



MULTIPLE SCROLL
COMPRESSORS TYPE
AIR COOLED
PACKAGE CHILLERS



WWW.SMARTECHAMERICA.COM | 1118 FIRST STREET E
HUMBLE TX 77338
281-540-2805

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Towards Green, Quality & Reliability Solutions*



SCOD_A SERIES



INTRODUCTION

THIS SERIES OF MULTIPLE SCROLL COMPRESSOR AIR COOLED PACKAGE CHILLERS WERE DEVELOPED BY A GROUP OF INDUSTRY ENGINEERS, EACH OF THEM WITH OVER 20 YEARS OF EXPERIENCE IN THE DESIGN, MANUFACTURING, INSTALLATION AND SERVICE OF ELECTRIC CHILLERS, PACKAGED AIR CONDITIONERS, SPLIT AIR-CONDITIONERS, FAN-COILS, HANDLING UNITS, AND RELATED PRODUCTS.

- SMARTECH IS FULLY COMMITTED TO INNOVATIVE DESIGN, NEW AND ADVANCE TECHNOLOGY, VALUE ENGINEERING AND TO PROVIDE EXPERT PERSONALIZED SERVICE TO ARCHITECTS, CONSULTING ENGINEERS, DEVELOPERS, BUILDING OWNERS AND CONTRACTORS.
- OUR ABILITY AND COURAGE TO UTILIZE AND ADOPT LATEST TECHNOLOGY, COMBINED WITH FULLEST PERSONALIZED ASSISTANCE, HAS ENABLED THE COMPANY TO PROVIDE ARCHITECTS, CONSULTANTS AND DEVELOPERS VARIOUS CUSTOMIZED SOLUTIONS TO THEIR VARIOUS DEMANDING APPLICATION REQUIREMENTS.
- SMARTECH HAS THE UNIQUE EXPERTISE AND EXPERIENCE TO CUSTOM DESIGN AND FABRICATES EQUIPMENT FOR INSTALLATIONS IN MARINE AND CORROSIVE ENVIRONMENT, EXPLOSIVE AND HAZARDOUS ENVIRONMENT, LOW NOISE ENVIRONMENT AND ANY OTHER SPECIAL APPLICATION NEEDS.
- ALL UNITS MEET OR EXCEED ASHRAE 90.1 MINIMUM ENERGY EFFICIENCY REQUIREMENTS.
- UNITS MEET UL ELECTRICAL REQUIREMENTS.
- ONLY USED WITH ECO-FRIENDLY HFC TYPE REFRIGERANTS.



SUPER LOW SOUND AXIAL CONDENSER FANS

DIRECT DRIVE TEAO FAN MOTORS

FACTORY PACKAGED AND PRE-WIRED POWER AND CONTROL PANEL
SMART-ADVANCE SAGOO NON-PROPRIETARY MICROPROCESSOR BASED CONTROLLER

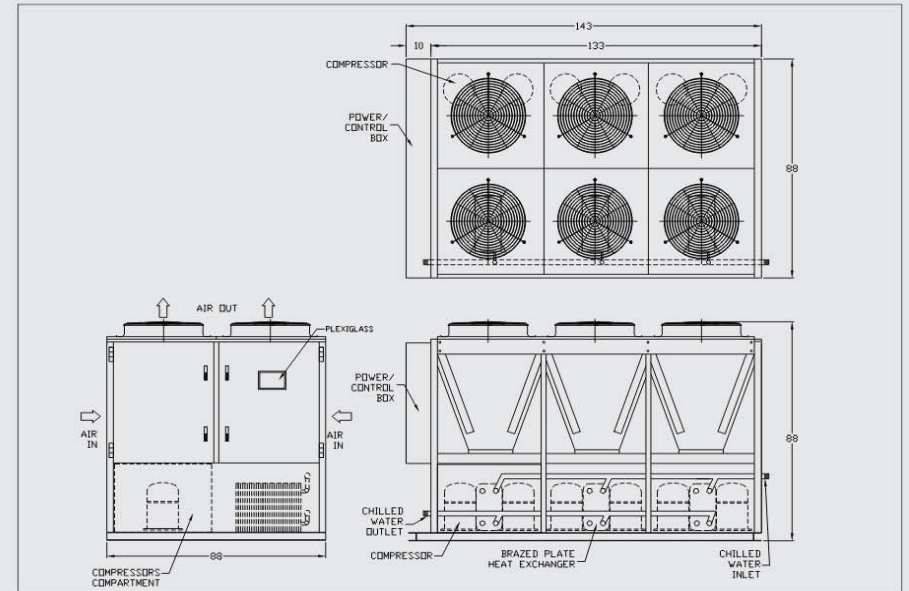
WEATHER PROOF CASING

HYDROPHILIC COATED, 0.06" THICK CONDENSER FIN STOCK, MINIMUM 14 FINS PER INCH FIN SPACING.

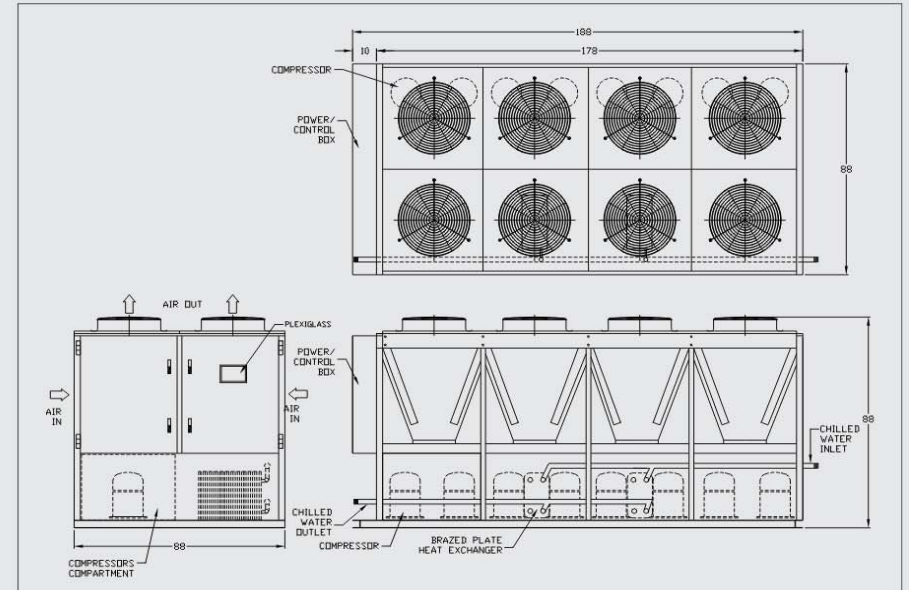
HERMETIC SCROLL COMPRESSOR

DIMENSION DATA

SCOD 66-6 AR7, 72-6 AR7, 85-6 AR7



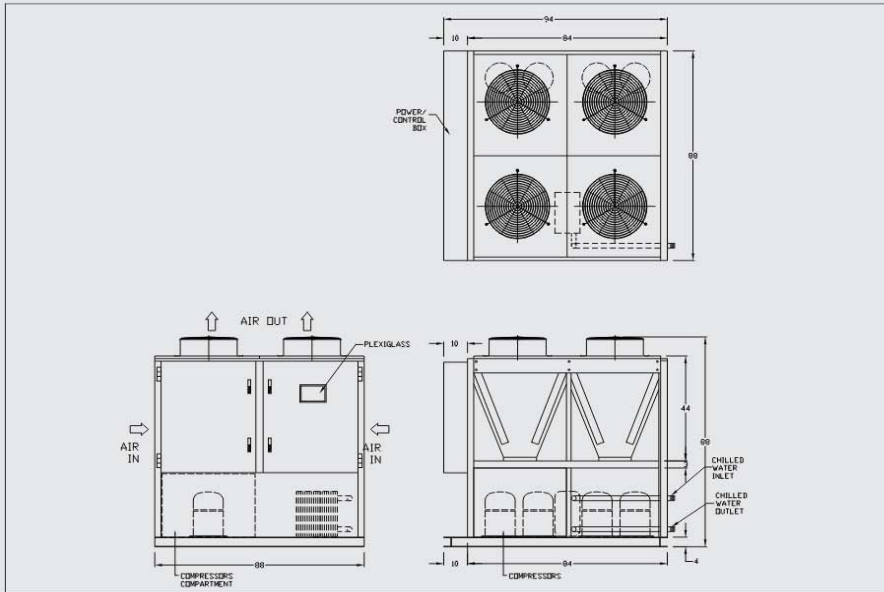
SCOD 90-6 AR7, 96-6 AR7, 115-6 AR7



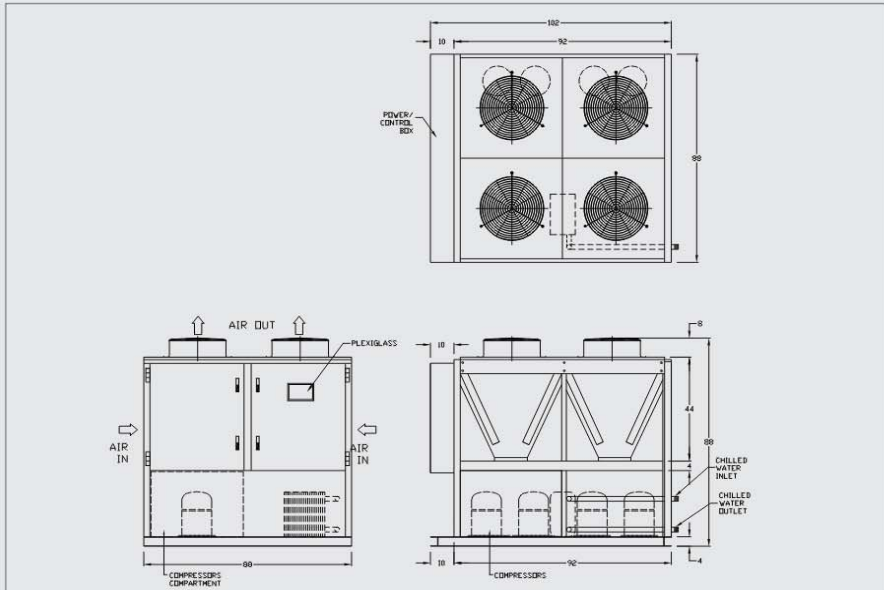
- Note:
- 1) All dimensions are in inches.
 - 2) No tandem and shell & tubes options available.

DIMENSION DATA

SCOD 35-6 AR7, 40-6 AR7



SCOD 45-6 AR7, 50-6 AR7, 60-6 AR7



Note:
 1) All dimensions are in inches.
 2) No tandem and shell & tubes options available.

MULTIPLE SCROLL TYPE COMPRESSORS AIR COOLED PACKAGE CHILLERS

GENERAL DESCRIPTION

THE AIR COOLED SCROLL CHILLERS ARE DESIGNED AND MANUFACTURED TO ENSURE EFFICIENT AND RELIABLE PERFORMANCE AND TO PROVIDE AN ECONOMICAL SYSTEM OF AIR CONDITIONING FOR RESIDENTIAL, COMMERCIAL AND INDUSTRIAL BUILDINGS. THE AIR-COOLED SCROLL CHILLERS CAN ALSO BE SUITABLE PIPED AND CONNECTED TO PROVIDE CHILLED WATER OR COLD BRINE SOLUTION FOR PROCESS COOLING PURPOSE.

EACH AIR-COOLED SCROLL CHILLER CONSISTS OF AN OUTDOOR WEATHERPROOF CASING CONSTRUCTED FROM HEAVY GAUGE GALVANIZED STEEL COATED WITH OVEN-BAKED EPOXY POLYESTER PAINT; TWO OR MULTIPLE SCROLL COMPRESSORS WITH MINIMUM TWO INDEPENDENT REFRIGERANT CIRCUITS; A LARGE SURFACE AREA COPPER TUBES-ALUMINIUM FIN CONDENSER COIL FOR EFFICIENT HEAT TRANSFER; A COMPACT BRAZED PLATES HEAT EXCHANGER USED AS COOLER; TWO OR MULTIPLE AXIAL PROPELLER FANS WITH DIRECT DRIVE INDUCTIONS MOTORS; FACTORY PACKAGED AND PREWIRED POWER AND CONTROL PANEL; AND A MICROPROCESSORBASED CONTROLLER FOR CAPACITY STEPS MODULATION AND SAFETY PROTECTIONS.

THE AIR-COOLED SCROLL CHILLERS ARE SUITABLE FOR OUTDOOR INSTALLATION WITH FREE AND UNDUCTED CONDENSER FANS AIR DISCHARGE. FOR CHILLERS OF SIZE 66, 72, 85, 90, 96 AND 115. SHELL AND TUBES TYPE COOLERS, EACH WITH INDEPENDENT EITHER 3 OR 4 REFRIGERANT CIRCUIT AND SINGLE WATER SIDE CIRCUIT ARE OFFERED AS OPTIONS.

NOMENCLATURE

SCOD	72	6	A	R7
SMARTTECH CHILLER SCROLL COMPRESSOR DX EVAPORATOR	NOMINAL COOLING TONS	60 Hz	AIR COOLED TYPE	R7 - R407C



APPLICATIONS SERVED

INDUSTRIAL PROCESS COOLING

ALTHOUGH THE TERM INDUSTRIAL LENDS ONE TO THINK TOUGH & RUGGED, INDUSTRIAL PROCESS APPLICATIONS CAN ACTUALLY BE QUITE SENSITIVE. MANY OF THESE APPLICATIONS NEED TIGHT TEMPERATURE CONTROL TO MAINTAIN THEIR QUALITY OF PRODUCT. WE, AT SMARTTECH UNDERSTAND THESE NEEDS AND REALIZE THAT YOUR PROCESS IS YOUR LIFEBLOOD. ACCURATE TEMPERATURE CONTROL AND 24/7 RELIABILITY ARE OUR TOP PRIORITIES. THIS LIST SHOW SOME COMMON PROCESS COOLING APPLICATIONS:

- PLASTICS PROCESSING
- INJECTION MOLD COOLING
- EXTRUSION COOLING
- LASER COOLING
- WELDING MACHINE COOLING
- METAL DIE-CASTING COOLING
- METAL PLATING / ANODIZING COOLING
- ENGINE DYNAMOMETER TESTING COOLING
- DRY CLEANING COOLING
- OIL COOLING

FOOD PROCESSING COOLING

FOOD PROCESSING CAN BE SOME OF THE MOST CRITICAL COOLING APPLICATIONS DUE TO THEIR USE OF MEATS & POULTRY. IN DEALING WITH FOOD, IN GENERAL, TEMPERATURE CONTROL IS PARAMOUNT. IF YOUR CHILLER DOES NOT HOLD TEMPERATURE, YOU LOSE PRODUCT. WE HAVE EXPERIENCE IN THE VARIOUS FOOD PROCESSING COOLING APPLICATIONS AND CAN HELP YOU FIND A SOLUTION TO YOURS.

HERE ARE JUST A FEW APPLICATIONS WE HAVE HANDLED PREVIOUSLY:

- BAKERY COOLING
- BATCH COOLING
- BRINE / MARINADE COOLING
- VACUUM MEAT TUMBLER / MASSAGER COOLING
- WINERY COOLING
- BREWERY COOLING
- ICE CREAM / SLUSHY MACHINE COOLING

MEDICAL & LABORATORY COOLING

MEDICAL EQUIPMENT IS A HIGH DOLLAR INVESTMENT. IT DESERVES TO BE COOLED BY A DEPENDABLE, SPECIALLY DESIGNED CHILLER. OUR CHILLERS PROVIDE PROVEN RELIABILITY TO SUSTAIN OPERATION AND PREVENT DAMAGE FROM OVERHEATING. SEVERAL APPLICATIONS ARE LISTED BELOW:

- M.R.I COOLING
- CLEAN ROOM AIR CONDITIONING
- C.A.T. SCAN COOLING
- P.E.T SCAN COOLING
- LAB TESTING

SPECIALTY APPLICATIONS

HAVE A SPECIAL OR CUSTOM APPLICATION? NO PROBLEM. CUSTOM CHILLER APPLICATIONS ARE WHERE WE THRIVE. WE ARE HERE TO HELP. SOME PREVIOUS CUSTOM PROJECTS ARE:

- ICE RINK COOLING
- EXPLOSION PROOF CHILLERS FOR ALL ELECTRICAL AREA CLASSIFICATIONS
- STAINLESS STEEL FRAME, CABINET AND CONTROL PANEL CONSTRUCTION
- ULTRA LOW SOUND REQUIREMENT.

STANDARD OPTIONS AVAILABLE TO MEET ANY CUSTOMER REQUIREMENT:

- SINGLE COMPRESSOR, PER CIRCUIT OPTIONS WITHOUT THE USE OF TANDEM COMPRESSOR;
- INSTALLED INSULATED STAINLESS STEEL TANKS FROM 50 - 2000 GALLONS
- HYDRONIC PUMP PACKAGES WITH PROCESS PUMPING AND RECIRCULATING PUMP OPTIONS
- NEMA 4 FLOW SWITCH OR FLOW METERS
- ALARM BEACON WITH AUDIBLE HORN
- WATERSIDE PRESSURE RELIEF BYPASS VALVE
- PROCESS FLUID INLINE SEPARATOR
- PROCESS FLUID INLINE FILTER
- EXTENDED COMPRESSOR WARRANTY
- CUSTOM COLOR PAINT TO MATCH ANY INTERNATIONAL COLOR CODE
- HIGH AND LOW AMBIENT OPERATIONS OPTIONS
- LOW TEMPERATURE OPTIONS AVAILABLE



MECHANICAL SPECIFICATIONS AND FEATURES

RANGE

THE CHILLER HAS MANY AVAILABLE SIZES FROM 13 TO 115 TONS AND AVAILABLE WITH HFC-407C REFRIGERANT.

HERMETIC SCROLL COMPRESSOR

- HERMETIC SCROLL OPERATING AT 3500 RPM (60Hz)
- PROVEN HIGH EFFICIENCY LOW NOISE AND HIGH RELIABILITY COMPRESSOR DESIGN TO ENSURE LONG LIFE OPERATION
- NO-CONTACT SCROLL DESIGN AND 100% MOTOR COOLED BY SUCTION GAS
- WITH INTERNAL LINE BREAK MOTOR PROTECTION OR SOLID STATE MOTOR PROTECTION
- MINIMUM TWO COMPRESSORS WITH TWO TO FOUR STEPS UNLOADING

BPHE EVAPORATOR

THE COMPACT BRAZED PLATE EXCHANGER (BPHE) ACTS AS AN EVAPORATOR, A SECONDARY GAS OR LIQUID IS COOLED AS IT LOSES HEAT TO THE LIQUID REFRIGERANT. THE REFRIGERANT BOILS AND IS CONVERTED INTO GAS, ABSORBING MORE ENERGY.

BPHE EVAPORATOR PROVIDES A GOOD, STABLE BOILING PROCESS AND A SMALL TEMPERATURE DIFFERENCE BETWEEN THE REFRIGERANT AND THE SECONDARY FLUID. A LOW TEMPERATURE DIFFERENCE MEANS THAT A HIGHER EVAPORATION TEMPERATURE IS POSSIBLE, WHICH REDUCES THE PRESSURE DIFFERENCE IN THE SYSTEM AND INCREASES THE DENSITY OF THE REFRIGERANT GAS. THESE TWO FACTORS INCREASE THE REFRIGERATION CAPACITY AND REDUCE THE POWER CONSUMPTION OF THE COMPRESSOR, WHICH TOGETHER INCREASE THE TOTAL SYSTEM EFFICIENCY.

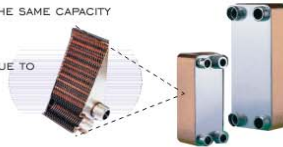
BPHEs ARE SO FAR THE MOST EFFICIENT WAY OF TRANSFERRING HEAT FOR COOLING CAPACITIES BELOW 50 RT, AND WITH MAXIMUM INDEPENDENT TWIN REFRIGERANT CIRCUITS. BPHEs OFFER CONSIDERABLY BETTER PERFORMANCE AND OVERALL ECONOMY COMPARED WITH OTHER TRADITIONAL HEAT TRANSFER TECHNOLOGIES SUCH AS SHELL AND TUBES EVAPORATOR.

SOME OF THE ADVANTAGES ARE:

- COMPACT SIZE AND 85-90% LIGHTER BY WEIGHT AND VOLUME THAN A SHELL AND TUBE EVAPORATOR OF THE SAME CAPACITY
- SUPERIOR HEAT TRANSFER PERFORMANCE
- LESS REFRIGERANT CHARGE REQUIRED COMPARE WITH SHELL & TUBES EVAPORATORS
- LITTLE MAINTENANCE REQUIRED. VERY LITTLE FOULING OCCURS EVEN AFTER LONG PERIOD OF OPERATION DUE TO HIGH INTERNAL TURBULENCE WHICH CREATES THE SELF CLEANING EFFECT ON THE INTERNAL CHANNELS.

CAUTION:

A WATER STRAINER SHOULD BE FIELD INSTALLED AT THE RETURN CHILLED WATER INLET PIPE, PRIOR TO THE BRAZED PLATE HEAT EXCHANGER, TO PREVENT ENTRY OF ANY PARTICLES LARGER THAN 1MM, WHICH COULD BLOCK THE INTERNAL CHANNELS, CAUSING POOR PERFORMANCE, INCREASED WATERSIDE PRESSURE DROP AND RISK OF FREEZING.



SHELL & TUBE EVAPORATOR

THE ADOPTION OF A DEDICATE, HIGH EFFICIENCY EXCHANGE TUBE ALLOWED TO EXALT PERFORMANCES INCREASING THE COOLING CAPACITIES BY VALUES CLOSE TO 10%. THIS PERFORMANCE IMPROVEMENT CAN BE ALTERNATIVELY TRANSLATED INTO A RAISING OF THE EVAPORATION TEMPERATURE AND THEN IN AN OPTIMISATION OF THE COP OF THE COOLING SYSTEM, NOT ONLY IN COMBINATION WITH R407C BUT ALSO WITH THE OTHER REFRIGERANTS.

- HEADER TUBE SHEET, SHELL, REFRIGERANT AND WATER CONNECTIONS ARE MADE OF CARBON STEEL
- HIGH EFFICIENCY EXCHANGE TUBES ARE IN COPPER, INTERNALLY FINNED.
- BAFFLES ARE MADE OF BRASS OR OTHER SUITABLE MATERIAL (CARBON STEEL)
- THE BOLT SYSTEM IS MADE OF STEEL ALLOYS OR STAINLESS STEEL DEPENDING ON WORKING CONDITIONS AND TEMPERATURES, WHILE GASKETS ARE MADE OF AN ASBESTOS FREE COMPOUND.



COPPER FINNS



CONDENSER COIL

- CONSTRUCTED FROM STAGGERED ROWS OF INNER RIDGED COPPER TUBES MECHANICALLY EXPANDED INTO DIE-FORMED ALUMINIUM FINNS FOR POSITIVE BONDING AND EFFICIENT HEAT REJECTION
- THE PRE-COATED ALUMINIUM FINNS IMPROVE CORROSION RESISTANCE AND MAINTAIN THE FINNS SURFACE FOR EFFICIENT HEAT REJECTION
- THE CONDENSER COIL IS PRESSURE TESTED UP TO 450PSIG WITH DRY NITROGEN UNDER WATER FOR LEAKS
- OPTIONAL COPPER FINNS CONDENSER COIL

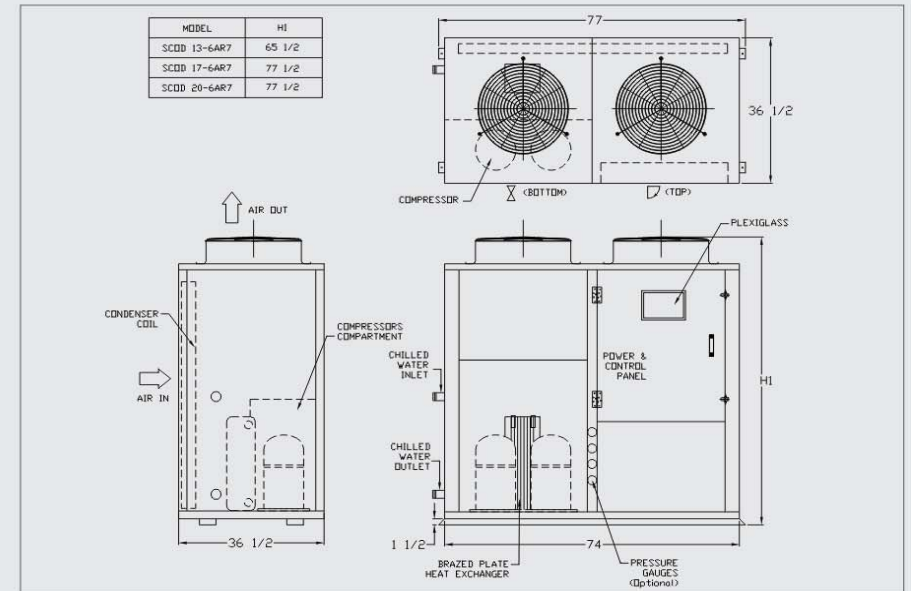
AXIAL PROPELLER FANS

- THE PATENTED AND UNIQUE DESIGNED AXIAL PROPELLERS ARE SELECTED TO DELIVER HIGH CONDENSER AIR FLOW RATES, WITH NOISE LEVEL AND LOW MOTOR POWER CONSUMPTION
- THE 3-PHASE, HIGH STARTING TORQUE, DIRECT DRIVE CONDENSER FAN MOTOR RUN AT MAXIMUM SPEED OF 1140 RPM FOR LOW NOISE OPERATION
- ALL CONDENSER FAN MOTORS ARE PROVIDED WITH EITHER INTERNAL LINE BREAK MOTOR PROTECTION OR EXTERNAL MOUNTED OVERLOAD PROTECTOR; AND SUITABLE FOR OUTDOOR INSTALLATIONS WITH MINIMUM IP54 PROTECTION
- OPTIONAL VARIABLE FAN SPEED CONTROL OR FAN CYCLING IN RESPONSE TO CONDENSING HEAD PRESSURE, DURING LOW AMBIENT CONDITION

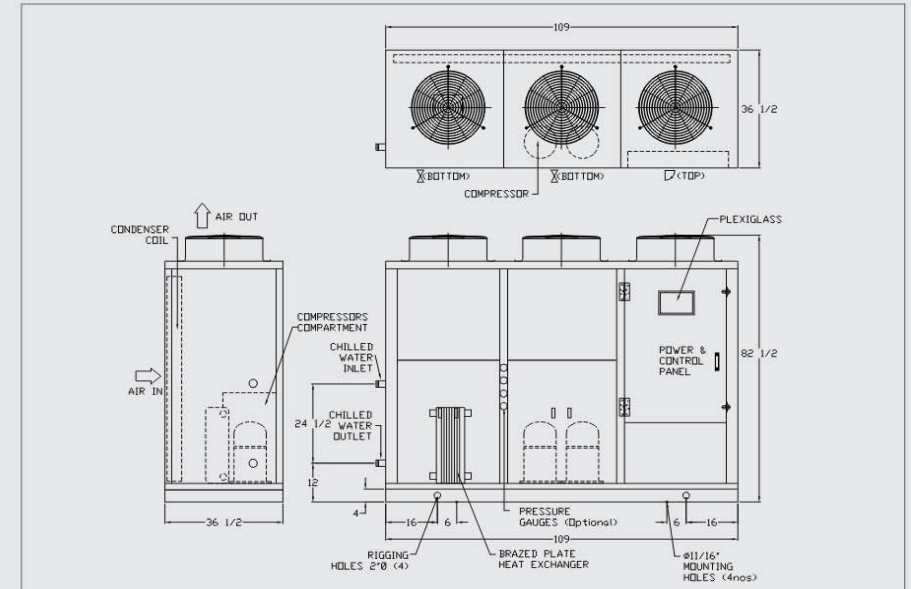


DIMENSION DATA

SCOD 13-6 AR7, 17-6 AR7, 20-6 AR7



SCOD 23-6 AR7, 25-6 AR7, 30-6 AR7



Note:

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