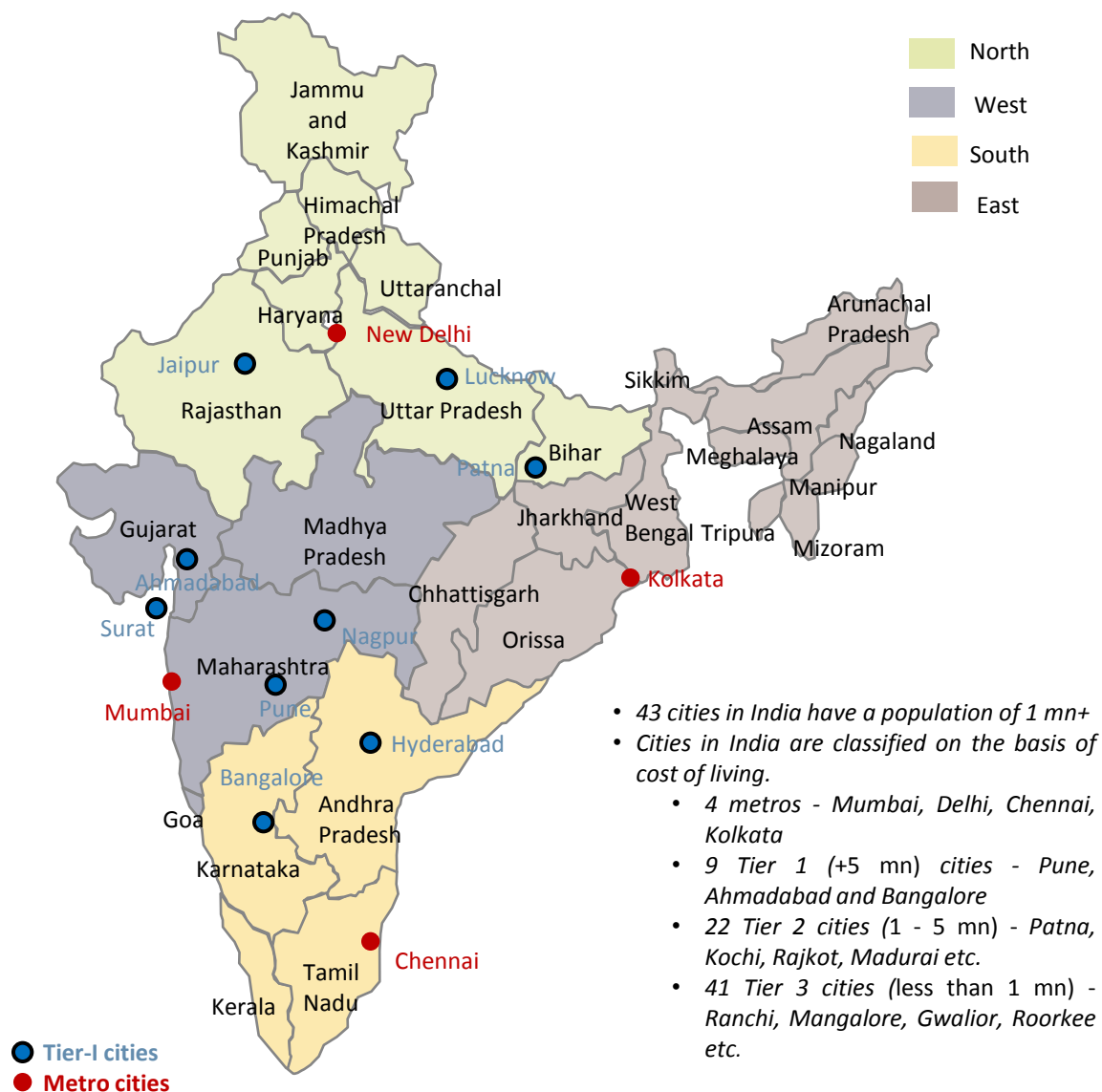




Source: <http://www.pdcmachines.com>

India Fact File



India - Snapshot	
Population growth	1.4% p.a
Land area	3.29 mn sq km
Population density	324 persons per sq km
Form of government	Democracy
Number of states	29 states & 6 union territories
Capital	New Delhi
Per capita income	Nominal: USD 1,124.4 p.a
Religion	6 main religions
Languages	Hindi (national language), English (business language), 22 (official languages)
Currency	Rupees ₹
Exchange rate (USD to INR)	1 USD = INR 60.01 (as on 1 st April 2014)
Rural-urban mix	68% people reside in rural areas
Households	246 mn
Literacy rate	74.04%

Source: Government websites

► Preface to the Report

Who is the Reader?

- *Any participant or stakeholder in the industrial compressors industry would benefit from this report*
- *Analysts, industry experts or any person with an interest in tracking the progress of the industrial compressors industry*

Purpose of the Report

- *The report provides intelligent insights on how the industrial compressors industry is expected to shape in the next five years till 2019. It comprises detailed analysis of industry drivers and challenges; proposed government and policy initiatives, and their impact on the industry; along with key segmentation (by end-users and geography)*
- *Additionally, the report provides profiles of the top industry players in the industrial compressors industry in India*

Scope of the report

- *The report studies the current scenario for industrial compressors industry in India*
- *The report studies screw, reciprocating and centrifugal compressors, and does not cover valves and pumps*

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Industrial Compressor Industry

ValueNotes India Market Intelligence Dashboard

ValueNotes™

Data to Decisions...

Industry Structure

Concentration



Market share of top 5 firms = 85%

Organised Sector



Output in organised sector = 85%

Sources of Data

Indian Society of Heating, Refrigerating and Air-conditioning Engineers (ISHRAE), The Southern India Engineering Manufacturers' Association, etc

Trade Interviews

Primary Research

IBEF, Company websites, News Articles, etc

Other Sources

Industry Bodies

Government Bodies

Department of Heavy Industry, Ministry of Steel, etc

Data Availability



Macro Data

Micro Data

Completeness



Quality



Recency



Macro Data: Market size, growth, market shares of key players, customer segments, key industry metrics

Micro Data: Segmental market size & growth, financials of key players

Completeness: All data points available

Quality: Accuracy of data

Recency: Latest period data available

Market Size And
Growth

- The industrial compressors industry in India is valued at INR 33,000mn (~USD 550mn) in FY 2014 and has been growing at CAGR ~7% for the three years
- The industry is expected to grow at CAGR of ~9% till FY 2019, due to expected growth in steel, cement, and petrochemical industry
- **ValueNotes** estimates that the industry will be worth approximately INR 50,000mn (~ USD 833mn) by FY 2019

Drivers &
Challenges

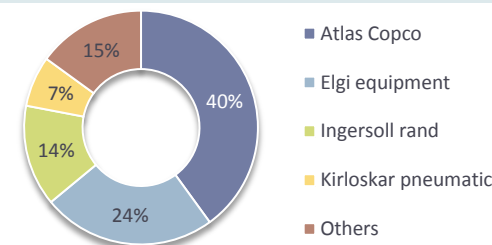
- **Drivers**
 - There is more than ~5% growth in steel, cement, oil & gas and power industry which will drive growth in compressors industry
- **Challenges**
 - Need for high levels of investment and rising raw material costs

Industry
Segmentation

- The industrial compressors industry is divided into screw, reciprocating and centrifugal compressors
- Currently screw compressors account for ~50% of the total compressors market in India (FY 2014)
- Centrifugal compressors segment is seeing maximum growth and is expected to grow by 10-12% from FY 2014 to FY 2019 because of the expected growth in steel, cement, power and petrochemical industries

Key Players

- 85% of the overall industrial compressors market is organized and dominated by multinational companies like Atlas Copco and Ingersoll Rand
- Kirloskar and Elgi are the two major Indian manufacturers who have captured a total of 31% of the overall compressors market



1 USD = 60.01 INR(2014 and onwards)

The industrial compressors industry in India has been given an Industry Attractiveness Rating of **7.2** as per the 'ValueNotes Industry Attractiveness Rating Evaluation System'

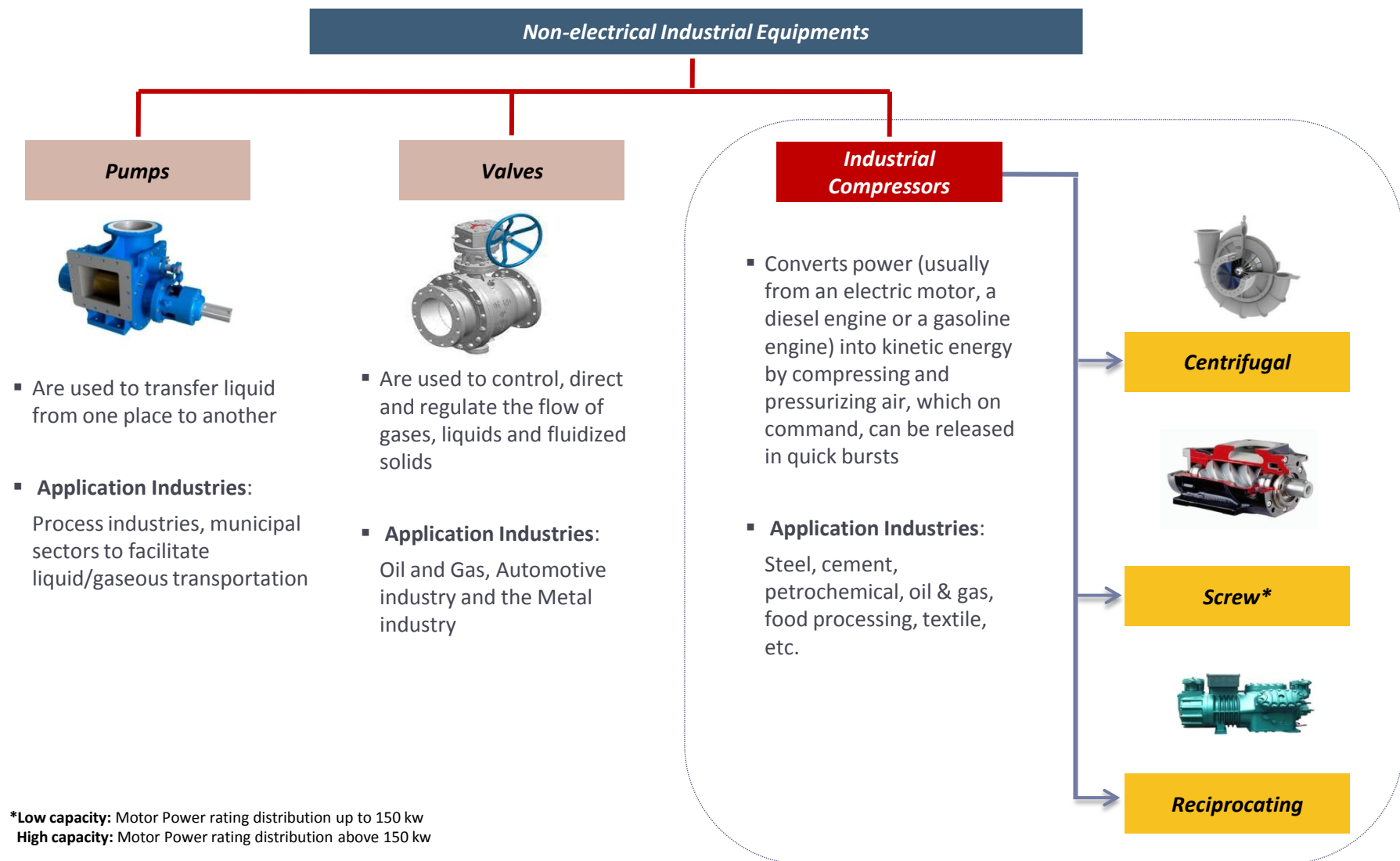


Source: www.pdcmachines.com

Industry Structure

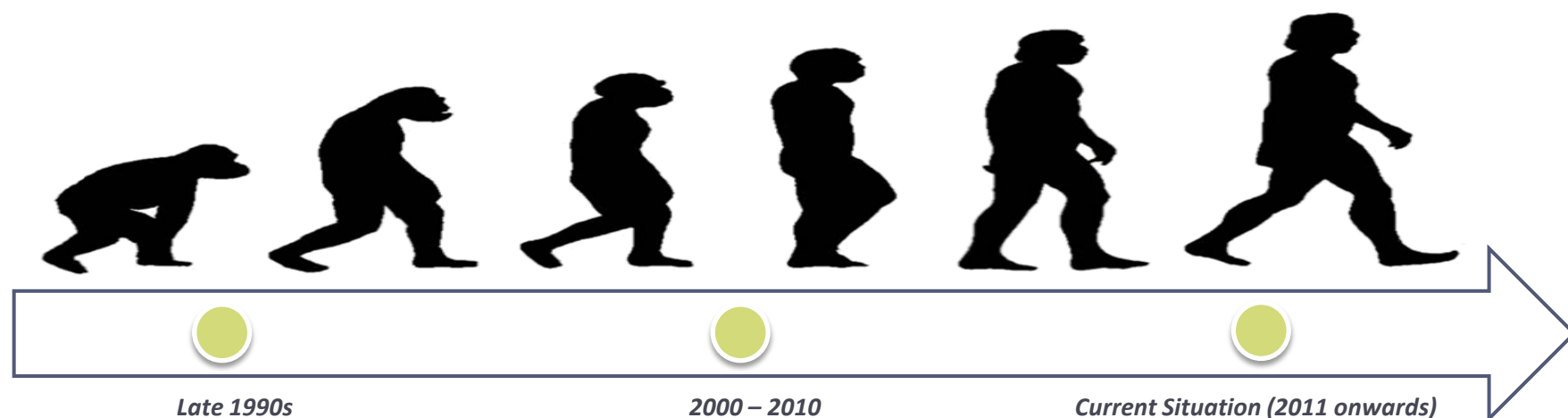
Non electrical industrial equipment industry structure

Chart 1: Non electrical equipment industry structure



► Industrial compressors industry has evolved from reciprocating to centrifugal compressors

Chart 2: Evolution of compressors industry in India



- Ingersoll Rand (India) was incorporated on 1st Dec 1921. It set up its first manufacturing plant for reciprocating compressors at Naroda in Gujarat, in 1965
- Before opening its first sales office in India in 1960, Atlas Copco sold its products through agents. In 1962, the company set up its first factory and started supplying products all over India
- In 1960, Elgi Equipments was established as an air compressor and garage equipment manufacturer. In 1990, Elgi developed high-pressure compressors for naval applications
- The first generation of compressors were reciprocating compressors, which were taken over by screw compressors because of their high capacity. Now, the new generation compressors are centrifugal compressors with higher energy saving and compression capacity. The reciprocating compressors have almost reached their technological development limits
- In 2002, Elgi developed the world's smallest screw air compressor
- In 2011, Atlas Copco launched the first oil-free screw air compressor
- Today, a wide variety of compressors are produced in India with capacities as high as 235,000 CFM. The industry is composed of both organized sector of medium and large-scale manufacturers and an unorganized sector of small-scale units. The majority of the market is captured by MNCs like Atlas Copco and Ingersoll Rand
- OEMs of compressors are concentrating on making compressors more energy efficient
- Currently advanced technologies such as scroll and eccentric cam compressors are being developed by leading players

OEMs: Original equipment manufacturers CFM: cubic feet per minute MNCs: Multi national companies

Definition of industrial compressors industry as per the scope of this report

Industrial compressors industry falls under non-electrical equipment industry and are used to create high pressure for functioning heavy machines. Compressors can create low and high pressure and according to their capacity, the end consumer application changes.

There are mainly three types of industrial compressors:

▪ Rotary screw compressors

Two helical rotors force gas into a chamber that decreases in size, thereby increasing the pressure of the gas. The screws in the rotary screw compressors can be lubricated with oil or can be non-lubricated. Oil-free compressors are used for gas that must remain clean and uncontaminated. Rotary screw compressors are typically sized from 30-200 horsepower

▪ Reciprocating compressors

One or more pistons are moved inside a cylinder to increase the gas pressure. This is similar to a combustion engine without the ignition of fuel. Just like a car, the pistons generate much heat so the reciprocating compressors is typically cooled by air or water. Most industrial compressors are multi-stage, ranging from 1 to 500 or more horsepower

▪ Centrifugal compressors

Centrifugal compressors speed up and compress gas via a rotor with blades. Centrifugal force is used to force the air or gas to an outer chamber under higher pressure. Centrifugal compressors are designed to operate above 75-80% speed. Surging can occur below these speeds. This makes the centrifugal compressor ideal for continuous high duty operation

This report covers:

- All types of industrial compressors including centrifugal, Screw and Reciprocating compressors

This report does not cover:

- Pumps, Valves and refrigeration compressors



Source: <http://www.kolorrol.com>

Centrifugal compressors are the next generation compressors

Industrial compressors are classified according to the mechanical functionality and capacity of pressure they can generate

Table 1: Industrial compressors industry classification

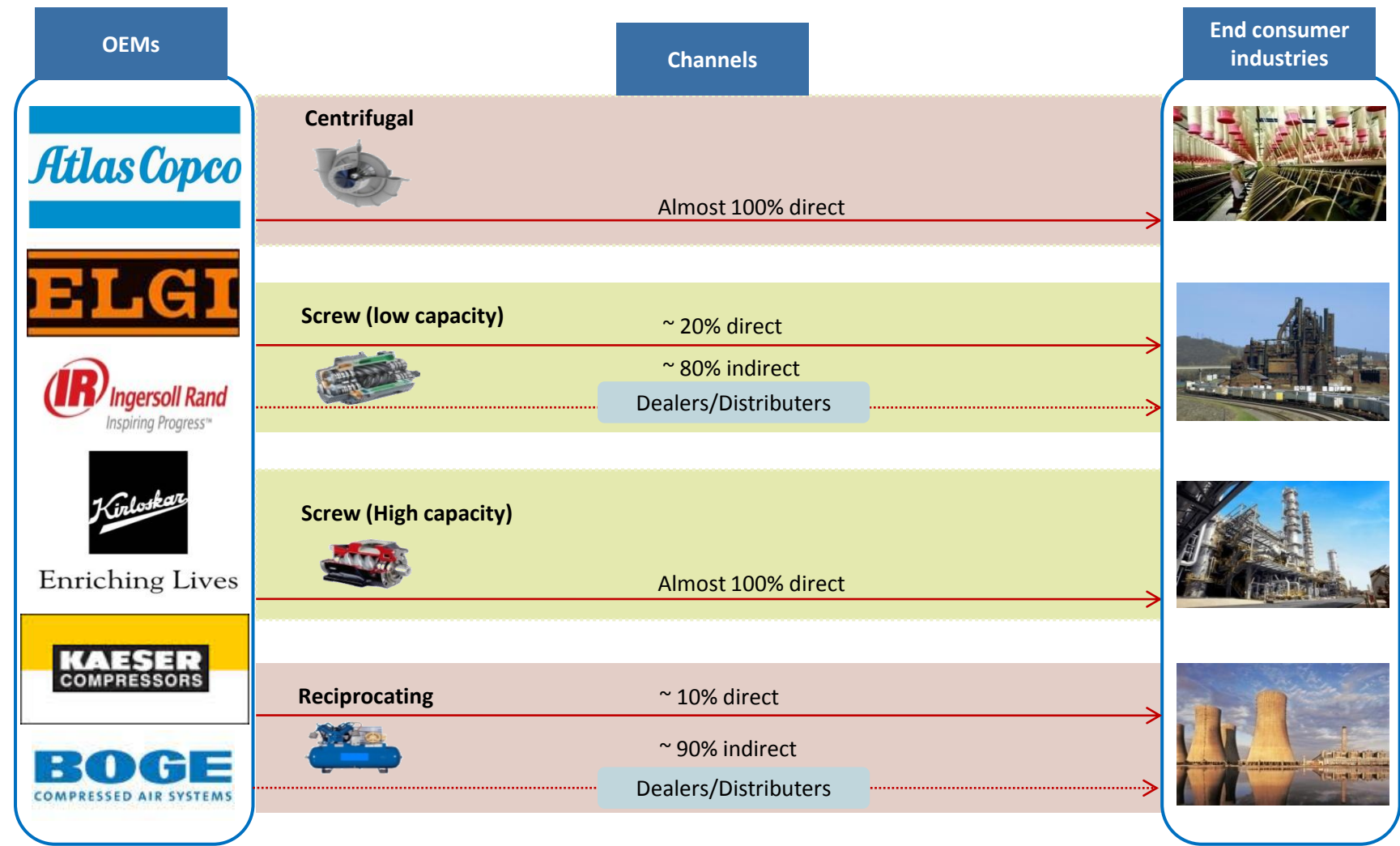
Product segment	Reciprocating	Screw	Centrifugal
Mechanical functionality	▪ Positive displacement	▪ Positive displacement	▪ Dynamic
Capacity	▪ Low - high	▪ Low - high	▪ Medium – high
Noise level	▪ Noisy	▪ Quiet-if enclosed	▪ Quiet
Vibration	▪ High	▪ Almost none	▪ Almost none
Maintenance	▪ Many wearing parts	▪ Very few wearing parts	▪ Sensitive to dust in air
Product type	▪ Lubricated ▪ Oil free	▪ Lubricated ▪ Oil free	▪ Oil Free (gas/air lubricated)
Market type	▪ ~70% of the reciprocating compressors market is organized ▪ 30% market is unorganized, as reciprocating compressors can be used in small business like garage	▪ ~98% of the screw compressors market is organized (Only larger companies can manufacture, because of complicated design and high investment)	▪ 100% of the centrifugal compressors market is organized (Only larger companies can manufacture, because of complicated design and high investment)
Major end user segment	▪ Automobile ▪ Food and beverages ▪ Chemical ▪ Small scale industries ▪ Fertilizer ▪ Steel	▪ Power ▪ Steel ▪ Petrochemical ▪ Oil & gas ▪ Automobile ▪ Cement	▪ Steel ▪ Cement ▪ Petrochemical ▪ Oil & gas ▪ Power ▪ Textile
Major players	▪ Atlas Copco (India) Ltd. ▪ Burckhardt Compression ▪ Elgi Equipments ▪ Ingersoll Rand ▪ Kirloskar Pneumatic	▪ Atlas Copco(India) Ltd. ▪ Boge ▪ Elgi Equipments ▪ Ingersoll Rand ▪ FS Curtis ▪ Kirloskar Pneumatic	▪ Atlas Copco (India) Ltd. ▪ Ingersoll Rand ▪ Elgi Equipments ▪ Boge ▪ Kirloskar Pneumatic

CFM: Cubic feet per minute, KW: kilowatt

High capacity industrial compressors are typically sold directly, while low capacity ones are sold through dealers

- Companies prefer dealing directly with end consumer for centrifugal compressors. High capacity screw compressors are sold directly to the end consumer. 90% of the reciprocating compressors are sold through dealers , as they are low capacity and low cost compressors.

Chart 3: Supply chain for the industrial compressors industry in India

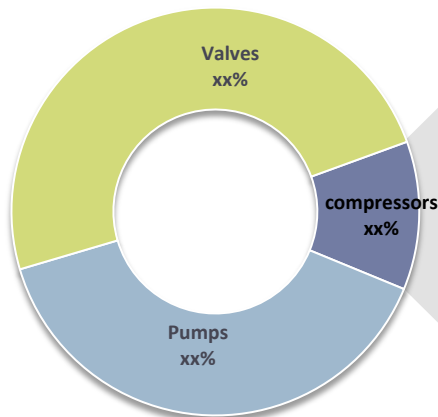




Market Overview

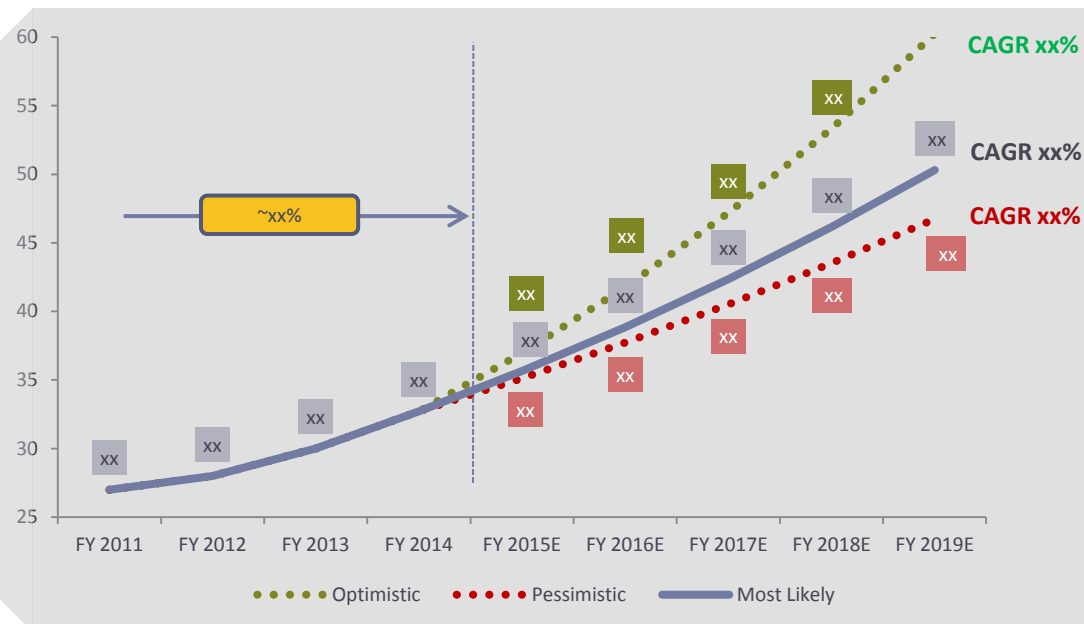
► Industrial compressors industry is expected to growth at a CAGR of ~9% until 2019

Chart 4: Share of industrial compressors in pumps, valves and compressors industry segment in 2013 – India (by value)



Source: Trade interviews, ValueNotes Analysis

Chart 5: Industrial compressors market size & growth (INR billion)



Current market

XX

XX

Estimated growth

XX

XX

Usage of “**Three point analysis**” to arrive at growth figures:

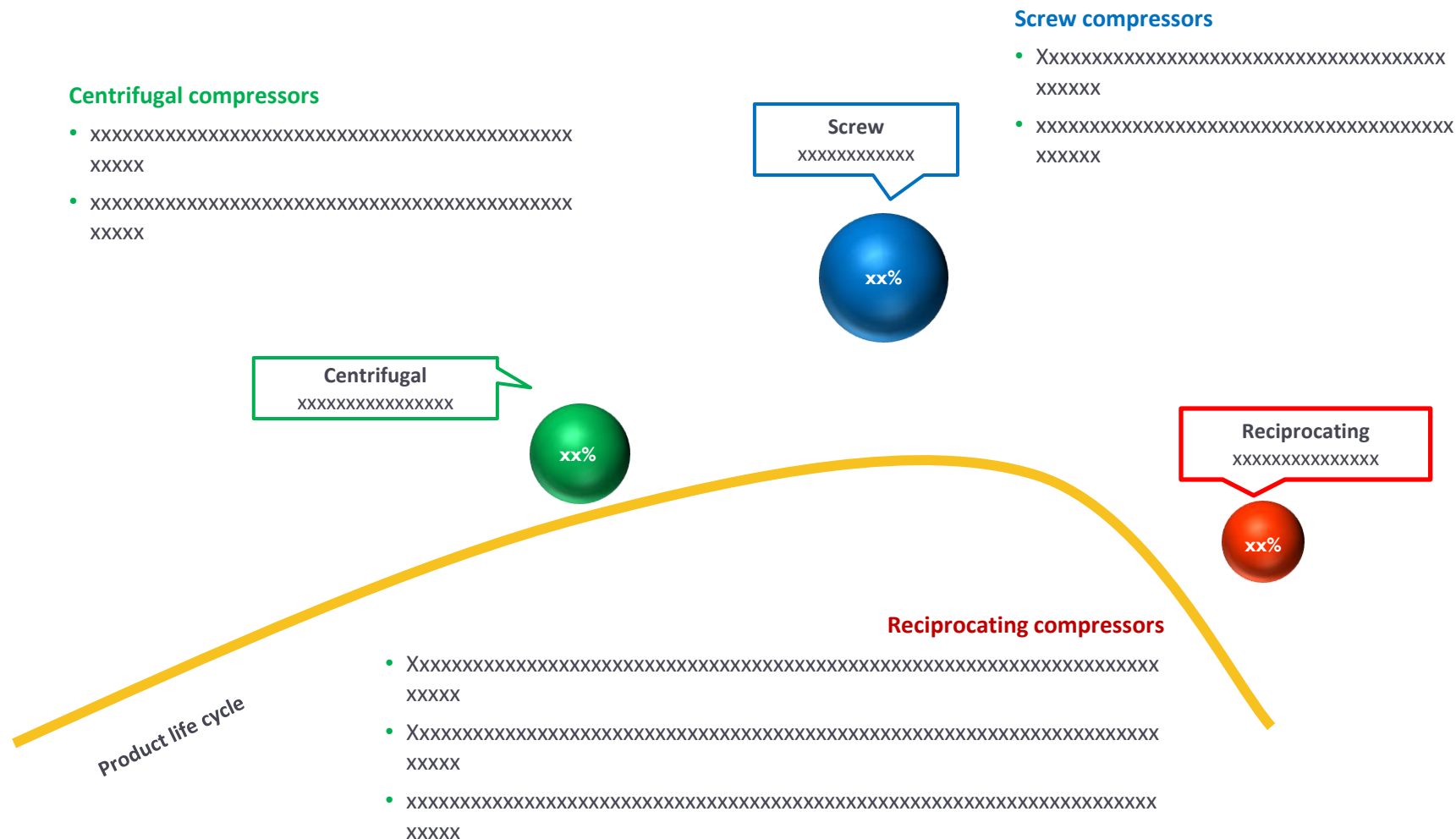
- **Optimistic:** Maximum growth if all growth factors* occur as expected
- **Pessimistic:** Least growth, if growth factors are delayed or not implemented
- **Most Likely:** Most likely growth which has highest probability of taking place

**The estimated growth of 'the industrial compressors industry' is based on various factors including:*

- XXXX
- XXXX
- XXXX
- XXXX
- XXXX
- XXXX
- XXXX

► Screw compressors currently contribute to ~50% of the overall compressors market in India (FY 2014) by value

Chart 6: Market size segmentation based on product type and product life cycle stage (in value)



Note: Percentages in the bubbles represent market share of the different types of compressors in value (for FY 14)

Source: Trade interviews, ValueNotes Research

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