DUNHAM-BUSHINDUSTRIES SDN.BHD

ABSORPTION REFRIGERATION TRAINER

TRAINING PROGRAM

- PlottingtheabsorptionrefrigerationcycleonlogP-1/T chart,
- with temperature measurements detected along the circuit
- Transferring these values onto the concentration/enthalpy
- chart and assessing the heat quantity exchanged in the boiler,
- in the condenser, in the absorber and in the evaporator
- Calculating the average flow rate of the circulating solution
- Data acquisition and calculation of the system output versus
- the temperature attained in the boiler

TECHNICAL SPECIFICATIONS

Model: DBV-ART-200

- Steel structure mounted on wheels, painted and treated in the oven
- Colour silk-screen-printed schematic
- diagram of the hydraulic circuit with warning LEDs
- Welded airtight circuit of carbon steel including 1 boiler,
- 1 finnedcondenserforheatexchangewiththeenvironment,1 evaporator and 1absorber
- Refrigerant: water/ammonia solution
- 12 V electric resistors
- 230 V to 12V transformer and rectifier
- LPG burner with pressure reducer and electronic ignition
- Cold room in transparent material with 2compartments
- Full se to instruments for acquiring operating data, including:
  - ElectronicthermometerswithPt100probestobeinserted in various test points arranged al on the hydraulic circuit
  - Digital multi meter

Power supply: 230 Vac50 Hz single-phase - 150VA
(Other voltage and frequency on request)

Dimensions: 130 x 80 x 180cm

Dunham-Bush Industries Sdn Bhd (166302-K)
Lot 5755-6, Kidamai Industrial Park
Bukit Angkat, 43000 Kajang
Selangor Darul Ehsan, Malaysia
Tel: +603 8733 9898
Fax: +603 8736 3792 / 8734 2178
www.dunham-bush.com

DUNHAM-BUSHINDUSTRIES SDN.BHD

TRAINER FOR THE STUDY OF A CHILLER

TRAININGPROGRAM

- Plant starting and verification of the intervention of the Safety devices
- Study of the operation of a chiller
- Study of the operation of a thermostatic expansion valve
- ON/OFF regulation
- Analysis of the behavior of the system at the variation of: Airflow at the condenser -Airflow at the air/water exchanger
- Drawingtherefrigerantcycleinthepressure– enthalpydiagramoftherefrigerantgas
- Data collection and calculation of: Thermal exchange surfaces
- Thermal balance at the evaporator, condenser, and Compressor
- Mass flow of the refrigerant- Ideal and real EER
- Volumetric efficiency of the compression- Thermostatic valves upper heat
- Thermal balance (waterside)

TECHNICALSPECIFICATIONS

Model: DBV-SC-500

- Steel structure mounted on wheels , painted and treated in The oven
- Silk-screened coloured synoptic with LED
- Hermetic compressor
- Forced air condenser with variable speed set table via potation meter
- Water evaporate or with concentric tubes
- Liquid receiver, liquid separator
- Interception valves, sight glass, dehydrating filter
- Thermostatic expansion valve
- Service valve for plant vacuum, gas charging and discharging
- Connection tubes between the several components painted With different colours (discharge, suction, liquid lines)
- Regulating thermostat
- Water pump
- Water flow meter
- Air/water heat exchanger with forced air and variables peed setae via potation meter
- Complete set of instruments for data acquisition, including: Flow meter
- High and low pressure gauges
- 3digitalthermometerswithPt100probestobeinserted Into test point salon the hydraulic circuit
- Emergency push button
- Digital multi meter
- Double pressure switch
- Thermo magnetic-earth leakage control button

Power supply: 230Vac50Hzsingle-phase-1000VA**Dimensions:** 188x81x182 cm

Dunham-Bush Industries Sdn Bhd (166302-K)
Lot 5755-6, Kidamai Industrial Park
Bukit Angkat, 43000 Kajang
Selangor Darul Ehsan, Malaysia
Tel: +603 8733 9898
Fax: +603 8736 3792 / 8734 2178
www.dunham-bush.com

DUNHAM-BUSHINDUSTRIES SDN.BHD

DOMESTIC AIR-CONDITIONING TRAINER

TRAININGPROGRAM

•Plantstartingandsafetydevicesinterventionchecking
•Studyingtheoperationofasplit-typeairconditioner
•OperationinCoolingandDehumidificationmode
•Modulatingcontrol
•Examiningthesystembehaviorversusthevariationof:-operatingmode
-Flowrateattheevaporator-set-pointtemperature
•Plottingtherefrigerationcycleonrefrigerantpressure-enthalpydiagram
•Dataacquisitionandcalculationof:
-heat balance scor responding to evaporator, condenser, compressor
-refrigerant mass flow-ideal and actual E.E.R.
-volumetriccompressorefficiency
-heatbalancesonairside(optionalitemsthermohygrometerandanemometerrequired)

TECHNICALSPECIFICATIONS

Model: DBV-DAC-700
•Steel structure mounted on wheels, painted and treated in
The oven
•Silk-screen-printedschematicdiagramofthehydrauliccircuitwithwarningLEDs
•7000BTU/hsplit-typeunitincluding-hermeticcompressor
-forcedaircondenser
-3-speedfanevaporatorwithdeflector
-Refrigerantexpansionthroughcapillarytube-remotecontrolforadjustment
•On-offvalves,sightglass,dehydratorfilter
•Valveforplantvacuum,refrigerantchargingandrecovering
•Pipesconnectingthevariouscomponentspaintedwith
Differentcolors
•Fullsetofinstrumentsfordataacquisition,including:-flow meter
-highandlowpressuregauges
3electronicthermometerswithPt100probestobeinsertedinvarioustestpoints
-Digital multi meter
•Highandlowpressureswitches
•Thermomagnetic-earthleakagecontrolbutton
•Emergencybutton

Powersupply:230Vac50Hzsingle-phase-1000VA
Dimensions:180x80x180 cm

Dunham-Bush Industries Sdn Bhd (166302-K)
Lot 5755-6, Kidamai Industrial Park
Bukit Angkat, 43000 Kajang
Selangor Darul Ehsan, Malaysia
Tel: +603 8733 9898
Fax: +603 8736 3792 / 8734 2178
www.dunham-bush.com

DUNHAM-BUSHINDUSTRIES SDN.BHD

GENERAL REFRIGERATION TRAINER

TRAINING PROGRAM

Plant starting and safety devices intervention checking

- Studying the operation of a thermostatic expansion valve
- Analyzing the system behavior versus the variation of:
  - expansion device
  - superheat(when the thermostatic expansion valve is used)
  - air flow rate at condenser and/or evaporator
  - refrigerant charge into the system
- Plotting the cycle in the refrigerant pressure-enthalpy diagram
- Data acquisition and calculation of:
  - thermostatic valve superheat
  - heat balances corresponding to evaporator, condenser, compressor
  - refrigerant mass flow
  - ideal and actual EER
  - volumetric compression efficiency
- Troubleshooting of system and of its components

TECHNICAL SPECIFICATIONS

Model: DBV-GRV-45

- Steel structure mounted on wheels, painted and treated in the oven
- Colour silk-screen-printed schematic diagram of the hydraulic circuit with warning LEDs
- Hermetic compressor
- Forced-air condenser with variable flow settable by potentiometer,equippedwith8glasspipesfordisplayingthe refrigerant condensation process
- Forced-air evaporator with variable flow settable by potentiometer,equippedwith8glasspipesfordisplayingthe refrigerant evaporation process
- Devices for liquid lamination: internal equalization thermostaticvalve,3capillarytubesofdifferentgeometry
- Liquid receiver, liquid separator
- On-off valves, sight glassed hydrator filter
- Valve for plant vacuum, refrigerant charging and recovering
- Pipes connecting the various components painted with different colours
- Full set of instruments for data acquisition, including:
  - flow meter
  - high and low pressure gauges
  - 3 electronic thermometers with Pt100 probes to be inserted into several test points along the hydraulic circuit
  - Digital multi meter
- High and low pressure switches
- Thermo magnetic - earth leakage control button
- Emergency button
- High and low pressure switches
- Thermo magnetic - earth leakage control button
- Emergency button

Power supply: 230 Vac50 Hz single-phase - 500VA
(Other voltage and frequency on request)

Dimensions: 140 x 80 x 180cm

Dunham-Bush Industries Sdn Bhd (166302-K)
Lot 5755-6, Kidamai Industrial Park
Bukit Angkat, 43000 Kajang
Selangor Darul Ehsan, Malaysia
Tel: +603 8733 9898
Fax: +603 8736 3792 / 8734 2178
www.dunham-bush.com