SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F17 STORING OR DISTRIBUTING GASES OR LIQUIDS

F17D **PIPE-LINE SYSTEMS; PIPE-LINES** (distributing water E03B; 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 H01B 9/06)

Note(s)

In this subclass, the following expression is used with the meaning indicated:

- "pipe-line systems" means systems described in flow sheets as well as arrangements of co-operating elements, the elements per se being covered by the relevant subclasses.

1/00 **Pipe-line systems** (conveying articles or materials through a pipe-line by means of a fluid carrier B65G 51/00, B65G 53/00; dispensing, delivering or transferring liquids B67D; apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or into portable containers, e.g. for retail sale purposes, B67D 7/00; conveying material which has been excavated by a dredger or soil shifter through a pipe-line E02F 7/10; sewer pipe-line systems E03F 3/00; thermal insulation of pipe-lines F16L 59/00; central heating systems F24D) **[1, 2, 2006.01]**

1/02 • for gases or vapours **[1, 2006.01]**

1/04 • • for distribution of gas **[1, 2006.01]**

1/05 • • • Preventing freezing (by heating F16L 53/00) **[1, 2006.01]**

1/06 • • for steam **[1, 2006.01]**

1/065 • • Arrangements for producing propulsion of gases or vapours **[2, 2006.01]**

1/07 • • • by compression **[2, 2006.01]**

1/075 • • • by mere expansion from an initial pressure level, e.g. by arrangement of a flow-control valve **[2, 2006.01]**

1/08 • for liquids or viscous products (water-main or service pipe systems E03B 7/04; domestic hot-water supply systems F24D 17/00) **[1, 2, 2006.01]**

1/12 • • Conveying liquids or viscous products by pressure of another fluid **[1, 2, 2006.01]**

1/13 • • Conveying liquids or viscous products by gravity **[2, 2006.01]**

1/14 • • Conveying liquids or viscous products by pumping **[1, 2, 2006.01]**

1/16 • • Facilitating the conveyance of liquids or effecting the conveyance of viscous products by modification of their viscosity **[1, 2, 2006.01]**

1/17 • • • by mixing with another liquid **[2, 2006.01]**

1/18 • • • by heating **[1, 2, 2006.01]**

1/20 • 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 F16L 55/04) **[2, 2006.01]**

3/00 **Arrangements for supervising or controlling working operations [1, 2006.01]**

3/01 • for controlling, signalling, or supervising the conveyance of a product **[2, 2006.01]**

3/03 • 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 **[2, 2006.01]**

3/05 • • the different products not being separated (separation of contaminants by distillation B01D 3/00) **[2, 2006.01]**

3/08 • • the different products being separated by "go-devils", e.g. spheres (cleaning devices moved along the inside of pipe-lines by a fluid B08B 9/053) **[2, 2006.01]**

3/10 • for taking out the product in the line (investigating or analysing materials by determinating their chemical or physical properties G01N) **[2, 2006.01]**

3/12 • for injecting a composition into the line **[2, 2006.01]**

3/14 • for eliminating water (separation of liquids B01D, e.g. B01D 17/00; separation of gases or vapours B01D 53/00) **[2, 2006.01]**

3/16 • for eliminating particles in suspension (from liquids by sedimentation B01D 21/00; separation by filtration or otherwise B01D 24/00-B01D 51/00; centrifugal apparatus B04) **[2, 2006.01]**

3/18 • for measuring the quantity of conveyed product (measuring volume or volume flow, in general G01F) **[2, 2006.01]**

5/00 **Protection or supervision of installations** (arrangements for protecting foundations E02D 31/00; protecting pipes from damage or internal or external wear F16L 57/00, against corrosion or scale F16L 58/00; investigation of the fluid-tightness of structures G01M 3/00) **[2, 2006.01]**

5/02 • Preventing, monitoring, or locating loss **[2, 2006.01]**

5/04 • • by means of a signalling fluid enclosed in a double wall **[2, 2006.01]**

5/06 • • using electric or acoustic means **[2, 2006.01]**

5/08 • Protection of installations or persons from the effects of high voltage induced in the pipe-line (emergency protective circuit arrangements H02H) **[2, 2006.01]**