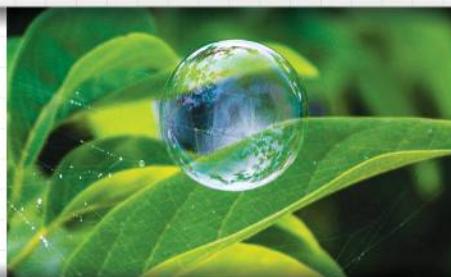


# Water-Cooled Scroll Chillers

*with refrigerant R407C & R22*



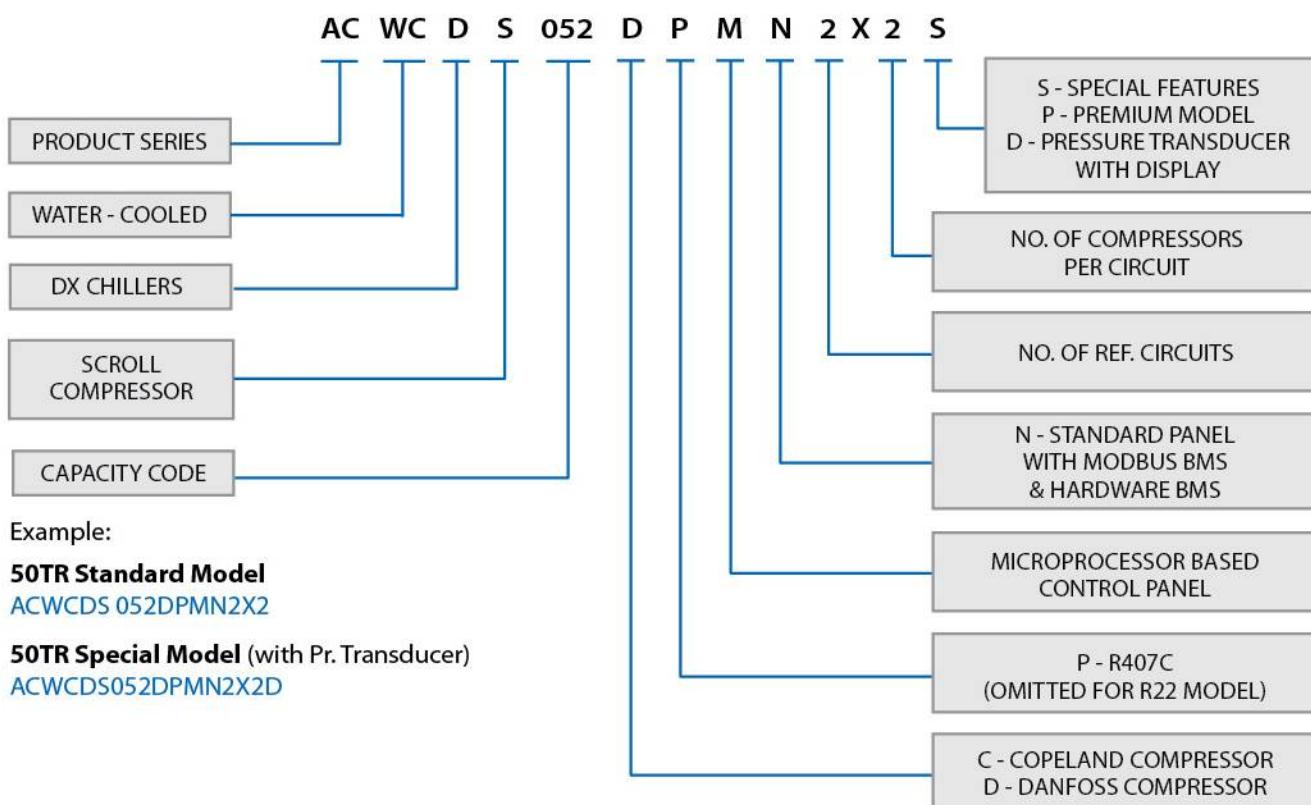
## WATER-COOLED SCROLL CHILLER

Voltas is the pioneer and a leading provider of integrated end-to-end solutions in the field of electromechanical and refrigeration. We are committed to provide customers with technology that suits their needs and have introduced a wide variety of air-cooled and water-cooled scroll chillers with R 22 and R 407 C refrigerant options.

With ISO 9001 standard certified factories, Voltas possesses total capability in the manufacture of scroll chillers. These chillers are available in a wide range of capacities from 13 TR to 100 TR. They are easy to install and commission and can handle varying cooling requirements, aided by multiple compressor configurations.

Voltas scroll chillers have become an ideal choice for various air conditioning applications including, office spaces, banks, hotels, hospitals, shopping malls, multiplexes, commercial complexes and process cooling requirements.

### MODEL NOMENCLATURE



### FEATURES

- Scroll Compressor with R 22 & R 407 C Refrigerant Options
- Energy Efficiency
- Modular Design
- Application Flexibility
- Low Noise & compact
- Easy-to-use Microprocessor Panel & Controls

## WATER-COOLED SCROLL CHILLER

**POWERFUL FEATURES:**

Voltas chillers are available in a wide range of models, with R 407C & R 22 refrigerants.

SCROLL CHILLERS								
Water - Cooled Chillers (Nominal Capacity)								
R407C	12.5 TR	25 TR	37.5 TR	50 TR	60 TR	75 TR	80 TR	95 TR
R22	13 TR	26 TR	39 TR	52 TR	64 TR	78 TR	85 TR	100 TR

**Energy Efficiency**

A range of sophisticated components such as highly energy efficient imported compressor, superior design of water-cooled condenser & chiller, internally grooved, cross-hatched copper tube coil with matched circuitry, and a microprocessor controller, results in low power consumption.

**Higher energy efficiency – Tandem compressor models**

Scroll chillers from 52 TR to 100 TR use compressors operating in tandem. This improves the operating efficiency during part load periods, since the entire condenser area is utilized for the heat rejection even though only one compressor may be in operation.

**Capacity Modulation**

Multiple compressors are used in most of the models, with independent refrigerant circuits. The microprocessor controller ensures that only the required number of compressors operate during part load conditions, thereby saving power.

**Operating Reliability**

The compressor is a no contact scroll design with the motor cooled by the suction gas. Higher capacity scroll chillers use tandem compressors with suction gas distribution restrictor which allows balanced operation of compressor. The chillers are charged & tested in the factory prior to despatch, enhancing operating reliability.

**Quiet Operations**

The chillers use ultra quiet, high efficiency scroll compressors. The condenser fans are designed for low noise levels.

**Easy to install**

The chillers are pre-wired, fully charged and run tested at the factory, saving installation and start up time.

**Voltas Countrywide After Sales Service**

A nationwide service network backs every unit. After the initial warranty period, Voltas offers annual service schemes. More than 90% of the customers have opted for these schemes. You cannot get a better insurance.

## WATER-COOLED SCROLL CHILLER

### MICROPROCESSOR - BASED CONTROLLER

Specially designed controller has multiple features with following benefits:

#### Three modes of operation :

- **Local mode** : Start / Stop & control through
- **Remote mode** : Remote Start / Stop through Digital input connected through cables.
- **BMS Mode** : Remote data access through MODBUS RTU protocol. Available communication port RS485 can be linked to Building Management System (BMS).
- **MMI** : Touch Pad / Key Pad with 32 character LCD Display.



**Touch Screen**

#### Equalization of Compressor Runtime :

- The Micro processor Controller ensures equal running of compressors in multiple compressors units. This ensures longer life of compressors.

#### Safety & Protection :

- Microcomputer Motor Protection Device (**MPD**) : Protects chiller from
  - **Phase unbalance** • **Phase loss** • **Phase reversal** • **Overload** • **Underload**
- Microcomputer Voltage Protection Device (**VPD**) : Protects chiller from
  - **Phase loss** • **Phase reversal**
- Safety features protect the system from :
  - **Freezing** • **Low Pressure** • **Anti Recycle** • **Low Chilled Water Temperature**
  - **High Pressure** • **Sensor Error** • **Low Water Flow in condenser, Chiller**

#### Touch Pad :

- Provides user friendly interface with graphical display
- Gives visual annunciation for safety trips
- Sturdy design for all environment
  - *4.3" Resistive Touch Screen* • *65536 colours TFT-LCD Display* • *Resolution : 480 x 272*
  - *Humidity : 10% - 85% non condensing* • *Operating Temperature : -20°C to + 60°C*
  - *Protection level : IP55 (surface)*

#### Self diagnosis Function

- Digital Display of all digital inputs & output such as Outlet temperature for Chillers, Current, Voltage & Compressor run hours, low water flow, etc.
- Diagnose mode for easy trouble shooting – shows alarm history for the last 100 trips with Date, Time & Cause of failure.

## WATER-COOLED SCROLL CHILLER

**Controls & Interlocks**

- The chilled water pump is interlock with compressors.
- The safety controls are preset at factory while operating controls are field adjustable, depending on actual operating requirements.

**Optional Features:**

- Dual-mode chillers for thermal storage system.
- Condenser Coil with anti-corrosion coating.
- Suction & discharge pressure transducers & pressure display.
- Control Panel as per NEMA standard.

TECHNICAL DATA W/C SCROLL CHP ( R407C)								
Unit Model No.	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS
	013DPMN	026DPMN	039DPMN	052DPMN	064DPMN	078DPMN	085DPMN	0100DPMN
	1X1P	2X1P	3X1P	2X2P	3X1	3X2	2X2	2X2
* Nom. Capacity (TR)	12.5	25	37.5	50	60	75	80	95
COMPRESSOR								
Compressor Type	Hermetic Scroll							
Compressor Qty.	1	2	3	4	3	6	4	4
Rpm	2900	2900	2900	2900	2900	2900	2900	2900
Unit Capacity Reduction Steps in %	100	100/50	100/66.7/33.3	100/75/50/25	100/66.7/33.3	100/83.3/66.7 /50/33.3/16.7	100/75/50/25	100/75/50/25
Max. Allowable Operating Current Per Compr. (Amps At 400 volts)	35	35	35	35	69	35	69	72
Operating Current per Compr.- (Amps at 400 volts & design rating condition)	20	20	20	20	32	20	32	37
EVAPORATOR								
Evaporator Type	Shell & Tube - DX							
Water Flow Rate (USgpm)	33	67	100	133	157	200	209	253
**Water Nozzle Size NB (mm)	65	65	80	100	100	125	125	150
CONDENSER								
Condenser Type	Shell & Tube							
Water Flow Rate (usgpm)	41	81	122	163	192	244	256	310
**Water Nozzle Size NB (mm)	40	40	40	50	50	50	150	150
UNIT DIMENSION								
Length (mm)	2350	2550	2650	2700	2650	2600	2700	3000
Width (mm)	1000	1000	1150	1150	1150	1350	1400	1400
Height (mm)	1150	1350	1200	1500	1450	1950	1500	1600

**Note1 :** \*Capacity rated for evap. inlet water temp 12° C, leaving water temp 7° C and design at entering condenser water temperature of 30° C. Water side fouling factor of 0.000018 m<sup>2</sup>°C/W.

**Power & control supply** voltage is 360 - 440 V & 210-240 V respectively and frequency is 50Hz.

**Note 2 :** \*\* Size of water piping to be done at site to be determined based on operating tonnage & available pump head.

**Note 3 :** For chilled water outlet allowable temperature range is 5°C to 12°C. For other temperature, higher ambient / other duty / flow application please refer to Voltas Sales Team.

## WATER-COOLED SCROLL CHILLER

TECHNICAL DATA W/C SCROLL CHP ( R22)								
Unit Model No.	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS	ACWCDS
	013DMN	026DMN	039DMN	052DMN	064DMN	078DMN	085DMN	0100DMN
	1X1	2X1	3X1	2X2P	3X1	3X2P	2X2	2X2
* Nom. Capacity (TR)	13	26	39	52	64	78	85	100
COMPRESSOR								
Compressor Type	Hermetic Scroll							
Compressor Qty.	1	2	3	4	3	6	4	4
Rpm	2900	2900	2900	2900	2900	2900	2900	2900
Unit Capacity Reduction Steps in %	100	100/50	100/66.7/33.3	100/75/50/25	100/66.7/33.3	100/83.3/66.7 /50/33.3/16.7	100/75/50/25	100/75/50/25
Max. Allowable Operating Current Per Compr. ( Amps At 400 volts )	35	35	35	35	69	35	69	72
Operating Current per Compr.- ( Amps at 400 volts & design rating condition	20	20	20	20	32	20	32	37
EVAPORATOR								
Evaporator Type	Shell & Tube - DX							
Water Flow Rate (USgpm)	35	69	104	138	169	207	226	266
**Water Nozzle Size NB (mm)	65	65	80	100	100	125	125	150
CONDENSER								
Condenser Type	Shell & Tube							
Water Flow Rate (usgpm)	42	85	127	169	207	254	276	326
**Water Nozzle Size NB (mm)	40	40	40	50	50	50	150	150
UNIT DIMENSION								
Length (mm)	2350	2550	2650	2700	2650	2600	2700	3000
Width (mm)	1000	1000	1150	1150	1150	1350	1400	1400
Height (mm)	1150	1350	1200	1500	1450	1950	1500	1600

**Note1 :** \*Capacity rated for evap. inlet water temp 12° C, leaving water temp 7° C and design at entering condenser water temperature of 30° C. Water side fouling factor of 0.000018 m<sup>2</sup>°C/W.

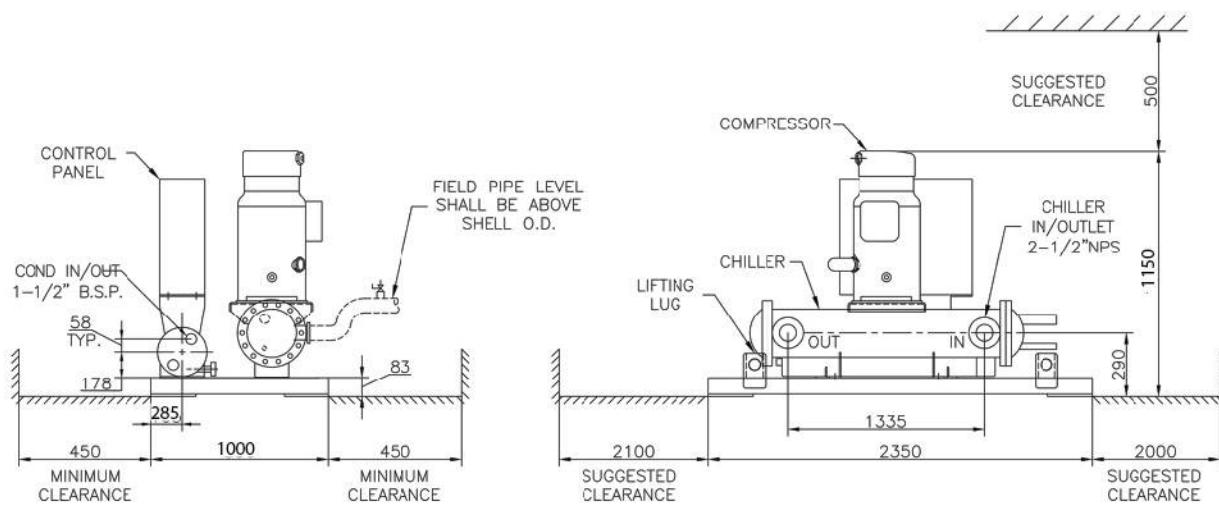
**Power & control supply** voltage is 360 - 440 V & 210-240 V respectively and frequency is 50Hz.

**Note 2 :** \*\* Size of water piping to be done at site to be determined based on operating tonnage & available pump head .

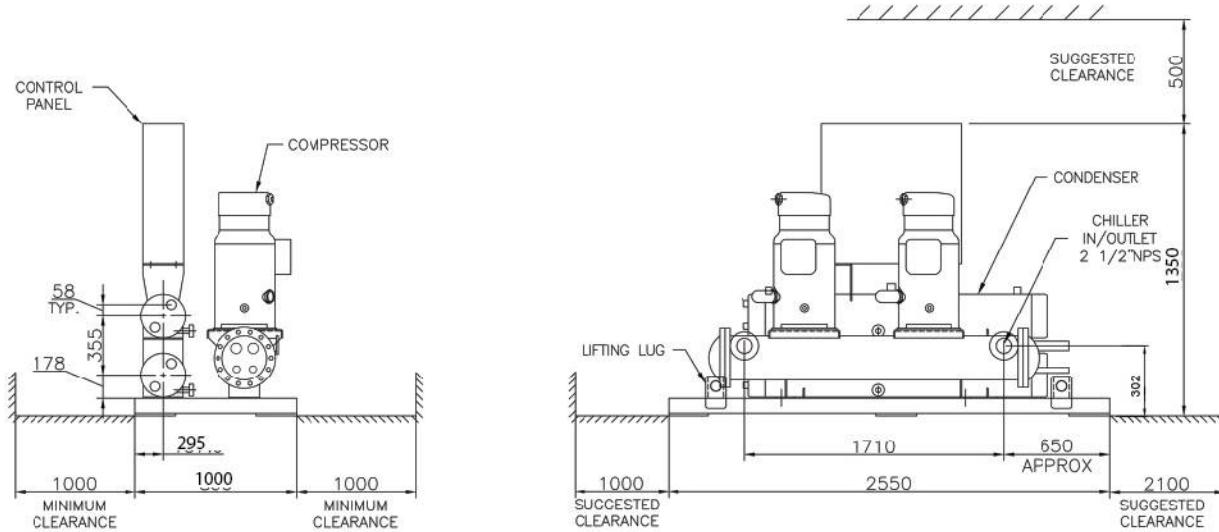
**Note 3 :** For chilled water outlet allowable temperature range is 5°C to 12°C. For other temperature, higher ambient / other duty / flow application please refer to Voltas Sales Team.

## WATER-COOLED SCROLL CHILLER

**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS013DPMN1X1P | ACWCDS013DMN1X1

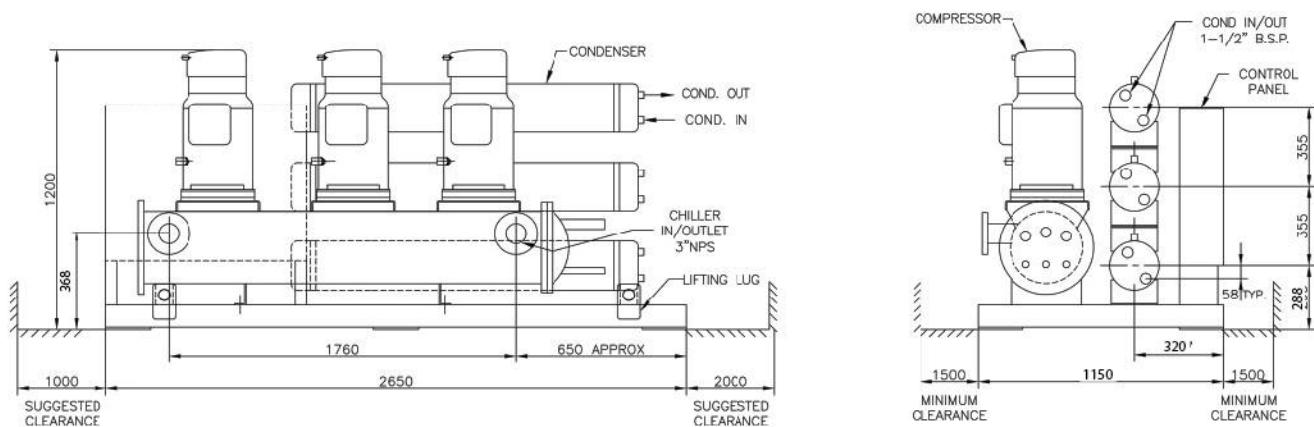


**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS026DPMN2X1P | ACWCDS026DMN2X1

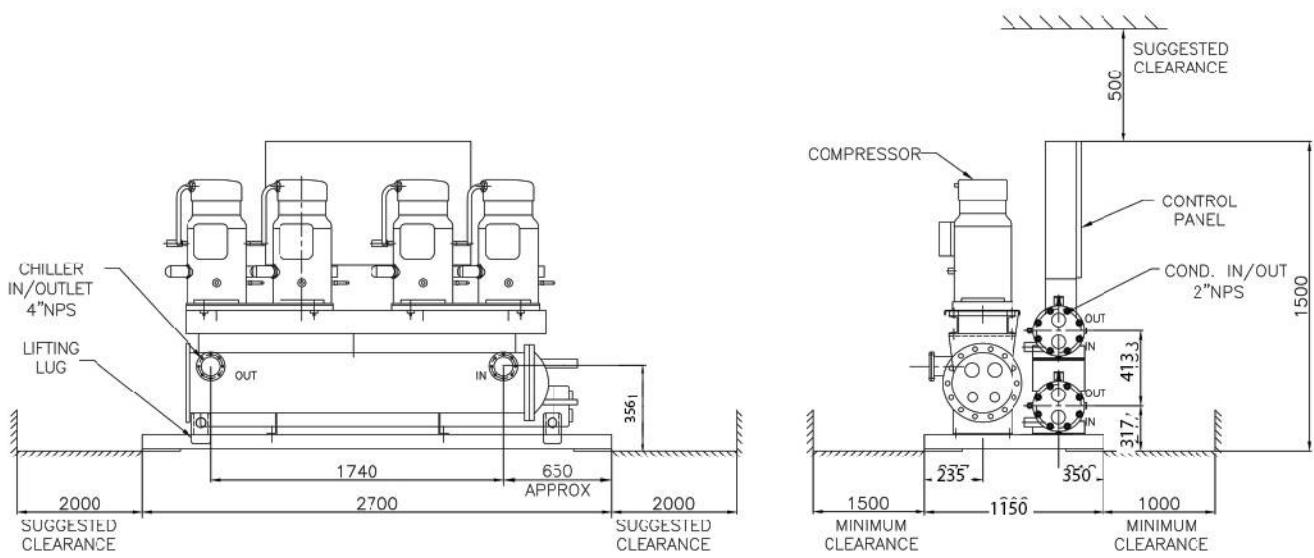


WATER-COOLED SCROLL CHILLER

**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS039DPMN3X1P | ACWCDS039DMN3X1



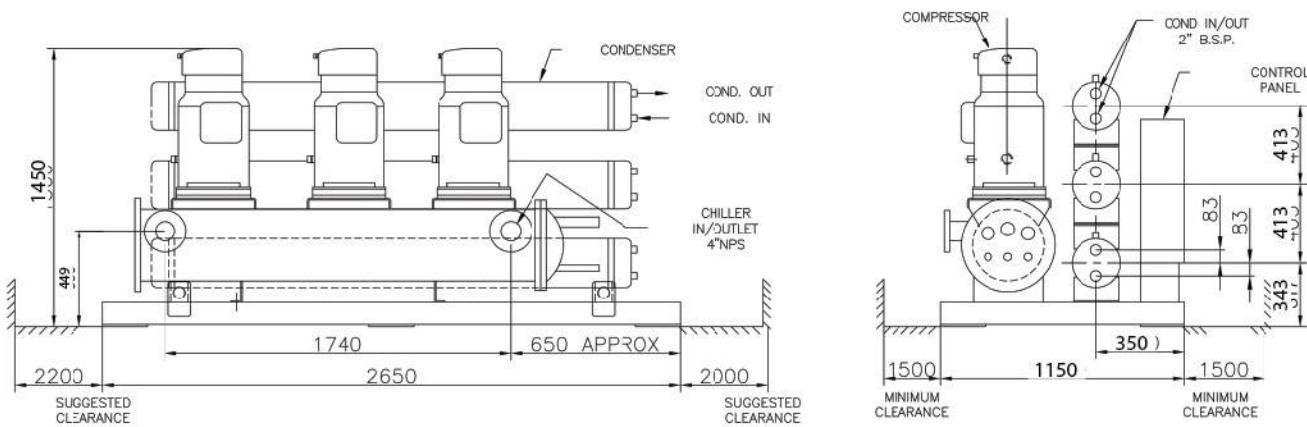
**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS052DPMN2X2P | ACWCDS052DMN2X2P



WATER-COOLED SCROLL CHILLER

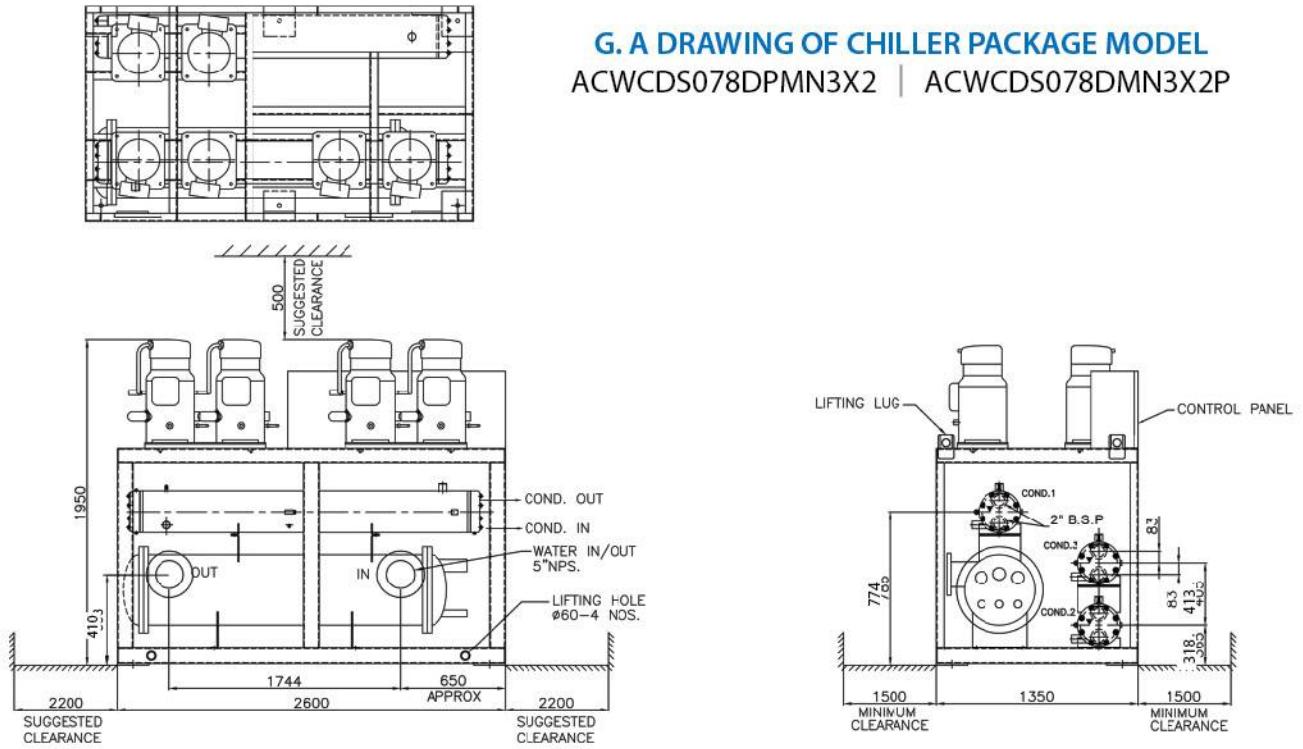
**G. A DRAWING OF CHILLER PACKAGE MODEL**

ACWCDS064DPMN3X1 | ACWCDS064DMN3X1



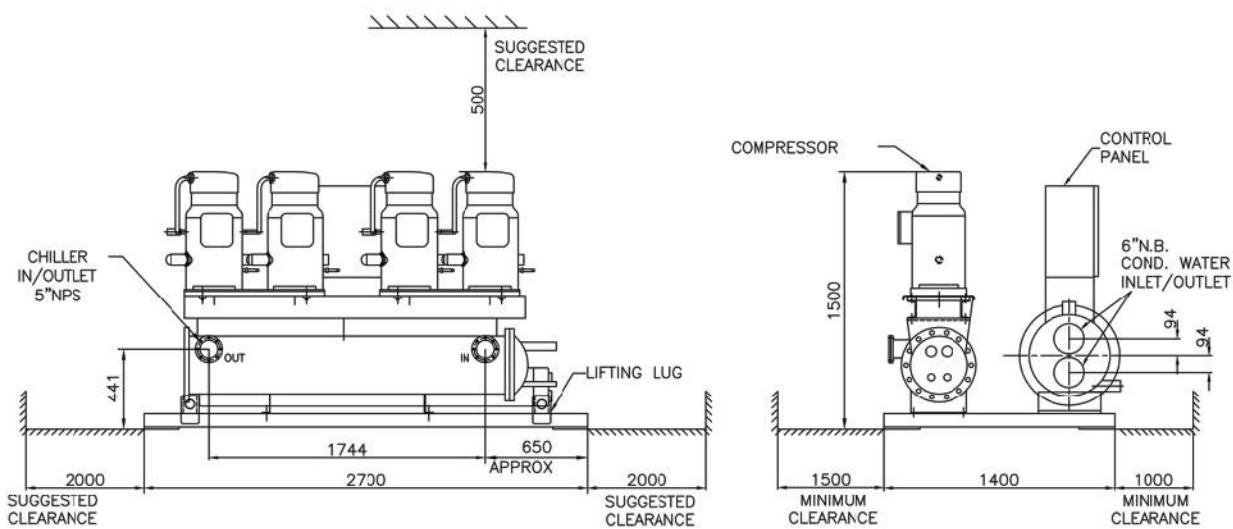
**G. A DRAWING OF CHILLER PACKAGE MODEL**

ACWCDS078DPMN3X2 | ACWCDS078DMN3X2P

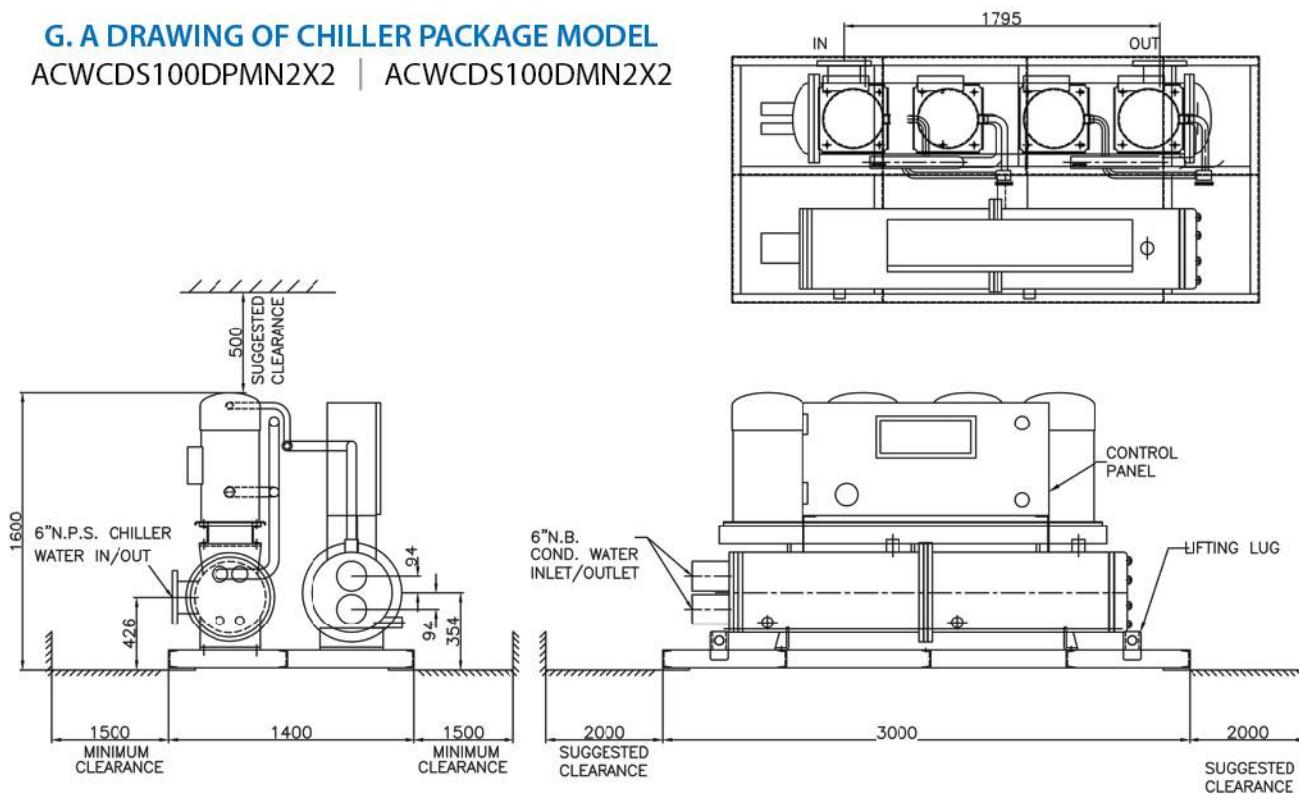


WATER-COOLED SCROLL CHILLER

**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS085DPMN2X2 | ACWCDS085DMN2X2

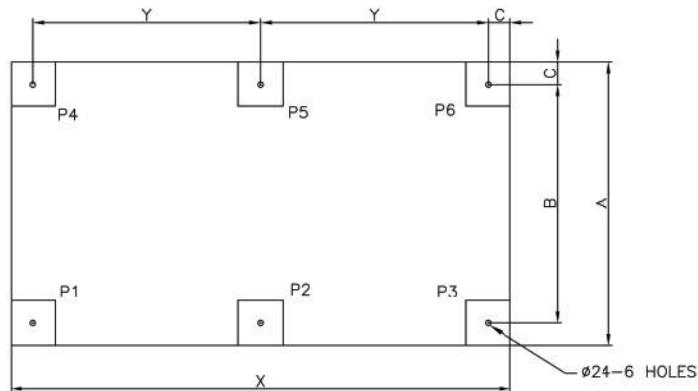


**G. A DRAWING OF CHILLER PACKAGE MODEL**  
ACWCDS100DPMN2X2 | ACWCDS100DMN2X2



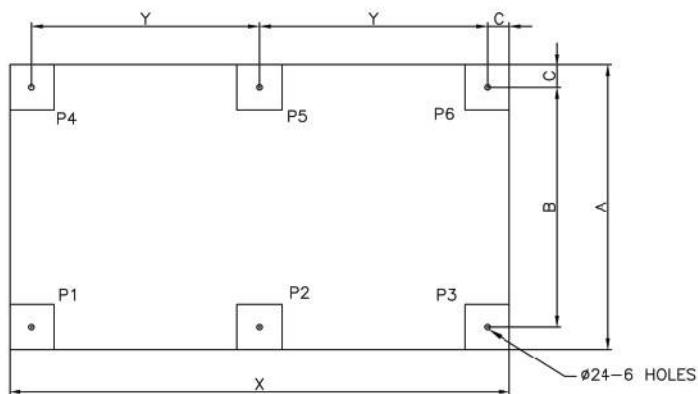
## WATER-COOLED SCROLL CHILLER

## POINT LOAD DRAWING OF WATER-COOLED SCROLL CHILLING PACKAGE (R407C)



MODEL (R407C)	PAD LOCATION IN MM.					OPERATING WT.PER POINT (KG.)					
	A	B	C	X	Y	P1	P2	P3	P4	P5	P6
WCDS013DPMN1X1P	1000	850	75	2350	1100	148.25	—	148.25	148.25	—	148.25
WCDS026DPMN2X1P	1000	850	75	2550	1200	149.5	149.5	149.5	149.5	149.5	149.5
WCDS039DPMN3X1P	1150	1000	75	2650	1250	214.5	214.5	214.5	214.5	214.5	214.5
WCDS052DPMN2X2P	1150	950	100	2700	1250	288.3	288.3	288.3	288.3	288.3	288.3
WCDS064DPMN3X1	1150	950	100	2650	1225	349	349	349	349	349	349
WCDS078DPMN3X2	1350	1150	100	2600	1200	431	431	431	431	431	431
WCDS085DPMN2X2	1400	1200	100	2700	1250	467	467	467	467	467	467
WCDS0100DPMN2X2	1400	1200	100	3000	1400	492	492	492	492	492	492

## POINT LOAD DRAWING OF WATER-COOLED SCROLL CHILLING PACKAGE (R22)



MODEL (R407C)	PAD LOCATION IN MM.					OPERATING WT.PER POINT (KG.)					
	A	B	C	X	Y	P1	P2	P3	P4	P5	P6
WCDS013DMN1X1	1000	850	75	2350	1100	148.25	—	148.25	148.25	—	148.25
WCDS026DMN2X1	1000	850	75	2550	1200	149.5	149.5	149.5	149.5	149.5	149.5
WCDS039DMN3X1	1150	1000	75	2650	1250	214.5	214.5	214.5	214.5	214.5	214.5
WCDS052DMN2X2P	1150	950	100	2700	1250	288.3	288.3	288.3	288.3	288.3	288.3
WCDS064DMN3X1	1150	950	100	2650	1225	349	349	349	349	349	349
WCDS078DMN3X2P	1350	1150	100	2600	1200	431	431	431	431	431	431
WCDS085DMN2X2	1400	1200	100	2700	1250	467	467	467	467	467	467
WCDS0100DMN2X2	1400	1200	100	3000	1400	492	492	492	492	492	492

Note: Product development is a continuous process in Voltas, hence specifications and technical data are subject to alterations without notice

# SPECTRUM OF HVAC PRODUCTS & SYSTEMS



PACKAGED & DUCTABLE SPLIT UNIT



VARIABLE REFRIGERANT FLOW SYSTEM (VRF)



ENERGY EFFICIENT  
AIR COOLED SCREW CHILLER



ENERGY EFFICIENT  
WATER COOLED SCREW CHILLER



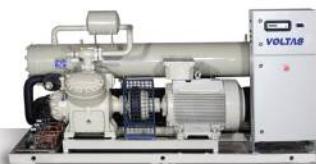
AIR COOLED SCROLL CHILLER



WATER COOLED SCROLL CHILLER



AIR COOLED RECIPROCATING CHILLER



WATER COOLED RECIPROCATING CHILLER



DOUBLE EFFECT VAM



CO-GEN VAPOUR ABSORPTION MACHINE (VAM)



PROCESS REFRIGERATION PACKAGE



IAQ & ENERGY REDUCTION SYSTEM



COILOTRON (UV FOR AHU COILS)



STP EA ODOUR / H<sub>2</sub>S REMOVAL SYSTEM



AIR HANDLING UNIT

Supersede : Prev. Cat.

**VOLTAS**

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