

UNITARY AIR-COOLED CHILLER

20TRto500TR



Chillman

The coolest HVAC team around!



New HVAC Brand of
Packman Co.

ABOUT PACKMAN GROUP



from 1975

PACKMAN INDUSTRIAL GROUP BRANDS



PACKMAN

Heating Section of Packman Industrial group that produce boilers, heat exchanger pressure vessels & storage tanks for hot water, steam & hot oil boiler rooms



CHILLMAN

The HVAC group of packman is Chillman. This group produce some chilling & air conditioning product such as Chiller, Air handling unit, fan coil & ...



RAADMAN

The main objective of this group was improvement and development of industrial burners in order to produce high quality and high efficient industrial burners.



ROMAN

Water industry is a first issue of this century. Roman group was established for desalinate the salt water (brackish & sea water) for any types of application.



PACKMAN CO. HISTORY



The PACKMAN Company was founded in February 1975. and was soon afterwards registered in tehran registration department. In early years the packman construction and service branch focused on building construction. Cooperating with brown boveri and asseck companies different mega power plants were built in 1976.

The company started its official activity in construction of High-Pressure Vessels such as Hot-Water Boilers, Steam Boilers , Storage Tanks, Softeners and Heat Exchangers from 1984.

Packman Company is one of the first companies which supplied the high quality and standard hot water boilers to the customers.

Packman has exported its products to countries

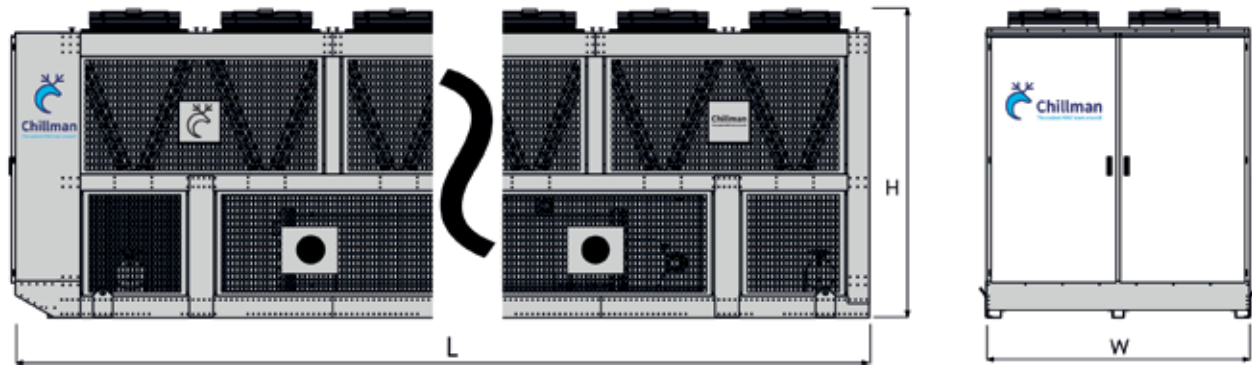
such as Uzbekistan, United Arab Emirates and other countries in the region. It is one of the largest producers of hot-water and steam boilers in the Middle East.

Packman Company has got its degree from the Budget and Planning Organization in construction and services in the membership.

CHILLMAN Air Conditioning is a new brand company of Packman industrial group. Through this new branding, we have combined the rich heritage and innovative technology with the industry-leading expertise and domestic network of Packman Company.

CHILLMAN provides advanced air conditioning solutions to meet a wide variety of needs. Besides room air conditioners, we offer numerous models for commercial use including air conditioning systems, packaged air conditioners & chillers.

SCROLL TYPE



ITEM	UNIT	SCROLL COMPRESSOR				
General Data						
Cooling Capacity	TR(kW)	20 (70)	30 (105)	40 (140)	60 (210)	80 (280)
Refrigerant		R407C				
Input Power	kW	31	42	56	86	118
Electric Power Supply	V/ph/Hz	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50
Compressors						
		Scroll Type				
Compressor Qty.	qty	4	4	4	4	4
Evaporator						
		Shell & Tube Heat Exchanger				
Water Flowrate	m ³ /hr	11	16	22	32	43
Evaporator Qty.	qty	1	1	1	1	1
Circuit per Evaporator	qty	2	2	2	2	2
Condenser						
		Finned Tube Heat Exchanger				
Condenser Qty.	qty	4	4	6	8	8
Condenser Row/FPI		3/12	4/12	4/12	4/12	4/12
Condenser Fan						
		Axial Fan				
Condenser Fan Qty.	qty	4	4	6	8	8
Expansion Valve						
		Electronic Expansion Valve				
Expansion Valve Qty.	qty	2	2	2	2	2
Package Dimensions						
		Dimension & Weight				
Lenght	mm	3000	3000	4300	5400	5400
Width		2400	2400	2400	2400	2400
Height		2600	2600	2600	2600	2600
Transport Weight	Kg	900	1260	1850	2440	3570

COOLING CAPACITY CONDITIONS:

- ELEVATION 1500 m ABOVE SEE LEVEL
- OUTDOOR CONDITIONS: 40 °C
- CONDENSER/EVAPORATOR TEMPERATURE: 50°C/5°C
- SUBCOOL/SUPERHEAT: 5°C/10°C
- CHILLED WATER OUT/IN: 7°C/12°C



Refrigerant

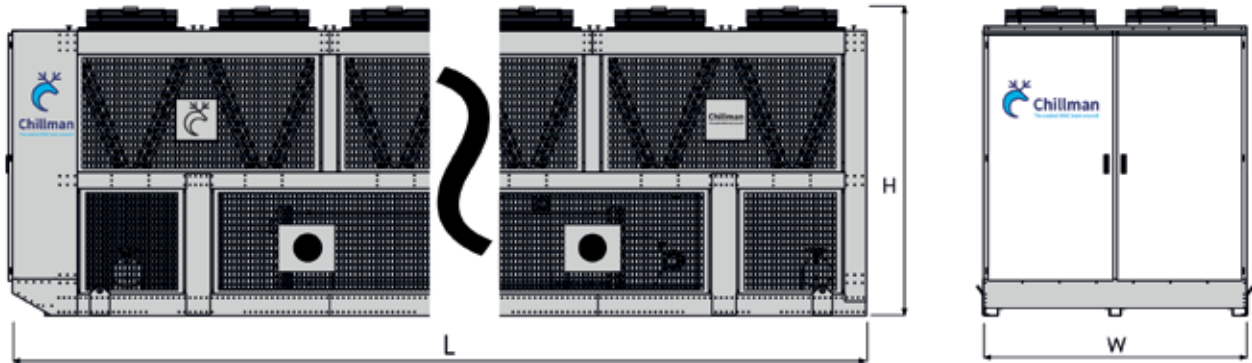


Scroll



Axial Fan

SCREW TYPE



ITEM	UNIT	SCREW COMPRESSOR									
General Data											
Cooling Capacity	TR(kW)	100 (350)	120 (420)	140 (490)	160 (560)	180 (630)	200 (700)	250 (875)	300 (1050)	400 (1400)	500 (1750)
Refrigerant		R134a									
Input Power	kW	125	147	170	195	222	238	303	377	456	568
Electric Power Supply	V/ph/Hz	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50	380/3/50
Compressors											
Semi Hermetic Compact Screw											
Compressor Qty.	qty	2	2	2	2	2	2	4	4	4	4
Evaporator											
Shell & Tube Heat Exchanger											
Water Flowrate	m ³ /hr	55	65	76	87	98	107	135	160	216	270
Evaporator Qty.	qty	1	1	1	1	1	2	2	2	2	2
Circuit per Evaporator	qty	2	2	2	2	2	2	4	4	4	4
Condenser											
Finned Tube Heat Exchanger											
Condenser Qty.	qty	10	10	12	14	16	20	22	26	32	40
Condenser Row/FPI		4/12	4/12	4/12	4/12	4/12	4/12	4/12	4/12	4/12	4/12
Condenser Fan											
Axial Fan											
Condenser Fan Qty.	qty	10	10	12	14	16	20	22	26	32	40
Expansion Valve											
Electronic Expansion Valve											
Expansion Valve Qty.	qty	2	2	2	2	2	4	4	4	4	4
Package Dimensions											
Dimension & Weight											
Lenght		7700	7700	9100	10500	12000	14800	16200	19000	23400	28000
Width	mm	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600
Height		2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
Transport Weight	Kg	4900	5250	6800	7250	9000	10850	11200	15000	21000	23500

COOLING CAPACITY CONDITIONS:

- ELEVATION 1500 m ABOVE SEE LEVEL
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Refrigerant



Screw



Axial Fan



Two Circuits

AIR-COOLED CHILLER

SPECIFICATION & FEATURES

SCROLL COMPRESSOR

Scroll compressors are now the most used compression technology replacing reciprocating compressors due to its undeniable superiority. Several, fully qualified, multiple compressor assemblies (tandem and trio) allow the use of scroll compressor into our large capacity chillers.



SCREW COMPRESSOR

All screw compressors are of high efficiency and reliability in all operating conditions and are equipped with separated radial and axial bearings, liquid injection and economizer connection, PTC motor temperature thermistors and discharge temperature thermistors, a motor protector, and oil level switch and oil pressure differential switch connector and other accessories. The compressors have the best reliability, longest bearing life during heavy duty running and strict operating conditions.

CONDENSER

Condenser coils will be designed to withstand maximum operating pressures and a maximum temperature of 300°F for standard duty copper tube coils with standard headers.

Coils will be of plate fin type construction providing uniform support for all coil tubes. Coils are to be manufactured by copper tube with self-spacing collars, which completely cover the entire tube surface. Fins are to be formed with full collar on all of tube diameters and tube patterns. Fin thickness will be 0.006" +/- 5% for aluminum. Fin spacing available will be at most 14 fins per inch.

Tubing and return bends will be fabricated from UNS 12200 seamless copper conforming to ASTM B75 for standard pressure and temperature applications. Core tubes will be mechanically expanded to form an interference fit within the fin collars. Expansion will not decrease the tube wall thickness. Coils will be manufactured using return bends of the same material as the core tubing. Return bend wall thickness, at the outside circumference of the bend, will be no less than the core tube wall thickness.



SHELL&TUBE EVAPORATOR

The evaporators are carefully engineered to provide excellent heat transfer rates, effective refrigerant boiling and assured oil carry-through. Shell circuits are engineered to provide high performance with a low-pressure drop to conserve the required pumping power. Evaporators made by Packman Group are designed for optimum heat transfer rates and features rolled-in tubes and removable heads. Shell side baffling is selected for high operating efficiency and reasonable fluid pressure drops. Compliance with ASME codes and quality controlled manufacturing make the cooler suitable for a wide variety of virtually trouble-free fluid cooling applications.



ELECTRONIC EXPANSION VALVE

Electronic expansion valves used in our chillers can manage refrigerant flow through cycle with high accurate precision. Modulation of refrigerant flow guarantees a wide operating range for chillers, due to the combination of the fixed opening and the moving element with a travel of 15 mm driven by stepper motor. These valves have been carefully designed down to the smallest detail, to guarantee high reliability, and ensures correct operation. Electronic expansion valves are made from modular components that are assembled during installation; this solution simplifies maintenance and inspection of the individual components.



AIR-COOLED CHILLER

SPECIFICATION & FEATURES



• CONDENSER FAN

Direct-drive AC axial fans with high-performance axial impeller, mounted on an external rotor motor. Square full nozzle, pre-galvanized, black plastic-coated RAL 9005, flowoptimized nozzle shape on inlet side, guard grille made of phosphate steel and black plastic-coated.

Sickle-shaped blades; high-strength aluminum alloy or round steel plate; encapsulated in fiber glass-reinforced plastic PP; winglets at the blade tips. Motorized impeller balanced in two planes (static and dynamic) as per DIN ISO 1940. Each V-Type Condenser block has two (2) axial fans which are selected as per condenser required air flow and total pressure drop across condenser coils and other related parts.



• POWER AND CONTROL SYSTEM

Control System for our chillers has been considered from international companies with wide range of experiences in cooling equipment control system. The selected configuration includes 1 compressor for each circuit, and up to 2 circuits.

The distinctive feature of control software is dynamic control of the compressor operating limits. In fact, the suction and discharge pressure are read at all times, thus determining the compressor operating point. The compressors are the most important and costly part of the unit, and for this reason it is important to guarantee its protection and reliability.

Electrical main parts of chillers have been selected from international companies such as Siemens, Schneider and other European companies. Power and control system cabinet will have IP54 protection degree.



• CHILLER STRUCTURE

All steel structures are designed as per Computer-Aided software. Structure and frames will be constructed from painted carbon steel bars. All structural parts will be painted in electrostatic painting line with at least 100-micron electrostatic paint for tropical marine climate.

Insulation of evaporator and liquid lines are EPDM type with 25 mm thickness. All copper piping will be connected with special brazed welding. All bolts and nuts are galvanized steel. Required lifting luges are designed as per structural analysis to better and safer shipment.

Chiller dimensional design will be done with consideration of operational and maintenance requirements, space for condensers and fans to deliver sufficient air and each component requirements as per manufacturer standards.

CHILLMAN AIR-COOLED CHILLER CAPACITY RANGE

Capacity Range (RT)	6	55	140	280	560
Mini Chiller	5-20				
Scroll Chiller		20-80			
Screw Chiller				100-300	



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The coolest HVAC team around!



Protect
our planet



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