

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G01 MEASURING; TESTING (NOTES omitted)

G01F MEASURING VOLUME, VOLUME FLOW, MASS FLOW OR LIQUID LEVEL; METERING BY VOLUME

NOTE

Attention is drawn to the Notes following the title of class [G01](#).

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Measuring volume flow

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|-------------|---|--------|--|
| | | 1/12 | . . . Adjusting, correcting, or compensating means therefor |
| 1/00 | Measuring the volume flow or mass flow of fluid or fluent solid material wherein the fluid passes through a meter in a continuous flow (measuring a proportion of the volume flow G01F 5/00) | 1/125 | {with electric, electro-mechanical or electronic means} |
| | | 1/20 | . . by detection of dynamic effects of the flow |
| | | 1/203 | . . . {Jet stream flowmeters} |
| | | 1/206 | . . . {Measuring pressure, force or momentum of a fluid flow which is forced to change its direction} |
| | | 1/22 | . . . by variable-area meters {, e.g. rotameters} |
| 1/002 | . wherein the flow is in an open channel | 1/24 | with magnetic or electric coupling to the indicating device |
| 1/005 | . . {using floats} | 1/26 | of the valve type |
| 1/007 | . {by measuring the level variations of storage tanks relative to the time} | 1/28 | . . . by drag-force, e.g. vane type or impact flowmeter |
| 1/05 | . by using mechanical effects | 1/30 | for fluent solid material |
| 1/053 | . . {using rotating vanes with tangential and axial admission} | 1/32 | . . . using swirl flowmeters |
| 1/056 | . . {Orbital ball flowmeters} | 1/3209 | {using Karman vortices} |
| 1/06 | . . using rotating vanes with tangential admission | 1/3218 | {bluff body design} |
| 1/065 | . . . {with radiation as transfer means to the indicating device, e.g. light transmission} | 1/3227 | {using fluidic oscillators (fluidic oscillators per se F15C 1/00)} |
| 1/07 | . . . with mechanical coupling to the indicating device | 1/3236 | {using guide vanes as swirling means} |
| 1/075 | . . . with magnetic or electromagnetic coupling to the indicating device | 1/325 | Means for detecting quantities used as proxy variables for swirl |
| 1/0755 | {with magnetic coupling only in a mechanical transmission path} | 1/3259 | {for detecting fluid pressure oscillations} |
| 1/08 | . . . Adjusting, correcting or compensating means therefor | 1/3266 | {by sensing mechanical vibrations} |
| 1/10 | . . using rotating vanes with axial admission | 1/3273 | {for detecting fluid speed oscillations by thermal sensors} |
| 1/103 | . . . {with radiation as transfer means to the indicating device, e.g. light transmission} | 1/3282 | {for detecting variations in infrasonic, sonic or ultrasonic waves, due to modulation by passing through the swirling fluid} |
| 1/106 | . . . {with electrostatic coupling to the indicating device} | 1/3287 | {circuits therefor} |
| 1/11 | . . . with mechanical coupling to the indicating device | 1/34 | . . by measuring pressure or differential pressure |
| 1/115 | . . . with magnetic or electromagnetic coupling to the indicating device | 1/36 | . . . the pressure or differential pressure being created by the use of flow constriction |
| 1/1155 | {with magnetic coupling only in a mechanical transmission path} | 1/363 | {with electrical or electro-mechanical indication (G01F 1/37 and G01F 1/38 take precedence)} |

- 1/366 {with mechanical or fluidic indication (G01F 1/37 and G01F 1/38 take precedence)}
- 1/37 the pressure or differential pressure being measured by means of communicating tubes or reservoirs with movable fluid levels, e.g. by U-tubes
- 1/372 {with electrical or electro-mechanical indication}
- 1/375 {with mechanical or fluidic indication}
- 1/377 {using a ring-balance as indicating element}
- 1/38 the pressure or differential pressure being measured by means of a movable element, e.g. diaphragm, piston, Bourdon tube or flexible capsule
- 1/383 {with electrical or electro-mechanical indication}
- 1/386 {with mechanical or fluidic indication}
- 1/40 Details of construction of the flow constriction devices
- 1/42 Orifices or nozzles
- 1/44 Venturi tubes
- 1/46 Pitot tubes
- 1/48 . . . the pressure or differential pressure being created by a capillary element
- 1/50 . . . Correcting or compensating means
- 1/52 . . by measuring the height of the fluid level due to the lifting power of the fluid flow
- 1/54 . . by means of chains, flexible bands or wires introduced into and moved by, the flow
- 1/56 . by using electric or magnetic effects (G01F 1/66 takes precedence)
- 1/58 . . by electromagnetic flowmeters
- 1/582 . . . {without electrodes}
- 1/584 . . . {constructions of electrodes, accessories therefor}
- 1/586 . . . {constructions of coils, magnetic circuits, accessories therefor (G01F 1/582 takes precedence; magnet; inductances; transformers; selection of materials for their magnetic properties per se H01F)}
- 1/588 . . . {combined constructions of electrodes, coils or magnetic circuits, accessories therefor}
- 1/60 . . . Circuits therefor
- 1/64 . . by measuring electrical currents passing through the fluid flow; measuring electrical potential generated by the fluid flow, e.g. by electrochemical, contact or friction effects (G01F 1/58 takes precedence)
- 1/66 . by measuring frequency, phase shift or propagation time of electromagnetic or other waves, e.g. using ultrasonic flowmeters
- 1/661 . . using light
- 1/662 . . {Constructional details}
- 1/663 . . by measuring Doppler frequency shift
- 1/665 . . {of the drag-type}
- 1/666 . . {by detecting noise and sounds generated by the flowing fluid}
- 1/667 . . Arrangements of transducers for ultrasonic flowmeters; Circuits for operating ultrasonic flowmeters
- 1/668 . . . {Compensating or correcting for variations in velocity of sound}
- 1/68 . . by using thermal effects
- 1/684 . . Structural arrangements; Mounting of elements, e.g. in relation to fluid flow
- 1/6842 {with means for influencing the fluid flow}
- 1/6845 {Micromachined devices}
- 1/6847 {where sensing or heating elements are not disturbing the fluid flow, e.g. elements mounted outside the flow duct}
- 1/688 . . . using a particular type of heating, cooling or sensing element {(G01F 1/6847 takes precedence)}
- 1/6882 {making use of temperature dependence of acoustic properties, e.g. propagation speed of surface acoustic waves}
- 1/6884 {making use of temperature dependence of optical properties}
- 1/6886 {Pyroelectric elements}
- 1/6888 {Thermoelectric elements, e.g. thermocouples, thermopiles}
- 1/69 of resistive type
- 1/692 Thin-film arrangements
- 1/696 . . Circuits therefor, e.g. constant-current flow meters
- 1/6965 {comprising means to store calibration data for flow signal calculation or correction}
- 1/698 . . . Feedback or rebalancing circuits, e.g. self heated constant temperature flowmeters
- 1/6983 {adapted for burning-off deposits}
- 1/6986 {with pulsed heating, e.g. dynamic methods}
- 1/699 by control of a separate heating or cooling element
- 1/704 . . using marked regions or existing inhomogeneities within the fluid stream, e.g. statistically occurring variations in a fluid parameter (G01F 1/76, G01F 25/00 take precedence)
- 1/7042 . . . {using radioactive tracers}
- 1/7044 . . . {using thermal tracers}
- 1/7046 . . . {using electrical loaded particles as tracer, e.g. ions or electrons}
- 1/7048 {the concentration of electrical loaded particles giving an indication of the flow}
- 1/708 . . Measuring the time taken to traverse a fixed distance
- 1/7082 . . . using acoustic detecting arrangements
- 1/7084 . . . using thermal detecting arrangements
- 1/7086 . . . using optical detecting arrangements
- 1/7088 . . . using electrically charged particles as tracers
- 1/712 . . . using auto-correlation or cross-correlation detection means
- 1/716 . . . using electron paramagnetic resonance [EPR] or nuclear magnetic resonance [NMR]
- 1/72 . . Devices for measuring pulsing fluid flows
- 1/74 . . Devices for measuring flow of a fluid or flow of a fluent solid material in suspension in another fluid
- 1/76 . . Devices for measuring mass flow of a fluid or a fluent solid material
- 1/78 . . Direct mass flowmeters
- 1/785 {using fluidic bridge circuits}
- 1/80 . . . operating by measuring pressure, force, momentum, or frequency of a fluid flow to which a rotational movement has been imparted

- 1/82 using a driven wheel as impeller and one or more other wheels or moving elements which are angularly restrained by a resilient member, e.g. spring member as the measuring device
- 1/84 Coriolis or gyroscopic mass flowmeters
- 1/8404 {details of flowmeter manufacturing methods}
- 1/8409 {constructional details}
- 1/8413 {means for influencing the flowmeter's motional or vibrational behaviour, e.g., conduit support or fixing means, or conduit attachments}
- 1/8418 {motion or vibration balancing means}
- 1/8422 {exciters}
- 1/8427 {detectors}
- 1/8431 {electronic circuits}
- 1/8436 {signal processing}
- 1/844 {microfluidic or miniaturised flowmeters}
- 1/8445 {micromachined flowmeters}
- 1/845 {arrangements of measuring means, e.g., of measuring conduits}
- 1/8454 {rotating or rotatingly suspended measuring conduits}
- 1/8459 {vibrating means being located inside the measuring conduits}
- 1/8463 {the measuring conduits' cross-section being deformed during measurement, e.g. by periodically deflecting a portion of the conduits' surface}
- 1/8468 {vibrating measuring conduits}
- 1/8472 {having curved measuring conduits, i.e. whereby the measuring conduits' curved center line lies within a plane (G01F 1/8481 takes precedence)}
- 1/8477 {with multiple measuring conduits}
- 1/8481 {having loop-shaped measuring conduits, e.g. the measuring conduits form a loop with a crossing point}
- 1/8486 {with multiple measuring conduits}
- 1/849 {having straight measuring conduits}
- 1/8495 {with multiple measuring conduits}
- 1/86 . . Indirect mass flowmeters, e.g. measuring volume flow and density, temperature or pressure
- 1/88 . . . with differential-pressure measurement to determine the volume flow
- 1/90 . . . with positive-displacement meter or turbine meter to determine the volume flow
- 3/00 Measuring the volume flow of fluids or fluent solid material wherein the fluid passes through the meter in successive and more or less isolated quantities, the meter being driven by the flow (measuring a proportion of the volume flow G01F 5/00)**
- 3/02 . . with measuring chambers which expand or contract during measurement
- 3/04 . . having rigid movable walls
- 3/06 . . . comprising members rotating in a fluid-tight or substantially fluid-tight manner in a housing
- 3/065 . . . {sliding-vane meters}
- 3/08 . . . Rotary-piston or ring-piston meters
- 3/10 Geared or lobed impeller meters
- 3/12 Meters with nutating members, e.g. discs
- 3/14 . . . comprising reciprocating pistons, e.g. reciprocating in a rotating body
- 3/16 in stationary cylinders
- 3/18 involving two or more cylinders
- 3/20 . . having flexible movable walls, e.g. diaphragms, bellows
- 3/22 . . . for gases
- 3/221 {Valves therefor (valves for flowmeters in general G01F 15/005)}
- 3/222 {characterised by drive mechanism for valves or membrane index mechanism}
- 3/223 {with adjustment of stroke or timing; Calibration thereof; Testing}
- 3/224 {with means for pressure or temperature compensation}
- 3/225 {characterised by constructional features of membranes or by means for improving proper functioning of membranes (diaphragms for flowmeters in general G01F 15/16)}
- 3/226 {characterised by features of meter body or housing}
- 3/227 {characterised by the means for transfer of membrane movement information to indicating means}
- 3/228 {using mechanical transmission means}
- 3/24 . . with measuring chambers moved during operation (wet gas-meters G01F 3/30)
- 3/26 . . Tilting-trap meters
- 3/28 . . on carriers rotated by the weight of the liquid in the measuring chambers
- 3/30 . . Wet gas-meters
- 3/32 . . comprising partitioned drums rotating or nutating in a liquid
- 3/34 . . comprising bells reciprocating in a liquid
- 3/36 . . with stationary measuring chambers having constant volume during measurement (with measuring chambers which expand or contract during measurement G01F 3/02)
- 3/38 . . having only one measuring chamber
- 5/00 Measuring a proportion of the volume flow**
- 5/005 . . {by measuring pressure or differential pressure, created by the use of flow constriction}
- 7/00 Volume-flow measuring devices with two or more measuring ranges; Compound meters**
- 7/005 . . {by measuring pressure or differential pressure, created by the use of flow constriction}
- 9/00 Measuring volume flow relative to another variable, e.g. of liquid fuel for an engine**
- 9/001 . . {with electric, electro-mechanic or electronic means (G01F 9/008 and G01F 9/02 take precedence)}
- 9/003 . . {by measuring the weight}
- 9/005 . . {by using calibrated reservoirs}
- 9/006 . . {with mechanic means (G01F 9/008 and G01F 9/02 take precedence)}
- 9/008 . . {where the other variable is the flight or running time}
- 9/02 . . wherein the other variable is the speed of a vehicle
- 9/023 . . {with electric, electro-mechanic or electronic means}

9/026 . . {with mechanic means}

Metering by volume

11/00 Apparatus requiring external operation adapted at each repeated and identical operation to measure and separate a predetermined volume of fluid or fluent solid material from a supply or container, without regard to weight, and to deliver it

- 11/003 . {for fluent solid material}
- 11/006 . {Details or accessories (general details [G01F 15/00](#))}
- 11/02 . with measuring chambers which expand or contract during measurement
- 11/021 . . {of the piston type ([G01F 11/04](#) takes precedence)}
- 11/022 . . . {of the gun type and actuated by fluid pressure or by a motor (air-operated grease guns [F16N 5/02](#); devices to fill holes or cracks [B05C 17/002](#))}
- 11/023 . . . {with provision for varying the stroke of the piston}
- 11/024 . . . {the pistons reciprocating in rotatable cylinders (dough-dividing machines with division boxes in a revolving body with radially-working pistons [A21C 5/04](#))}
- 11/025 . . . {with manually operated pistons ([G01F 19/005](#) takes precedence)}
- 11/026 {of the gun type (hand operated grease guns [F16N 3/12](#))}
- 11/027 {of the syringe type}
- 11/028 {the dosing device being provided with a dip tube and fitted to a container, e.g. to a bottleneck}
- 11/029 . . . {provided with electric controlling means ([G01F 11/022](#) and [G01F 11/024](#) take precedence)}
- 11/04 . . of the free-piston type
- 11/06 . . . with provision for varying the stroke of the piston
- 11/08 . . of the diaphragm or bellows type
- 11/082 . . . {of the squeeze container type (using squeeze bottles or the like for soap [A47K 5/122](#))}
- 11/084 . . . {using a bulb to pressurise the fluid to be dispersed}
- 11/086 . . . {using an auxiliary pressure to cooperate with the diaphragm or bellows}
- 11/088 . . . {using a deformable conduit-like element}
- 11/10 . with measuring chambers moved during operation
- 11/12 . . of the valve type, i.e. the separating being effected by fluid-tight or powder-tight movements (involving the tilting or inverting of the supply vessel [G01F 11/26](#))
- 11/125 . . . {of the peristaltic pump type (peristaltic pumps per se [F04B 43/12](#))}
- 11/14 . . . wherein the measuring chamber reciprocates
- 11/16 for liquid or semiliquid
- 11/18 for fluent solid material
- 11/20 . . . wherein the measuring chamber rotates or oscillates
- 11/22 for liquid or semiliquid
- 11/24 for fluent solid material
- 11/26 . . wherein the measuring chamber is filled and emptied by tilting or inverting the supply vessel, e.g. bottle-emptying apparatus

- 11/261 . . . {for fluent solid material}
- 11/262 . . . {for liquid or semi-liquid}
- 11/263 {with valves}
- 11/265 {of the ball type}
- 11/266 {using the syphonic effect}
- 11/267 . . . {with counters for counting the numbers of measures delivered}
- 11/268 . . . {with provision for varying the volume to be delivered}
- 11/28 . with stationary measuring chambers having constant volume during measurement
- 11/282 . . {for fluent solid material not provided for in [G01F 11/34](#), [G01F 11/40](#), [G01F 11/46](#)}
- 11/284 . . {combined with electric level detecting means ([G01F 11/282](#), [G01F 11/30](#) - [G01F 11/46](#) take precedence)}
- 11/286 . . {where filling of the measuring chamber is effected by squeezing a supply container that is in fluid connection with the measuring chamber and excess fluid is sucked back from the measuring chamber during relaxation of the supply container}
- 11/288 . . {squeezing of the supply vessel causing filling of the measuring chamber and backflow from the measuring chamber to the supply vessel being prevented by a check valve ([G01F 11/46](#) take precedence)}
- 11/30 . . with supply and discharge valves of the lift or plug-lift type
- 11/32 . . . for liquid or semiliquid
- 11/34 . . . for fluent solid material
- 11/36 . . with supply or discharge valves of the rectilinearly-moved slide type
- 11/38 . . . for liquid or semiliquid
- 11/40 . . . for fluent solid material
- 11/42 . . with supply or discharge valves of the rotary or oscillatory type
- 11/44 . . . for liquid or semiliquid
- 11/46 . . . for fluent solid material
- 13/00 Apparatus for measuring by volume and delivering fluids or fluent solid materials, not provided for in the preceding groups**
- 13/001 . {for fluent solid material}
- 13/003 . . {comprising a conveyor belt}
- 13/005 . . {comprising a screw conveyor}
- 13/006 . {measuring volume in function of time}
- 13/008 . {taps comprising counting- and recording means (counting devices, counting of objects in general [G06M](#))}
- 15/00 Details of, or accessories for, apparatus of groups [G01F 1/00](#) - [G01F 13/00](#) insofar as such details or appliances are not adapted to particular types of such apparatus**
- 15/001 . {Means for regulating or setting the meter for a predetermined quantity}
- 15/002 . . {for gases}
- 15/003 . . {using electromagnetic, electric or electronic means ([G01F 15/002](#), [G01F 15/02](#) take precedence)}
- 15/005 . {Valves (valves in general [F16K](#))}
- 15/006 . {characterised by the use of a particular material, e.g. anti-corrosive material ([G01F 15/14](#) takes precedence)}

- 15/007 . {comprising means to prevent fraud}
- 15/008 . {comprising lubricating means}
- 15/02 . Compensating or correcting for variations in pressure, density or temperature
- 15/022 . . {using electrical means}
- 15/024 . . . {involving digital counting}
- 15/026 . . {using means to maintain zero differential pressure across the motor (G01F 1/08 and G01F 1/12 take precedence)}
- 15/028 . . {for low flow rates}
- 15/04 . . of gases to be measured
- 15/043 . . . {using electrical means}
- 15/046 {involving digital counting}
- 15/06 . Indicating or recording devices
- 15/061 . . for remote indication
- 15/063 . . . using electrical means
- 15/065 . . {with transmission devices, e.g. mechanical}
- 15/066 . . . {involving magnetic transmission devices}
- 15/068 . . {with electrical means (G01F 15/063 takes precedence)}
- 15/07 . Integration to give total flow, e.g. using mechanically-operated integrating mechanism
- 15/075 . . using electrically-operated integrating means
- 15/0755 . . . {involving digital counting}
- 15/08 . Air or gas separators in combination with liquid meters; Liquid separators in combination with gas-meters
- 15/10 . Preventing damage by freezing or excess pressure or insufficient pressure
- 15/105 . . {Preventing damage by hydraulic shocks}
- 15/12 . Cleaning arrangements; Filters
- 15/125 . . {Filters}
- 15/14 . Casings, e.g. of special material
- 15/16 . Diaphragms; Bellows; Mountings therefor
- 15/18 . Supports or connecting means for meters
- 15/185 . . {Connecting means, e.g. bypass conduits}
- 23/003 . {with a probe suspended by rotatable arms (with floats G01F 23/32)}
- 23/0038 . {using buoyant probes (with floats G01F 23/30 - G01F 23/76)}
- 23/0046 . {with a stationary probe, where a liquid specimen is separated from the mean mass and measured (by gauge glasses G01F 23/02)}
- 23/0053 . {with over-flow pipes}
- 23/02 . by gauge glasses or other apparatus involving a window or transparent tube for directly observing the level to be measured or the level of a liquid column in free communication with the main body of the liquid
- 23/04 . by dip members, e.g. dip-sticks
- 23/045 . . {cleaning means therefor (e.g. dip-stick wipers)}
- 23/14 . by measurement of pressure
- 23/16 . . Indicating, recording, or alarm devices being actuated by mechanical or fluid means, e.g. using gas, mercury, or a diaphragm as transmitting element, or by a column of liquid
- 23/161 . . . {for discrete levels (G01F 23/162 - G01F 23/165 take precedence)}
- 23/162 . . . {by a liquid column}
- 23/164 . . . {using a diaphragm, bellow as transmitting element}
- 23/165 . . . {of bubbler type}
- 23/167 {with mechanic or fluid indicating or recording}
- 23/168 {with electric indicating or recording}
- 23/18 . . Indicating, recording or alarm devices actuated electrically
- 23/185 . . . {for discrete levels}
- 23/20 . by measurement of weight, e.g. to determine the level of stored liquefied gas
- 23/205 . . {for discrete levels}
- 23/22 . by measuring physical variables, other than linear dimensions, pressure or weight, dependent on the level to be measured, e.g. by difference of heat transfer of steam or water (involving the use of floats G01F 23/30)
- 23/223 . . {using a melting or dissolving material as a part of alarm-means}
- 23/226 . . {measuring the braking of a rotatable element}
- 23/24 . . by measuring variations of resistance of resistors due to contact with conductor fluid
- 23/241 . . . {for discrete levels}
- 23/242 {Mounting arrangements for electrodes}
- 23/243 {Schematic arrangements of probes combined with measuring circuits}
- 23/244 {comprising oscillating circuits}
- 23/245 . . . {with a probe moved by an auxiliary power, e.g. meter, to follow automatically the level}
- 23/246 . . . {thermal devices}
- 23/247 {for discrete levels}
- 23/248 {Constructional details; Mounting of probes}
- 23/26 . . by measuring variations of capacity or inductance of capacitors or inductors arising from the presence of liquid or fluent solid material in the electric or electromagnetic fields
- 23/261 . . . {for discrete levels}
- 23/263 . . . by measuring variations in capacitance of capacitors

Measuring volume

- 17/00** **Methods or apparatus for determining the capacity of containers or cavities, or the volume of solid bodies (measuring linear dimensions to determine volume G01B)**
- 19/00** **Calibrated capacity measures for fluids or fluent solid material, e.g. measuring cups**
- 19/002 . {Measuring spoons or scoops}
- 19/005 . {for semi-liquid, e.g. fat}
- 19/007 . {for non fluent solid material, e.g. filamentary}
- 22/00** **Methods or apparatus for measuring volume of fluids or fluent solid material, not otherwise provided for**
- 22/02 . involving measurement of pressure

Level indicators

- 23/00** **Indicating or measuring liquid level or level of fluent solid material, e.g. indicating in terms of volume or indicating by means of an alarm**
- 23/0007 . {for discrete indicating and measuring (G01F 23/02 - G01F 23/28 take precedence)}
- 23/0015 . . {with a whistle or other sonorous signal}
- 23/0023 . {with a probe suspended by a wire or thread (with floats G01F 23/40)}

23/265	. . . . {for discrete levels}	23/443	. . . . {using electromechanically actuated indicating means}
23/266	. . . . {measuring circuits therefor}	23/446	. . . . {using opto-electrically actuated indicating means}
23/268	. . . . {mounting arrangements of probes}	23/46	. . . using magnetically actuated indicating means
23/28	. . by measuring the variations of parameters of electromagnetic or acoustic waves applied directly to the liquid or fluent solid material	23/48	. . using twisted spindles as transmission elements
23/282	. . . . {for discrete levels (G01F 23/284, G01F 23/296 take precedence)}	23/50	. . . using mechanically actuated indicating means
23/284	. . . Electromagnetic waves	23/505	. . . . {using hydraulically or pneumatically actuated indicating means}
23/2845	. . . . {for discrete levels (G01F 23/288, G01F 23/292 take precedence)}	23/52	. . . using electrically actuated indicating means
23/288	. . . . X-rays; Gamma rays {or other forms of ionising radiation}	23/523	. . . . {using electromechanically actuated indicating means}
23/2885	. . . . . {for discrete levels}	23/526	. . . . . {using opto-electrically actuated indicating means}
23/292	. . . . Light {, e.g. infrared or ultraviolet}	23/54	. . . using magnetically actuated indicating means
23/2921	. . . . . {for discrete levels}	23/543	. . . . . {using magnets only as coupling means in a mechanical transmission path}
23/2922	. . . . . {with light-conducting sensing elements, e.g. prisms}	23/546	. . . . . {using magnets only for directly actuating of switches}
23/2924	. . . . . . {for several discrete levels, e.g. with more than one light-conducting sensing element (G01F 23/2927 takes precedence)}	23/56	. . using elements rigidly fixed to, and rectilinearly moving with, the floats as transmission elements
23/2925	. . . . . . {using electrical detecting means}	23/58	. . . using mechanically actuated indicating means
23/2927	. . . . . . . {for several discrete levels, e.g. with more than one light-conducting sensing element}	23/585	. . . . . {using pneumatically or hydraulically actuated indicating means}
23/2928	. . . . . . {using light reflected on the material surface}	23/60	. . . using electrically actuated indicating means
23/296	. . . Acoustic waves	23/603	. . . . . {using electromechanically actuated indicating means}
23/2961	. . . . {for discrete levels (G01F 23/2962 - G01F 23/2968 take precedence)}	23/606	. . . . . {using opto-electrically actuated indicating means}
23/2962	. . . . Measuring transit time of reflected waves	23/62	. . . using magnetically actuated indicating means
23/2963	. . . . . {magnetostrictive}	23/64	. . of the free float type {without mechanical transmission elements}
23/2965	. . . . Measuring attenuation of transmitted waves	23/66	. . . using mechanically actuated indicating means
23/2966	. . . . {making use of acoustical resonance or standing waves}	23/665	. . . . . {using pneumatically or hydraulically actuated indicating means}
23/2967	. . . . . {for discrete levels}	23/68	. . . using electrically actuated indicating means
23/2968	. . . . {Transducers specially adapted for acoustic level indicators}	23/683	. . . . . {using electromechanically actuated indicating means}
23/30	. by floats	23/686	. . . . . {using opto-electrically actuated indicating means}
23/303	. . {characterised by means to prevent fault-level readings due to turbulence of the fluid, e.g. special float housings}	23/70	. . . . . for sensing changes in level only at discrete points
23/306	. . {using radioactive radiation}	23/703	. . . . . . {using electromechanically actuated indicating means}
23/32	. . using rotatable arms or other pivotable transmission elements	23/706	. . . . . . . {using opto-electrically actuated indicating means}
23/34	. . . using mechanically actuated indicating means {(G01F 23/38 takes precedence)}	23/72	. . . using magnetically actuated indicating means
23/345	. . . . . {using pneumatically or hydraulically actuated indicating means}	23/74	. . . . . for sensing changes in level only at discrete points
23/36	. . . using electrically actuated indicating means {(G01F 23/38 takes precedence)}	23/76	. . characterised by the construction of the float
23/363	. . . . . {using electromechanically actuated indicating means}	23/80	. Arrangements for signal processing
23/366	. . . . . {using optoelectrically actuated indicating means}	23/802	. . {Particular electronic circuits for digital processing equipment}
23/38	. . . using magnetically actuated indicating means	23/804	. . . {containing circuits handling parameters other than liquid level}
23/40	. . using bands or wires as transmission elements	23/806	. . {Particular electronic circuits for handling non-digital processing equipment}
23/42	. . . using mechanically actuated indicating means	23/808	. . . {containing circuits handling parameters other than liquid level}
23/425	. . . . . {using pneumatically or hydraulically actuated indicating means}	25/00	Testing or calibration of apparatus for measuring volume, volume flow or liquid level or for metering by volume
23/44	. . . using electrically actuated indicating means	25/0084	. {for measuring volume}

- 25/0092 . {for metering by volume}
- 25/10 . of flowmeters
- 25/11 . . {using a seal ball or piston in a test loop}
- 25/12 . . {using tracer}
- 25/13 . . {using a reference counter}
- 25/14 . . {using a weighing apparatus}
- 25/15 . . {specially adapted for gas meters
([G01F 25/11](#) - [G01F 25/14](#), [G01F 25/17](#) take precedence)}
- 25/17 . . using calibrated reservoirs
- 25/20 . of apparatus for measuring liquid level
- 25/22 . . {Checking proper indicating of discrete level by floats}
- 25/24 . . {Testing proper functioning of electronic circuits}