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

F16 ENGINEERING ELEMENTS OR UNITS; GENERAL MEASURES FOR PRODUCING AND MAINTAINING EFFECTIVE FUNCTIONING OF MACHINES OR INSTALLATIONS; THERMAL INSULATION IN GENERAL

F16K VALVES; TAPS; COCKS; ACTUATING-FLOATS; DEVICES FOR VENTING OR AERATING

Note(s) [2, 5, 7, 2006.01]

1. Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "micro-structural devices" and "micro-structural systems".
2. Attention is drawn to Note (2) following the title of subclass G05D and also the subdivisions of that subclass, according to which pressure regulators and flow regulators, e.g. flow regulating valves with pressure compensator, even with the whole regulating system contained in a valve, operating with or without auxiliary power, are covered by groups G05D 16/00 or G05D 7/00, respectively. However, details of the valve parts, per se, are classified in the appropriate groups of this subclass.
3. Attention is drawn to the following places:

A47J 27/09.....Safety devices for pressure cookers
A47J 31/46.....Dispensing spouts, drain valves or like beverage-making apparatus
A61B 5/0235.....Valves specially adapted for measuring pressure in heart or blood vessels
A61F 2/24.....Heart valves
A61M 16/20.....Valves specially adapted for medical respiratory devices
A61M 39/00.....Tube connectors, tube couplings, valves or branch units specially adapted for medical use in general
A62B 9/02.....Valves for respiratory apparatus
A62B 18/10.....Valves for breathing masks or helmets
A62C.....Fire extinguishers
B05B.....Nozzles, spray heads or other discharge apparatus for spraying or atomising
B60C 29/00.....Arrangements of tyre-inflating valves relative to tyres or wheel rims; Connection of valves to wheel rims, tyres or other inflatable elastic bodies
B60G 17/048.....Valves specially adapted for adjusting vehicle fluid-spring characteristics
B60T.....Valves specially adapted for vehicle brake control systems
B62D 5/08.....Vehicle power-assisted steering characterised by the type of valve used
B63B 7/00, B63C 9/00.....Arrangement of inflating valves for floatable live-saving equipment
B65D 47/04.....Container closures with discharging valves
B65D 83/28, B65D 83/44.....Nozzles or valves specially adapted for aerosol containers
B65D 90/32.....Safety valves for large containers
B65D 90/54.....Gates or closures on large containers
B67C 3/28.....Flow control devices for bottling liquids
B67D.....Dispensing, delivering or transferring liquids
E02B 8/00.....Details, e.g. valves, of barrages or weirs
E02B 13/02.....Closures for irrigation conduits
E03B 9/02.....Arrangement of valves in hydrants
E03D.....Flushing valves for water-closets or urinals
E05F 3/12.....Valve arrangement in door closers
E21B 21/10.....Valve arrangements in drilling-fluid circulation systems
E21B 34/00.....Valve arrangements for boreholes or wells
F01B 25/10.....Working-fluid valves for controlling machines or engines in general or of positive-displacement type
F01D 17/10.....Final actuators for controlling non-positive displacement machines or engines
F01L.....Cyclically operated valves for machines or engines
F02D 9/08.....Throttle valves for controlling combustion engines
F02K 9/58.....Propellant feed valves for rocket-engines
F02M.....Carburettors, fuel injection
F02M 59/46.....Valves for fuel injection pumps
F04.....Pumps
F16F 9/34.....Valves for shock absorbers
F16L 29/00, F16L 37/28.....Pipe joints or quick-acting couplings with fluid cut-off means
F16L 55/00.....Arrangement of valves in pipes
F16L 55/055.....Valves specially adapted to prevent or minimise the effect of water hammer
F16L 55/46.....Launching devices for pigs or moles
F16N 23/00.....Check valves for lubrication systems

F17C 13/04.....Arrangement of valves in pressure vessels
F22B 37/44.....Arrangement of safety valves on steam boilers
F22D 5/34.....Application of valves to automatic water-feed in boiler
F23L 13/00.....Valves for air supply control to burners
F23Q 2/173.....Valves for lighters with gaseous fuel and adjustable flame
F24C 3/12, F24C 5/16.....Arrangement of valves on stoves or ranges
F24F.....Air conditioning; Ventilation
F25B 41/04.....Disposition of fluid circulation valves in refrigeration machines
G05D.....Controlling non-electric variables
G10B 3/06.....Valves for organs
G10D 9/04.....Valves for other wind-actuated musical instruments.

Subclass index

CONSTRUCTIONAL TYPES
Lift-valves, gate valves or sliding valves, taps, diaphragm cut-off apparatus.....1/00-7/00
Multiple-way valves.....11/00
Other constructional types of cut-off apparatus, arrangements for cutting off.....13/00
FUNCTIONAL TYPES
Check valves; safety or equalising valves; arrangements for mixing fluids.....15/00, 17/00, 11/00
Fluid-delivery valves; valves for preventing drip from nozzles.....21/00, 23/00
For venting or aerating enclosures.....24/00
DETAILS OR GENERAL MEANS
Handling or control.....29/00, 31/00, 39/00, 43/00
Auxiliary means.....47/00, 49/00
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Details: contact between valve members and seats, housings, floats, sealings.....25/00, 27/00, 33/00, 41/00
Other details.....51/00
SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....99/00

Constructional types

Note(s) [2]

In groups F16K 1/00-F16K 13/00, an initial seal breaking or final sealing movement which is different from the opening or closing movement of the valve is not considered in determining the movement to be classified.

1/00 Lift valves, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces (diaphragm valves F16K 7/00) **[1, 2006.01]**

1/02 • with screw-spindle (F16K 1/12-F16K 1/28 take precedence; actuating mechanisms with screw-spindles F16K 31/50) **[1, 2006.01]**

1/04 • • with a cut-off member rigid with the spindle, e.g. main valves **[1, 2006.01]**

1/06 • • Special arrangements for improving the flow, e.g. special shape of passages or casings **[1, 2006.01]**

1/08 • • • in which the spindle is perpendicular to the general direction of flow **[1, 2006.01]**

1/10 • • • in which the spindle is inclined to the general direction of flow **[1, 2006.01]**

1/12 • with streamlined valve member around which the fluid flows when the valve is opened **[1, 2006.01]**

1/14 • with ball-shaped valve members (check valves F16K 15/04) **[1, 2006.01]**

1/16 • with pivoted closure members **[1, 2006.01]**

1/18 • • with pivoted discs or flaps **[1, 2006.01]**

1/20 • • • with axis of rotation arranged externally of valve member **[1, 2006.01]**

1/22 • • • with axis of rotation crossing the valve member, e.g. butterfly valves **[1, 2006.01]**

1/226 • • • • Shape or arrangement of the sealing **[1, 2006.01]**

1/228 • • • • • Movable sealing bodies **[1, 2006.01]**

1/24 • with valve members that, on opening of the valve, are initially lifted from the seat and next are turned around an axis parallel to the seat **[1, 2006.01]**

1/26 • • Shape or arrangement of the sealing **[1, 2006.01]**

1/28 • • • Movable sealing bodies **[1, 2006.01]**

1/30 • specially adapted for pressure containers **[1, 2006.01]**

1/32 • Details (details of more general applicability F16K 25/00-F16K 51/00) **[1, 2006.01]**

1/34 • • Cutting-off parts (F16K 1/06, F16K 1/12, F16K 1/14, F16K 1/26 take precedence) **[1, 2006.01]**

1/36 • • • Valve members (for double-seat valves F16K 1/44) **[1, 2006.01]**

1/38 • • • • of conical shape **[1, 2006.01]**

1/40 • • • • of helical shape **[1, 2006.01]**

1/42 • • • Valve seats (for double-seat valves F16K 1/44) **[1, 2006.01]**

1/44 • • • Details of seats or valve members of double-seat valves **[1, 2006.01]**

1/46 • • • Attachment of sealing rings **[1, 2006.01]**

1/48 • • Attaching valve members to valve-spindles **[1, 4, 2006.01]**

1/50 • • Preventing rotation of valve members **[1, 2006.01]**

1/52 • • Means for additional adjustment of the rate of flow **[1, 2006.01]**

1/54 • • Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve **[1, 2006.01]**

3/00 Gate valves or sliding valves, i.e. cut-off apparatus with closing members having a sliding movement along the seat for opening and closing (F16K 5/00 takes precedence; in barrages or weirs E02B 8/04) **[1, 2006.01]**

3/02 • with flat sealing faces; Packings therefor **[1, 2006.01]**

3/03 • • with a closure member in the form of an iris-diaphragm **[1, 2006.01]**
3/04 • • with pivoted closure members **[1, 2006.01]**
3/06 • • • in the form of closure plates arranged between supply and discharge passages (F16K 3/10 takes precedence) **[1, 2006.01]**
3/08 • • • • with circular closure plates rotatable around their centres **[1, 2006.01]**
3/10 • • • with special arrangements for separating the sealing faces or for pressing them together **[1, 2006.01]**
3/12 • • with wedge-shaped arrangements of sealing faces **[1, 2006.01]**
3/14 • • • with special arrangements for separating the sealing faces or for pressing them together **[1, 2006.01]**
3/16 • • with special arrangements for separating the sealing faces or for pressing them together (F16K 3/10, F16K 3/14 take precedence) **[1, 2006.01]**
3/18 • • • by movement of the closure members **[1, 2006.01]**
3/20 • • • by movement of the seats **[1, 2006.01]**
3/22 • with sealing faces shaped as surfaces of solids of revolution (F16K 13/02 takes precedence; with resilient valve members F16K 3/28) **[1, 2006.01]**
3/24 • • with cylindrical valve members **[1, 2006.01]**
3/26 • • • with fluid passages in the valve member **[1, 2006.01]**
3/28 • with resilient valve members **[1, 2006.01]**
3/30 • Details **[1, 2006.01]**
3/312 • • Line blinds **[1, 2006.01]**
3/314 • • Forms or constructions of slides; Attachment of the slide to the spindle **[1, 2006.01]**
3/316 • • Guiding of the slide **[1, 2006.01]**
3/32 • • Means for additional adjustment of the rate of flow **[1, 2006.01]**
3/34 • • Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve **[1, 2006.01]**
3/36 • • Features relating to lubrication **[1, 2006.01]**

5/00 Taps or cocks comprising only cut-off apparatus having at least one of the sealing faces shaped as a more or less complete surface of a solid of revolution, the opening and closing movement being predominantly rotary (taps of the lift-valve type F16K 1/00) **[1, 2006.01]**
5/02 • with plugs having conical surfaces; Packings therefor **[1, 2006.01]**
5/04 • with plugs having cylindrical surfaces; Packings therefor **[1, 2006.01]**
5/06 • with plugs having spherical surfaces; Packings therefor **[1, 2006.01]**
5/08 • Details **[1, 2006.01]**
5/10 • • Means for additional adjustment of the rate of flow **[1, 2006.01]**
5/12 • • Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve **[1, 2006.01]**
5/14 • • Special arrangements for separating the sealing faces or for pressing them together **[1, 2006.01]**
5/16 • • • for plugs with conical surfaces **[1, 2006.01]**
5/18 • • • for plugs with cylindrical surfaces **[1, 2006.01]**
5/20 • • • for plugs with spherical surfaces **[1, 2006.01]**
5/22 • • Features relating to lubrication **[1, 2006.01]**

7/00 Diaphragm cut-off apparatus, e.g. with a member deformed, but not moved bodily, to close the passage (container gates or closures operating by deformation of flexible walls B65D 90/56; means for plugging pipes or hoses F16L 55/10) **[1, 2006.01]**
7/02 • with tubular diaphragm **[1, 2006.01]**
7/04 • • constrictable by external radial force **[1, 2006.01]**
7/06 • • • by means of a screw-spindle, cam, or other mechanical means **[1, 2006.01]**
7/07 • • • by means of fluid pressure **[1, 2006.01]**
7/08 • • constrictable by twisting **[1, 2006.01]**
7/10 • with inflatable member **[1, 2006.01]**
7/12 • with flat, dished, or bowl-shaped diaphragm **[1, 2006.01]**
7/14 • • arranged to be deformed against a flat seat **[1, 2006.01]**
7/16 • • • the diaphragm being mechanically actuated, e.g. by screw-spindle or cam **[1, 2006.01]**
7/17 • • • the diaphragm being actuated by fluid pressure **[1, 2006.01]**
7/18 • with diaphragm secured at one side only, e.g. to be laid on the seat by rolling action **[1, 2006.01]**
7/20 • with a compressible solid closure member **[1, 2006.01]**

11/00 Multiple-way valves, e.g. mixing valves; Pipe fittings incorporating such valves; Arrangement of valves and flow lines specially adapted for mixing fluid [1, 4, 2006.01]
11/02 • with all movable sealing faces moving as one unit **[1, 2006.01]**
11/04 • • comprising only lift valves **[1, 2006.01]**
11/044 • • • with movable valve members positioned between valve seats **[4, 2006.01]**
11/048 • • • with valve seats positioned between movable valve members **[4, 2006.01]**
11/052 • • • with pivoted closure members, e.g. butterfly valves **[4, 2006.01]**
11/056 • • • with ball-shaped valve members **[4, 2006.01]**
11/06 • • comprising only sliding valves **[1, 2006.01]**
11/065 • • • with linearly sliding closure members **[4, 2006.01]**
11/07 • • • • with cylindrical slides **[1, 4, 2006.01]**
11/072 • • • with pivoted closure members **[4, 2006.01]**
11/074 • • • • with flat sealing faces **[4, 2006.01]**
11/076 • • • • with sealing faces shaped as surfaces of solids of revolution **[4, 2006.01]**
11/078 • • • with pivoted and linearly movable closure members **[4, 2006.01]**
11/08 • • comprising only taps or cocks **[1, 2006.01]**
11/083 • • • with tapered plug **[2, 2006.01]**
11/085 • • • with cylindrical plug **[2, 2006.01]**
11/087 • • • with spherical plug **[2, 2006.01]**
11/10 • with two or more closure members not moving as a unit **[1, 2006.01]**
11/12 • • with one plug turning in another **[1, 2006.01]**
11/14 • • operated by one actuating member, e.g. a handle (with one plug turning in another F16K 11/12) **[1, 2006.01]**
11/16 • • • which only slides, or only turns, or only swings in one plane **[1, 2006.01]**
11/18 • • • with separate operating movements for separate closure members **[1, 2006.01]**
11/20 • • operated by separate actuating members (with one plug turning in another F16K 11/12) **[1, 2006.01]**

11/22 • • • with an actuating member for each valve, e.g. interconnected to form multiple-way valves **[1, 2006.01]**

11/24 • • • with an electromagnetically-operated valve, e.g. for washing machines **[1, 2006.01]**

13/00 Other constructional types of cut-off apparatus (means for plugging pipes or hoses F16L 55/10)**; Arrangements for cutting-off [1, 4, 2006.01]**

13/02 • with both sealing faces shaped as small segments of a cylinder and the moving member pivotally mounted **[1, 2006.01]**

13/08 • Arrangements for cutting-off **[4, 2006.01]**

13/10 • • by means of liquid or granular medium **[4, 2006.01]**

Functional types

15/00 Check valves (valves specially adapted for inflatable balls A63B 41/00) **[1, 2006.01]**

15/02 • with guided rigid valve members **[1, 2006.01]**

15/03 • • with a hinged closure member **[1, 2006.01]**

15/04 • • shaped as balls **[1, 2006.01]**

15/06 • • with guided stems **[1, 2006.01]**

15/08 • • shaped as rings **[1, 2006.01]**

15/10 • • • integral with, or rigidly fixed to, a common valve plate **[1, 2006.01]**

15/12 • • • Springs for ring valves **[1, 3, 2006.01]**

15/14 • with flexible valve members **[1, 2006.01]**

15/16 • • with tongue-shaped laminae **[1, 2006.01]**

15/18 • with actuating mechanism; Combined check valves and actuated valves **[1, 2006.01]**

15/20 • specially designed for inflatable bodies, e.g. tyres (connecting valves to inflatable elastic bodies B60C 29/00) **[1, 2006.01]**

17/00 Safety valves; Equalising valves (pressure relief devices for aerosol containers B65D 83/70) **[1, 2006.01]**

17/02 • opening on surplus pressure on one side; closing on insufficient pressure on one side (check valves F16K 15/00) **[1, 2006.01]**

17/04 • • spring-loaded **[1, 2006.01]**

17/06 • • • with special arrangements for adjusting the opening pressure **[1, 2006.01]**

17/08 • • • with special arrangements for providing a large discharge passage **[1, 2006.01]**

17/10 • • • with auxiliary valve for fluid operation of the main valve **[1, 2006.01]**

17/12 • • weight-loaded **[1, 2006.01]**

17/14 • • with fracturing member **[1, 2006.01]**

17/16 • • • with fracturing diaphragm **[1, 2006.01]**

17/164 • • and remaining closed after return of the normal pressure **[1, 2006.01]**

17/168 • • combined with manually-controlled valves, e.g. a valve combined with a safety valve **[1, 2006.01]**

17/18 • opening on surplus pressure on either side **[1, 2006.01]**

17/19 • • Equalising valves predominantly for tanks **[1, 2006.01]**

17/192 • • • with closure member in the form of a movable liquid column **[1, 2006.01]**

17/194 • • • weight-loaded **[1, 2006.01]**

17/196 • • • spring-loaded **[1, 2006.01]**

17/20 • Excess-flow valves (actuated in consequence of shock or similar extraneous influence F16K 17/36) **[1, 2006.01]**

17/22 • • actuated by the difference of pressure between two places in the flow line **[1, 2006.01]**

17/24 • • • acting directly on the cutting-off member **[1, 2006.01]**

17/26 • • • • operating in either direction **[1, 2006.01]**

17/28 • • • • operating in one direction only **[1, 2006.01]**

17/30 • • • • • spring-loaded **[1, 2006.01]**

17/32 • • • acting on a servo-mechanism or on a catch-releasing mechanism **[1, 2006.01]**

17/34 • • in which the flow-energy of the flowing medium actuates the closing mechanism **[1, 2006.01]**

17/36 • actuated in consequence of extraneous circumstances, e.g. shock, change of position **[1, 2006.01]**

17/38 • • of excessive temperature **[1, 2006.01]**

17/40 • with fracturing member, e.g. fracturing diaphragm, fusible joint (valves with fracturing member opening on surplus pressure on one side F16K 17/14) **[1, 2006.01]**

17/42 • Valves preventing penetration of air in the outlet of containers for liquids **[1, 2006.01]**

21/00 Fluid-delivery valves (specially adapted for aerosol containers B65D 83/44; for liquid handling B67D; for flushing devices for water-closets or the like E03D) **[1, 2006.01]**

21/02 • providing a continuous small flow **[1, 2006.01]**

21/04 • Self-closing valves, i.e. closing automatically after operation **[1, 2006.01]**

21/06 • • in which the closing movement, either retarded or not, starts immediately after opening **[1, 2006.01]**

21/08 • • • with ball-shaped closing members **[1, 2006.01]**

21/10 • • • with hydraulic brake cylinder acting on the closure member **[1, 2006.01]**

21/12 • • • with hydraulically-operated opening means; with arrangements for pressure relief before opening **[1, 2006.01]**

21/14 • • with special means for preventing the self-closing **[1, 2006.01]**

21/16 • • closing after a predetermined quantity of fluid has been delivered (F16K 21/10 takes precedence) **[1, 2006.01]**

21/18 • • closed when a rising liquid reaches a predetermined level (float-actuated valves F16K 31/18) **[1, 2006.01]**

21/20 • • • by means making use of air-suction through an opening closed by the rising liquid **[1, 2006.01]**

23/00 Valves for preventing drip from nozzles [1, 2006.01]

24/00 Devices, e.g. valves, for venting or aerating enclosures (equalising valves F16K 17/00; arrangement or mounting in pipes or pipe systems F16L 55/07; venting or aerating as an additional function of steam traps or like apparatus F16T; ventilation of rooms, vehicles, see the appropriate subclass, e.g. F24F) **[2, 2006.01]**

24/02 • the enclosure being itself a valve, tap, or cock **[2, 2006.01]**

24/04 • for venting only (F16K 24/02 takes precedence) **[2, 2006.01]**

24/06 • for aerating only (F16K 24/02 takes precedence) **[2, 2006.01]**

Details

Note(s)

Details not provided for in groups F16K 25/00-F16K 51/00 are classified in groups F16K 1/00-F16K 24/00.

25/00 **Details relating to contact between valve members and seats** (movement of valve members other than for opening and closing F16K 29/00; sealing constructions, see the appropriate groups according to the type of valve) **[1, 2006.01]**

25/02 • Arrangements using fluid issuing from valve members or seats **[1, 2006.01]**

25/04 • Arrangements for preventing erosion, not otherwise provided for **[1, 2006.01]**

27/00 **Construction of housings** (methods for welding housings B23K)**; Use of materials therefor [1, 2006.01]**

27/02 • of lift valves (for reducing the flow resistance of screw-spindle lift-valves F16K 1/06) **[1, 2006.01]**

27/04 • of sliding valves **[1, 2006.01]**

27/06 • of taps or cocks **[1, 2006.01]**

27/07 • of cutting-off parts of tanks, e.g. tank-cars **[4, 2006.01]**

27/08 • Guiding yokes for spindles; Means for closing housings; Dust caps, e.g. for tyre valves **[1, 2006.01]**

27/10 • Welded housings **[1, 2006.01]**

27/12 • Covers for housings **[1, 2006.01]**

29/00 **Arrangements for movement of valve members other than for opening or closing the valve, e.g. for grinding-in, for preventing sticking [1, 2006.01]**

29/02 • providing for continuous motion **[1, 2006.01]**

31/00 **Operating means; Releasing devices [1, 2006.01]**

31/02 • electric; magnetic **[1, 2006.01]**

31/04 • • using a motor **[1, 2006.01]**

31/05 • • • specially adapted for operating hand-operated valves or for combined motor and hand operation **[1, 2006.01]**

31/06 • • using a magnet **[1, 2006.01]**

31/08 • • • using a permanent magnet **[1, 2006.01]**

31/10 • • • with additional mechanism between armature and closure member **[1, 2006.01]**

31/11 • • • • with additional hand operating means **[2, 2006.01]**

31/12 • actuated by fluid (fluid-actuated check valves F16K 15/00; fluid-actuated safety valves F16K 17/00) **[1, 2006.01]**

31/122 • • the fluid acting on a piston (F16K 31/143, F16K 31/163, F16K 31/363, F16K 31/383 take precedence) **[2, 2006.01]**

31/124 • • • servo actuated **[2, 2006.01]**

31/126 • • the fluid acting on a diaphragm, bellows, or the like (F16K 31/145, F16K 31/165, F16K 31/365, F16K 31/385 take precedence) **[2, 2006.01]**

31/128 • • • servo actuated **[2, 2006.01]**

31/14 • • for mounting on, or in combination with, hand-actuated valves **[1, 2006.01]**

31/143 • • • the fluid acting on a piston **[1, 2006.01]**

31/145 • • • the fluid acting on a diaphragm **[1, 2006.01]**

31/16 • • with a mechanism, other than pulling- or pushing-rod, between fluid motor and closure member (with float F16K 31/18) **[1, 2006.01]**

31/163 • • • the fluid acting on a piston **[1, 2006.01]**

31/165 • • • the fluid acting on a diaphragm **[1, 2006.01]**

31/18 • • actuated by a float (floats F16K 33/00; float-actuated valves in steam-traps F16T 1/20, in boilers F22D 5/08) **[1, 2006.01]**

31/20 • • • actuating a lift valve **[1, 2006.01]**

31/22 • • • • with the float rigidly connected to the valve **[1, 2006.01]**

31/24 • • • • with a transmission with parts linked together from a single float to a single valve **[1, 2006.01]**

31/26 • • • • • with the valve guided for rectilinear movement and the float attached to a pivoted arm **[1, 2006.01]**

31/28 • • • • with two or more floats actuating one valve **[1, 2006.01]**

31/30 • • • actuating a gate valve or sliding valve **[1, 2006.01]**

31/32 • • • actuating a tap or cock **[1, 2006.01]**

31/34 • • • acting on pilot valve controlling the cut-off apparatus **[1, 2006.01]**

31/36 • • in which fluid from the conduit is constantly supplied to the fluid motor **[1, 2006.01]**

31/363 • • • the fluid acting on a piston (F16K 31/38 takes precedence) **[1, 2006.01]**

31/365 • • • the fluid acting on a diaphragm **[1, 2006.01]**

31/38 • • • in which the fluid works directly on both sides of the fluid motor, one side being connected by means of a restricted passage and the motor being actuated by operating a discharge from that side (F16K 31/40 takes precedence) **[1, 2006.01]**

31/383 • • • • the fluid acting on a piston **[1, 2006.01]**

31/385 • • • • the fluid acting on a diaphragm **[1, 2006.01]**

31/40 • • • with electrically-actuated member in the discharge of the motor **[1, 2006.01]**

31/42 • • by means of electrically-actuated members in the supply or discharge conduits of the fluid motor (F16K 31/40 takes precedence) **[1, 2006.01]**

31/44 • Mechanical actuating means **[1, 2006.01]**

31/46 • • for remote operation **[1, 2006.01]**

31/48 • • actuated by mechanical timing-device, e.g. with dash-pot (self-closing valves F16K 21/16) **[1, 2006.01]**

31/50 • • with screw-spindle **[1, 2006.01]**

31/52 • • with crank, eccentric, or cam **[1, 2006.01]**

31/524 • • • with a cam **[1, 2006.01]**

31/528 • • • with pin and slot **[1, 2006.01]**

31/53 • • with toothed gearing **[1, 2006.01]**

31/54 • • • with pinion and rack **[1, 2006.01]**

31/56 • • without stable intermediate position, e.g. with snap action **[1, 2006.01]**

31/58 • • comprising a movable discharge-nozzle **[1, 2006.01]**

31/60 • • Handles **[1, 2006.01]**

31/62 • • Pedals or like operating members, e.g. actuated by knee or hip **[1, 2006.01]**

31/64 • responsive to temperature variation (dependant on excessive temperature F16K 17/38; control of fire-fighting equipment A62C 37/00; devices for preventing bursting of water pipes by freezing E03B 7/10) **[4, 2006.01]**

31/66 • • electrically or magnetically actuated, e.g. by magnets with variable magnetic characteristics **[4, 2006.01]**

31/68 • • actuated by fluid pressure or volumetric variation in a confined chamber **[4, 2006.01]**

31/70 • • mechanically actuated, e.g. by a bimetallic strip **[4, 2006.01]**

31/72 • Operating means or releasing devices specifically adapted to enhance the speed of valve response **[4, 2006.01]**

33/00 Floats for actuation of valves or other apparatus [1, 2006.01]

35/00 Means to prevent accidental or unauthorised actuation [1, 2006.01]

35/02 • to be locked or disconnected by means of a push or pull **[1, 2006.01]**

35/04 • yieldingly resisting the actuation **[1, 2006.01]**

35/06 • using a removable actuating or locking member, e.g. a key (F16K 35/10, F16K 35/12 take precedence) **[1, 2006.01]**

35/08 • requiring setting according to a code, e.g. permutation locks **[1, 2006.01]**

35/10 • with locking caps or locking bars **[1, 2006.01]**

35/12 • with sealing wire **[1, 2006.01]**

35/14 • interlocking two or more valves **[1, 2006.01]**

35/16 • with locking member actuated by magnet **[1, 2006.01]**

37/00 Special means in or on valves or other cut-off apparatus for indicating or recording operation thereof, or for enabling an alarm to be given [1, 2006.01]

39/00 Devices for relieving the pressure on the sealing faces [1, 2006.01]

39/02 • for lift valves **[1, 2006.01]**

39/04 • for sliding valves **[1, 2006.01]**

39/06 • for taps or cocks **[1, 2006.01]**

41/00 Spindle sealings [1, 2006.01]

41/02 • with stuffing-box **[1, 2006.01]**

41/04 • • with at least one ring of rubber or like material between spindle and housing **[1, 2006.01]**

41/06 • • with at least one ring attached to both spindle and housing **[1, 2006.01]**

41/08 • • with at least one ring provided with axially-protruding peripheral closing-lip **[1, 2006.01]**

41/10 • with diaphragm, e.g. shaped as bellows or tube **[1, 2006.01]**

41/12 • • with approximately flat diaphragm **[1, 2006.01]**

41/14 • with conical flange on the spindle which co-operates with a conical surface in the housing **[1, 2006.01]**

41/16 • with a flange on the spindle which rests on a sealing ring **[1, 2006.01]**

41/18 • • sealing only when the closure member is in the opened position **[1, 2006.01]**

43/00 Auxiliary closure means in valves, which in case of repair, e.g. rewashering, of the valve, can take over the function of the normal closure means; Devices for temporary replacement of parts of valves for the same purpose [1, 2006.01]

47/00 Means in valves for absorbing fluid energy (for pipes F16L 55/00) **[1, 2006.01]**

47/02 • for preventing water-hammer or noise **[1, 2006.01]**

47/04 • for decreasing pressure, the throttle being incorporated in the closure member **[1, 2006.01]**

47/06 • • with a throttle in the form of a helical channel **[1, 2006.01]**

47/08 • for decreasing pressure and having a throttling member separate from the closure member **[1, 2006.01]**

47/10 • • in which the medium in one direction must flow through the throttling channel, and in the other direction may flow through a much wider channel parallel to the throttling channel **[1, 2006.01]**

47/12 • • the throttling channel being of helical form **[1, 2006.01]**

47/14 • • the throttling member being a perforated membrane **[1, 2006.01]**

47/16 • • the throttling member being a cone **[1, 2006.01]**

49/00 Means in or on valves for heating or cooling (for pipes F16L 53/00; thermal insulation in connection with pipes or pipe systems F16L 59/16) **[1, 2006.01]**

51/00 Other details not peculiar to particular types of valves or cut-off apparatus [1, 2006.01]

51/02 • specially adapted for high-vacuum installations **[2, 2006.01]**

99/00 Subject matter not provided for in other groups of this subclass [2006.01]