



Enriching Lives

## *Kirloskar Refrigeration*

Pioneer in Industrial Refrigeration!



A multibillion US Dollar Kirloskar Group is one of the leading engineering conglomerates in India. It has more than hundred years of proven expertise in the specialist areas of Power solutions, Water solutions, Air & Gas solutions and Environmental protection with a portfolio of world class industrial products and turnkey solutions. Kirloskar holds the repute in the industry for its good business values and excellent customer satisfaction. Most of the plants of Kirloskar group are accredited to ISO 9001-2000, ISO 14001, OHSAS and TS 16949 to produce world class quality products.

Founded in 1958 as a part of Engineering Conglomerate Kirloskar Group, Kirloskar Pneumatic Co Ltd. (KPCL) is one of the most accomplished names in the Industrial Refrigeration market.

**Indian Register Quality Systems**  
*(A Department of Indian Register of Shipping)*  
 INCORPORATED BY THE LAW

 

**Certificate Of Approval**

This is to certify that the Quality Management System of  
**Kirloskar Pneumatic Company Ltd.**  
 Pune  
 with Manufacturing Facilities at Hadapsar & Secunder  
 has been assessed and approved  
 in accordance with the requirements of  
**ISO 9001 : 2000**  
 with respect to the following scope:

*Design, Manufacture, Supply, Installation/Commissioning and  
 Servicing of Air & Gas Compressors, Refrigeration and  
 Air Conditioning Equipment and Systems, Hydraulic  
 Transmission Equipment and Gears,  
 Manufacture of Tires and Non-Ferrous Castings*

This approval is subject to continued satisfactory maintenance of the  
 Quality Management System of the Organisation to the above standard  
 which will be monitored by IRQS.

Certificate No.: **IRQS/01/0072** issued at Mumbai on: **26<sup>th</sup> June 2007**

Original Approval Date : **30<sup>th</sup> February 1993** by ISO 9001:1987  
 Current Certificate Expiry: **24<sup>th</sup> February 2010**

  
**S. Kumar**  
 Managing Director

This copy is for the Certificate Holder only. IRQS/001/000001, IRQS/001/000002, IRQS/001/000003, IRQS/001/000004, IRQS/001/000005, IRQS/001/000006, IRQS/001/000007, IRQS/001/000008, IRQS/001/000009, IRQS/001/000010, IRQS/001/000011, IRQS/001/000012, IRQS/001/000013, IRQS/001/000014, IRQS/001/000015, IRQS/001/000016, IRQS/001/000017, IRQS/001/000018, IRQS/001/000019, IRQS/001/000020, IRQS/001/000021, IRQS/001/000022, IRQS/001/000023, IRQS/001/000024, IRQS/001/000025, IRQS/001/000026, IRQS/001/000027, IRQS/001/000028, IRQS/001/000029, IRQS/001/000030, IRQS/001/000031, IRQS/001/000032, IRQS/001/000033, IRQS/001/000034, IRQS/001/000035, IRQS/001/000036, IRQS/001/000037, IRQS/001/000038, IRQS/001/000039, IRQS/001/000040, IRQS/001/000041, IRQS/001/000042, IRQS/001/000043, IRQS/001/000044, IRQS/001/000045, IRQS/001/000046, IRQS/001/000047, IRQS/001/000048, IRQS/001/000049, IRQS/001/000050, IRQS/001/000051, IRQS/001/000052, IRQS/001/000053, IRQS/001/000054, IRQS/001/000055, IRQS/001/000056, IRQS/001/000057, IRQS/001/000058, IRQS/001/000059, IRQS/001/000060, IRQS/001/000061, IRQS/001/000062, IRQS/001/000063, IRQS/001/000064, IRQS/001/000065, IRQS/001/000066, IRQS/001/000067, IRQS/001/000068, IRQS/001/000069, IRQS/001/000070, IRQS/001/000071, IRQS/001/000072, IRQS/001/000073, IRQS/001/000074, IRQS/001/000075, IRQS/001/000076, IRQS/001/000077, IRQS/001/000078, IRQS/001/000079, IRQS/001/000080, IRQS/001/000081, IRQS/001/000082, IRQS/001/000083, IRQS/001/000084, IRQS/001/000085, IRQS/001/000086, IRQS/001/000087, IRQS/001/000088, IRQS/001/000089, IRQS/001/000090, IRQS/001/000091, IRQS/001/000092, IRQS/001/000093, IRQS/001/000094, IRQS/001/000095, IRQS/001/000096, IRQS/001/000097, IRQS/001/000098, IRQS/001/000099, IRQS/001/000100, IRQS/001/000101, IRQS/001/000102, IRQS/001/000103, IRQS/001/000104, IRQS/001/000105, IRQS/001/000106, IRQS/001/000107, IRQS/001/000108, IRQS/001/000109, IRQS/001/000110, IRQS/001/000111, IRQS/001/000112, IRQS/001/000113, IRQS/001/000114, IRQS/001/000115, IRQS/001/000116, IRQS/001/000117, IRQS/001/000118, IRQS/001/000119, IRQS/001/000120, IRQS/001/000121, IRQS/001/000122, IRQS/001/000123, IRQS/001/000124, IRQS/001/000125, IRQS/001/000126, IRQS/001/000127, IRQS/001/000128, IRQS/001/000129, IRQS/001/000130, IRQS/001/000131, IRQS/001/000132, IRQS/001/000133, IRQS/001/000134, IRQS/001/000135, IRQS/001/000136, IRQS/001/000137, IRQS/001/000138, IRQS/001/000139, IRQS/001/000140, IRQS/001/000141, IRQS/001/000142, IRQS/001/000143, IRQS/001/000144, IRQS/001/000145, IRQS/001/000146, IRQS/001/000147, IRQS/001/000148, IRQS/001/000149, IRQS/001/000150, IRQS/001/000151, IRQS/001/000152, IRQS/001/000153, IRQS/001/000154, IRQS/001/000155, IRQS/001/000156, IRQS/001/000157, IRQS/001/000158, IRQS/001/000159, IRQS/001/000160, IRQS/001/000161, IRQS/001/000162, IRQS/001/000163, IRQS/001/000164, IRQS/001/000165, IRQS/001/000166, IRQS/001/000167, IRQS/001/000168, IRQS/001/000169, IRQS/001/000170, IRQS/001/000171, IRQS/001/000172, IRQS/001/000173, IRQS/001/000174, IRQS/001/000175, IRQS/001/000176, IRQS/001/000177, IRQS/001/000178, IRQS/001/000179, IRQS/001/000180, IRQS/001/000181, IRQS/001/000182, IRQS/001/000183, IRQS/001/000184, IRQS/001/000185, IRQS/001/000186, IRQS/001/000187, IRQS/001/000188, IRQS/001/000189, IRQS/001/000190, IRQS/001/000191, IRQS/001/000192, IRQS/001/000193, IRQS/001/000194, IRQS/001/000195, IRQS/001/000196, IRQS/001/000197, IRQS/001/000198, IRQS/001/000199, IRQS/001/000200, IRQS/001/000201, IRQS/001/000202, IRQS/001/000203, IRQS/001/000204, IRQS/001/000205, IRQS/001/000206, IRQS/001/000207, IRQS/001/000208, IRQS/001/000209, IRQS/001/000210, IRQS/001/000211, IRQS/001/000212, IRQS/001/000213, IRQS/001/000214, IRQS/001/000215, IRQS/001/000216, IRQS/001/000217, IRQS/001/000218, IRQS/001/000219, IRQS/001/000220, IRQS/001/000221, IRQS/001/000222, IRQS/001/000223, IRQS/001/000224, IRQS/001/000225, IRQS/001/000226, IRQS/001/000227, IRQS/001/000228, IRQS/001/000229, IRQS/001/000230, IRQS/001/000231, IRQS/001/000232, IRQS/001/000233, IRQS/001/000234, IRQS/001/000235, IRQS/001/000236, IRQS/001/000237, IRQS/001/000238, IRQS/001/000239, IRQS/001/000240, IRQS/001/000241, IRQS/001/000242, IRQS/001/000243, IRQS/001/000244, IRQS/001/000245, IRQS/001/000246, IRQS/001/000247, IRQS/001/000248, IRQS/001/000249, IRQS/001/000250, IRQS/001/000251, IRQS/001/000252, IRQS/001/000253, IRQS/001/000254, IRQS/001/000255, IRQS



## Our Business Units



Hadapsar (Pune)



Saswad (Pune)

## Air Conditioning Refrigeration and Process Gas Division (ACR & PGS)

- Refrigeration/ Air Conditioning Compressors (Piston/Screw)
- Refrigeration Compressor Packages
- Refrigeration Systems
- Marine HVACR
- Vapour Absorption Chillers
- Process Gas Compressor Packages
- Specialized Reciprocating Gas Compressors Package for wide range of Gases, Hydrocarbons
- CNG Solutions

## Kirloskar Refrigeration

Kirloskar is a leading name in industrial refrigeration which provides products and complete solutions from concept to commissioning exceeding the needs of the customers. Kirloskar provides Refrigeration and Gas Compression systems used in conjunction with hydrocarbons which are highly specialized market segment in the field of Industrial refrigeration. Our philosophy of Concept to Commissioning has given us the edge and thus we continue to stay ahead of the increasingly stringent environmental, quality and safety standards that regulate the industry.

Our customized solutions feature activities like Designing, Manufacturing, Packaging, Installation, Commissioning, After Sales service and Training. KPCL has been serving to following sectors for more than three decades:

- Refineries
- Petrochemicals
- Chemicals & Fertilizers
- Pharmaceuticals
- Marine Refrigeration & HVAC
- Concrete Cooling
- Ice Plants
- Cold Storage
- Food and Beverage Processing & Preservation
  - ▶ Fruits and Vegetables,
  - ▶ Dairy/ Ice Cream,
  - ▶ Beverage / Breweries,
  - ▶ Fisheries/ Meat/ Poultry

Whatever may be the size and complexity of the project, we provide a cost effective solution using latest technology from a factory assembled skid mounted unit to complex site erected unit incorporating PLC based control and monitoring systems. These units give a round the clock trouble free performance.

It is a matter of pride that KPCL has been leader in promoting the use of environment friendly refrigerants like Ammonia, Propane, Propylene and Butane etc. We use the latest technology to provide a trouble free solution.





### System Design

- Competent and trained team of dedicated engineers providing comprehensive in house system solutions
- Innovative and pioneering R&D
- Capability of detailed engineering and conformance with standards like API, ARI, IS, BS, ASHRAE, IIAR, ASME, OSHA, NACE&TEMA etc.
- Use of latest software like HTRI for heat exchanger design, CAESAR-II for pipe stress analysis and software for torsion, vibration, pulsation analysis etc.

### Experience with Consultants / Inspection Agencies

Bechtel, Aker Kvaerner, UHDE, Lurgi, Engineers India Ltd. , PDIL, Mecon, Linde, Tecnimont, ICB, Gherzi Eastern, SPECS, DCL, Chemtex, Jacobs H & G, Toyo, Lloyds Registrar, Bureau Varitas, DNV

### Procurement

- Team of professionals to procure system components with adherence to delivery schedules
- Dedicated sub vendors for assured quality

### Manufacturing

- Dedicated infrastructure to support all the manufacturing processes
- In house foundry
- Sophisticated testing labs
- CNC machining centre
- Stress relieving furnaces
- Testing facilities

### Quality Assurance

- KPCL has dedicated staff for inspection and maintenance of necessary records as per stipulated standards
- Team of level III inspectors

### Packaging

- Capability to assemble at factory as well as at site
- Supplied over 1700 packages in India and abroad
- Completely factory wired ready to install Refrigeration Package

### Erection and Commissioning

- Ingenious and committed personnel specialized in avenues like mechanical, electrical and instrumentation striving towards completion of the projects within the stipulated time
- Competent engineers to provide necessary training to customers at site





## Refinery, Petrochemicals, Oil & Gas

The hydrocarbon processing industry includes many critical processes that involve stringent safety and environmental standards, as well as high demands regarding operating reliability and efficiency. As a result, Refrigeration and Gas Compression often involves extensive and detailed specifications that form an integral part of the tendering, planning and design processes. The needs of the hydrocarbon industry therefore place exceptional demands on the design and engineering skills of a supplier. They also require the supplier to provide the requisite documentation for different regulatory, planning and safety bodies, operating on widely varying codes of practice in different countries across the world.

The systems can be offered with either Screw Compressor Packages or Reciprocating Single/Two- Stage Compressors. For moderately low temperatures (down to minus 35 deg C), secondary coolant chloride brines of sodium, calcium and methylene, glycols, alcohols and trichloroethylene are used.

KPCL has specially developed a very low temperature system for process cooling in the process industry, typically supplying brine at minus 65 deg C. The plants use a refrigerant or brine cascade system and can be offered with reciprocating compressors in both high and low stages, or a combination of screw and reciprocating compressors.



## Kirloskar Refrigeration have extensive experience in the following fields

### Refineries and Petrochemicals

#### Refinery

- Isomerisation - Motor Spirit Quality
- Clean / Green Fuel

#### Petrochemical

- Chilled Brine / Process for Butadiene, Polypropylene, LLDPE, HDPE

### LNG / LPG Transport

- Dew Point Control

### Gas Storage

- Unloading / Boil-off Refrigeration





Propane Refrigeration Package - Green Fuel Emission Control  
Hindustan Petroleum Corporation Ltd. Mumbai / Vizag



Turbine Driven Propane Refrigeration Package  
Motor Spirit Quality Up-gradation – Indian Oil Corporation Ltd, Panipat



Propane Refrigeration Package  
Motor Spirit Quality Up-gradation –  
Mangalore Refinery and Petrochemicals Ltd, Mangalore



Flare Gas Recovery Unit – Zero Flare Project  
Oil and Natural Gas Corporation Ltd, Uran



Super Chilling Package( brine)- Soap Stamping  
Various plants of Hindustan Lever Ltd



Propylene Refrigeration Package- Sulphur de-waxing unit  
Indian Oil Corporation Ltd, Digboi



Automated Ammonia liquid overfeed Refrigeration plant  
600 TLPD Milk Plant – Mega Dairy Bangalore



Propane Refrigeration Package- Motor Spirit Quality  
Up-gradation Project Numaligarh Refinery Ltd, Assam



Propylene Refrigeration Package  
UOP InterAmericana – Aromatics Complex,  
Reliance Industries Ltd, Jamnagar



PSA-Tail Gas Compressor Package  
Hydrogen Recovery Unit, Indian Oil Corporation Ltd, Gujarat

## Few Significant Projects



Ammonia unloading and holding Refrigeration System  
Green Dome Petrochemicals, Sharjah



Ammonia Booster Compressor Package  
Rashtriya Chemicals and Fertilizers, Chembur



Propane Refrigeration Package – LPG Recovery  
Reliance Industries Ltd, Patalganga



R134a Water Chilling Package- Mono Ethylene Glycol Regeneration System  
Reliance KGD6 Basin Project



Propane Refrigeration Package- Motor Spirit Quality Up-gradation Project  
Chennai Petroleum Corporation Ltd, Chennai



Ammonia Refrigeration System- Solvent de-waxing unit  
Reliance Industries Ltd, Vadodara



PSA-Tail Gas Compressor Package - NAFTA Hydro cracker Treater  
Indian Oil Corporation Ltd, Panipat



Propane Refrigeration Package – Once Thru Hydro Cracker  
Indian Oil Corporation, Haldia



Propane Refrigeration Package for Gas Chilling  
Cairn Energy India Pty Ltd, Rajasthan



Gas Compressor Package – DHDt Project  
Indian Oil Corporation Ltd ( Erstwhile Bongaigaon Refinery and Petrochemicals Ltd)



Propane Refrigeration Package – Once Thru Hydro Cracker  
Indian Oil Corporation, Haldia



## Process refrigeration, Ice Plants, Concrete Cooling systems

KPCL has wide experience and can handle Process Refrigeration jobs with range of offerings from Bare Compressors, Packages to complete solutions for Pharma / Chemicals to food & beverage processing and preservations.

Modular Concrete Cooling system in containerized form is the right product for the construction industry. We provide Water chilling, flake ice and ice storage system in a modular form, which can take care of varied requirement depending upon the size of the construction. The containerized form helps move such systems to different sites thus effectively managing the cooling requirements as the different sites progresses.



Block Ice - Refrigeration Plant



Milk Chilling Plant



Flake Ice Plant



Glycol Chilling Package

The KRX Screw compressor package is also available in wide range to care of refrigeration requirements as the need may be. The standard scope includes Compressor, base frame , refrigerant piping, Oil separator ,Lubrication circuit, Oil cooling, and Instrumentation. The options available are oil cooling with thermosyphon / liquid injection type, Economizer, Motor (IP 55), Automatic variable Vi, Noise Hood, and can be made available with various design code.



KC / KCX Piston Compressor Package



KRX Screw Compressor Package

The popular KC and KCX reciprocating compressors are available from 2 to 12 cylinders with water-cooled and air-cooled cylinder options. We can also provide Compressor set, which consist of Compressor, Motor Common base frame , belt and direct drive option, Oil separator, Suction and discharge vales along with safety switches and gauges panel .We can also provide PLC based control panel system. Today over 28,000 compressors are installed and working in over 40 countries for various industrial refrigeration applications.



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