

Internal Combustion Engine (IC Engine)

Partha Kumar Das

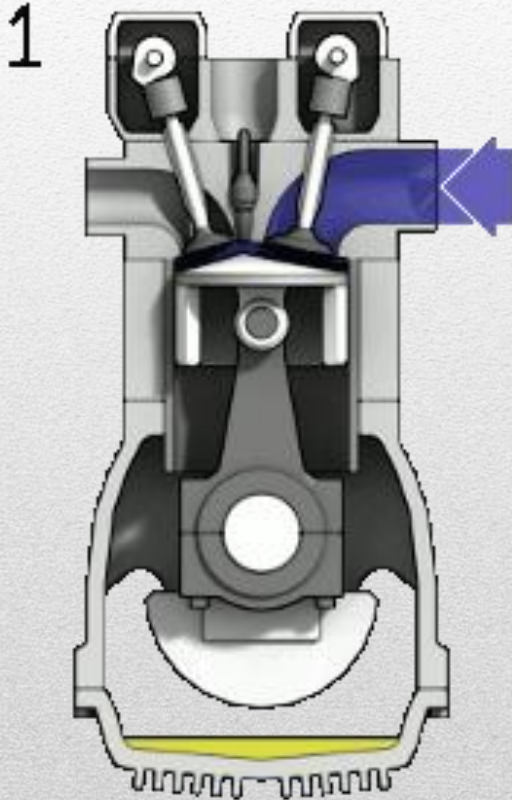
Lecturer

Dept. of Mechanical Engineering, BUET

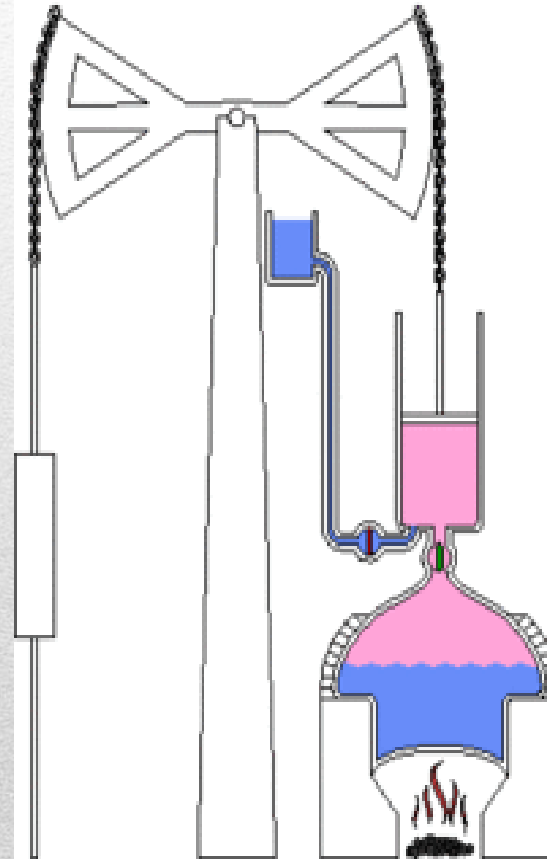
ME 268 - Fundamentals of Mechanical Engineering
(Model Lab)

What is IC Engine??

Internal



External



2

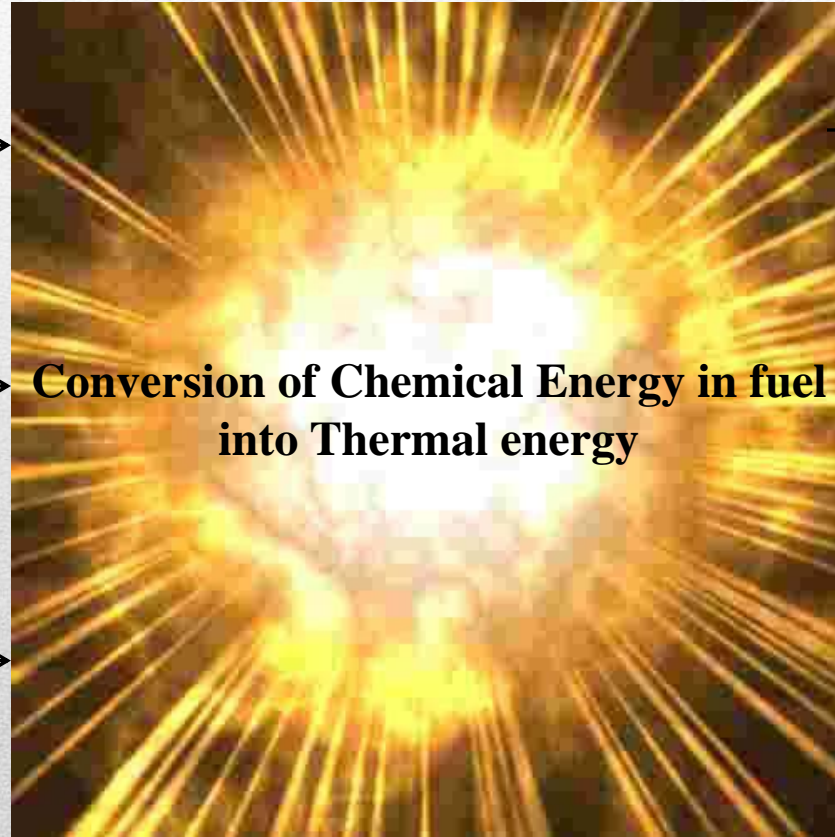
What is IC Engine??

Combustion

Fuel →

Oxygen
@ High pressure →

Ignition →



→ **Thermal Energy
(HEAT)**

→ Exhaust

→ Light

What is IC Engine??

Engine

- ❖ ICE is a heat engine that converts chemical energy in a fuel into mechanical energy.
- ❖ Chemical energy in fuel is first converted to thermal energy by means of combustion.
- ❖ Thermal energy raises the temperature and pressure of the gas inside the cylinder.
- ❖ The high pressure gas expands against the mechanical mechanisms (linkage) of the engine.
- ❖ The mechanical linkage rotates a crankshaft which is connected to the transmission or power train for the final mechanical output.

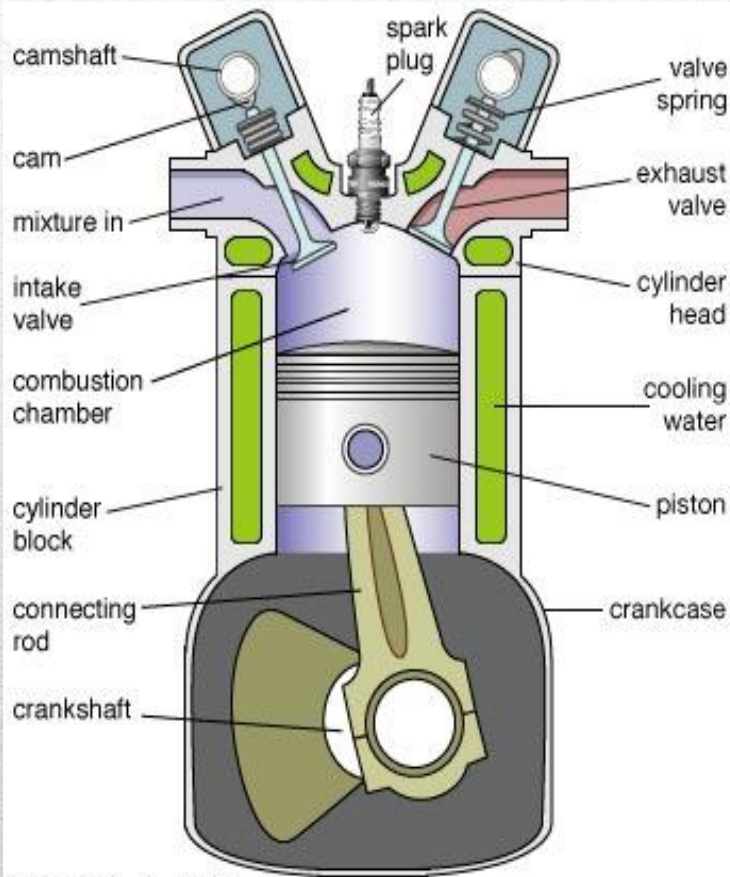
Where do we use IC Engine??



Classification of IC Engine

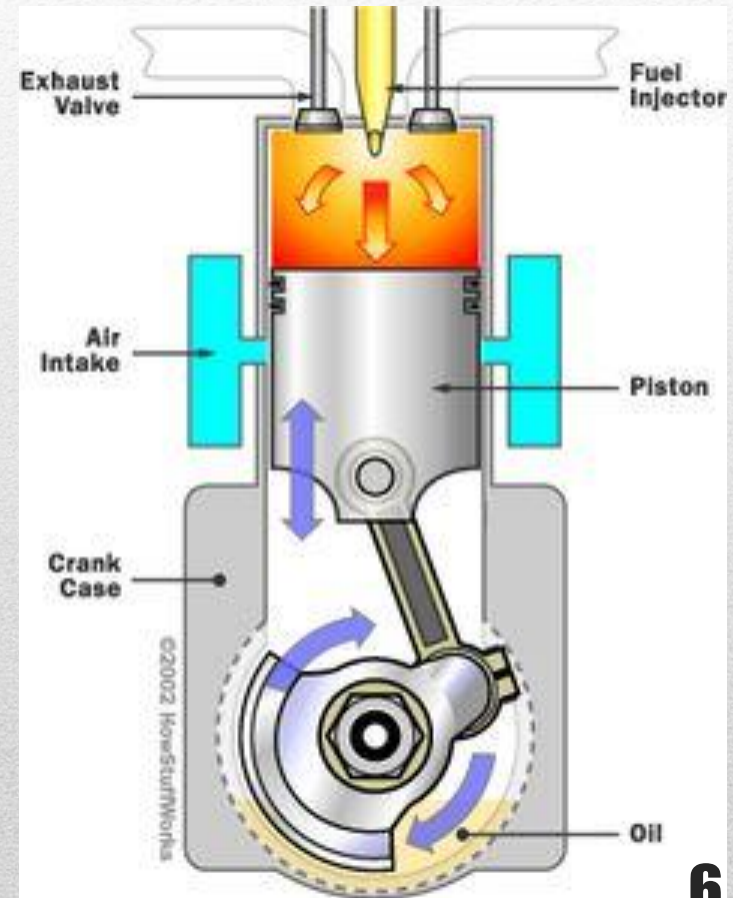
Types of Ignition

--Spark Ignition Engine (SI)



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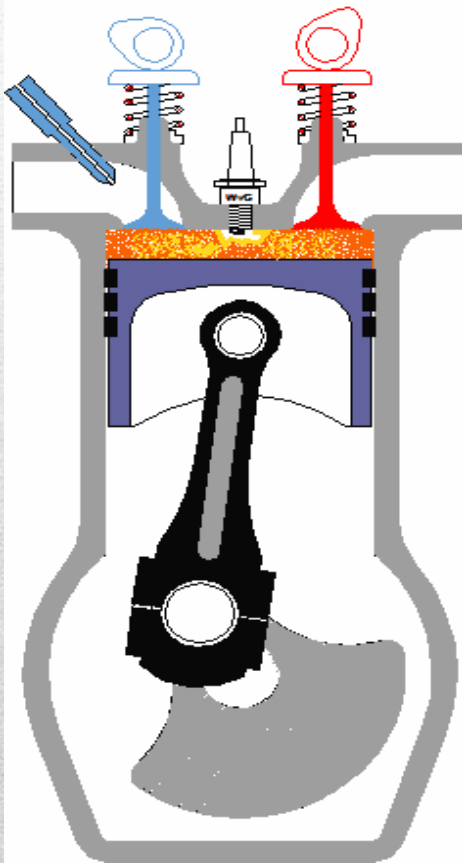
--Compression Ignition Engine (CI)



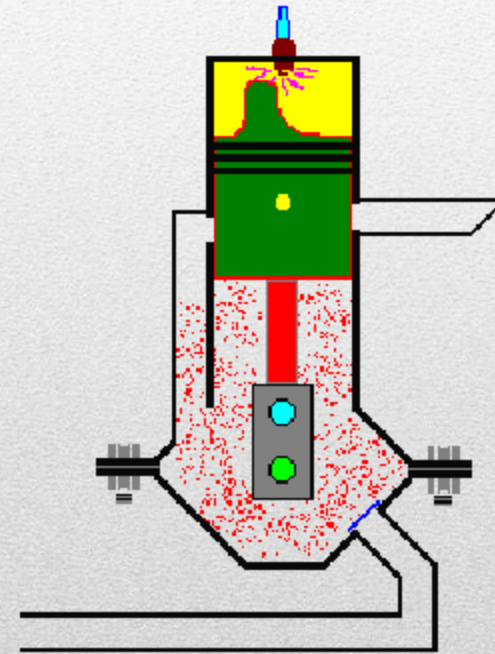
Classification of IC Engine

Engine Cycle

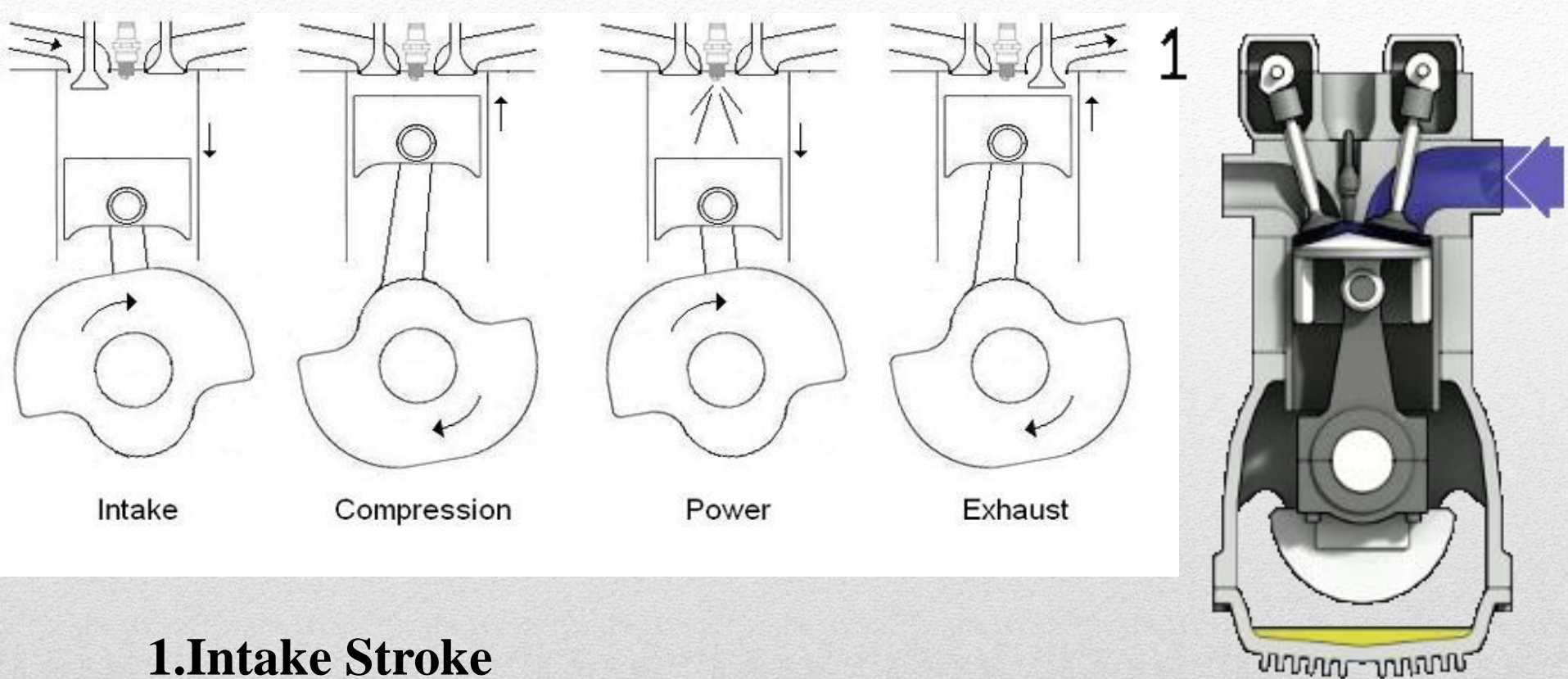
--Four Stroke Cycle



--Two Stroke Cycle



4 Stroke IC Engine



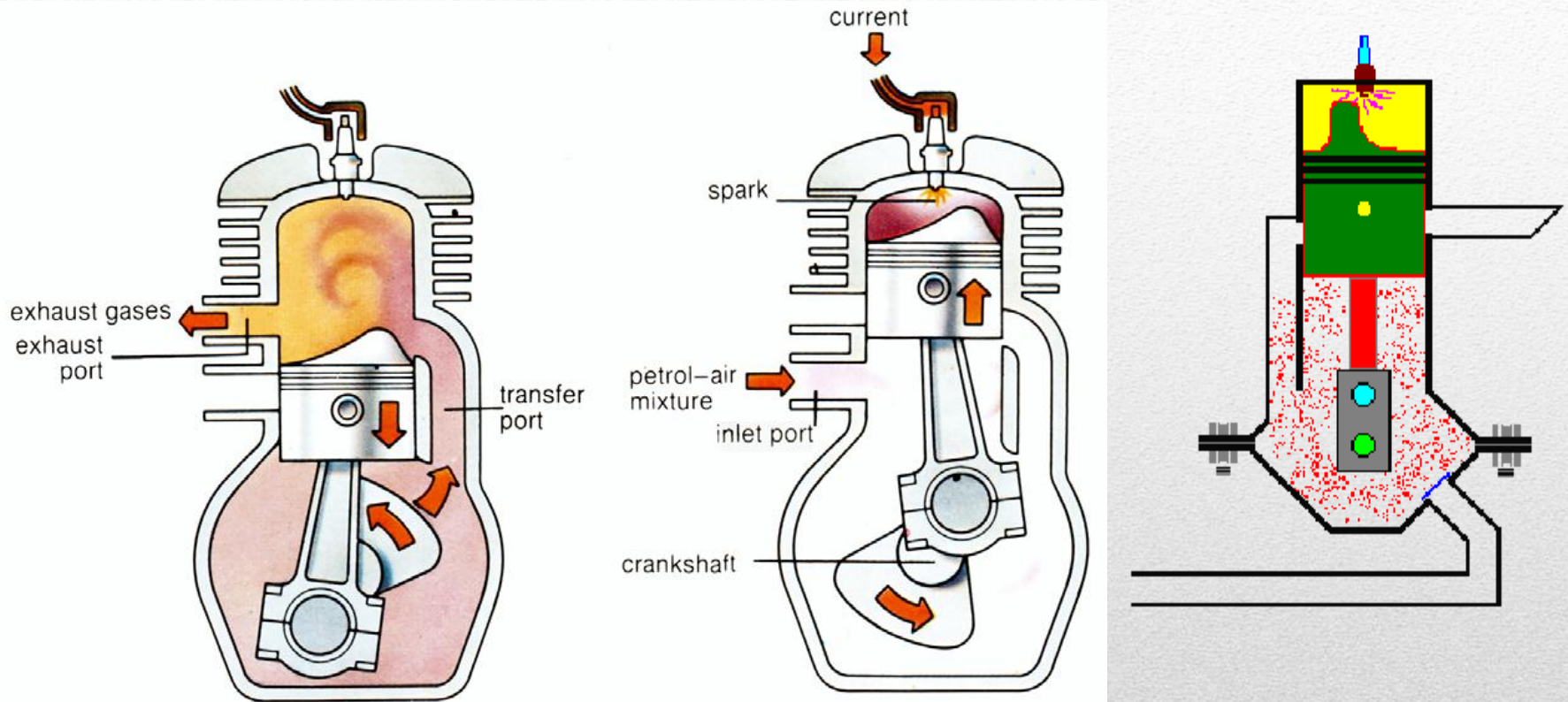
1.Intake Stroke

2.Compression Stroke

3.Power Stroke

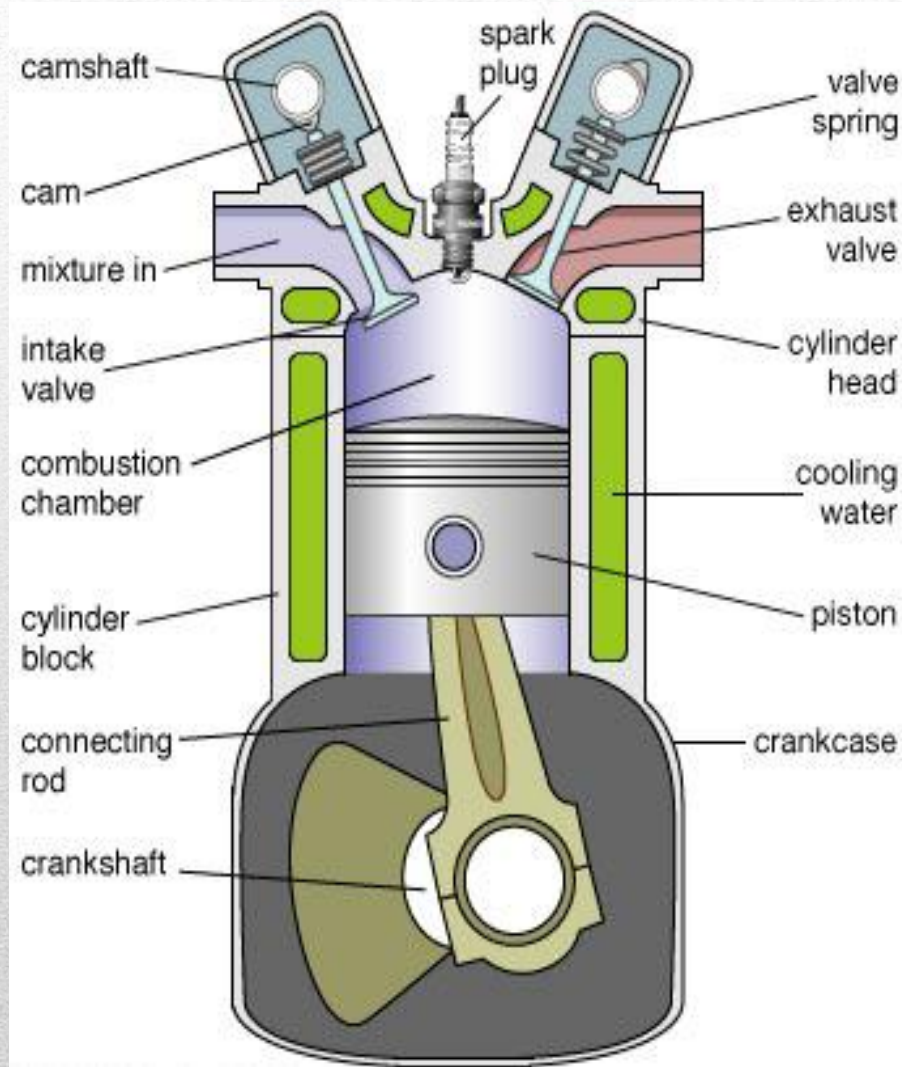
4.Exhaust Stroke

2 Stroke IC Engine

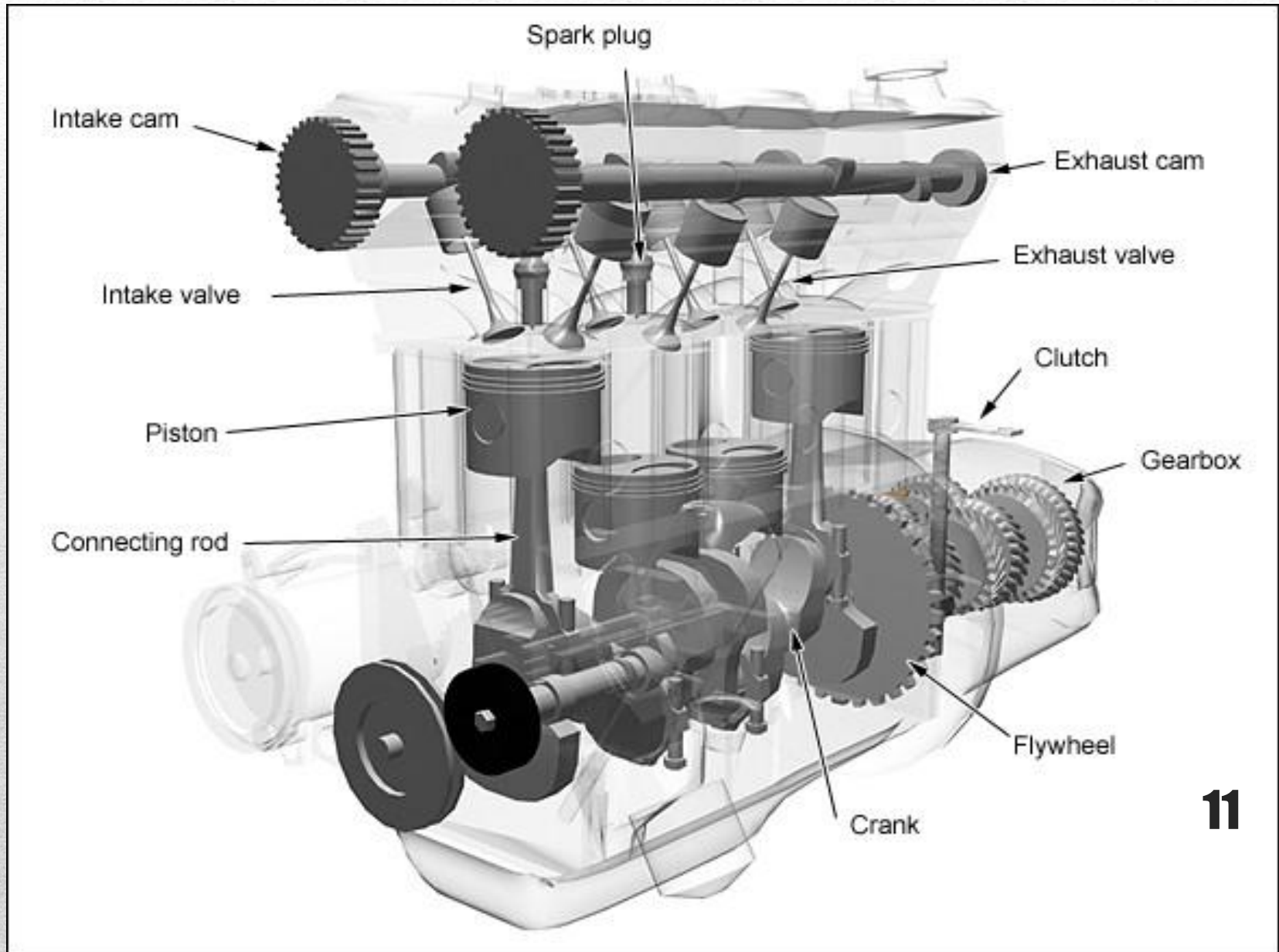


1. Compression Stroke
2. Power Stroke

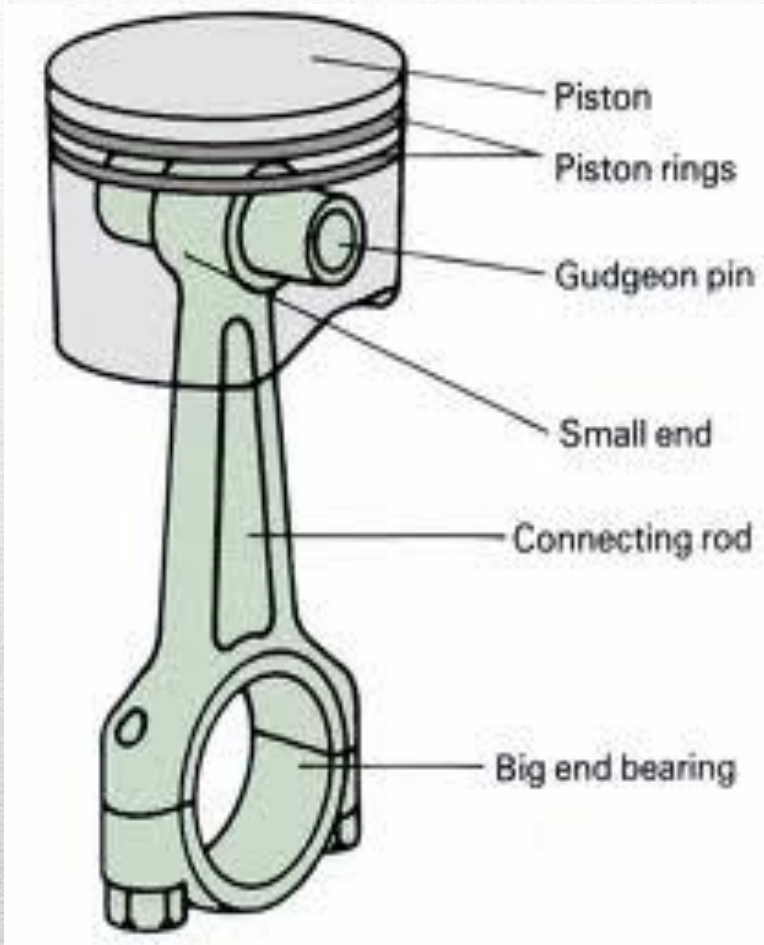
Basic Engine Components



Basic Engine Components



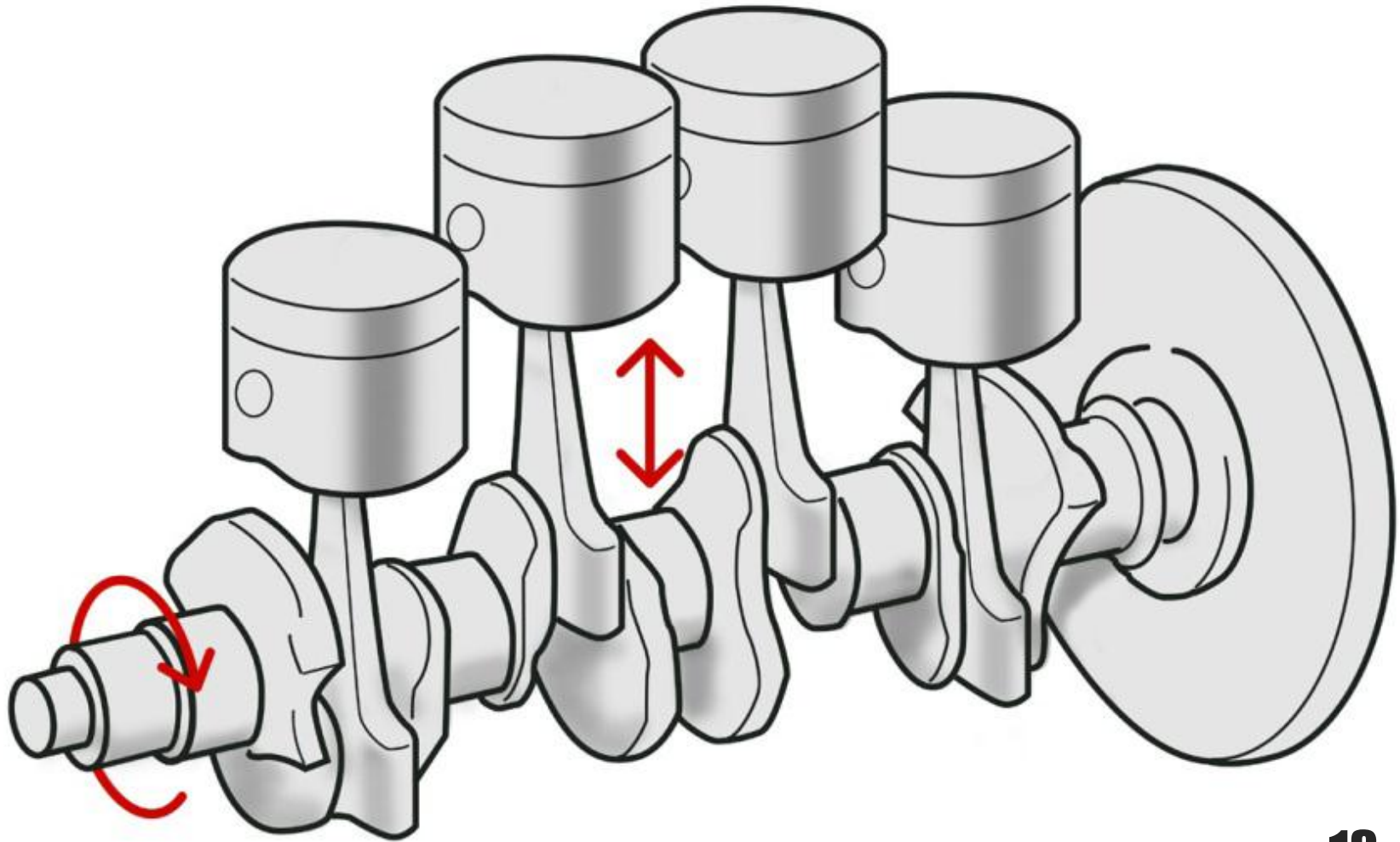
Piston and Connecting Rod



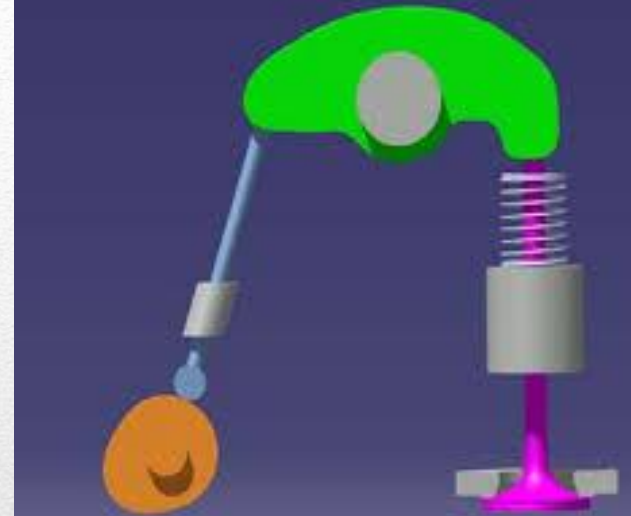
Which type of engine is represented by the piston in the figure??

- A. 4 stroke
- B. 2 stroke

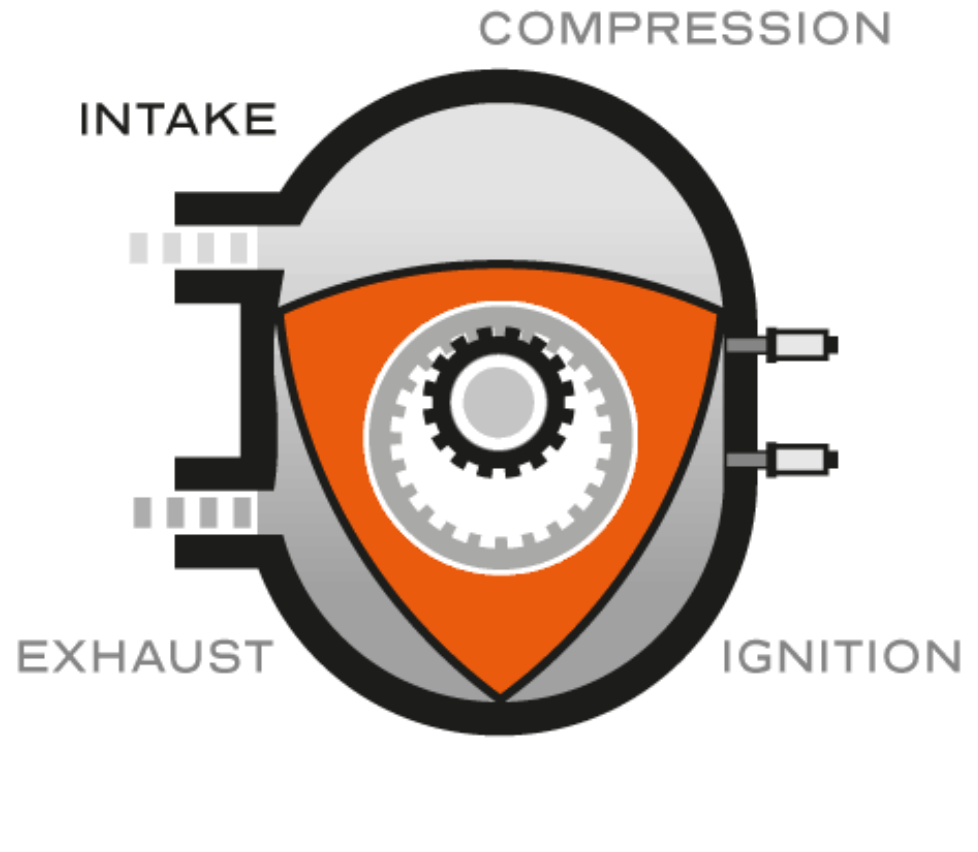
Crank and Crank Shaft



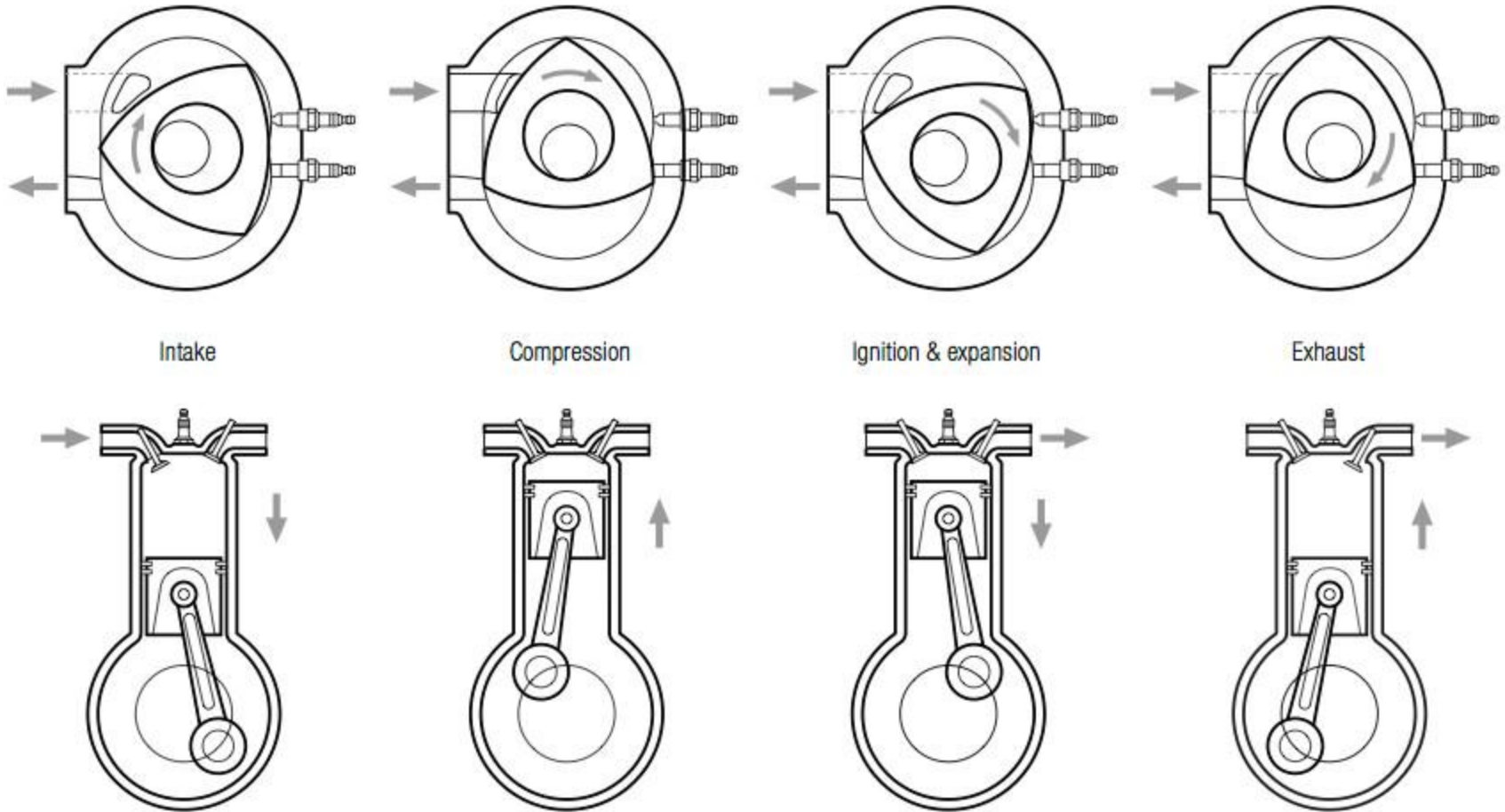
Cam, Rocker Arm and Valve



Other types of ICE (Wankel Engine)



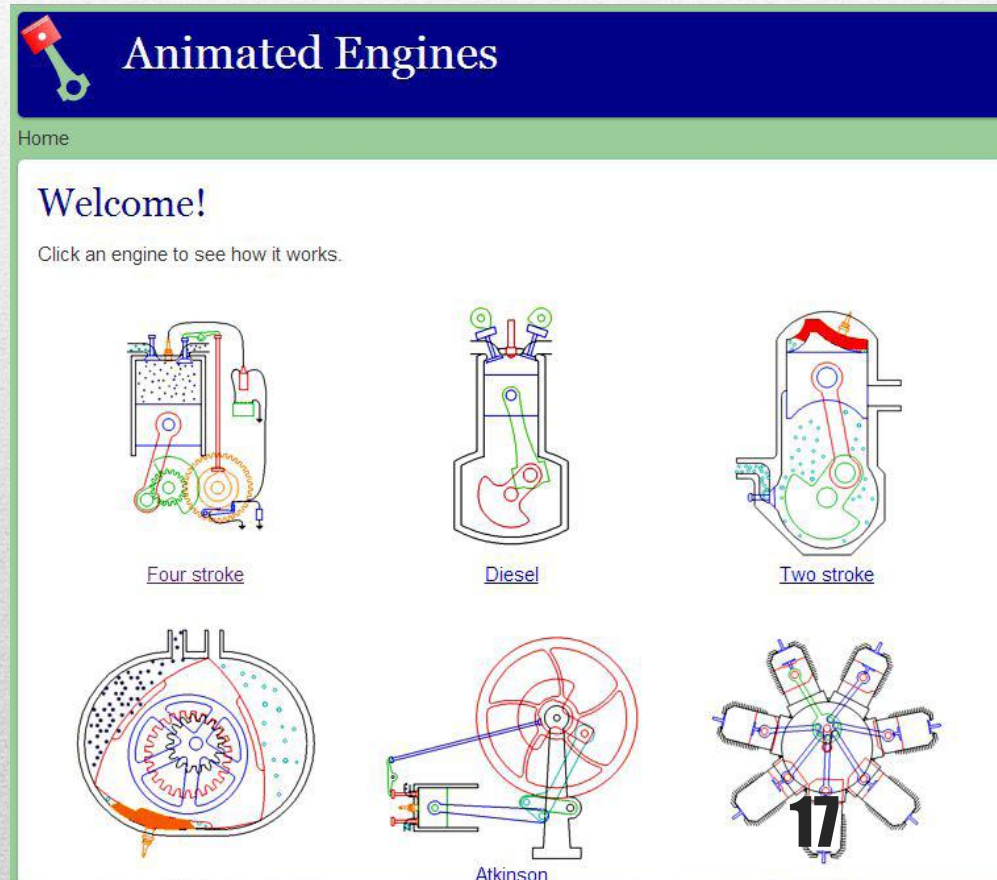
Other types of ICE (Wankel Engine)



References

1. Internal Combustion Engine Fundamentals- J. B. Heywood
2. Engineering Fundamentals of the Internal Combustion Engine - W. W. Pulkrabek
3. <http://teacher.buet.ac.bd/aashiquear>
4. <http://www.animatedengines.com/>

Thank You



The screenshot shows the homepage of the 'Animated Engines' website. At the top, there is a dark blue header with a red and white wrench icon on the left and the text 'Animated Engines' in white. Below the header is a light green bar with the word 'Home' in black. The main content area is white and features a blue 'Welcome!' heading followed by the instruction 'Click an engine to see how it works.' Below this, there are six engine diagrams arranged in two rows. The top row contains: 'Four stroke' (a vertical engine with a piston and crank), 'Diesel' (a vertical engine with a piston and a fuel injector), and 'Two stroke' (a vertical engine with a piston and a connecting rod). The bottom row contains: a circular engine diagram, the 'Atkinson' engine (a vertical engine with a large flywheel), and a six-cylinder radial engine. A large black number '17' is overlaid on the bottom right corner of the screenshot.