

**CLASS 218, HIGH-VOLTAGE SWITCHES
WITH ARC PREVENTING OR EXTINGUISHING DEVICES**

SUBCLASSES

- 1 Arc preventing or extinguishing devices:**
This subclass is indented under the class definition. Subject matter of Class 200 comprising a main contact assembly having a movable and stationary contact and means for preventing the formation of electric arcs when the circuit is made or broken, or extinguishing or smothering the arc if it forms.
- (1) Note. This class has been created from former subclasses 144 through 151 in Class 200, Electricity: Circuit Makers and Breakers, and is to be considered an integral part of that class. See the subclass schedule of Class 200 for the hierarchical position of this subject matter relative to other subclasses in that class.
 - (2) Note. Arc preventing by special operation of the contacts as a snap or quick movement is not included. See the search notes below.
 - (3) Note. The medium in which circuit interruption is performed may be designated by a suitable prefix, for example, vacuum circuit breaker, air-current blowout circuit breaker, magnetic blowout circuit breaker, interposed non-conductor circuit breaker, etc.
 - (4) Note. The terms "circuit breaker", "circuit interrupter", or "switch" are synonymous in this class.
 - (5) Note. Electrical systems or circuits which include arc interrupting switches, comprising the subject matter of this class, are excluded from this class. These systems or circuits are classified in the various electrical or art classes depending upon the type of system or apparatus controlled. Furthermore, multiple circuit control type of circuit breakers are excluded from this class, and classified in Class 200.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 1+ for multiple circuit breaker control, subclasses 48+ for high potential type manually operated disconnect switch, subclasses 82+ for fluid pressure piston operated means, subclasses 237 through 292 for switch contact details, subclasses 293 through 307 for housing features; subclass 308 for indicator features; subclasses 402+ for arc preventing by special operation of the contacts as a snap or quick movement.
- 313, Electric Lamp and Discharge Devices, subclasses 238+ for support and spacing structure for electrode and shield, and subclasses 567 through 643 for detail of gas or vapor type discharge devices.
- 324, Electricity: Measuring and Testing, subclasses 415 through 424 for testing electromechanical switching devices, and subclasses 500+ for fault detecting in electric circuits and of electric components.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 2+ for electromagnetically actuated switches.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 14+ for electrothermally actuated switches.
- 338, Electrical Resistors, subclass 20, 21, 22, and 68+ for mechanically variable resistors.
- 361, Electricity: Electrical Systems and Devices, subclasses 1 through 138 for safety and protection of systems and devices with arc suppression at switching point, and miscellaneous structural details of housing or mounting assemblies with diverse electrical components.
- 439, Electrical Connectors, subclasses 183 through 187 for arc suppressing or extinguishing environment for electrical connectors.

- 2 Multiple break:**
This subclass is indented under subclass 1. Subject matter wherein the means for preventing or extinguishing electric arc comprises two or more circuit breakers arranged to break at plural points of the circuit.
- 3 Hybrid-type:**
This subclass is indented under subclass 2. Subject matter wherein the multiple break consists of a combination of two or more different types of switches such as a vacuum switch and a gas switch.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
70, for sealed chamber of air-current blowout type circuit breaker.
- 4 Series connected break:**
This subclass is indented under subclass 2. Subject matter in which two or more breakers are connected end to end so that the same current flows between them.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
69, for sealed chamber of air-current blowout type circuit breaker.
- 5 Simultaneous break:**
This subclass is indented under subclass 2. Subject matter including means to actuate two or more circuit breakers at the same time.
- (1) Note. This subclass also includes multiple break operations which occur at substantially the same time.
- 6 Sequential break:**
This subclass is indented under subclass 2. Subject matter wherein the means for preventing or extinguishing electric arc comprises a low impedance resistor in series with each of the circuit breakers to establish a plurality of breaks in succession.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
143, for resistance inserting feature.
- 7 Operating mechanism structure or arrangement:**
This subclass is indented under subclass 2. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the multiple break interrupter.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
14, for auxiliary shunt circuit interrupter with operating mechanism.
78, for sealed chamber circuit interrupter with operating mechanism.
84, for air-current blowout circuit interrupter with operating mechanism.
92, for liquid circuit interrupter with operating mechanism.
120, for polyphase vacuum circuit interrupter with operating mechanism.
140, for vacuum circuit interrupter with operating mechanism.
153, for polyphase arc preventing device with operating mechanism.
154, for general arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.
- 8 Auxiliary shunt:**
This subclass is indented under subclass 1. Subject matter in which an arcing contact is arranged in parallel to the main contact assembly so that when opening the circuit the main contact opens first and the auxiliary contact later.
- (1) Note. The shunt contact is made of highly resistant material.
(2) Note. Any arc is formed on the auxiliary contact.
- 9 Polyphase:**
This subclass is indented under subclass 8. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.

- (1) Note. Devices known as bipole or double pole which complete the circuit in each conductor of a direct current circuit will also be found here.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 44, for air-current blowout circuit interrupter.
 58, for puffer piston circuit interrupter.
 71, for sealed chamber circuit interrupter.
 101, for liquid circuit interrupter.
 119+, for vacuum circuit interrupter.
 152+, for general arc preventing devices.

10 **Vacuum switch:**

This subclass is indented under subclass 8. Subject matter wherein the contacts are enclosed in an evacuated housing.

- (1) Note. The housing may be referred to as a tube or bulb.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 42, for magnetic blowout circuit interrupter.
 118+, for general arc preventing devices.

11 **Tubular shaped:**

This subclass is indented under subclass 8. Subject matter wherein the interrupter is shaped like a hollow elongated cylinder.

12 **Disconnect switch:**

This subclass is indented under subclass 8. Subject matter including an electrical switch of the bypass type for removing a load from its electrical supply source.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 45, for air-current blowout circuit interrupter.
 67, for puffer piston circuit interrupter.
 80, for sealed chamber circuit interrupter.
 100, for liquid circuit interrupter.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 48+ for details of a high potential type disconnect switch.

13 **Gas type:**

This subclass is indented under subclass 8. Subject matter including a tank filled with arc extinguishing aeriform fluid, e.g., compressed air, helium, hydrogen, sulfur hexafluoride, etc.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 85, for specific arc extinguishing gaseous medium.

14 **Operating mechanism structure or arrangement:**

This subclass is indented under subclass 8. Subject matter including details of the structure or arrangement of parts that actuate the main contact of the auxiliary shunt interrupters.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 7, for general arc preventing device with operating mechanism.
 78, for sealed chamber with operating mechanism.
 84, for air-current blowout with operating mechanism.
 92, for liquid with operating mechanism.
 120, for polyphase vacuum switch with operating mechanism.
 140, for vacuum switch with operating mechanism.
 153, for polyphase arc preventing device with operating mechanism.
 154, for general arc preventing device with operating mechanism.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.

15 **Arc chute assembly:**

This subclass is indented under subclass 8. Subject matter including a plurality of spaced-apart plates to divide up an arc into smaller segments during extinguishment and, particularly, to metal plates which are coated with arc resistant insulating material.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 34+, for magnetic blowout.
 81, for air-current blowout.

- 149+, for general arc preventing device.
- 16 Contact structure:**
This subclass is indented under subclass 8. Subject matter wherein structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
30+, for magnetic blowout circuit interrupter.
48+, for air-current blowout circuit interrupter.
65+, for puffer piston circuit interrupter.
74+, for sealed chamber circuit interrupter.
107+, for liquid circuit interrupter.
123+, for vacuum circuit interrupter.
146+, for general arc preventing devices.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 17 Movable contact assembly:**
This subclass is indented under subclass 16. Subject matter wherein the contact members are so arranged and are adjusted or controlled relative to each other along an axis.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
50, for air-current blowout circuit interrupter.
108, for liquid circuit interrupter.
124, for vacuum interrupter.
- 18 Arcing contact:**
This subclass is indented under subclass 17. Subject matter including special contacts on which the arc is drawn after the main contacts of the circuit breaker have opened.
- 19 Movable contact assembly reciprocates:**
This subclass is indented under subclass 17. Subject matter wherein the movable contact assembly moves in a linear direction alternately backward and forward along a common axis.
- 20 Movable contact assembly pivots:**
This subclass is indented under subclass 17. Subject matter including means to permit the movable contact assembly to rotate about a common axis in alternate directions.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
32, for magnetic blowout circuit interrupter.
- 21 Arcing contact pivots relative to movable main contact assembly:**
This subclass is indented under subclass 20. Subject matter including means to permit the arcing contact to move from and rotate in the same direction about a common axis of the movable contact assembly.
- 22 Magnetic blowout:**
This subclass is indented under subclass 1. Subject matter wherein the circuit interrupter contains an electromagnetic coil or a permanent magnet whose field is used to aid the interruption of an arc drawn between the contacts.
- 23 Permanent magnet:**
This subclass is indented under subclass 22. Subject matter comprising a piece of hardened magnetized steel or other magnetic material used in the extinguishment of the arc.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
104, for arcing chamber in liquid switch.
- SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 2+ for details of permanent magnets used in electromagnetically operated switches.

- 24 Magnetic yoke structure:**
This subclass is indented under subclass 23. Subject matter including the structural details of a contrivance for magnetically interconnecting a pair of pole plates which belong to the magnet.
- 25 Located outside switch housing:**
This subclass is indented under subclass 23. Subject matter wherein the permanent magnet is placed exterior to a switch enclosure.
- 26 Located inside switch housing:**
This subclass is indented under subclass 26. Subject matter wherein the permanent magnet is placed within a switch enclosure.
- 27 Connected to contact:**
This subclass is indented under subclass 23. Subject matter wherein the magnetic material is electrically connected to the stationary contact, and is so arranged to transfer the arc to the contact as soon as contact continuity is broken.
- 28 Plural coils:**
This subclass is indented under subclass 23. Subject matter wherein the magnetic blowout circuit breaker consists of more than one conductor wound up in a spiral form.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
104, for arcing chamber in liquid switch.
141+, for magnetic coil used in vacuum switch.
- 29 Arc spinner:**
This subclass is indented under subclass 22. Subject matter wherein the arc is transferred to a ring electrode and is spun by the action of magnetic forces created on the ring electrode within a vacuum or gaseous medium.
- 30 Contact structure:**
This subclass is indented under subclass 22. Subject matter comprising structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
16+, for auxiliary shunt circuit interrupter.
- 48+, for air-current blowout circuit interrupter.
65+, for puffer piston type circuit interrupter.
74+, for sealed chamber circuit interrupter.
107+, for liquid circuit interrupter.
123+, for vacuum switch.
146+, for general arc preventing devices.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 31 Bridging contacts:**
This subclass is indented under subclass 30. Subject matter including a set of contacts in which the moving contact touches two stationary contacts substantially simultaneously during operation of the circuit breaker.
- (1) Note. The simultaneous operation referred to above does not preclude the well known prior art equivalent structure in which a substantially simultaneously operation occurs, e.g., contact wiping.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 16 and 243 for bridging contact features.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 32 Pivot:**
This subclass is indented under subclass 30. Subject matter including a pin or shaft on the end of which the contact is rested and turned or rotated.

- 33 Reverse looped or flexible stationary contact:**
This subclass is indented under subclass 30. Subject matter wherein the stationary contact is capable of being bent in a u-shaped or sinusoidal configuration.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 275 for particular contact shape.
- 34 Arc chute:**
This subclass is indented under subclass 22. Subject matter comprising spaced sidewalls of insulating material and metal plates extending between the sidewalls for chopping an arc into a family of series related arclets.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
15, for auxiliary shunt circuit interrupter.
81, for air-current blowout circuit interrupter.
149+, for general arc preventing device.
- 35 With vent means:**
This subclass is indented under subclass 34. Subject matter including means to release excess arc gases generated within the chute.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
99, for liquid circuit breaker housing.
157, for general arc preventing device.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 306 for details of venting means in a switch housing.
- 36 Arc runner (e.g., arc horn):**
This subclass is indented under subclass 34. Subject matter including one of a pair of diverging electrodes on which an arc is extended to the point of extinction or to the point of transferring the generated arc into the portion of the arc chute where the generated arc is divided into sub-arcs after the main contacts of the switching device have parted.
- (1) Note. Arc runner is sometimes referred to as arc horn.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
40, for arc runner, per se.
148, for general arc prevention devices.
- 37 Insulated conductor structure:**
This subclass is indented under subclass 34. Subject matter including details of a conductor covered with a dielectric having a rated insulating strength equal to or greater than the voltage of the circuit.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
147, for general arc preventing devices with arc shielding means.
- 38 Arc splitting means:**
This subclass is indented under subclass 37. Subject matter including means to promote current interruption by aggressive cooling of arcs and subdivision of arcs into a series of sub-arcs, partial arcs, or arclets.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
103+, for arcing chamber in the liquid circuit breaker.
- 39 Skew, parallel, or vertical position:**
This subclass is indented under subclass 37. Subject matter wherein a plurality of insulated conductors extend in an oblique in respect to the axis of the arc, in the same direction and never converging or diverging, or in a position perpendicular to the axis of the arc.
- 40 Arc runner (e.g., arc horn):**
This subclass is indented under subclass 22. Subject matter including one of a pair of diverging electrodes on which an arc is extended to the point of extinction, or to the point of transferring the generated arc into a portion of an arc chute where the generated arc is divided into sub-arcs after the main contacts of the switching device have parted.
- (1) Note. Arc runner is sometimes referred to as arc horn.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 36, for arc runner combination with arc chute.
 148, for general arc prevention devices.
- 41 Barrier:**
 This subclass is indented under subclass 22. Subject matter wherein the circuit interrupter includes a partition for the insulation or isolation of electric arcs.
- 42 Within vacuum:**
 This subclass is indented under subclass 22. Subject matter wherein the switch whose contacts are enclosed in an evacuated bulb.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 118+, for vacuum switch in general arc preventing devices.
- 43 Air-current blowout:**
 This subclass is indented under subclass 1. Subject matter including means for directing a blast of gas, such as air, across the arc to extinguish it.
- 44 Polyphase:**
 This subclass is indented under subclass 43. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.
- (1) Note. The poles are insulated from each other and are coupled in such a manner as to operate simultaneously.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 9, for auxiliary shunt circuit interrupter.
 58, for puffer piston circuit interrupter.
 71, for sealed chamber circuit interrupter.
 101, for liquid circuit interrupter.
 119+, for vacuum circuit interrupter.
 152+, for general arc preventing devices.
- 45 Disconnect switch:**
 This subclass is indented under subclass 43. Subject matter including a mechanical switch that is intended to disconnect the air-current blowout circuit breaker from the electric power source for maintenance, changing connections, or opening and closing circuits.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 12, for auxiliary shunt circuit interrupter.
 67, for puffer piston circuit interrupter.
 80, for sealed chamber circuit interrupter.
 100, for liquid circuit interrupter.
- SEE OR SEARCH CLASS:
 200, Electricity: Circuit Makers and Breakers, subclasses 48+ for details of a high potential type disconnect switch.
- 46 Arcing chamber:**
 This subclass is indented under subclass 43. Subject matter including an enclosed compartment in which the arc is confined and brought into contact with gas-evolving material or another arc extinguishing substance.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 103+, for arcing chamber in liquid circuit interrupter.
 156+, for arcing chamber in general arc preventing device.
- 47 Plural chambers:**
 This subclass is indented under subclass 46. Subject matter wherein the chamber has two or more compartments.
- 48 Contact structure:**
 This subclass is indented under subclass 43. Subject matter comprising structural details of an electrode which engages or disengages to open or close the circuit within circuit interrupter.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 16+, for auxiliary shunt circuit interrupter.
 30+, for magnetic blowout circuit interrupter.
 65+, for puffer piston circuit interrupter.
 74+, for sealed chamber circuit interrupter.
 107+, for liquid circuit interrupter.
 123+, for vacuum circuit interrupter.
 146+, for general arc preventing devices.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.

49 Fixed:

This subclass is indented under subclass 48. Subject matter including a conducting part having a contact surface which remains substantially stationary.

50 Movable:

This subclass is indented under subclass 48. Subject matter including a conducting part which bears a contact surface arranged for movement to and from the stationary contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 17+, for auxiliary shunt circuit interrupter.
- 108, for liquid circuit interrupter.
- 124, for vacuum circuit interrupter.

51 With gas flow means:

This subclass is indented under subclass 43. Subject matter including means defining a confined channel for conveying a dielectric gas along a path from a source through the confined channel.

52 Exhaust port:

This subclass is indented under subclass 51. Subject matter wherein the confined channel has an orifice to direct the gas onto the arc to extinguish the arc.

53 With nozzle:

This subclass is indented under subclass 43. Subject matter including a terminal discharging pipe member which is attached to a first of the two contact members and in which compressed gas is caused to flow from a compression space into an expansion space.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 62, for compressing cylinder in puffer piston circuit interrupter.
- 63+, for puffer piston circuit interrupter.
- 72+, for sealed chamber circuit interrupter.

54 With throat region:

This subclass is indented under subclass 53. Subject matter wherein the nozzle has a narrow constricted passage.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 64, for puffer piston circuit interrupter.
- 73, for sealed chamber interrupter.

55 Grounding switch:

This subclass is indented under subclass 43. Subject matter including a mechanical switching device by means of which the air-current blowout circuit breaker is electrically connected to earth.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 79, for sealed chamber circuit interrupter.

56 Self extinguishing:

This subclass is indented under subclass 43. Subject matter including a material which ignites and burns when exposed to a flame or elevated temperature to extinguish an arc.

57 Puffer piston:

This subclass is indented under subclass 43. Subject matter including a relatively movable piston and cylinder, whereby the movement of the contact to the open position causes the relative movement of the piston and cylinder to create a high pressure region which forces the flow of gas through the separating contacts for extinguishing the generated arc.

- (1) Note. The words "puffer piston" and "puffer" are used to describe the dynamic characteristics of this type of switch.
- (2) Note. The contact assembly usually has a hollow, tubular, or cylindrical configuration.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
116, for liquid circuit interrupter.
- 58 Polyphase:**
This subclass is indented under subclass 57. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.
- (1) Note. The poles are insulated from each other and are coupled in such a manner as to operate simultaneously.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
9, for auxiliary shunt circuit interrupter.
44, for air-current blowout circuit interrupter.
71, for sealed chamber circuit interrupter.
101, for liquid circuit interrupter.
119+, for vacuum circuit interrupter.
152+, for general arc preventing devices.
- 59 With gas blast means:**
This subclass is indented under subclass 57. Subject matter including details of means which compress air to a certain pressure.
- 60 Piston structure:**
This subclass is indented under subclass 59. Subject matter including structural details of a solid or hollow disc-like plunger moving linearly in a close fitting bored receptacle termed its cylinder.
- 61 Compressing cylinder structure:**
This subclass is indented under subclass 59. Subject matter including structural details of a tubular of an air-compressing unit located within the puffer piston circuit interrupter for extinguishing a generated arc.
- 62 With nozzle:**
This subclass is indented under subclass 61. Subject matter including a terminal discharging pipe member which is attached to a first of the two contacts members and in which compressed gas is caused to flow from a compression space into an expansion space.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
53, for air-current blowout circuit interrupter.
63+, for puffer piston circuit interrupter.
72+, for sealed chamber circuit interrupter.
- 63 With nozzle:**
This subclass is indented under subclass 57. Subject matter including a terminal discharging pipe member which is attached to the first of the two contacts members and in which compressed gas is caused to flow from a compression space into an expansion space.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
53, for air-current blowout circuit interrupter.
62, for compressing cylinder in puffer piston circuit interrupter.
72+, for sealed chamber circuit interrupter.
- 64 With throat region:**
This subclass is indented under subclass 63. Subject matter wherein the nozzle has a narrow passage.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
54, for air-current blowout interrupter.
73, for sealed chamber interrupter.
- 65 Contact structure:**
This subclass is indented under subclass 57. Subject matter wherein structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
16+, for auxiliary shunt circuit interrupter.
30+, for magnetic blowout circuit interrupter.
48, for air-current blowout circuit interrupter.
74+, for sealed chamber circuit interrupter.
107+, for liquid circuit interrupter.
123+, for vacuum circuit interrupter.
146+, for general arc preventing devices.

- SEE OR SEARCH CLASS:
 200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 66 Valve (e.g., blast valve or pressure relief valve):**
 This subclass is indented under subclass 57. Subject matter wherein a movable cover or lid which regulates the ingress and egress of fluids and gases, such as a blast valve or pressure relief valve, are included.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
 109, for liquid circuit interrupter.
- 67 Disconnect switch:**
 This subclass is indented under subclass 57. Subject matter including a mechanical switch that is intended to disconnect the air-current blowout circuit breaker from the electric power source for maintenance, changing connections, and opening and closing circuits.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
 12, for auxiliary shunt circuit interrupter.
 45, for air-current blowout circuit interrupter.
 80, for sealed chamber circuit interrupter.
 100, for liquid circuit interrupter.
- SEE OR SEARCH CLASS:
 200, Electricity: Circuit Makers and Breakers, subclasses 48+ for details of a high potential type disconnect switch.
- 68 Sealed chamber:**
 This subclass is indented under subclass 43. Subject matter wherein the air-current blowout interrupter units are enclosed in a gas tight or watertight vessel.
- 69 Plural switch connected in series:**
 This subclass is indented under subclass 68. Subject matter including two or more circuit interrupting breakers are connected in succession; that is, the same current passes through each breaker in completing its path to the source of supply.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
 4, for series connected multiple break circuit interrupter.
- 70 Hybrid-type:**
 This subclass is indented under subclass 69. Subject matter wherein the plural switches connected in series consist of a combination of two or more different types of switches such as a vacuum switch and a gas switch.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
 3, for multiple break circuit interrupter.
- 71 Polyphase:**
 This subclass is indented under subclass 68. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.
- (1) Note. The poles are insulated from each other and are coupled in such a manner as to operate simultaneously.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
 9, for auxiliary shunt circuit interrupter.
 44, for air-current blowout circuit interrupter.
 58, for puffer piston circuit interrupter.
 101, for liquid circuit interrupter.
 119+, for vacuum circuit interrupter.
 152+, for general arc preventing devices.
- 72 With nozzle:**
 This subclass is indented under subclass 68. Subject matter including a terminal discharging pipe member which is attached to the first of the two contacts members and in which compressed gas is caused to flow from a compression space into an expansion space.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 53+, for air-current blowout circuit interrupter.
 62, for compressing cylinder in puffer piston circuit interrupter.
 63+, for puffer piston circuit interrupter.
- 73 With throat region:**
 This subclass is indented under subclass 72. Subject matter wherein the nozzle has a narrow passage.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 54, for air-current blowout circuit interrupter.
 64, for puffer piston circuit interrupter.
- 74 Contact structure:**
 This subclass is indented under subclass 68. Subject matter wherein structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 16+, for auxiliary shunt circuit interrupter.
 30+, for magnetic blowout circuit interrupter.
 48+, for air-current blowout circuit interrupter.
 65+, for puffer piston circuit interrupter.
 107+, for liquid circuit interrupter.
 123+, for vacuum circuit interrupter.
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- SEE OR SEARCH CLASS:
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 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 75 Busbar:**
 This subclass is indented under subclass 68. Subject matter wherein heavy copper straps or bars are used (a) to carry high currents or (b) to make a common connection between several circuits having a specific structural order or relationship.
- 76 Arcing chamber:**
 This subclass is indented under subclass 68. Subject matter including an enclosed compartment in which the arc is confined and brought into contact with gas-evolving material or other arc extinguishing substance.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 46+, for air-current blowout circuit interrupter.
 103+, for arcing chamber in liquid circuit interrupter.
 156+, for arcing chamber in general arc preventing device.
- 77 Shielding:**
 This subclass is indented under subclass 68. Subject matter including a protecting or screening means to protect terminals or conductors from electric or magnetic fields generated within the device.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 136+, for vacuum circuit interrupter house shielding.
 147, for general electrical connecting means with arc shielding.
- 78 Operating mechanism structure or arrangement:**
 This subclass is indented under subclass 68. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the sealed chamber air-current blowout interrupters.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 7, for multiple break circuit interrupter.
 14, for auxiliary shunt circuit interrupter with operating mechanism.
 84, for air-current blowout circuit interrupter with operating mechanism.

- 92, for liquid circuit interrupter with operating mechanism.
- 120, for polyphase vacuum circuit interrupter with operating mechanism.
- 140, for vacuum circuit interrupter with operating mechanism.
- 153, for polyphase arc preventing device with operating mechanism.
- 154, for general arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
- 200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.
- 79 Grounding switch:**
This subclass is indented under subclass 68. Subject matter including a mechanical switching device by means of which air-current blowout circuit breaker is electrically connected to earth.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 55, for air-current blowout circuit interrupter.
- 80 Disconnect switch:**
This subclass is indented under subclass 68. Subject matter including a mechanical switch that is intended to disconnect the air-current blowout circuit breaker from the electric power source for maintenance, changing connections, and opening and closing circuits.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 12, for auxiliary shunt circuit interrupter.
- 45, for air-current blowout circuit interrupter.
- 67, for puffer piston circuit interrupter.
- 100, for liquid circuit interrupter.
- SEE OR SEARCH CLASS:
- 200, Electricity: Circuit Makers and Breakers, subclasses 48+ for details of a high potential type disconnect switch.
- 81 Arc chute:**
This subclass is indented under subclass 43. Subject matter including a structure affording a confined space or passageway, usually lined with arc-resisting material, into or through which an arc is directed for extinction.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 15, for auxiliary shunt circuit interrupter.
- 34+, for magnetic blowout.
- 149+, for general arc preventing device.
- 82 Identical units back-to-back:**
This subclass is indented under subclass 43. Subject matter wherein a pair of circuit breaking units are connected in series with each other.
- 83 Recirculating systems:**
This subclass is indented under subclass 43. Subject matter comprising a high-pressure compressed air enclosure and a low-pressure air vessel and compressor means compressing air taken from the low-pressure vessel to supply compressed gas to the high-pressure enclosure.
- 84 Operating mechanism structure or arrangement:**
This subclass is indented under subclass 43. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the air-current blowout interrupters.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 7, for multiple break circuit interrupter.
- 14, for auxiliary shunt circuit interrupter with operating mechanism.
- 78, for sealed chamber circuit interrupter.
- 92, for liquid circuit interrupter with operating mechanism.
- 120, for polyphase vacuum circuit interrupter with operating mechanism.
- 140, for vacuum circuit interrupter with operating mechanism.
- 153, for polyphase arc preventing device with operating mechanism.
- 154, for general arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
- 200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.

85 Arc extinguishing medium:

This subclass is indented under subclass 43. Subject matter comprising a specific material or substance which enhances or facilitates current interruption and arc extinguishing.

86 Low pressure cut-off valve means:

This subclass is indented under subclass 43. Subject matter comprising a valve which shuts off according to the detection of pressure either below or above a few pounds in excess of the atmospheric pressure.

87 Magnetic synchronous contacts:

This subclass is indented under subclass 43. Subject matter including secondary contacts which operate by electrodynamic drive means controlled by a zero-current after the opening of the main contacts.

88 Control of blast valve and contacts:

This subclass is indented under subclass 43. Subject matter comprising a movable valve member that can be operated from a normally closed position to an open position to create a gas blast.

89 Interposed non-conductor:

This subclass is indented under subclass 1. Subject matter including an insulator which is used to smother the arc by being positioned between the contacts and across the path of the arc when the contacts are separated to break the circuit.

90 Gas-evolving chamber:

This subclass is indented under subclass 89. Subject matter including a container composed of material, which under the influence of the arc heat, emits gases or vapors tending to extinguish the arc.

91 Liquid:

This subclass is indented under subclass 89. Subject matter wherein the interposed non-conductor is composed of molecules that move freely among themselves but do not tend to separate like those of gases.

- (1) Note. This subclass includes the circuit controllers or interrupters referred to as "oil-switches".

92 Operating mechanism structure or arrangement:

This subclass is indented under subclass 91. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the liquid circuit interrupters.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 7, for multiple break circuit interrupter.
 14, for auxiliary shunt circuit interrupter with operating mechanism.
 78, for sealed chamber circuit interrupter with operating mechanism.
 84, for air-current blowout circuit interrupter with operating mechanism.
 120, for polyphase vacuum circuit interrupter with operating mechanism.
 140, for vacuum circuit interrupter with operating mechanism.
 153, for polyphase arc preventing device with operating mechanism.
 154, for general arc preventing device with operating mechanism.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.

93 Piston:

This subclass is indented under subclass 92. Subject matter including details of a solid or hollow disc-like plunger moving linearly in a close fitting bored receptacle.

94 Delay means (e.g., dashpot):

This subclass is indented under subclass 92. Subject matter including the structure details of means for retarding the activation of the operating mechanism; for example, dashpot.

95 Chemical explosive primer:

This subclass is indented under subclass 92. Subject matter including means of chemical propellants to close or open the interrupter.

96 With oil flow feature:

This subclass is indented under subclass 92. Subject matter including specific structure details of flow path for the oil circuit interrupter.

97 Housing or tank structure:

This subclass is indented under subclass 91. Subject matter including structural details of a casing or a container for holding the insulating liquid and components of the liquid circuit interrupter.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 134+, for details of single-phase vacuum circuit interrupter housing.
- 139, for details of vacuum circuit interrupter housing or tank.
- 155+, for details of housing of general arc preventing device.

98 With raising and lowering means:

This subclass is indented under subclass 97. Subject matter wherein the circuit breaker includes a lifter mechanism to lift up and down any given number of tanks.

99 With venting means:

This subclass is indented under subclass 97. Subject matter including means to release excess pressure occurring within the housing of the liquid circuit breaker.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 35, for magnetic blowout arc chute.
- 106, for liquid circuit interrupter arcing chamber.
- 157, for general arc preventing device.

100 Disconnect switch:

This subclass is indented under subclass 91. Subject matter including a mechanical switch that is intended to disconnect the insulating circuit breaker from the electric power source for maintenance, changing connections, and opening and closing circuits.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 12, for auxiliary shunt circuit interrupter.
- 45, for air-current blowout circuit interrupter.
- 67, for puffer piston circuit interrupter.
- 80, for sealed chamber circuit interrupter.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 48+ for details of a high potential type disconnect switch.

101 Polyphase:

This subclass is indented under subclass 91. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.

- (1) Note. The poles are insulated from each other and are coupled in such a manner as to operate simultaneously.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 9, for auxiliary shunt circuit interrupter.
- 44, for air-current blowout circuit interrupter.
- 58, for puffer piston circuit interrupter.
- 71, for sealed chamber circuit interrupter.
- 119+, for vacuum circuit interrupter.
- 152+, for general arc preventing devices

102 With resistor:

This subclass is indented under subclass 91. Subject matter including a component made of a material that has a specific resistance or opposition to the flow of electrical current.

SEE OR SEARCH CLASS:

- 338, Electrical Resistors, appropriate subclasses for electrical resistor.

103 Arcing chamber:

This subclass is indented under subclass 91. Subject matter including an enclosed compartment in which the arc is confined and brought into contact with gas-evolving material or other arc extinguishing substance.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 46+, for air-current blowout circuit interrupter.
- 76, for sealed chamber circuit interrupter.
- 156+, for arcing chamber in general arc preventing device.

104 Including magnet or coil:

This subclass is indented under subclass 103. Subject matter including a conductor wound up in a spiral form, or a piece of iron or steel that possesses the property of attracting certain substances as iron.

105 Grid or baffle stack:

This subclass is indented under subclass 103. Subject matter including a plate or wall for directing the arc in a desired flow pattern in the arcing chamber.

106 With venting means:

This subclass is indented under subclass 103. Subject matter including means to release excess pressure occurring within the arcing chamber of the liquid circuit breaker.

SEE OR SEARCH THIS CLASS, SUBCLASS:

35, for magnetic blowout arc chute.
99, for details of liquid circuit interrupter housing.
157, for general arc preventing device.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 306 for details of venting means in a switch housing.

107 Contact structure:

This subclass is indented under subclass 91. Subject matter wherein structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

16+, for auxiliary shunt circuit interrupter.
30+, for magnetic blowout circuit interrupter.
48+, for air-current blowout circuit interrupter.
65+, for puffer piston circuit interrupter.
74, for sealed chamber circuit interrupter.
123+, for vacuum circuit interrupter.
146+, for general arc preventing devices.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.

108 Movable:

This subclass is indented under subclass 107. Subject matter including a conducting member which supports a contact surface arranged for movement to and from the stationary contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17+, for auxiliary shunt circuit interrupter.
50, for air-current blowout circuit interrupter.
124, for vacuum interrupter.

109 Valve (e.g., spring biased valve plate):

This subclass is indented under subclass 91. Subject matter wherein a movable cover or lid which regulates the ingress and egress of fluids, such as a spring biased valve plate is included.

SEE OR SEARCH THIS CLASS, SUBCLASS:

66, for puffer piston circuit interrupter.

110 Bridging contacts:

This subclass is indented under subclass 91. Subject matter including a set of contacts in which the moving contact touches two stationary contacts substantially simultaneously during operation of the circuit breaker.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 16 and 243 for bridging contact features.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.

- 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.
- 111 Explosion pot:**
This subclass is indented under subclass 91. Subject matter including a strong shell which totally encloses the arcing area at the contacts.
- 112 Oil poor breaker:**
This subclass is indented under subclass 91. Subject matter wherein the circuit breaker has an arc-enclosing switching chamber containing a quantity of oil sufficient for arc extinction by blast action, but much smaller than the quantity needed in conventional tank-type oil breakers.
- 113 Rotary contact:**
This subclass is indented under subclass 91. Subject matter including a substantially annular rotatable contact member that precludes the displacement of the insulating fluid in which they are disposed.
- 114 Pressure generating arc control means:**
This subclass is indented under subclass 91. Subject matter including an enclosure of insulating material within which the arc is drawn by the separating movement of the circuit breaker contacts, a relatively high-pressure being developed in the enclosure by the arc to cause a blast of deionizing fluid to be discharged through the arc path and out from the enclosure at one side thereof.
- 115 Plural series connected:**
This subclass is indented under subclass 114. Subject matter in which two or more pressure generating arc control means are connected end to end so that the same current flows throughout the circuit.
- 116 Puffer-piston:**
This subclass is indented under subclass 91. Subject matter including a movable contact, at least one other contact, a relatively movable piston, and cylinder whereby the movement of the contact to the open position causes the relative movement of the piston and cylinder to create a high pressure region which forces the flow of liquid through the separating contacts.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
57, for air-current blowout circuit interrupter.
- 117 Solid:**
This subclass is indented under subclass 89. Subject matter wherein the interposed non-conductor is composed of a matter having a definite shape and volume in which the motion of the molecules is restricted.
- 118 Vacuum:**
This subclass is indented under subclass 1. Subject matter wherein the contacts are enclosed in an evacuated housing.
- (1) Note. The housing may be referred to as a tube or bulb.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
10, for auxiliary shunt circuit interrupter.
42, for magnetic blowout circuit interrupter.
- 119 Polyphase:**
This subclass is indented under subclass 118. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.
- (1) Note. Devices which are known as bipole or double pole and which complete the circuit in each conductor of a direct current circuit will also be found here.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
9, for auxiliary shunt circuit interrupter.
44, for air-current blowout circuit interrupter.
58, for puffer piston circuit interrupter.
71, for sealed chamber circuit interrupter.
101, for liquid circuit interrupter.
152+, for general arc preventing devices.

120 Operating mechanism structure or arrangement:

This subclass is indented under subclass 119. Subject matter wherein details of the structure or arrangement of parts of the polyphase vacuum switch are included.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 7, for multiple break circuit interrupter.
- 14, for auxiliary shunt circuit interrupter with operating mechanism.
- 78, for sealed chamber circuit interrupter with operating mechanism.
- 84, for air-current blowout circuit interrupter with operating mechanism.
- 92, for liquid circuit interrupter with operating mechanism.
- 140, for vacuum circuit interrupter with operating mechanism.
- 153, for polyphase arc preventing device with operating mechanism.
- 154, for general arc preventing device with operating mechanism.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.

121 Single-pole:

This subclass is indented under subclass 118. Subject matter including a contact arrangement in which all contacts in the arrangement connect in one position or another to a common contact.

122 Pressure monitoring means:

This subclass is indented under subclass 121. Subject matter including means having a vacuum pressure detector element for supervising the exertion of force in the vacuum switch or detecting the loss of vacuum within the vacuum switch housing.

SEE OR SEARCH CLASS:

- 324, Electricity: Measuring and Testing, subclass 415, 424, and other appropriate subclasses for testing of electro-mechanical circuit breakers.

123 Contact structure:

This subclass is indented under subclass 121. Subject matter wherein structural details of an electrode which engages or disengages to open or close the circuit within the circuit interrupter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 16+, for auxiliary shunt circuit interrupter.
- 30+, for magnetic blowout circuit interrupter.
- 48+, for air-current blowout circuit interrupter.
- 65+, for puffer piston circuit interrupter.
- 74+, for sealed chamber circuit interrupter.
- 107+, for liquid circuit interrupter.
- 146+, for general arc preventing devices.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.

124 Movable:

This subclass is indented under subclass 121. Subject matter including a conducting member which supports a contact surface arranged for movement to and from the stationary contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 17+, for auxiliary shunt circuit interrupter.
- 50, for air-current blowout circuit interrupter.
- 108, for liquid circuit interrupter.

125 Fixed:

This subclass is indented under subclass 123. Subject matter including a conducting part having a contact surface which remains substantially stationary.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
49, for air-current blowout circuit interrupter.
- 126 Auxiliary:**
This subclass is indented under subclass 123. Subject matter including additional contacts located between the contacts of the main contact assembly.
- 127 Significant shape:**
This subclass is indented under subclass 123. Subject matter wherein significant configuration details of electrical contacts are included.
- 128 Slotted or grooved:**
This subclass is indented under subclass 127. Subject matter wherein the shape is an elongated depression or a narrow cut.
- 129 Coil:**
This subclass is indented under subclass 127. Subject matter wherein the electrode is wound into regularly spaced rings one above the other or one around the other.
- 130 Specific material:**
This subclass is indented under subclass 123. Subject matter including significant details of substances of which electrical connecting means is composed.
- 131 Getter:**
This subclass is indented under subclass 130. Subject matter including a substance introduced into the vacuum switch to increase the degree of vacuum by chemical or physical action on the residual gases generated by the arc.
- 132 Alloy:**
This subclass is indented under subclass 130. Subject matter wherein the substance composed of two or more metals, or of a metal or metals with a non metal, intimately mixed as by fusion, electrodeposition, etc.
- 133 Beryllium:**
This subclass is indented under subclass 123. Subject matter wherein the substance is a steel-gray, bivalent, hard, light, metallic element of the magnesium group atno. 4.
- 134 Housing structure:**
This subclass is indented under subclass 121. Subject matter including structural details of an envelope or casing used in the single-pole vacuum switch.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
97+, for details of liquid circuit interrupter.
134+, for details of single-phase vacuum circuit interrupter housing.
139, for details of vacuum circuit interrupter housing or tank.
155+, for details of housing of general arc preventing device.
- 135 Bellows:**
This subclass is indented under subclass 134. Subject matter including a folding, flexible, or collapsible header to maintain air-tightness of the vacuum switch housing.
- (1) Note. The bellows is usually mounted to the contact rod supporting the movable contact and to the housing. This flexible component allows the movable contact to reciprocate in contrast to Class 313 and Class 315 space discharge devices wherein the electrode assemblies are spaced and held fixed with respect to one another.
- 136 Shielding:**
This subclass is indented under subclass 134. Subject matter wherein the vacuum switch is provided with shielding means for preventing arc generated metallic vapor from condensing on the insulating housing of the switch or with means for electrostatically shielding the seal between the associated metal end cap and the insulating housing of the switch.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
77, for sealed chamber circuit interrupter.
147, for general electrical connecting means with arc shielding.
- 137 With support:**
This subclass is indented under subclass 136. Subject matter wherein the vacuum switch includes structural means to position the shielding means with respect to a cylindrical

- inner wall support of the vacuum switch housing to a base or structure.
- 138 Potted or encapsulated:**
This subclass is indented under subclass 134. Subject matter wherein in the space between the box or housing and the electrical switch contained therein is occupied by a solid or semi-solid mass of insulating material; or wherein the electrical switch is directly encapsulated in a mass of insulating material with such mass itself forming the housing.
- 139 Housing structure:**
This subclass is indented under subclass 118. Subject matter including specific structure details of a casing or an envelope for enclosing the vacuum switching elements.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
97+, for details of liquid circuit interrupter housing.
134+, for details of single-phase vacuum circuit interrupter housing.
155+, for details of housing of general arc preventing device.
- 140 Operating mechanism structure or arrangement:**
This subclass is indented under subclass 118. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly for vacuum circuit breaker.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
7, for multiple break circuit interrupter with operating mechanism.
14, for auxiliary shunt circuit interrupter with operating mechanism.
78, for sealed chamber circuit interrupter with operating mechanism.
84, for air-current blowout circuit interrupter with operating mechanism.
92, for liquid circuit interrupter with operating mechanism.
120, for polyphase vacuum circuit interrupter with operating mechanism.
153, for polyphase arc preventing device with operating mechanism.
154, for general arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.
- 141 With magnetic coil:**
This subclass is indented under subclass 118. Subject matter including a winding of an electromagnet disposed so as to develop an axial magnetic field for diffusing an arc.
- 142 Located inside housing:**
This subclass is indented under subclass 141. Subject matter wherein the magnetic coil is placed within the vacuum switch housing
- 143 Resistance inserting:**
This subclass is indented under subclass 1. Subject matter including a series circuit including an impedance means and an impedance contact assembly coupled in parallel with the main contact assembly.
- (1) Note. The impedance may be inserted into the circuit during the closing or opening operations.
- (2) Note. The resistance or impedance inserting means may be used in combination with any type of circuit interrupter assembly.
- 144 With capacitor:**
This subclass is indented under subclass 143. Subject matter including means having two conducting surfaces separated by an insulating or dielectric material.
- (1) Note. The capacitor may be used solely as the impedance means or in combination with another impedance means such as resistor, varistor, etc.
- 145 With capacitor:**
This subclass is indented under subclass 1. Subject matter including means having two conducting surfaces separated by an insulating or dielectric material.
- 146 Contact structure:**
This subclass is indented under subclass 1. Subject matter wherein structural details of an electrode which engages or disengages to open

or close the circuit within the circuit interrupter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 16+, for auxiliary shunt circuit interrupter.
- 30+, for magnetic blowout circuit interrupter.
- 48+, for air-current blowout circuit interrupter.
- 65+, for puffer piston circuit interrupter.
- 74+, for sealed chamber circuit interrupter.
- 107+, for liquid circuit interrupter.
- 123+, for single-phase vacuum circuit interrupter.
- 146+, for general arc preventing devices.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclasses 237 through 292 for switch contact features.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for feature of electrical switch contact.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for feature of electrical switch contact.

147 Arc shielding means:

This subclass is indented under subclass 146. Subject matter including means surrounding the contacts to provide an electrically insulating barrier between the contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 77, for sealed chamber circuit interrupter.
- 136+, for vacuum circuit interrupter.

148 Arc runner (e.g., arc horn):

This subclass is indented under subclass 1. Subject matter comprising a structural element connected to the stationary contact providing a path for movement of one end of the arc to a remote point where the arc is subsequently extinguished.

- (1) Note. Arc runner is sometimes referred to as arc horn.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 36, for arc chute of magnetic blowout circuit interrupter.
- 40, for magnetic blowout circuit interrupter.

149 Arc chute assembly:

This subclass is indented under subclass 1. Subject matter including a plurality of spaced apart plates to divide up an arc into smaller segments during extinguishment and, particularly, two metal plates which are coated with arc resistant insulating material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 15, for auxiliary shunt circuit interrupter.
- 34+, for magnetic blowout circuit interrupter.
- 81, for air-current blowout circuit interrupter.

150 Material:

This subclass is indented under subclass 149. Subject matter where significant details of the arc chute constituent are included.

151 Metal plates structure:

This subclass is indented under subclass 149. Subject matter including specific structural details of arc chute plates.

152 Polyphase:

This subclass is indented under subclass 1. Subject matter wherein the circuit breaker breaks two or more separate conducting paths for two or more phases of alternating current.

- (1) Note. Devices which are known as bipole or double pole and which complete the circuit in each conductor of a direct current circuit will also be found here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 9, for auxiliary shunt circuit interrupter.
- 44, for air-current blowout circuit interrupter.
- 58, for puffer piston circuit interrupter.
- 71, for sealed chamber circuit interrupter.
- 101, for liquid circuit interrupter.

- 119+, for vacuum circuit interrupter.
- 153 Operating mechanism structure or arrangement:**
This subclass is indented under subclass 152. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the polyphase arc preventing or extinguishing devices.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 7, for multiple break circuit interrupter with operating mechanism.
14, for auxiliary shunt circuit interrupter with operating mechanism.
78, for sealed chamber circuit interrupter with operating mechanism.
84, for air-current blowout circuit interrupter with operating mechanism.
92, for liquid circuit interrupter with operating mechanism.
120, for polyphase vacuum circuit interrupter with operating mechanism.
140, for vacuum circuit interrupter with operating mechanism.
154, for general arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.
- 154 Operating mechanism structure or arrangement:**
This subclass is indented under subclass 1. Subject matter including details of the structure or arrangement of parts that actuate the main contact assembly of the arc preventing or extinguishing devices.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 7, for multiple break circuit interrupter with operating mechanism.
14, for auxiliary shunt circuit interrupter with operating mechanism.
78, for sealed chamber circuit interrupter with operating mechanism.
84, for air-current blowout circuit interrupter with operating mechanism.
92, for liquid circuit interrupter with operating mechanism.
- 120, for polyphase vacuum circuit interrupter with operating mechanism.
140, for vacuum circuit interrupter with operating mechanism.
153, for polyphase arc preventing device with operating mechanism.
- SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 400 for spring charge mechanism.
- 155 Housing structure:**
This subclass is indented under subclass 1. Subject matter including structural details of an envelope or casing used for the arc preventing or extinguishing devices.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 97+, for details of liquid circuit interrupter housing.
134+, for details of single-phase vacuum circuit interrupter housing.
139, for details of vacuum circuit interrupter housing.
- 156 Arcing chamber:**
This subclass is indented under subclass 155. Subject matter including an enclosed compartment in which the arc is confined and brought into contact with gas evolving or other arc extinguishing material in a manner that results in the limitation of the voltage at the line terminal and the interruption of the arc.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 46+, for air-current blowout circuit interrupter.
76, for sealed chamber circuit interrupter.
103+, for arcing chamber in liquid circuit interrupter.
- 157 With venting means:**
This subclass is indented under subclass 156. Subject matter including means to release excess pressure occurring within the arc chamber.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
35, for magnetic blowout arc chute.

- 99, for liquid circuit interrupter housing or tank.
- 106, for liquid circuit interrupter arcing chamber.

SEE OR SEARCH CLASS:

- 200, Electricity: Circuit Makers and Breakers, subclass 306 for details of venting means in a switch housing

158 Arc extinguishing material:

This subclass is indented under subclass 156. Subject matter comprising a material which facilitates current interruption and extinguishment of an arc.

END