



BLUE STAR



# Scroll Chillers

Reliable and energy efficient chillers from the Experts







Blue Star, India's largest central air conditioning company, has been providing expert cooling solutions for over seven decades. It is with this expertise that Blue Star introduces a wide range of air cooled and water cooled scroll chillers with R22, R407C and R410A refrigerant options.

Manufactured using world-class capabilities at Blue Star's ISO-9001 certified factory, these scroll chillers are available in a wide range of capacities from 10 TR to 120 TR and are very easy to install and commission. What's more, these machines can handle varying cooling requirements, thanks to their multiple compressor configurations. Thus, making them ideal for air conditioning office spaces, hotels, hospitals, shopping malls, multiplexes and for process cooling requirements.

# Air Cooled and Water Cooled Scroll Chillers

## Air Cooled Scroll Chillers

Blue Star is a pioneer in manufacturing air cooled scroll chillers. These systems are popular in many commercial applications such as offices, hotels, hospitals, industries, etc. due to their distinct advantage of multiple refrigeration circuits with hermetic scroll compressors, compactness and service-friendliness. These chillers comprise of DX cooler, air cooled condenser with fan and multiple hermetic scroll compressors.



## Water Cooled Scroll Chillers

Wherever water can be provided, Blue Star's water cooled scroll chillers offer higher efficiency than air cooled systems as water is a superior cooling medium compared to air. These chillers comprise of cooler, multiple hermetic scroll compressors and Shell & Tube water cooled condenser. Because of their higher efficiency, water cooled chillers consume lower power compared to air cooled systems.







## Key features:



### Wide range of models

Available in refrigerant options: R22, R407C and R410A  
Air cooled: 10, 24, 36, 48, 60, 72, 80, 100 and 120 TR  
Water cooled: 11, 26, 39, 52, 65 and 85 TR



### Easy and quick installation

These chillers are pre-wired, fully charged and run-tested at the factory thereby making it easy and less time-consuming for installation and start up.



### Energy efficient

The compressors used are reliable, time-tested and highly energy efficient.



### Capacity modulation in steps

Multiple compressors are used in each of the models. In 'part load' conditions, the microprocessor ensures that only the required number of compressors operate to handle the load, thus saving power.



### Lower electrical infrastructure cost

Multiple compressor configurations ensure lower starting current. Hence, switchgear, transformers and generators need not be up-sized, saving initial capital costs.



### Quiet operation

The compressors and condenser fans (in case of air cooled chillers) are designed for quiet operation, ensuring low noise.



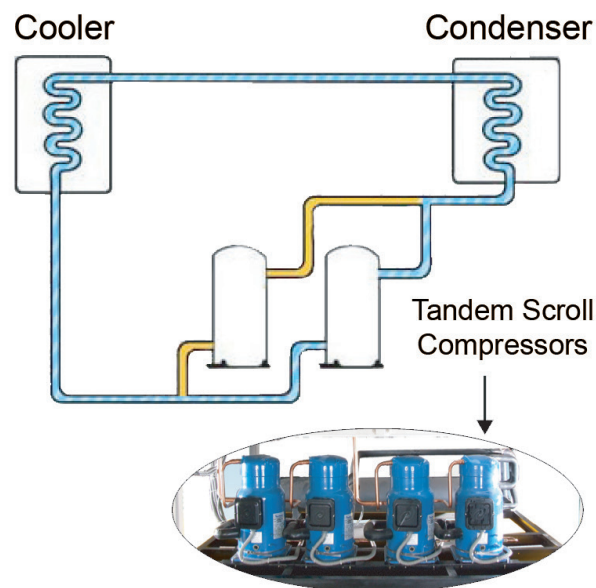
### Total reliability

Factory-wired, factory-charged and factory-tested prior to despatch, these chillers are highly reliable.



### Mega power saving for tandem models

Air cooled chillers from 48TR to 120TR and water cooled chiller of 65TR are incorporated with optional tandem circuits. This feature increases operating efficiency whenever the chiller operates under 'part load' conditions. The power saving is achieved by utilising the entire condenser area for heat rejection even when only one compressor in the circuit is in operation.



Tandem Scroll System



### Intelligent microprocessor control

The entire range of air cooled and water cooled scroll chillers incorporates intelligent microprocessor controls that offer a host of new operating features. These features not only offer convenience and ease of operation, but also ensure significant power savings and reduced maintenance and break down costs.

# Key Features



## Digital setting of temperature levels

Unlike in a manual control where tolerances are much higher, the digital control enables setting of the desired temperature levels accurately (to 0.1 °C levels), thereby ensuring optimal cooling and significant power savings.



## Built-in time delays

Compressors need a few minutes before they are switched on, after they get switched off, or after a power failure. The built-in time delay feature of the controller ensures that these time delays are automatically adhered to, thereby promising longer compressor life.



## Auto distribution of load

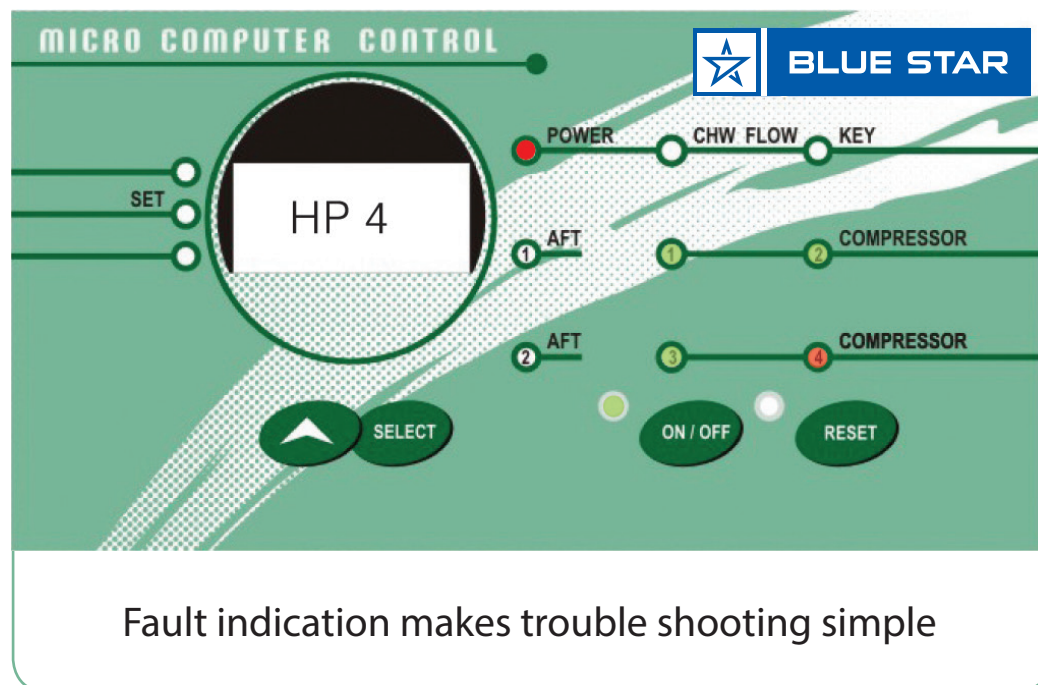
When the air conditioning load is less than the full capacity of the chiller, the microprocessor automatically keeps only the required compressors on and switches off the rest. Moreover, the controller ensures that all compressors are evenly switched on or off at regular intervals. This results in efficient running of the chiller and ensures equal load on all the compressors. Capacity modulation in steps.



## BMS compatibility

The Scroll Chillers are provided with advanced microprocessor control as an optional feature for BMS compatibility.

The Building Management System (BMS) facility shall enable the chillers with remote operation flexibility.







#### Protection mechanisms

The controller protects the compressors from accidental phase reversal or single phasing errors. The in-built, anti-freeze protection ensures cut-off before the freezing point. This ensures lesser break-downs.



#### Non-volatile memory

All the settings on the controller are stored in the non-volatile memory and stay through power failures, thereby avoiding the need to reset the parameters after every power failure.



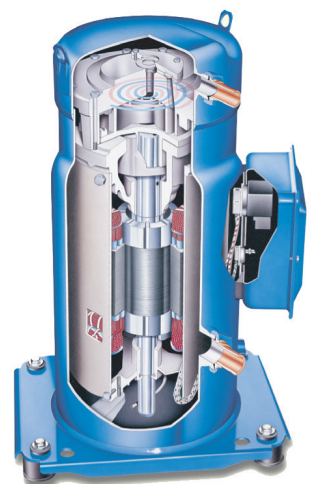
#### Self diagnostics

This powerful tool helps in identifying faults in a very short time. Up to 31 technical faults can be detected and displayed on the controller, thereby making troubleshooting simple.



#### Auto-restart

The controller restarts automatically with its original settings after the restoration of power, in case of a power failure. Hence there is no user intervention required after a power failure.



# Technical Specifications

## Air cooled R22

Description		Unit	Model					
			XAC2S-010	XAC2S-024MA	XAC3S-036MA	XAC2YS-048A	XAC2YS-060	XAC2YS-080A
Nominal Cooling Capacity		TR	10	24	36	48	60	80
Refrigerant			R22	R22	R22	R22	R22	R22
Capacity Control		%	100,50	100,50	100,67,33	100,75,50,25	100,67,33	100,75,50,25
Nominal Dimension	Length	mm	1762	2234	3355	2900	2900	2900
	Width	mm	930	1147	1147	2040	2040	2040
	Height	mm	1513	1696	1696	2460	2460	2460
Net Weight/Unit (approx.)		Kg.	625	925	1375	2090	2200	2400
Power Supply			380-420V/3Ph,50Hz AC					
No. of Compressors			2	2	3	4	3	4
No. of Refrigerant Circuit			2	2	3	2	2	2
Fan	Quantity	No.	2	2	3	2	3	4
	Dia.	mm	610	660	660	915	915	915
Condenser Coils	Face Area	Sq mtr. (Sq. ft.)	2.23 (24)	3.75 (40)	5.57 (60)	8.24 (88.7)	8.24 (88.7)	8.24 (88.7)
	Rows		2	3	3	2	2+4	3
	Type		3/8" OD Inner Grooved and Super Slit Flns					
Cooler (shell & Tube type)	Qty		Twin Circuit	Twin Circuit	Three Circuit	Twin Circuit	Twin Circuit	Twin Circuit
Water Flow Rate	Min	USGPM	17	39	59	78	90	120
	Max	USGPM	33	78	117	144	180	240
Water Connection/Cooler	In/Out	No.	1	1	1	1	1	1
		Size	1-1/2" NB	3" NB	3" NB	4" NB	4" NB	4" NB

## Air cooled R410A

Description		Unit	Model	
			XAC2YS-100R3	XAC2YS-120R3
Nominal Cooling Capacity		TR	97	117
Refrigerant			R410A	R410A
Capacity Control		%	100,75,50,25	100,75,50,25
Nominal Dimension	Length	mm	3867	3867
	Width	mm	2029	2029
	Height	mm	2234	2234
Net Weight/Unit (approx.)		Kg.	2780	2860
Power Supply			380-420V/3Ph,50Hz AC	
No. of Compressors			4	4
No. of Refrigerant Circuit			2	2
Fan	Quantity	No.	6	6
	Dia.	mm	915	915
Condenser Coils	Face Area	Sq mtr. (Sq. ft.)	12.35 (132.96)	12.35 (132.96)
	Rows		4	4
	Type		3/8" OD Inner Grooved and Super Slit Flns	
Cooler (shell & Tube type)	Qty		Twin Circuit	Twin Circuit
Water Flow Rate	Min	USGPM	150	150
	Max	USGPM	300	300
Water Connection/Cooler	In/Out	No.	1	1
		Size	4" NB	4" NB

### Rating Conditions

1. Cooler Leaving Temp 6.7°C (44°F) and Cooler Entering Temp 12.2°C (54°F)
2. Cooler Fouling Factor 0.0001°F.ft<sup>2</sup>.hr/Btu
3. 35°C (95°F) Ambient Temperature

# Specifications are subject to change due to continuous product development



## Air cooled R407C

Description		Unit	Model					
			XAC2S-010R2	XAC2S-024MAR2	XAC3S-036MAR2	XAC2YS-048AR2	XAC2YS-060R2	XAC2YS-080AR2
Nominal Cooling Capacity		TR	9.5	23	34	46	56	74
Refrigerant			R407C	R407C	R407C	R407C	R407C	R407C
Capacity Control		%	100,50	100,50	100,67,33	100,75,50,25	100,67,33	100,75,50,25
Nominal Dimension	Length	mm	1762	2234	3355	2900	2900	2900
	Width	mm	930	1147	1147	2040	2040	2040
	Height	mm	1513	1696	1696	2460	2460	2460
Net Weight/Unit (approx.)		Kg.	625	925	1375	2090	2200	2400
Power Supply			380-420V/3Ph,50Hz AC					
No. of Compressors			2	2	3	4	3	4
No. of Refrigerant Circuit			2	2	3	2	2	2
Fan	Quantity		2	2	3	2	3	4
	Dia.	mm	610	660	660	915	915	915
Condenser Coils	Face Area	Sq mtr. (Sq. ft.)	2.23 (24)	3.75 (40)	5.57 (60)	8.24 (88.7)	8.24 (88.7)	8.24 (88.7)
	Rows		2	3	3	3	2+4	4
	Type		3/8" OD Inner Grooved and Super Slit Fins					
Cooler (shell & Tube type)	Qty		Twin Circuit	Twin Circuit	Three Circuit	Twin Circuit	Twin Circuit	Twin Circuit
Water Flow Rate	Min	USGPM	17	39	59	78	90	120
	Max	USGPM	33	78	117	144	180	240
Water Connection/Cooler	In/Out	No.	1	1	1	1	1	1
	Size		1-1/2"NB	3"NB	3"NB	4"NB	4"NB	4"NB

## New Air Cooled Modular Range

Description		Unit	Model		
			XAC4S-048MAR2	XAC5S-060MAR2	XAC6S-072MAR2
Nominal Cooling Capacity		TR	46	56	68
Refrigerant			R407C	R407C	R407C
Capacity Control		%	100,75,50,25	100,80,60,40,20	100,84,67,50,33,17
Nominal Dimension	Length	mm	4488	5609	6730
	Width	mm	1147	1147	1147
	Height	mm	1696	1696	1696
Net Weight/Unit (approx.)		Kg.	1850	2300	2750
Power Supply			380 - 420V/3Ph, 50Hz AC		
No. of Compressors			4	5	6
No. of Refrigerant Circuit			4	5	6
Fan	Quantity		4	5	6
	Dia.	mm	660	660	660
Condenser Coils	Face Area	Sq mtr. (Sq. ft.)	7.5 (80)	9.32 (100)	11.14 (120)
	Rows		3	3	3
	Type		3/8" OD Inner-Grooved and Super Slit Fins		
Cooler (shell & Tube type)	Qty		2	2	2
Water Flow Rate	Min	USGPM	39	39	59
	Max	USGPM	156	195	234
Water Connection/Cooler	In/Out	No.	2	2	2
	Size		3"NB	3"NB	3"NB

### Rating Conditions

1. Cooler Leaving Temp 6.7°C (44°F) and Cooler Entering Temp 12.2°C (54°F)
2. Cooler Fouling Factor 0.0001°F.ft<sup>2</sup>.hr/Btu
3. 35°C (95°F) Ambient Temperature

# Specifications are subject to change due to continuous product development

## Water cooled R22

Description		Unit	Model				
			XWC2S-011	XWC2S-026A	XWC3S-039A	XWC4S-052A	XWC4S-085A
Nominal Cooling Capacity		TR	11.5	26	39.0	52.0	85.0
Refrigerant			R22	R22	R22	R22	R22
Capacity Control		%	100,50	100,50	100,67,33	100,75,50,25	100,75,50,25
Nominal Dimension	Length	mm	1700	2250	2250	2250	2496
	Width	mm	550	1234	1234	1333	1375
	Height	mm	1455	1607	1956	1956	2087
Net Weight/Unit (approx.)		Kg.	650	960	1350	1780	2510
Power Supply			380-420V/3Ph,50Hz AC				
No. of Compressors			2	2	3	4	4
No. of Refrigerant Circuit			2	2	3	4	4
Condenser Water Flow Rate	Min	USGPM	28.6	67.6	101.4	135.2	221
	Max	USGPM	38.5	91	136.5	182	297.5
Cooler (shell & Tube type)	Qty		Twin Circuit	Twin Circuit	Three Circuit	2#Twin Circuit	2#Twin Circuit
Cooler Water Flow Rate	Min	USGPM	17	39	59	78	128
	Max	USGPM	33	78	117	156	255
Water Connection/Cooler	In/Out	No.	1	1	1	1	1
		Size	1-1/2" NB	3" NB	3" NB	3" NB	4" NB

## Water cooled eco-friendly range

Description		Unit	Model					
			XWC2S-011R2	XWC2S-026AR2	XWC3S-039AR2	XWC4S-052AR2	XWC2YS-070AR3	XWC4S-085AR2
Nominal Cooling Capacity		TR	11.0	25.5	38.0	51.0	70	84.0
Refrigerant			R407C	R407C	R407C	R407C	R410A	R407C
Capacity Control		%	100,50	100,50	100,67,33	100,75,50,25	100,75,50,25	100,75,50,25
Nominal Dimension	Length	mm	1700	2250	2250	2250	2500	2496
	Width	mm	550	1234	1234	1333	1229	1375
	Height	mm	1455	1607	1956	1956	1607	2087
Net Weight/Unit (approx.)		Kg.	650	960	1350	1780	1450	2510
Power Supply			380-420V/3Ph,50Hz AC				400V(+/-10%), 3 PH., 50HZ	380-420V/3Ph, 50Hz AC
No. of Compressors		No.	2	2	3	4	4	4
No. of Refrigerant Circuit		No.	2	2	3	4	2 (Tandem)	4
Condenser Water Flow Rate	Min	USGPM	28.6	67.6	101.4	135.2	130	221
	Max	USGPM	38.5	91	136.5	182	240	297.5
Cooler (shell & Tube type)	Qty		Twin Circuit	Twin Circuit	Three Circuit	2#Twin Circuit	Twin Circuit	2#Twin Circuit
Cooler Water Flow Rate	Min	USGPM	17	39	59	78	90	128
	Max	USGPM	33	78	117	156	190	255
Water Connection/Cooler	In/Out	No.	1	1	1	1	1	1
		Size	1-1/2" NB	3" NB	3" NB	3" NB	4" NB	4" NB

### Rating Conditions

1. Cooler Leaving Temp 6.7°C (44°F) and Cooler Entering Temp 12.2°C (54°F)
  2. Cooler Fouling Factor 0.0001°F.ft<sup>2</sup>.hr/Btu
  3. Condenser Entering Water Temp 29.44°C (85°F)
  4. Condenser Fouling Factor 0.00025°F.ft<sup>2</sup>.hr/Btu
- # Specifications are subject to change due to continuous product development







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