Pipe-line systems (conveying articles or materials through a pipe-line by means of a fluid carrier B65G 51/00, B65G 53/00; 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 B67D 7/00; conveying material which has been excavated by a dredger or soil shifter through a pipe-line E02F 17/00; sewer pipe-line systems E03F 3/00; thermal insulation of pipe-lines F16L 59/00; central heating systems F24D)

1/00 . . . for a two-phase gas-liquid flow
1/02 . . . for gases or vapours
1/04 . . . for distribution of gas
1/05 . . . Preventing freezing (by heating F16L 53/30)
1/06 . . . for steam
1/065 . . . Arrangements for producing propulsion of gases or vapours
1/07 . . . by compression
1/075 . . . by mere expansion from an initial pressure level, e.g. by arrangement of a flow-control valve
1/08 . . . for liquids or viscous products (water-main or service pipe systems E03B 7/04; domestic hot-water supply systems F24D 17/00)
1/082 . . . {for cold fluids, e.g. liquefied gas (F17D 1/086 takes precedence)}
1/084 . . . {for hot fluids (F17D 1/086 takes precedence)}
1/086 . . . {for explosives}
1/088 . . . {for solids or suspensions of solids in liquids, e.g. slurries (F17D 1/086 takes precedence)}
1/12 . . . Conveying liquids or viscous products by pressure of another fluid
1/13 . . . Conveying liquids or viscous products by gravity
1/14 . . . Conveying liquids or viscous products by pumping

1/16 . . . Facilitating the conveyance of liquids or effecting the conveyance of viscous products by modification of their viscosity (including changing the flow or the viscosity by adding a chemical agent C09K 3/00, C10M)
1/17 . . . by mixing with another liquid (i.e. diluting)
1/18 . . . by heating
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)
3/00 Arrangements for supervising or controlling working operations
3/01 . . . for controlling, signalling, or supervising the conveyance of a product
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
3/05 . . . the different products not being separated (separation of contaminants by distillation B01D 3/00)
3/08 . . . the different products being separated by "go-devils", e.g. spheres (cleaning devices moved along inside a pipe-lines by fluid pressure B08B 9/04; pigs or moles per se, their launching and detection F16L 55/26)
3/10 . . . for taking out the product in the line (sampling in general, examining the physical or chemical properties of materials G01N)
3/12 . . . for injecting a composition into the line
3/14 . . . for eliminating water (separation of liquids B01D, e.g. B01D 17/00; separation of gases or vapours B01D 53/00)
3/145 . . . {in gas pipelines}
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)

for measuring the quantity of conveyed product (measuring volume or volume flow, in general G01F)

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 and scale F16L 58/00; investigation of the fluid-tightness of structures G01M 3/00)

(of gas pipelines, e.g. alarm)

Preventing, monitoring, or locating loss

by means of a signalling fluid enclosed in a double wall

using electric or acoustic means

Protection of installations or persons from the effects of high voltage induced in the pipe-line (emergency protective circuit arrangements H02H)