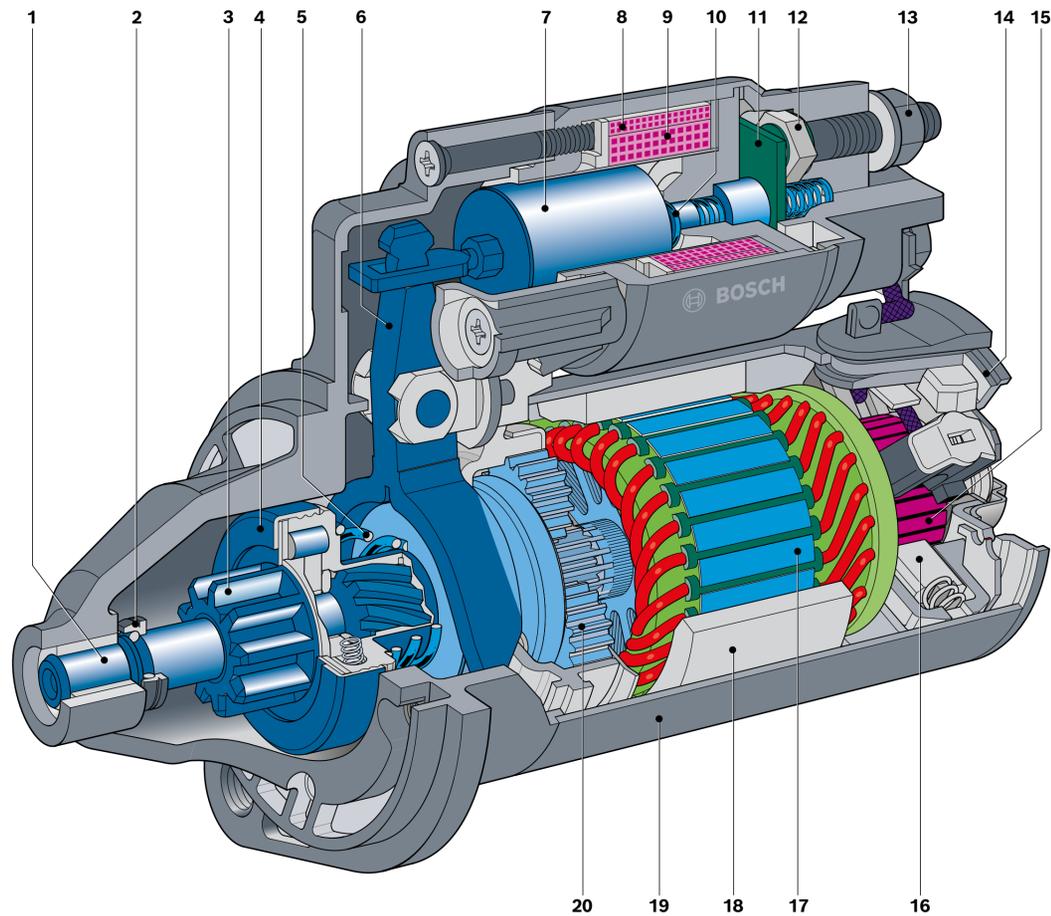
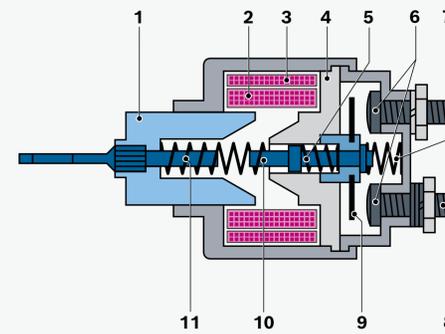


# Starter



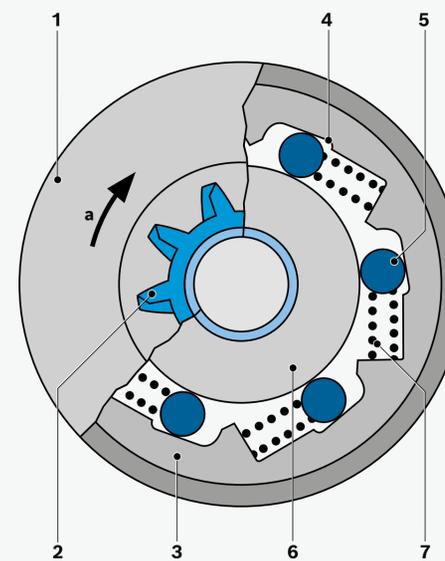
- |                                    |  |
|------------------------------------|--|
| 1 Drive shaft                      | 11 Contact bridge                        |
| 2 Stop ring                        | 12 Contact                               |
| 3 Pinion                           | 13 Electrical Connection                 |
| 4 (Roller-type) Overrunning clutch | 14 Commutator end shield                 |
| 5 Compression spring               | 15 Commutator                            |
| 6 Engaging lever                   | 16 Brush holder                          |
| 7 Solenoid switch                  | 17 Armature                              |
| 8 Hold-in winding                  | 18 Permanent magnets                     |
| 9 Pull-in winding                  | 19 Pole housing                          |
| 10 Plunger return spring           | 20 Planetary gear train (reduction gear) |

## Solenoid switch



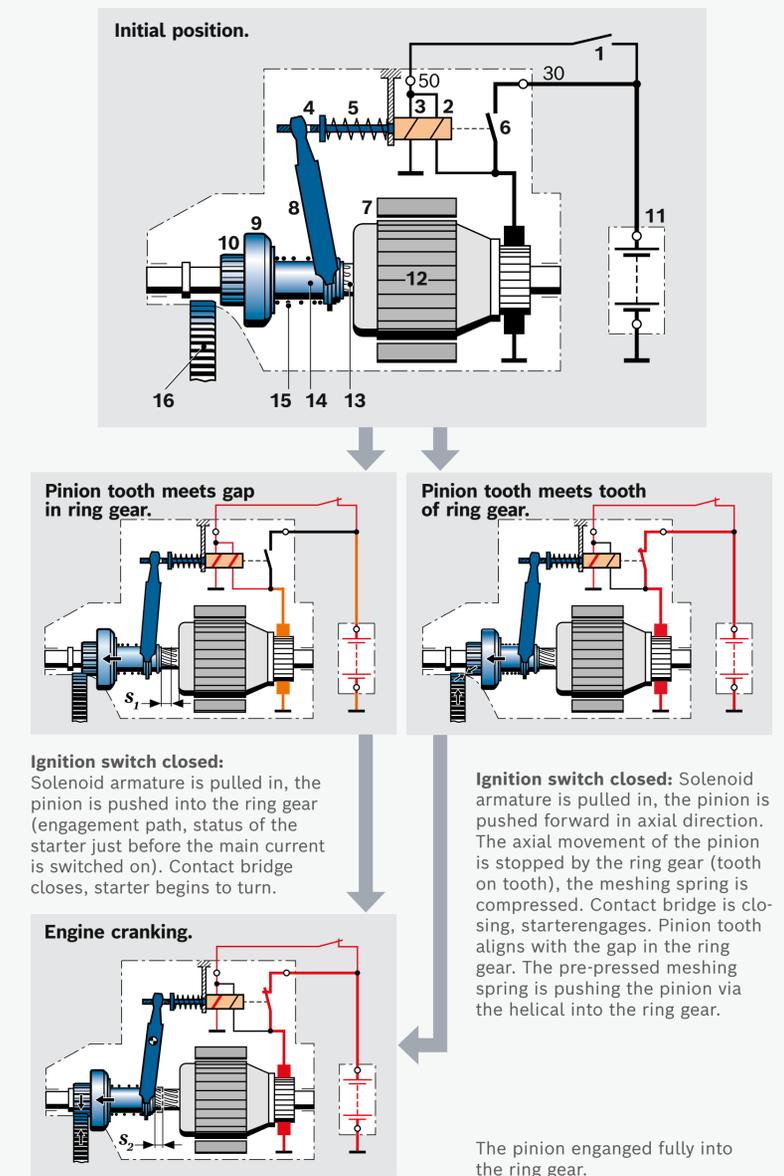
- 1 Plunger 2 Pull-in winding  
3 Hold-in winding 4 Magnetic core  
5 Compression spring 6 Contacts  
7 Contact return spring 8 Electrical Connection  
9 Contact bridge  
10 Switching pin 11 Plunger return spring

## Overrunning clutch



- 1 Sealing cap 2 Pinion 3 Driver  
4 Roller conveyor 5 Cylindrical roller  
6 Pinion shaft 7 Spring  
a Direction of rotation

## Working phases of the pre-engaged starter



- 1 Ignition switch 2 Pull-in winding of the solenoid switch 3 Hold-in winding 4 Solenoid armature 5 Plunger return spring  
6 Contact bridge 7 Permanent magnets 8 Engaging lever  
9 Overrunning clutch 10 Pinion 11 Battery 12 Armature 13 Helical spline 14 Pinion driver 15 Compression spring 16 Ring gear

Terminal identification:  
30 Battery Plus 50 Ignition  
 $s_1$  Pinion path  $s_2$  Helix thread