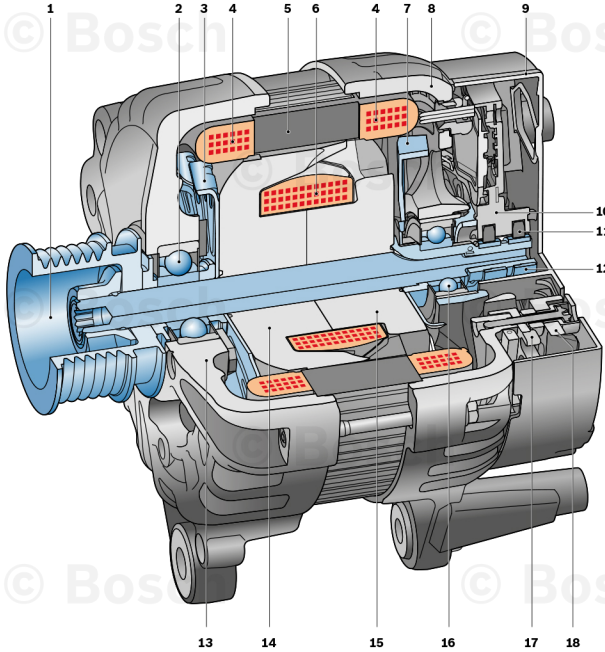


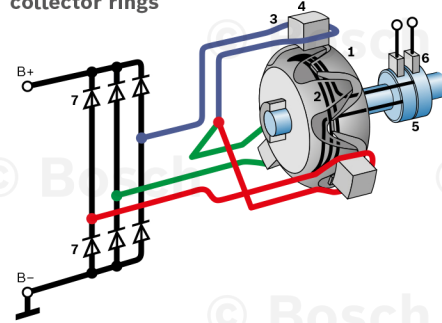
# Bosch Classic Alternator

## Bosch EL Series



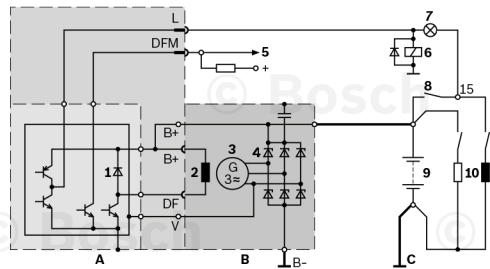
- 1 Belt pulley
- 2 A-side (drive end) ball bearing
- 3 A-side fan
- 4 Stator winding heads
- 5 Laminated stator core
- 6 Rotor winding (excitation winding)
- 7 B-side fan
- 8 B-side end shield
- 9 Protective cap
- 10 Brush holder
- 11 Carbon brush
- 12 Collector ring
- 13 A-side end shield
- 14 A-side claw pole
- 15 B-side claw pole
- 16 B-side ball bearing
- 17 Negative heat sink of rectifier
- 18 Positive heat sink of rectifier

## Basic design of a claw-pole alternator with collector rings



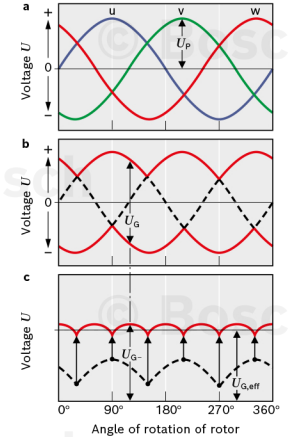
- 1 Rotor
  - 2 Excitation winding
  - 3 Stator winding
  - 4 Stator
  - 5 Collector rings
  - 6 Brushes
  - 7 Rectifier diodes
- B+ Battery positive terminal  
B- Battery negative terminal

## Wiring of the alternator



- A Regulator
- B Alternator
- C Vehicle electrical system
- 1 Free-wheeling diode
- 2 Excitation winding
- 3 Stator windings
- 4 Rectifier diodes
- 5 Evaluation (monitoring) circuits
- 6 Relay (switches equipment which is to be switched on only when alternator is active)
- 7 Alternator indicator lamp
- 8 Ignition switch
- 9 Battery
- 10 Equipment
- L Lamp connection
- B+ Battery positive terminal
- B- Battery negative terminal
- 15 Terminal 15
- DFM Dynamo field monitoring

## Three-phase current rectification



- a) Three-phase alternating voltage  $U_p$  Phase voltage
  - b) Alternator voltage formed by the envelopes of the positive and negative half-waves  $U_G$  Voltage at rectifier (negative not to ground)
  - c) Rectified alternator voltage  $U_{o,eff}$  Effective value of direct voltage
- u, v, w Phases

## Characteristic curve at maximum alternator current at constant voltage

