

**CLASS 138, PIPES AND TUBULAR CONDUITS****SECTION I - CLASS DEFINITION**

This class includes:

A. Tubular members of definite or indefinite length including wall structure of the tubular members, the end structure of the tubular members of definite length, if not elsewhere classifiable.

B. Fluid pressure compensators (e.g., accumulators or cushioning devices), flow regulators, or baffles not restricted by structure to use with any particular art.

C. Devices for thawing frozen fluid in pipes, for preventing the fluid in the pipes from freezing and for preventing the pipe from bursting if the fluid freezes.

D. Pipes with closures and plugs where tied with the structure of the pipe or limited by structure to use with a pipe.

E. Methods and apparatus for repairing pipes where not elsewhere classifiable.

**SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

For articles embracing a short length of a tube having some added feature which makes them into a shot shell, box, can or other article, the proper article class should be searched.

This class (138) includes conveyor pipes comprising the mere tube. If the device is an open chute, is more than a mere pipe, or is otherwise limited to use as a conveyor, it is classified elsewhere. See References to Other Classes below for the conveyor classes.

For tubular textile fabric for use in making hose, see Class 66, Textiles: Knitting, subclasses 169+; Class 87, Textiles: Braiding, Netting, and Lace Making, subclasses 6 and 9; Class 57, Textiles: Spinning, Twisting, and Twining, appropriate subclasses; and Class 139, Textiles: Weaving, subclasses 387+.

For pipe joints and couplings, see Class 285, Pipe Joints or Couplings. The combination of pipe wall structure and a coupling is classified in Class 285.

Methods of, and apparatus for, manufacturing tubes are not classifiable in this class but are found in the various

manufacturing classes. See References to Other Classes below.

**SECTION III - REFERENCES TO OTHER CLASSES****SEE OR SEARCH CLASS:**

- 15, Brushing, Scrubbing, and General Cleaning, subclasses 104.03+ for pipe cleaning.
- 29, Metal Working, subclasses 890.03+ for processes of making metal tubes, subclasses 700+ for apparatus for applying tubes to and removing tubes from the device with which they are associated, subclass 435 for processes of making flexible tubing, subclass 455.1 for processes of making tubular elements having concentric walls spaced from each other. See subclasses 700+ for a residual apparatus not elsewhere classified which assembles component parts into a tube by means other than welding them.
- 37, Excavating, subclasses 335+ for pipe supports and couplings for dredgers.
- 52, Static Structures (e.g., Buildings), appropriate subclasses for buildings with internal passages or conduits or hollow structures which are more than a mere tubular structure capable of use as a pipe or conduit and see the reference to Class 138 in the class definition of Class 52.
- 52, Static Structures (e.g., Buildings), subclasses 11 through 16 for a roof with an eave or valley gutter, subclasses 220.1-220.8 for a service duct within a building barrier, subclasses 245-249 for buildings with a curved barrier, subclasses 716.1-717.06 for an in situ attached-type channel or trim strip, and subclasses 843-845 for load-bearing members forming a hollow column or beam.
- 57, Textiles: Spinning, Twisting, and Twining, (See Lines With Other Classes and Within This Class, above).
- 65, Glass Manufacturing, appropriate subclasses for a process of, or apparatus for making, reshaping or treating glass tubular stock.
- 66, Textiles: Knitting, subclasses 169+ (See Lines With Other Classes and Within This Class, above).
- 72, Metal Deforming, particularly subclasses 367.1+ for a method or a means for making a metal tube by plastically deforming the metal.
- 83, Cutting, appropriate subclasses and particularly subclasses 54 and 178+ for tube punching methods and apparatus.

- 87, Textiles: Braiding, Netting, and Lace Making, subclasses 6 and 9 (See, above).
- 110, Furnaces, subclass 184 for furnace smokestacks.
- 114, Ships, subclass 187 for ship's smokestacks.
- 122, Liquid Heaters and Vaporizers, subclass 511 for tubes and connections limited by structure to use with liquid vaporizers.
- 126, Stoves and Furnaces, subclasses 307+ for pipes limited by structure to use as stove pipes.
- 137, Fluid Handling, appropriate subclasses for pipes and conduits combined with other fluid handling features, and subclasses 317+ for apparatus and processes for tapping pressurized containers or mains.
- 139, Textiles: Weaving, subclass 387. (Also see Lines With Other Classes and Within This Class and Within This Class, above).
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for methods and apparatus for manufacturing pipes and tubular conduits by a laminating operation.
- 165, Heat Exchange, subclasses 177+ for a tube limited by structure to heat exchange.
- 166, Wells, subclasses 75.11+ for well heads or closures having some fluid handling feature, subclass 91.1 for well head structure with flow resistors, subclasses 192+ and subclass there noted for plugs inserted into a prepositioned well conduit, and subclasses 242.1+ for conduit wall structure specialized to use in wells.
- 174, Electricity: Conductors and Insulators, particularly subclasses 8+ and 68.1+ for conduits limited to electrical use. Conduits disclosed for electrical use even though the tube is made of or lined with insulating material, unless there are claimed features in addition to the conduit structure which limit the same to electrical use, such as junction boxes, the contained electrical conductors, grounds, etc., are in this Class (138).
- 181, Acoustics, appropriate subclasses for speaking-tubes, mufflers, and sound filters.
- 193, Conveyors, Chutes, Skids, Guides, and Ways, also see Lines With Other Classes above.
- 198, Conveyors: Power-Driven, also see Lines With Other Classes and Within This Class, above.
- 219, Electric Heating, subclasses 59.1+ for methods of an apparatus for welding tubes, which involve significant electric heating.
- 220, Receptacles, subclasses 200+ for pipes with closures and plugs when not tied with the structure of the pipe or not limited by structure to use with a pipe.
- 222, Dispensing, particularly subclasses 92+ for containers having collapsible walls of a particular character. Structures disclosed as dispensing containers and having collapsible walls are classified in Class 222, collapsibility, per se, being a dispensing feature. On the other hand, mere tubular collapsible members not disclosed or claimed as containers or receptacles are classified in this class (138).
- 228, Metal Fusion Bonding, subclasses 126+ for the process of encasing a rod or tube with a separate tube or sheath and bonding the parts together.
- 229, Envelopes, Wrappers, and Paperboard Boxes, subclass 4.5 for a cylindrical paperboard container having an open end, and subclass 93 for a paperboard tube intended for mailing drawings or similar articles, which tube may have an open end or ends.
- 239, Fluid Sprinkling, Spraying, and Diffusing, subclass 33 for portable drinking tubes and straws; subclass 145 for porous hose or pipe; and subclasses 266+ for sprinkler pipes.
- 248, Supports, subclasses 49+ for pipe supports.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for processes within the class definition, for molding and shaping plastic substances.
- 285, Pipe Joints or Couplings, see Lines With Other Classes and Within This Class, above.
- 291, Track Sanders, subclasses 41+ for sand delivery pipes for track sanders limited by structure to that use.
- 333, Wave Transmission Lines and Networks, subclasses 239+ for wave guides which claim significant wave propagation characteristics, and subclasses 1+ for plural channel systems of such guides.
- 404, Road Structure, Process, or Apparatus, subclasses 2+ for road drain or gutter structure.
- 405, Hydraulic and Earth Engineering, subclasses 43+ for porous or apertured pipes, flumes, or tile ways for drainage or irrigation; subclasses 119+ for a flume or attachment; and subclasses 124+ for culverts.
- 406, Conveyors: Fluid Current, subclasses 191+ for conveyor conduits. Also see Lines With Other Classes and Within This Class, above.

- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, appropriate subclasses for apparatus for shaping or reshaping nonmetallic pipe, especially subclasses 131+ for extrusion shaping means fed from plural sources to form a composite pipe; subclass 380 for an extrusion shaping apparatus; subclasses 392+ for a tubular preform reshaping means; and subclass 414 for a plunger-mold press shaping apparatus including means to insert or remove a core.
- 427, Coating Processes, appropriate subclasses for coating processes of general application and note especially subclasses 230+ for coating the interior of hollow articles.
- 428, Stock Material or Miscellaneous Articles, appropriate subclasses for a stock material product in the form of a single or plural layer web or sheet; subclass 586 for a metallic workpiece for making tubular stock, which has a longitudinal passageway or stop weld material; and subclass 598 for metallic stock material having a T- or X-type cross section.
- 454, Ventilation, subclasses 1+ for ventilating chimneys.
- 473, Games Using Tangible Projectile, subclasses 316+ for tubular golf club shafts.
- 493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, subclasses 269+ for making a tube from a non-metal sheet or web.

#### SUBCLASSES

- 26 WITH PRESSURE COMPENSATORS:**  
This subclass is indented under the class definition. Devices in the pipe line, attached thereto, or adapted to be attached thereto, for allowing expansion of the conducted fluid upon change in temperature, for receiving and delivering energy from and to the conducted fluid to maintain a more nearly constant pressure of the fluid and for dampening pulsations in pressure caused by a quick-shutoff of flow or by the nonuniform action of a pump.
- SEE OR SEARCH CLASS:  
73, Measuring and Testing, subclass 277 for such devices tied up with the structure of a water meter or its casing, and subclasses 700+ where tied up with pressure gauges.

- 181, Acoustics, subclasses 212+ for similar structures in mufflers and sound filters.
- 417, Pumps, subclasses 540+ for such devices in combination with a significantly claimed pump.

#### **27 Freeze protecting:**

This subclass is indented under subclass 26. Devices intended to prevent the bursting of the pipe when the fluid therein freezes by providing an air pocket or other chamber into which the fluid can flow when it expands.

#### SEE OR SEARCH CLASS:

- 123, Internal-Combustion Engines, subclass 41.5 for similar devices tied up with the structure of an internal combustion engine cooling system.
- 137, Fluid Handling, subclasses 59+ for fluid handling system including safety devices responsive to freeze conditions, subclasses 301+ for hydrants having means for preventing freezing, subclasses 334+ for fluid handling devices including heating means to prevent freezing, subclass 375 for jacketed or insulated fluid handling apparatus, and subclass 593 for fluid distribution systems provided with expansion chambers.

#### **28 Expansible or compressible tube element:**

This subclass is indented under subclass 27. Devices in which the tube itself or a part thereof is expansible or an element in the tube is compressible to allow for the expansion of the fluid when it freezes.

#### **30 Variable capacity chambers:**

This subclass is indented under subclass 26. Devices in the form of a chamber whose capacity is variable usually by means of a flexible diaphragm or sliding plunger.

#### SEE OR SEARCH CLASS:

- 239, Fluid Sprinkling, Spraying, and Diffusing, subclasses 89 and 96 for accumulator chambers which store fluid under pressure for subsequent delivery to a nozzle.

- 31 Piston or plunger type:**  
This subclass is indented under subclass 30. Devices in which the chamber is of variable capacity by reason of a slidable piston or plunger.
- 32 THAWING AND FREEZE PROTECTION:**  
This subclass is indented under the class definition. Devices for thawing the frozen fluid in pipes or pipes having means for preventing the fluid from freezing or for preventing the bursting of the pipe when the fluid freezes.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
27+, where the device allows for the expansion of the fluid.
- SEE OR SEARCH CLASS:  
73, Measuring and Testing, subclass 277 for similar devices tied up with the structure of a water meter or its casing.  
123, Internal-Combustion Engines, subclass 41.5 for similar devices tied up with the structure of an internal combustion engine cooling system.  
137, Fluid Handling, subclasses 59+ for fluid handling systems including safety devices responsive to freeze conditions, subclass 107 for drain or waste valves responsive to the stopping of the main line flow, subclasses 301+ for hydrants having means for preventing freezing, subclasses 334+ for fluid handling devices including heating means to prevent freezing, subclass 375 for jacketed or insulated fluid handling apparatus, and subclass 596 for stop and waste devices.  
165, Heat Exchange, subclass 134.1 for a heat exchanger with a protector.  
237, Heating Systems, subclass 80 for similar devices tied up with a heating system.
- 33 Electric:**  
This subclass is indented under subclass 32. Devices which are in the form of an electric heater.
- SEE OR SEARCH CLASS:  
219, Electric Heating, subclass 535 for the electric heaters, per se, adapted for use in thawing pipes.
- 34 Anti-freeze substance:**  
This subclass is indented under subclass 32. Devices which have means for putting an anti-freeze substance into the fluid in the pipe.
- SEE OR SEARCH CLASS:  
48, Gas: Heating and Illuminating, subclass 190 for the addition of combustible, antifreeze solutions to gaseous fuels.  
252, Compositions, appropriate subclasses for antifreeze compounds.
- 35 Portable thawing apparatus:**  
This subclass is indented under subclass 32. Thawing apparatus which is portable and not elsewhere classifiable as a stove or heater.
- 36 WITH WEAR INDICATOR:**  
This subclass is indented under the class definition. Pipes having means whereby they will be caused to leak when worn so as to need replacing and other wear indicating means.
- 37 WITH FLOW REGULATORS AND/OR BAFFLES:**  
This subclass is indented under the class definition. Pipes or pipe fittings having baffles or other means for changing the direction or rate of flow of fluid in the pipe or for governing the degree of turbulence of the flowing fluid.
- SEE OR SEARCH CLASS:  
48, Gas: Heating and Illuminating, subclasses 180+ for conduits having mixing means for fuel gases.  
110, Furnaces, subclasses 324+ for baffles or heat retainers structurally defined for engaging pipe structure.  
137, Fluid Handling, appropriate subclasses for processes and apparatus having means for controlling the flow of fluid therein and multiple valves, per se, particularly subclasses 98+ for baffles employed for securing self-proportioning flow, subclass 505+ for pressure regulators where the regulation is varied by the pressure in the

pipe, subclass 574 for baffles employed to form plural compartments for serial flow, and subclasses 610+ for deflectors forming a flow control device at the junction of a plurality of flow passages.

- 181, Acoustics, subclasses 212+ for similar structures in mufflers and sound filters.
- 251, Valves and Valve Actuation, appropriate subclasses for valves where the flow may be shut off, particularly subclasses 118+ (and the search notes thereto) for other fluid handling devices with baffles or other material guide structure.
- 406, Conveyors: Fluid Current, subclass 92 for conduit having means to create whirling motion in a conveying fluid current; subclasses 155+ for proportional flow distributors; and subclasses 191+ for a conduit having a flow regulator or baffle therein, and some structural feature peculiar to the conveying of solids in a fluid current.

### 38 Heat transfer:

This subclass is indented under subclass 37. Pipes in which the baffle or other means is designed to facilitate a transfer of heat between fluids inside and outside of the pipe.

#### SEE OR SEARCH CLASS:

- 165, Heat Exchange, subclasses 177+ for a pipe or tubular conduit limited by structure on its exterior for use as a heat exchanger, particularly subclass 181+ for such an element with exterior fins.

### 39 Flow facilitating:

This subclass is indented under subclass 37. Pipes in which the baffles or other means are designed to facilitate the flow of fluid in the pipe.

### 40 Restrictors:

This subclass is indented under subclass 37. Pipes in which the means restricts the flow in the pipe, but does not cut off entirely.

- (1) Note. This subclass and the indented subclasses include some devices disclosed for the purpose of forming a mix-

ture or emulsion of a plurality of fluids but in which the claims are limited to the structure of the conduit and the flow restrictor. See the Search Class Notes below.

#### SEE OR SEARCH CLASS:

- 62, Refrigeration, subclasses 511 and 527+ for restrictors tied up with a refrigerating system.
- 73, Measuring and Testing, subclass 707 for restrictors for protecting gages and claimed in combination therewith or otherwise tied up with the gage structure, and subclasses 861.42+ where the restrictor is tied up with connections to a flow meter.
- 99, Foods and Beverages: Apparatus, appropriate subclasses for apparatus other than a mere mixer, for treating foods and beverages and not elsewhere provided for. See the (1) Note above.
- 166, Wells, subclass 91.1 for well head apparatus with chokes or beans.
- 184, Lubrication, subclasses 6+ and subclass 52 for restrictors tied up with a lubricating system.
- 210, Liquid Purification or Separation, subclass 118 for the combination of a separator and a variable restrictor responsive to a condition, subclasses 418+ for a filter and flow controller combination, and subclasses 435+ for strainers in pipes which incidentally restrict.
- 241, Solid Material Comminution or Disintegration, appropriate subclasses for apparatus for forming suspensions of solids in liquids. See the (1) Note above.
- 366, Agitating, subclasses 336+ for mixing devices having features additional to merely a conduit and flow restrictor for effecting agitation in a liquid flowing therethrough, and subclasses 176.1+ for a similar device including force applying feed means to effect emulsification. See the (1) Note above.
- 516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes

of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for colloid systems of liquid continuous phase (e.g., emulsions, suspensions, dispersions, foams) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

**41 With screen:**

This subclass is indented under subclass 40. Pipes which have a screen in the line of flow in addition to the restrictor.

**42 Tortuous path:**

This subclass is indented under subclass 40. Devices in which the path of flow of the fluid is tortuous.

**43 Variable restriction:**

This subclass is indented under subclass 42. Devices wherein the device is adjustable to vary the restriction.

**44 Central path:**

This subclass is indented under subclass 40. Devices in which the path of flow of the fluid is centrally of the tube.

**45 Variable restriction:**

This subclass is indented under subclass 44. Devices wherein the restrictor is adjustable to vary the restriction.

SEE OR SEARCH CLASS:

239, Fluid Sprinkling, Spraying, and Diffusing, subclasses 408+ and 451+ for spray nozzles having adjustable restrictions.

396, Photography, subclass 64 for camera diaphragms.

**46 Variable restriction:**

This subclass is indented under subclass 40. Devices in which the restrictor is adjustable to vary the restriction.

**89 WITH CLOSURES AND PLUGS:**

This subclass is indented under the class definition. Subject matter relating to pipes or pipe fittings having closures or plugs, or closures

and plugs limited by structure to use with pipes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

98+, for patches.

SEE OR SEARCH CLASS:

4, Baths, Closets, Sinks, and Spittoons, subclasses 286+ for bath, closet, and sink closures.

89, Ordnance, subclass 31 for plugs or other devices for closing the gun-muzzle or other opening in the barrel of a gun.

122, Liquid Heaters and Vaporizers, subclasses 360+ for closures and couplings for water tube boilers.

137, Fluid Handling, subclasses 247.11+ for liquid seals including access openings and closures therefor, especially subclasses 247.47 and 247.51.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 294 and 423 for processes and apparatus for inserting a core within a tube in combination with a laminating step.

166, Wells, subclasses 75.11+ for well head closures having some fluid handling feature and subclasses 192+ and the subclasses there noted for plugs inserted into a prepositioned well conduit.

174, Electricity: Conductors and Insulators, subclasses 20, 22, and 23 for fluid stops associated with electrical conduits, cables, end structures or joints.

202, Distillation: Apparatus, subclasses 242+ for closures for distillation apparatus.

215, Bottles and Jars, subclasses 37+ for closures for bottles and jars.

217, Wooden Receptacles, subclasses 56+, 76+, and 98+ for closures for wooden receptacles.

220, Receptacles, subclasses 200+ for closures and plugs having a more general use.

285, Pipe Joints or Couplings, subclass 126.1 for couplings having an access opening with closure means.

- 405, Hydraulic and Earth Engineering, subclass 42 for an end closure for irrigation or drainage conduit.
- 89.1 Air and dust cap:**  
This subclass is indented under the unnumbered subclass Inflation stem type. Closures for pipes of the inflation stem type comprising an air cap which closes the end of the pipe and a dust cap which shrouds the air cap and a portion of the pipe.
- SEE OR SEARCH CLASS:  
137, Fluid Handling, subclasses 232+ for inflation stems combined with cap or closure for protecting and/or sealing the end thereof.  
152, Resilient Tires and Wheels, subclass 428 for one or both of the caps combined with the inflation stem and the attachment to the wheel, rim, felly, or tire.
- 89.2 Combined:**  
This subclass is indented under subclass 89.1. Closures in which the air cap and dust cap are combined in one structure.
- 89.3 Air cap:**  
This subclass is indented under the unnumbered subclass Inflation stem type. Closures for pipes of the inflation stem type comprising air caps.
- SEE OR SEARCH CLASS:  
152, Resilient Tires and Wheels, subclass 431 for combined caps and deflating tools.
- 89.4 Dust cap:**  
This subclass is indented under the unnumbered subclass Inflation stem type. Closures for pipes of the inflation stem type comprising dust caps.
- 90 Test plugs:**  
This subclass is indented under subclass 89. Plugs for pipes having provisions whereby a fluid may be introduced into the pipe through the plug or for the attachment of a gauge for the purpose of testing the pipe for leaks.
- 91 Double end:**  
This subclass is indented under subclass 89. Plugs for pipes wherein both ends of the pipe are plugged by connected plugs.
- 92 Lateral opening:**  
This subclass is indented under subclass 89. Closures and plugs designed to close an opening in the side of a pipe.
- 93 Inflatable:**  
This subclass is indented under subclass 89. Plugs for pipes having an inflatable member to seal against inside of the pipe opening.
- 94 Laterally insertable:**  
This subclass is indented under subclass 89. Closures and plugs for the inside opening of a pipe which are insertable through a lateral opening in the pipe.
- 94.3 Line blinds:**  
This subclass is indented under subclass 94. Closures of the type generally known as "line blinds" which are of platelike form.
- (1) Note. These devices differ from valves in that they have no surrounding housing to prevent leakage of fluid when the closure and seat are moved relative to each other.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
44+, for line blinds combined with flow restrictors.
- SEE OR SEARCH CLASS:  
251, Valves and Valve Actuation, subclasses 167+, 193+, and 326+ for reciprocating gate valves, and see (1) Note above.
- 94.5 Pivoted:**  
This subclass is indented under subclass 94.3. Closures in which the plates are pivoted.
- SEE OR SEARCH CLASS:  
251, Valves and Valve Actuation, subclasses 177+ and 301+ for pivoted gate valves.

- 95 Return bend type:**  
This subclass is indented under subclass 89. Closures and plugs specially designed to be used with a return bend fitting.
- SEE OR SEARCH CLASS:  
122, Liquid Heaters and Vaporizers, subclass 360 for return bend fittings, for boilers combined with the connection to the tubes and the closures.  
285, Pipe Joints or Couplings, subclasses 135.1+ for return bend fittings.
- 96 END PROTECTORS:**  
This subclass is indented under the class definition. Devices for protecting the ends of pipes, usually threaded, from damage when not in use while being shipped or handled.
- SEE OR SEARCH CLASS:  
16, Miscellaneous Hardware, subclasses 2.1+ and 108+ for thimbles.
- 97 REPAIRING:**  
This subclass is indented under the class definition. Processes and apparatus for repairing leaks in pipes and hose and not otherwise classifiable.
- SEE OR SEARCH CLASS:  
81, Tools, subclasses 15.2+ for tire repairing tools.  
137, Fluid Handling, subclasses 15.08 through 15.17 for a process of securing, replacing, or servicing a pipe, joint, valve, or tank; or subclasses 315.01-329.4 for a fluid handling system with repair, tapping, assembly, or disassembly means.  
249, Static Molds, subclasses 83+, particularly subclass 90 for molds for repairing leaks in pipes.  
405, Hydraulic and Earth Engineering, subclass 154.1 for a process or apparatus of subterranean or submarine pipe or cable laying, retrieving, manipulating, or treating; subclass 184.1 for repairing, replacing, or improving a pipe or cable while in a subterranean or submarine location; and subclass 188 for an apparatus or method for enabling personnel to work on a section of submerged pipe-line.
- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclasses 11+ for a product or preform repair or restoring means comprising a molding apparatus for shaping or reshaping nonmetals.
- 98 Patches:**  
This subclass is indented under subclass 97. Subject matter relating to patches for leaky pipes or hose.
- SEE OR SEARCH CLASS:  
114, Ships, subclasses 227+ for leak stoppers for ships.  
152, Resilient Tires and Wheels, subclasses 367+ for pneumatic tire patches.  
220, Receptacles, subclasses 243+ for patches for metal pipe which are inserted through an opening in the pipe wall and having clamp members gripping the wall between them.
- 99 External:**  
This subclass is indented under subclass 98. Patches which are applied externally of the pipe and usually have a clamp band encircling the pipe.
- 100 BREAKJOINT:**  
This subclass is indented under the class definition. Subject matter wherein joints transverse to the length of the pipe are staggered or in break-joint relation to other joints in the pipe wall make-up which are also transverse to the length of said pipe.
- SEE OR SEARCH CLASS:  
52, Static Structures (e.g., Buildings), subclasses 245+ for in-site erected type tubular structures of longitudinally juxtaposed modules.
- 101 Distinct layers:**  
This subclass is indented under subclass 100. Device wherein the pipe wall comprises more than one layer, one layer having transverse joints that break joint relative to transverse joints of another layer.

- 102 With base:**  
This subclass is indented under subclass 100. Device wherein the pipe comprises base sections, joined to adjacent base sections, the joints of said sections being staggered in relation to joints of other sections which make up the pipe wall or parts thereof.
- 103 COMBINED:**  
This subclass is indented under the class definition. Subject matter comprising structure in addition to or combined with the wall structure of the pipe or tube.
- SEE OR SEARCH CLASS:  
174, Electricity: Conductors and Insulators, subclass 47 for the combination of a fluid conduit and an electrical conductor.
- 104 With indicating means:**  
This subclass is indented under subclass 103. Device including indicating means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
36, for a wear indicator.
- 105 With trench:**  
This subclass is indented under subclass 103. Device including a trench in which the pipe lies or is received.
- 106 With external support structure:**  
This subclass is indented under subclass 103. Device including means externally of the pipe for supporting same.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
111+, for one pipe supported within another pipe or a casing, by a means external of said one pipe so as to form plural ducts.
- SEE OR SEARCH CLASS:  
248, Supports, subclasses 80+ for a stand for supporting pipe.
- 107 Suspended:**  
This subclass is indented under subclass 106. Device wherein the pipe is suspended by the supporting means.
- SEE OR SEARCH CLASS:  
248, Supports, subclasses 58+ and 65+ for a suspended support for pipe.
- 108 With means to support disparate element therein:**  
This subclass is indented under subclass 103. Device including means in the pipe to support a disparate element therein; which, per se, is subject matter for other classification.
- 109 With end structure:**  
This subclass is indented under subclass 103. Device having structure at an end portion thereof which is not elsewhere classifiable.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
89+, for a pipe with a closure.
- SEE OR SEARCH CLASS:  
220, Receptacles, subclasses 600+ for a pipe having at least one closed end.
- 110 With hose protector:**  
This subclass is indented under subclass 103. Device including structure for protecting a pipe from kinking, being bent too abruptly, or from wear due to its coming in contact with other objects.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
96, for an end protector.
- 111 PLURAL DUCT:**  
This subclass is indented under the class definition. Device having a plurality of unconnected passageways extending completely through the pipe.
- 112 With spacer and encircling element:**  
This subclass is indented under subclass 111. Device supported by spacer elements and having a duct encircling member which is not fully coextensive with said duct.
- 113 Surrounding radially spaced duct with axially spaced supports for internal duct:**  
This subclass is indented under subclass 111. Device wherein an inner duct is surrounded by a coextensive duct and radially spaced there-

- from by a plurality of axially spaced support members.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
108, for a duct having means therein to support an element which, per se, is subject matter for other classification.
- 114 Coaxial:**  
This subclass is indented under subclass 111. Device wherein one duct lies coaxially within another duct.
- 115 Longitudinally extending common wall:**  
This subclass is indented under subclass 111. Device having a longitudinally extending element therein which constitutes a common wall for more than one passageway.
- 116 Distinct:**  
This subclass is indented under subclass 115. Device wherein the element is separable from the duct.
- 117 Complementary sections:**  
This subclass is indented under subclass 115. Device comprising complementary sections, at least one of the sections having the common wall integral therewith.
- 118 FLEXIBLE:**  
This subclass is indented under the class definition. Device wherein the pipe wall is readily moved transversely of its longitudinal axis.
- 118.1 Casing:**  
This subclass is indented under subclass 118. Device in the form of a casing.
- SEE OR SEARCH CLASS:  
206, Special Receptacle or Package, subclass 802 for a Cross-Reference Art Collection of shirred casings.  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses, especially subclass 183+ for processes of making artificial, nonedible casings.  
425, Plastic Article or Earthenware Shaping or Treating: Apparatus, appropriate subclasses for apparatus for forming artificial nonedible casings.
- 426, Food or Edible Material: Processes, Compositions, and Products, subclasses 138+ for edible casing or container and subclasses 276+ for processes of making edible casings.
- 428, Stock Material or Miscellaneous Articles, subclasses 35 and 36 for an inedible food casing having a closed end.
- 452, Butchering, subclasses 21+ for a method or apparatus for shirring a casing.
- 119 With means for facilitating collapse:**  
This subclass is indented under subclass 118. Device having a crease or other means in the pipe wall for facilitating collapsing of the pipe.
- 120 Joined sections:**  
This subclass is indented under subclass 118. Device wherein the tube wall is made up of jointed, short and tubular, relatively movable sections.
- SEE OR SEARCH CLASS:  
59, Chain, Staple, and Horseshoe Making, subclass 78.1 for a pipe in which the sections constitute chain links.  
285, Pipe Joints or Couplings, subclasses 144.1+ for movable joints.
- 121 Corrugated:**  
This subclass is indented under subclass 118. Device having folds or corrugations in the wall thereof.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclasses 174+ for a single or plural layer stock material product embodying a nonplanar (e.g., corrugated or pleated) component.
- 122 Spirally:**  
This subclass is indented under subclass 121. Device wherein the folds are found in the shape of a spiral or helix.
- 123 Braided, interlaced, knitted or woven:**  
This subclass is indented under subclass 118. Device comprising braided, interlaced, knitted or woven material.

## SEE OR SEARCH CLASS:

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 148+ and 393 for processes and apparatus for forming tubes, etc., by laminating in combination with a braiding step.
- 428, Stock Material or Miscellaneous Articles, subclasses 175+, 190, 193, and 196+ for a single or plural layer stock material product embodying a component having mechanically interengaged strands or strand-portions (e.g., woven, knitted).
- 442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 59+ for a coated or impregnated fabric, subclasses 181+ for a woven fabric, and subclasses 304+ for a knit fabric.

**124 Distinct layers:**

This subclass is indented under subclass 123. Device wherein there is more than one layer in the pipe wall make-up.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 101, for distinct layer break-joint pipe.

**125 Plastic:**

This subclass is indented under subclass 124. Device wherein at least one of said layers includes a plastic material.

**126 Rubber:**

This subclass is indented under subclass 125. Device wherein said material is rubber.

**127 With metal:**

This subclass is indented under subclass 126. Device including metal.

**128 Longitudinally seamed:**

This subclass is indented under subclass 118. Device having a longitudinally extending seam therein.

## SEE OR SEARCH CLASS:

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 203 and 466 for forming tubes, etc., by longitudinally bending

a web to form a tube and laminating the edges.

**129 Spirally wound material:**

This subclass is indented under subclass 118. Device wherein at least one spirally wound layer constitutes the wall structure or a part thereof.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 122, for spirally corrugated flexible pipe.

## SEE OR SEARCH CLASS:

- 57, Textiles: Spinning, Twisting, and Twining, subclasses 207 and 210+ for a strand comprising a core with a spirally wound constituent.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for apparatus and processes for forming tubes, etc., by a laminating operation and see especially subclasses 169+, 184+ and 425+ for forming tubes etc., by a winding operation. See also subclasses 143+ for processes of reinforcing a flexible tube with a helical wire coil or wire rings.

**130 Oppositely wound:**

This subclass is indented under subclass 129. Device wherein there are plural layers of material spirally wound in opposite directions.

**131 Metal core:**

This subclass is indented under subclass 129. Device wherein the spirally wound material constitutes a metallic core or innermost part of the pipe wall.

**132 Embedded:**

This subclass is indented under subclass 129. Device which is embedded in the pipe wall or enclosed between two or more layers of the pipe.

**133 Metal:**

This subclass is indented under subclass 132. Device comprising metal.

**134 Metal:**

This subclass is indented under subclass 129. Device comprising metal.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 127, for distinct layer with metal.  
 131, for a metal core.  
 133, for embedded metal.
- 135 With interlocked or clamped edge:**  
 This subclass is indented under subclass 134. Device wherein a spiral edge is interlocked with an adjacent spiral edge.
- 136 Packed or sealed:**  
 This subclass is indented under subclass 135. Device having a packing or sealing material between the interlocked or clamped edges.
- 137 Distinct layers:**  
 This subclass is indented under subclass 118. Device wherein the pipe wall is made up of more than one layer.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 101, for distinct layer pipe wherein at least one of the layers is braided, interlaced, knitted or woven.
- SEE OR SEARCH CLASS:  
 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for processes and apparatus for forming tubes, etc., with distinct layers by a laminating operation.  
 428, Stock Material or Miscellaneous Articles, appropriate subclasses for a stock material product in the form of a single or plural layer web or sheet, and especially subclasses 457+ for a nonstructural plural layer web or sheet including at least one layer of metal.
- 138 With intermediate metal element:**  
 This subclass is indented under subclass 137. Device having a metallic element embedded in one of the layers or positioned between at least two layers.
- 139 Metal liner:**  
 This subclass is indented under subclass 137. Device wherein at least one of the distinct layers is a metal liner.
- (1) Note. The liner includes a metal sleeve or axially spaced metal elements.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 127, for a metal liner in distinct layer braided, interlaced, knitted or woven pipe.  
 131, for a spirally wound metal core.  
 134+, for a spirally wound metal liner.
- 140 DISTINCT LAYERS:**  
 This subclass is indented under the class definition. Device having more than one layer in the pipe wall make-up.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 101, for distinct layer pipe wherein the transverse joint of one layer breaks joint with the transverse joint of another layer.  
 124+, for a distinct layer pipe wherein at least one layer is braided, interlaced, knitted or woven.  
 137+, for a flexible distinct layer pipe.
- SEE OR SEARCH CLASS:  
 428, Stock Material or Miscellaneous Articles, appropriate subclasses for a stock material product including a coating, impregnation or bonded preformed layer, especially subclasses 411+ and 615+ for nonmetallic and metallic composites, respectively, defined in terms of the composition of their components.
- 141 Bonded to each other:**  
 This subclass is indented under subclass 140. Device wherein at least two contacting layers are bonded to each other, by an intermediate layer.
- 142 Brazed, soldered or welded:**  
 This subclass is indented under subclass 141. Device wherein the bonding means is a braze, solder or weld.
- 143 Metal:**  
 This subclass is indented under subclass 141. Device wherein at least one of the contacting layers is metal.

**144 Spirally wound layer:**

This subclass is indented under subclass 141. Device wherein at least one layer is spirally wound.

**SEE OR SEARCH CLASS:**

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 169+, 184+, and 425+ for processes and apparatus for forming tubes, etc., by a winding operation in combination with a laminating step.

**145 Coated:**

This subclass is indented under subclass 140. Device wherein the pipe has one or more layers of material deposited thereon.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

127, for flexible distinct layer pipe including metal.  
134, for flexible, spirally wound, metal pipe.

**SEE OR SEARCH CLASS:**

106, Compositions: Coating or Plastic, appropriate subclasses for plastic coating composition.  
148, Metal Treatment, subclasses 400+ for a nominal pipe made of metallic stock material appropriate to that subclass, e.g., heat reheated, etc.  
420, Alloys or Metallic Compositions, appropriate subclasses for a nominal pipe claimed in terms of the alloy or metallic composition from which it is made.

**146 Diverse coating material:**

This subclass is indented under subclass 145. Device wherein at least one coated layer is of a material different from the material of another coated layer.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

129+, for flexible pipe spirally wound.

**147 With mechanical means to hold layers in contact:**

This subclass is indented under subclass 140. Device wherein mechanical means, such as clips, clamps, bolts, rivets, etc., are used to hold one layer within or on another layer.

**SEE OR SEARCH CLASS:**

428, Stock Material or Miscellaneous Articles, subclass 594 for composite metallic stock having plural layers discontinuously bonded, e.g., by spot welds or mechanical fasteners.

**148 Spaced:**

This subclass is indented under subclass 140. Device wherein at least one layer is spaced from an adjacent layer to form an enclosing chamber therearound.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

113, for radially spaced plural ducts.

**149 With intermediate insulation layer:**

This subclass is indented under subclass 140. Device wherein there is an intermediate layer of insulation material.

**150 With spiral seam:**

This subclass is indented under subclass 140. Device wherein at least one layer has a spiral seam therein.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

129+, for spirally seamed flexible pipe.  
144, for a spirally seamed, bonded, plural layer pipe.

**151 With longitudinal seam:**

This subclass is indented under subclass 140. Device wherein at least one layer has a longitudinally extending seam therein.

**SEE OR SEARCH THIS CLASS, SUBCLASS:**

128, for longitudinally seamed flexible pipe.

- 152 Material of one layer passing through seam:**  
This subclass is indented under subclass 151. Device wherein the edges of at least one layer are spaced from each other and another layer has a part thereof extending into said space.
- 153 Reinforced:**  
This subclass is indented under subclass 140. Device wherein one of said layers is reinforced.
- 154 SPIRALLY SEAMED:**  
This subclass is indented under the class definition. Device having a spirally extending seam.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
129+, for flexible pipe having a spiral seam.  
144, for a distinct layer pipe wherein at least one layer is spirally wound.  
150, for a distinct layer wherein at least one layer has a spiral seam.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclass 592 for metallic stock which is helical or has a helical component.
- 155 JOINED SECTIONS:**  
This subclass is indented under the class definition. Device wherein the pipe wall is made up of short tubular sections which are rigidly joined to each other.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, appropriate subclasses, for similar structure involving the joint in the internal wall structure of the tube.
- 156 LONGITUDINALLY SEAMED:**  
This subclass is indented under the class definition. Device having a longitudinally extending seam.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
128, for a flexible pipe with a longitudinal seam.  
151+, for a distinct layer pipe wherein one layer is longitudinally seamed.
- SEE OR SEARCH CLASS:  
220, Receptacles, subclasses 677+ for containers having a longitudinally extending seam.  
428, Stock Material or Miscellaneous Articles, subclass 583 for a metallic intermediate article held together by bonding at the edges only.
- 157 Sectional:**  
This subclass is indented under subclass 156. Device having more than one longitudinal seam so as to comprise longitudinal sections which are secured one to another.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
102, for sectional break-joint pipe.  
117, for sectional plural duct pipe.  
155, for joined sections.
- SEE OR SEARCH CLASS:  
174, Electricity: Conductors and Insulators, subclass 101 for removable wall electric conduits.
- 158 With separate mechanical securing means:**  
This subclass is indented under subclass 157. Device wherein said longitudinal sections have distinct mechanical means, cooperating with the pipe wall, for securing said sections together.
- 159 Bolt, nail, rivet or screw:**  
This subclass is indented under subclass 158. Device having bolts, nails, rivets or screws securing them together.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclass 410 for a bolt or screw utilized to form a joint.
- 160 Radially extending:**  
This subclass is indented under subclass 159. Device extending radially through the pipe wall.
- 161 Externally encircling:**  
This subclass is indented under subclass 158. Device comprising an external element encircling or partially encircling the pipe.

- 162 Tongue and slot:**  
This subclass is indented under subclass 157. Device wherein there is a tongue in one section which passes through a slot in an adjacent section to secure said sections together.
- 163 Bent over lip or flange:**  
This subclass is indented under subclass 157. Device wherein at least one of said longitudinal sections has a bent over lip or flange.
- 164 With packing:**  
This subclass is indented under subclass 156. Device including packing to prevent leakage.
- SEE OR SEARCH CLASS:  
220, Receptacles, subclass 681 for a container having a longitudinally extending seam with a packing.  
277, Seal for a Joint or Juncture, appropriate subclasses for a generic sealing means or process, and subclasses 602+ for a static contact seal intended for use on a pipe, conduit, or cable.  
285, Pipe Joints or Couplings, subclasses 335+ for a pipe coupling with a packing.
- 165 With wedge:**  
This subclass is indented under subclass 156. Device having a wedge locking together the adjacent edges thereof.
- SEE OR SEARCH CLASS:  
285, Pipe Joints or Couplings, subclass 421 for a joint including a wedge type clamp means.
- 166 With tongue in slot:**  
This subclass is indented under subclass 156. Device wherein there is a tongue or projection received in a slot to lock together adjacent edges of the seamed pipe.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
162, for tongue and slot locking means in a sectional conduit.
- 167 With diverse locking means:**  
This subclass is indented under subclass 156. Device having different structural means holding together adjacent longitudinal edges of the seamed pipe.
- 168 With interlocking hooks:**  
This subclass is indented under subclass 156. Device wherein the adjacent longitudinal edges of the pipe have hook-like formations which interlock to form a seam.
- 169 Diversity of seam:**  
This subclass is indented under subclass 156. Device wherein the seam forming structure changes its character somewhere along the length of the seam.
- 170 Permanent type seam:**  
This subclass is indented under subclass 156. Device wherein the seam is permanently formed or locked.
- 171 Brazed, soldered or welded:**  
This subclass is indented under subclass 170. Device wherein the forming or locking means is a braze, solder or weld.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
144, for brazed, soldered or welded distinct layer pipe.
- 172 REINFORCED:**  
This subclass is indented under the class definition. Device wherein the wall structure of the pipe is reinforced either by the shape of the wall or by at least one element applied to said wall.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
153, for a pipe having more than one layer in the pipe wall make-up, one of said layers being reinforced.
- 173 Corrugated:**  
This subclass is indented under subclass 172. Device wherein the reinforcement is in the form of corrugations.

SEE OR SEARCH THIS CLASS, SUB-CLASS:  
121+, for corrugated flexible pipe.

SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclasses 174+ for a single or plural layer stock material product embodying a nonplanar (e.g., corrugated, pleated) component.

**178 MISCELLANEOUS:**  
This subclass is indented under the class definition. Subject matter not classifiable in any of the other subclasses.

END

**174 With embedded element:**  
This subclass is indented under subclass 172. Device wherein the pipe wall is reinforced by an embedded element.

SEE OR SEARCH THIS CLASS, SUB-CLASS:  
146, for a tube that is coated on one side with a coating material that is different from the coating material on the other side of said tube.

**175 Clay, concrete or masonry:**  
This subclass is indented under subclass 174. Device wherein said wall is clay, concrete or masonry.

SEE OR SEARCH CLASS:  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, particularly subclasses 30, 31+, 228, and 603+.

**176 Reinforcement under tension:**  
This subclass is indented under subclass 175. Device wherein the reinforcement is tensioned to prestress the clay, concrete or masonry.

**177 STRUCTURE:**  
This subclass is indented under the class definition. Subject matter relating to the make-up of the pipe wall and not otherwise classifiable.

SEE OR SEARCH CLASS:  
106, Compositions: Coating or Plastic, appropriate subclasses for the composition of plastic pipe.  
420, Alloys or Metallic Compositions, appropriate subclasses for the composition of metal pipe.