



Leadership through Future-Ready Technologies....

KIRLOSKAR CHILLERS PRIVATE LIMITED
A Kirloskar Group Company



Enriching Lives



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130 Years of Engineering Innovation

Kirloskar Chillers is proud to be a part of the 130-year-old **Kirloskar Group**, a diversified engineering conglomerate that gave India its first iron plough, water pump, electric motor, compressor & engine. In the present era, we spearhead the effort to introduce energy efficient & eco-friendly 'Green' products to the Indian as well as Overseas markets. Today, the Group not only has a strong presence in India, but also in more than 70 countries across the globe.

KIRLOSKAR CHILLERS PRIVATE LIMITED

Kirloskar Chillers, a future-focused organization, is committed to introducing innovative products for comfort & process cooling and heating applications. The company commenced its operations in 1996 & since then has been demonstrating its commitment to achieving customer delight in every aspect of its business.

The first Indian chiller manufacturing company to design, manufacture, sale and service all the technologies in the field of water chillers viz. Magnetic bearing Centrifugal, Centrifugal, Screw and Scroll chillers. designed for a wide range of operating conditions, we lead the industry in energy efficiency, complying with or exceeding prevailing environment norms. We take pride in being the first company in India to establish an AHRI-certified chiller test bed at our manufacturing facility at Pune, India, evidence of our commitment to offer products meeting global standards.

Our ability to offer our customers superlative product quality, flexibility in meeting expectations, and prompt & competent service support are our USPs, enabling us to achieve the status of 'preferred chiller supplier' for our customers, not just in India but across the globe.



Comprehensive solutions for comfort cooling, process cooling & heating needs

Kirloskar Chillers product portfolio covers a wide range of highly energy efficient and reliable Centrifugal, Screw & Scroll Chillers from 11TR (38 kW) to 2400TR (8440 kW), using environment-friendly technologies.

Apart from cooling applications, we have various heat recovery options such as Partial & Total Heat Recovery and Reverse Cycle Heat Pumps for hot water applications. This is an economical and clean way for heating applications, hence the most preferred option over generating hot water by burning fossil fuels.

Vast experience with equipment totalling >700,000 TR cooling capacity, and more than 3000 chillers successfully operating in the field makes us a trusted partner. Responsive after-sales support and value-added services ensure reliable operation through the life of the equipment.

TURBOLEV®

TURBOTek®

PRODIGY®

SCROLL

- KCM Series - Water Cooled Variable Speed Centrifugal Chillers with Magnetic Bearing Compressors
 - KSM Series - Variable Speed Oil Free Centrifugal Chillers with Magnetic Bearing Compressor - Single Compressor
 - KDM Series - Variable Speed Oil Free Centrifugal Chillers with Magnetic Bearing Compressor - Double Compressor
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- KSC Series - Single Compressor Centrifugal Chillers
 - KDC Series - Dual Compressor Centrifugal Chillers
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- KWI Series - Water Cooled Screw Chillers (Falling Film with Inverter drive)
 - KWI Series - Water Cooled Screw Chillers - HFO 1234ze Refrigerant (with Inverter drive)
 - KWK Series - Water Cooled Screw Chillers (Flooded) - High Efficiency
 - KWE Series - Water Cooled Screw Chillers (Flooded)
 - KWS Series - Water Cooled Screw Chillers (Dx)
 - KAS Series - Air Cooled Screw Chillers (Dx)
 - KAA Series - Air Cooled Screw Chillers with Adiabatic Cooling
-
- KAC Series - Air Cooled Chillers with Scroll Compressor

TURBOLEV® Water Cooled Centrifugal Chillers with Magnetic Bearing Compressors

KCM Series: Water Cooled Variable Speed Centrifugal Chillers with Magnetic Bearing Compressors

Features & Benefits

Kirloskar TURBOLEV® KCM series water cooled, flooded, variable speed Centrifugal Chillers are equipped with one, two or three high efficiency Magnetic Bearing Compressors. These chillers use flooded evaporators enabling to achieve efficiency as high as COP 6.2 (0.57 kW/tonR) **at full load** at defined AHRI (550/590) and AHRI (551/591) standard rating conditions and IPLV/IP is as low as 0.34 kW/tonR (IPLV, SI 10.3)

Each TURBOLEV® KCM series chiller is equipped with:

- Single or multiple magnetic bearing compressors, with semi hermetic, refrigerant cooled, induction motor suitable for voltages between 380 ~ 460V. These high efficiency compressors are designed for exceptionally quiet operation & have step-less capacity control.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Flooded shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Electrical panel housing intelligent 'K-Smart' controller, with 13" LED touch screen graphic display.
- Anti-vibration rubber pads / spring isolator for field installation.
- Differential water pressure switches.
- Victaulic coupling compatible water connections for both heat exchangers.

Technology: The TURBOLEV® series of chillers uses the principle of magnetic levitation, combined with variable-speed centrifugal compression and supported by digital electronics to run the compressor without any contact between the rotating dynamic and static parts, allowing the compressor to operate in a frictionless environment so as achieve the highest efficiencies.

Oil-free Operation:

TURBOLEV® chillers operate without the need for lubrication of the compressor bearings owing to their non-contact design, thus this 'oil-free' operation eliminates the issues related to oil lubrication

- No oil management system hardware required such as oil separator, oil heater & cooler, oil pump, oil filter & associated controls.
- No oil coating on tube surfaces, drastically improves heat transfer efficiency.
- Oil-free operation reduces maintenance activities & downtime costs - no oil changes or filter cleaning / replacement required.
- No oil recovery issues even when operating continuously at extremely low loads.

Outstanding Energy Efficiency: TURBOLEV® chillers with in-built Variable Speed Drive (VSD) and 2-stage compressor design achieve excellent full load & part load performance, resulting in substantial savings in operating costs.

Soft Start: Soft start module significantly reduces in-rush current at start up, provides advantages to line power systems & reduces thermal stresses on the stator. The start-up in-rush current of compressors used in these chillers is only 2 Amps.

Exceptionally Quiet Operation: Due to the absence of metal to metal contact, sound levels are extremely low, i.e. < 73dbA, and vibrations are virtually non-existent.

Compact VSD: Refrigerant cooled VSD reduces the size of the unit, making the panel compact as compared with conventional air cooled VSDs.

Surge Line Control: For compressors used in TURBOLEV® chillers, accurate performance mapping is carried out so as to precisely predict the impeller surge line, enabling it to run within a safe bandwidth.

TURBOLEV®

Approximate Range:

95 TR (335 kW) up to 635 TR (2,234 kW)

Options & Accessories

The following options are available for all TURBOLEV® KCM series chillers:

- Marine water boxes for heat exchangers.
- Spring isolators for vibration isolation.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.
- Harmonic filters to limit ThiD at equipment level.



TURBOLEV® Water Cooled Centrifugal Chillers with Magnetic Bearing Compressors

KSM / KDM Series : Water Cooled Variable Speed Centrifugal Chillers with India's first Magnetic Bearing Compressors

Features & Benefits:

Kirloskar TURBOLEV® KSM/KDM series water cooled flooded, variable speed Centrifugal Chillers are equipped with single as well as multiple magnetic bearing compressors having best in class efficiency. These chillers use with latest technology viz. Falling film evaporators having several advantages which include better efficiency as high as COP 6.2 at defined AHRI (550/590) standard rating conditions and one of the lowest IPLV/IP in the chiller industry, which is less than 0.30 kW/tonR (IPLV/SI 10.3)

Each TURBOLEV® KSM/KDM series chiller is equipped with:

- Single or multiple magnetic bearing compressors, having semi hermetic, refrigerant cooled, permanent magnet motor suitable for voltages between 380 ~ 460V.
- Stepless capacity modulation
- Shell & tube condenser with enhanced surface copper tubes and removable water heads.
- Falling film evaporator with enhanced surface copper tubes and removable water heads.
- Electrical panel houses intelligent 'K-Smart' microprocessor based controller, with 13" LED touch screen graphic display.
- Anti-vibration rubber pads / spring isolator for field installation.
- Differential water pressure switches.
- Victaulic coupling compatible water connections for both heat exchangers.

Technology:

The TURBOLEV® series of chillers uses the principle of magnetic levitation, combined with variable-speed centrifugal compression and supported by digital electronics to run the compressor without any contact between the rotating dynamic and static parts, allowing the compressor to operate in a frictionless environment so as to achieve the highest efficiencies.

Oil-free Operation:

TURBOLEV® chillers operate without the need for lubrication of the compressor bearings owing to their non-contact design, thus this 'oil-free' operation eliminates the issues related to oil lubrication.

- No oil management system hardware required such as oil separator, oil heater & cooler, oil pump, oil filter & associated controls.
- No oil coating on tube surfaces, drastically improves heat transfer efficiency.
- Oil-free operation reduces n=maintenance activities & downtime costs – no oil changes or filter cleaning / replacement required.
- No oil recovery issues even when operating continuously at extremely low loads.

Outstanding Energy Efficiency:

TURBOLEV® chillers with free standing Variable Speed Drive (VSD) and 1-stage compressor design achieve excellent full load & part load performance, resulting in substantial savings in operating costs.

Flat Efficiency Curve of Permanent Magnetic motor:

PM motor efficiency @ 97%, remains fairly constant during part operations vs. Induction motor efficiency of 94~95% which decreases up to 86% during part load operation.

Direct Drive:

Impeller is on same shaft as the rotor, without the use of gears to increase the speed, hence no frictional losses in power transmission.

Exceptionally Quiet Operation:

Due to the absence of metal to metal contact, sound levels are extremely low, i.e. <73dbA, and vibrations are virtually non-existent.

Surge Line Control:

For compressors used in TURBOLEV® chillers, accurate performance mapping is carried out to precisely predict

TURBOLEV®

Approximate Range:

400 TR (1406 kW) upto 1200TR (4220 kW)

the impeller surge line, enabling it to run within a safe bandwidth. Movable discharge diffuser provides additional protection against surging.

Options & Accessories:

The following options are available for all TURBOLEV® KSM / KDM series chillers:

- Marine water boxes for heat exchangers.
- Spring isolators for vibration isolation.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.
- Harmonic filters to limit THiD at equipment level for VFD chillers.



TURBOTEK® Centrifugal Chillers

KSC Series: Single Compressor Centrifugal Chillers

Features & Benefits

Kirloskar KSC Series TURBOTEK® single compressor centrifugal chillers are certified in accordance with AHRI Standard 550/590 (IP) and 551/591 (SI). The kW/tonR for KSC series TURBOTEK® chillers is as low as 0.55 (COP > 6.3) at standard AHRI rating conditions.

Each TURBOTEK® centrifugal chiller is equipped with:

- Single stage, gear-driven centrifugal compressor with high strength Aluminium alloy impeller.
- Compressor provided with unloading mechanism using inlet guide vanes for Stepless capacity modulation from 100 to 10%, gear drive & semi-hermetic, liquid refrigerant cooled, squirrel cage, 2-pole induction motor.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Flooded shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Lubrication system with submersible oil pump, which supplies pressurized lubricating oil to hydrodynamic bearings of the compressor as well as to the hydraulic mechanism of the inlet guide vanes, and Refrigerant-cooled oil cooler.
- Intelligent & user friendly 'K-Smart' controller, with 13" LED touch screen graphic display.
- 'K-Smart' controller equipped to communicate with the Building Automation Systems over Modbus or BACnet protocols.

Standard Factory-supplied Accessories

TURBOTEK® centrifugal chillers are supplied with following accessories as standard along with the chiller:

- Victaulic coupling compatible water connections for both heat exchangers.
- Water pressure differential switches for evaporator & condenser to ensure adequate water flow through the heat exchangers.
- Anti-vibration rubber pads / spring isolators, supplied loose for field installation.

Options & Accessories

The following options are available for TURBOTEK® centrifugal chillers:

- Various voltages for compressor motors:
 - LV : 380 ~ 460 V, MV : 3300 V, 6600 V, HV : 11000 V.
- Various starter types:
 - **For LV chillers:** Closed transition Wye-Delta Starter, Soft Starter, Variable Frequency Drives
 - **For MV / HV chillers:** Auto Transformer Starters, Soft Starter, Direct On Line Starters, VFDs
- Harmonic filters to limit THiD at equipment level for VFD chillers.
- Copper, Cupro-Nickel, Stainless Steel, Titanium tubes for heat exchangers.
- Marine water boxes for heat exchangers.
- High water side design pressure for heat exchangers.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.

TURBOTEK®

Approximate Range:

200 TR (705 kW) up to 1200 TR (4220 kW)

KSC 063:	200 - 320 TR	(705 - 1125 kW)
KSC 079:	280 - 400 TR	(985 - 1405 kW)
KSC 087:	400 - 650 TR	(1405 - 2285 kW)
KSC 100:	525 - 800 TR	(1845 - 2810 kW)
KSC 113:	725 - 930 TR	(2550 - 3270 kW)
KSC 126:	930 - 1200 TR	(3270 - 4220 kW)



TURBOTEK® Centrifugal Chillers

KDC Series: Dual Compressor Centrifugal Chillers

Features & Benefits

Kirloskar KDC Series TURBOTEK® dual compressor centrifugal chillers are certified in accordance with AHRI Standard 550/590 (IP) and 551/591(SI). The kW/tonR for KDC series TURBOTEK® chillers is as low as 0.55 (COP > 6.3) at standard AHRI rating conditions.

Kirloskar KDC Series TURBOTEK® dual compressor centrifugal chillers offer all the advantages of a single compressor centrifugal chiller with some additional benefits as listed below:

- Two compressors along with two oil pumps are mounted on a single set of heat exchangers. This provides built in redundancy; either compressor can be isolated for service requirements.
- Being dual compressor configuration, stepless capacity modulation is achieved from 5% to 100% of rated capacity. Further, excellent part load efficiencies are possible, especially if the chillers are operating below 60% load. In fact, IPLV figures for dual compressor fixed speed chillers are comparable with variable speed chillers.
- A dual compressor chiller has a smaller footprint compared to two identical chillers totaling the same capacity. This reduces piping costs & thus is economical when compared with two independent chillers.

Standard Factory-supplied Accessories

TURBOTEK® centrifugal chillers are supplied with following accessories as standard along with the chiller:

- Victaulic coupling compatible water connections for both heat exchangers.
- Water pressure differential switches for evaporator & condenser to ensure adequate water flow through the heat exchangers.
- Anti-vibration rubber pads / spring isolators, supplied loose for field installation.

Options & Accessories

The following options are available for TURBOTEK® centrifugal chillers:

- Various voltages for compressor motors:
 - LV : 380 ~ 460 V, MV : 3300 V, 6600 V, HV : 11000 V.
- Various starter types:
 - For LV chillers: Closed transition Wye-Delta Starter, Soft Starter, Variable Frequency Drives
 - For MV / HV chillers: Auto Transformer Starters, Soft Starter, Direct On Line Starters, VFDs
- Harmonic filters to limit THiD, THvD at equipment level for VFD chillers.
- Copper, Cupro-Nickel, Stainless Steel, Titanium tubes for heat exchangers.
- Marine water boxes for heat exchangers.
- High water side design pressure for heat exchangers.
- Witness testing on AHRI certified test bed, at design conditions, and at part loads.



Approximate Range:

400 TR (1405 kW) up to 2,400 TR (8440 kW)

KDC 063:	400	-	650 TR	(1405 ~ 2285 kW)
KDC 079:	560	-	800 TR	(1970 ~ 2810 kW)
KDC 087:	800	-	1200 TR	(2810 ~ 4220 kW)
KDC 100:	1100	-	1600 TR	(3865 ~ 5625 kW)
KDC 113:	1600	-	1850 TR	(5625 ~ 6505 kW)
KDC 126:	1850	-	2400 TR	(6505 ~ 8440 kW)



PRODIGY® Water Cooled Screw Chillers

KWI Series: Falling Film Evaporator Screw Chillers with Variable Speed Drives

Features & Benefits

Kirloskar PRODIGY® KWI series water cooled falling film screw compressor chillers with variable speed drives are equipped with one or two high efficiency screw compressors. These chillers use variable speed drives for capacity control to achieve very high IPLV.SI value up to 9.2 (IPLV.IP 0.38 kW/tonR).

Each PRODIGY® KWI series water cooled screw chiller with variable speed drive is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor. Motor is controlled using variable speed drive for step-less capacity control from 25 ~ 100% load for single compressor and 12.5 ~ 100% load for dual compressor chillers.
- Well-designed external oil separator, efficient & reliable oil recovery system to recover traces of oil carried over into the heat exchangers.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Falling Film shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Electrical panel housing intelligent 'K-Smart' controller, with 7" LED touch screen graphic display.
- Variable speed drives are unit mounted & pre-wired in factory.
- Anti-vibration rubber pads for field installation.
- Victaulic coupling compatible water connections for both heat exchangers.

Options & Accessories

The following options are available for all PRODIGY® KWI series water cooled screw chillers:

- Copper, Cupro-Nickel, Stainless Steel, Titanium tubes for heat exchangers.
- Marine water boxes for heat exchangers.
- Water flow switches or differential water pressure switches.
- Spring isolators for vibration isolation.
- High water side design pressure for heat exchangers.
- Harmonic filters to limit THiD, THvD at equipment level.
- Also suitable for low temperature applications, with brine as secondary cooling media.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.

PRODIGY®

Approximate Range:

130 TR (455 kW) up to 580 TR (2040 kW)



PRODIGY® Water Cooled Screw Chillers

KWI Series: Screw Chillers with HFO 1234ze Refrigerant & Variable Speed Drive

Features & Benefits

Kirloskar PRODIGY® KWI.*G Series water-cooled screw compressor chillers with variable speed drives are equipped with one or two high efficiency screw compressors. These chillers use R 1234ze refrigerant with GWP = 1. These chillers use variable speed drives for capacity control to achieve very high IPLV (SI) of up to 8.5 / IPLV (IP) of up to 0.41 kW/TR.

Each PRODIGY® KWI *G Series chiller is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor. Motor is controlled using variable speed drive for step-less capacity control from 35 ~ 100% load for single compressor and 17.5 ~ 100% load for dual compressor chillers.
- Well-designed external oil separator, efficient & reliable oil recovery system to recover traces of oil carried over into the heat exchangers.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Oil pump for force feed lubrication at low lift condition.
- Electrical panel housing intelligent 'K-Smart' controller, with 7" LED touch screen graphic display.
- Variable speed drives, unit mounted & pre-wired in factory.
- Anti-vibration rubber pads for field installation.
- Victaulic coupling-compatible water connections for both heat exchangers.

Options & Accessories

The following options are available for all PRODIGY® KWI.*G Series Chillers:

- Copper, Cupro-Nickel, Stainless Steel, Titanium tubes for condenser.
- Marine water boxes for heat exchangers.
- Flow switches or differential pressure switches for evaporator & condenser.
- Spring isolators for vibration isolation.
- High water side design pressure for heat exchangers.
- Harmonic filters to limit THiD, THvD at equipment level.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.

PRODIGY®

Approximate Range:

130 TR (455 kW) up to 420 TR (1478 kW)



PRODIGY® Water Cooled Screw Chillers

KWK Series: High Efficiency Flooded Evaporator Screw Chillers

Features & Benefits

Kirloskar PRODIGY® KWK series water cooled flooded screw compressor chillers are equipped with one or two high efficiency screw compressors. These chillers use flooded evaporators enabling to achieve efficiency as high as COP 6.3 (0.56 kW/tonR) at standard AHRI rating conditions.

Each PRODIGY® KWK series water cooled screw chiller is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor suitable for voltages between 380 ~ 450V. These high efficiency compressors are designed for quiet operation & have step-less capacity control from 25 ~ 100% load for single compressor and 12.5 ~ 100% load for dual compressor chillers.
- Well-designed external oil separator, efficient & reliable oil recovery system to recover traces of oil carried over into the heat exchangers.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Flooded shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Electrical panel housing intelligent 'K-Smart' controller, with 7" LED touch screen graphic display.
- Anti-vibration rubber pads for field installation.
- Victaulic coupling compatible water connections for both heat exchangers.

Options & Accessories

The following options are available for all PRODIGY® KWK series water cooled screw chillers:

- Available with options of Star Delta or Soft Starter.
- Copper, Cupro-Nickel, Stainless Steel, Titanium tubes for heat exchangers.
- Marine water boxes for heat exchangers.
- Water flow switches or differential water pressure switches.
- Spring isolators for vibration isolation.
- High water side design pressure for heat exchangers.
- Also suitable for low temperature applications, with brine as secondary cooling media.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.

Heat Recovery Option

- These chillers can be offered with 100% heat recovery in condensers, with maximum hot water outlet temperature of 45°C, and control on hot water temperature, giving simultaneous heating and cooling.
- These chillers can be offered with desuperheaters for partial heat recovery, with maximum hot water outlet temperature of 45°C.

PRODIGY®

Approximate Range:

105 TR (370 kW) up to 475 TR (1670 kW)



PRODIGY® Water Cooled Screw Chillers

KWE Series: Flooded Evaporator Screw Chillers

Features & Benefits

Kirloskar PRODIGY® KWE series water cooled flooded screw compressor chillers are equipped with one or two compressors. These chillers use flooded evaporators enabling to achieve efficiency as high as COP 5.7 (0.62 kW/tonR) at standard AHRI rating conditions.

Each PRODIGY® KWE series water cooled screw chiller is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor suitable for voltages between 380 ~ 450V. These high efficiency compressors are designed for quiet operation & have step-less capacity control from 25 ~ 100% load for single compressor and 12.5 ~ 100% load for dual compressor chillers.
- Well-designed external oil separator, efficient & reliable oil recovery system to recover traces of oil carried over into the heat exchangers.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- Flooded shell & tube evaporator with enhanced surface copper tubes & removable water heads.
- Alpha Numeric Graphical Display
- Anti-vibration rubber pads for field installation.

Options & Accessories

The following options are available for all PRODIGY® KWE series water cooled screw chillers:

- Water flow switches.
- Spring isolators for vibration isolation.
- Witness testing on AHRI certified test bed, at design conditions, at full and part loads.

PRODIGY®

Approximate Range:

100 TR (350 kW) up to 450 TR (1580 kW)



PRODIGY® Water Cooled Screw Chillers

KWS Series: DX Evaporator Screw Chillers

Features & Benefits

Kirloskar PRODIGY® KWS series water cooled, DX evaporator screw compressor chillers are equipped with one or two high efficiency screw compressors. These chillers have efficiency in the range of 0.67 ~ 0.73 kW/tonR (COP of 5.3 ~ 4.8) at standard AHRI rating conditions.

Each PRODIGY® KWS series water cooled screw chiller is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor suitable for voltages between 380 ~ 460V. These high efficiency compressors are designed for quiet operation & have step-less capacity control from 25 ~ 100% load for single compressor and 12.5 ~ 100% load for dual compressor chillers.
- Compressors are equipped with built in Oil separator.
- Shell & tube condenser with enhanced surface copper tubes & removable water heads.
- DX shell & tube evaporator with enhanced surface copper tubes.
- Alpha Numeric Graphical Display
- Anti-vibration rubber pads for field installation.
- Victaulic coupling compatible water connections for both heat exchangers.

Options & Accessories

The following options are available for all PRODIGY® KWS series water cooled screw chillers:

- Various starters for compressor motors: Start Delta or Soft starter.
- Water flow switches or differential water pressure switches.
- Spring isolators for vibration isolation.
- Also suitable for low temperature applications, with brine as secondary cooling media.
- Available with the options of HFC 134a & HFC 407C refrigerants.
- Witness testing on AHRI certified test bed, at design conditions at full and part loads.

Heat Recovery Option

- These chillers can be offered with 100% heat recovery in condensers, with maximum hot water outlet temperature of 55°C in case of HFC 134a refrigerant and 50°C in case of HFC 407C refrigerant and control on hot water temperature, giving simultaneous heating and cooling.
- These chillers can be offered with desuperheaters for partial heat recovery with maximum hot water outlet temperature of 50°C in case of HFC 134a refrigerant and 55°C in case of HFC 407C refrigerant.

PRODIGY®

Approximate Range:

50 TR (175 kW) up to 385 TR (1355 kW)



PRODIGY® Water Cooled Screw Chillers

PRODIGY®

KWS Series: Brine Chillers

Features & Benefits:

Kirloskar PRODIGY® KWS series water cooled Brine chillers are equipped with one or two high efficiency screw compressors.

Each PRODIGY® KWS series water cooled Brine chiller is equipped with:

- One or two Kirloskar twin screw compressors. Kirloskar screw compressors are equipped with semi-hermetic, refrigerant cooled, squirrel cage two pole induction motor. The motor is suitable for voltages between 380 ~ 460V. These high efficiency compressors have stepless capacity control from 50% ~ 100% load.
- Water cooled screw chillers specially designed for low temperature applications with chilled brine outlet temperatures down to -20°C
- One or two high-efficiency compressors working on environment-friendly HFC 404A refrigerant
- Fast pulldown results in low compressor run time to achieve significant energy savings
- High efficiency DX evaporators with enhanced surface tubes for optimum heat transfer, using Mono Ethylene Glycol brine
- Independent refrigeration circuits for 2-compressor models to give flexibility and redundancy
- Features like refrigerant-cooled oil cooler for applications below -10 deg C
- Intelligent 'K-Connect' microprocessor controller
- The Chillers are equipped with a well-designed Oil Cooler for maintaining desired oil temperatures to facilitate improved Compressor lubrication.

Option & Accessories:

The following options are available for all PRODIGY® KWS Brine series water cooled screw chillers:

- Water flow switches or differential water pressure switches.
- Spring isolators for vibration isolation.

Approximate Range:

45 TR (160 kW) to 105 TR (370 kW) at -20 deg C Brine Temperature



PRODIGY® Air Cooled Screw Chillers

KAS Series: Air Cooled Screw Chillers with DX Evaporator

Features & Benefits

Kirloskar PRODIGY® KAS Series air cooled DX evaporator screw compressor chillers are equipped with one, two or three high efficiency screw compressors. These chillers have an efficiency in the range of 1.00 ~ 1.10 kW/tonR (COP of 3.2 ~ 3.5) at standard rating conditions.

Each PRODIGY® KAS series air cooled screw chiller is equipped with:

- Single or multiple twin-screw compressors, equipped with semi-hermetic, refrigerant cooled, squirrel cage 2-pole induction motor suitable for voltages between 380 ~ 460V. These high efficiency compressors are designed for quiet operation & have step-less capacity control from 25 ~ 100% load for single compressor and 12.5 ~ 100% load for dual compressor chillers and 8.3 ~ 100% load for three compressor chillers.
- Built-in oil separator within the compressor.
- Copper tube & Aluminium fin condenser coils with adequate number of fans for air circulation over the coils. The fans are designed for quiet operation & are equipped with IP-55 protected squirrel cage induction motors.
- DX shell & tube evaporator with enhanced surface copper tubes.
- Alpha Numeric Graphical Display
- Anti-vibration rubber pads for field installation.
- Victaulic compatible water connections for evaporator.

Options & Accessories

The following options are available for all PRODIGY® KAS Series air cooled screw chillers:

- Various starters for compressor motors: Star Delta, Soft starter or Variable Frequency Drive.
- Anti-corrosive blue coatings on the condenser fins.
- Water flow switches or differential water pressure switches for evaporator.
- Spring isolators for vibration isolation.
- Acoustic enclosure for compressors for noise reduction.
- Also suitable for low temperature applications, with brine as secondary cooling media.
- Available with the options of HFC 134a & HFC 407C refrigerants.
- Witness testing at full and part loads, at available ambient conditions.

Heat Recovery Options

- **Partial Heat Recovery:** These chillers can be offered with desuperheaters for partial heat recovery with maximum hot water outlet temperature of 55°C for both HFC 134a & HFC 407C refrigerant.
- **Reverse Cycle Heat Pumps:** These chillers are used for either heating or cooling application at a time. Maximum hot water temperature achieved during heating mode is 55°C for R134a and 50°C for R407C at ambient temperatures as low as 10°C.

PRODIGY®

Approximate Range:

45 TR (160 kW) up to 425 TR (1495 kW)



PRODIGY® Air Cooled Screw Chillers with Adiabatic Cooling

KAA Series: Air Cooled Screw Chillers with Adiabatic Cooling Kit

The KAA series chillers are provided with Adiabatic cooling kits for mounting on condenser coils. Adiabatic cooling helps reduce the peak power consumption of air cooled chillers, especially in dry & hot ambient conditions.

What are Adiabatic Kits?

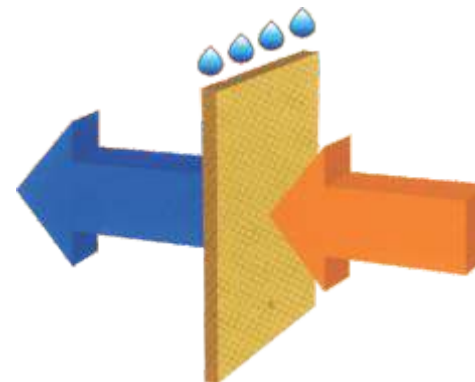
Adiabatic kits make use of lower Wet Bulb temperature in places with hot & dry ambient conditions to reduce the entering air temperature over the condenser coils. Adiabatic pads along with water spray system are used to cool the hot & dry entering air. The annual water consumption of these systems is approximately 1/6th of the annual water required in a cooling tower for water cooled chillers. Further, water circulation is required only during periods of operation in hot weather; the system automatically switches to normal air cooled operation mode in periods of moderate temperature. Thus on an average yearly basis, the water consumption drops to less than 15% of the total water required in a cooling tower.

The system consists of adiabatic pads mounted in front of the condenser coils. A water spray system sprays finely atomized water over these pads depending on the ambient air temperature. The spray system is intermittent and the ON & OFF times depend on the ambient temperature. For example, during periods with very high ambient temperature, say 40°C & above, the water spray will be on for about 30 seconds on each pad. During these 30 seconds, the pads get wet & cool the air flowing over them by about 5 ~ 8 °C. Thus, the air entering the condenser coils, will now be cooler by 5 ~ 8°C than the actual ambient, thus reducing the condensing temperature in the system, in turn reducing the power consumption of the chiller unit. The pads retain this water for about one minute after the sprays are switched off & keep cooling the air flowing over it. After about one minute, the spray of water again starts & continues for another 30 seconds & this cycle continues. The ON & OFF times will depend on the ambient temperature: lower the ambient temperature, higher will be OFF time & vice versa, in order to optimize water consumption. For chillers with adiabatic kits, the chiller controller, 'K-Smart' will have software programmed to monitor & control the operation of the sprays.

The adiabatic system comes complete with SS water piping for the spray nozzles, high pressure water pump, water tank, filters, etc. This entire system is factory fitted & tested prior to dispatch.

PRODIGY®

Approximate Range:
45 TR (160 kW) up to 450 TR (1582 kW)



KAC Series : Air Cooled Chillers with Scroll Compressor

Features and Benefits:

Easy and Quick Installation –

Chillers are pre-wired, refrigerant charged and tested at the factory prior to dispatch, which makes installation and startup easy and less time consuming.

Microprocessor-based Control System –

Ensures chiller safety by monitoring necessary parameters and controlling operation of the chiller.

BMS Compatibility –

Advanced microprocessor control has an optional feature for BMS compatibility over most open protocols.

Highly Energy Efficient & Reliable Scroll Compressor with Built-in Time delay –

Advanced compressor design with a time delay provided between first and second compressor starting ensuring high reliability.

Capacity Modulation –

Use of multiple compressors with independent refrigeration circuits provides redundancy and enable efficient part load operations and energy savings.

Modular Construction –

Enables parallel operation of multiple units to achieve desired plant capacity.

Quiet Operation –

Axial fans designed for exceptionally silent operation.

Scroll Chillers

Highly Reliable, Energy Efficient and Easy to Install

Approximate Range:

11 TR (38 kW) up to 46 TR (162 kW)



Web-Based Remote Monitoring of Chillers

Kirloskar Chillers products are offered with web-based remote monitoring system – “K-Connect”. Real-time data is constantly acquired and processed, which is used to diagnose real-time health of chiller. Abnormal or unhealthy conditions in the equipment are analyzed using complex algorithms, and failures can be predicted for proactive maintenance. The system also generates alerts and notifications to customer's maintenance / utility engineer via Email.

All chiller parameters including temperatures, pressures, currents etc. along with status of various safety and operational switches are logged at predefined interval by “K-Connect” & stored on centralized server. This data can be accessed by user at any point of time by logging to the server with proper credentials. Daily mailers will be generated by server for latest 24 hours logbook. User level Setpoints can also be viewed / modified by logging in through internet.

“K-Connect” hardware consists of a GSM/UMTS gateway which is used to transmit data to centralized server and is provided with RS-485 Modbus port to communicate with chiller. With this system one can constantly monitor the chiller performance, and when possible, fix problems remotely without the need for engineer to visit the site of installation.



Optional Features

Plant Manager

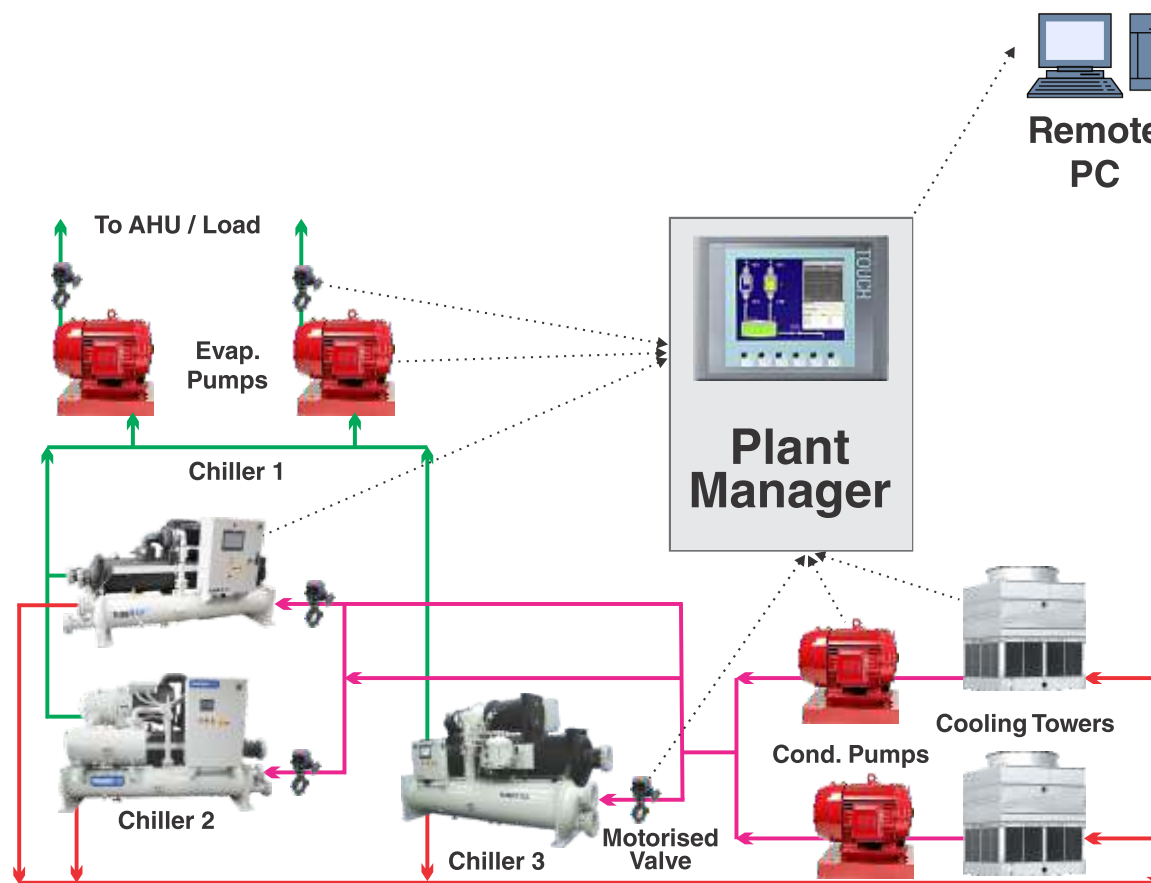
Kirloskar Chillers can optionally supply Plant Manager for controlling & optimally running a chiller system. A typical large chiller system can consist of the following equipment which will be controlled by the Plant Manager:

- Various chillers operating in the plant
- Chilled water primary pumps
- Chilled water secondary pumps with or without variable speed drives
- Condenser water pumps
- Cooling tower inlet / outlet motorized valves
- Chilled water inlet / outlet motorized valves
- Condenser water inlet / outlet motorized valves
- Modulating bypass valve

Depending on the sophistication required in the Plant Manager System, additional equipment can be added to the above list of equipment that is to be controlled by the Plant Manager. The features of the Plant Manager would also depend on the level of automation required by the customer. However, typically, a Plant Manager System can achieve all functions of the multi chiller control system & in addition the following:

- Depending on how many chillers are operating, the Plant Manager shall decide how many chilled water primary & condenser water pumps should run. And also controls motorized valves in chilled and condenser water line accordingly
- The Plant Manager can control the water flow to the cooling towers depending on the no. of chillers operating & by controlling the cooling tower motorized valves.
- The Plant Manager can control the speed of the secondary chilled water pumps, depending on the pressure signal received from the pressure transducer at the farthest air handling unit.

The extent of sophistication that can be incorporated into the Plant Manager is limitless & would be influenced by the available budget. Graphic display, fault & alarm displays at remote locations, data logging, reporting etc. are some of the features which can be added to the Plant Manager depending on customer requirements & budgets.



Optional Features

De-Superheaters

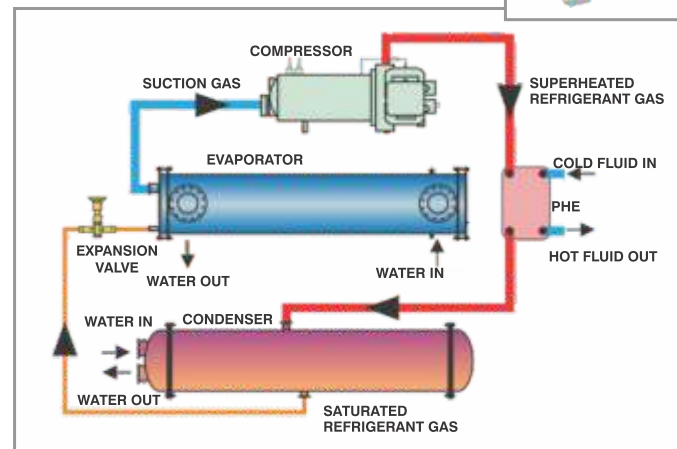
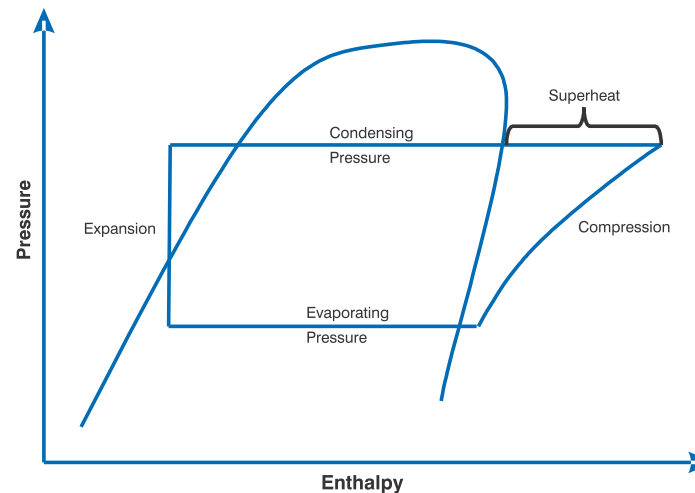
Kirloskar PRODIGY® screw chillers can be offered with a unique heat recovery option, the Desuperheater.

Principle of Operation

Desuperheaters are basically Plate Type Heat Exchangers (PHEs) fitted in the discharge line of the compressor. The superheat of the refrigerant gas leaving the compressor (see figure) is removed by water / fluid before the refrigerant gas enters the normal condenser, which may be either air cooled or water cooled. The latent heat of the refrigerant is then rejected to the cooling media in the condenser.

The advantage of a desuperheater over heat recovery condenser is that the heat recovery is at normal condensing pressures, unlike in total heat recovery condensers where the condensing pressure must be elevated. Thus, there is no increase in the compressor power and heat recovered is absolutely free and hence increases the efficiency of the water chiller.

In KWS and KAS series chillers, refrigerant discharge temperatures can be as high as 65°-75°C, hence heat is Recovered at a high temperature of 50°-55°C. In the KWK series chillers, normally the heat recovery would be at approx. 40°C, however, with some additional accessories, it can be increased to 45°C. Since PHEs are used instead of shell & tube type heat exchangers, heat recovery efficiency is also very high and also enables achieving high temperature differential fluid temperatures up to 10 ~ 12°C. Approximately 15% of the chiller's cooling capacity can be recovered as heat from a desuperheater.



Maintenance Contracts

Kirloskar Chillers has a strong commitment to 'customer delight', & in line with this philosophy, has built a strong team for aftersales support. Chillers are technologically advanced products & need proper care & support for trouble free operation on a long term & optimized basis. In line with these requirements, we offer maintenance contracts to our customers, post warranty period. The maintenance service contracts are of various types & durations. The following are the two main types of contracts we offer:

1. Annual Maintenance Contract: In these contracts, Kirloskar Chillers offers four preventive maintenance schedules & unlimited number of breakdown visits. The preventive maintenance schedule ensures trouble free operation of the chiller throughout its life & also keeps the performance of the chiller optimised. Any spare parts required for proper operation of the chiller are procured by the customer at an additional cost from Kirloskar Chillers.
2. Comprehensive Annual Maintenance Contract: In these contracts, all benefits of an annual service contract are available to the customer along with inclusion of all major spare parts required for the chiller. Only consumable items & certain electrical / electronic items are generally excluded from such contracts. Thus, customers opting for comprehensive contracts entrust the entire maintenance responsibility of the chiller to Kirloskar Chillers for a predetermined amount.

Customers have a lot to benefit from such contracts: They ensure that chillers are under care of competent personnel & it is an obvious choice that a manufacturer is the best position to provide such services. Customers are also assured of quick availability of genuine spare parts for their chillers & most importantly peace of mind as they can be assured of trouble free chiller operation for many years.



Our Strengths

Manufacturing & Testing Facilities

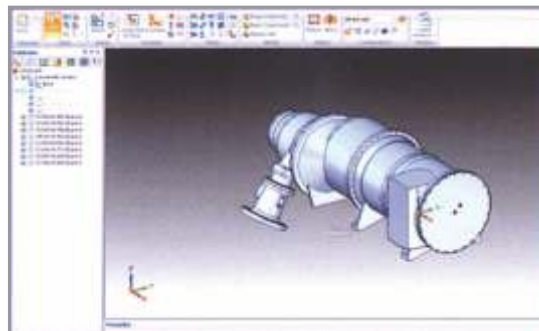
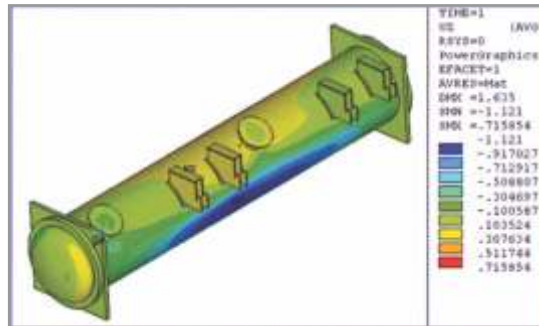
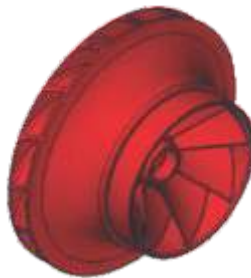
Kirloskar Chillers is an ISO 9001 : 2015, ISO 14001 : 2015 & ISO 45001 : 2018 certified Company with a state-of-art engineering, manufacturing & testing facility located at Saswad, near Pune, India. The plant spread over 40,000 sq. ft. is one of the few facilities in India which manufactures both Centrifugal & Screw chillers under one roof. The production facility includes sections for centrifugal compressor assembly, heat exchanger fabrication. The heat exchanger shop is equipped with facilities for tube sheet machining, tube expansion & pressure testing. Other sections cover various stages of the chiller manufacturing process, such as electrical & control panel assembly, chiller assembly, pressure testing, refrigerant charging, painting & insulation. We were the first chiller manufacturer in India to offer chillers certified under the AHRI 550 / 590 & 551 / 591 certification program since 2006. In 2008, we were the first to establish an AHRI-certified test bed in India.

Supply Chain Management

Adopting a collaborative approach with all stakeholders allows us to maximize the efficiency & effectiveness of our operations. Our vendors are key partners in our endeavour to deliver quality products & services to our customers. Continuous efforts at vendor development to upgrade their knowledge, competence & facilities ensure that we source components at the right time with optimum cost & desired quality. Involving our vendors in various initiatives to promote exchange of information helps build trust & confidence in each other, ensuring they are partners in our growth to jointly achieve the Company's short term goals & long range plans.

Engineering, Research & Development Capabilities

Kirloskar Chillers prides itself on being a technology-driven company, responsive to the needs of its customers and alert to emerging global trends. Our focus on offering efficient & reliable products, new features & value-added services drives our efforts at continuous innovation. Our Engineering team uses advanced software tools for various aspects of chiller design. Vast experience in refrigeration system design, particularly in thermal & mechanical design, in-house expertise at Controller programming & logic development to optimize chiller operation enable us to remain a leader in chiller technology. For specialized engineering requirements like CFD analysis for impeller design, FEA for seismic studies, stress analysis, acoustic & vibration studies, we enlist the help of external expertise.



Some of our Esteemed Customers



Pharmaceuticals Industry

- Biocon Ltd. – Bengaluru, Vizag
- Glenmark Generics / Pharmaceuticals – Multiple locations
- Indoco Remedies – Baddi, Goa
- Lupin Ltd. – Aurangabad, Goa, Nagpur, Pune, Vizag
- Mankind Pharma Ltd. – Himachal Pradesh
- Micro Labs Ltd. – Baddi, Bengaluru, Goa, Hosur, Sikkim
- Mylan Laboratories Ltd. – Bengaluru, Goa, Sarigam
- Serum Institute of India, Pune
- Strides Shasun Ltd. – Bengaluru, Mozambique
- Wockhardt Ltd., Aurangabad



Power Industries

- BHEL – Multiple locations
- International Thermonuclear Experimental Reactor, France
- Koyna Hydro Power Project, Satara
- Mukha Power Station, Yemen
- NHPC Ltd. – Uttarakhand
- NPCIL – Multiple locations
- NTPC Ltd. – Multiple locations
- Reliance Power, Parichha



Textile Industry

- Bombay Dyeing, Patalganga
- Dicitex Décor, Silvassa
- Elegant Textiles, Indonesia
- Garden Silk Mills Ltd., Surat
- Grasim Industries Ltd. – Multiple locations
- Indo Bharat Rayon, Indonesia
- Indo Liberty Textiles, Indonesia
- Indorama, Indonesia
- JBF Industries Ltd., Silvassa
- Welspun India Ltd., Vapi



FMCG

- Adani Wilmar Ltd. – Multiple locations
- Cargill India Ltd. – Multiple locations
- Emami Agrotech Ltd. – Multiple locations
- Hindustan Unilever Ltd. – Multiple Locations
- Keventer Agro Ltd., Kolkata
- Morde Foods, Manchar
- Nivea India Pvt. Ltd., Ahmedabad
- Parle Agro Pvt. Ltd. – Multiple locations
- Patanjali Ayurved Ltd., Haridwar
- PepsiCo India Holdings Pvt. Ltd. – Pune, Kolkata



IT & ITES

- Ctrls Datacenters, Mumbai
- Lanco Hills Tech Park, Hyderabad
- Okaya Blue Silicon Business Park, Noida
- Prestige Tech Park, Bengaluru
- Reliance Infocom, Chennai
- SLK Software, Bengaluru
- SQS Info Systems, Pune



Offices & Educational Institutions

- Bengaluru International Exhibition Centre, Bengaluru
- IISER, Pune
- Kalpataru Projects, Thane
- Lodha Excelus, Mumbai
- Malacanang Presidential Palace, Manila, Philippines
- NISER, Bhubaneswar
- SE TranStadia, Ahmedabad
- SRM Institute of Science & Technology, Chennai
- UB City, Bengaluru
- Vellore Institute of Technology, Vellore
- World Trade Center, Mumbai



Retail & Entertainment

- Amanora Town Center, Pune
- City Pride, Pune
- Future Group - Multiple Locations
- Inorbit Mall, Bengaluru
- Kadewe Mall, Berlin, Germany
- Lodha Experia Mall, Dombivli
- WestEnd Mall, Pune



Hospitals & Healthcare

- B M Birla Research Center, Kolkata
- Gujarat Cancer Research Institute- Ahmedabad
- Kailash Healthcare Limited, Noida
- Lung Center of the Philippines, Manila
- MKCG Medical College- Odisha
- Narayana Hrudayalaya – Bengaluru, Jaipur
- National Cancer Institute, Nagpur
- Ram Manohar Lohia Hospital, New Delhi
- RPG Life Sciences, Mumbai
- Ruby Hall Clinic, Pune
- Safdarjung Hospital, New Delhi
- Sri Ramachandra Medical College, Chennai
- SRM Hospitals, Chennai
- SVP Institute of Medical Science & Research, Ahmedabad
- Symbiosis Hospital, Pune



Hotels

- Crowne Plaza, Pune
- JW Marriott – Mumbai, Bengaluru
- Le Meridien Resort & Spa, Mahabaleshwar
- Radisson Blu – Multiple Locations
- Taj Hotels – Multiple locations



Automobile Industry

- Bosch Limited, Nashik
- Bridgestone India Pvt. Ltd., Indore
- Continental Powertrains, Pune
- Honda Motorcycles, Bengaluru
- Hyundai Motors India Ltd., Chennai
- JCB India Ltd., Pune
- John Deere, Pune
- Mahindra & Mahindra, Pune, Nashik, Satara
- Toyota Kirloskar Motor Ltd., Bengaluru



Chemical Industry

- 3M India, Pune
- Aarti Industries – Multiple locations
- Alkyl Amines – Multiple locations
- Gujarat Alkalies & Chemicals Ltd., Vadodara
- Gharda Chemicals – Mumbai, Ratnagiri
- Rohit Surfactants



Govt. & Infrastructure

- Air India Ltd., Mumbai
- BARC, Mumbai, Tarapur
- IGCAR, Kalpakkam
- PWD / CPWD – Multiple locations
- HAL – Bengaluru, Lucknow
- ISRO – Multiple locations
- MES – Multiple locations
- ONGC – Multiple locations

Vision

We want to lead with innovative and technologically advanced products, nurture trust and responsibility in all relationships and be the preferred choice of all stakeholders.

Disclaimer: Kirloskar Chillers Private Limited accepts no responsibility for possible errors in the brochure and reserves the right to alter its product specifications without any prior notice.

Use of the AHRI Certified™ mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

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Enriching Lives



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CIN: U29191PN1995PTC095733