

WORLD CLASS · EFFICIENCY · RELIABILITY

# kr|s|a

SINGLE STAGE ROTARY  
LOW PRESSURE



- ▶ WORLD CLASS
- ▶ EFFICIENT
- ▶ RELIABLE
- ▶ SILENT



Kaishan Compressor India

# WORLD WIDE SUPPORT

## Globally recognized industrial presence

Over the last sixty years, Kaishan has steadily grown to become a significant and diversified engineering company developing high value machinery for industries worldwide. With modern, specialized manufacturing facilities positioned in seven strategic locations, Kaishan's group of thirty-two subsidiary companies produce over 1,00,000 rotary screw and 2,50,000 reciprocating compressors annually. Kaishan is the world's third largest manufacturer of Compressed air equipment, mining and drilling equipment and supports industries in more than 60 countries including USA, Australia, Germany, Japan, Korea, Russia, Africa and throughout Latin America.

## Vertically integrated global strategy

Kaishan's global strategy of combining highly skilled engineering with highly efficient manufacturing allows us to provide performance proven and reliable equipment at a significant cost savings to our customers. Additionally, Kaishan's manufacturing processes are 85% vertically integrated ensuring full control of the material supply chain. This approach enables to supply high quality components at a lower cost and maintain agility to respond rapidly to changing market demands.



## Environmental sustainability

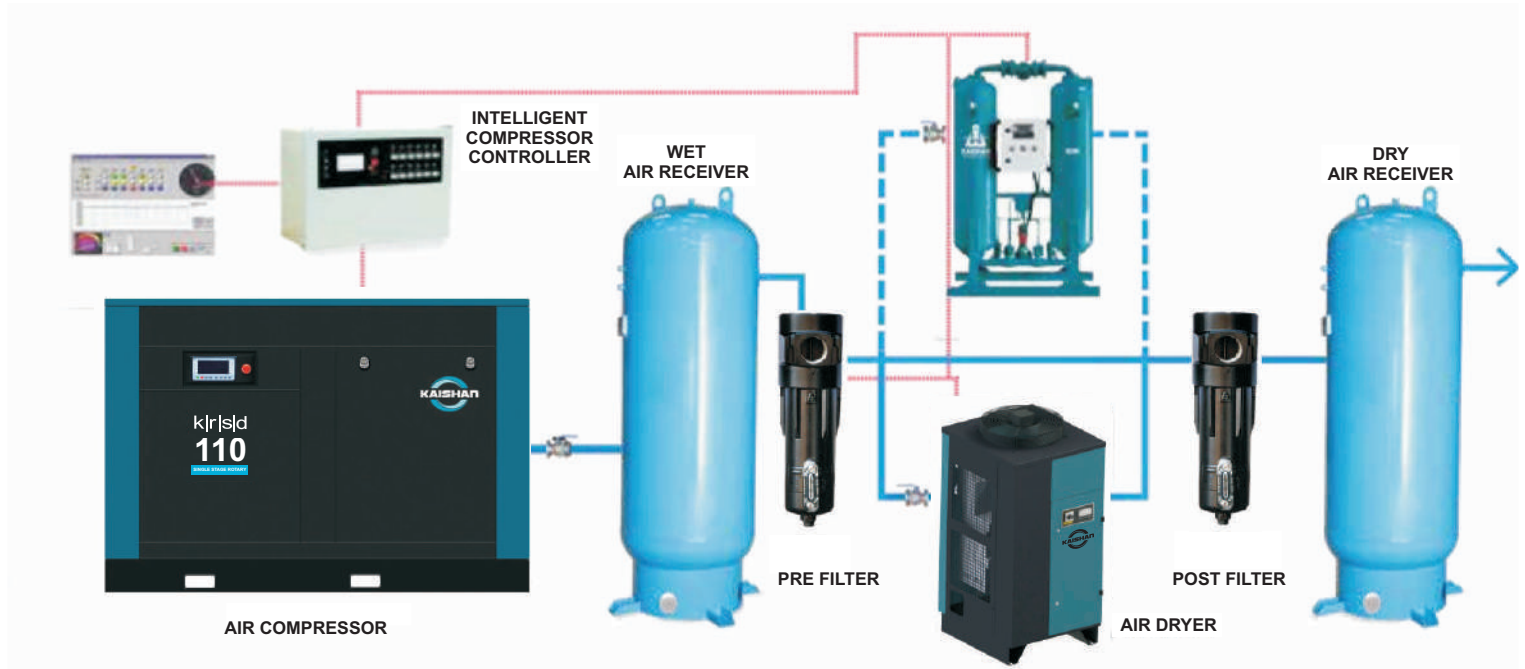
Integral to the design and manufacture of our products is outstanding energy efficiency. Kaishan's fundamental belief in environmental sustainability drives us to produce products that maximize energy efficiency and help to preserve precious energy resources. Single and two-stage compressors that produce more compressed air per unit of power input as well as expanders that utilize waste heat to produce electricity are just two of the fundamental products in our sustainable approach. Throughout our manufacturing processes, unused waste materials are recycled at every stage to maximize the use of raw materials. This approach translates to lower initial costs and lower operating costs for our customers and a smaller environmental footprint that helps us all. Kaishan's commitment to environmental responsibility ensures that we will continue to develop technologies and manufacturing solutions that provide industry with "Good and Green" products of exceptional value - now and well into the future.

# Air is free, Compressed Air is Not!

Compressed Air is the Fourth Largest Utility for an Industry after Electricity, Gas and Water. Very few people understand the cost associated with compressed air production. Compressed air is the most expensive form of energy used in an industry.

## Energy Cost

Consider a compressor of 500 cfm and 100 psi (g). This will use a 100 HP / 75 kW motor. Running for 24 hrs a day, 365 days a year, with a 70% load factor, it would consume approximately 600000 units annually. At Rs 7 per kWh, it would cost 42 lakhs a year. That is 3-4 times the cost of the compressor itself.



## PATENTED 'SKY' SINGLE-STAGE AIREND

### Larger Rotor Size

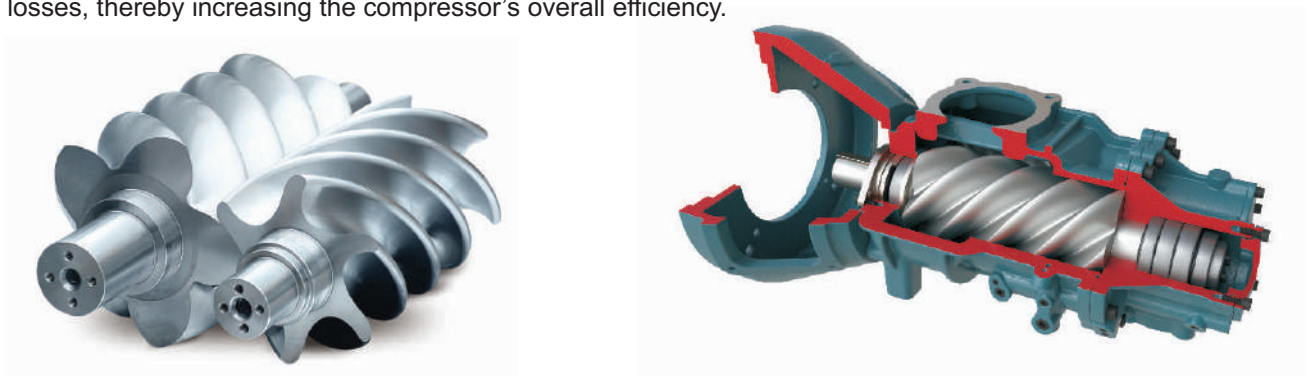
To increase the rotor throughput, the Airends of our Compressors are larger than usual. Our Air Compressors are built with 5/6 lobes and larger rotor size which reduces the specific power Consumption and runs at slow speed.

### Lower inter-lobe leakage losses

Pressure differences between two neighbouring working chambers is small due to a greater number of lobes. This reduces inter-lobe leakage losses. Hence leakage to delivery ratio decreases as the number of rotor lobes increases.

### Larger wrap angle & discharge port

A greater number of lobes combined with a larger wrap angle ensures multiple rotor contact. This reduces vibrations and thus minimizes noise. Larger discharge ports decrease the discharge velocity and therefore reduce the discharge pressure losses, thereby increasing the compressor's overall efficiency.





# WORLD CLASS ENGINEERING

## SINGLE PASS OIL & AFTER COOLERS

- Long Life / Easily Accessible
- Minimize thermal stress
- Cooler designed for 50°C ambient temperature.
- Low oil carryover increases bearing life
- Low cooling air velocity reduces dust build up



## 'ULTRAWEB' AIR INTAKE FILTERS

- Increased Filtration Efficiency
- Full airflow, low restriction, nanofiber technology
- Deep bed media ensures excellent dust capture
- Increased free air delivery for further savings in energy and running costs

## COOLING FANS

- Increased Cooling Efficiency
- Even air flow across the cooler face.
- Cooling air bypasses main compressor compartment resulting in minimal internal dust build up

## ELECTRICAL CONTROL PANEL

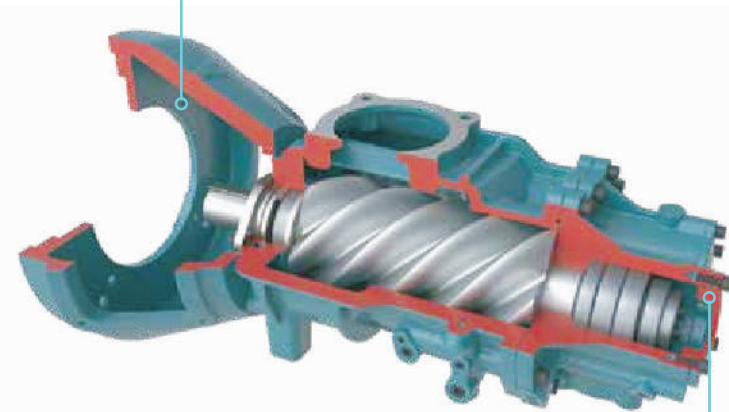
- Monitors and controls Key Compressor Functions.
- Current Transformer provides constant read out of operating current.
- Protection against Phase sequence changes provided.
- Provides service schedule alarm.
- External monitoring via RS 485 interface
- High current input reading triggers shutdown.

## 3 STAGE AIR OIL SEPARATION

- Lower Pressure Drop / Lower Absorbed Power
- Excellent mechanical pre-separation/ reduced direct oil impingement onto separator element
- Lower dust contact resulting in lower pressure drop / longer element life / lower energy consumption
- Residual oil carryover limited to 1 - 3 ppm

## TRIPLE DISCHARGE BEARINGS

- Longer Bearing Life / Quieter Operation
- Longest bearing life in the industry



## 'SKY' SERIES AIREND

- Maximum Output with Less Energy Usage
- Asymmetric 5 / 6 rotor profile with SKF bearings
- KAPP Grinder rotor technology for tighter clearances and world class efficiency and performance
- Precision machined bell housing to maintain rigid alignment



## LUBRICANT KERRY10#

- Does not cause varnishing during operation.
- Helps remove existing varnish from Oil Circuit.
- Helps cooling of the Airend and Rotors.
- It is Biodegradable, has High Viscosity and High Flashpoint.
- Permits very low carryover.

## LAMINAR FLOW INLET VALVE

- Minimum Pressure Drop / Increased Output
- Laminar flow inlet valve results in lower pressure drop through the intake, increasing output and saving energy

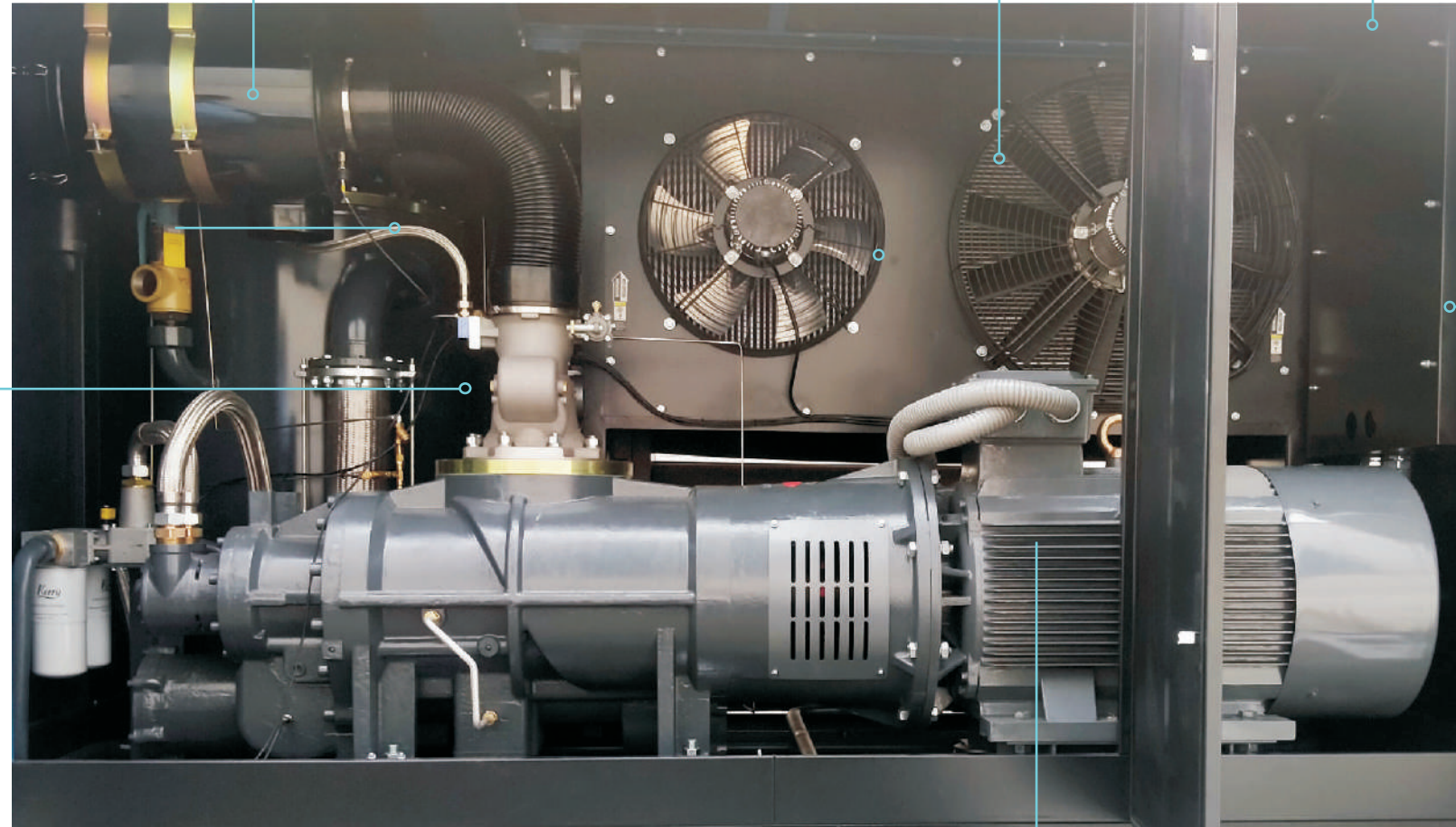
## HIGH EFFICIENCY DRIVE AND MOTORS

- High Performance inbuilt VFD for load variations.
- High Efficiency, TEFC, LV induction drive motors are used in all KRSA Series compressors. These have IP55 rating and IE3 / IE4 premium efficiency rating.
- F class high temperature insulation
- Direct coupling ensures longer bearing life.
- Ease of maintenance is assured with grease refill port.
- 'No load Start' protection is provided.



## MECHANICAL PUMP

- Mechanical Pump
- Ensures continuous flow of lubrication
- Reduces oil carry over to less than 3 ppm
- Maintains lubrication pressure
- Simple design and zero maintenance
- No Auxiliary power required



## INTEGRATED MICROPROCESSOR CONTROL FOR INDUSTRY 4.0

- Ease of use due to mimic diagram and constant pressure and temperature readout. Selective readout of operation and maintenance parameters provided. Safety Shutdown Feature included.
- Automatic Start/Stop operation over 24 hour period with Lead/Lag sequencing of multiple compressors.
- Auto-Dual control:** If there is no air demand during the pre-set time delay, the compressor shuts down the drive motor. The Controller will restart the motor only when pressure falls below the preselected pressure levels.
- Integrated with IoT technology which allows remote monitoring and control over local or web networks.

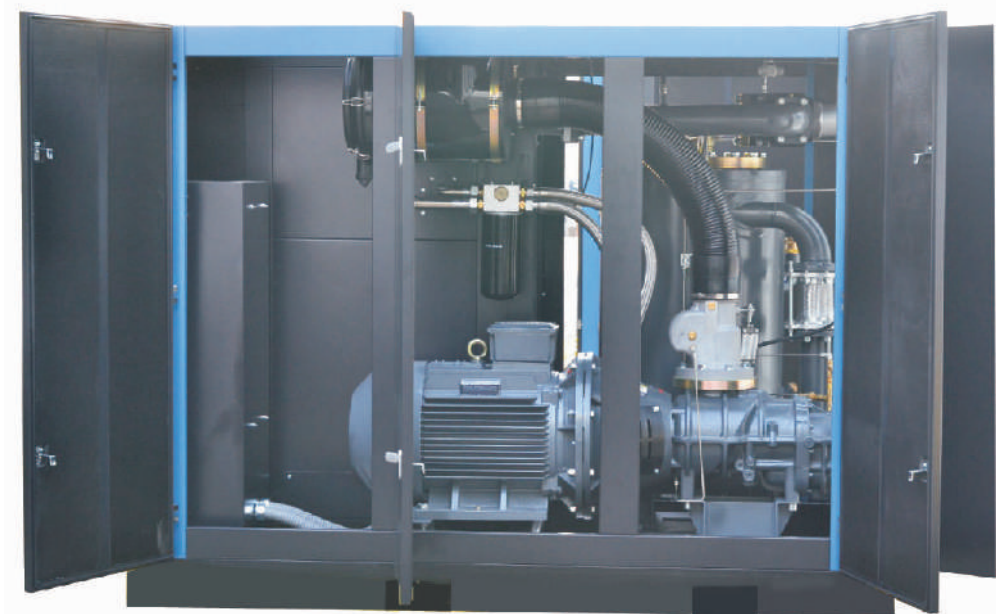


## KRSA SERIES COMPRESSOR WITH VFD

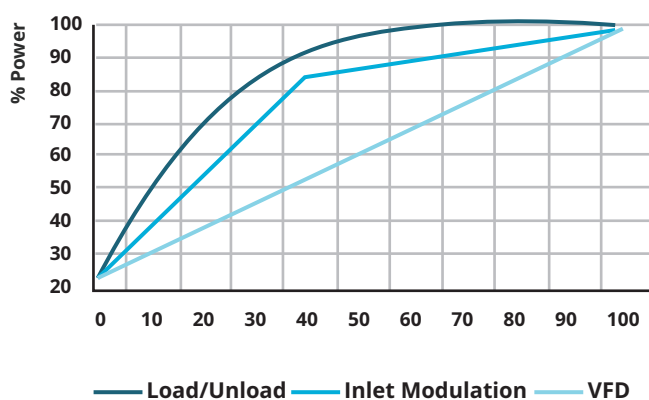
KRSA compressors are built to be compatible with optional VFD feature.

KRSA Variable Speed Air compressors provide maximum efficiency with consistent operation. Unlike the traditional “Auto-dual” and “Load/No load” control modes, KRSA VFD modulates the speed of the drive motor in response to system demand. This results in greater energy saving compared to a fixed speed compressor. The VFD feature greatly reduces the starting power surge of the motor. A constant pressure delivery extends the life of valves.

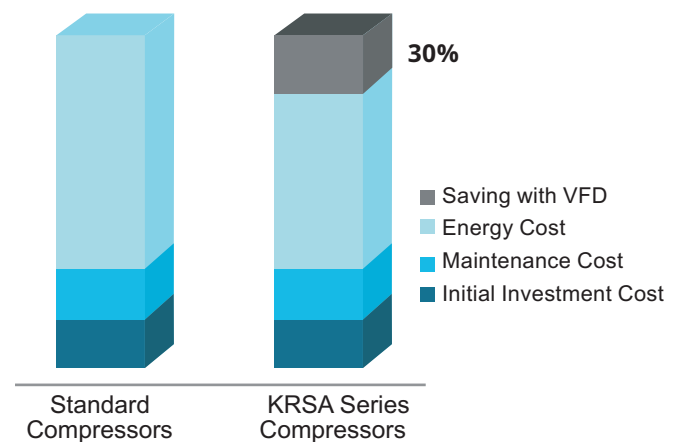
- Industry renowned VFD units are used in KRSA series compressor package
- Compact VFD design allows a smaller footprint  
Monitors key function of the unit
- Maintenance free
- The VFD minimizes starting current peak loads
- Extremely low sound level



### PART LOAD PERFORMANCE ASSESSMENT



### ENERGY COST COMPARISON



KRSA series can also come with Permanent Magnet Variable Frequency (PMVF) drive option for best in class Part load efficiency. PMVF can be offered upto 250 kW.

# KRSA SERIES SPECIFICATIONS

- Kaishan 3 bar Low Pressure Screw Air Compressors are specifically designed for Textile, Cement, Glass, Flue-gas Desulfurization and Pneumatic Conveying application.
- When a 7 bar standard air compressor is run for a plant air pressure requirement of 2 – 5 bar, it will lead to higher power consumption as compared to Kaishan Low pressure compressors. Kaishan low pressure screw air compressors with their patented low compression ratio can deliver same output flow (cfm) with 20 – 50 % lower power consumption.
- The Capacity of a screw air compressor with 132 kW motor at 7 bar will be 850 cfm. Kaishan Low pressure compressor with 132 kw motor at 3 bar will have a flow of 1547 cfm. This power saving enables you to recover your investment in less than a year.

Model No	Pressure Bar	Flow cfm	Power kW	Connection	Dimension mm	Weight Kg
KRSP55-1.5	1.5	960	55	DN100	2960 X 2060 X 2260	4300
KRSP110-1.5	1.5	1629	110	DN150	4100 X 2140 X 2370	6100

KRSP75-2	2	960	75	DN100	2960 X 2060 X 2260	4300
KRSP90-2	2	1123	90	DN125	2960 X 2060 X 2260	4300
KRSP132-2	2	1629	132	DN150	4100 X 2140 X 2370	6100
KRSP160-2	2	2042	160	DN150	4100 X 2140 X 2370	6100

KRSA22-3	3	231	22	G2	1980 X 1260 X 1370	1260
KRSA37-3	3	378	37	DN65	2310 X 1360 X 1610	1770
KRSA55-3	3	620	55	DN100	2510 X 1560 X 1860	2050
KRSA55-3A	3	700	55	DN100	2510 X 1560 X 1860	2070
KRSA90-3	3	920	90	DN100	3160 X 1810 X 2080	3800
KRSA90-3A	3	1000	90	DN125	2960 X 1960 X 2210	4200
KRSA132-3	3	1410	132	DN125	3460 X 2060 X 2130	4200
KRSA132-3A	3	1547	132	DN125	3560 X 2060 X 2180	6100
KRSA160-3	3	1612	160	DN150	4200 X 2300 X 2350	4400
KRSA200-3	3	1990	200	DN150	4160 X 2260 X 2310	6800

KRSA30-5	5	231	30	G1 ½	1980 X 1050 X 1460	1400
KRSA45-5	5	378	45	G2	2780 X 1320 X 1750	1800
KRSA55-5	5	442	55	DN65	2990 X 1520 X 1850	2400
KRSA75-5	5	618	75			2650
KRSA90-5	5	810	90	DN80	3260 X 1620 X 2100	3800
KRSA110-5	5	920	110			3900
KRSA132-5	5	1080	132	DN100	3660 X 2060 X 2280	4400
KRSA160-5	5	1407	160			5400
KRSA250-5	5	1990	250	DN125	4160 X 2260 X 2350	7150

Note:

- Technical Specifications of compressor are subject to change without notice
- Flow as per ISO 1217 Annexure C
- Maximum Pressure can be 0.5 bar(g) higher than discharge pressure
- For any special combination of pressure & flow, kindly Consult Factory (CF)



MODEL	COMPRESSOR TYPE	FEATURES
KRSP2	Two Stage	Global leader in air compressor efficiency
KRSP	Single Stage	Patented 'SKY' air end, triple SKF bearings
KRSD	Single Stage	Direct drive, TEFC motor, low sound enclosure
KRSB	Single Stage	Belt drive, economical to own and operate
KRST	Single Stage	Belt drive, tank mounted
KRSH	Two Stage High Pressure	Pressure up to 40 Bar
KRSA	Single Stage Low Pressure	Pressure as low as 1.5 Bar
KRSV	Rotary Screw Vacuum Pump	World class vacuum efficiency



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