

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS

(NOTES omitted)

INSTRUMENTS

G01 MEASURING (counting [G06M](#)); TESTING

(NOTES omitted)

G01F MEASURING VOLUME, VOLUME FLOW, MASS FLOW OR LIQUID LEVEL; METERING BY VOLUME (milk flow sensing devices in milking machines or devices [A01J 5/01](#); measuring or recording blood flow [A61B 5/02](#), [A61B 8/06](#); metering media to the human body [A61M 5/168](#); burettes or pipettes [B01L 3/02](#); arrangements of liquid volume meters or volume-flow meters in liquid-delivering apparatus, e.g. for retail sale purposes, [B67D 7/16](#); pumps, fluid motors, details common to measuring or metering devices and pumps or fluid motors [F01 - F04](#); {sampling [G01N 1/00](#)}; locating, determining distance or velocity using reflection or reradiation of radio waves, analogous arrangements using other waves [G01S](#); systems for ratio control [G05D 11/00](#); {coin-freed apparatus for metering flow of liquid or gas [G07F 15/00](#)})

NOTE

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

Measuring volume flow

		1/103	. . . {with radiation as transfer means to the indicating device, e.g. light transmission}
		1/106	. . . {with electrostatic coupling to the indicating device}
		1/11	. . . with mechanical coupling to the indicating device
		1/115	. . . with magnetic or electromagnetic coupling to the indicating device
		1/1155	. . . . {with magnetic coupling only in a mechanical transmission path}
		1/12	. . . Adjusting, correcting, or compensating means therefor
		1/125	. . . . {with electric, electro-mechanical or electronic means}
		1/20	. . by detection of dynamic effects of the fluid 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}
		1/24	. . . . with magnetic or electric coupling to the indicating device
		1/26	. . . . of the valve type
		1/28	. . . by drag-force, e.g. vane type or impact flowmeter
		1/30	. . . . for fluent solid material
		1/32	. . . by swirl flowmeter, e.g. using Karmann vortices
		1/3209	. . . . {using Karmann vortices}
		1/3218	. . . . {bluff body design}
		1/3227	. . . . {using fluidic oscillators (fluidic oscillators per se F15C 1/00)}
		1/3236	. . . . {using guide vanes as swirling means}
1/00	Measuring the volume flow or mass flow of fluid or fluent solid material wherein the fluid passes through the meter in a continuous flow (measuring a proportion of the volume flow G01F 5/00; measuring speed of flow G01P 5/00; indicating presence or absence of flow G01P 13/00; regulating quantity or ratio {G05D 7/00, G05D 11/02})		
	<u>NOTE</u>		
	G01F 1/72 , G01F 1/74 and G01F 1/76 take precedence over G01F 1/05 - G01F 1/68		
1/002	. {specially adapted to be used in open channels}		
1/005	. . {using floats}		
1/007	. {by measuring the level variations of storage tanks relative to the time}		
1/05	. by using mechanical effects		
1/053	. . {using rotating vanes with tangential and axial admission}		
1/056	. . {Orbital ball flowmeters}		
1/06	. . using rotating vanes with tangential admission		
1/065	. . . {with radiation as transfer means to the indicating device, e.g. light transmission}		
1/07	. . . with mechanical coupling to the indicating device		
1/075	. . . with magnetic or electromagnetic coupling to the indicating device		
1/0755	. . . . {with magnetic coupling only in a mechanical transmission path}		
1/08	. . . Adjusting, correcting or compensating means therefor		
1/10	. . using rotating vanes with axial admission		

- 1/3245 {detection means for swirl flowmeters
(detection means in general G01H)}
- 1/3254 {for detecting fluid pressure oscillations}
- 1/3263 {by sensing mechanical vibrations}
- 1/3272 {for detecting fluid speed oscillations by
thermal sensors}
- 1/3281 {for detecting variations in infrasonic,
sonic or ultrasonic waves, due to
modulation by passing through the
swirling fluid}
- 1/329 {circuits therefore}
- 1/34 . . . by measuring pressure or differential pressure
- 1/36 . . . the pressure or differential pressure being
created by the use of flow constriction
- 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 or construction of the flow
constriction devices
- 1/42 Orifices or nozzles
- 1/44 Venturi tubes
- 1/46 Pitot tubes (specially adapted for
measuring speed of fluids G01P 5/165)
- 1/48 . . . the pressure of 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 powder 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, phaseshift, or propagation
time of electromagnetic or other waves, e.g.
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 . . . {Schematic arrangements of transducers
of ultrasonic flowmeters; Circuits therefor
(G01F 1/663, G01F 1/665, G01F 1/666 take
precedence)}
- 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}	1/849	. . . . . {having straight measuring conduits}
1/7086	. . . {using optical detecting arrangements}	1/8495	. . . . . {with multiple measuring conduits}
1/7088	. . . {using electrical loaded particles as tracers}	1/86	. . Indirect mass flowmeters, e.g. measuring volume flow and density, temperature or pressure
1/712	. . . using auto-correlation or cross-correlation detection means (G01F 1/7082 - G01F 1/7088 take precedence); measuring speed by using correlation means in general G01P 3/80 , G01P 5/22)	1/88	. . . with differential pressure measurement to determine the volume flow
1/716	. . . using electron paramagnetic resonance [EPR] or nuclear magnetic resonance [NMR]	1/90	. . . with positive displacement meter or turbine meter to determine the volume flow
1/72	. Devices for measuring pulsing fluid flows	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)
1/74	. Devices for measuring flow of a fluid or flow of a fluent solid material in suspension in another fluid	3/02	. with measuring chambers which expand or contract during measurement
1/76	. Devices for measuring mass flow of a fluid or a fluent solid material (weighing a continuous stream of material during flow G01G 11/00)	3/04	. . having rigid movable walls
1/78	. . Direct mass flowmeters	3/06	. . . comprising members rotating in a fluid-tight or substantially fluid-tight manner in a housing
1/785	. . . {using fluidic bridge circuits}	3/065	. . . . {sliding-vane meters}
1/80	. . . operating by measuring pressure, force, momentum, or frequency of a fluid flow to which a rotational movement has been imparted	3/08	. . . . Rotary piston or ring piston meters
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	3/10	. . . . Geared or lobed impeller meters
1/84	. . . . Gyroscopic mass flowmeters	3/12	. . . . Meters with nutating members, e.g. discs
1/8404	. . . . . {details of flowmeter manufacturing methods}	3/14	. . . comprising reciprocating pistons, e.g. reciprocating in a rotary body
1/8409	. . . . . {constructional details}	3/16	. . . . in stationary cylinders
1/8413	. . . . . {means for influencing the flowmeter's motional or vibrational behaviour, e.g., conduit support or fixing means, or conduit attachments}	3/18	. . . . involving two or more cylinders
1/8418	. . . . . {motion or vibration balancing means}	3/20	. . having flexible movable walls, e.g. diaphragms, bellows (diaphragms and bellows therefor G01F 15/16)
1/8422	. . . . . {exciters}	3/22	. . . for gases
1/8427	. . . . . {detectors}	3/221	. . . . {Valves therefor (valves for flowmeters in general G01F 15/005)}
1/8431	. . . . . {electronic circuits}	3/222	. . . . {characterised by drive mechanism for valves or membrane index mechanism}
1/8436	. . . . . {signal processing}	3/223	. . . . . {with adjustment of stroke or timing; Calibration thereof; Testing}
1/844	. . . . . {microfluidic or miniaturised flowmeters}	3/224	. . . . . {with means for pressure or temperature compensation}
1/8445	. . . . . {micromachined flowmeters}	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)}
1/845	. . . . . {arrangements of measuring means, e.g., of measuring conduits}	3/226	. . . . {characterised by features of meter body or housing}
1/8454	. . . . . {rotating or rotatably suspended measuring conduits}	3/227	. . . . {characterised by the means for transfer of membrane movement information to indicating means}
1/8459	. . . . . {vibrating means being located inside the measuring conduits}	3/228	. . . . . {using mechanical transmission means}
1/8463	. . . . . {the measuring conduits' cross-section being deformed during measurement, e.g. by periodically deflecting a portion of the conduits' surface}	3/24	. with measuring chambers moved during operation (wet gasmeters G01F 3/30)
1/8468	. . . . . {vibrating measuring conduits}	3/26	. . Tilting-trap meters
1/8472	. . . . . {having curved measuring conduits, i.e. whereby the measuring conduits' curved center line lies within a plane (G01F 1/8481 takes precedence)}	3/28	. . on carriers rotated by the weight of the liquid in the measuring chambers
1/8477	. . . . . {with multiple measuring conduits}	3/30	. Wet gas-meters
1/8481	. . . . . {having loop-shaped measuring conduits, e.g. the measuring conduits form a loop with a crossing point}	3/32	. . comprising partitioned drums rotating or nutating in a liquid
1/8486	. . . . . {with multiple measuring conduits}	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}
- 11/08 . . of the diaphragm or bellows type ([diaphragms or bellows therefor G01F 15/16](#))
- 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 ([with measuring chambers which expand or contract during measurement G01F 11/02](#))
- 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 and discharge valves of the rectilinearly-moved slide type
- 11/38 . . . for liquid or semiliquid
- 11/40 . . . for fluent solid material

Metering by volume**11/00 Apparatus requiring external operation and 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

- 11/42 . . with supply and 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 the preceding groups 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, e.g. for remote indication
- 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 integration mechanisms
- 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 (filters in general [B01D](#))
- 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}

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 {(powder measuring spoons [A61J](#); burettes, weighing bottles [B01L](#))}**
 - 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, indicating by means of an alarm (in wells [E21B 47/04](#); adaptation to, or mounting on, steam boilers [F22B 37/78](#); level regulation [G05D](#); alarm devices [G08B](#); {for accumulators [H01M 10/48](#))}**
 - 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](#))}
 - 23/003 . {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}
 - 23/0061 . {characterised by the level signal processing means}
 - 23/0069 . . {particular electronic circuits for digital processing equipment}
 - 23/0076 . . . {containing circuits handling parameters other than liquid level}
 - 23/0084 . . {particular electronic circuits for handling non-digital processing equipment}
 - 23/0092 . . . {containing circuits handling parameters other than liquid level}
 - 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 (measuring pressure in general [G01L](#))

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	23/2922	. . . . . {with light-conducting sensing elements, e.g. prisms}
23/161	. . . . . {for discrete levels (G01F 23/162 - G01F 23/165 take precedence)}	23/2924	. . . . . {for several discrete levels, e.g. with more than one light-conducting sensing element (G01F 23/2927 takes precedence)}
23/162	. . . . . {by a liquid column}	23/2925	. . . . . {using electrical detecting means}
23/164	. . . . . {using a diaphragm, bellow as transmitting element}	23/2927	. . . . . {for several discrete levels, e.g. with more than one light-conducting sensing element}
23/165	. . . . . {of bubbler type}	23/2928	. . . . . {using light reflected on the material surface}
23/167	. . . . . {with mechanic or fluid indicating or recording}	23/296	. . . . . Acoustic waves
23/168	. . . . . {with electric indicating or recording}	23/2961	. . . . . {for discrete levels (G01F 23/2962 - G01F 23/2968 take precedence)}
23/18	. . . . . Indicating, recording or alarm devices actuated electrically	23/2962	. . . . . {Transit time measurement}
23/185	. . . . . {for discrete levels}	23/2963	. . . . . {magnetostrictive}
23/20	. . . . . by measurement of weight, e.g. to determine the level of stored liquefied gas (weighing in general G01G)	23/2965	. . . . . {measuring wave attenuation}
23/205	. . . . . {for discrete levels}	23/2966	. . . . . {making use of acoustical resonance or standing waves}
23/22	. . . . . by measurement of 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 use of floats G01F 23/30)	23/2967	. . . . . {for discrete levels}
23/223	. . . . . {using a melting or dissolving material as a part of alarm-means}	23/2968	. . . . . {Transducers specially adapted for acoustic level indicators}
23/226	. . . . . {measuring the braking of a rotatable element}	23/30	. . . . . by floats (switches operated by floats H01H 35/18, {with magnets H01H 36/02})
23/24	. . . . . by measuring variations of resistance of resistors due to contact with conductor fluid	23/303	. . . . . {characterised by means to prevent fault-level readings due to turbulence of the fluid, e.g. special float housings}
23/241	. . . . . {for discrete levels}	23/306	. . . . . {using radioactive radiation}
23/242	. . . . . {Mounting arrangements for electrodes}	23/32	. . . . . using rotatable arms or other pivotable transmission elements
23/243	. . . . . {Schematic arrangements of probes combined with measuring circuits}	23/34	. . . . . using mechanically actuated indicating means {(G01F 23/38 takes precedence)}
23/244	. . . . . {comprising oscillating circuits}	23/345	. . . . . {using pneumatically or hydraulically actuated indicating means}
23/245	. . . . . {with a probe moved by an auxiliary power, e.g. meter, to follow automatically the level}	23/36	. . . . . using electrically actuated indicating means {(G01F 23/38 takes precedence)}
23/246	. . . . . {thermal devices}	23/363	. . . . . {using electromechanically actuated indicating means}
23/247	. . . . . {for discrete levels}	23/366	. . . . . {using optoelectrically actuated indicating means}
23/248	. . . . . {Constructional details; Mounting of probes}	23/38	. . . . . using magnetically actuated indicating means
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	23/40	. . . . . using bands or wires as transmission elements
23/261	. . . . . {for discrete levels}	23/42	. . . . . using mechanically actuated indicating means
23/263	. . . . . {using capacitors}	23/425	. . . . . {using pneumatically or hydraulically actuated indicating means}
23/265	. . . . . {for discrete levels}	23/44	. . . . . using electrically actuated indicating means
23/266	. . . . . {measuring circuits therefor}	23/443	. . . . . {using electromechanically actuated indicating means}
23/268	. . . . . {mounting arrangements of probes}	23/446	. . . . . {using opto-electrically actuated indicating means}
23/28	. . . . . by measuring the variations of parameters of electric or acoustic waves applied directly to the liquid or fluent solid material	23/46	. . . . . using magnetically actuated indicating means
23/282	. . . . . {for discrete levels (G01F 23/284, G01F 23/296 take precedence)}	23/48	. . . . . using twisted spindles as transmission means
23/284	. . . . . Electromagnetic waves	23/50	. . . . . using mechanically actuated indicating means
23/2845	. . . . . {for discrete levels (G01F 23/288, G01F 23/292 take precedence)}	23/505	. . . . . {using hydraulically or pneumatically actuated indicating means}
23/288	. . . . . X-rays; Gamma rays {or other forms of ionising radiation}	23/52	. . . . . using electrically actuated indicating means
23/2885	. . . . . {for discrete levels}	23/523	. . . . . {using electromechanically actuated indicating means}
23/292	. . . . . Light {, e.g. infra-red or ultra-violet}	23/526	. . . . . {using opto-electrically actuated indicating means}
23/2921	. . . . . {for discrete levels}	23/54	. . . . . using magnetically actuated indicating means

- 23/543 {using magnets only as coupling means in a mechanical transmission path}
- 23/546 {using magnets only for directly actuating of switches}
- 23/56 . . using elements rigidly fixed to and rectilinearly moving with the floats as transmission elements
- 23/58 . . . using mechanically actuated indicating means
- 23/585 {using pneumatically or hydraulically actuated indicating means}
- 23/60 . . . using electrically actuated indicating means
- 23/603 {using electromechanically actuated indicating means}
- 23/606 {using opto-electrically actuated indicating means}
- 23/62 . . . using magnetically actuated indicating means
- 23/64 . . of the free float type {without mechanical transmission elements}
- 23/66 . . . using mechanically actuated indicating means
- 23/665 {using pneumatically or hydraulically actuated indicating means}
- 23/68 . . . using electrically actuated indicating means
- 23/683 {using electromechanically actuated indicating means}
- 23/686 {using opto-electrically actuated indicating means}
- 23/70 for sensing changes in level only at discrete points
- 23/703 {using electromechanically actuated indicating means}
- 23/706 {using opto-electrically actuated indicating means}
- 23/72 . . . using magnetically actuated indicating means
- 23/74 for sensing changes in level only at discrete points
- 23/76 . . characterised by the construction of the float

25/00 Testing or calibrating apparatus for measuring volume, volume flow or liquid level, or for metering by volume

- 25/0007 . {for measuring volume flow}
- 25/0015 . . {using a seal ball or piston in a test loop}
- 25/0023 . . {using tracer}
- 25/003 . . {using a reference counter}
- 25/0038 . . {using a calibrated reservoir}
- 25/0046 . . {using a weighing apparatus}
- 25/0053 . . {specially adapted for gas meters
([G01F 25/0015](#) - [G01F 25/0046](#) take precedence)}
- 25/0061 . {for measuring liquid level}
- 25/0069 . . {checking proper indicating of discrete level by floats}
- 25/0076 . . {testing proper functioning of electronic circuits}
- 25/0084 . {for measuring volume}
- 25/0092 . {for metering by volume}