HARI ENTERPRISES

kirloskar Pneumatic

# OIL INJECTED ELECTRIC SCREW COMPRESSOR

Redefining Reliability and Efficiency

Steel | Oil & Gas | Textile | Food & Beverages | Pharmaceutical | Automobile

## A Future Filled with *limitless* Potential!

Kirloskar Pneumatic Company Limited (KPCL), founded in 1958, is one of the core companies of the Kirloskar Group of companies. A pioneer in compressed air and gas solutions that includes Air Compressors, Air Conditioning and Refrigeration Systems, Process Gas Systems, Vapour Absorption Systems and Industrial Gear Boxes, Kirloskar Pneumatic has grown over the last 60-years, driven by a rich legacy in manufacturing and industrial innovation.


With a strong global presence, Kirloskar Pneumatic's state-of-the-art facility in Pune undertakes research & development, manufacturing, assembly, testing, meteorology and other business processes. Focusing on continually evolving and developing our offerings, Kirloskar Pneumatic has led the way in developing sophisticated, hi-tech, future-ready products and solutions for further strengthening our long-standing relationships with our customers and make them limitless.

# Relentless innovation and smart future-ready, dependable solutions

## In-House Technology and Infrastructure

Kirloskar Pneumatic has state-of-the-art manufacturing facilities to consistently manufacture customer-centric solutions and deliver orders promptly and reliably. Airends which are the heart of a screw compressor with asymmetric, helicoidal screw profile are manufactured in-house using state-of-the-art rotor cutting machine and our own casting facility.

Our manufacturing facilities are ISO certified and equipment such as CNC and VMC machines, grinding machines, paint shop etc helps maintain high precision and tolerances, towards meeting the highest quality standard product under supervision of an expert team. All this ensures that world-class products can be tested and manufactured remotely by our customers.

# Applications:

### Steel

Used in the steel plant for blasting air in the blast furnace, for production of oxygen and nitrogen in an air separation plant, and operation of pneumatic devices.

### Oil & Gas

Used in a wide variety of ways, from powering pneumatic tools, to pipeline transformation to helping with petroleum refining, petrochemical synthesis and gas injection.

### Textile

Compressed air application to the textile industry including power looms, spinning machines, ginning mills and other industrial equipment used to process denim, polyester yarns and other fabrics.

### Food & Beverages

The primary choice for the Cold Chain Food industry, Breweries, Beverages, Dairy and Meat processing

### Automobile

Powering pneumatic tools and machines that lift, transport, position and fasten vehicle components, in addition to removal of dust and inflating tyres.

### Pharmaceuticals and Chemicals

Helping drug makers manufacture life-saving drugs, as well as in the manufacture of fertilizers.

# Electric Screw Compressor: A Lifeline to Efficiency!

*From fixed speed compressors to variable frequency drive technology, Kirloskar Pneumatic provides a comprehensive range of oil injected screw air compressors. These compressors offer superior durability, great dependability, and excellent performance at a lower total cost of ownership. The KES Series and KESe Series are the two types of compressors we provide.*

## KES Series-Energy Efficient

**Range** : *7 kW to 90 kW*
**FAD** : *32 to 626 CFM (0.9 m³/min to 17.7 m³/min)*

**Features and Benefit:**

- Reliable & efficient compressor
- Keeping your production up and running
- Competitive initial investment cost
- Designed for Indian conditions of high temperature at 50°C & dusty environment

*To exceed your expectations and be Limitless, KES and KESe will provide you with a compressed air solution adapted to your particular demands for all industrial applications.*

*They give explicit value propositions to reach your ultimate goals.*

*These compressors are built to keep your production run efficiently and smoothly even in the harshest Indian conditions.*

## KSEe Series- Leading Edge Technology

**Range :** *30 kW to 160 kW*
**FAD :** *147 to 1047 CFM (4 $m^3$/min to 29.6 $m^3$/min)*

### Features and Benefit:

- Exceptional Performance-Highest air flow delivery & lowest power consumption
- Indigeniously developed Airend for optimise performance
- Lowest life cycle cost
- Advance monitoring & SMART Controller
- Strategic placement of components to ease of serviceability

# Driven by Efficiency and Reliability

## Airend

» The compact design of air end, along with its high-efficiency and reliable arrangement for transmission of power, makes the compressor energy-efficient and the machine's overall performance reliable.

» Equipped with the best rotor lobe combination to get good volumetric efficiency resulting in high flow rate.

» Forged rotors which lead to higher durability and strength.

## Air Intake System

» Guided suction filter helps to lower pressure drop as well as noise

» Cleaner air ensured all the time with the two-stage filtration with efficiency of 99.95%

## Canopy & Base Frame

» Acoustically designed modular metallic canopy to limit noise level of the package. The noise measurement is as per Pneurop / Cagi ISO2151 & ISO3744 standard.

» Easy accessibility to internal components as a result of proper doors.

» Can be opened when compressor is in operation.

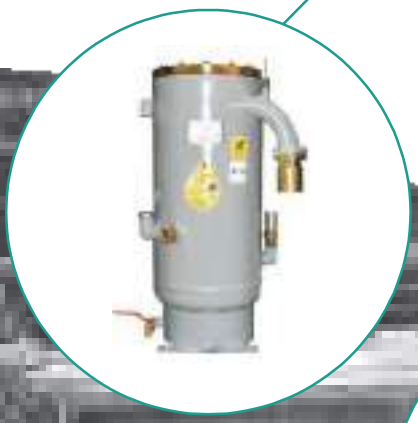
## Electric Motor

» Provide Indian manufactured motors

» Efficiency class as per IE2 (can provide IE3 motors as an option)

» Suitable for site conditions as per IP55, class F insulation

## Air Oil Separation System

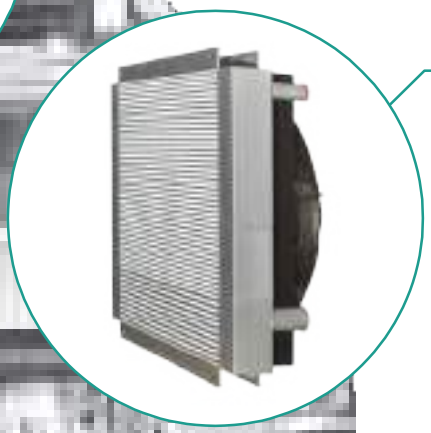


» Compressed air and lube oil separated in multi-stage air-oil separator tank

» Efficient air-oil separator element limits the oil carried over to the desired level

» Minimum pressure drop, across the separator

## After Cooler



» Air is cooled in aluminium bar finned type after-cooler

» Differential pressure monitoring across the cooler enables continuous checking of cooler performance and detection of choking

» Auto drain trap provided in moisture separator removes water from the system

# Control Panel


Compressor is provided with 'Starter cum Control Panel', which is micro-processor based and inbuilt in the compressor

Display Screen- LCD graphic display

IP protection - IP 65 from front and IP from rear

Can be easily communicated with DCS, SCADA through RS 232/RS 422/ RS 485/Ethernet/IOT

Real time will be displayed on the controller for any alarm to be retained up to two weeks

Panels have protection against reverse polarity

Starters are Type 2 co-ordination - under short circuit conditions, the contactor or starter shall prevent damage to the installation or person

## Remote monitoring and control

» Remote compressor monitoring through the Internet of Things (IoT)

» Real-time data monitoring and data logging of operating parameters ,digital inputs and outputs.

» SMS and e-mail notifications of alarms & trips of operating parameters and digital inputs and outputs.

» SMS and e-mail alerts for scheduled maintenance

# Save Energy with in-built Variable Frequency Drives (VFD)

» VFD helps in matching the compressor output with the plant load by varying the motor speed.

» The power consumption reduces in line with the plant load, which helps in reducing the electricity bill.

» VFD helps in maintaining low starting motor currents. Thus, at the time of starting, there is a reduction of thermal & mechanical stresses on the motors & belts.

» Suitable for compressed air system with fluctuating demand.

## Benefits

Saves up to 35% energy through:

» Minimized idle time

» Reduction of working pressure

» Quick reaction on demand changes

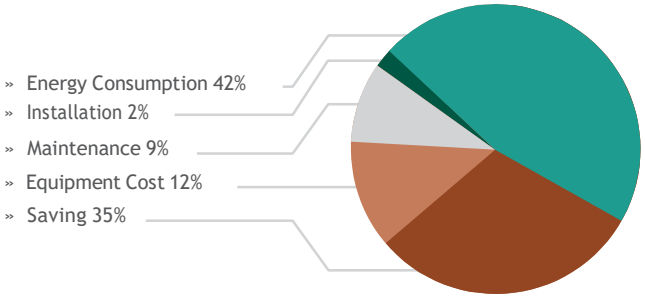
» Smooth operation

» Less wear and tear of the compressor

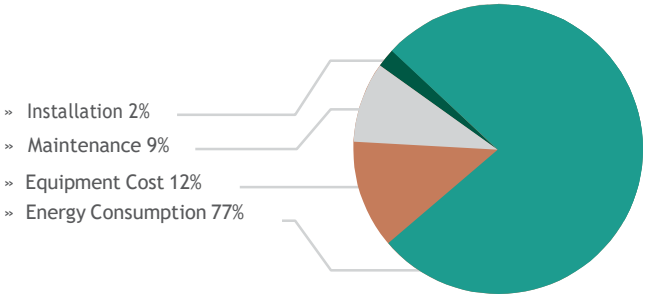
» Longer lifetime

» No starting current peaks

## Compressor with VFD




## Compressor without VFD



# Air / Oil Flow Diagram

1. Electric motor
2. Drive coupling
3. Air-end
4. Intake air filter
5. Intake air control valve
6. Air-oil separator
7. Minimum pressure valve
8. Combi-cooler with motor
9. Moisture separator
10. Outlet valve
11. Autodrain
12. Oil filter
13. PSV


# Built in Accessories

**Moisture Separator with Auto Drain Trap**
To separates condensed moisture from cooled compressed air.

**Safety Relief Valve**
To protect against built-up of high pressure in air / oil separator

**Blow Down Valve**
This facilitates very low power consumption in unloaded condition

**Additional Safeties**
Minimum pressure valve, oil level indicator etc.

# Accessories

**Kirloskar Refrigerated Dryer**

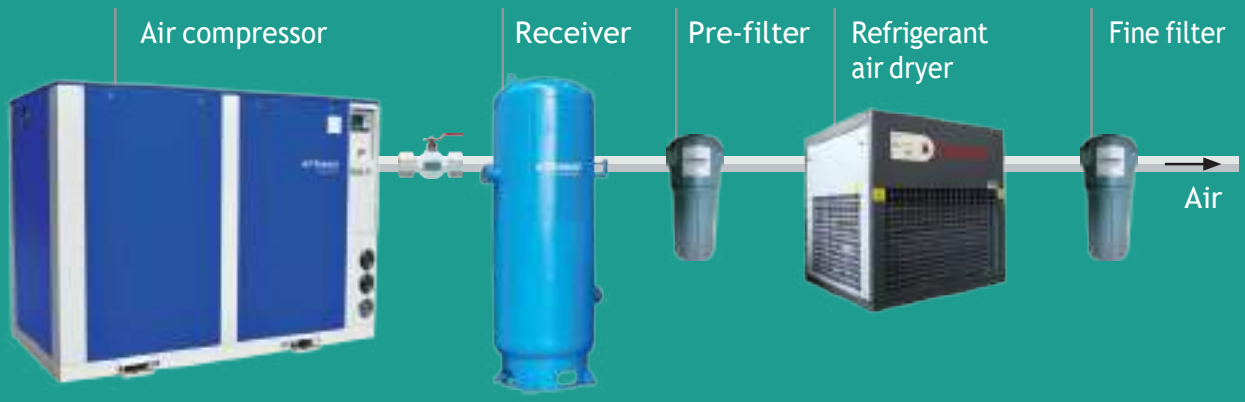
Capacity: 40 cfm-1000 cfm
Working pressure: 7-16 kg/cm2
Dew Point: +3°C - +7°C PDP

**Salient Features:**

» Maintenance free and user-friendly Compact design & lesser footprint
» Eco-friendly refrigerant for all models
» Low-pressure drop
» Dual stage effective moisture separation
» Built with necessary system protectors

*Note: Dryers of higher capacity also available*

## Typical Compressed Air System




### Particulate Filters

Capacity:
60-1300 cfm

Working Pressure:
7-16 kg/cm$^2$

Filtration Range:
3-0.005 microns

### Receivers

Capacity:
0.5m$^3$ - 5m$^3$

Working pressure:
7-10.5 kg/cm$^2$

*Note: Air Receiver and filters of higher capacity are available on request*

# After Sales and Support Services

As good and efficient are our products, equally excellent are our spare parts along with our maintenance services that we offer through our offices and dealer network. Our dealer network and team of technicians are well equipped to handle all after-sales and support requirements for our products across India. We recommend using original spare parts for the compressors. The spares are generally supplied in pre-packaged kits for all items of a particular type of model and maintenance operation.

## Make the correct choice!

» Genuine Spares and Service
» Complies with OEM standards
» Ensures high performance of compressor
» Minimal service requirements
» Services and spares delivered with the lowest lead time
» In-house customer training facility
» Comprehensive field assistance
» Dedicated customer care center for quick response

# Technical Specifications

## KES 7 - KES 11

| Model | Maximum Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | kW | hp |
| KES 7 | 7.5 | 44 | 1.2 | 7.0 | 102 | 7.5 | 10 |
| | 10 | 32 | 0.9 | 9.5 | 138 | 7.5 | 10 |
| | 13 | 22 | 0.6 | 12.5 | 181 | 7.5 | 10 |
| KES 11 | 7.5 | 62 | 1.7 | 7.0 | 102 | 11 | 15 |
| | 10 | 50 | 1.4 | 9.5 | 138 | 11 | 15 |
| | 13 | 40 | 1.1 | 12.5 | 181 | 11 | 15 |

» Overall Dimensions : Floor Mounted : L=780mm, W= 880mm, H=935 mm

» Tank Mounted : L=1874mm, W=880mm, H= 1452mm

» Unit performance measured according to ISO 1217 Ed 3 Annexure-C, 1996 at nominal working pressure of 7, 9.5 and 12.5 kg/cm$^2$

» All models given above are air cooled

» Models are available in versions:

Base mounted

Tank Mounted- 270L & 500L Tank Capacity

Tank Mounted with Dryer- 270L & 500L Tank Capacity

## KESb 15- KESb 22

| Model | Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | kW | hp |
| KESb 15 | 7.5 | 90 | 2.55 | 7.0 | 102 | 15 | 20 |
| | 8.5 | 81 | 2.29 | 8.0 | 116 | 15 | 20 |
| | 10 | 71 | 2.01 | 9.5 | 138 | 15 | 20 |
| | 13 | 51 | 1.44 | 12.5 | 181 | 15 | 20 |
| KESb 18 | 7.5 | 108 | 3.06 | 7.0 | 102 | 18 | 25 |
| | 8.5 | 97 | 2.75 | 8.0 | 116 | 18 | 25 |
| | 10 | 86 | 2.44 | 9.5 | 138 | 18 | 25 |
| | 13 | 64 | 1.81 | 12.5 | 181 | 18 | 25 |
| KESb 22 | 7.5 | 126 | 3.57 | 7.0 | 102 | 22 | 30 |
| | 8.5 | 112 | 3.17 | 8.0 | 116 | 22 | 30 |
| | 10 | 102 | 2.89 | 9.5 | 138 | 22 | 30 |
| | 13 | 81 | 2.29 | 12.5 | 181 | 22 | 30 |

» Overall dimensions: Floor Mounted: L= 950 mm, W= 900 mm , H= 1210mm,
Tank Mounted: L= 1970 mm, W= 950 mm , H= 1877 mm

» Unit performance measured according to ISO 1217 Ed 3 Annexure-C, 1996 at nominal working pressure of 7, 8, 9.5 and 12.5 kg/cm2(g)

» All models given above are air cooled

## KES 15 - KES 30

| Model | Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | kW | hp |
| KES 15 | 7.5 | 96 | 2.7 | 7.0 | 102 | 15 | 20 |
| | 8.5 | 87 | 2.4 | 8.0 | 116 | 15 | 20 |
| | 10 | 80 | 2.3 | 9.5 | 138 | 15 | 20 |
| | 13 | 62 | 1.7 | 12.5 | 181 | 15 | 20 |
| KES 18 | 7.5 | 117 | 3.3 | 7.0 | 102 | 18.5 | 25 |
| | 8.5 | 106 | 3.0 | 8.0 | 116 | 18.5 | 25 |
| | 10 | 99 | 2.8 | 9.5 | 138 | 18.5 | 25 |
| | 13 | 80 | 2.3 | 12.5 | 181 | 18.5 | 25 |
| KES 22 | 7.5 | 131 | 3.7 | 7.0 | 102 | 22 | 30 |
| | 8.5 | 127 | 3.6 | 8.0 | 116 | 22 | 30 |
| | 10 | 119 | 3.4 | 9.5 | 138 | 22 | 30 |
| | 13 | 99 | 2.8 | 12.5 | 181 | 22 | 30 |
| KES 30 | 7.5 | 187 | 5.3 | 7.0 | 102 | 30 | 40 |
| | 8.5 | 178 | 5.0 | 8.0 | 116 | 30 | 40 |
| | 10 | 154 | 4.3 | 9.5 | 138 | 30 | 40 |
| | 13 | 128 | 3.6 | 12.5 | 181 | 30 | 40 |

» Overall dimensions “L - 1250 mm, W - 650 mm, H - 1550 mm

## KESe 30 - KESe 55

| Model | Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | kW | hp |
| KESe 30 | 7.5 | 202 | 5.7 | 7.0 | 102 | 30 | 40 |
| | 8.5 | 183 | 5.2 | 8.0 | 116 | 30 | 40 |
| | 10 | 160 | 4.5 | 9.5 | 138 | 30 | 40 |
| | 13 | 133 | 3.8 | 12.5 | 181 | 30 | 40 |
| KESe 37 | 7.5 | 251 | 7.1 | 7.0 | 102 | 37 | 50 |
| | 8.5 | 234 | 6.6 | 8.0 | 116 | 37 | 50 |
| | 10 | 206 | 5.8 | 9.5 | 138 | 37 | 50 |
| | 13 | 177 | 5.0 | 12.5 | 181 | 37 | 50 |
| KESe 45 | 7.5 | 301 | 8.5 | 7.0 | 102 | 45 | 60 |
| | 8.5 | 281 | 7.9 | 8.0 | 116 | 45 | 60 |
| | 10 | 262 | 7.4 | 9.5 | 138 | 45 | 60 |
| | 13 | 233 | 6.6 | 12.5 | 181 | 45 | 60 |
| KESe 55 | 7.5 | 365 | 10.3 | 7.0 | 102 | 55 | 75 |
| | 8.5 | 349 | 9.9 | 8.0 | 116 | 55 | 75 |
| | 10 | 317 | 8.9 | 9.5 | 138 | 55 | 75 |
| | 13 | 286 | 8.1 | 12.5 | 181 | 55 | 75 |
| KESe55+ | 7.5 | 372 | 10.5 | 7.0 | 102 | 55 | 75 |
| | 8.5 | 349 | 9.9 | 8.0 | 116 | 55 | 75 |
| | 10 | 319 | 9.0 | 9.5 | 138 | 55 | 75 |
| | 13 | 259 | 7.3 | 12.5 | 181 | 55 | 75 |

» Overall dimensions “L - 1900 mm, W - 960 mm, H-1555 mm

» Unit performance measured according to ISO 1217 Ed 3 Annexure-C, 1996 at nominal working pressure of 7, 8, 9.5 and 12.5 kg/cm2(g)

» All models given above are air cooled

» Models available with option for integrated VFD

*Due to continuous engineering improvements, specifications are subject to change without prior notice. Products images displayed in this brochure are only for representation and may not exactly match the actual product.*

# KES 75 - KES 90

| Model | Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | KW | hp |
| KES 75 | 7.5 | 478 | 13.5 | 7.0 | 102 | 75 | 100 |
| | 8.5 | 455 | 12.9 | 8.0 | 116 | 75 | 100 |
| | 10 | 417 | 11.8 | 9.5 | 138 | 75 | 100 |
| | 13 | 345 | 9.8 | 12.5 | 181 | 75 | 100 |
| » Overall dimensions “L - 2133 mm, W - 1180 mm, H-1742 mm | | | | | | | |
| KESe 75 | 7.5 | 534 | 15.1 | 7.0 | 102 | 75 | 100 |
| | 8.5 | 485 | 13.7 | 8.0 | 116 | 75 | 100 |
| | 10 | 435 | 12.3 | 9.5 | 138 | 75 | 100 |
| | 13 | 367 | 10.4 | 12.5 | 181 | 75 | 100 |
| KESe 90 | 7.5 | 633 | 17.9 | 7.0 | 102 | 90 | 120 |
| | 8.5 | 604 | 17.1 | 8.0 | 116 | 90 | 120 |
| | 10 | 552 | 15.6 | 9.5 | 138 | 90 | 120 |
| | 13 | 437 | 12.3 | 12.5 | 181 | 90 | 120 |
| » Overall dimensions “L - 2360 mm, W - 1250 mm, H-1718 mm | | | | | | | |

## KESe 110 - KESe 160


| Model | Pressure | Free Air Delivery | | Maximum Working Pressure | | Electric Motor | |
|---|---|---|---|---|---|---|---|
| | | cfm | m3/min | Kg/cm2 g | psi g | kW | hp |
| KESe 110 | 7.5 | 769 | 21.8 | 7.0 | 102 | 110 | 150 |
| | 8.5 | 740 | 20.9 | 8.0 | 116 | 110 | 150 |
| | 10 | 659 | 18.6 | 9.5 | 138 | 110 | 150 |
| | 13 | 551 | 15.6 | 12.5 | 181 | 110 | 150 |
| KESe 132 | 7.5 | 881 | 24.9 | 7.0 | 102 | 132 | 180 |
| | 8.5 | 870 | 24.6 | 8.0 | 116 | 132 | 180 |
| | 10 | 768 | 21.7 | 9.5 | 138 | 132 | 180 |
| | 13 | 652 | 18.64 | 12.5 | 181 | 132 | 180 |
| KESe 160 | 7.5 | 1047 | 29.6 | 7.0 | 102 | 160 | 215 |
| | 8.5 | 1000 | 28.3 | 8.0 | 116 | 160 | 215 |
| | 10 | 925 | 26.2 | 9.5 | 138 | 160 | 215 |
| | 13 | 758 | 21.4 | 12.5 | 181 | 160 | 215 |

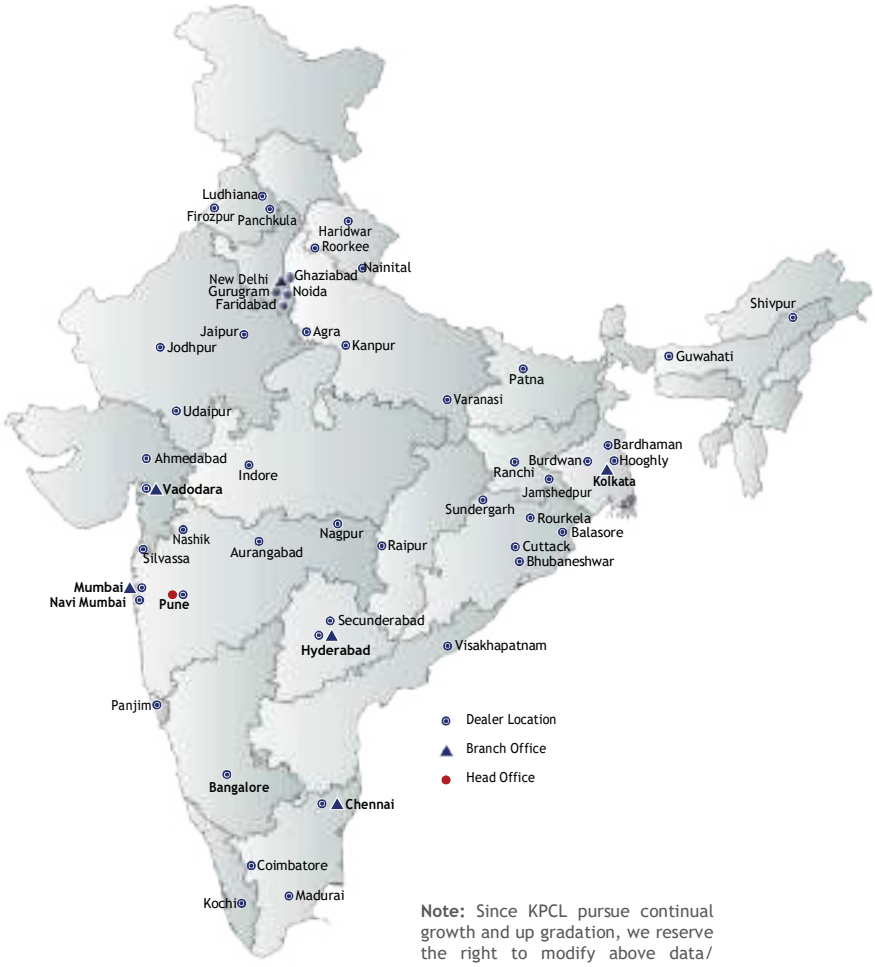
- Overall dimensions “L - 3087 mm, W - 1460 mm, H-2369 mm
- Unit performance measured according to ISO 1217 Ed 3 Annexure-C,
- 1996 at nominal working pressure of 7, 8, 9.5 and 12.5 kg/cm2(g)
- All models given above are air cooled
- Models available with option for integrated VFD.

# After Market Support

*At KPCL, we believe in an extended relationship with our customers far beyond the sale of the product. We support the product and its maintenance throughout its life. Our well spread dealer network all over India supports the maintenance of our products.*

*Our Air Compressor Division (ACD) provides aftersales service for products in warranty and out of warranty, through the Head Office which is wide spread across our network of branch offices, channel partners, and service franchisees. The spare parts division caters to the need of all spare parts of reciprocating compressors, centrifugal compressors, screw compressors, railway brake compressors and high-pressure compressors.*

*Training is provided at the client site location after commissioning of our compressor system. As per the agreement with clients, our Customer Training Center conducts seminars and service workshops for the client representatives at our Head Office.*




**Note:** Since KPCL pursue continual growth and up gradation, we reserve the right to modify above data/ specifications in accordance with improved design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CIN L29130PN1961PLC190007





N27.21.000.584.00 V20.7.5 Jan 2024