



1. Ice Candy Plant

1.1 Basic Indicative Diagram



1.2 Material: Stainless Steel

1.3 Capacity : 2 Ton

1.4 Standard Design Type

1.5 Temperature Range: -5°C to -26°C

1.6 Tank Orientation: Horizontal

1.7 Compressor :Reciprocating Type

1.8 Temperature Controller: Digital Type

1.9 Air cooled Condenser with cooling fan

1.10 Hermetic reciprocating compressor capacity 2 Ton

1.11 Air cooled condenser 2 ton capacity with heavy duty fan, condenser made of copper tube and aluminium fins with housing

1.12 Brine cooling coil inner tank size 24" x 18" x 16" made of Stainless Steel with lid & lid holding angle, Brine Tank covered with S.S. Sheet Metal Work, a window provided for brine filling in tank and also drainage of brine with valve facilities, minimum 2" thick PUF insulation, Brine agitator pump, tank made of stainless steel and having cooling coil made of copper tube, forma tray minimum of 32 candy making made of stainless steel..



1.13 Expansion device- an arrangement of a thermostatic expansion valve with hand shut off valve.

1.14 HP and LP cut out switch 1 No.

1.15 Liquid line indicator 1 No.

1.16 Receiver with inlet and outlet valve 1 No.

1.17 Solenoid valve 1 No.

1.18 Solid core filter drier 1 No.

1.19 Suction accumulator 1 No.

1.20 Pressure gauge 1 No.

1.21 Compound gauge 1 No.

1.22 Thermostat digital type 1 No

1.23 Amp meter digital type 1 No.

1.24 Energy meter digital type 1 No.

1.25 Voltmeter digital type 1 No.

1.26 MCB 2 poll as a main switch.

1.27 Capacity of machine : 2 Ton

Brine Solution Used :- Ethylene Glycol solution

Basic structure:- The complete plant assembled should be a single structure and mounted on heavy duty square or round tubular frame painted, electrical control panel also fitted on tubular frame with Ampere meter, Voltmeter, Indicating Light, Rotary Switch, MCB's, contractors, Relays, etc. This will be installed at destination duly gas charged & in perfect working condition.



2. Package AC

2.1 Basic Indicative Diagram.



2.2 Capacity :- 5 Ton of Refrigeration

2.3 Compressor :- Open type Reciprocating Compressor.

2.4 Evaporator Coil :- Fince type Evaporator

2.5 Condenser :- Air Cooled Type

2.6 Equipped with Instrument and Gauge Panel Board , consist of LP/HP Cut out , Suction and Discharge pressure gauges on it.

2.7 Provide with Motor Starters

2.8 Room Temp.16⁰C.

2.9 Digital/Dial type Temp.Indicator for Chilled water piping.

2.10 With necessary Electrical Controls.

2.11 Refrigerant type :R410a

2.12 Power Source : 3Phase

2.13 Data acquisition system, Fault simulation system with automatically compressor capacity control system.

Specification- This Package A/C is floor mounted type with Indoor & Outdoor unit are in separate body.

A) **Indoor unit** structure made of iron square pipe frame with heavy base for motor & compressor & body of iron frame covered with G.I powder coated sheet in such a way no inner structure of iron frame pipe is showing from outside. Indoor unit consists compressor, motor, evaporator, all



refrigeration controlling items & one L band of duct. Unit consists of following items;

1. Brand new Hermitically sealed Reciprocating / scroll type 5.0-ton capacity. With drives, tested and certified by principal manufacturer with model number.
2. Motor 7.5 HP copper winding 1440 rpm, operated on 3 phase supply
3. Variable frequency drive of suitable capacity as per above motor for compressor capacity control.
4. Expansion device thermostatic expansion valve 5-ton capacity
5. Pressure gauge
6. Compound gauge
7. Liquid line indicator
8. Liquid line Solenoid valve
9. Solid core filter drier
10. Liquid receiver with inlet and outlet valve 5 ton capacity
11. Suction Accumulator
12. HP and LP cut out
13. Hand shut off valve 3/8"
14. Cooling coil. Size 30" x 36" x 2 Row made of copper tube and aluminium fins of 5-ton capacity with blower and housing and electric motor copper winding heavy duty.

B) Outdoor unit structure also made of iron square pipe frame with base & two side covered with Powder coated wire mesh & three side covered with G.I powder coated sheet. Unit consist of suitable Air-cooled Condenser coil with two Axial fans & housing.

C) Control Panel:- consists of following items.

an interface 10" touch display with that is linked with Data Acquisition system and enables the

Following features: -

2. Block diagram with measurement points
3. Display of measured values (pressures and temperatures)
4. Voltage, Ampere
5. Suction Pressure
6. Discharge pressure



7. Compressor inlet temp.
 8. Compressor outlet temperature
 9. Condenser outlet temperature
 10. Expansion valve inlet temp. and Expansion valve outlet temp.
 11. Evaporator outlet temperature
 12. Evaporator inside temperature
 13. Display of electrical failures
 14. Provide remotely temperature controller & speed control of blower.
 15. Facility of Automatically Compressor Capacity control of plant through speed control of motor.
 16. Interface with PC through Direct USB 2.0 port
- A) There should be following minimum twelve failures/Faults switch bank, Faults details given below which are activated from fault switch bank showing on display through Data Acquisition system.
- ☐ Voltage failure
 - ☐ Dehydrator clogged.
 - 5 Coil of the liquid line solenoid valve broken.
 - ☐ Compressor failure.
 - ☐ Failure of evaporator fan.
 - ☐ Failure of the condenser fan.
 - ☐ Failure of an expansion valve
 - ☐ Failure on the control pressure switch LP.
 - ☐ Failure on the temperature controller- relay broken.
 - ☐ Failure on the temperature controller- temperature probe broken.
 - ☐ Failure on the condenser- fouled exchanger
 - ☐ Failure on the evaporator- fouled exchanger
- B) Other electrical items like MCB, phase sequence preventer, Contactor with overload relay, light indicator etc.

3. Shell and tube type condenser 5 Ton



3.1 Basic Indicative Diagram

3.2 Capacity :- 5 Ton

3.3 Material

3.3.1 Tubes material of construction – SA179, BS3059, ASTM A312 TP304 316

3.3.2 Shell – carbon steel P265GH

3.3.3 Tube sheet – carbon steel P265GH

3.3.4 Coolant reversing cover – cast iron

3.4 Equipped with pressure relief Valve

3.5 Can with stand 500 psi pressure.

3.6 Shell and tube type condenser 5 Ton with copper tubing only with mounting plates.

3.7 Finned copper tube 3/4" OD

3.8 No. of copper tube-24 Nos

3.9 Provided with Air purging Valve.

3.10 Cooling Medium : - Water

3.11 Provided with Suitable MS Structure stand for Installation.

3.12 Suitable for R22 , R401 ,NH3 Refrigerant.



4. Shell and tube , DX Chillers (small)5 Ton with Cu tubing only



4.1 Basic Indicative Diagram

4.2 Cooling capacity 5 Ton

4.3 Tube material:- Copper : Nickel(70:30) seamless tube

4.4 Shell material MS/Carbon steel (P265GH)

4.5 Baffle plate material- MS/ Carbon steel

4.6 Tube sheet-MS/ Carbon steel

4.7 Dish End Material :- MS.

4.8 Suitable for 5 degree C To 15 degree Celsius water temp.

4.9 **Pressure Testing :-**

Shell side :- 350 psi – Pneumatic

Tube side: -150 psi – Hydraulic

4.10 chiller Shell must be as per design codes IS, ASME & TEMA

4.11 Tubes material of construction – SA179, BS3059, ASTM A312 TP 304 316

4.12 Painting: Synthetic enamel paint after two coats of red oxide primer

4.13 Suitable for water cooling

4.14 Provided with suitable size MS Structure frame.



5. Walk in cooler PUF insulated for cold room 6X4.5X 8 cft. Temperature 0 to 5 °C



5.1 Basic Indicative Diagram

5.2 Capacity : 1 Ton

5.3 Temperature Range : 0 °C to 5 °C

5.4 Body Material : PP GI sheet (Powder coated both side)

5.5 Insulation : PUF

5.6 Cabinet Size : 6 Wx 4.5 B x 8Hft

5.7 Compressor : Hermetically Sealed type

5.8 No. Of Door : 01

5.9 Power Supply : 230 V AC

5.10 Air Cooled Condenser

5.11 Temperature Controller : Digital

5.12 Door Alarm

5.13 Equipped With Suitable Safety Control And Gauges

Technical Specification:

Walk in cooler PUF insulated have cold room size 6x4.5x8 ft made of PUF panel PP GI Sheet both side with cam & Lock arrangement PUF Panel Insulation is 60 MM. Unit Standard four corner of PUF Panel and Flooring PUF Panel has Aluminium chequered sheet.

5.14 Hermetic sealed reciprocating compressor capacity of 3000 Kcal/hr

5.15 Air cooled condenser of suitable size with heavy duty fan, condenser made of copper tube



and aluminium fins with housing

5.16 Expansion device- an arrangement of a thermostatic expansion

5.17 Indoor unit of 3000 Kcal/hr capacity made of copper tube and aluminium fins along with 2 axial fan mounted inside the cold room for required temperature 0 to 5 0C

5.18 HP and LP cut out switch 1 No.

5.19 Liquid line indicator 1 No.

5.20 Receiver with inlet and outlet valve 1 No.

5.21 Solenoid valve 1 No.

5.22 Solid core filter drier 1 No. 10.

5.23 Suction accumulator 1 No.

5.24 Pressure gauge 1 No.

5.25 Compound gauge 1 No.

5.26 Thermostat digital type 1 No.

5.27 Amp meter digital type 1 No.

5.28 Energy meter digital type 1 No.

5.29 Voltmeter digital type 1 No.

5.30 MCB 2 poll as a main switch

Unit should have a door with proper air tight locking arrangement, unit should have alarm and light facility inside it. Condensing unit should be a single body properly covered with front showing all the electrical metres and indicators. Unit properly charged with refrigerant.



6. Water cooler storage type 200L, carrying with HFC-134a & reciprocating compressor



6.1 Basic Indicative Diagram

6.2 Capacity : 200 litre

6.3 Dimension : 461 x 582 x 1441 mm (May vary from mfr. to mfr.)

6.4 Current : 3.8 A

6.5 Approximate Weight : 62 kg (May vary from mfr. to mfr.)

6.6 Inner Cabinet Material : Stainless Steel.

6.7 Temperature Control : Manual

6.8 Water Over Flow : 1/2 BSP

6.9 Provided with 4 Water Taps.

6.10 Body Material : Stainless Steel

6.11 Condenser Coil : Air cooled Fins Type (Copper Coil)

6.12 Compressor : Hermetically sealed Reciprocating Type/ Rotary type



7. Air-conditioning, direct System. Complete with all controls including humidity control



7.1 Basic Indicative Diagram

7.2 Equipped With HP/LP Cut Out Switch , Pressure gauges

7.3 Cooling Capacity 2 ton of refrigeration

7.4 Refrigerant R22/R32/R410

7.5 Compressor reciprocating type /Rotary Type

7.6 Operating Current:- 6 Amp to 9.5 Amp.

7.8 Power supply: - 220-240 VAC (50Hz)

7.9 Condenser coil material :- Copper

7.10 Evaporator Coil material:- Copper

7.11 With remote control circuit

7.12 Humidity Control System

7.13 Equipped with Instrument and Gauge Panel Board, consist of LP/HP Cut out ,
Suction and Discharge pressure gauges on it.

7.14 Hermetic sealed Reciprocating compressor capacity 6000 kcal/hr – 01 No

7.15 Direct cooling of Evaporator capacity 2 Ton cooling coil with Blower housing, filter, Electric



Motor copper winding direct coupled with two blower and Thermostatic expansion valve –
01No

7.16 Air cooled condenser with copper tube and aluminum fins, with suitable heavy duty fan
motor of copper winding with condenser housing- 01 No

7.17 Low & high pressure cut out switch -01 No

7.18 Humidity control system for facilities making the change in the humidity condition– 01 No

7.19 Gauges pressure and compound 0-30 kg/sq.cm and 76 mm mercury vacuum and
15 kg/sq.cm -01 No. each

7.20 Hand shut off valve suitable size - 01No.

7.21 Solid core filter drier suitable size -01No

7.22 Liquid Line indicator -01No

7.23 Solenoid valve suitable size for liquid line- 01No

7.24 Receiver with valves- 01No

7.25 Suction accumulator -01No

7.26 Thermostat Digital type for cooling coil - 01No.

7.27 Ampere meter digital type - 01No

7.28 Volt meter digital type 0-500 V - 01No

7.29 Energy meter - 01 No.

7.30 MCB Four pole 32 amp. – 01No

7.31 Copper pipe and fitting as per requirement

Basic structure:- The complete plant assembled should be a single structure and mounted on heavy duty square or round tubular frame painted, electrical control panel also fitted on tubular frame with Ampere meter, Voltmeter, Indicating Light, Rotary Switch, MCB's, contractors, This will be installed at destination duly gas charged & in perfect working condition. Unit operated on single phase supply with inter locking wiring.



8. Air-conditioning, Indirect system. (Water cooled) Complete with all controls including humidity control



8.1 Basic Indicative Diagram.

8.2 Capacity:- 4 Ton of Refrigeration

8.3 Compressor: - 4 TR Capacity Reciprocating Hermetically sealed.

8.4 Evaporator Coil:-Dry Exp. Type Water cooled shell and Tube type chillers of suitable capacity with mounting plate complete with suitable size water pump for circulating water in chilled water coil with thermostatic expansion valve- 01No.

8.5. Fan Coil Unit 1.0 Ton Capacity (QTY 04 No) With Fan / Blower and Motor, Air Supply Grill, Air inlet filter, Water valves. Fan coil unit capacity 1 Ton. Cooling coil with grill & Damper, Blower housing, filter, Electric motor (copper winding) direct coupled with two blower -01No

8.6 Condenser: - Fins type Air Cooled /Water Cooled Type with Cooling Tower

8.7 Equipped with Instrument and Gauge Panel Board, consist of LP/HP Cut out, Suction and Discharge pressure gauges on it.

8.8 Provided with Motor Starters

8.9 For maintaining 25 °C (+/- 5 °C) Room Temp.

8.10 With Suitable Chilled Water Circulating Pump

8.11 With Suitable GI Piping and Valves, Strainers with good quality Insulation should be provided.



- 8.12 Necessary Insulation provided for chilled water Piping and Chiller.
- 8.13 Digital/Dial type Temp. Indicator for Chilled water piping mounted on.
- 8.14 Panel with necessary Electrical Controls.
- 8.15 Humidity control system for facilities making the change in the humidity condition with humidity
- 01 No
- 8.16 Gauges pressure and compound 0-30 kg/sq.cm and 760 mm mercury vacuum and 15 kg/sq.cm -
01 No. each
- 8.17 Hand shut off valve suitable size
- 8.18 Solid core filter drier suitable size -01No
- 8.19 Liquid Line indicator -01No
- 8.20 Solenoid valve suitable size for liquid line- 01No
- 8.21 Suction accumulator -01No
- 8.22 FCU thermostat Digital type - 01No each.
- 8.23 Ampere meter digital type - 01No
- 8.24 Volt meter digital type 0-500 V - 01No
- 8.25 Energy meter - 01 No.
- 8.26 *Suitable* MCB two pole – 01No
- 8.27 Copper pipe and fitting as per requirement
- 8.28 Water pipe and fittings as per requirements

Basic structure:-

The complete plant assembled should be a single structure and mounted on heavy duty square pipe frame painted, electrical control panel also fitted on frame with Ampere meter, Voltmeter, Indicating Light, Rotary Switch, MCB&, contractors. This will be installed at destination, duly gas charged & in perfect working condition. Unit operated on Single phase / three phase supply including inter locking wiring etc.

9. Automatic ice cube M/c :- 5kg/hour



9.1 Basic Indicative Diagram

9.2 Ice Making Capacity : 5 kg/hr.

9.3 Ice Storage Capacity : 10 -15 KG (Approx.)

9.4 Input Power : Suitable Input Power Supply provided.

9.5 Way of Condensation : Air cooled Type

9.6 Tank Shell Material : Stainless Steel Tank shell material with proper insulation should be provided.

9.7 Ice Shape : Small Particals Of Irregular Snow Ice ,bullet shape/solid round /Dice shape

9.8 Refrigerant : R134a

9.9 Equipped with Suction line and Discharge line Pressure Gauge.

9.10 Provided with Hermetically sealed compressor.

9.11 Self contained Bin

9.12 Puf insulated Ice bin .

9.13 can work at 50 °C ambient Temp.

9.14 Equipped with Automatic Flushing /cleaning system after every cycle.



10. Bottle cooler visible 200-220 L carrying with HFC-134a & reciprocating compressor



10.1 Basic Indicative Diagram

10.2 Dimension : 168x56x53 cm (may vary from mfr. to mfr.)

10.3 Weight : 70 to 78KG (may vary from mfr. to mfr.)

10.4 Capacity : 200-220Ltr

10.5 **Including Components:**

10.5.1 Plane Toughened Glass for Door

10.5.2 UV Grade Plastic Material for Inner Side

10.6 Built In Stabilizer

10.7 Temperature indicator and Controller: Digital Type

10.8 With LED Tube light inside the cabinet.

10.9 Body material: - CRCA .

10.10 Provided with adjustable Shelf.

10.11 Provided with Adjustable Shelves.



11. Bus AC Tutorial Model



11.1 Basic Indicative Diagram.

11.2 Compressor wobble plate type

11.3 condenser parallel flow type suitable for car

11.4 Evaporator serpentine type with thermostatic expansion valve, blower motor and grill.

11.5 Receiver with sight glass and other accessories.

11.6 All ideal controls and safety controls for Bus ac.

11.7 Single phase electric motor 2.0 HP to run the compressor

11.8 Equipped with Suitable DC 12 V Power Supply to run condenser fan, evaporator fan and to operate magnetic clutch of compressor.

11.9 Other accessories like on/off switch, fan speed selector and complete wiring jack and clips.

11.10 Digital Temperature Indicator

11.11 Refrigerant R134a

11.12 Equipped with Suction line and Discharge line Pressure Gauge.



12. Car AC Tutorial Model



12.1 Basic Indicative Diagram.

12.2 Compressor wobble plate type

12.3 condenser parallel flow type suitable for car

12.4 Evaporator serpentine type with thermostatic expansion valve, blower motor and grill.

12.5 Receiver with sight glass and other accessories.

12.6 All ideal controls and safety controls for car ac.

12.7 Single phase electric motor 1.0 HP to run the compressor

12.8 Equipped with Suitable 12 V DC Power Supply to run condenser fan, evaporator fan and to operate magnetic clutch of compressor.

12.9 Other accessories like on/off switch, fan speed selector and complete wiring jack and clips.

Digital temperature indicator in test chamber.

12.10 Refrigerant R134a

12.11 Equipped with Suction line and Discharge line Pressure Gauge.



13. Deep freezer 200 L carrying with HFC-134a & reciprocating compressor



13.1 Basic Indicative Diagram

13.2 Sliding Double layered Glass doors with toughened Glass Top

13.3 Size :1010 x 565 x 895 [W x D x H] (may vary from mfr. to mfr.)

13.4 Gross Capacity : 200ltr

13.5 Temperature : -180 c to -260 c

13.6 Insulation : PUF

13.7 No of Doors : 02

13.8 Power Supply : 220 VAC , Single Phase

13.9 Refrigerant : R134a/HC 600a

13.10 Energy Rating : 3 to 5 Star

13.11 Compressor :-Hermetically Sealed Compressor.

13.12 Condenser :- Air cooled Fins type with cooling Fan .

13.13 Painting: Synthetic enamel paint after two coats of red oxide primer

13.14 Provided with BASKETS inside the cabinet.

13.15 Body insulation :- Puff

13.16 Compressor Type :- Hermetically Sealed.

13.17 Material of inner cabinet:- Polystyrene.



14. Display Cabinet 2 ton capacity



14.1 Basic Indicative Diagram

14.2 Toughened Glass Doors.

14.3 Cooling Capacity : 2 ton

14.4 Temperature :- -5 0 c to 15 °C

14.5 Insulation : PUF

14.6 Power Supply : 220 V AC Single Phase

14.7 Refrigerant : R134a /R600

14.8 Temp indicator and Control Digital Type

14.9 Body Material : Stainless Steel

14.10 Condenser Coil : Air cooled Fins Type (Copper Coil)

14.11 Compressor : Hermetically sealed Reciprocating Type.

14.12 Equipped with Suction line and Discharge line Pressure Gauge.

14.13 Compressor Hermetically Sealed.

14.14 LED Lamp/ Tube should be provided inside the cabinet.



15. Evacuating and charging station with weighing scale



15.1 Basic Indicative Diagram

15.2 Vacuum Pump: 2 Stage Rotary Type

15.3 Motor: 0.5 HP

15.4 RPM : 1450

15.5 With Gauge Manifold

15.6 Vacuum Pulling Capacity : Up to 50 microns

15.7 With Microns Vacuum Gauge

15.8 Provided with Gas Charging Cylinder of 5 KG

15.9 Provided with Graduated Charging Cylinder

15.10 Drier: 1/4" Flare [DM50]

15.11 With Hand Shut off Valve ¼" Flare x ¼" Flare

15.12 With Ammeter (0 to 30 Amp) and Voltmeter (0 to 500VAC)

15.13 Provided with High Pressure Gas Charging Hoses / Lines that can with stand 2000 to
2200 psi Pressure :- 2 Nos.

15.14 Digital Weighing machine of 10 KG

15.15 Suitable for R22 , R134 ,R 32 , R410



16. Cassette AC 4500Kcal/hr

16.1 Basic Indicative Diagram



16.2 Mounting type ceiling

16.3 Voltage 230 ACV

16.4 Cooling Capacity 1.5 ton

16.5 Power Consumption 1536W

16.6 Star Rating- 2 and above

16.7 Air Flow- 730CFM

16.8 Refrigerant R32/R410A

16.9 suitable for 52 deg. C ambient temp

16.10 make Mitsubishi/Godrej/Toshiba



17. Split AC [Inverter Type]

17.1 Basic Indicative Diagram



17.2 Cooling Capacity = 1.5 ton

17.3 Refrigerant = R32/R410

17.4 Compressor= inverter type

17.5 Operating Current approx = 7Amp

17.6 make = Standard / branded

17.7 Star Rating = 3 and above

17.8 Power supply = 220-240VAC(50Hz)

17.9 Condensor coil material copper

17.10 Evaporator Coil Material Copper

17.11 with remote control circuit



18. Duct - able Split AC

18.1 Basic Indicative Diagram



18.2 Cooling Capacity = 1.5 ton

18.3 Refrigerant = R32/R410

18.4 Noise level 53Db

18.5 Power Supply 220-240 ACV

18.6 Machine design for 52 deg. C ambient temp



19. Water Cooler with Purifier 120 L



19.1 Basic Indicative Diagram

19.2 Dimension in mm W X D X H = 600x 545 x1300 TO 750 x 650 x 1500

19.3 Operating Power Supply = 230 V +/- 10% AC single phase

19.4 Running Current in Amp(Max) = 6+/-10%

19.5 Refrigerant = R134a

19.6 Thermal Insulation for Storage Tank = PUF

19.7 Water Storage Tank Capacity = 120Ltr

19.8 Total No of Faucets = 2

19.9 Production capacity = 50 LPH

19.10 No of Stages for Filter cum Purifier = 3 or above

19.11 Cooling Capacity at comfort level = 60 LPH

19.12 Purifier Fault Indication Buzzer = Yes

19.13 Minimum Water Input Pressure = 0.4 Kg/cm²



19.14 Maximum water Input Pressure = 2 Kg/cm²

19.15 Storage Tank Material = Stainless Steel (SS304)



20. Split Air Conditioning System (2 Ton)

20.1 Basic Indicative Diagram



20.2 Cooling Capacity = 2 ton

20.3 Refrigerant = R32/R410

20.4 Compressor = Rotary/Reciprocating

20.5 Operating Current approx = 9 Amp

20.6 Make = standard /Branded

20.7 Star Rating = 3 and above

20.8 Power supply = 220-240VAC(50Hz)

20.9 Condensor coil material copper

20.10 Evaporator Coil Material Copper

20.11 with remote control circuit



21. Split Air Conditioning System (1.5 Ton)

21.1 Basic Indicative Diagram



21.2 Cooling Capacity = 1.5 ton

21.3 Refrigerant = R32/R410

21.4 Compressor = Rotary/Reciprocating

21.5 Operating Current approx. = 7 Amp

21.6 Make Standard/Branded

21.7 Star Rating = 3 and above

21.8 Power supply = 220-240VAC(50Hz)

21.9 Condenser coil material copper

21.10 Evaporator Coil Material Copper

21.11 with remote control circuit