KIRLOSKAR PNEUMATIC COMPANY LIMITED
A Kirloskar Group Company

OIL INJECTED ELECTRIC SCREW COMPRESSOR

Meeting Your Expectation
KPCL believes service to customers & society through partnership with its customers and partners worldwide guided by values, innovation, technology and consistency in business processes.

**INTRODUCTION**

The name Kirloskar is synonymous with quality and dependability in the engineering industry. Pioneering industrial revolution in India, Kirloskar group has contributed immensely in every field of its operation during its 120 year-long journey, and holds a place of repute in the industry for its good business values and customer focus.

Kirloskar Pneumatic Company Ltd. (KPCL) is one of the core group companies. KPCL was incorporated in 1958 under the chairmanship of Late Shri Shantanurao Kirloskar. KPCL is certified for Integrated Management System (IMS) Certifications of ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007, by TUV NORD.

The company started its operations with the manufacture of Air Compressors and Pneumatic Tools. New product lines were then added, including Air Conditioning and Refrigeration systems, Marine HVACR, Process Gas systems and Hydraulic Power Transmission machinery.
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OUR CORPORATE PHILOSOPHY

OUR MISSION
We will demonstrate an EDGE to all our Stakeholders in our offerings for converting / transmitting energy.
We will strive to make our Company an employer of Choice.

BUSINESS VALUES
In an ever changing world one thing that will remain constant is our Commitment towards all our stakeholders. Each one of us will be guided by the following values.

Customer Focus
Our activities / actions will be focused on enhancing internal / external customer's satisfaction.

Commitment
We commit to achieve our targets / goals. We will be responsible / accountable for our commitment.

Continuous Improvement
We will consciously work to improve our procedures, processes and systems with an objective to improve our business processes.

Ethical Business Practies
We will be fair in our dealings with all our stakeholders. It will be based on integrity, honesty and transparency.
SCREW COMPRESSORS

From a product manufacturer in the domestic market to a company offering total solutions – designing and manufacturing customized products and systems - KPCL has come a long way. Paving this way has been our customer-centric work culture. The graduation was steady and strategically aimed at specific market segment. The customer-centric work culture along with technical excellence has been the hallmark of this success. Our ultimate reward is a satisfied customer.

Screw Air Compressors division caters its niche market segment right from General engineering workshop till the operation & processing unit in different sectors.

OIL INJECTED ELECTRIC SCREW COMPRESSORS

KEY FEATURES

Modulation Capacity Control

Modulation & Load /Unload capacity control is provided which functions as per demand conditions. Power saving and optimum utilization of compressor package is achieved due to this type of capacity control.

- Stable pressure compressed air system
- Real time response to air demand fluctuations keeps working pressure constant within 0.1 kg/cm²
- Saving up to 8% energy that is additionally required in traditional load/unload control compressor units due to pressure difference setting of 1 kg/cm²

Linear Air Output

- Linear operation and output
- Electrical power saving up to 45 ~55% as compared to traditional modulation control compressors
- Linear inverter control (VFD) output can be achieved, depending on the extent of loading (20~100%)

Energy Saving

VFD compressor unit

- Energy consumption 42%
- Maintenance 9%
- Installation 2%
- Purchasing Cost 12%
- Saving 33% (End User Benefit)

Standard compressor unit

- Energy consumption 77%
- Maintenance 9%
- Installation 2%
- Purchasing Cost 12%
SCREW COMPRESSORS

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OIL INJECTED ELECTRIC SCREW COMPRESSORS

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- Electrical power saving up to 45 –55% as compared to traditional modulation control compressors
- Linear inverter control (VFD) output can be achieved, depending on the extent of loading (20~100%)

<table>
<thead>
<tr>
<th>Power (%)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
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<tbody>
<tr>
<td>Modulation control curve</td>
<td>14%</td>
<td></td>
<td></td>
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<tr>
<td>Inverter control curve</td>
<td>35%</td>
<td></td>
<td></td>
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<tr>
<td>Air Consumption (%)</td>
<td>45 – 55%</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

KEY FEATURES

- Stable pressure compressed air system
- Real time response to air demand fluctuations keeps working pressure constant within 0.1 kg/cm
- Saving up to 8% energy that is additionally required in traditional load/unload control compressor units due to pressure difference setting of 1kg/cm

<table>
<thead>
<tr>
<th>Pressure unit : kg/cm</th>
<th>saving 8%</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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<tbody>
<tr>
<td>Time</td>
<td>Energy Saving</td>
<td>Saving 35%</td>
<td>Purchasing Cost</td>
<td>Maintenance</td>
<td>Installation</td>
<td>Energy consumption</td>
<td></td>
<td></td>
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<tr>
<td>DOL Starting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
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</tr>
<tr>
<td>Srar / Delta Staring</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part Winding Starting</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>Soft Starter</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency inverter (VFD)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modulation Capacity Control

Modulation & Load /Unload capacity control is provided which functions as per demand conditions. Power saving and optimum utilization of compressor package is achieved due to this type of capacity control.

Safety Devices:

Following mechanical safety devices are provided to ensure safe operation of the compressor

Minimum Pressure Valve - Maintains minimum air pressure in air-oil separator tank so that positive oil flow is ensured.

Safety Relief Valve - De-apressurize compressor system if pressure exceeds beyond limits of the system

Blow Down Valve - Ensures proper pressure relief arrangement during the unload condition of the compressor

Oil Level indicator - This is mounted on air/oil separator tank. It gives visual indication of minimum & maximum level of oil present in compressor system

Display on MMI (microcontroller)

- Delivery air pressure
- Air/oil Temperature
- Differential pressure across air/oil separator
- Hour meter
- Total running hours
- Total loaded hours
- Start/stop, load/unload, Emergency stop & test conditions
- Reason for trip

Maintenance schedule (No. of Hours indication)

- Replace Air Filter Element
- Replace Oil Filter Element
- Replace Air/Oil Separator Element
- Change of Lube oil

Electrical circuit diagram sticker is pasted inside the Electrical panel for ready reference during wiring or trouble-shooting.
After Cooler
High-pressure discharge air is cooled in radiator type air-cooled after-cooler. The condensation happens due to cooling of air & separates out in the Moisture separator. We provide Auto drain trap to remove water from the system.

Canopy & Base Frame
All components of the compressor package are mounted on a single base frame. It does not require any foundation. The complete package can be shifted with forklift or hydraulic lift trolleys by using the provision given in the base frame.

Powder Coated Metallic Canopy of the compressor is of modular design. It is acoustically designed to limit sound pressure level of the package to 75 dB (A) at a distance of one meter. The noise measurement is as per Pneurop / Cagi ISO 2151 - ISO 3744 standard. Easily removable doors with locks are provided for easy.

Air Intake
Trouble free operation of this close tolerance, screw type compressor is achieved by suction air filtration system. It is with Dry, Paper type filter element in cartridge form for easy replacement. Complete filter assembly is within canopy of the compressor, which avoids entry of heavy particles in the compressor.

Optional
SALIENT FEATURES:
• Eco-friendly refrigerant for all models.
• Constant Dew point at all varying load conditions
• Radial finned flowerpot heat exchanger ensures better pre-cooling and turbulence, results in low power consumption.
• Low pressure drop.
• Dual stage affective moisture separation.
• Remote interfacing & monitoring in selected models.
• Maintenance free & user friendly.
• Microprocessor controller with 16 x 2 Alpha numeric (32 digit) LCD Display with Back light for displaying air inlet temperature, dew point temperature (-20 ADP 0 and + 4 PDP) condensing temperature monitors the complete system with various alarms and trips functions. RS 232 RS 485 remote interfacing available.

INDUSTRIAL ELECTRIC POWERED REFRIGERATED AIR DRYER
KRD 30 - 10,000
• Stand alone VFD panel
• Micro controller with RS 485 port

Air/Oil Separator
Compressed air and lube oil is separated in a multistage air/oil separator tank. The separator also acts as an oil reservoir. High efficient air/oil separator element, limits oil carryover to desired level in the delivered air from compressor package.

Components

Airend
This is the main component of the compressor package called as Airend. Free atmospheric air is being compressed during the rotation of optimally designed twin helical screws in the airend. The air end is coupled directly to the electric motor through a set of gears. Both air-end & motor is mounted on anti vibration pads placed on the base frame. With this arrangement we ensure less vibrations and longer life of the compressor. High efficiency air-end and reliable arrangement for transmission of power makes the compressor energy efficient and reliable performance machine.

Electric Motor
This is flange mounting, 2/4 Pole, TEFC, IP 55 protection, Class F insulation motor designed with necessary starting torque and operational load variations. Make of the motor is as per KPC standard.

Safety & Control
Following Trip signals are provided to protect the machine from abnormal operating conditions:
• High air-oil mixture temperature
• PT1 Pressure Transmitter fault (for air pr. at Compressor Outlet)
• PT2 Pressure Transmitter fault (for air-oil at airend outlet)
• RTD Temperature Sensor fault (for oil temp. at airend outlet)
• Main motor over load
• Fan motor overload
• SPP/RVP fault (Single phase /Reverse rotation)

ENVIRONMENTAL SAFETY
• Low Noise
• Efficient use of energy
• No oil discharge to environment
Air Intake
Trouble free operation of this close tolerance, screw type compressor is achieved by suction air filtration system. It is with Dry, Paper type filter element in cartridge form for easy replacement. Complete filter assembly is within canopy of the compressor, which avoids entry of heavy particles in the compressor.

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High-pressure discharge air is cooled in radiator type air-cooled after-cooler. The condensation happens due to cooling of air & separates out in the Moisture separator. We provide Auto drain trap to remove water from the system.

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Optional

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- Stand alone VFD panel
- Micro controller with RS 485 port
Note: This flow diagram is for R2 and above

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CAPACITY</th>
<th>MAX. WORKING PRESSURE</th>
<th>MOTOR RATING</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>KES 7-7.5</td>
<td>46 cfm</td>
<td>7.5 kgf/cm²</td>
<td>107 psi</td>
<td>7 kw</td>
</tr>
<tr>
<td>KES 7-10</td>
<td>38 cfm</td>
<td>10 kgf/cm²</td>
<td>142 psi</td>
<td>7 kw</td>
</tr>
<tr>
<td>KES 7-13</td>
<td>31 cfm</td>
<td>13 kgf/cm²</td>
<td>185 psi</td>
<td>7 kw</td>
</tr>
<tr>
<td>KES 11-7.5</td>
<td>61 cfm</td>
<td>7.5 kgf/cm²</td>
<td>107 psi</td>
<td>11 kw</td>
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<tr>
<td>KES 11-10</td>
<td>53 cfm</td>
<td>10 kgf/cm²</td>
<td>142 psi</td>
<td>11 kw</td>
</tr>
<tr>
<td>KES 11-13</td>
<td>45 cfm</td>
<td>13 kgf/cm²</td>
<td>185 psi</td>
<td>11 kw</td>
</tr>
</tbody>
</table>

Note: 1. Overall dimensions L - 1250 mm, W - 600 mm, H - 1715 mm  
2. Unit performance measured according to ISO 1217 Ed 3 Annexure - C, 1996.

### SALIENT FEATURES:

- **Ready to use**: Foundation is not required.
- **Quality Air**: Efficient air / oil separation system ensures maximum oil recovery to minimise lub oil consumption and maintenance cost.
- **Canopy**: Specially designed canopy to facilitate effective ventilation and ease of maintenance.
- **Cooling System**: Radiator type oil cooler & after cooler with low noise fan & motor provided for effective cooling of lub oil and compressed air.
- **Control Panel**: In built control panel housing main motor fan motor & other control of the package.
- **Air suction filter**: Dry type air filter protects the airend and ensures long life.
- **Air Receiver**: Compressor is mounted on Horizontal Air Receiver conforming to ASME Section VIII Div - 2
- **Electric Motor**: High efficient, TEFC, Class F insulation, Foot mounted, 2P, IP55 protection motor is selected considering operating conditions at site.

### BUILT IN ACCESSORIES:

- **Horizontal Air Receiver**: 270 LTS
- **Safety Relief Valve**: It protects against building up 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.
### BUILT IN ACCESSORIES:

- Quality Air: Efficient air/oil separation system ensures maximum oil recovery to minimize lubricant consumption and compressed air losses.
- Ready to use: Foundation is not required.
- Canopy: Specially designed canopy to facilitate effective ventilation and ease of maintenance.
- Controller: Microprocessor based efficient controller with all necessary safety control systems & maintenance schedule.
- Cooling System: Radiator type oil cooler & after cooler with low noise fan & motor provided for effective cooling of lubricant and compressed air.
- Control Panel: Inbuilt control panel housing MMI, controller, main motor auto star-delta starter, fan motor direct-on-line starter & other control of the package.
- Air suction filter: Dry type air filter protects the air end and ensures long life.
- Electric Motor: High efficient, TEFC, Class F insulation, Flange mounting, 2P, IP55 protection motor is selected considering operating conditions at site.
- Service Centres: Fully equipped Service Centres with trained engineers and spare parts stocks available at arms length throughout the country.

### R2/R3 SALIENT FEATURES:

**Model**: KES 15 - KES 30

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CAPACITY</th>
<th>MAX. WORKING PRESSURE</th>
<th>ELECTRIC MOTOR</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>KES 15-7.5</td>
<td>96 cfm, 2.72 m³/min</td>
<td>7.5 kgf/cm², 107 g psi (g)</td>
<td>15 kw, 20 hp</td>
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<tr>
<td>KES 15-8.5</td>
<td>87 cfm, 2.46 m³/min</td>
<td>8.5 kgf/cm², 121 g psi (g)</td>
<td>15 kw, 20 hp</td>
<td>475 kg</td>
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<td>KES 15-10</td>
<td>80 cfm, 2.27 m³/min</td>
<td>10 kgf/cm², 142 g psi (g)</td>
<td>15 kw, 20 hp</td>
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<td>KES 15-13</td>
<td>66 cfm, 1.87 m³/min</td>
<td>13 kgf/cm², 185 g psi (g)</td>
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<tr>
<td>KES 18-7.5</td>
<td>119 cfm, 3.37 m³/min</td>
<td>7.5 kgf/cm², 107 g psi (g)</td>
<td>18.5 kw, 25 hp</td>
<td>475 kg</td>
</tr>
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<td>KES 18-8.5</td>
<td>110 cfm, 3.11 m³/min</td>
<td>8.5 kgf/cm², 121 g psi (g)</td>
<td>18.5 kw, 25 hp</td>
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<td>KES 18-10</td>
<td>100 cfm, 2.83 m³/min</td>
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<td>18.5 kw, 25 hp</td>
<td>475 kg</td>
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<td>KES 18-13</td>
<td>85 cfm, 2.41 m³/min</td>
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<td>KES 22-7.5</td>
<td>140 cfm, 3.96 m³/min</td>
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<td>540 kg</td>
</tr>
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<td>KES 22-8.5</td>
<td>133 cfm, 3.77 m³/min</td>
<td>8.5 kgf/cm², 121 g psi (g)</td>
<td>22 kw, 30 hp</td>
<td>540 kg</td>
</tr>
<tr>
<td>KES 22-10</td>
<td>119 cfm, 3.37 m³/min</td>
<td>10 kgf/cm², 142 g psi (g)</td>
<td>22 kw, 30 hp</td>
<td>540 kg</td>
</tr>
<tr>
<td>KES 22-13</td>
<td>102 cfm, 2.89 m³/min</td>
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<td>22 kw, 30 hp</td>
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<td>KES 30-7.5</td>
<td>187 cfm, 5.30 m³/min</td>
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<td>KES 30-8.5</td>
<td>178 cfm, 5.04 m³/min</td>
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<td>KES 30-10</td>
<td>154 cfm, 4.70 m³/min</td>
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<td>540 kg</td>
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<tr>
<td>KES 30-13</td>
<td>138 cfm, 4.91 m³/min</td>
<td>13 kgf/cm², 185 g psi (g)</td>
<td>30 kw, 40 hp</td>
<td>540 kg</td>
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**Model**: KES 37 - KES 55

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CAPACITY</th>
<th>MAX. WORKING PRESSURE</th>
<th>ELECTRIC MOTOR</th>
<th>WEIGHT</th>
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<tr>
<td>KES 37-7.5</td>
<td>229 cfm, 6.48 m³/min</td>
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<td>37 kw, 50 hp</td>
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<tr>
<td>KES 37-8.5</td>
<td>211 cfm, 5.98 m³/min</td>
<td>8.5 kgf/cm², 121 g psi (g)</td>
<td>37 kw, 50 hp</td>
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<td>KES 37-10</td>
<td>191 cfm, 5.41 m³/min</td>
<td>10 kgf/cm², 142 g psi (g)</td>
<td>37 kw, 50 hp</td>
<td>845 kg</td>
</tr>
<tr>
<td>KES 37-13</td>
<td>144 cfm, 4.07 m³/min</td>
<td>13 kgf/cm², 185 g psi (g)</td>
<td>37 kw, 50 hp</td>
<td>845 kg</td>
</tr>
<tr>
<td>KES 45-7.5</td>
<td>266 cfm, 7.52 m³/min</td>
<td>7.5 kgf/cm², 107 g psi (g)</td>
<td>45 kw, 60 hp</td>
<td>950 kg</td>
</tr>
<tr>
<td>KES 45-8.5</td>
<td>258 cfm, 7.42 m³/min</td>
<td>8.5 kgf/cm², 121 g psi (g)</td>
<td>45 kw, 60 hp</td>
<td>950 kg</td>
</tr>
<tr>
<td>KES 45-10</td>
<td>226 cfm, 6.39 m³/min</td>
<td>10 kgf/cm², 142 g psi (g)</td>
<td>45 kw, 60 hp</td>
<td>950 kg</td>
</tr>
<tr>
<td>KES 45-13</td>
<td>196 cfm, 5.55 m³/min</td>
<td>13 kgf/cm², 185 g psi (g)</td>
<td>45 kw, 60 hp</td>
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<td>KES 55-7.5</td>
<td>297 cfm, 8.41 m³/min</td>
<td>7.5 kgf/cm², 107 g psi (g)</td>
<td>55 kw, 75 hp</td>
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<tr>
<td>KES 55-8.5</td>
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<td>55 kw, 75 hp</td>
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<tr>
<td>KES 55-10</td>
<td>266 cfm, 7.53 m³/min</td>
<td>10 kgf/cm², 142 g psi (g)</td>
<td>55 kw, 75 hp</td>
<td>1045 kg</td>
</tr>
<tr>
<td>KES 55-13</td>
<td>226 cfm, 6.39 m³/min</td>
<td>13 kgf/cm², 185 g psi (g)</td>
<td>55 kw, 75 hp</td>
<td>1045 kg</td>
</tr>
</tbody>
</table>

Note: 1. Overall dimensions: L - 1250 mm, W - 650 mm, H - 1550 mm
2. 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)

**Flow Diagram**

![Flow Diagram](image-url)
R4 Note:
1. Overall dimensions "L - 2232 mm, W - 1112 mm, H - 1740 mm
2. Unit performance measured according to ISO 1217 Ed Annexure - C, 1996, at nominal working pressure of 7,8,9.5 and 12.5 kg/cm²(g)
3. All models given above are air cooled.

R5 Note:
1. Overall dimensions "L - 2960 mm, W - 1655 mm, H - 2025 mm
2. 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)
3. All models given above are air cooled.
4. Modulation for 100% to 60%

R4 / R5 SALIENT FEATURES:

- **Ready to use**: Foundation is not required.
- **Quality Air**: Efficient air / oil separation system ensures maximum oil recovery to minimise lub oil consumption and maintenance cost.
- **Canopy**: Specially designed canopy to facilitate effective ventilation and ease of maintenance.
- **µ Controller**: Microprocessor based efficient controller with all necessary Safety Control Systems & maintenance schedule.
- **Cooling System**: Radiator type oil cooler & after cooler with low noise fan & motor provided for effective cooling of lub oil and compressed air.
- **Control Panel**: In built control panel housing MMI, µ controller, main motor auto star - delta starter, fan motor direct on-line starter & other control of the package.
- **Air suction filter**: Dry type air filter protects the airend and ensures long life.
- **Electric Motor**: High efficient TEFC, Class F insulation, Flange mounting, 4P, IP55 protection motor is selected considering operating conditions at site.
- **Service Centres**: Fully equipped Service Centres with trained engineers and spare parts stocks available at arms length throughout the country.

BUILT IN ACCESSORIES:

- **Moisture Separator with Auto Drain Trap**: It separates condensed moisture from cooled compressed air.
- **Safety Relief Valve**: It protects against building up 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.

R5 Model Compressors are also available as 'Water Cooled'
"QUALITY IS A JOURNEY THAT STARTS WITH US."

After Market Support

Air Compressor Division (ACD) provides after sales service (for products in warranty & out of warranty) through Head Office and its wide spread network of branch offices, channel partners, service franchisees.

The Spare Parts Division caters to the need of all spare parts of Vertical Reciprocating Compressors, Balance Opposed Piston Compressors, Centrifugal Compressors, Screw Compressors, Railway Brake Compressors and exhausters, High Pressure compressors used in Oil and Defense. This is further supported by a well spread Dealers Network all over India.

Efficient and qualified team of professionals & effective material handling system ensures only flawless, quality products with on time delivery reach to our clients.

The training is provided at client site location after commissioning of our system. We have also developed our own Customer Training Center which organizes seminars & service workshops for the client representatives at our Head Office as per agreement or on chargeable basis.

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