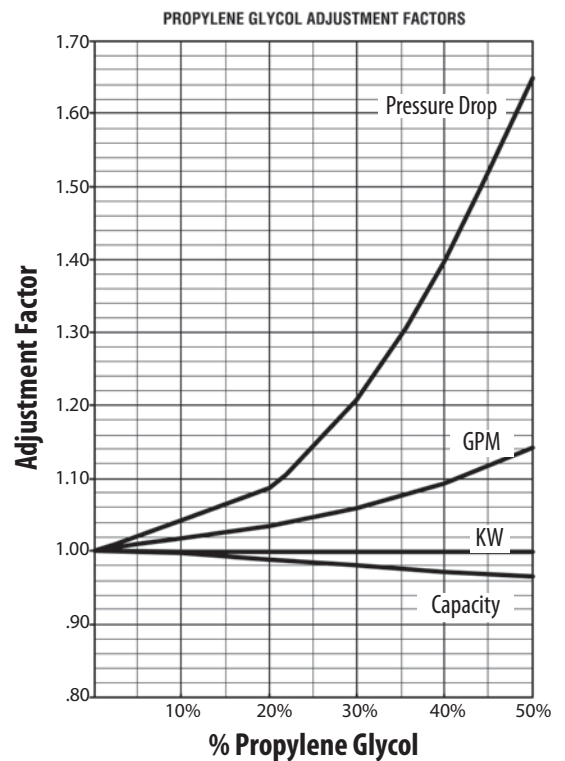


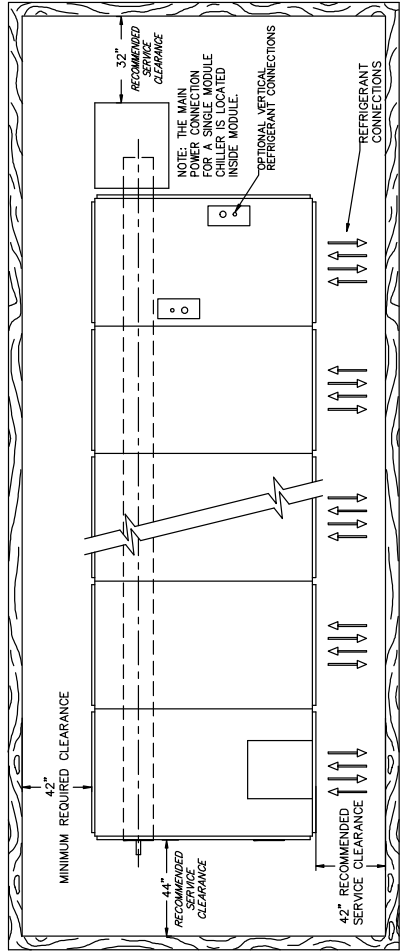
Figure 4. Propylene Glycol Adjustment Factor



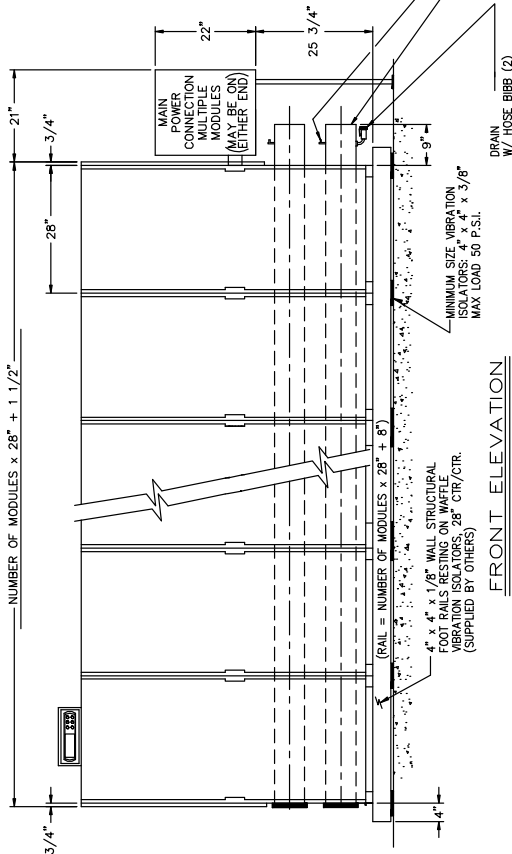
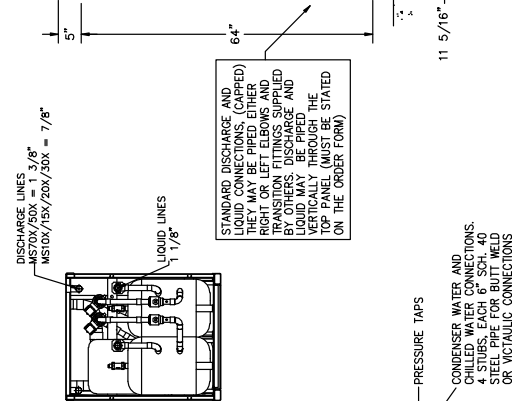
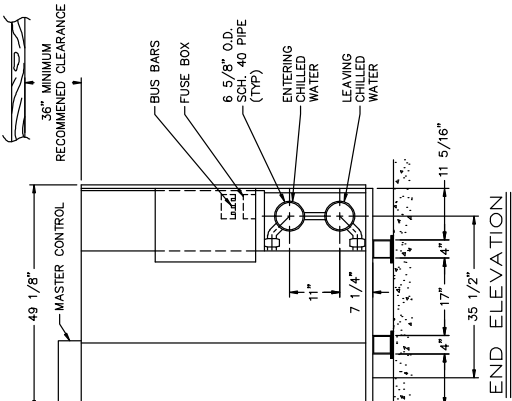
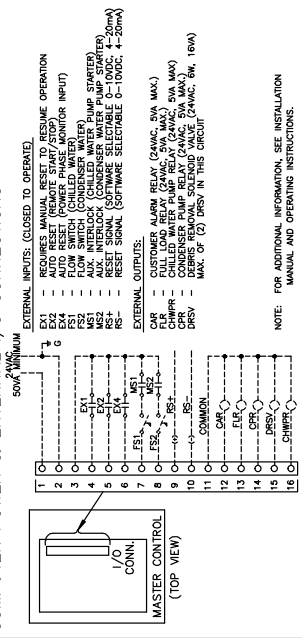
# Air Cooled Split

REVISION	A	B	MULTISTACK		C	500-0210	B
DATE			SportCo. Wisconsin 54669		SUBMITTAL		
BY			FIRST USED ON		AIR COOLED		
REVISION			SIMILAR TO:		ASR10X/15X/20X/30X/50X/70X		
REVISION			DRAWN BY: KRO		SCALE: NONE		
REVISION			DATE: 11/14/08				
REVISION			CHECKED BY:				
REVISION			DATE:				
REVISION			JOB:				
REVISION			SALES ORDER NO.:				
REVISION			SALES REP.:				
REVISION			CONTRACTOR:				
REVISION			ENGINEER:				
REVISION			NOTES:				

PLAN VIEW

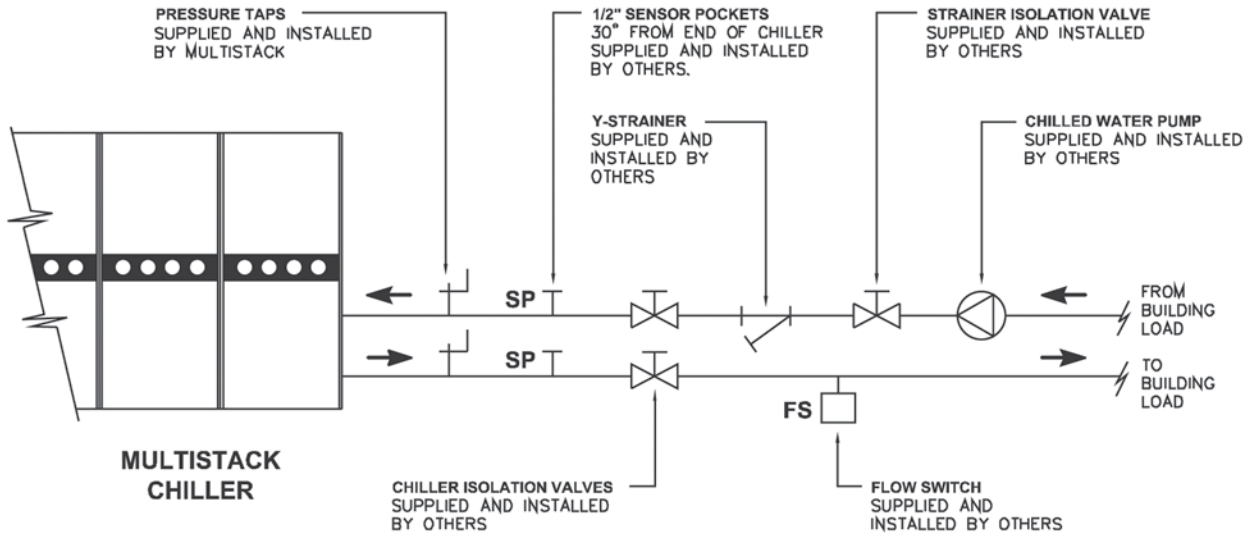


COMPUTER POWER & EXTERNAL I/O CONNECTIONS

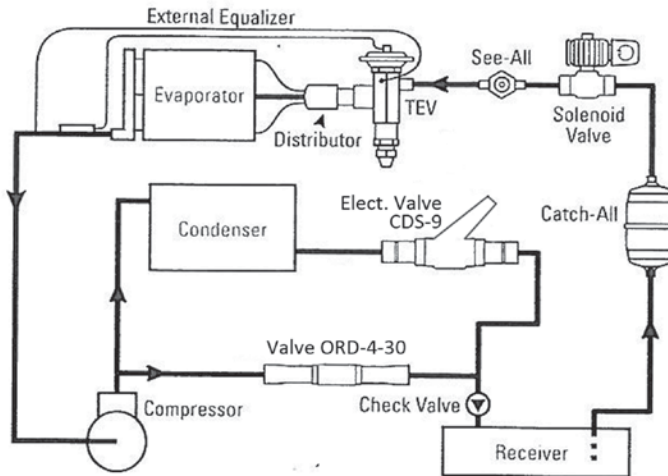


# Air Cooled Split

## REQUIRED CHILLED WATER PIPING



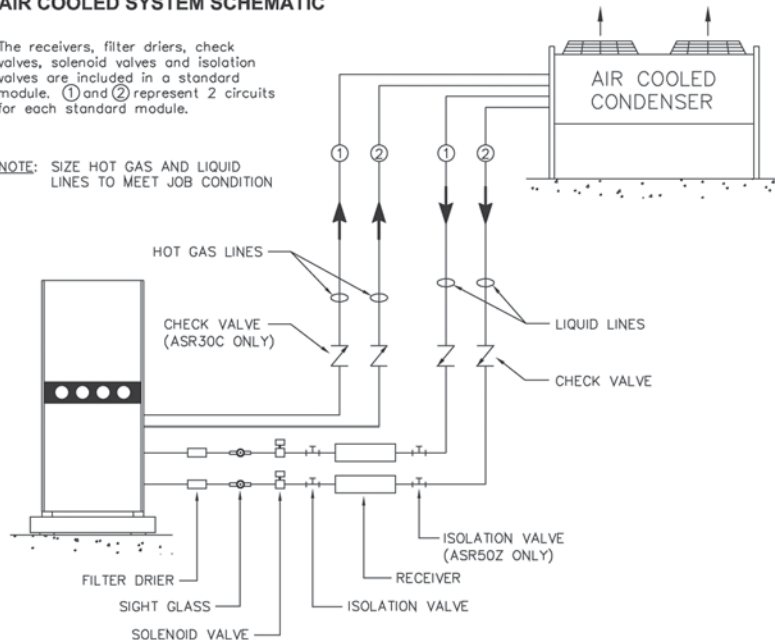
## CONDENSER SCHEMATIC WITH HEAD PRESSURE CONTROL



## AIR COOLED SYSTEM SCHEMATIC

The receivers, filter driers, check valves, solenoid valves and isolation valves are included in a standard module. ① and ② represent 2 circuits for each standard module.

NOTE: SIZE HOT GAS AND LIQUID LINES TO MEET JOB CONDITION



# Air Cooled Split

## Refrigeration Components Installed in Standard Unit

The following components, normally required in an air cooled split system, are factory installed and shipped as part of the standard Multistack module.

- Liquid line solenoid valves
- Check valves
- Liquid line filter/driers
- Liquid line sight glass
- Refrigerant receiver tanks with pressure relief valves and manual shut-off valves. Standard receiver size 50 lbs. (Charge depends on size and application. Alternate receivers with pressure relief valves may be required after consulting AIRSTACK.)

## Air Cooled Condenser

The air cooled condenser can be purchased directly from a manufacturer by the customer, or as a convenience, Multistack will purchase and supply the condenser. Multistack recommends that the air cooled condenser include:

- Separate condenser circuit for each compressor\*
- Condenser fans are controlled by pressure switches with monitor condenser pressure.
- Flooded condenser head pressure control on each circuit for operation at ambient temperatures below 45°F.
- 3 ph/60 Hz power voltage compatible with chiller and 24 vac control voltage
- Additional oil may have to be added to the system at time of start-up to accommodate the air cooled condenser and interconnecting lines.
- To determine the total HEAT OF REJECTION (THR) for selecting the condenser, use:

$$\text{HR/Module (MBH)} = 12 [\text{TONS} + 0.285 (\text{KW})]$$

$$\text{THR (MBH)} = (\text{No. of Modules}) (\text{HR/Module})$$

**\*CAUTION: Each Module has two independent refrigeration circuits. A separate condenser circuit is required for each refrigeration circuit.**

## Interconnecting Refrigerant Piping Between Chiller and Condenser

The interconnecting piping is supplied by others and good engineering practices should be used in sloping and trapping the lines. Recommend line sizes for use with specific AIRSTACK modules are:

LIQUID LINE SIZES AIR COOLED						
MODEL	Liquid 50'	Liquid 75'	Liquid 100'	Liquid 125'	Liquid 150'	PSI drop
MS010XN_A						
MS015XN_A	5/8"	5/8"	5/8"	5/8"	5/8"	0.5 - 5.0
MS020XN_A	3/4"	3/4"	3/4"	3/4"	3/4"	0.5 - 3.5
MS030XN_A	7/8"	7/8"	7/8"	7/8"	7/8"	0.5 - 3.0
MS050XN_A	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	0.5 - 2.5
MS070XN_A	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	0.5 - 2.5
MS085XN_A						

DISCHARGE LINE SIZES AIR COOLED						
MODEL	Disch 50'	Disch 75'	Disch 100'	Disch 125'	Disch 150'	PSI drop
MS010XN_A						
MS015XN_A	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	2.0 - 4.0
MS020XN_A	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	2.0 - 4.0
MS030XN_A	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	2.0 - 4.5
MS050XN_A	1 3/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"	3.5 - 5.0
MS070XN_A	2 1/8"	2 1/8"	2 5/8"	2 5/8"	2 5/8"	2.0 - 6.0
MS085XN_A						

## Air Cooled Split

MODEL	MS010XN_A	MS015XN_A	MS020XN_A	MS030XN_A
Compressor Type	Scroll	Scroll	Scroll	Scroll
Weight (lbs each)			160	227
Normal Capacity (total)	10	15	20	30
Quantity	2	2	2	2
Oil Change (pints)			7	11.5
Evaporator	Brazed Plate	Brazed Plate	Brazed Plate	Brazed Plate
Weight (lbs each)			51.7	51.7
Water Storage (gallons each)			2.42	2.42
Quantity	2	2	2	2
Header System (gallons)			5.5	5.5
Refrigerant Type	410 A	410 A	410 A	410 A
Refrigerant Charge (lbs/circuit)			8	10
Number of Circuits	2	2	2	2
Operating Weight (lbs)			1150	1300
Shipping Weight (lbs)			1100	1250

MODEL	MS050XN_A	MS070XN_A	MS085XN_A
Compressor Type	Scroll	Scroll	Scroll
Weight (lbs each)	268	407	
Normal Capacity (each)	50	70	85
Quantity	2	2	2
Oil Change (pints)	14	12.5	
Evaporator	Brazed Plate	Brazed Plate	Brazed Plate
Weight (lbs each)	90.25	205	
Water Storage (gallons each)	2.164	5.20	
Quantity	2	1	2
Header System (gallons)	5.5	7	
Refrigerant Type	410 A	410 A	410 A
Refrigerant Charge (lbs/circuit)	13	20	
Number of Circuits	2	2	2
Operating Weight (lbs)	1500	2050	
Shipping Weight (lbs)	1475	1750	

# Air Cooled Split

## Selection

To select an Multistack Air Cooled Split chiller, the following information is required:

1. Load in tons of refrigeration.
2. Chilled water temperature drop.
3. Leaving chilled water temperature.
4. Saturated refrigerant discharge temperature.

## Capacity Tables

Capacity tables are based on a 10°F temperature drop through the evaporator. For other than 10°F temperature drop, apply the respective performance adjustment factors from Figure 1.

## Evaporator Water Flow Rate

Evaporator water flow is determined as follows:

$$\text{GPM} = (24) (\text{TONS}) / \text{TEMPERATURE DROP} \\ \text{Saturated Refrigerant} \\ \text{Discharge Temperature (Tc)} \\ \text{Tc} = \text{Ta} + \text{TD}$$

Ta = Design ambient air temperature

TD = Temperature difference at which air cooled condenser is selected

**Note: When the equivalent length of connecting lines between module and condenser is less than 100 feet and properly sized, the affect on line losses on Tc can be considered negligible.**

## Waterside Pressure Drop

Evaporator waterside pressure drops are provided in Figure 2. To use Figure 2, divide the total chilled water GPM by the number of modules in the chiller.

## Chiller Water Selection Example

(Assumes MS030XN\_A Modules)

System load = 55 TONS. Chilled water drop of 12°F. Leaving chilled water temperature of 45°F. Design ambient air temp. of 95°F. TD for condenser selection of 30°F.

1. Use Figure 1 adjustment factor to convert tons at 12°F to equivalent tons of 10°F for use with capacity tables.

$$\text{TONS} = 55 / 1.012 = 54.2 \text{ TONS}$$

2. Determine saturated discharge temperature:

$$\text{Tc} = \text{Ta} + \text{TD} \\ \text{Tc} = 95^\circ\text{F} + 30^\circ\text{F} = 125^\circ\text{F}$$

3. Select the appropriate performance table based on module to be used (MS030XN\_A). Read the CAPACITY and KW of a single module at the water temperature specified (45°F) and determined saturated discharge temperature (125°F). Capacity = 26.7 Tons, Kw = 29.4
4. Divide equivalent tons required at 10°F temperature drop by single module capacity from tables.

$$\text{MODULES REQUIRED} = 54.2 / 26.7 = 2 \text{ MODULES} \\ \text{CHILLER CAPACITY} = (26.7) (2) = 53.4 \text{ TONS} \\ \text{POWER INPUT} = (29.4) (2) = 58.8 \text{ KW}$$

At 12°F temperature drop, applying Figure 1 performance adjustment factor results in:

$$\text{TONS} = (53.4) (1.015) = 54.2 \text{ vs. system load of 55 TONS}$$

5. To determine evaporator water flow and pressure drop, first determine GPM.

$$\text{GPM} = (24) (54.2) / 12 = 108.4 \\ \text{GPM/Module} = 108.4 / 2 = 54.2$$

From Figure 2, read pressure drop from curve B.

$$\text{Pressure drop} = 3.7 \text{ ft. of water}$$

## Low Temperature Operation With Glycol

(Assumes MS030XN\_A Modules)

Ethylene Glycol adjustment factors (Figure 3) should be used to adjust performance depending on the percent of glycol used in the evaporator circuit. The factors in Table 3 are based on a 10°F change in fluid temperature through the evaporators.

Capacity and KW should be obtained by extrapolating no more than 10°F from the lowest leaving chilled water temperature shown in the capacity tables.

MULTISTACK should be contacted if leaving glycol temperatures below 32°F are required.

Adjustment factors for Propylene Glycol are shown in Figure 4, and are used in the same way given in the following example.

## Ethylene Glycol Selection Example

(Assumes MS030XN\_A Modules)

Determine CAPACITY, GPM, Pressure Drop and KW for an MS030XN\_A module cooling 30% Ethylene Glycol from 45°F to 35°F, with a saturated discharge temperature of 125°F.

1. By extrapolating from the Performance Tables:

$$\text{CAPACITY: } 22.3 \text{ tons; KW: } 28.9$$

2. Evaporator water flow and pressure drop is determined for water as in the previous example.

$$\text{GPM} = \frac{(24) (22.3)}{10} = 54 \text{ GPM}$$

From Figure 2, read pressure drop from Curve B

$$\text{Pressure drop} = 5 \text{ ft. of water}$$

3. To convert performance for water to performance with Ethylene Glycol, read adjustment factors from Figure 3 at 30% Glycol.

$$\text{CAPACITY Adjustment: } 0.94$$

$$\text{KW Adjustment: } 0.99$$

$$\text{GPM Adjustment: } 1.10$$

$$\text{Pressure Drop Adjustment: } 1.22$$

4. Calculate performance with 30% Ethylene Glycol by multiplying performance for water by adjustment factors.

$$\text{CAPACITY: } 22.3 \times 0.94 = 20.9 \text{ TONS}$$

$$\text{KW: } 28.9 \times 0.99 = 28.6 \text{ KW}$$

$$\text{GPM: } 54.0 \times 1.10 = 59.4 \text{ GPM}$$

$$\text{Pressure Drop: } 3.7 \times 1.22 = 4.5 \text{ ft. of water}$$

If a water temperature drop greater or less than 10°F is required, begin by first multiplying the CAPACITY using the performance adjustment factor from Figure 1.

# Air Cooled Split

## System Wire & Fuse Sizing Specifications

(Applicable codes may require different wire sizing)

- Compressor Rated Load Amps (RLA) and Locked Rotor Amps (LRA)

Data: RLA/LRA

VOLTAGE	208	230	460	575
25T Scroll	84/500*	76/500*	38/250*	31/198*
25T Bristol	86/400*	78/400*	39/200*	32/160*
15T Scroll	46/337*	48/376*	21/178*	17/143*
10T Scroll	30/222*	30/251*	15/117*	12/94*

\*Per Compressor

- Wiring Sizing: Minimum Circuit Ampacity (MCA)

$$MCA = (1.25 \times RLA1^*) + RLA2 + RLA3 \dots$$

MCA	3 Conductors 1 Conduit	6 Conductors 2 Conduit
508	—	—
656	—	—
854	—	—
100	3	—
115	2	—
130	1	—
150	1/0	—
175	2/0	—
200	3/0	—
230	4/0	—
255	250 MCM	—
285	300 MCM	1/0
300	—	2/0
350	—	3/0
400	—	4/0
460	—	4/0
500	—	250 MCM

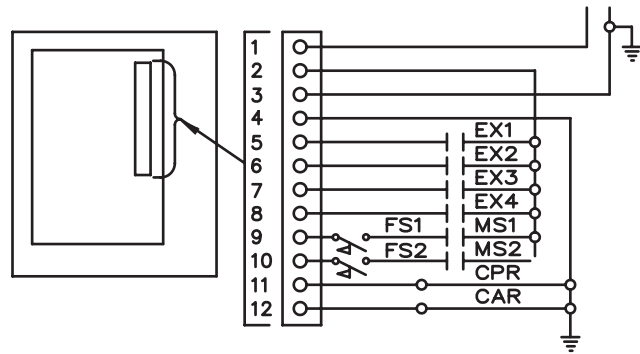
- Fuse Sizing: Maximum Fuse (MF), Type RK5 Fuse

$$MF = (2.25 \times RLA1^*) + RLA2 + RLA3 \dots$$

Where the MF does not equal a standard size fuse, the next larger size should be used.

### 4. NOTES:

- Compressor Related Load Amps (RLA) and Locked Rotor Amps (LRA) are based on 125°F Saturated Condensing Temperature.
- \*RLA1 = RLA of the largest compressor in the system.  
RLA2 & RLA3 = RLA of the other compressors in the system.
- The total system Minimum Circuit Ampacity (MCA) shall not exceed 500A.
- Wire sizing is based on the Nat. Elect. Code (NEC) rating for 75°C copper wire, with 3 wires per conduit.
- Wiring distance from branch circuit shall not exceed 100 ft.



## External Input/Output Connections

### Inputs

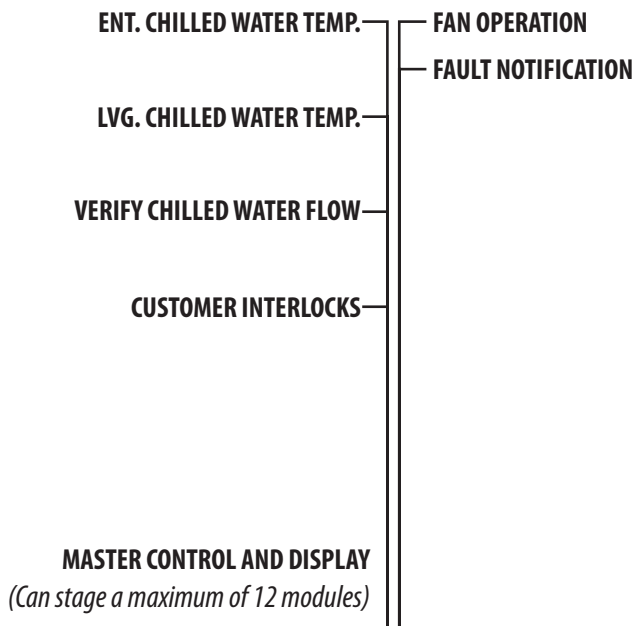
- EX1 Close Circuit To Operate: Open To Stop. Manual Reset Required.
- EX2 Close Circuit To Operate: Open To Stop. Auto Reset. Remote Start/Stop
- EX3 Close Circuit To Operate: Open To Stop. Manual Reset Required.
- EX4 Close Circuit To Operate: Open To Stop. Auto Reset.
- CF Condenser Fan Starter Interlock.
- FS2 Chilled Water Flow Switch. (Or Optional Pressure Differential Switch)
- MS2 Chilled Water Pump Starter Interlock.
- TC1 Ambient Temperature Thermostat. (Required for condenser without low ambient provisions.)

### Outputs

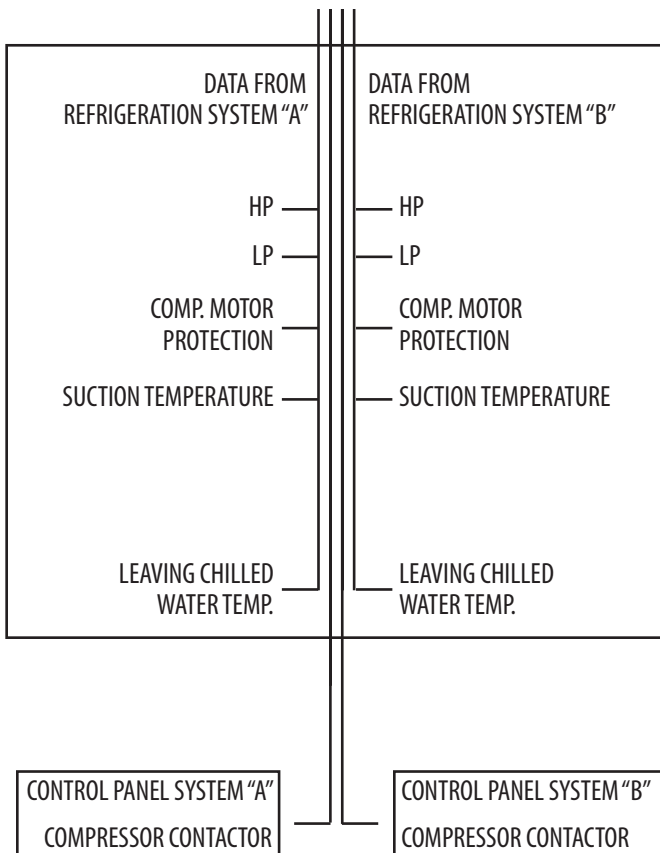
- CFR Condenser Fan Relay. (24 VAC, 5 VA)
- CAR Customer Alarm Relay (24 VAC, 5 VA)

**Note: Interlock wiring to be 16 AWG minimum and field supplied by others. External relays, contractors and flow switches supplied by others.**

# Air Cooled Split



**MODULE SENSOR PANEL**



**REMOTE PC**

**OPTIONAL RS-232 SERIAL PORT CONNECTION TO REMOTE PC, MODEM, BUILDING MANAGEMENT SYSTEMS, OR BACnet® PORTAL.**

**IDENTICAL SENSOR PANELS MODULE IN CHILLER**

# Air Cooled Split

## General

Modules are ETL listed in accordance with UL standard 1995 and are CSA certified per standard C22.2 #236.

Modules ship wired, charged with oil, and contain a holding charge of dry nitrogen.

Compressors, heat exchangers, piping and controls are mounted on a heavy gauge steel frame. Electrical controls, contactors, and relays for each module, are mounted within that module.

## Factory Mounted Refrigerant Components

Refrigerant receiver tanks with pressure relief valves and shut-off valves, liquid line solenoid valves, check valves, liquid line filter driers and liquid line sight glasses are factory mounted in each module.

## Chilled Water Mains

Each module includes supply and return mains for the chilled water. Grooved end connections are provided for interconnection to 6" US standard (6.625" outside diameter) customer piping with victaulic type couplings. Standard units include 30 mesh in-line strainers in the evaporator supply headers.

## Evaporators

Each evaporator is a brazed plate heat exchanger constructed of 316 stainless steel; designed, tested and stamped in accordance with ASME code for a 360 psig working pressure.

## Air Cooled Condensers

Condensers may be supplied by others, or special ordered by Multistack. Multistack's special ordered condensers come factory assembled. The condenser coil is divided into individual refrigerant circuits, each sized for its own specific application. Each circuit comes with its own inlet and outlet connections, individually labeled.

## Compressors

Each module contains two separate refrigeration systems. The hermetic compressor in each system is mounted to the frame with rubber-in-shear isolators. Each system also includes high discharge pressure and low suction pressure cutouts.

## Central Control System

Scheduling of the various compressors is performed by the microprocessor control. Compressors operating schedules are sequenced every 24 hours to assure distribution of run time. This microprocessor monitors the following on each refrigeration system:

- Discharge pressure cut-out
- Suction pressure cut-out
- Compressor motor protector
- Suction temperature
- Evaporator entering and leaving chilled water temperature

A fault condition from these controls or sensors will cause a shutdown of that compressor with the transfer of load requirements to another available compressor. When a fault occurs, the microprocessor records the reading of conditions at the time and stores the data for recall by operating personnel. This information can be recalled using the keys and displayed on the LCD screen. A running history of the fault occurrence conditions is maintained (up to the last 20 occurrences) should it be required for trouble shooting.

Individual monitoring of leaving chilled water temperature from each refrigeration system is designed to protect against freeze-up.

The control system monitors entering and leaving chilled water temperatures to determine system load and selects the number of compressors required. Response time and set points are adjustable.

## Options

Options are available upon request.



## ***Environmentally Friendly Refrigerants***

### **R-410A**

Refrigerant R-410A is widely available, safe, and an environmentally friendly refrigerant. R-410A is available in virtually all Multistack systems making hot water up to 140°F. Good environmental choices!

### **Environmental Focus**

In addition to providing products to deliver reliable comfort and low operating cost, Multistack's products can also reduce your environmental footprint. We are committed to developing and manufacturing cooling and heating products that can reduce fossil fuel consumption and operate on the refrigerants designed to protect the environment. Air Cooled Split Modules and efficiency improvements across our product line are the result of this focus.

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### ***Originators...***

Multistack invented the modular water chiller. It started with a radically simple idea: chiller modules that could be brought into the equipment room one at a time, through standard doorways and down elevators, to form a fully integrated chiller system. The idea launched a revolution and transformed Multistack into a leader in the commercial water-chiller industry.

### ***Innovators...***

Multistack perfected the modular chiller and leads the industry in innovative and environmentally friendly modular solutions. Since founding in the late 1980s, Multistack has engineered, manufactured, and distributed an impressive array of modular air conditioning firsts: the first on-board strainer, the first modular automatic blow-down device, the first modular chiller for variable flow, the first modular chiller-heater (heat pump), the first modular heat-recovery chiller, the first modular air-to-water heat pump, the first modular chiller to utilize MagLev™ compressor technology, and the first modular chiller to utilize R-410A.

### ***Never the Imitators...***

Multistack sets the standard in the industry for superior customer service, fast and on time shipment, superior product quality, and new product development. Our pioneering leadership in environmental issues is well documented. If you want the best, be sure to specify the original – Multistack®.



# **|||<sup>®</sup> MULTISTACK<sup>®</sup>**

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