

ECLA**EUROPEAN CLASSIFICATION****F16K**

VALVES; TAPS; COCKS; ACTUATING-FLOATS; DEVICES FOR VENTING OR AERATING [N: (devices for emptying and evacuating the excess liquid in valves or conduits [F16L55/07](#))]

[N: WARNING

The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following ECLA groups:

F16K31/11	covered by	F16K31/06 , F16K31/08 , F16K31/10
F16K31/64	" "	G05D
F16K31/66	" "	F16K31/06 ; H01F
F16K31/68	" "	G05D
F16K31/70	" "	F16K31/00C
F16K31/72	" "	F16K31/00

Note

Attention is drawn to the following places:

A47J27/09	Safety devices for pressure cookers
A47J31/46	Dispensing spouts, drain valves or like beverage-making apparatus
A61B5/0235	Valves specially adapted for measuring pressure in heart or blood vessels
A61F2/24	Heart valves
A61M16/20	Valves specially adapted for medical respiratory devices
A61M39/00	Tube connectors, tube couplings, valves or branch units specially adapted for medical use in general
A62B9/02	Valves for respiratory apparatus
A62B18/10	Valves for breathing masks or helmets
A62C	Fire extinguishers
[N: B01D35/04	Plug, tap, or cock filters]
B05B	Nozzles, spray heads or other discharge apparatus for spraying or atomising
B60C29/00	Arrangements of tyre-inflating valves relative to tyres or wheel rims; Connection of valves to wheel rims, tyres or other inflatable elastic bodies
B60G17/048	Valves specially adapted for adjusting vehicle fluid-spring characteristics
B60T	Valves specially adapted for vehicle brake control systems
B62D5/08	Vehicle power-assisted steering characterised by the type of valve used
B63B7/00 , B63C9/00	Arrangement of inflating valves for floatable life-saving equipment
B65D47/04	Container closures with discharging valves
B65D90/32	Safety valves for large containers
B65D90/54	Gates or closures on large containers
B67C3/28	Flow control devices for bottling liquids
B67D	Dispensing, delivering or transferring liquids
[N: C21B9/12	Hot-blast valves for blast furnaces]
E02B8/00	Details, e.g. valves, of barrages or weirs
E02B13/02	Closures for irrigation conduits
[N: E03C1/04	Water-basin installations specially adapted for wash-basins or baths]
[N: E03C1/05	Arrangements on wash-basins for the remote control

of taps]

E03D Flushing valves for water-closets or urinals

[N: [E03F7/04](#) Valves for preventing return flow in sewer systems]

[E05F3/12](#) Valve arrangements in door closers

[E21B21/10](#) Valve arrangements in drilling-fluid circulation systems

[E21B34/00](#) Valve arrangements for boreholes or wells

[N: [E21D15/51](#) Arrangement of relief valves in hydraulic mine props]

[F01B25/10](#) Working-fluid valves for controlling machines or engines in general or of positive-displacement type

[F01D17/10](#) Final actuators for controlling non-positive displacement machines or engines

F01L Cyclically operated valves for machines or engines

[F02D9/08](#) Throttle valves for controlling combustion engines

[F02K9/58](#) Propellant feed valves for rocket-engines

F02M Carburettors, fuel injection

[F02M59/46](#) Valves for fuel injection pumps

F04 Pumps

[F16F9/34](#) Valves for shock absorbers

[F16L29/00](#),
[F16L37/28](#) Pipe joints or quick-acting couplings with fluid cut-off means

[F16L55/00](#) Arrangement of valves in pipes

[F16L55/055](#) Valves specially adapted to prevent or minimise the effect of water hammer

[F16L55/46](#) Launching devices for pigs or moles [C9409]

[F16N23/00](#) Check valves for lubrication systems

[N: F16T Draining-off liquids from steam traps]

[F17C13/04](#) Arrangement of valves in pressure vessels

[F22B37/44](#) Arrangement of safety valves on steam boilers

[F22D5/34](#) Application of valves to automatic water-feed in boiler

[F23L13/00](#) Valves for air supply control to burners

[N: [F23Q2/16](#) Valves for lighters with gaseous fuel and adjustable flame]

[F24C3/12](#),
[F24C5/16](#) Arrangement of valves on stoves or ranges

F24F Air conditioning; Ventilation

[F25B41/04](#) Disposition of fluid circulation valves in refrigeration machines

G05D Controlling non-electric variables

[G10B3/06](#) Valves for organs

[G10D9/04](#) Valves for other wind-actuated musical instruments

[N: [G21C9/06](#) Safety valves structurally associated with nuclear reactors]

[N: [H01M2/12](#) Vent plugs in batteries or cells]

Guide heading: **Constructional types** ([check valves F16K15/00](#))

Note

In groups [F16K1/00](#) to [F16K13/00](#), 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.

F16K1/00

Lift valves [N: or globe 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 ([N: in combination with sliding valves [F16K3/24V](#), [F16K3/26V](#)]; diaphragm valves [F16K7/00](#)) [C9509]

- F16K1/02 . with screw-spindle ([F16K1/12](#) to [F16K1/28](#) take precedence; actuating mechanisms with screw-spindles [F16K31/50](#))
 - F16K1/04 . . with a cut-off member rigid with the spindle, e.g. main valves
 - F16K1/06 . . Special arrangements for improving the flow, e.g. special shape of passages or casings
 - F16K1/08 . . . in which the spindle is perpendicular to the general direction of flow
 - F16K1/10 . . . in which the spindle is inclined to the general direction of flow
 - F16K1/12 . with streamlined valve member around which the fluid flows when the valve is opened
 - F16K1/12B . . [N: with stationary valve member and moving sleeve]
 - F16K1/12P . . [N: actuated by fluid] [N9602]
 - F16K1/14 . with ball-shaped valve member ([check valves F16K15/04](#))
 - F16K1/16 . with pivoted closure-members
 - F16K1/16B . . [N: with a plurality of closure members]
 - F16K1/18 . . with pivoted discs or flaps
 - F16K1/20 . . . with axis of rotation arranged externally of valve member [N1205]
- [N: **WARNING**
Subgroups of [F16K1/20](#) are not complete pending a reorganisation, see also [F16K1/20](#)
]
- F16K1/20B [N: specially adapted operating means therefor (operating means per se F16K31/00)] [N1205]
 - F16K1/20C [N: Shaping of the valve member] [N1205]
 - F16K1/20D [N: with a plurality of valve members] [N1205]
 - F16K1/20E [N: Details of bearings for the axis of rotation] [N1205]
 - F16K1/20E2 [N: the axis of rotation having only one bearing] [N1205]
 - F16K1/20F [N: Special features or arrangements of the sealing] [N1205]
 - F16K1/20F2 [N: the sealing being arranged on the valve member] [N1205]
 - F16K1/20F4 [N: the sealing being arranged on the valve seat] [N1205]
 - F16K1/20F4B [N: with a channel- or U-shaped seal covering a central body portion] [N1205]
 - F16K1/20F4D [N: and being forced into sealing contact with the valve member by a spring or a spring-like member] [N1205]
 - F16K1/20F6 [N: Sealing means for the axis of rotation] [N1205]
 - F16K1/20F8 [N: Movable sealing bodies] [N1205]
 - F16K1/20F8B [N: the movement being caused by the flowing medium] [N1205]
 - F16K1/22 . . . with axis of rotation crossing the valve member, e.g. butterfly valves
 - F16K1/22B [N: specially adapted operating means therefor (operating means per se F16K31/00)] [N1205]
 - F16K1/22C [N: Shaping of the valve member]
 - F16K1/22D [N: with a plurality of valve members]
 - F16K1/22E [N: Details of bearings for the axis of rotation] [N1205]
 - F16K1/22E2 [N: the axis of rotation having only one bearing] [N1205]

- F16K1/226 Shaping or arrangements of the sealing
- F16K1/226B [N: the sealing being arranged on the valve member]
- F16K1/226C [N: the sealing being arranged on the valve seat]
- F16K1/226C2 [N: with a channel- or U-shaped seal covering a central body portion]
- F16K1/226C3 [N: and being forced into sealing contact with the valve member by a spring or a spring-like member] [N9409]
- F16K1/226D [N: Sealing means for the axis of rotation]
- F16K1/228 Movable sealing bodies
- F16K1/228B [N: the movement being caused by the flowing medium] [C9409]

- F16K1/24 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
- F16K1/26 Shape or arrangement of the sealing [N: Not used]
- F16K1/28 Movable sealing bodies [N: Not used]

- F16K1/30 specially adapted for pressure containers
- F16K1/30A [N: only shut-off valves, i.e. valves without additional means] [N0711]
- F16K1/30A2 [N: with valve member and actuator on the same side of the seat] [N0711]
- F16K1/30A3 [N: with a valve member, e.g. stem or shaft, passing through the seat] [N0711]
- F16K1/30B [N: Shut-off valves with additional means] [N0711]
- F16K1/30B2 [N: with valve member and actuator on the same side of the seat] [N0711]
- F16K1/30B3 [N: with a valve member, e.g. stem or shaft, passing through the seat] [N0711]
- F16K1/30C [N: Additional means used in combination with the main valve] [N0711]
- F16K1/30D [N: Connecting means] [N0711]

- F16K1/32 Details ([details of more general applicability F16K25/00 to F16K51/00](#))
- F16K1/34 Cutting-off parts, e.g. valve members, seats ([F16K1/06](#), [F16K1/12](#), [F16K1/14](#), [F16K1/26](#) take precedence)
- F16K1/36 Valve members ([for double-seat valves F16K1/44](#)) [N: for butterfly valves [F16K1/22C](#), [F16K1/22D](#)]
- F16K1/38 of conical shape
- F16K1/38B [N: contacting in the closed position, over a substantial axial length, a seat surface having the same inclination]
- F16K1/40 of helical shape
- F16K1/42 Valve seats ([for double-seat valves F16K1/44](#)) [N1205]

- [N: **WARNING** [N1206]
Subgroups of [F16K1/42](#) are not complete pending a reorganisation, see also [F16K1/42](#)]
]
- F16K1/42B [N: attachable by a threaded connection to the housing] [N1205]
- F16K1/42D [N: Attachment of the seat to the housing by plastical deformation, e.g. valve seat or housing being plastically deformed during mounting] [N1205]
- F16K1/42F [N: Attachment of the seat to the housing by one or more additional fixing elements] [N1205]
- F16K1/44 Details of seats or valve members of double-seat valves
- F16K1/44B [N: the seats being in series]

- F16K1/44B2 [N: with additional cleaning or venting means between the two seats]
- F16K1/46 . . . Attachment of sealing rings
- F16K1/46B [N: to the valve seats] [N9809]
- [N: **WARNING**
Not yet complete, see also [F16K1/46](#)
]
- F16K1/48 . . . Attaching valve members to screw-spindles
- F16K1/48N [N: with a collar on the spindle or a groove in the spindle, by which a fixing element is supported, the spindle reaching into the valve member] [N9603]
- F16K1/48N2 [N: with a groove in the spindle] [N9603]
- F16K1/48R [N: by a fixing element extending in the axial direction of the spindle, e.g. a screw] [N9603]
- F16K1/50 . . . Preventing rotation of valve members
- F16K1/52 . . . Means for additional adjustment of the rate of flow
- F16K1/52B [N: for limiting the maximum flow rate, using a stop]
- F16K1/52C [N: for limiting the maximum flow rate, using a second valve]
- F16K1/54 . . . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve

F16K3/00 **Gate valves or sliding valves, i.e. cut-off apparatus with closing members having a sliding movement along the seat for opening and closing** ([F16K5/00](#) takes precedence; in barrages or weirs [E02B8/04](#))

- F16K3/02 . . . with flat sealing faces; Packings therefor
- F16K3/02B [N: the valve having a particular passage, e.g. provided with a filter, throttle or safety device]
- F16K3/02C [N: with only one sealing face]
- F16K3/02D [N: Packings]
- F16K3/02D2 [N: the packing being of a non-resilient material, e.g. ceramic, metal] [N9509] [C9511]
- F16K3/02F [N: Curtain gate valves]
- F16K3/02G [N: being operated by particular means]
- F16K3/02H [N: using particular material or covering means]
- F16K3/02K [N: permitting easy assembly or disassembly]
- F16K3/02L [N: Guillotine or blade-type valves, e.g. no passage through the valve member] [N1205]
- F16K3/02M [N: with two or more gates]
- F16K3/03 . . . with a closure member in the form of an iris-diaphragm
- F16K3/04 . . . with pivoted closure members
- F16K3/06 in the form of closure plates arranged between supply and discharge passages ([F16K3/10](#) takes precedence)
- F16K3/08 with circular plates rotatable around their centres
- F16K3/08B [N: the axis of supply passage and the axis of discharge passage being coaxial and parallel to the axis of rotation of the plates] [N9409]
- F16K3/10 with special arrangements for separating the sealing faces or for pressing them together

- F16K3/12 . . with wedge-shaped arrangements of sealing faces
- F16K3/14 . . . with special arrangements for separating the sealing faces or for pressing them together
- F16K3/16 . . with special arrangements for separating the sealing faces or for pressing them together ([F16K3/10](#), [F16K3/14](#) take precedence)
- F16K3/18 . . . by movement of the closure members
- F16K3/18B [N: by means of toggle links]
- F16K3/18C [N: by means of cams]
- F16K3/18C2 [N: by means of cams of wedge form]
- F16K3/18P [N: by means of hydraulic forces]
- F16K3/20 . . . by movement of the seats
- F16K3/20B [N: by movement of toggle links]
- F16K3/20C [N: by means of cams]
- F16K3/20P [N: by means of hydraulic forces]

- F16K3/22 . with sealing faces shaped as surfaces of solids of revolution ([F16K13/02](#) takes precedence; with resilient valve members [F16K3/28](#))
- F16K3/24 . . with cylindrical valve members
- F16K3/24D . . . [N: Packings ([F16K3/24V](#) takes precedence)] [N9509]
- F16K3/24V . . . [N: Combination of a sliding valve and a lift valve] [N9509]
- F16K3/26 . . . with fluid passages in the valve member
- F16K3/26Q [N: with a transverse bore in the valve member] [N9509] [C9511]
- F16K3/26S [N: with a sleeve sliding in the direction of the flow line] [N9509]
- F16K3/26V [N: Combination of a sliding valve and a lift valve ([F16K3/26Q](#), [F16K3/26S](#) take precedence)] [N9509]

- F16K3/28 . with resilient valve members

- F16K3/30 . Details
- F16K3/312 . . Line blinds
- F16K3/314 . . Forms or construction of slides; Attachment of the slide to the spindle
- F16K3/316 . . Guiding of the slide
- F16K3/316R . . . [N: with rollers or balls] [N9509]
- F16K3/32 . . Means for additional adjustment of the rate of flow
- F16K3/34 . . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve
- F16K3/36 . . Features relating to lubrication

- F16K5/00** [N: Plug valves;] **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 [F16K1/00](#))**

- F16K5/02 . with plugs having conical surfaces; Packings therefor
- F16K5/02B . . [N: with special plug arrangement, e.g. special shape or built in means]
- F16K5/02C . . [N: Plug channel at 90 degrees to the inlet]

- F16K5/02D . . [N: Fixed plug and turning sleeve]
- F16K5/02E . . [N: with a conical segment mounted around a supply pipe]
- F16K5/02F . . [N: with the angle the spindle makes housing being other than 90 degrees]
- F16K5/02G . . [N: Spindles and actuating means]
- F16K5/02H . . [N: Particular coverings or materials]
- F16K5/02J . . [N: Packings]
- F16K5/02J2 . . . [N. in the housing]
- F16K5/02J3 . . . [N: between housing and plug]
- F16K5/02J4 . . . [N: on the plug]
- F16K5/02J5 . . . [N: spindle sealing]
- F16K5/02K . . [N: Easy mounting or dismounting means]

- F16K5/04 . with plugs having cylindrical surfaces; Packings therefor
- F16K5/04B . . [N: with particular plug arrangements, e.g. particular shape or built-in means]
- F16K5/04C . . [N: Plug channel at 90 degrees to the inlet]
- F16K5/04D . . [N: Fixed plug and turning sleeve]
- F16K5/04E . . [N: with a cylindrical segment mounted around a supply pipe]
- F16K5/04F . . [N: the angle the spindle makes with the housing being other than 90 degrees]
- F16K5/04G . . [N: Spindles and actuating means]
- F16K5/04H . . [N: Particular coverings and materials]
- F16K5/04J . . [N: Packings]
- F16K5/04J2 . . . [N: in the housing]
- F16K5/04J3 . . . [N: between housing and plug]
- F16K5/04J4 . . . [N: on the plug]
- F16K5/04J5 . . . [N: Spindle sealing]
- F16K5/04K . . [N: Easy mounting or dismounting means]

- F16K5/06 . with plugs having spherical surfaces; Packings therefor
- F16K5/06B . . [N: with particular plug arrangements, e.g. particular shape or built-in means]
- F16K5/06C . . [N: knee-joint]
- F16K5/06D . . [N: the angle the spindle makes with the housing being other than 90 degrees]
- F16K5/06E . . [N: with a spherical segment mounted around a supply pipe]
- F16K5/06F . . [N: Easy mounting or dismounting means]
- F16K5/06F2 . . . [N: between two flanges]
- F16K5/06F4 . . . [N: the spherical plug being insertable from the top of the housing]
- F16K5/06F6 . . . [N: the spherical plug being insertable from one and only one side of the housing]
- F16K5/06G . . [N: Spindles or actuating means]
- F16K5/06G2 . . . [N: for remote operation]
- F16K5/06H . . [N: Particular coverings or materials]
- F16K5/06J . . [N: Packings]
- F16K5/06J2 . . . [N: Single packings]
- F16K5/06J3 . . . [N: Composite packings]

- F16K5/06J3B [N: in which only one of the components of the composite packing is contacting the plug]
- [N: **WARNING**
not yet complete, see also [F16K5/06J3](#)
]
- F16K5/06J4 [N: on the plug]
- F16K5/06J5 [N: between housing and plug]
- F16K5/06J6 [N: Spindle sealings]

- F16K5/08 . . Details
- F16K5/10 . . . Means for additional adjustment of the rate of flow
- F16K5/10G [N: specially adapted for gas valves]
- F16K5/10G2 [N: with pilot flame]
- F16K5/12 . . . Arrangements for modifying the way in which the rate of flow varies during the actuation of the valve
- F16K5/14 . . . Special arrangements for separating the sealing faces or for pressing them together
- F16K5/16 for plugs with conical surfaces
- F16K5/16B [N: with the housing or parts of the housing mechanically pressing the seal against the plug]
- F16K5/16C [N: with the plugs or parts of the plugs mechanically pressing the seal against the housing]
- F16K5/16C2 [N: adjustable in height]
- F16K5/16C3 [N: Means pressing on the small diameter]
- F16K5/16C4 [N: Means pressing on the large diameter]
- F16K5/16C5 [N: Means pressing radially]
- F16K5/16D [N: Sealing effected by the flowing medium]
- F16K5/18 for plugs with cylindrical surfaces
- F16K5/18B [N: with the housing or parts of the housing mechanically pressing the seals against the plugs]
- F16K5/18B2 [N: by means of conical surfaces]
- F16K5/18C [N: with the plugs or parts of the plugs mechanically pressing the seals against the housing]
- F16K5/18C2 [N: by means of conical surfaces]
- F16K5/18C3 [N: with rolling action]
- F16K5/18D [N: Sealing effected by the flowing medium]
- F16K5/20 for plugs with spherical surfaces
- F16K5/20B [N: with the housing or parts of the housing mechanically pressing the seal against the plug]
- F16K5/20B2 [N: with conical surfaces]
- F16K5/20C [N: with the plugs or parts of the plugs mechanically pressing the seals against the housing]
- F16K5/20D [N: Sealing effected by the flowing medium]
- F16K5/20D2 [N: using bellows]
- F16K5/20D3 [N: with tongue-shaped means]

- F16K5/22 . . Features relating to lubrication
- F16K5/22B . . . [N: for plugs with conical surfaces]
- F16K5/22C . . . [N: for plugs with cylindrical surfaces]
- F16K5/22D . . . [N: for plugs with spherical surfaces]

- F16K7/00** **Diaphragm [N: valves or] 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 [B65D90/56](#); means for plugging pipes or hoses [F16L55/10](#)) [N: Pinch valves] [C9409]**

- F16K7/02 . with tubular diaphragm
- F16K7/04 . . constrictable by external radial force
- F16K7/04B . . . [N: by electric or magnetic means]
- F16K7/06 . . . by means of a screw-spindle, cam, or other mechanical means [N: ([F16K7/04B](#) takes precedence)]
- F16K7/06B [N: Screw clamps]
- F16K7/06C [N: Lever clamps]
- F16K7/06D [N: Cam clamps]
- F16K7/06F [N: Wedge clamps]
- F16K7/06G [N: by bending the hose]
- F16K7/07 . . . by means of fluid pressure
- F16K7/07S [N: a rigid body being located within the tubular diaphragm]
- F16K7/08 . . constrictable by twisting

- F16K7/10 . with inflatable member

- F16K7/12 . with flat, dished, or bowl-shaped diaphragm
- F16K7/12B . . [N: the seat being formed on the bottom of the fluid line] [N9409]
- F16K7/12C . . [N: the seat being formed on a rib perpendicular to the fluid line] [N9409]
- F16K7/14 . . arranged to be deformed against a flat seat
- F16K7/16 . . . the diaphragm being mechanically actuated, e.g. by screw-spindle or cam
- F16K7/17 . . . the diaphragm being actuated by fluid pressure

- F16K7/18 . with diaphragm secured at one side only, e.g. to be laid on the seat by rolling action

- F16K7/20 . with a compressible solid closure member

- F16K11/00** **Multiple-way valves, e.g. mixing valves; Pipe fittings incorporating such valves**

- F16K11/02 . with all movable sealing faces moving as one unit
- F16K11/02B . . [N: comprising a deformable member]
- F16K11/02B2 . . . [N: with an O-ring]
- F16K11/02B4 . . . [N: the fluid flowing through a constrictable tubular diaphragm]
- F16K11/04 . . comprising only lift valves
- F16K11/044 . . . with movable valve members positioned between valve seats

F16K11/044U	. . . .	[N: Bath/shower selectors] [N9506] [C9511]
F16K11/048	. . .	with valve seats positioned between movable valve members
F16K11/052	. . .	with pivoted closure members, e.g. butterfly valves
F16K11/052B	. . . .	[N: the closure members being pivoted around an essentially central axis]
F16K11/056	. . .	with ball-shaped valve members
F16K11/056B	. . . .	[N: moving in a combined straight line and rotating movement]
F16K11/06	. .	comprising only sliding valves, [N: i.e. sliding closure elements]
F16K11/065	. . .	with linearly sliding closure members
F16K11/065B	. . . .	[N: with flat slides]
F16K11/07	. . . .	with cylindrical slides
F16K11/07B	. . . . .	[N: comprising locking elements]
F16K11/07C	. . . . .	[N: comprising means to avoid jamming of the slide or means to modify the flow] [N1205]
F16K11/07D	. . . . .	[N: comprising particular spool-valve sealing means]
F16K11/07E	. . . . .	[N: with fluid passages through the valve member (F16K11/07B , F16K11/07C , F16K11/07D take precedence)] [N0411]
F16K11/072	. . .	with pivoted closure members
F16K11/074	. . . .	with flat sealing faces
F16K11/074B	. . . . .	[N: with both the supply and the discharge passages being on one side of the closure plates]
F16K11/074C	. . . . .	[N: with two or more closure plates comprising a single lever control]
F16K11/076	. . . .	with sealing faces shaped as surfaces of solids of revolution
F16K11/078	. . .	with pivoted and linearly movable closure members
F16K11/078B	. . . .	[N: Single-lever operated mixing valves with closure members having flat sealing faces]
F16K11/078B2	. . . . .	[N: the movable closure member being pivotally supported at one point and being linked to the operating lever at only one other point]
F16K11/078B3	. . . . .	[N: with both the supply and the discharge passages being on the same side of the closure members (F16K11/078B2 takes precedence)]
F16K11/08	. .	comprising only taps or cocks
F16K11/083	. . .	with tapered plug
F16K11/083N	. . . .	[N: having all the connecting conduits situated in a single plane perpendicular to the axis of the plug]
F16K11/083R	. . . .	[N: having all the connecting conduits situated in more than one plane perpendicular to the axis of the plug]
F16K11/085	. . .	with cylindrical plug
F16K11/085N	. . . .	[N: having all the connecting conduits situated in a single plane perpendicular to the axis of the plug]
F16K11/085R	. . . .	[N: having all the connecting conduits situated in more than one plane perpendicular to the axis of the plug]
F16K11/087	. . .	with spherical plug
F16K11/087B	. . . .	[N: the plug being only rotatable around one spindle]
F16K11/087B2	. . . . .	[N: one connecting conduit having the same axis as the spindle]
F16K11/10	. .	with two or more closure members not moving as an unit

- F16K11/10B . . . [N: Three-way check or safety valves with two or more closure members]
- F16K11/12 . . . with one plug turning in another
- F16K11/14 . . . operated by one actuating member, e.g. a handle (with one plug turning in another [F16K11/12](#))
- F16K11/16 which only slides, or only turns, or only swings in one plane
- F16K11/16B [N: only slides]
- F16K11/16C [N: only turns]
- F16K11/16C2 [N: with the rotating spindles parallel to the closure members]
- F16K11/16C3 [N: with the rotating spindles at right angles to the closure members]
- F16K11/16D [N: only swings]
- F16K11/18 with separate operating movements for separate closure members
- F16K11/18B [N: with swinging shafts]
- F16K11/20 . . . operated by separate actuating members (with one plug turning in another [F16K11/12](#))
- F16K11/20B [N: with concentric handles]
- F16K11/20C [N: with two handles at right angles to each other]
- F16K11/20D [N: with two handles or actuating mechanisms at opposite sides of the housing] [C9509]
- F16K11/22 with an actuating member for each valve, e.g. interconnected to form multiple-way valves
- F16K11/24 with an electromagnetically-operated valve, e.g. for washing machines

F16K13/00 **Other constructional types of cut-off apparatus** (means for plugging pipes or hoses [F16L55/10](#)); **Arrangements for cutting-off**

- F16K13/02 . . . with both sealing faces shaped as small segments of a cylinder and the moving member pivotally mounted
- F16K13/04 . . . [N: IPC3] with a breakable closure member
- F16K13/06 . . . [N: IPC3] constructed to be ruptured by an explosion
- F16K13/08 . . . Arrangements for cutting-off [N: not used]
- F16K13/10 by means of liquid or granular medium

Guide heading: **Functional types**

Note

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 [G05D16/00](#) or [G05D7/00](#), respectively. However, details of the valve parts, per se, are classified in the appropriate groups of this subclass.

F16K15/00 **Check valves** (valves specially adapted for inflatable balls [A63B41/00](#))

- F16K15/02 . . . with guided rigid valve members

- F16K15/02B . . [N: the valve member being a movable body around which the medium flows when the valve is open ([F16K15/02C](#) to [F16K15/12](#) take precedence)]
- [N: **WARNING**
not yet complete
]
- F16K15/02B2 . . . [N: the valve member consisting only of a predominantly disc-shaped flat element]
- [N: **WARNING**
not yet complete
]
- F16K15/02C . . [N: the valve being loaded by a helicoidal spring ([F16K15/03](#) to [F16K15/12](#) take precedence)]
- F16K15/02C2 . . . [N: the valve member being a movable body around which the medium flows when the valve is open]
- F16K15/02C2B [N: the valve member consisting only of a predominantly disc-shaped flat element]
- F16K15/03 . . with a hinged closure member
- F16K15/03B . . . [N: the hinge being flexible ([F16K15/03D](#) takes precedence)] [N9904]
- F16K15/03C . . . [N: spring-loaded ([F16K15/03D](#) takes precedence)]
- F16K15/03D . . . [N: with a plurality of valve members]
- F16K15/03D2 [N: Dual valve members with hinges crossing the flow line substantially diametrical] [N1102]
- F16K15/03D2B [N: having a common hinge] [N1102]
- F16K15/04 . . shaped as balls
- F16K15/04B . . . [N: with a plurality of balls]
- F16K15/04C . . . [N: spring-loaded ([F16K15/04B](#) takes precedence)]
- F16K15/04C2 [N: by a spring other than a helicoidal spring] [N9506]
- F16K15/04D . . . [N: Ball features] [N9610]
- [N: **WARNING**
not yet complete, see also [F16K15/04](#)
]
- F16K15/06 . . with guided stems
- F16K15/06C . . . [N: the valve being loaded by a helicoidal spring]
- [N: **WARNING**
not yet complete, see also [F16K15/06](#)
]
- F16K15/06C2 [N: with a plurality of valve members][N0409]
- F16K15/08 . . shaped as rings
- F16K15/10 . . . integral with, or rigidly fixed to, a common valve plate
- F16K15/12 . . . Springs for ring valves
- F16K15/14 . . with flexible valve members
- F16K15/14G . . [N: the closure elements not being fixed to the valve body]
- F16K15/14G2 . . . [N: the closure elements being shaped as solids of revolution, e.g. toroidal or cylindrical rings]

- F16K15/14H . . [N: the closure elements being fixed along all or a part of their periphery]
- F16K15/14H2 . . . [N: the closure elements being shaped as a solids of revolution, e.g. cylindrical or conical]
- F16K15/14H3 . . . [N: the closure elements having specially formed slits or being of an elongated easily collapsible form]
- F16K15/14J . . [N: the closure elements being fixed in their centre]
- F16K15/16 . . with tongue-shaped laminae

- F16K15/18 . with actuating mechanism; Combined check valves and actuated valves
- F16K15/18B . . [N: for check valves with a hinged closure member ([F16K15/18F](#) takes precedence)]
- F16K15/18C . . [N: for ball check valves ([F16K15/18E](#), [F16K15/18F](#) take precedence)]
- F16K15/18D . . [N: for check valves with flexible valve members ([F16K15/18F](#) takes precedence)]
- F16K15/18E . . [N: Check valves which can be actuated by a pilot valve]
- F16K15/18F . . [N: Check valves combined with valves having a rotating tap or cock]

- F16K15/20 . specially designed for inflatable bodies, e.g. tyres ([connecting valves to inflatable bodies B60C29/00](#))
- F16K15/20F . . [N: and with flexible valve member]
- F16K15/20P . . [N: and with closure plug]
- F16K15/20S . . [N: and combined with other valves, e.g. safety valves]

- F16K17/00** **Safety valves; Equalising valves, [N: e.g. pressure relief valves]**

- F16K17/00B . [N: reacting to pressure and temperature]
- F16K17/00C . [N: specially adapted for shelters]
- F16K17/02 . opening on surplus pressure on one side; closing on insufficient pressure on one side ([check valves F16K15/00](#))
- F16K17/02B . . [N: and remaining open after return of the normal pressure [\[N1205\]](#)

- [N: **WARNING**
 This group is not complete pending a reorganisation, see also [F16K17/02](#)
]
- F16K17/04 . . spring-loaded
- F16K17/04B . . . [N: in the form of balls]
- F16K17/04C . . . [N: in the form of closure plates]
- F16K17/04D . . . [N: with locking or disconnecting arrangements]
- F16K17/04E . . . [N: with seat protecting means]
- F16K17/04F . . . [N: with vibration preventing means]
- F16K17/04G . . . [N: with more than one spring]
- F16K17/04H . . . [N: with an obturating member having at least a component of their opening and closing motion not perpendicular to the closing faces]
- F16K17/04H2 [N: the member being a diaphragm]
- F16K17/04H3 [N: the valve being of the gate valve type or the sliding valve type]

[N: **WARNING**

- not yet complete, see also [F16K17/04H](#)
]
- F16K17/04J . . . [N: with a special seating surface]
 - F16K17/04K . . . [N: Multiple-way safety valves]
 - F16K17/04L . . . [N: combined with other safety valves, or with pressure control devices]
 - F16K17/04M . . . [N: with mechanical actuating means]
 - F16K17/04N . . . [N: with a spring other than a helicoidal spring] [N9511]
 - F16K17/06 . . . with special arrangements for adjusting the opening pressure
 - F16K17/06B [N: with differential piston]
 - F16K17/08 . . . with special arrangements for providing a large discharge passage
 - F16K17/08B [N: with piston]
 - F16K17/08C [N: with diaphragm]
 - F16K17/08D [N: with bellows]
 - F16K17/10 . . . with auxiliary valve for fluid operation of the main valve
 - F16K17/10B [N: using choking or throttling means to control the fluid operation of the main valve]
 - F16K17/12 . . weight-loaded
 - F16K17/14 . . with fracturing member
 - F16K17/16 . . . with fracturing diaphragm; [N: Rupture discs]
 - F16K17/16A [N: of the reverse-buckling-type ([F16K17/16C](#) takes precedence)]
 - F16K17/16A2 [N: with additional cutting means]
 - F16K17/16B [N: of the non reverse-buckling-type ([F16K17/16C](#) takes precedence)]
 - F16K17/16B2 [N: with additional cutting means]
 - F16K17/16C [N: made of graphite]
 - F16K17/164 . . and remaining closed after return of the normal pressure
 - F16K17/168 . . combined with manually-controlled valves, e.g. a valve combined with a safety valve
 - F16K17/18 . . opening on surplus pressure on either side
 - F16K17/19 . . Equalising valves predominantly for tanks [N: when combined with safety valve by change of position [F16K17/36](#)]
 - F16K17/192 . . . with closure member in the form of a movable liquid column
 - F16K17/194 . . . weight-loaded
 - F16K17/196 . . . spring-loaded
 - F16K17/20 . . Excess-flow valves (actuated in consequence of shock or similar extraneous influence [F16K17/36](#))
 - F16K17/20G . . . [N: specially adapted for flexible gas lines]
 - F16K17/22 . . actuated by the difference of pressure between two places in the flow line
 - F16K17/24 . . . acting directly on the cutting-off member
 - F16K17/26 operating in either direction
 - F16K17/28 operating in one direction only
 - F16K17/28K [N: the cutting-off member being a ball ([F16K17/30](#) takes precedence)] [N9502]

- F16K17/30 spring-loaded
- F16K17/32 . . . acting on a servo-mechanism or on a catch-releasing mechanism
- F16K17/34 . . in which the flow-energy of the flowing medium actuates the closing mechanism

- F16K17/36 . actuated in consequence of extraneous circumstances, e.g. shock, change of position
- F16K17/36B . . [N: the closure members being rotatable or pivoting ([F16K17/38B](#) takes precedence)] [N9509]
- F16K17/36C . . [N: the closure member being a movable ball ([F16K17/38](#) takes precedence)] [N9604]

- [N: **WARNING**
not yet complete, see also [F16K17/36](#)
]
- F16K17/38 . . of excessive temperature
- F16K17/38A . . . [N: the valve comprising fusible, softening or meltable elements, e.g. used as link, blocking element, seal, closure plug ([F16K17/38B](#) takes precedence)]
- F16K17/38B . . . [N: the closure members being rotatable or pivoting]

- F16K17/40 . with a fracturing member, e.g. fracturing diaphragm, glass, fusible joint ([valves opening on surplus pressure F16K17/14](#))
- F16K17/40A . . [N: with a fracturing valve member]
- F16K17/40B . . [N: the fracturing member being a generally elongated member, e.g. rod or wire, which is directly connected to a movable valve member, the breaking or buckling of the elongated member allowing the valve member to move to a closed or open position]

- F16K17/42 . Valves preventing penetration of air in the outlet of containers for liquids

- F16K19/00** [N: IPC 3] **Arrangements of valves and flow lines specially adapted for mixing fluids** ([multiple-way valves F16K11/00](#))

- F16K19/00B . [N: Specially adapted for boilers]
- F16K19/00D . [N: Specially adapted for faucets]

- F16K21/00** **Fluid-delivery valves, [N: e.g. self-closing valves]** ([for liquid handling B67D](#); [for flushing devices for water-closets or the like E03D](#))

- F16K21/02 . providing a continuous small flow
- F16K21/04 . Self-closing valves, i.e. closing automatically after operation [N: [pneumatic tools B25B9/00](#)]
- F16K21/06 . . in which the closing movement, either retarded or not, starts immediately after opening
- F16K21/08 . . . with ball-shaped closing members
- F16K21/10 . . . with hydraulic brake cylinder acting on the closure member
- F16K21/12 . . . with hydraulically-operated opening means; with arrangements for pressure relief before opening
- F16K21/14 . . with special means for preventing the self-closing

- F16K21/16 . . closing after a predetermined quantity of fluid has been delivered ([F16K21/10](#) takes precedence)
- F16K21/16B . . . [N: with means sensing the weight of said fluid quantity]
 [N: **WARNING**
 not yet complete, see also [F16K21/16](#)
]
- F16K21/18 . . closed when a rising liquid reaches a predetermined level (float-actuated valves [F16K31/18](#))
- F16K21/18B . . . [N: with electrical or magnetical means, e.g. with magnetic floats, for sensing the liquid level]
 [N: **WARNING**
 not yet complete, see also [F16K21/18](#)
]
- F16K21/20 . . . by means making use of air-suction through an opening closed by the rising liquid

F16K23/00 Valves for preventing drip from nozzles

F16K24/00 Devices, e.g. valves, for venting or aerating enclosures (equalising valves [F16K17/00](#); arrangement or mounting in pipes or pipe systems [F16L55/07](#); 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](#))

- F16K24/02 . the enclosure being itself a valve, tap, or cock
- F16K24/04 . for venting only ([F16K24/02](#) takes precedence)
- F16K24/04B . . [N: actuated by a float]
- F16K24/04B1 . . . [N: the float being rigidly connected to the valve element, the assembly of float and valve element following a substantially translational movement when actuated, e.g. also for actuating a pilot valve]
 [N: **WARNING**
 not yet complete, see also [F16K24/04B](#)
]
- F16K24/04B1B [N: the assembly of float and valve element being a single spherical element]
- F16K24/04B2 . . . [N: a transmission element, e.g. arm, being interposed between the float and the valve element, the transmission element following a non-translational, e.g. pivoting or rocking, movement when actuated]
- F16K24/06 . for aerating only ([F16K24/02](#) takes precedence)

Guide heading: Details

Note

Details not provided for in the following groups are classified in the preceding groups.

F16K25/00 Details relating to contact between valve members and seat (sealing constructions, see the appropriate groups according to the type of valve; movement of valve members other than for opening and closing [F16K29/00](#))

- F16K25/00B . [N: Particular materials for seats or closure elements]
- F16K25/02 . Arrangements using fluid issuing from valve members or seats
- F16K25/04 . Arrangements for preventing erosion, not otherwise provided for
- F16K27/00** **Construction of housing (methods for welding housings [B23K](#)); Use of materials therefor**
- F16K27/00B . [N: Housing formed from a plurality of the same valve elements]
- F16K27/00C . [N: of hydrants]
- F16K27/02 . of lift valves (for reducing the flow resistance of screw-spindle lift-valves 1/06)
- F16K27/02B . . [N: Check valves or pivoted valves]
- F16K27/02B2 . . . [N: Butterfly valves]
- F16K27/02B3 . . . [N: with the valve members swinging around an axis located at the edge of or outside the valve member] [N9509]
- F16K27/02C . . [N: Diaphragm cut-off apparatus]
- F16K27/02D . . [N: with ball-shaped valve members]
- F16K27/02E . . [N: with conical shaped valve members]
- F16K27/02F . . [N: multiple way valves]
- F16K27/02G . . [N: valves provided with a lining]
- F16K27/02H . . [N: Housings in two parts which can be orientated in different positions]
- F16K27/02J . . [N: Electromagnetically actuated valves] [N1205]
- [N: **WARNING**
This group is not complete pending a reorganisation, see also [F16K27/02](#)
]
- F16K27/04 . of sliding valves
- F16K27/04B . . [N: cylindrical slide valves]
- F16K27/04B1 . . . [N: Hydraulic fluid leak traps]
- F16K27/04C . . [N: slide valves with flat obturating members]
- F16K27/04C2 . . . [N: with pivotal obturating members]
- F16K27/04C4 . . . [N: with wedge-shaped obturating members]
- F16K27/04D . . [N: Electromagnetically actuated valves][N1205]
- [N: **WARNING**
This group is not complete pending a reorganisation, see also [F16K27/04](#)
]
- F16K27/06 . of taps or cocks
- F16K27/06B . . [N: with conical plugs]
- F16K27/06C . . [N: with cylindrical plugs]
- F16K27/06D . . [N: with spherical plugs]
- F16K27/07 . of cutting-off parts of tanks, e.g. tank-ears [N1205]

[N: WARNING

This group is not complete pending a reorganisation, see also [F16K51/00](#)
]

- F16K27/08 . Guiding yokes for spindles; Means for closing housings; Dust caps, e.g. for tyre valves
- F16K27/10 . Welded housings
- F16K27/10B . . [N: for lift-valves]
- F16K27/10C . . [N: for gate valves]
- F16K27/10D . . [N: for taps or cocks]
- F16K27/12 . Covers for housings

F16K29/00 Arrangements for movement of valve members other than for opening and closing the valve, e.g. for grinding-in, for preventing sticking

- F16K29/02 . providing for continuous motion

F16K31/00 [N: Actuating devices;] Operating means; Releasing devices [N: (regulating means G05D)]

- F16K31/00B . [N: actuated by volume variations caused by an element soluble in a fluid or swelling in contact with a fluid (*life-boats* [B63C9/24](#))]
- F16K31/00C . [N: actuated by temperature variation (*thermo-electric* [F16K31/02B](#))]
- F16K31/00D . [N: operated without a stable intermediate position, e.g. with snap action ([F16K31/56](#) takes precedence)]
- F16K31/00E . [N: actuated by piezo-electric means]
- F16K31/00E2 . . [N: Piezo-electric benders] [N0105]
- F16K31/00E2B . . . [N: having a free end] [N0105]
- F16K31/00E3 . . [N: Piezo-electric stacks] [N0105]
- F16K31/00E3B . . . [N: for sliding valves][N1205]

[N: WARNING

This group is not complete pending a reorganisation, see also [F16K31/00E3](#)
]

- F16K31/02 . electric [N: ([F16K31/00E](#) takes precedence)]; magnetic [C0105]
- F16K31/02B . . [N: actuated by thermo-electric means]
- F16K31/04 . . using a motor
- F16K31/04B . . . [N: for rotating valves ([F16K31/05B](#) takes precedence)] [N1205]

[N: WARNING

Subgroups [F16K31/04B2](#) to [F16K31/04B4B](#) are not complete pending a reorganisation, see also [F16K31/04B](#)
]

F16K31/04B2	. . . .	[N: with electric means, e.g. for controlling the motor or a clutch between the valve and the motor] [N1205]
F16K31/04B4	. . . .	[N: characterised by mechanical means between the motor and the valve, e.g. lost motion means reducing backlash, clutches, brakes or return means] [N1205]
F16K31/04B4B	. . . . .	[N: with torque limiters] [N1205]
F16K31/04E	. . .	[N: with electric means, e.g. electric switches, to control the motor or to control a clutch between the valve and the motor (F16K31/04B takes precedence)] [N9412]
F16K31/04V	. . .	[N: characterised by mechanical means between the motor and the valve, e.g. lost motion means reducing backlash, clutches, brakes or return means (F16K31/04B4 takes precedence)] [N9412] [N1205]
F16K31/04V2	. . . .	[N: with torque limiters (F16K31/04B takes precedence)] [N9412]
F16K31/05	. . .	specially adapted for operating hand-operated valves or for combined motor and hand operation
F16K31/05B	. . . .	[N: for rotating valves]
F16K31/06	. .	using a magnet [N: e.g. diaphragm valves, cutting off by means of a liquid]
F16K31/06B	. . .	[N: Multiple-way valves]
F16K31/06B2	. . . .	[N: fluid passing through the solenoid coil]
F16K31/06B4	. . . .	[N: Sliding valves] [C0711]
F16K31/06B4B	. . . . .	[N: with cylindrical slides] [N0711]
F16K31/06B4C	. . . . .	[N: with flat slides] [N0711]
F16K31/06B6	. . . .	[N: the valve element being at least partially ball-shaped]
F16K31/06B8	. . . .	[N: Lift valves] [N0711]
F16K31/06B8B	. . . . .	[N: with movable valve member positioned between seats] [N0711]
F16K31/06B8B2	. . . . .	[N: with ball shaped valve members] [N0711]
F16K31/06B8C	. . . . .	[N: with fixed seats positioned between movable valve members] [N0711]
F16K31/06B8C2	. . . . .	[N: with ball shaped valve members] [N0711]
F16K31/06B10	. . . .	[N: the valve member being a diaphragm] [N0711]
F16K31/06C	. . .	[N: One-way valve]
F16K31/06C2	. . . .	[N: the armature and the valve member forming one element (F16K31/06C4 takes precedence)]
F16K31/06C4	. . . .	[N: the fluid passing through the solenoid coil]
F16K31/06C6	. . . .	[N: Lift valves] [N0711]
F16K31/06C6B	. . . . .	[N: Armature and valve member being one single element] [N0711]
F16K31/06C6B2	. . . . .	[N: with a ball-shaped valve member] [N0711]
F16K31/06C6C	. . . . .	[N: with valve member being at least partially ball-shaped (F16K31/06C6B2 takes precedence)] [N0711]
F16K31/06C8	. . . .	[N: Sliding valves] [N0711]
F16K31/06C10	. . . .	[N: the valve member being a diaphragm] [N0711]
F16K31/06D	. . .	[N: Electromagnet aspects, e.g. electric supply therefor] [C0711]
F16K31/06D2	. . . .	[N: with more than one energising coil] [N0711]
F16K31/06F	. . .	[N: with an articulated or pivot armature]
F16K31/06H	. . .	[N: Braking, pressure equilibration, shock absorbing]
F16K31/06H2	. . . .	[N: Braking of the valve element] [N0711]

F16K31/06H4	. . . .	[N: Pressure equilibration of the armature] [N0711]
F16K31/06H6	. . . .	[N: Shock absorbing, e.g. using a dash-pot] [N0711]
F16K31/08	. . .	using a permanent magnet
F16K31/08E	. . . .	[N: using a electromagnet and a permanent magnet]
F16K31/08K	. . . .	[N: the magnet being used only as a holding element to maintain the valve in a specific position, e.g. check valves (F16K31/08E , F16K31/08M take precedence)] [N9501]
F16K31/08M	. . . .	[N: the magnet being movable and actuating a second magnet connected to the closing element]
F16K31/08M2	. . . . .	[N: the movement of the first magnet being a rotating or pivoting movement]
F16K31/10	. . .	with additional mechanism between armature and closure member
F16K31/10B	. . . .	[N: for rotating valves]
F16K31/12	. . .	actuated by fluid ([N: fluid-actuated lift valves F16K1/12P]; fluid-actuated check valves F16K15/00 ; fluid-actuated safety valves F16K17/00) [C9602]
F16K31/122	. .	[N: the fluid acting on a piston (F16K31/143 , F16K31/163 , F16K31/363 , F16K31/383 take precedence)]
F16K31/122B	. . .	[N: one side of the piston being spring-loaded]
F16K31/122C	. . .	[N: one side of the piston being acted upon by the circulating fluid]
F16K31/122D	. . .	[N: with a plurality of pistons]
F16K31/122E	. . .	[N: the fluid circulating through the piston]
F16K31/122F	. . .	[N: with a stationary piston]
F16K31/124	. . .	servo actuated
F16K31/124B	. . . .	[N: with more than one valve]
F16K31/126	. .	[N: the fluid acting on a diaphragm, bellows, or the like (F16K31/145 , F16K31/165 , F16K31/365 , F16K31/385 take precedence)]
F16K31/126B	. . .	[N: one side of the diaphragm being spring loaded]
F16K31/126B1	. . . .	[N: with means to allow the side on which the springs are positioned to be altered]
F16K31/126C	. . .	[N: one side of the diaphragm being acted upon by the circulating fluid]
F16K31/126D	. . .	[N: with a plurality of the diaphragms]
F16K31/128	. . .	servo actuated
F16K31/14	. .	for mounting on, or in combination with, hand-actuated valves
F16K31/143	. . .	the fluid acting on a piston
F16K31/145	. . .	the fluid acting on a diaphragm
F16K31/16	. .	with a mechanism, other than pulling-or pushing-rod, between fluid motor and closure member (with float F16K31/18)
F16K31/163	. . .	the fluid acting on a piston
F16K31/163B	. . . .	[N: for rotating valves]
F16K31/165	. . .	the fluid acting on a diaphragm
F16K31/165B	. . . .	[N: for rotating valves]
F16K31/18	. .	actuated by a float (floats F16K33/00 ; float-actuated valves in steam-traps F16T1/20 , in boilers F22D5/08)
F16K31/20	. . .	actuating a lift valve

- F16K31/22 with the float rigidly connected to the valve
- F16K31/24 with a transmission with parts linked together from a single float to a single valve
- F16K31/26 with the valve guided for rectilinear movement and the float attached to a pivoted arm
- F16K31/26B [N: with a second lever or toggle between the pivoted arm and the valve] [N9409]
- F16K31/28 with two ore more floats actuating one valve
- F16K31/30 actuating a gate valve or sliding valve
- F16K31/32 actuating a tap or cock
- F16K31/34 acting on pilot valve controlling the cut-off apparatus
- F16K31/36 in which fluid from the circuit is constantly supplied to the fluid motor
- F16K31/363 the fluid acting on a piston ([F16K31/38](#) takes precedence)
- F16K31/365 the fluid acting on a diaphragm
- F16K31/38 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 ([F16K31/40](#) takes precedence)
- F16K31/383 the fluid acting on a piston
- F16K31/383B [N: the discharge being effected through the piston and being blockable by a mechanically-actuated member making contact with the piston] [N9501] [C9506]
- F16K31/385 the fluid acting on a diaphragm
- F16K31/385B [N: the discharge being effected through the diaphragm and being blockable by a mechanically-actuated member making contact with the diaphragm] [N9412] [C9904]
- F16K31/40 with electrically-actuated member in the discharge of the motor
- F16K31/40A [N: acting on a diaphragm]
- F16K31/40A2 [N: the discharge being effected through the diaphragm and being blockable by an electrically-actuated member making contact with the diaphragm] [N9412] [C9904]
- F16K31/40B [N: acting on a piston]
- F16K31/40B2 [N: the discharge being effected through the piston and being blockable by an electrically-actuated member making contact with the piston] [N9501] [C9506]
- F16K31/42 by means of electrically-actuated members in the supply or discharge conduits of the fluid motor ([F16K31/40](#) takes precedence)
- F16K31/42A [N: the actuated members consisting of multiple way valves]
- F16K31/42A2 [N: the actuated valves being cylindrical sliding valves]
- F16K31/44 Mechanical actuating means
- F16K31/44D [N: with exterior sleeve]
- F16K31/46 for remote operation
- F16K31/46B [N: by flexible transmission means, e.g. cable, chain, bowden wire]
- [N: **WARNING**
not complete, see also [F16K31/46](#)
]
- F16K31/48 actuated by mechanical timing-device, e.g. with dash-pot ([self-closing valves](#)

F16K21/16)

- F16K31/48G . . . [N: and specially adapted for gas valves]
- F16K31/50 . . with screw-spindle [N: or internally threaded actuating means]
- F16K31/50B . . . [N: actuating pivotable valve members]
- F16K31/50C . . . [N: the actuating means being rotatable, rising, and having internal threads which co-operate with threads on the outside of the valve body] [C9409]
- F16K31/50M . . . [N: with plural sets of thread, e.g. with different pitch]

- [N: **WARNING**
not yet complete, see also [F16K31/50](#)
]
- F16K31/50U . . . [N: the actuating element being rotatable, non-rising, and driving a non-rotatable axially-sliding element]

- [N: **WARNING**
not yet complete, see also [F16K31/50](#)
]
- F16K31/52 . . with crank, eccentric, or cam
- F16K31/52B . . . [N: comprising a pivoted disc or flap]
- F16K31/52C . . . [N: comprising a tap or cock]
- F16K31/52D . . . [N: comprising a sliding valve]
- F16K31/524 . . . with a cam
- F16K31/524B [N: comprising a lift valve]
- F16K31/524B2 [N: comprising a multiple-way lift valve]
- F16K31/524B3 [N: with a ball-shaped valve member] [N0007]
- F16K31/524B4 [N: with a streamlined or helically shaped valve member, e.g. for reducing flow losses or guiding the fluid flow] [N0007]
- F16K31/524B5 [N: with a pivoted disc or flap] [N0007]
- F16K31/524B6 [N: with a valve member of conical shape] [N0007]
- F16K31/524G [N: comprising a tap or cock]
- F16K31/524G2 [N: comprising a multiple-way tap or cock]
- F16K31/524H [N: comprising a sliding valve]
- F16K31/524H2 [N: comprising a multiple-way sliding valve]
- F16K31/524J [N: comprising a diaphragm cut-off apparatus]
- F16K31/528 . . . with pin and slot
- F16K31/528B [N: comprising a pivoted disc or flap]
- F16K31/528C [N: comprising a tap or cock]
- F16K31/528D [N: comprising a sliding valve]
- F16K31/528E [N: comprising a diaphragm cut-off apparatus]
- F16K31/53 . . with toothed gearing
- F16K31/53B . . . [N: for rotating valves ([F16K31/54](#) takes precedence)] [N9409]
- F16K31/54 . . . with pinion and rack
- F16K31/56 . . without stable intermediate position, e.g. with snap action
- F16K31/56B . . . [N: for rotating or pivoting valves] [N9602]

- F16K31/56D . . . [N: using a bistable spring device arranged symmetrically around the actuating stem] [N9602]
- F16K31/58 . . comprising a movable discharge-nozzle
- F16K31/60 . . Handles [N: form, features or function of taps or faucet handles for domestic plumbing installations E03C1/04] [N1205]
- F16K31/60A . . . [N: Pivoting levers, e.g. single-sided ([F16K31/60B](#) takes precedence)]
- F16K31/60B . . . [N: for single handle mixing valves]
- F16K31/60W . . . [N: characterised by particular material, by special measures to obtain aesthetical effects, or by auxiliary functions, e.g. storage]
- [N: **WARNING**
not complete, see also [F16K31/60](#)
]
- F16K31/62 . . Pedals or like operating members, e.g. actuated by knee or hip

- F16K33/00** **Floats for actuation of valves or other apparatus** [N: (float actuated valves [F16K31/18](#))]

- F16K35/00** **Means to prevent accidental or unauthorised actuation**

- F16K35/02 . to be locked or disconnected by means of a pushing or pulling action
- F16K35/02R . . [N: the locking mechanism being actuated by a separate actuating element]
- F16K35/02R2 . . . [N: said actuating element being operated manually (e.g. a push-button located in the valve actuator)]
- F16K35/02T . . [N: the locking mechanism being actuated by pushing or pulling the valve actuator, the valve actuator being rotated subsequently to bring the valve closure element in the desired position]

- F16K35/04 . Yieldingly resisting the actuation

- F16K35/06 . using a removable actuating or locking member, e.g. a key ([F16K35/10](#), [F16K35/12](#) take precedence)

- F16K35/08 . requiring setting according to a code, e.g. permutation locks

- F16K35/10 . with locking caps or locking bars

- F16K35/12 . with sealing wire

- F16K35/14 . interlocking two or more valves

- F16K35/16 . with locking member actuated by magnet

- F16K37/00** **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**

- F16K37/00B . [N: Mechanical means ([F16K37/00G](#) takes precedence)]
- F16K37/00B2 . . [N: having a graduated scale]

- F16K37/00D . [N: Electrical or magnetic means ([F16K37/00G](#) takes precedence)]

- F16K37/00D2 . . [N: using a permanent magnet, e.g. in combination with a reed relays]
- F16K37/00D4 . . [N: for measuring valve parameters (F16K37/00D2 takes precedence)] [N1205]
- F16K37/00D6 . . [N: for measuring fluid parameters (F16K37/00D2 takes precedence)] [N1205]
- F16K37/00E . [Optical means, e.g. light transmission, observation ports ([F16K37/00G](#) takes precedence)]
- F16K37/00F . [N: Hydraulic or pneumatic means ([F16K37/00G](#) takes precedence)]
- F16K37/00G . [N: For recording or indicating the functioning of a valve in combination with test equipment]
- F16K37/00G2 . . [N: by measuring valve parameters] [N1205]
- F16K37/00G4 . . [N: by measuring fluid parameters] [N1205]

F16K39/00

Devices for relieving the pressure on the sealing faces

- F16K39/02 . for lift valves
 - F16K39/02B . . [N: using balancing surfaces]
 - F16K39/02C . . [N: using an auxiliary valve on the main valve]
 - F16K39/02D . . [N: using an external auxiliary valve]
 - F16K39/02E . . [N: with pivoted closure members, e.g. butterfly valves]
- F16K39/04 . for sliding valves
 - F16K39/04B . . [N: of rotating or pivoting type] [N9806]

WARNING

Not yet complete, see [F16K39/04](#)

- F16K39/06 . for taps or cocks

F16K41/00

Spindle sealings

- F16K41/00B . [N: by fluid] [N1205]
- F16K41/00C . [N: by establishing an under-pressure]
- F16K41/02 . with stuffing-box; [N: Sealing rings] [N1205]
- F16K41/02B . . [N: for spindles which only rotate, i.e. non-rising spindles ([F16K41/04B](#), [F16K41/06B](#) and [F16K41/08B](#) take precedence)] [N9501] [C9903]
- F16K41/02B2 . . . [N: for rotating valves] [N9501]
- F16K41/04 . . with at least one ring of rubber or like material between spindle and housing
- F16K41/04B . . . [N: for spindles which only rotate, i.e. non-rising spindles] [N9903]
- F16K41/04B2 [N: for rotating valves] [N9904]
- F16K41/06 . . with at least one ring attached to both spindle and housing
- F16K41/06B . . . [N: for spindles which only rotate, i.e. non-rising spindles] [N9903]

WARNING

- Not yet complete, see also [F16K41/06](#)
- F16K41/06B2 [N: for rotating valves] [N9904]
- [WARNING]**
Not yet complete, see also [F16K41/06](#)
- F16K41/08 . . with at least one ring provided with axially-protruding peripheral closing-lip
- F16K41/08B . . . [N: for spindles which only rotate, i.e. non-rising spindles] [N9903]
- [WARNING]**
Not yet complete, see also [F16K41/08](#)
- F16K41/08B2 [N: for rotating valves] [N9904]
- [WARNING]**
Not yet complete, see also [F16K41/08](#)
- F16K41/10 . with diaphragm, e.g. shaped as bellows or tube
- F16K41/10B . . [N: the diaphragm and the closure member being integrated in one member] [C9409]
- F16K41/10C . . [N: for use with rotating spindles or valves ([F16K41/12B](#) takes precedence)] [N9409]
- F16K41/12 . . with approximately flat diaphragm
- F16K41/12B . . . [N: the part of the spindle traversing the diaphragm being rotatable or pivotable]
- F16K41/14 . with conical flange on the spindle which co-operates with a conical surface in the housing
- F16K41/16 . with a flange on the spindle which rests on a sealing ring
- F16K41/18 . . sealing only when the closure member is in the opened position
- F16K43/00** **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**
- F16K43/00C . [N: an auxiliary valve being actuated independently of the main valve] [N9506]
- F16K43/00C2 . . [N: the auxiliary valve being a rotary valve] [N9506]
- F16K43/00D . [N: an auxiliary valve closing automatically when the main valve is being disassembled] [N9506]
- F16K43/00D2 . . [N: the auxiliary valve being held open by the main valve] [N9506]
- F16K43/00E . [N: the main valve having a back-seat position, e.g. to service the spindle sealing] [N9506]
- F16K47/00** **Means in valves for absorbing fluid energy** [N: e.g. cushioning of opening or closure movement, eliminating of vibrations of the valve member] (for pipes [F16L55/00](#))
- F16K47/02 . for preventing water-hammer or noise [N: e.g. for sanitary applications, toilet flush reservoirs ([F16K47/04](#) and [F16K47/08](#) take precedence)]
- F16K47/02B . . [N: for preventing water-hammer, e.g. damping of the valve movement]

- F16K47/02C . . [N: preventing noise in a single handle mixing valve]
- F16K47/04 . for decreasing pressure [N: or noise level], the throttle being incorporated in the closure member
- F16K47/04B . . [N: and the closure member being rotatable]
- F16K47/06 . . with a throttle in the form of a helical channel
- F16K47/08 . for decreasing pressure [N: or noise level] and having a throttling member separate from the closure member, [N: e.g. screens, slots, labyrinths]
- F16K47/10 . . 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
- F16K47/12 . . the throttling channel being of helical form
- F16K47/14 . . the throttling member being a perforated membrane
- F16K47/16 . . the throttling member being a cone

- F16K49/00** **Means in or on valves for heating or cooling** (for pipes [F16L53/00](#); thermal insulation in connection with pipes or pipe systems [F16L59/16](#))
- F16K49/00B . [N: Electric heating means]
- F16K49/00C . [N: Circulation means for a separate heat transfer fluid]
- F16K49/00C2 . . [N: located within the obturating element]

- F16K51/00** **Other details not peculiar to particular types of valves or cut-off apparatus**
- F16K51/02 . specially adapted for high-vacuum installations

- F16K99/00** **Subject matter not provided for in other groups of this subclass** [N0704]
- F16K99/00M . [N: Micro-valves (micro-devices B81B1/00; manufacture or treatment of devices or systems in or on a substrate B81C1/00; micro-fluidic structures B01L3/00C6M; micro-pumps F04B19/00M)] [N1205]
- F16K99/00M2 . . [N: Constructional types of microvalves; Details of the cutting-off member] [N1112]
- F16K99/00M2B . . . [N: Lift valves] [N1112]
- F16K99/00M2B2 [N: of cantilever type] [N1112]
- F16K99/00M2B4 [N: the valve element held by multiple arms] [N1112]
- F16K99/00M2C . . . [N: Gate valves or sliding valves] [N1112]
- F16K99/00M2D . . . [N: Rotary valves] [N1112]
- F16K99/00M2E . . . [N: Diaphragm or membrane valves] [N1112]
- F16K99/00M2F . . . [N: Capillary or surface tension valves, e.g. using electro-wetting or electro-capillarity effects] [N1112]
- F16K99/00M2G . . . [N: Valves using a micro-droplet or micro-bubble as the valve member] [N1112]
- F16K99/00M2H . . . [N: No-moving-parts valves] [N1112]
- F16K99/00M2I . . . [N: with ball-shaped valve members] [N1112]
- F16K99/00M2J . . . [N: Valves using microporous membranes] [N1112]

F16K99/00M2K	. . .	[N: Valves using channel deformation] [N1112]
F16K99/00M2L	. . .	[N: Valves having multiple inlets or outlets] [N1112]
F16K99/00M2M	. . .	[N: Valves for single use only] [N1112]
F16K99/00M2N	. . .	[N: using phase transition or influencing viscosity] [N1112]
F16K99/00M4	. .	[N: Operating means specially adapted for microvalves] [N1112]
F16K99/00M4B	. . .	[N: operated by temperature variations] [N1112]
F16K99/00M4B2	. . . .	[N: using shape memory alloys] [N1112]
F16K99/00M4B4	. . . .	[N: using radiation] [N1112]
F16K99/00M4C	. . .	[N: Electric operating means therefor] [N1112]
F16K99/00M4C2	. . . .	[N: using thermo-electric means] [N1112]
F16K99/00M4C4	. . . .	[N: using magnets] [N1112]
F16K99/00M4C6	. . . .	[N: using piezoelectric means] [N1112]
F16K99/00M4C8	. . . .	[N: using an electroactive polymer (EAP)] [N1112]
F16K99/00M4C10	. . . .	[N: using electrostatic means] [N1112]
F16K99/00M4C12	. . . .	[N: using magnetostrictive means] [N1112]
F16K99/00M4D	. . .	[N: actuated by fluids] [N1112]
F16K99/00M4D2	. . . .	[N: the fluid being the circulating fluid itself, e.g. check valves] [N1112]
F16K99/00M4D4	. . . .	[N: actuated by a pilot fluid] [N1112]
F16K99/00M4D6	. . . .	[N: actuated by an expanding gas or liquid volume] [N1112]
F16K99/00M4E	. . .	[N: using centrifugal forces] [N1112]
F16K99/00M4F	. . .	[N: using chemical activation] [N1112]
F16K99/00M4F2	. . . .	[N: actuated by a pyrotechnical charge] [N1112]