ECLA EUROPEAN CLASSIFICATION

F17C VESSELS FOR CONTAINING OR STORING COMPRESSED, LIQUEFIED OR SOLIDIFIED GASES; FIXED-CAPACITY GAS-HOLDERS; FILLING VESSELS WITH, OR DISCHARGING FROM VESSELS, COMPRESSED, LIQUEFIED, OR SOLIDIFIED GASES (storing fluids in natural or artificial cavities or chambers in the earth B65G5/00; construction or assembling of bulk storage containers employing civil-engineering techniques E04H7/00; variable-capacity gas-holders F17B; liquefaction or refrigeration machines, plants, or systems F25)

F17C1/00 **Pressure vessels, e.g. gas cylinder, gas tank, replaceable cartridge** (pressurised apparatus for purposes other than storage, see the relevant subclasses such as A62C, B05B; associated with vehicles, see the appropriate subclass of classes B60 to B64; pressure vessels in general F16J12/00; [N: autoclaves B01J3/04; tank vehicles B60P3/22; railway tank wagons for carrying fluent materials B61D5/00; accumulators for supplying fluid under pressure F15B1/04; liquified gas stoves F24C3/00])

F17C1/00B . [N: Storage in barges or on ships]

F17C1/00D . [N: Storage of gas or gaseous mixture at high pressure and at high density condition, e.g. in the single state phase]

F17C1/00F . [N: Underground or underwater storage]

F17C1/02 . involving reinforcing arrangements [N: F17C1/14, F17C1/16 take precedence]

F17C1/04 . . Protecting sheathings

F17C1/06 . . . Built-up from wound-on bands or filamentary material, e.g. wires

F17C1/08 . . Integral reinforcements, e.g. ribs

F17C1/10 . with provision for protection against corrosion e.g. due to gaseous acid ([N: F17C1/14, F17C1/16 take precedence]; inhibiting corrosion of metallic material or incrustation in general C23F)

F17C1/12 . with provision for thermal insulation ([N: F17C1/14, F17C1/16 take precedence]; thermal insulation in general F16L59/00)

F17C1/14 . constructed of aluminium; constructed of non-magnetic steel

F17C1/16 . constructed of plastics materials [N: (shaping of plastics B29C)]

F17C3/00 **Vessels not under pressure**

F17C3/00B . [N: Underground or underwater containers or vessels (storing in natural or artificial cavities in the earth in general B65G5/00)]

F17C3/02 . with provision for thermal insulation (thermal insulation in general F16L59/00) [N: refrigerators F25D; insulation specially adapted for cryogenic vessels F17C13/00B; tank vehicles B60P3/22; railway tank wagons B61D5/00]

F17C3/02B . . [N: Land-based bulk storage containers (civil engineering aspects E04H7/00)]
F17C3/02C . . [N: Bulk storage in barges or on ships (constructive aspects B63B25/16)]
F17C3/02C2 . . . [N: Wallpanels for so-called membrane tanks]
F17C3/04 . . by insulating layers (F17C3/08 takes precedence)
F17C3/06 . . . on the inner surface, i.e. in contact with the stored fluid
F17C3/08 . . by vacuum spaces, e.g. Dewar flask (for household use A47J41/02)
F17C3/08B . . . [N: Cryostats]
F17C3/10 . . by liquid-circulating or vapour-circulating jackets

F17C3/12 . with provision for protection against corrosion, e.g. due to gaseous acid (protection against corrosion in general C23F)

F17C5/00 **Methods or apparatus for filling containers with liquefied, solidified, or compressed gases under pressures** (adding propellants to aerosol containers B65B31/00)

Note
This group includes not only the filling of vessels for storage of compressed or liquefied gases, but also the filling of pressurised apparatus insofar as it is not covered by a single other subclass, e.g. A62C, B05B.

F17C5/00D . [N: Automated filling apparatus]
F17C5/00D2 . . [N: for gas bottles, such as on a continuous belt or on a merry-go-round]
F17C5/00D4 . . [N: for individual gas tanks or containers, e.g. in vehicles (filling with liquid fuel not under pressure, B60S5/02, B67D5/00)]

F17C5/02 . for filling with liquefied gases
F17C5/04 . . requiring the use of refrigeration, e.g. filling with helium or hydrogen

F17C5/06 . for filling with compressed gases

F17C6/00 **Methods and apparatus for filling vessels not under pressure with liquefied or solidified gases**

F17C7/00 **Methods or apparatus for discharging liquefied, solidified, or compressed gases from pressure vessels, not covered by another subclass**

F17C7/02 . Discharging liquefied gases
F17C7/04 . . with change of state, e.g. vaporisation

F17C9/00 **Methods or apparatus for discharging liquefied or solidified gases from vessels not under pressure**

F17C9/02 . with change of state, e.g. vaporisation
F17C9/04 . . Recovery of thermal energy

F17C11/00 **Use of gas-solvents or gas-sorbents in vessels** [N: (absorbing compositions for acetylene C10L3/04; absorbing compositions for hydrogen C01B3/00D)]

F17C11/00B . [N: for acetylene]

F17C11/00D . [N: for hydrogen]

F17C11/00F . [N: for hydrocarbon gases, such as methane or natural gas, propane, butane or mixtures thereof (LPG)]

F17C13/00 Details of vessels or of the filling or discharging of vessels

F17C13/00B . [N: Thermal insulation specially adapted for cryogenic vessels (vessels not under pressure with insulation F17C3/02; thermal insulation in general F16L59/00)]

F17C13/00D . [N: for vessels under pressure (F17C13/00K and F17C13/02 to F17C13/12 take precedence)]

F17C13/00D2 . . [N: Means for coding or identifying them and/or their contents]

F17C13/00F . [N: for large storage vessels not under pressure (F17C13/00K and F17C13/02 to F17C13/12 take precedence)]

F17C13/00H . [N: for medium-size and small storage vessels not under pressure (F17C13/00K and F17C13/02 to F17C13/12 take precedence)]

F17C13/00H2 . . [N: for Dewar vessels or cryostats]

F17C13/00H2B . . . [N: used for superconducting phenomena (investigating by nuclear magnetic resonance G01N24/08; magnets having superconductive winding H01F6/00)]

F17C13/00K . [N: for use under microgravity conditions]

F17C13/02 . Special adaptations of indicating, measuring, or monitoring equipment (measuring in general G01)

F17C13/02H . . [N: having the height as the parameter]

F17C13/02M . . [N: having the mass as the parameter]

F17C13/02P . . [N: having the pressure as the parameter]

F17C13/02T . . [N: having the temperature as the parameter]

F17C13/02V . . [N: having the volume as the parameter]

F17C13/04 . Arrangement or mounting of valves (valves per se F16K; [N: snap-coupling of nipples F16L37/00])

F17C13/04B . . [N: Automatic change-over switching assembly for bottled gas systems with two (or more) gas containers]

F17C13/06 . Closures, e.g. cap, breakable member ([N: for autoclaves B01J3/03]; closures for [N: large] containers in general B65D [N: B65D90/54]; [N: for pressure vessels in general F16J13/00])

F17C13/08 . Mounting arrangements for vessels

F17C13/08B . . [N: for large land-based storage vessels (supports for large containers in general B65D90/12)]

F17C13/08D . . [N: for large sea-borne storage vessels (load-accomodating arrangements for ships or waterborne vessels B63B25/12)]

F17C13/08F . . [N: for medium-sized mobile storage vessels, e.g. tank vehicles or railway tank vehicles]

F17C13/08H . . [N: for small-sized storage vessels, e.g. compressed gas cylinders or bottles, disposable gas vessels, vessels adapted for automotive use]

F17C13/08H2 . . . [N: on wheels (hand carts B62B)]

F17C13/08K . . [N: for Dewar vessels or cryostats]

F17C13/08K2 . . . [N: used for superconducting phenomena]

F17C13/08M . . [N: for use under microgravity conditions]

F17C13/10 . Arrangements for preventing freezing

F17C13/12 . Arrangements or mounting of devices for preventing or minimising the effect of explosion (flame traps A62C4/00); [N: Other safety measures]

F17C13/12B . . [N: for gas bottles, cylinders or reservoirs for tank vehicles or for railway tank wagons]

F17C13/12D . . [N: for large storage containers for liquefied gas (for large containers in general B65D90/22)]