

ECLA

EUROPEAN CLASSIFICATION

F17D

PIPE-LINE SYSTEMS; PIPE-LINES (pumps or compressors [F04](#); fluid dynamics [F15D](#); valves or the like [F16K](#); pipes, laying pipes, supports, joints, branches, repairing, work on the entire line, accessories [F16L](#); steam traps or the like [F16T](#); fluid-pressure electric cables [H01B9/06](#))

Note

In this subclass, pipe-line systems are interpreted as systems described in flow sheets as well as arrangements of co-operating elements, the elements per se being covered in the relevant subclasses.

F17D1/00

Pipe-line systems (conveying articles or materials through a pipe- line by means of a fluid carrier [B65G51/00](#), [B65G53/00](#); liquids [B67D](#); special devices for transferring liquids from bulk storage containers into vehicles or boats or vice versa, e.g. loading or unloading vehicles or portable containers [B67D5/00](#); conveying material which has been excavated by a dredger or soil shifter through a pipe-line [E02F7/10](#); sewer pipe-line systems [E03F3/00](#); thermal insulation of pipe-lines [F16L59/00](#); central heating systems [F24D](#))

F17D1/00B

- . [N: for a two-phase gas-liquid flow]

F17D1/02

- . for gases or vapours

F17D1/04

- . . for distribution of gas

F17D1/05

- . . . Preventing freezing (by heating [F16L53/00](#))

F17D1/06

- . . for steam

F17D1/065

- . . Arrangements for producing propulsion of gases or vapours

F17D1/07

- . . . by compression

F17D1/075

- . . . by mere expansion from an initial pressure level, e.g. by arrangement of a flow-control valve

F17D1/08

- . for liquids or viscous products (water-main or service pipe systems [E03B7/04](#); domestic hot-water supply systems [F24D17/00](#))

F17D1/08B

- . . [N: for cold fluids, e.g. liquified gas ([F17D1/08D](#) takes precedence)]

F17D1/08C

- . . [N: for hot fluids ([F17D1/08D](#) takes precedence)]

F17D1/08D

- . . [N: for explosives]

F17D1/08E

- . . [N: for solids or suspensions of solids in liquids, e.g. slurries ([F17D1/08D](#) takes precedence)]

F17D1/12

- . . Conveying liquids or viscous products by pressure of another fluid

F17D1/13

- . . Conveying liquids or viscous products by gravity

F17D1/14

- . . Conveying liquids or viscous products by pumping

F17D1/16

- . . Facilitating the conveyance of liquids or effecting the conveyance of viscous products by modification of their viscosity [N: (changing the flow or the viscosity by adding a chemical agent [C09K3/00](#), [C10M](#))] [C9511]

F17D1/17

- . . . by mixing with another liquid, [N: i.e. diluting] [C9511]

F17D1/18

- . . . by heating

F17D1/20

- . Arrangements or systems of devices for influencing or altering dynamic characteristics

of the systems, e.g. for damping pulsations caused by opening or closing of valves (fluid dynamics [F15D](#); damping pulsations in fluids in pipes in general [F16L55/04](#))

F17D3/00

Arrangements for supervising or controlling working operations

- F17D3/01 . for controlling, signalling, or supervising the conveyance of a product
- F17D3/03 . for controlling, signalling, or supervising the conveyance of several different products following one another in the same conduit, e.g. for switching from one receiving tank to another
- F17D3/05 . . the different products not being separated (separation of contaminants by distillation [B01D3/00](#))
- F17D3/08 . . the different products being separated by "go-devils", e.g. spheres (cleaning devices moved along inside a pipe-line by fluid pressure [B08B9/04](#); [N: pigs or moles per se, their launching and detection [F16L55/26](#)] [[C9410](#)])
- F17D3/10 . for taking out the product in the line (sampling in general, examining the physical or chemical properties of materials [G01N](#))
- F17D3/12 . for injecting a composition into the line
- F17D3/14 . for eliminating water (separation of liquids [B01D](#), e.g. [B01D17/00](#); separation of gases or vapours [B01D53/00](#))
- F17D3/14G . . [N: in gas pipelines]
- F17D3/16 . for eliminating particles in suspension (from liquids by sedimentation [B01D21/00](#); separation by filtration or otherwise [B01D24/00](#) to [B01D51/00](#); centrifugal apparatus [B04](#))
- F17D3/18 . for measuring the quantity of conveyed product (measuring volume or volume flow, in general [G01F](#))

F17D5/00

Protection or supervision of installations (arrangements for protecting foundations [E02D31/00](#); protecting pipes from damage or internal or external wear [F16L57/00](#), against corrosion and scale [F16L58/00](#); investigation of the fluid-tightness of structures [G01M3/00](#))

- F17D5/00G . [N: of gas pipelines, e.g. alarm]
- F17D5/02 . Preventing, monitoring, or locating loss
- F17D5/04 . . by means of a signalling fluid enclosed in a double wall
- F17D5/06 . . using electric or acoustic means
- F17D5/08 . Protection of installations or persons from the effects of high voltage induced in the pipe-line (emergency protective circuit arrangements [H02H](#))